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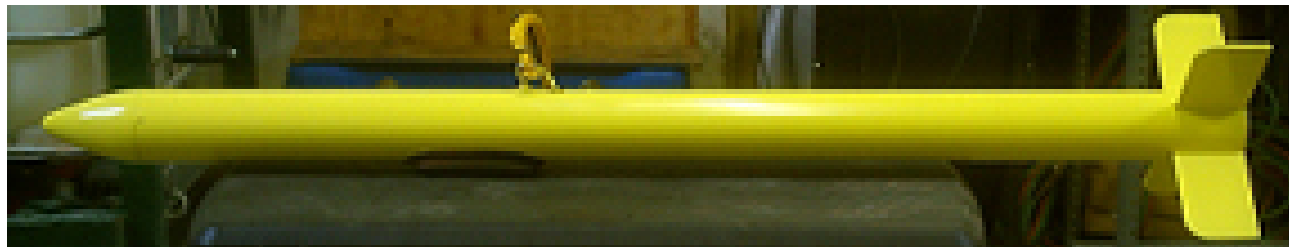
Towfish Construction for the Humminbird 987C

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Let me first preface everything that I am about to say with "I am not in any way an

expert on sonar or towfish. This is the first time I have had any experience with towfish construction. I have experience with designing, building and flying R/C models, and I drew from that in this towfish.

"Why do you need a towfish?"



Well for me, there are two reasons that I wanted one.

- 1 Boat rocking causes blurred images.
- 2 Getting the transducer closer to the bottom increases the target size.

What I noticed while testing the standard, transom mount, configuration is that when the boat encounters bounce from waves you

sometimes get distortion on the screen. My theory is that some of the signal is not making it back to the transducer. Just a guess but I have not noticed this when using the towfish, only on the transom mounted setup.

The other thing that I wanted to improve was that if you are scanning at say 100 feet left/right or both,



and you go from 20 feet of water to say 60 feet of water, the targets will get proportionally smaller as the depth increases. This is not unexpected and is normal, just undesirable. Obviously, if the target gets smaller then there is a better chance of missing the target.

So, with these two things bugging me, I came up with a plan to build this towfish.

I started with 52 inches of 3 inch, schedule 40 PVC pipe. (Because I had it.) The location for the transducer is 35% back from the front with the towline attached above it. I used an "X" configuration for the stabilizing fins. My thinking on this was that if the fish drags bottom, two fins would offer more support and be less likely to be torn off. After everything was assembled, I added lead weight to the nose for balance. Slightly nose heavy when suspended from the towline works well.

Nose Cone Construction

If I had access to a milling machine and



the material, I would have built the nose cone out of aluminum. But I did not, so I worked with what was available. I used a block of cypress and turned it down on a wood lathe. When it was the right shape, I coated it with fiberglass to seal out water and make it a little more ding resistant. Just remember to allow for the thickness of the fiberglass if you use this method.

Transducer Mounting

To mount the transducer, I started by cutting a hole in the pipe and with a lot of fitting and cutting, gradually got the hole to a size that would put the transducer as far into the pipe as possible yet still give some support at the front and back. Adhesive silicone holds it in place. Clean the pipe and transducer thoroughly before applying the silicone. I kicked around the idea of have a mechanical mount but it is not needed. If you come up with a better idea please let me know.



Tow Line/Transducer Cable

I mounted the towline just behind the transducer and drilled a large hole to run the cable through. The tow fish pivots around the towline so having the transducer above it minimizes motion as seen by the transducer. I put the cable behind the towline to reduce the chance of it becoming snagged.



Fins

I made the fins out of ¼ inch Lexan. It's easy to work with and... you guessed it, I had some.

The dimensions for the fins are 13½ inches X 3½ inches. This is not a critical measurement and you can make them larger if you wish. I made the fins interlocking to strengthen them. See the drawing for details.

You will need two of the fins shown. Cut slots 90 degrees apart in the pipe, assemble the fins and slide the whole assembly into the pipe. Cement the fins in place with adhesive silicone. The project is then concluded and ready to test out once dry.

