

Catalina 320 – Mixing Elbow and Muffler Replacement Project

Danny Jensen, A Boa Vida Hull #972 , Redondo Beach CA

Here are the details of my mixing elbow / aqua lift muffler replacement project.

I have about 500 hours on a 2004 C320 with a Yanmar 3GM30F-YEU. The mechanic recommended I change the mixing elbow in the next 12 months. The U Mixing Elbow inside was corroded at the point where the raw cool raw water mixes with exhaust. The riser appeared to be in good shape but the two parts looked to be bonded together and my mechanic told me to replace the entire assembly Elbow, riser and join. I read several owners accounts of failed mixing elbows and mufflers / muffler repairs. The lead time to get a muffler from Catalina was estimated to be 2 months. The general consensus was to replace the muffler after about 10 years. Mufflers seem to fail mostly near the screw holes in the corners. Some owners think this is due to vibration from the engine exhaust hose. I used Jeff Hares rule and decided to replace the muffler on my schedule instead of the boats schedule especially because of the 2 month lead time for the muffler. The cost of the muffler from Catalina was \$374.

I contacted Ken Roy at Catalina and gave him my hull number and some pictures and dimensions of my existing muffler (it is for sale now). Ken asked for some more dimensions. Ken sent me back a picture of the muffler he proposed to make for me and requested payment. It took about 2 months total to get the muffler. I ordered the gasket, mixing elbow, SS joint and riser exhaust from Bayshore Marine(see below). Next, I considered the muffler vibration issue. Some owners felt that a hump hose would isolate the vibration from the engine to the muffler. The existing wet exhaust hose connecting mixing elbow to muffler input was a 22 inch 2 in. id. I decided replace with 2 hose segments of more flexible trident corrugated exhaust hose joined together with an exhaust hump hose I purchased from Catalina Direct.

Here are the details. The procedure took about 3.5 hours including driving home once.

1. I turned off the raw water thru hull, disconnected the 3/8 hose connection at the elbow, the 4 riser exhaust bolts came off with no problem. Then I disconnected the elbow from the 2 in. exhaust hose. I used a radiator hose pick to remove the hoses. They came right off with no problem. Don't sweat removing the hoses.
2. I took the old elbow assembly home where I used it for reference to create the new assembly using a vise. I don't believe you can create the new assembly without the help of a vise and 2 large adjustable 15 in wrenches. Don't try to make the new assembly on your boat! You will need to twist the 3/8 in input 180 degrees then you will need to create the exact same angle as the old elbow by threading the joint into the elbow and exhaust riser. I used high temperature anti seize on the joint threads before assembly.
3. I used a gasket scraper to easily remove the old gasket. Then I applied some high temp gasket seating material to both sides of the new gasket and bolted the elbow assembly to the motor.
4. I removed the 4 stainless screws securing the muffler to the boat and I removed the output exhaust hose from the old muffler using the radiator hose pick. The hoses come off the muffler without any problem. The muffler comes out of the boat without any problem.
5. I put the new muffler in place and connected the output exhaust hose without any issues. I found the screw holes on the new muffler did not match the screw holes on the muffler. I could get the 2 screw holes forward to line up but then the aft screw holes with not align with the existing holes. Access to the forward inboard screw is somewhat limited so you will want to match the forward inboard screw with the existing hole then use a drill motor to self tap new holes with the muffler in place. The existing self-tapping screws were in good shape and I did not need to drill pilot holes, I just drove the screws into the glass with the muffler in place after I screwed down the forward screws. Apply a good amount of silicon grease to the muffler drain.

6. I used a sawzall to cut an 8 in and 13 in segment of corrugated exhaust hose then I joined them with a hump hose using double hose clamps on each side of the hump hose. Then I connected the hose to the mixing elbow and the input side of the muffler.

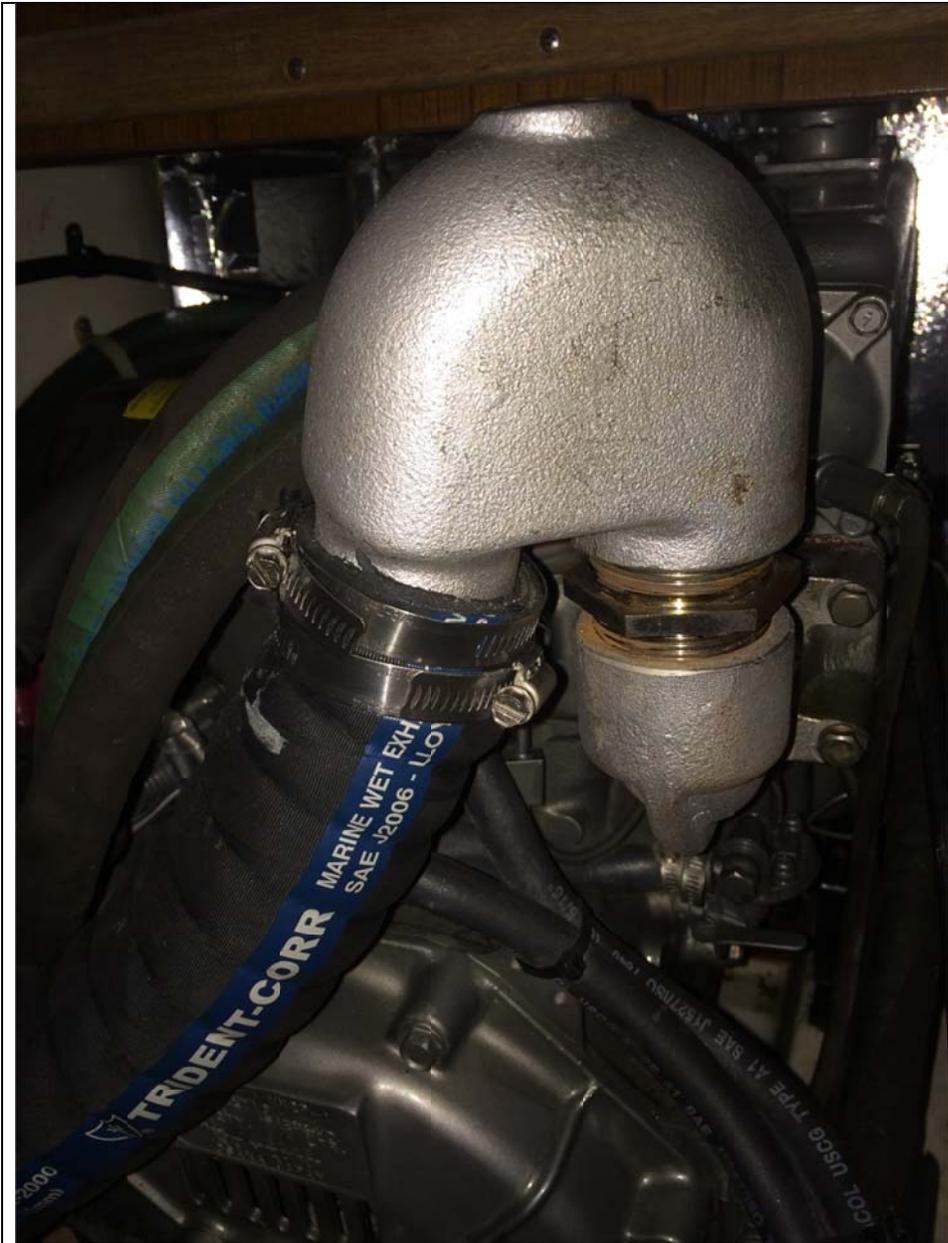
7. I turned on the thru hull and ran the engine. White fiberglass chips from the new muffler were spitting out the exhaust for a while. No leaks. The hump hose appeared to do the job limiting vibration. I left the rear engine cover off and took the boat out in open water and ran the motor up 3000 RPM. I went below and to my surprise I saw smoke coming from the exhaust riser side of the stainless steel joint nut! No water. It appeared that the joint was oozing and burning anti-seize. After about 10 minutes this smoking stopped. I'm assuming this is normal but it spooked me. I'm going to put a co2 monitor in the aft cabin to make sure I don't have gas leaks.



View From Top of Mixing Elbow. Used flexible hose 8" and 13" segments



Hump host from Catalina Direct to dampen vibration



I replaced both parts of the mixing elbow. Best to use a vise marry the stainless sleeve.





Parts:

bayshore marine:

128370-13201 gasket \$4.92
124070-13520 U mixing elbow \$169.33
128370-13610 riser exhaust \$130.39
104214-13580 joint \$28.79

Note:

27233-250000 plug comes with 124070-13610
124070-13300 elbow 3/8 comes with 124070-13610

Parts from Catalina Yachts (K...@catalinayachts.com)

1 Muffler \$374 plus Shipping

Parts from Catalina direct:

High Temp Anti-Seize Compound (#Z2858): 1
Item Total: \$15.95
Exhaust Hump Hose 1-5/8" I.D X 6" (#Z2152): 1
Item Total: \$31.49

Tools Harbor Freight

8" Radiator Hose Pick \$3.99
Carbon/Gasket Scraper \$2.99
High Temp Gasket seating compound

MMI Marine

TRI252-2004

TRIDENT CORRUGATED FLEX SAE J2006 MARINE WET EXHAUST HOSE (HARD WALL WITH WIRE) - 2

Feet \$15.00

BUA70HSS36C

BUCK HOSE CLAMPS S/S FROM 1 13/16" TO 2 3/4" 4 \$8.00