Comet - White Xtra Modifications

Rick Hough 2021

This documents the conversion done for Comet 236, a 1988 hull with newer, standard spars and is supplementary to the Comet Dinghies instructions. Read those first and don't take this document as anything more than a "How I did it" guide.

Some quick points:

- Read and follow the Comet Dinghies instructions
- Take your time
- Measure and mark multiple times before cutting or drilling
- Use masking tape to locate new fitting holes accurately
- Use 5mm screws to hold fittings while riveting
- Loose assemble stuff before committing to riveting
- Countersink the centre, port side, goose neck rivet slowly, get it flush but leave some metal!
- Use Duralac jointing compound (or similar) and let it dry before attaching stainless fittings
- Use good quality silicone sealant
- Get a big rivet gun – I used a Clarke CHT878 double handed (picture below)
- Practice riveting if you haven't done it before
- Only use the Monel rivets supplied in the kit
- Be aware some are countersunk (picture below)
- Make sure the inside of the tubes are clean and dry before riveting.

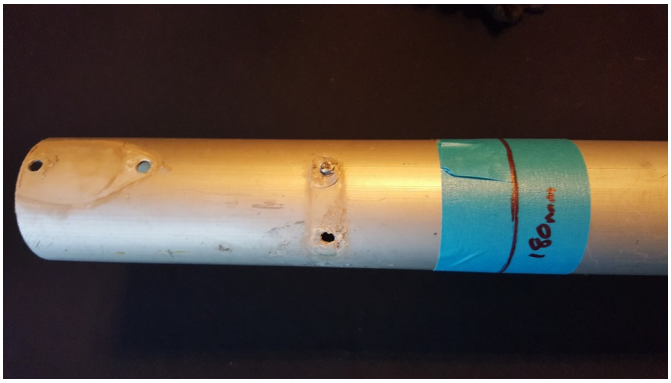


Boom

After drilling out the outboard boom fitting rivets using a 5mm drill bit, mark up the new cut line.

- 180mm if you want to use an S hook, for example when furling
- 255mm if you plan to tie the sail down directly, raising the boom by about 25mm.

I chose to cut 180mm off to start with so my rig remains fairly conventional with an S hook and a small pulley for the outhaul. It is much easier to cut more off later than it is to add a bit in my experience!



Measure and mark with pencil in three places around the circumference of the boom, then line up a length of masking tape against the pencil marks, and then run a second line of tape next to the first.

Measure again and mark the cut line in pen.

Now repeat the method used to align the lower mast fittings, running tape along the boom and then making a straight pencil line along the old lacing eye and out haul pulley fitting rivet holes.

Before you cut, measure again, then saw slowly and carefully to keep the cut line straight and use a decent saw blade, then file and clean the inside and outside of the cut marks to remove the burrs.

Arrange, measure and mark the fittings noting that they do not go back in the same positions as those of the conventional sail boom. See the Comet Dinghies instructions and note that the boom tang is set further back than standard, behind the out haul block

The fittings are stainless steel and the boom aluminium, so you must coat the fittings with a suitable jointing compound to prevent corrosion and only use the correct Monel fittings supplied in the kit. I use Duralac. Paint it on thin and let it dry.

Double check you are happy with your fitting positions. Make sure:

- Your boom strap aligns with the kicker tang, the holes are 8mm from the end of the boom
- The out haul block rivets align with the top rivet on the boom tang
- The small rigging eye is a quarter of the way round the boom from the out haul block

When you are happy, mark, centre punch and drill out the rivet holes using a very sharp 5mm drill bit – I do this stuff on a low speed and using little pressure as it is easy to slip and damage the boom. You can use the fittings as a guide to start the hole, clear the swarf out of the boom after drilling and clean up the hole edges.

Line up the holes in the end of the boom with holes in the boom end cap and use long rivets to attach the boom strap through the boom cap end. I sail centre main so my boom strap is angled slightly. For aft main the strap hangs straight down.

Trial fit first to make sure everything lines up and note that the inboard end of the lacing eye and the two outhaul block rivets are the short ones as they don't go into the plastic of the boom plug.

For the final assembly of the boom end fittings, apply silicone sealant to the boom plug, align it to the holes and tap in with a mallet, cut off the plastic swarf and clean away the excess sealant.

Check you can line up on the holes in the mast plug through the boom for the strap and the lacing eye, and adjust whilst the silicone is still wet, then rivet the four boom tang holes using the long Monel rivets.

Put the lacing eye in place and rivet through the boom plug using a long rivet. Rivet the inboard end of the lacing eye with a small Monel rivet.

Using two small rivets, attach the out haul block, and remove any excess sealant before it sets.

Lower Mast

Drill off the lower mast fittings and remove the end plug. At this point I found that the old holes had sharp edges so I filed them smooth, ready for some metal filler to neaten things up.

The tube is measured and marked to 570mm ready to be sawn, however, make sure you assemble the upper and lower mast and measure them together. The total length should be 5470mm +/- 30 mm according to the Comet measurements 2013:

http://www.cometsailing.org.uk/wp-content/uploads/2014/05/Comet-Measurement-Rules-Oct-2013.pdf

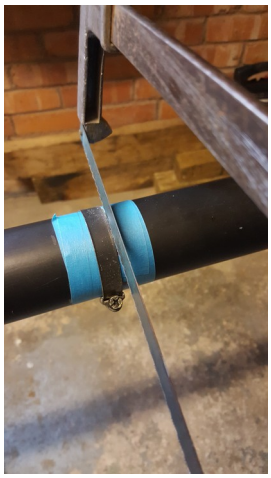
Measure, mark and cut 570mm off the bottom of the lower mast. I measured three points around the mast, then marked them in pencil, then measured the pencil marks to check.

I then wrapped a bit of masking tape around with the edge on the pencil marks and measured again.

I then wrapped a second bit of tape to butt up with the first and marked in pen.

To make sure the fittings oriented correctly I then ran lines of masking tape up the mast in line with the old fittings, pushed the old fitting holes through, then drew pencil lines with a straight edge.

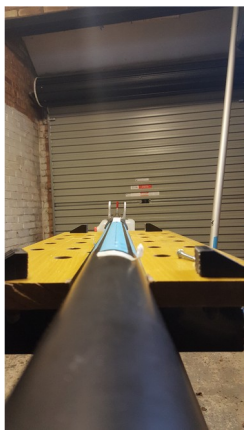
Next I measured and marked the distance up the mast for all the existing fittings holes. For example, in my case the lowest of the three goose neck holes was 865mm from the bottom end of the mast tube. The other two holes in this picture are the out haul block lacing eye holes.



Once everything is measured and marked you can cut the spar at the 570mm mark, working slowly and checking alignment to get a clean cut across, then clean up the burrs.

I used a Jubilee clip clamped to the mast to provide a guide.

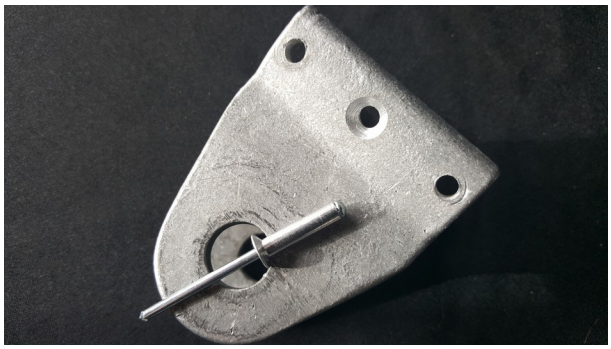
Now measure and mark the new fitting hole locations from the newly cut end of the mast tube. They should be correctly aligned provided your tape and pencil lines were straight.

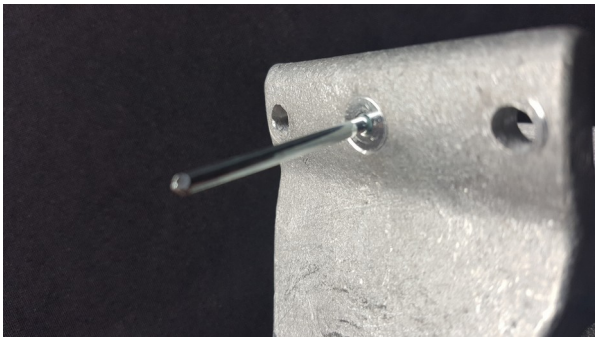


Check these again before drilling, I sighted along to a pen pushed into the upper mast locating slot to ensure the goose neck was in exactly the right place.

Drill holes for the the goose neck and other fittings as per the Comet dinghy instructions and using the marks made on the masking tape as a guide.

Use the 5mm drill and work slowly to ensure a nice tight fit for the rivets. Counter sink the centre rivet hole for the port side of the goose neck. Go slow and test frequently so you get the countersink flush without removing more material than you must.





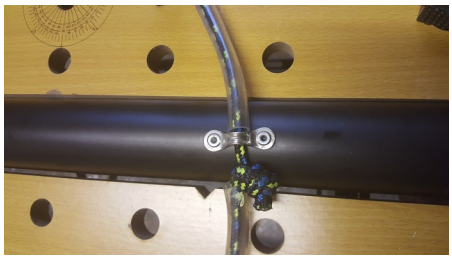
Use the correct rivet length for each and careful with that countersink middle rivet on the PORT side. Make sure the cleat faces the bow and can sit flush before riveting it with the two remaining countersink rivets and use the nuts supplied as spacers to make sure the gun doesn't catch the cleat.

I used a couple of 5mm screws to make sure the fitting didn't move whilst riveting. They are not a tight fit as I didn't want to cut threads into the faces of the holes.

The outhaul pulley and kicker lacing eye are fitted using the short standard rivets and carefully aligned with the centre of the goose neck. I drew a centreline on mine to get it dead centre.

The rivets require a great deal of force and I really recommend that you get the Clarke rivet gun.

Don't forget the Duralac on these fittings, you can see the yellow liquid wasn't quite dry and squished out when the outhaul lacing eye was riveted.



Make good the old rivet holes. You can just fill them up with sealant but I wanted a maintenance free solution, so I took the sliced off bit of boom, cut a slot in it, then crushed it into a smaller tube that just fits inside the lower mast. I used Araldite 2 pack adhesive to secure this inner tube.

The old holes are then filled with JB Weld and the excess scraped off after a couple of hours (whilst it is still tacky) and the surface cleaned. Note that the JB Weld seems to sink a little but that's fine. If I was a total perfectionist I would fill, sand an paint but as the holes are below deck height the aesthetics don't worry me.



Make sure you use more of the Araldite to glue in the bottom mast bung as per the Comet instructions, silicone isn't strong enough.

Upper Mast

Remove the old lacing eye and rivet the lower lacing eye hole to cap it off using a short rivet.

I had a spare countersunk Monel rivet in the kit, so I used that to attach the end cap (plenty of marine silicone sealant). I did this partly because it would be neater but also to strengthen that area of the mast head, given how close to the old hole the two new ones are for the halyard tang and block.

Offer up the mast tang with it's block, then mark, punch and drill the two top holes, and clean up the edges. Tap the two lower sections of the tang into place against the mast with a hammer (they slightly wrap around it) and then rivet in the two short rivets for the lower holes.

Finally I added a burgee holder on the back side of the mast. I use a wind indicator top and bottom of the mast, so I enlarged the holes to 5mm to accommodate the Little Hawk and used short rivets.

And finally here is what we are after, three modified spars.