Installing a Lifting Eye in the South Coast 21

Installing a lifting eye allows you to pick up the South Coast 21 without the use of straps at the AYC work hoist. Having in internal lifting eye can also make launching the boat using a crane much easier since straps are also not needed, and no interference with trailer pads or support rails will occur.

The process is fairly straightforward, but can be difficult because of the hardness of the material in the keel (cast iron) and the size of the eye bolt that is needed to safely carry the weight of the boat. The process is to drill a hole in the top of the keel, thread the hole with the use of a tap, install a load rated eye bolt, seal the hole, and cover the eye bolt so that corrosion is prevented.

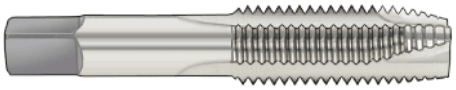
The proper location for the eye bolt is centered on the top of the keel hump and just forward of the companion-way opening. This will generally nearly balance the boat when lifting from an eye bolt at this position, but will result in the boat being a little stern heavy. This can be compensated by also tying two lines from the lifting hook to the transom cleats. This results in a three-point lifting bridle which stabilizes the boat when it is lifted. However, you can see several bumps on the side of the keel hump which indicate where the keel bolts extend through the keel and have been glassed over. Don't locate the hole for the lifting eye over any of the keel bolts as you would then possibly drill through one of the keel bolts when drilling the hole for the eye bolt.

After the location for the lifting eye hole is located, the first step is to drill a pilot hole. I use a _" drill bit for the pilot hole. Buy a new drill bit for this procedure, and purchase the best, sharpest, and most durable bit that you can find. This keel is very hard cast iron and very hard to drill. You will first drill through a layer of fiberglass that is approximately _ inch thick. Then there is usually a small gap and then you'll find the top of the keel. The pilot hole should be drilled approximately one and one-half inches into the cast iron.

Once the pilot hole is completed, then you will need to drill the hole for creating the threaded, or tapped, hole. For the 1/2-13 threaded hole for the eye bolt that I have used, the drill size is 27/64". Again, buy the best drill bit that you can find, especially for this drill bit, as you are making a large hole into very hard material. My drilling guide says that for drilling in cast iron, the only lubricant is compressed air to keep the hole clean of metal filings as you drill. However, I have also used cutting oil which seems to help cool the drill bit a little. Complete this hole to approximately two inches also.

Once this hole is complete, then you're ready to add threads to the hole, or tap it. Since the eye bolt to be installed is _-13, you will also need a _-13 tap. I had the best luck using a spiral point tap rather than a square-end hand tap since the square end tap is much harder to turn and has a much shorter cutting length.

Here is the picture of the spiral tap:

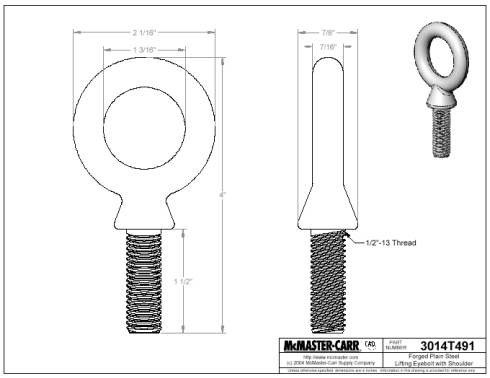


Here is the square end tap:

Using the spiral tap, and the one and one-half inch hole, you should be able to cut at least a usable threaded depth of a little over one inch. Be sure to frequently clean the hole from metal filings as you make this tap. However, if you want to finish the remaining drilled hole with a square end tap, then you could have even more threaded depth.

Be sure and vacuum out the inside of the boat after the drilling and taping is complete. The small cast iron particles will eventually rust inside the boat and create an interesting rust stain pattern. It's easier to prevent the stain than remove it.

Once the hole is threaded, you're almost done. You'll need to install the eye bolt and tighten it fairly tight. This will lock it into place, since it will be bottomed out in the threaded portion of the hole. I believe that I have used a _-13 eye bolt that has a threaded length of 1 and 1/2 inch. Here is what it looks like.



Here are the specs for this bolt:

Part Number: 3014T491 $4.03 Each

Type	Load-Rated Eyebolts
Shoulder Type	With Shoulder
Thread Type	Fully Threaded
Material Type	Steel
Steel Type	Plain Steel
Finish	Plain
Thread Size	1/2"-13
Work Load Limit	2,400 lbs.
Shank Length (Dimension A)	1-1/2"
Inside Eye Diameter (Dimension C)	1-3/16"
Specifications Met	Not Rated
WARNING	Do not exceed work load limits for this item. Any eyebolt that has been modified from its original design will have a reduced work load limit and should be discarded.

After the bolt is tightened in place, I recommend coating the base of the bolt and the hole in the fiberglass with some epoxy resin. This should seal the hole, lock the eye bolt in place, and replace the fiberglass that was removed around the hole. Then coat the eye bolt with some type of rust preventative paint (I've used Rust Oleum Primer), and it's complete.

The only other suggestion is that for extra safety, you might want to install and use two of these eye bolts. Thus, if one bolt were to fail while the boat is suspended, then the other bolt should be able to carry the weight. The secondary eye bolt should be installed a few inches in front of the primary eye bolt.

All of the parts shown are available at www.mcmastercarr.com .