Catalina 350



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Years ago I heard a quote, the origin of which I can't recall, that said "there's nothing new under the sun". How wrong that statement is never ceases to amaze me because whenever we begin to prep for a new issue of *Mainsheet*, owners come forward with ever-more-imaginative new ideas that seem so simple and so obvious that I wonder why no one ever thought of them before. I'm not a very creative type but this month I even have a couple of submissions of my own! I will confess that someone else told me about both of them, but I'm not aware of anyone who had ever tried them so I guess I can claim some credit for that! Both deal with situations that have nagged all of us for a long time and both have provided me with some relief toward the resolution of the problems.

Additionally, John Amann has developed and installed a fuel polishing system that is very exciting and for sailboats on which fuel is not overturned too regularly, or for sailors who fuel up at places where the fuel turnover might not be great, it would seem to be to be a great precautionary measure.

Last, Bob Neaderthal has a great solution for those who have had, or suspect, water tank contamination problems and it seems to be a workable solution to remedy that situation.

Another Approach to Head Flushing

I've read with great interest the several approaches that C350 owners have taken to resolve the head flushing issue using fresh water and each appears to be a viable solution.

However, while I was in one of my shopping modes at a boat supply store a couple of weeks ago, I came across another alternative that I thought bears merit. It's called a "Sanitary In-line Treatment Device" and it's advertised by the manufacturer, Earth Safe Sanitation Systems, as "a complete toilet treatment system that works!" It has to be installed in the inflow line to the toilet and downstream of the screen filter. (This is essential because the device has tiny little holes on the inside of it through which the water flows and if the water wasn't screen-filtered before it got to the device it would surely plug them up in no time). It uses an "Earth Safe Toilet Treatment Tablet" to keep the water blue and fresh-smelling with every flush. So I had a discussion about it with the store manager, who is a trawler live-aboard, and who has the device installed on his boat. He was so enthusiastic about it that I bought one ($42.99) and carried it back to my boat.

I spent quite a bit of time trying to figure out where to install it because the space behind the toilet that houses the holding tank and toilet inflow screen filter is already quite crowded. Also, since nothing is quite foolproof, I still wanted to save room to install one of the fresh water flush systems that other owners have devised. Also, although the box states that it can be installed in any position, I was skeptical of that so I called the manufacturer and sure enough, they strongly recommend that it be installed horizontally. I finally decided that since the unit is white and not too bad looking, and as I constantly remind my wife that "after all, this is a boat!", I would install it on the wall behind the toilet, just below the holding tank/filter access door.

Unfortunately, if the device is screwed directly onto a flat wall, the knurled top that has to be removed to install new blue tablets cannot be turned. So spacers have to be installed behind the screwhole tabs. (With all due respect to design engineers, I'm always fascinated by little mistakes like that). The correct screw length must be determined by adding up the thickness of the wall, which is 9/16", the thickness of the screw tab, which is 1/8", the thickness of whatever spacer the installer uses (I used a 1/16" piece of white plastic) and using a screw a little bit shorter than the total (I used 3/4").

In order to screw in the two bottom screws, the toilet seat must be removed.





Then hold the device against the wall and mark and drill the screw holes. Next close the thruhull, flush for a few seconds to clean out the line and if possible, remove the inflow line at the base of the toilet. (Use a fairly large cup to catch the residue water that will flow out of the line). Then cut the line off at the appropriate length and fasten it to the inflow side of the device with two hose clamps. (I was unable to remove the hose from the base of the toilet so I cut the line off at the proper length and installed it on the inflow side of the device; then I slit the other end at the base of the toilet with a utility knife to get it off). Then, if you were able to remove the hose from the base of the toilet, reinstall it and attached the other end to the outflow side of the device with two hose clamps. If you weren't, install a new hose, cut it off at the appropriate length and also fasten the other end to the device.

Then screw the device to the wall, reinstall the toilet seat and open the thruhull. You won't see blue immediately because it takes the tablet a while to soften up and begin to dissolve, but soon you'll see clean-smelling water with a slight blue tint when you flush!

The concentrated tablets are formaldehyde-free, cost $32 for a package of four, and last about two weeks for liveaboards and about twice that for weekenders. (The package claims they will last a month and the store manager confirms that they will if you simply put a vertical slit in the front and the back of the plastic package each tablet comes in, as the instructions say to do, and put it into the receptacle that way instead of removing it from the package).

Other than installing a coat hook or replacing the used-up roll of toilet paper, this may the easiest thing I've ever done on a boat and it's nice to know that the water coming into the toilet is treated with every flush.

As I wrote earlier, nothing is completely foolproof and I've found that there is still some odor when I return to the boat after a week or so. However, I've remedied this by using the following close-up procedure: close the in-flow thruhull, flush the toilet until it is nearly

empty and pour in about ¼ cup of your favorite sanitizer liquid.

Happy flushing!…errrrr, I mean Happy Sailing!! –*Skip Penizotto,* Ithaca, *Hull #230*

An Answer to Those Irritating Hull Streaks

Last winter I was lamenting to my friend, Tim Ryan, about the hull streaks that invariably form on most boats as rain water runs down the toe rails, through the overboard slots and down the hull. Tim described a remedy to me that he had heard about but hadn't yet tried so he wasn't sure how well it had worked. I'll try anything to keep my boat clean so I thought I'd give it a whirl.

I went to Home Depot and purchased a roll of self-adhesive foam window insulation – 1 to 1 ¼" wide will do. Then I cut 4" strips of it and stuck them to the hull, just below the rub rail and centered on each of the drain slots. As the dirt-laden rain water (which is really dirt-laden in Baltimore!) flows through the slots and through the insulation, the foam acts as a filter, trapping most of the dirt and letting the cleaner water flow through and down the hull.

The foam starts out as a light beige in color but as it traps more and more dirt, it of course gets darker and blacker. However, I found that if I periodically squirt it with a hose, a large portion of the dirt is washed out, down the hull and into the water and then it gets lighter again. "Cleaning" it this way is essential because as it fills up with dirt, it becomes less and less effective. The elements eventually destroy it but I've found that it lasts close to two months, after which it can simply be peeled off and replaced. (The adhesive residue has to be removed with one of a variety of cleaning products but it's not much of a job).

For just a few dollars in cost and with very little effort, this installation has prevented about 90% of the black streaking on the hull of my boat. –*Skip Penizotto,* Ithaca, *Hull #230*

Fuel Polishing System

After hearing several horror stories from some of my sailing buddies about bad diesel fuel I decided to install a basic fuel polishing system on our Catalina 350. For those who may not know what a fuel polisher is or does, it circulates and filters fuel, independent of engine filtering systems and it also provides for water separation. The system I installed has the capacity to clean a full tank of fuel in under two hours.

Here is the list of materials:

- Racor 500G Fuel Filter – (This is the same filter that is installed from the factory) (eBay)
- 2 - Racor 13/16 UPT – 3/8" NPT adaptors (West Marine)
- 2 – 3/8" NPT Street ELs (Lowes)
- 2 – 3/8" NPT – 3/8" barb adaptors (Lowes)
- 2 – 1/4" NPT – 3/8" barb adaptors (Lowes)
- Carter Electric Fuel Pump P4389 – This is marine rated 12 volt / 72 GPH (eBay)
- 20 Feet of 3/8" Marine Fuel Line (West Marine)
- 6 – small stainless steel hose clamps (Lowes)
- 50' of 16/2 wire (Lowes)
- Teflon Tape (Lowes)









As indicated above, I found the two most expensive parts on eBay for a total cost of $235.00, including tax and shipping. The rest were obtained for less than $75.00 from Lowes and West Marine.

First, after assembling the fuel pump I installed it on the bulkhead that separates the fuel tank and the prop shaft using the hardware provided with the pump. Three 3/8" holes must be drilled in the bulkhead (see photo #1). I then ran the 16/2 wire toward the back, around the stern locker and into the rear berth area. There already is a wiring harness there that can be piggy backed all the way to the circuit breaker panel. I powered the pump from one of the spare circuit breakers in the panel.

Next, I installed the fuel filter on the back side of the tray inside the port cockpit locker (see photo #2). I used

a piece of old baseboard molding as a backer board to strengthen the support for the filter bracket. It will be necessary to drill 2 – 3/8" holes to mount the filter. The Racor adaptors must be threaded to the filter (without Teflon Tape). Then thread the 3/8" Street ELs to the Racor adaptors and the 3/8" barb adaptors to the Street ELs (use Teflon Tape for these connections).

I did some research with Catalina and the fuel tank manufacturer to help me figure out which of the remaining taps on the tank are source and return (these are originally there for use with a genset). I discovered that the two most forward taps are for the source.

My boat came with these connected to the engine so I had to do a little rearranging.

First, I removed the threaded plugs from the two unused taps on the tank. Then I removed the fuel return line that is attached to the second tap (the engine source is the one that is furthest forward – see photo #3). Then I removed the barb adaptor on tap number 2 and moved it to the number 3 position and reattached the engine fuel return. Last, I installed the 1/4" NPT – 3/8" barb adaptors onto taps number 2 and 4. (Teflon tape must be used on all of these connections).

Next, I attached a 9' piece of fuel line from tap number 2 to the input side of the fuel filter. Then I attached an 8' piece of fuel line from the output side of the filter to the input side of the fuel pump. The remaining piece of fuel line must then be attached from the output side of the pump to tap number 4. I then secured all the connections with hose clamps.

The last step is to prime the system. I filled the filter with fuel, resealed the lid and started the pump. I had to repeat this several times but it did eventually work.

I plan to run this system periodically and monitor the condition of the filter and the fuel in the inspection bowl. There is one thing to be aware of about the original primary filter installed on the C350. While it is a Racor 500G, there is not enough volume and/or pressure from the engine fuel pump to take full advantage of the Racor turbo action.

This was a relatively easy system to install. Once I had all the parts the total install time was less than four hours. I hope this will remove any risk of clogged fuel filters on the engine. *–John Amann,* Just Add Wind, *C350 Hull #347*

What's In Your Water Tanks?

Recently my friend Barry and I cut a 6 inch hole in our salon water tank. As soon as we broke through, Barry asked me if I was sure that we had opened the water tank and not the holding tank! The tank looked like it was full of human waste, not water, and it didn't smell too good either. I assured him that it was indeed my water tank. What he was looking at was just algae and slime. Since I purchased *Doc Holiday* (hull # 61) four years ago our water tanks had not been cleaned simply because there was no way to do it. This article will describe how I discovered Ronco inspection plates and installed them in one weekend.

Although my tanks were unbelievably filthy when I first peered into them that summer day, they will never again be that way. The completed project not only allowed me to clean the tanks, but it also gave me easy access to re-clean them as often as needed. It is likely that other Catalina owners also have fresh water tanks that are similarly caked with slime and algae but do not know it because they have no way to look into their tanks. This entry to *Mainsheet* will give the reader the "how-to" guide to installing inspection plates in Catalina water tanks.

How was it possible that our tanks had gotten so filthy in 4 years? *Doc Holiday* sails in a fresh water lake and my wife Julie and I had been very careful about the quality of water we put into her three tanks. We had been forewarned that water from our dock was contaminated due to dirt and organisms that lived in the water lines, so we used only city water taken directly from the marina clubhouse. We always used a filter to strain out particulates. Each year we "shocked" the tanks with a cup of Chlorox, and we drained our tanks in the fall and winterized with vodka and pink antifreeze. It's possible that a foreign substance could have been introduced into the tanks at some point but other than that, it's a mystery as to why my tanks were in this condition.

I knew something was terribly wrong when we began having fresh water pump problems. At times the pump would suddenly and inexplicably turn on for a second in the middle of the night. Other times it would run but the faucet would drop to a trickle. We replaced the check valve but found that the water strainer in the pump had to be cleaned out with a toothbrush every few weeks. It was this slime in the strainer that caused me to want to know what was inside our tanks. We found they were so dirty that the water level gauge could not even "read" the level accurately!

I called Ronco, the company that manufactures water tanks for Catalina, and I spoke with a gentleman named Rich who was very helpful. That company sells three sizes of inspection plates (4 inch, 6 inch, and 8 inch). The removable part of the plate can be ordered with choice of white or clear center. Rich recommended I buy 6 inch plates for ease of reaching into the tank for cleaning. (I have the aux water tank installed under the port settee). The clear center makes viewing the water easier without opening the port. Each 6 inch plate costs $35.00 plus shipping. My order from California arrived in 3 days and came with stainless steel bolts and nuts. Rich also told me that some Catalina tanks are manufactured with 3-inch inspection plates and others are not. Now that I have 6 inch plates, I think that the 3 inch ports are entirely too small to thoroughly clean the tank. If you want to upgrade to larger plates, or if your Catalina has water tanks without inspection plates, you also may want to take my advice and install nice large plates in your tanks. If you have never seen what could be growing in your tanks, be forewarned.

However, there is something else of which you should be aware. Rich at Ronco mentioned that the inspection plates are rigid and have no flexibility but the water tanks are flexible and expand when filled with water.

However, there is something else of which you should be aware. Rich at Ronco mentioned that the inspection plates are rigid and have no flexibility but the water tanks are flexible and expand when filled with water. Also, the surface of the tanks have a finish that makes it very difficult for any adhesive to adhere to. For these reasons, there is always the possibility that there will be some minor leakage due to overfilling or in a hard heel. So when refilling your tanks , it would be a good idea to not fill them to the very top. If you'd like, you can fill them nearly to the top and recalibrate the gauge for "full." Since I wanted to find out if there are any leaks

especially when heeling, I did fill my tanks full initially.

Step-by-Step guide to installing Ronco Inspection plates.

1. Determine where you want to cut your holes in each tank. The salon tank is smaller and easier to reach so I installed only one plate in that tank. It is just to the right of the exhaust. I installed two plates in both the forward and aft tanks.

2. With a permanent marker trace the inside diameter and outside diameter of the plate on the tank. Your cut will be inside the space between the two circles. If you are expert with a jigsaw, your cut will be exactly insidethe larger circle.

3. First drill a 1/4 inch hole next to the cut line so you can introduce your saw blade. Then cut the 6 inch hole with a jig saw using a fine blade. Give your self plenty of light and cut slowly because the shavings will accumulate on the cut line and obscure your view.

4. Once you cut your hole, use a file to smooth the edges. If the hole is too small, you will need to enlarge it (not an easy task) so try to cut it right the first time. Clean the tank thoroughly. I used Soft Scrub and bleach. You may want to use a hand mirror to check the parts of the tank that you cannot see directly.

5. Put the outer ring of the inspection plate into the hole, mark the bolt holes and drill them. I just put the drill bit right through the plate holes, holding the plate down firmly. Remove the drill shavings to keep them from finding their way to the water pump.

6. Take the inspection plate out of the hole and turn the outer ring upside down. Smear A LOT of silicone on both the underside and the lip of the plate. I used a whole tube for two tanks. Then insert the outer ring back into the hole and put all 6 bolts in. If you put silicone in the holes and it gets on the bolts don't worry, that acts to your advantage. Apply the lock nuts provided but make sure you put them in with the plastic side down. Stainless steel washers (not provided) are optional. Hold the nut with a ratchet wrench as you screw each bolt on with a Phillips head screwdriver. Do NOT tighten the bolts down all the way at this time. Silicone sealant should season for 24 hours. Leave the plate alone until the next day. Then when you tighten the bolts the seasoned silicone will form a gasket seal that should be water tight. I added a little more silicone around the outside of the plate where it contacts the water tank.

7. Do not screw the center plate in until you have finished the project. If any wet silicone gets on the center plate it may "freeze" it and make it impossible to remove. Make sure there is no wet silicone in the threads of the center plate.

8. Before filling your tanks with water (and a little bleach), make sure there are no plastic shavings in the tank that could flow to the water pump. Such shavings may have come from drilling the bolt holes or filing the edge of the hole. When I tightened the center plate by hand and filled the tanks there was some leakage around the center. I used the Deck Plate wrench (also called a Y wrench, or spanner wrench, available from Catalina) to tighten the plate cover enough to make it water tight.

9. When your tanks are dry, this a good time to calibrate your tank level gauge in the empty mode. Inspection plates can be ordered directly from Ronco by calling Rich at 714-259-1385. The link to see the plates is http://www.ronco-plastics.net/accessories.html.

So now my water tanks are clean and I have access so I can keep them clean. Also, my poor water pump will no longer be clogged with sludge and slime. I now have piece of mind that my shower and dishwashing water is not dirtier than the lake water in which I sail. The entire project took me nearly 12 hours but it definitely enhanced the value and enjoyment of the boat. I hope that my experience will be helpful to other C350 owners and may serve as a worthwhile project for other Catalina boats owners.

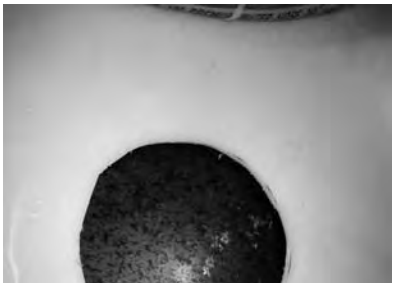
The photographs show cutting the opening for the inspection plate (1), the slime I saw when the opening was exposed (2), clean tanks (3), installing the bolts (4), and the plates when finished and tightened down (5). *–Robert Neaderthal,* Doc Holiday, *Hull # 61*



Cutting the hole in the salon water tank



Gross algae seen through cut hole



Same hole after cleaning out algae.



Installing inspection plate after drilling holes and applying silicone



Completed inspection plate in salon tank.



Completed inspection plate in forward tank. Note the deck plate wrench used to tighten the plate.