

Homebuilt PVC Light Mast for Kayaks

Introduction

This is a parts list and instructions for building a light mast for a kayak. Cost is under \$30 plus the light. Assembly should take about one hour once you've collected all the parts. The mast is designed to hold a navigation/safety light at the top and mounts in a fishing rod holder which are standard (or inexpensive options) on many recreational kayaks.

Coast Guard regulations, and good boating safety practices, require showing at minimum an all-around white light if you are on the water after dark. This alerts larger boats (anything waterborne that's not a kayak/canoe/SUP) of your presence.

Putting the light up on a mast instead of directly on the kayak deck gives the light greater visibility and saves your night vision. As a bonus, this mast can also be used as a flagpole for a flag or pennant.

Contents

Introduction	1
Components List	4
Mast Light	6
Alternate PVC Components	7
Instructions	8
Assemble the Mast Light Socket	9
Assemble the Base	9
Assemble the Mast	10
Install the Lanyard Rings	10
Finishing (Optional)	10

Figures and Illustrations

Figure 1- Inflatable Kayak with Light Mast and Light.....	2
Figure 2 - Mast Rigged with Light and Dive Flag	3
Figure 3 - Overview of Mast Assembly	4
Figure 4 - Mast Light Sold Through Amazon.com	7
Figure 5- Mast Light Sold Through REI Sporting Goods	7
Figure 6 – Piece Part View of Mast Assembly.....	8



Homebuilt PVC Light Mast for Kayaks



Figure 1- Inflatable Kayak with Light Mast and Light

This mast, with a one-inch diameter base, is designed to slide into a standard fishing rod holder that is about one and one-quarter inch inside diameter. The upper mast socket is designed for a specific model navigation/safety light (shown below) which has a three-quarters inch diameter body. This light will slide inside a one-inch diameter PVC pipe section.

I've also included some additional components for modifying this mast to accommodate larger fishing rod holders that are one and one-half inch inside diameter (for example: some inflatables such as the Sea Eagle 330/370 and HO Sports Beacon). A larger diameter socket may also be needed to hold a light that has a larger diameter body than the one used here.



Homebuilt PVC Light Mast for Kayaks



Figure 2 - Mast Rigged with Light and Dive Flag

In this illustration, the mast fits into a fishing rod holder that comes standard with the HO Sports “Beacon” inflatable kayak. It’s also rigged with a one-quarter-inch line running through the lanyard rings to hold a flag. Displaying a flag or pennant might be needed to increase your daytime visibility if you’re paddling in an area with lots of power boats. You can also use the mast to display a distress flag if you get into trouble out on open water.



Homebuilt PVC Light Mast for Kayaks

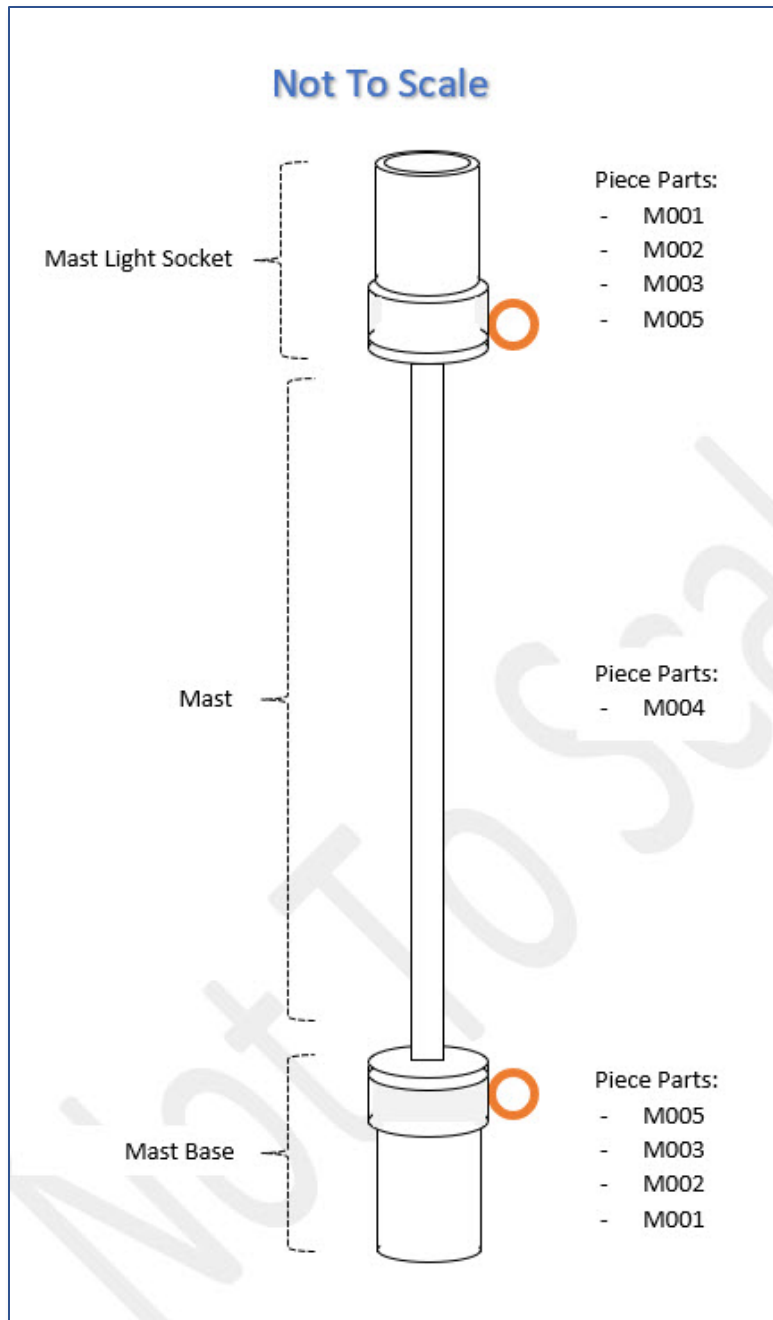


Figure 3 - Overview of Mast Assembly




Components List

This is the list of components needed to assemble one kayak mast with a one-inch diameter base and one-inch diameter light socket. The mast is made of standard PVC pipe and pipe fittings, held together with standard PVC cement. All these fittings should be available at your local big-box home-improvement center or hardware store. The PVC fittings should be under \$2.00 each (2022 prices).



Homebuilt PVC Light Mast for Kayaks




Note: These component illustrations are provided as examples. The manufacturer of these items is not critical (Dura Plastics, Lasco, etc). Typically, your local big-box hardware store will carry a given item under different manufacturers. However, using these pictures and model # will provide a solid reference for locating the correct item.

Mast Piece Number	Item	Description	Quantity Needed
M001	 <p>Charlotte Pipe 1-in dia x 5-ft 450 Psi Schedule 40 White PVC Pipe Model #PVC 04010 1000</p>	White PVC schedule 40 ⁽¹⁾ one-inch diameter pipe. You will need two pieces about five/six inches long each. This pipe is typically sold in lengths of five feet and greater, but you may be able to find a store selling two-foot lengths.	One piece five inches long, One Piece Six Inches long (For light socket and mast base)
M002	 <p>LASCO 1-in x 1-in dia Coupling PVC Fitting Model #429010RMC</p>	PVC One inch diameter coupling. Designed to slide over the bushing and one-inch diameter pipe for a secure connection.	Two (2) each (For light socket and mast base)
M003	 <p>Dura Plastics 1-in x 1/2-in Bushing PVC Fitting Model #L437-130</p>	PVC Reducer bushing, designed to adapt a one-inch diameter pipe to a one-half inch diameter pipe.	Two (2) each (For mast socket and base)

(1) "Schedule 40" is a standard designation referring to the piping wall thickness.



Homebuilt PVC Light Mast for Kayaks

Mast Piece Number	Item	Description	Quantity Needed
M004	 <p>Charlotte Pipe 1/2-in x 5-ft 600 Psi Schedule 40 White PVC Pipe Model #PVC 04005 1000</p>	White PVC schedule 40 one-half-inch diameter pipe. Actual length may vary, depending on the desired height of your kayak mast. Five feet should be the maximum length needed.	Three (3) to five (5) feet (Continuous length, for mast)
M005	 <p>Hillman Brass Screw Eye Hook Model #491029</p>	Brass screw eyes, # 8 threaded screw base.	Two (2) each (For lanyard rings)
M006	 <p>Oatey Handy Pack 8-fl oz Purple and Clear PVC Cement and Primer Model #30244L</p>	PVC Glue kit. Includes primer and cement ⁽²⁾	1 Kit (Note: primer and cement applicators are built into the caps)

(2) This is standard PVC cement, a two-part kit. A small kit typically runs about \$10 (in 2022 prices) and is the single most expensive item in this project. For this project you don't need much, only a swirl on six pipe fitting surfaces. The good news is, if the glue cans are closed correctly after use, you can use this kit for many future PVC projects. Be careful to purchase the correct type, as there are different cements for different plumbing purposes. You will need PVC cement for "white PVC, water piping applications.

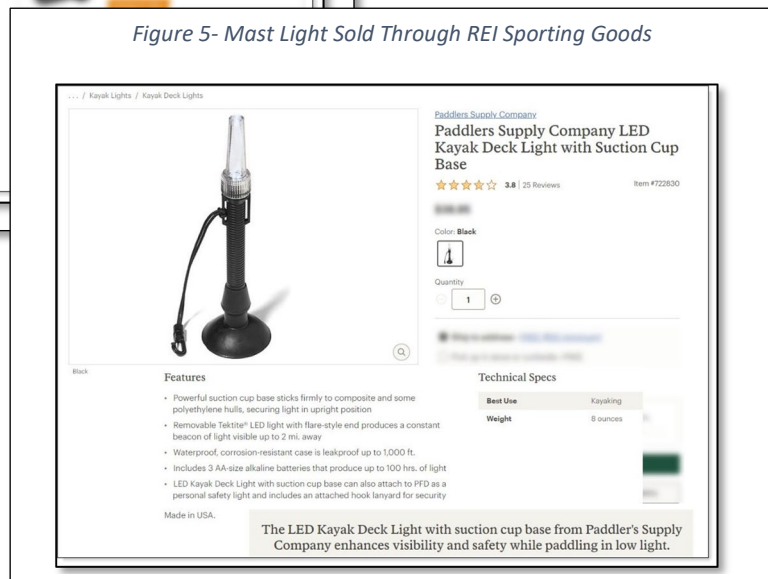


Homebuilt PVC Light Mast for Kayaks

Mast Light

This mast socket was sized for the specific navigation/safety light shown below. The suction cup of this light is removeable and not needed with the mast. The included tether can be tied off to the upper brass eyelet when in use. (You can add a lanyard to tie off the mast to the kayak using the lower eyelet.)

I have identified two distributors for this recommended model light. (*Disclaimer: I have no commercial affiliation with either company.*) Any all-around white light navigation light can be used, but the light socket (piece numbers M001, M002, and M003) of the mast may have to be adjusted accordingly so the inside diameter is large enough to accommodate the light.



Alternate PVC Components

Larger diameter PVC end pieces may be needed if you use a light different than the one shown here or have a kayak with one and one-half inch fishing rod holders. The HO Sports "Beacon" kayak, shown in the illustrations, uses the larger diameter rod holders. The rod holders on Sea Eagle's "Multi-Purpose Kayak Storage Box" which is designed as a fishing and storage box accessory on several of their kayaks, also uses the larger diameter rod holders.



Homebuilt PVC Light Mast for Kayaks

If you modify the sizes of the light socket or mast base, be aware that you will need to change three pieces each subassembly; The short section of piping, the coupler, and the bushing. The bushing will need to have the outer diameter match the size tube section you use, with the inner hole sized for one-half-inch pipe. The coupler will also need to be sized for the larger pipe size selected.

Instructions

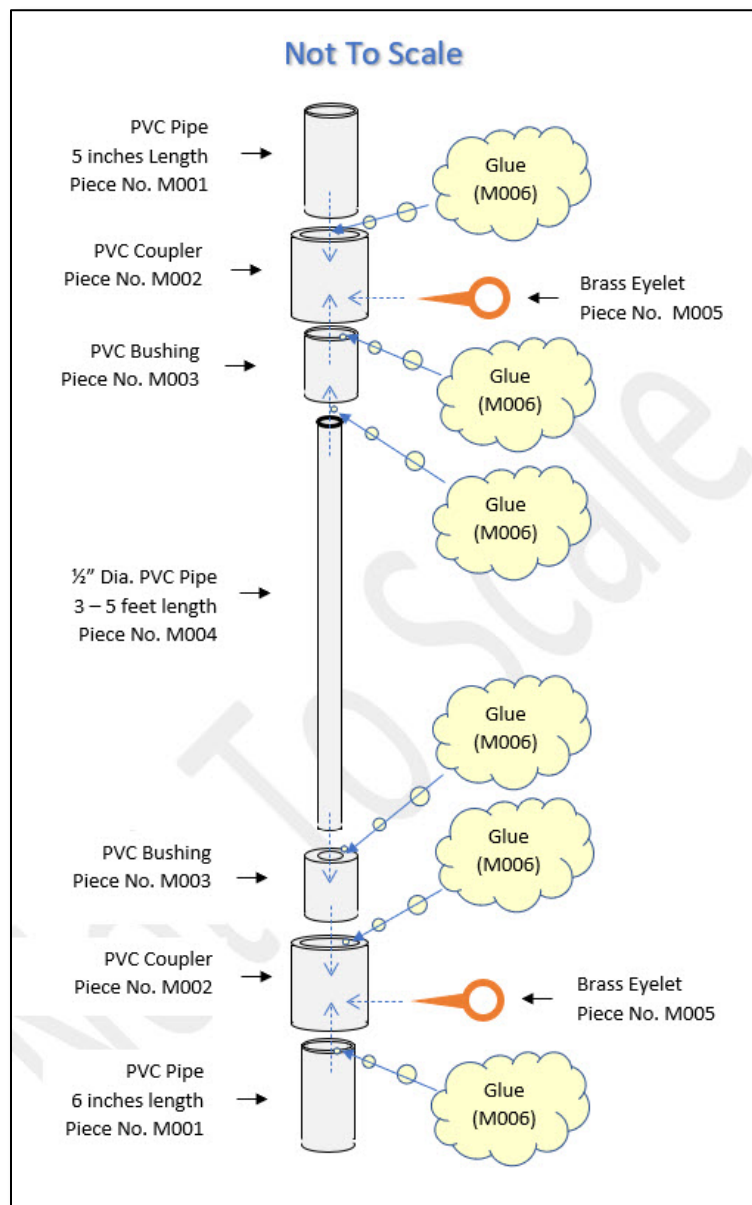


Figure 6 – Exploded View of the Light Mast Assembly



Homebuilt PVC Light Mast for Kayaks

Assemble the Mast Light Socket

1. Cut a five-inch section of one inch diameter pipe (piece M004). Smooth the cut ends and test fit into the one-inch coupler (piece M002). Then remove and use glue to assemble.
2. Test fit the one-inch to one-half-inch bushing (piece M001) into the other end of the one-inch coupler. Then remove and use glue to assemble.



Figure 7 - Closeup of Light Socket with Light

Assemble the Base

1. Cut a six to eight-inch length of one-inch diameter pipe (piece M004). Exact length should be determined by the depth of the fishing rod holder on your kayak. The length of the piece should not exceed the depth of the holder, plus about one extra inch to insert into the coupler.
2. Smooth the cut ends and test fit into the one-inch coupler (piece M002). Then remove and use glue to assemble.
3. Test fit the one-inch to one-half-inch bushing (piece M001) into the other end of the one-inch coupler. Then remove and use glue to assemble.



Homebuilt PVC Light Mast for Kayaks

Assemble the Mast

1. Cut the one-half inch pipe to desired length (piece M003). This should be at least three feet, to get the light above your head when seated in the kayak. Making this piece too long may make it difficult to store inside the kayak when not in use.
2. Smooth the cut ends.
3. Test fit into the bushing hole of the mast socket subassembly. Then remove and use glue to assemble.
4. Test fit the other end of the mast into the bushing hole of the base subassembly. Then remove and use glue to assemble.

Install the Lanyard Rings

1. Using a pencil, draw a straight line on the lower area of the mast light socket aligned with a line on the mast base. This aligns the two lanyard rings.
2. On the mast socket and base, on the line in the area where the bushing is glued in, drill a small pilot hole for the brass eyelet screw. You want to drill where the bushing is located as this is the area with thickest plastic.
3. Hand twist each eyelet into the pilot holes until the threads are completely buried in the plastic. Be sure to align the rings vertically along the axis of the mast.

This completes the mast light.

Finishing (Optional)

The mast light will work as is. If you want to clean it up and remove the industrial markings, you can paint the assembly using a spray paint designed for plastics. As an alternative, polish the plastic pieces using a nylon scouring pad, which should buff off the markings without scratching up the PVC.

Have fun, and safe kayaking!

