

# DIY Light Fixture

Text & bad photos by Nick Andreola  
Good photos by Tina Andreola

Writing this step-by-step description out has proven to be more difficult for me than actually doing the project. Trying to find the balance between descriptions detailed enough that someone else could do the project and not writing a long, boring textbook is tough! Hopefully, the photos will tell the story better than I can.

**Step 1:** Gather your materials. You will need:

**Lumber**-I used 1"x 6" 'select' pine from Home Depot. {really  $\frac{3}{4}$ "x 5 $\frac{1}{2}$ "} Measure the outside of your tank's top rim. You need 3 pieces that length + 2x's the end cap's thickness ( $\frac{3}{4}$ ) +  $\frac{1}{4}$ " fudge. 2 end caps are board's width ( $5\frac{1}{2}$ ) +  $\frac{1}{2}$ " = 6". My tank measured 36 $\frac{1}{2}$ " + (2 x  $\frac{3}{4}$ " = 1 $\frac{1}{2}$ ) +  $\frac{1}{4}$ " = 38  $\frac{1}{4}$ ". (Cost = \$18)

**Double light fixture w/ballast and 2 pin type tube holders**- It is usually more cost effective, for some reason, to buy a pre-made shop light unit than it is to buy the ballast by itself. So, get the ugliest one the proper length if you plan on just making a housing or a (cheaper) short one with a ballast rated for longer tubes. Units with electronic ballasts are better (more expensive than magnetic/but less noise, heat & energy use). Also, units that use T8 bulbs (1" diameter) are better than those that use T12 bulbs (1 $\frac{1}{2}$ "). The Hagen bulbs I chose, (Powerglow & Marineglow), are T10's (1 $\frac{1}{4}$ ") and the ballast in mine is electronic and rated for T8's.

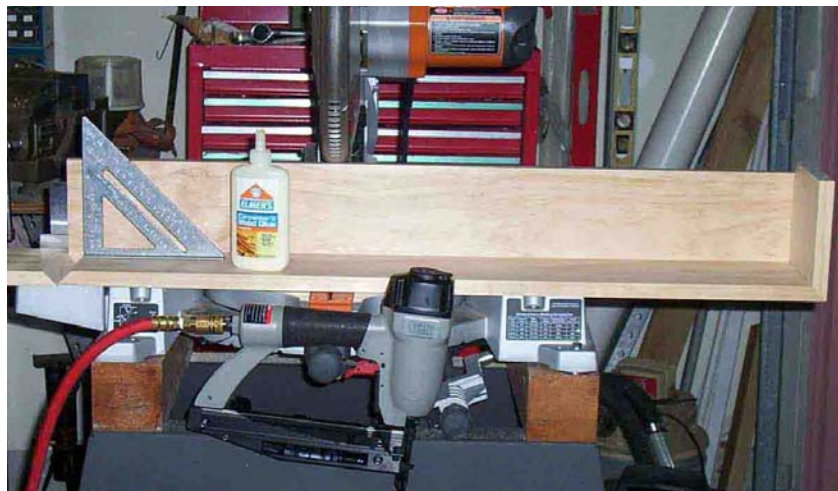
Using the T10's hasn't caused any prob-

lems. Try to find one that plugs in to an outlet (not hard wired), so you can reuse that cord. I didn't need a on/off switch because my lights are on timers. Let your bulb choice and your budget guide you here. (Cost=\$15 & up)

**Miscellaneous stuff**- My garage is full of this kind of stuff. If yours isn't (if you can park a car in it!), pick up some: 1" and 1- $\frac{3}{4}$ " finish nails, wood putty, wood glue, wood stain/polyurethane (whatever finish you want), 2" deck screws (need 8), about 3' of 18 gauge wire (single strand if you can find it/multi is okay), cord/plug if you didn't get it with the fixture, 18 ga. wire nuts, and whatever else comes up that I forgot to mention. (Cost=free in my garage! \$? to buy)

**Tools you'll need:** - Saw, drill, finish sander (give up on the Amish tools and go electric), the usual suspects for hand tools: hammers (nail guns rock!), screwdrivers, square, wire cutters/strippers etc...

**Step 2:** Measure twice. Start cutting wood. Assemble the housing. Test for fit on tank before proceeding.



Note: Cut your top piece (shown on bottom

here) and both end caps from the same board. That way they are all the same width. Use wood glue everywhere, longer nails on butt joints and shorter nails on 45 joints. If possible, use clamps overnight for really tight seams.

**Step 3:** Remove ballast and tube holders from old fixture and install them into your new housing. Wire them up. Test everything to be sure it works before proceeding. This is a 5 1/2" piece of scrap 2x4 and a scrap piece of molding. The 2x4 gets



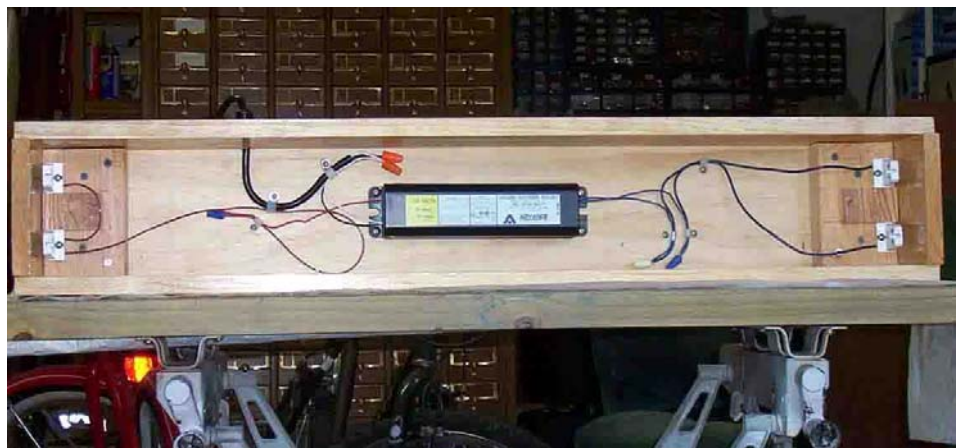
screwed to the housing using the 2" deck screws. Pre-drilling holes through the 2x4 makes it much easier to mount. The molding is nailed in and is just to keep the tube holders from rotating. Put your bulbs in the holders and position everything to find final locations. I used 2 1/2" from holder center to center. I had to drill out the metal mounting clips to get a screw through. Use screws. These are all that hold your bulbs up-so don't scrimp here! (Note: I removed the end of the molding for more room to mount reflector-see photo)

Screw in the 2 tube

holder units and the ballast. Drill a hole just larger than your power cord on one side. I tried to make the hole just to the inside of the top board. Make sure it's less than 1 1/2" away from the top board or your reflector won't fit. Wire the power cord up temporarily for testing-wire everything else up permanently. The tube holders have clips that you just push the bare wire end into. Twist other connections together and use wire nuts to secure. Anchor the wires to the wood. Test with bulbs in place. When you are sure everything is working correctly, remove the bulbs and the power cord.

**Step 4:** Set all nail heads. Apply wood putty. Sand and apply your finish.

This is the most important step to make your housing look great. Spend a little time and do your best on this step.



**Step 5:** Make a reflector.



I made mine out of some 8" wide aluminum sheet metal that was (you guessed it!) laying around in my garage. I made the flat 5½" (width of my wood) and the flanges each 1¼" and wrapped it in good ol' HEB foil. Shiny side out, of course. Trim out 3 notches for your wires to pass through. Use duct tape liberally.

**Step 6:** After finishing is done, put power cord in permanently. Use some clear silicone chalk to seal up the hole. Install your reflector. I just used one screw on each end into the 2x4. The left housing here shows the original 24" fixture mounted into the housing. The housing on the right shows a full 36" modification. I like how the 36" version works so well that I'll be modifying the other unit soon. Depending on what you want and what you bought, both ways are easy to do. I ended up spending about \$50 for both! I don't think I could have found a nicer light unit at Big Al's for \$25. Variations on



wood types, joinery techniques, & finishes can make your housing beautiful and unique. If you need some parts, my garage is always open!

**Step 7:** Put the housing on the tank, sit back and enjoy.

