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4737 Adams Road, Chattanooga TN 37343 (423) 875-0740 Fax (423) 875-4011

Optimist Mast Step / Mast Collar Repair and Maintenance 101

If there is a heart to any sailboat it is without a doubt the mast step. This is no exception with the Optimist. Because the boat does not have stays (wire rigging that supports the mast), the mast step and deck collar come under tremendous forces. Particular attention should be given to these areas before leaving the dock. Get in the habit of inspecting the deck collar for stress. If cracks are present or the collar is loose maintenance is in order. It is a good idea to remove and thoroughly clean the mast "cup" at least once a year to inspect the welds for tiny cracks. Having a mast cup fail on the water is impossible to fix without a replacement. Here are a few tips to help you with common repairs.

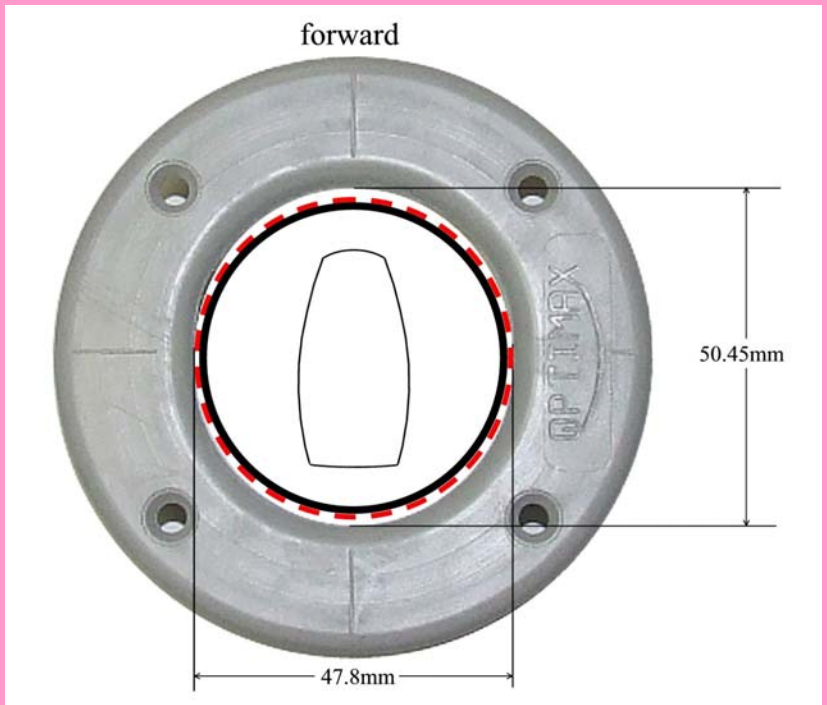
Cracked Deck Collars

If any cracks are evident the collar is relatively cheap to replace before expensive repairs become necessary. It's a good idea to always have an extra for emergencies, but do order one before removing the damaged collar. The gray (EX12101) and white (EX1202) collars are interchangeable as far as the hole in the mast thwart, but the bolt hole pattern is different requiring filling and re-drilling. The gray collar has a required sleeve that attaches to the mast and prevents the collar from cutting into the mast wall. It also reduces friction so the mast can rotate more freely in light wind. If you upgrade to the gray collar order EX1210 which is the collar and the sleeve. If you switch to the white collar the gray sleeve must be removed from the mast because it will not fit.

Very Interesting and Important!

Did ya know that the mast collar is not round, but oval? That's so the mast can rake forward and aft, not sideways. The embossed Optiparts or Optimax logo should always be on the side (either side, just not front or back). Mounting it any other way will hurt performance.

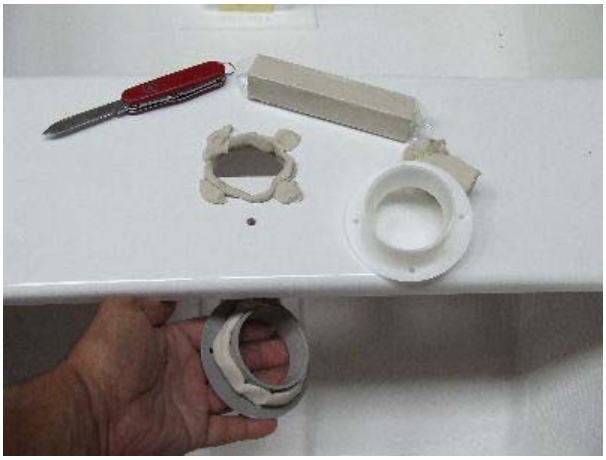
Check yours!



The collar should always fit tight in the hole and not wallow around. If it can move it will be prone to cracking again. When you remove the old collar you may find some cracking of the gelcoat and fiberglass. Unless this is severe and extending way beyond the lip of the plastic collar just ignore it as there is enough strength, (at least in a McLaughlin) in what remains to support the collar without future failure. If the collar can move around, the hole must be made smaller. The pliable stick epoxies work nicely for this. They mold into place like clay, are sand-able and most important do not drip on the boat. The catalyst is internal to the epoxy. Just squeeze and blend it with your fingers for activation.

SERIOUS DECK DAMAGE

If the deck is severely broken up or crushed extending from the collar, the repair is best left to a professional if you want it to look cosmetically correct. To get back on the water in an emergency (mid-regatta), remove loose fiberglass and foam and replace it with the epoxy. Always dry the area out first. Acetone can be used to quickly drive out the moisture. To recreate the hole shape use a new collar inserted up from under the deck as a form to hold the epoxy. Force the epoxy into all the voids. Remember, there is usually equal damage on the underside of the deck as well.



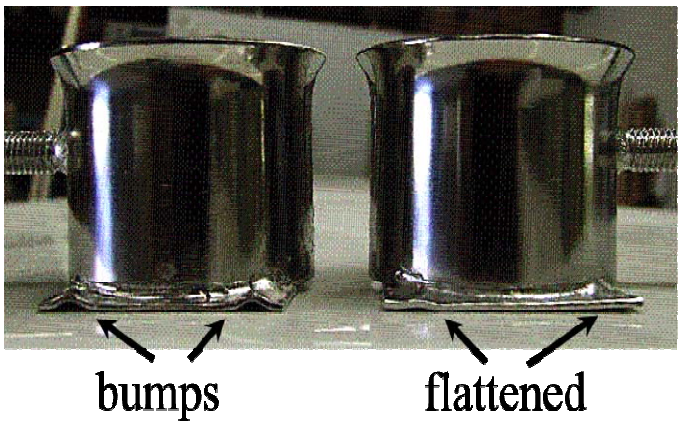
Once hardened carefully tap the plastic collar to release. It will not stick to the epoxy and will drop out below leaving a perfectly sized hole. You may need to hand sand the hole to get the new collar to fit, but the tighter the better. Make sure the upper deck surface is flat so the collar sits flush. Use a hammer and block of wood to force the collar into place. The wood distributes the load keeping it from cracking. If you filled the holes re-drill them at a slight outward angle so that the washers and nuts have space underneath to be attached.

Collar inserted from underneath as a form with epoxy putty pushed into voids

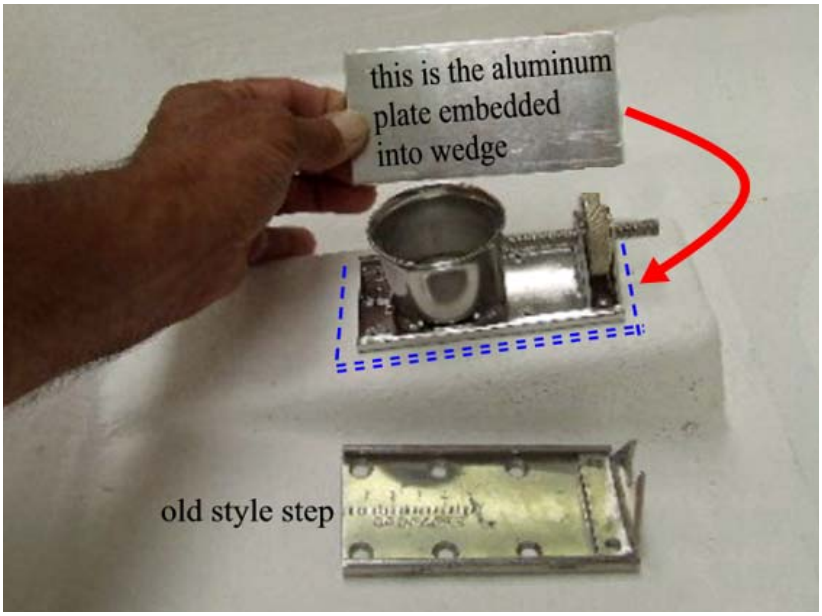
MAST STEPS COMING LOOSE

At McLaughlin we use special half-countersunk head, 10-24 thread-cutting screws that perfectly fit the step plate. An epoxy designed for stainless to fiberglass bonding is used under the plate. Since going to this procedure we have not seen a single loose maststep on our boats.
If you have an import, or a very old McLaughlin, mast Step plate movement can occur when the screws come lose. The sooner this is addressed the less damage will occur. Start by trying to retighten the screws. If the screw holes are stripped out you can take tooth picks (hardwood) and shove as many as you can into the holes with epoxy, let harden and reattach. You may also try a slightly larger screw. Make sure the heads of the larger screws do not stick up above the plate making the mast cup slide impossible to insert. You can use the larger screws on the first and last set of holes if you start with the mast cup already in place. But this may limit adjustment of the plate (mast rake).

The mast cup bottom plate has bumps at each of the 4 corners. The bumps can be hammered flat to create more clearance for larger or misaligned screws.



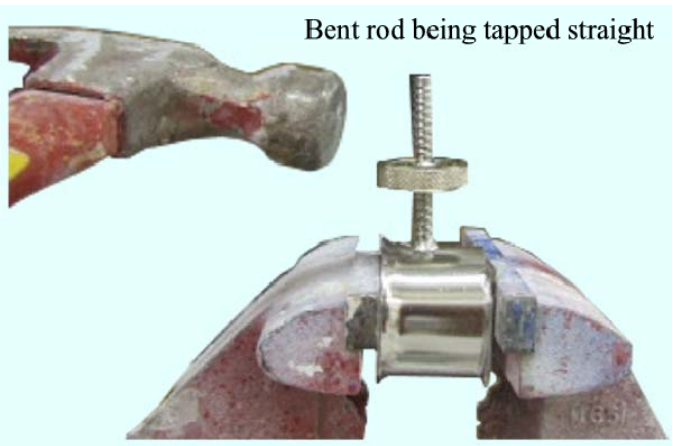
If the screws will not hold you must move the mast step forward or aft 3/16 to 1/4 inch and drill new holes. Before removing the plate use the sides of the plate to draw lines, which will be used to re-aligning the step. Optis without side tanks (IOD95) have an aluminum plate glassed into the mast step wedge. The plates are over-size, but it is possible your new holes may not hit the plate. Drill one of the corner holes. If that hole goes into metal you're fine to proceed. If not, move the step in the other direction. Fasten each screw in place before drilling the next hole. That will help with alignment of screw heads. You will need a right angle drill for these holes, as a normal drill will not fit.



MAST STEP WILL NOT ADJUST

Basic preventive maintenance includes flushing with fresh water after each use and an occasional light spray with WD40, McLube, etc.. A penetrating lube such as CRC or WD-40 can be used to "un-freeze" a corroded adjusting nut. In more dire cases the threaded adjusting rod may have bent usually due to the bowline wrapping around the back end of the rod. This was more common with old style "split-nut / single web" adjusters (see above pic). It is easy to bend it back in place. The hard part may be getting it out. Lightly tap the end of the rod with a hammer while turning the adjusting nut and it will come out. Be careful not to damage the threads.

Once the cup has been removed, clamp it in a vice. Put the round nut back on close to the cup. Tap the nut until the rod is perpendicular. The nut will protect the threads. Inspect the weld that secures the threaded rod to the cup and the cup to the slide. If any show cracking replace the cup before your next regatta. The flattening of the four plate bumps as mentioned above will also help the plate slide free as will a little lube spray.



Other causes of difficulty in movement are salt, dirt and sand in the threads or under the slide. Keep the threads and slides washed out. Lubricants will reduce friction and protect the threads.

Tip: to keep your cup from "jiggling" out and getting lost during a road trip, put a dab of marine caulk on the end of the adjusting rod. This will act as a stopper for the nut. McLaughlin provides a "stopper" cap on mast steps.

Feel free to call us if you need assistance on this or any Opti maintenance or repair issue 800-784-6478. …and DO checkout our famous FAQ section with dozens of helpful articles of interest to Opti enthusiasts.

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