

1978 Catalina 30 Hull Number CTYN0987M78F Refit Replacement of Pipe Stem/Gate Valve Thru-Hulls

Catalina drilled holes through the hull, placed brass pipe nipples in the holes, and glassed the brass pipe nipples to the hull. Brass gate valves were then threaded onto the pipe nipples. This comprised the original thru-hull equipment. There are three thru-hulls: one brings in water for the helm (under the port settee), one is the raw water intake for engine cooling (engine compartment on the port side), and one is the sink drain (port side aft of the engine compartment next to the water lift muffler). Here is one of the original thru-hulls:



Much was said about the need to replace these on the C30 forum, they were also identified as requiring replacement by the purchase survey.

Step 1: Removal

After I remove all attached hoses I tried removing the valves with a wrench. That did not work, and I was forced to use my small rotary tool and a cutting wheel to cut through the fiberglass surrounding the pipe nipple as well as the pipe nipple. This was very slow work. Once I had the valve and most of the nipple cut out of the way I thought I would be able to push the remainder of the pipe nipple out of the hull. This did not work either; the remaining pipe nipple would not budge. I was forced to drill a sequence of holes in the hull all around the pipe nipple to get it out.

The two transducers for depth and speed were also removed.

The comments on read on the C30 forum and the survey report made this sound like a critical issue and a serious safety hazard. One person on the C30 forum said the pipe nipples almost “fell out of the hull” when pushed on. It took me around three hours per thru-hull to remove. They were fastened to the hull like iron.

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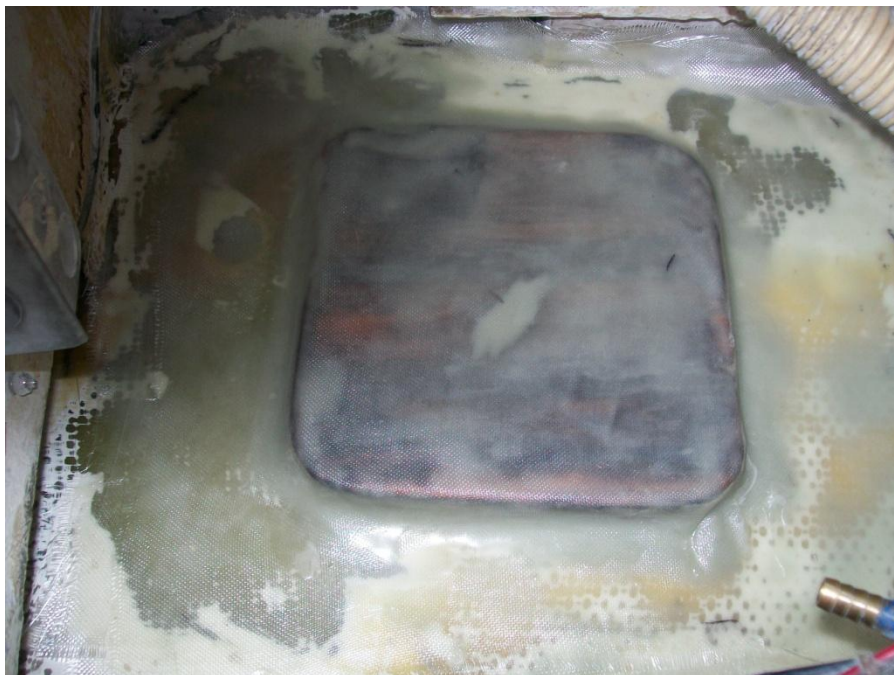
Step 2: Preparation for Installation of Seacocks and Engine Scoop

A household cleaner was used to remove as much filth as possible from around the area of the old pipe nipples on the inside of the hull. A right-angle grinder with a 36 grit sanding wheel was used to grind away all of the old fiberglass and gel coat down to the original hull glass layers in roughly a one square foot area around each opening. The holes through the hull were smoothed with a rat tail file. The area was then cleaned thoroughly with acetone.

Tape was placed on the outside of the hull over the holes. The prepared area was painted with epoxy, and then a layer of epoxy thickened with milled fiberglass was spread over the area filling the hole. Two layers of fiberglass cloth, a layer of woven roving, two layers of fiberglass cloth, a layer of woven roving, and two layers of fiberglass cloth were then applied.



Here is the inside hull area around the thru-hull under the forward settee.

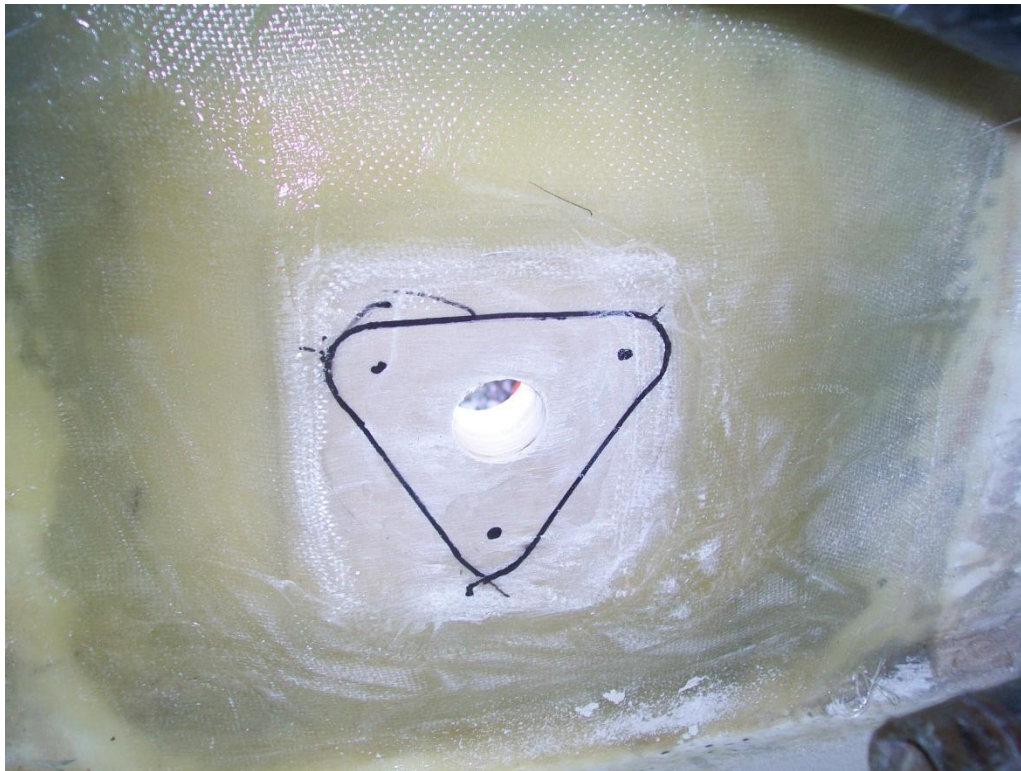


Here is the inside hull area around the thru-hull at the aft end of the engine compartment.

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A one-half inch thick piece of solid fiberglass board material was then applied as a backing board. Following sanding and cleaning of the underlying fiberglass with acetone, the area was painted with epoxy and then covered with a thick layer of epoxy and milled fiberglass mixed to a peanut butter thickness. This thickened mixture filled in the gaps between the straight fiberglass board and the curved hull. The fiberglass board was held in place by a small machine screw (#6), washers, and nut placed in a hole drilled through the center of the hole in the hull.

When this had set, the area was again sanded and cleaned with acetone. The edges of the fiberglass backing board and surrounding area were painted with epoxy and a fillet of epoxy thickened with milled fiberglass was placed around the edges of the fiberglass backing board. The edges of the fiberglass backing board and the surrounding hull area was then covered with six layers of fiberglass cloth.



Here is the thru-hull under the forward port settee. This is ready for drilling to install the seacock.

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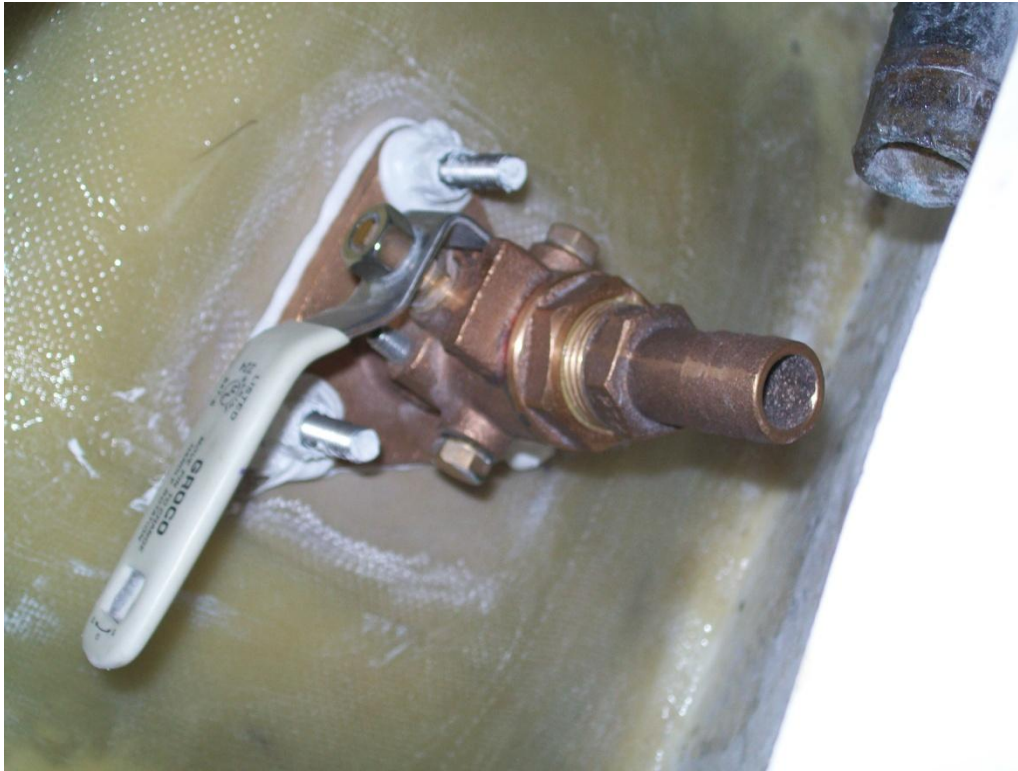


Here is the thru-hull for the engine scoop; the depth gauge and speed holes are at the bottom of the picture. The area where the engine scoop nut will tighten against as well as the bolt nuts has been sanded flat. You can see the solid fiberglass backing board, the fillet of thickened epoxy, and cloth layers.

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Step 3: Installation of Seacocks and Engine Scoop

The holes through the hull and bolt holes were drilled. The bolt holes on the outside of the hull were countersunk. Stainless steel bolts, washers, lock washers, and nylon lock nuts were used. Brass would have been ideal, but is a soft metal and difficult to work with. Stainless steel and brass are fairly close on the compatibility scale. A liberal coating of LifeCalk sealant was used.



Here is the installed seacock under the forward port settee.

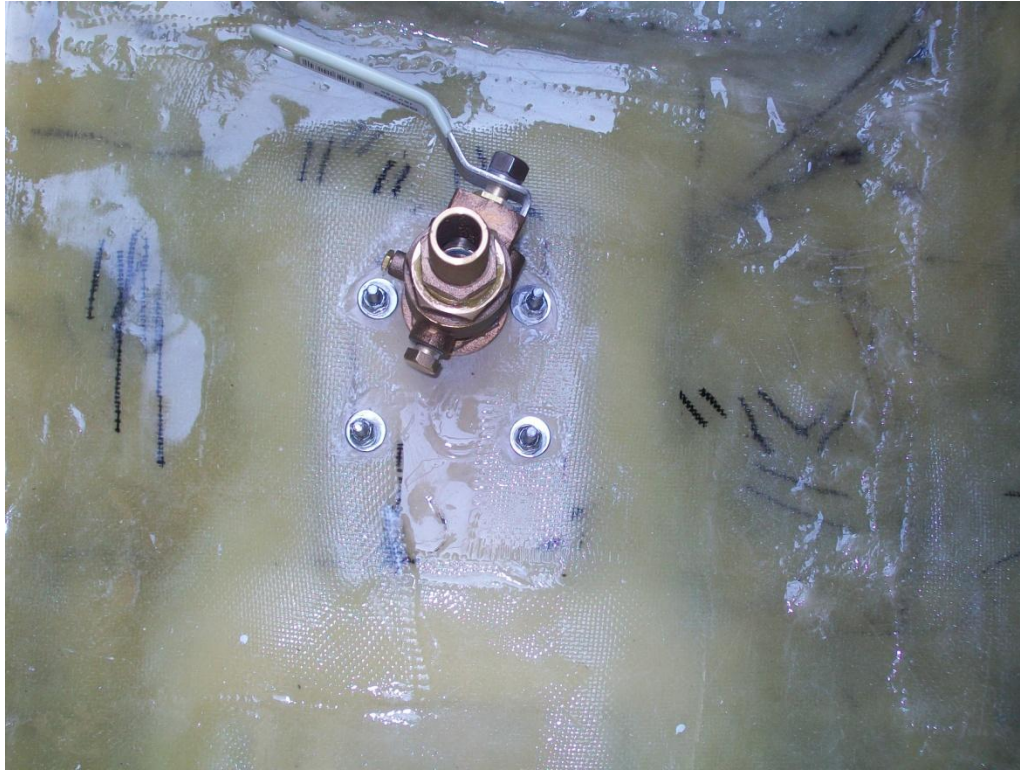
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Here is the installed seacock at the port aft end of the engine compartment.



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Here is the installed engine scoop.



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Here is the installed depth and spend thru-hulls.

