

Preliminary Laser >> Mast Report #2, 1 July 2012

1. Background

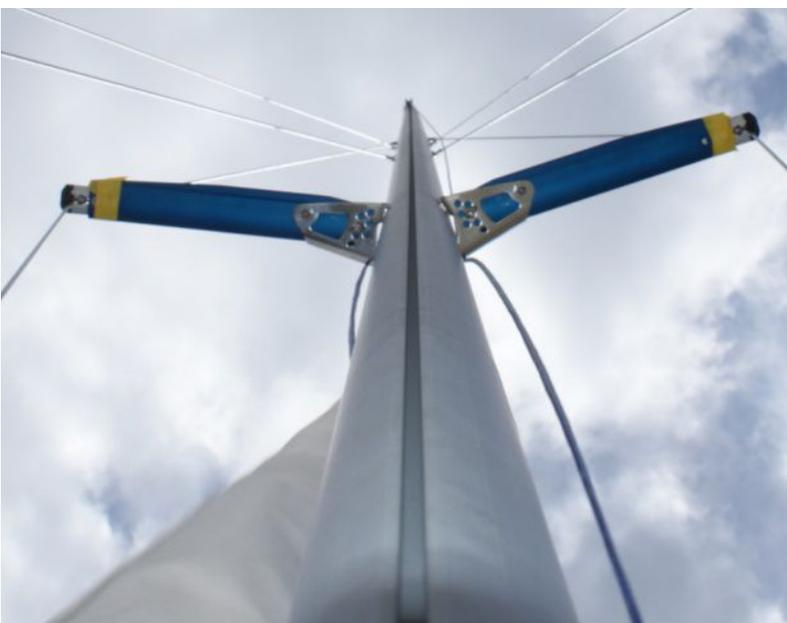
As part of their search for a more economical replacement mast for the Laser >>, the licensed builder and distributor, 'Sailboats' (sailboats.co.uk) procured a one-piece tapered SuperSpars mast with swept back spreaders which was tested briefly in November 2011 (['Assessment of a Prototype Laser >> Mast' by Mike Croker](#)). In response to comments on the design, partly arising from that test, a second prototype mast has been procured from Selden. This uses a diamond spreader: a similar concept to the existing 2-piece Bethwaite design, but formed using conventional spreader hardware with short spreaders and near zero backsweep. It is claimed that this mast could be produced as a two piece at extra cost (and delay) if needed.

2. Assessment

This report's author, Andrew Whapshott - 9212, was the first customer for the latest re-design (he also took part in the test of the first prototype) and has an obvious interest in ensuring that it works well!

The mast was collected from Northampton sailboats on Tuesday 26 June 2012. It was rigged on #9212 in their yard, to identify any immediate faults. Both mainsail and jib were hoisted and the mast was tensioned.

On 2 July where the boat was rigged fully at Hawley Lake Sailing Club, and sailed in a gusty Force 5. Unfortunately the wind was too strong to take any worthwhile pictures of the rigged sails. (Note that the only sails available for the test were the original sails that came with 9212 - 20 years old - not awful, but certainly not new.)

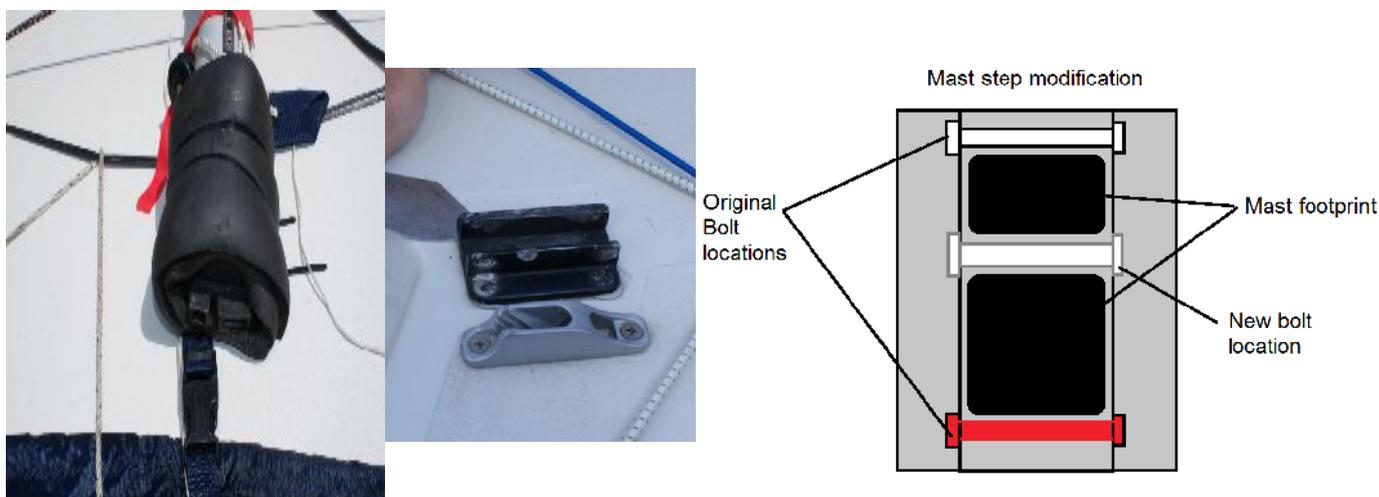


3. Dimensions

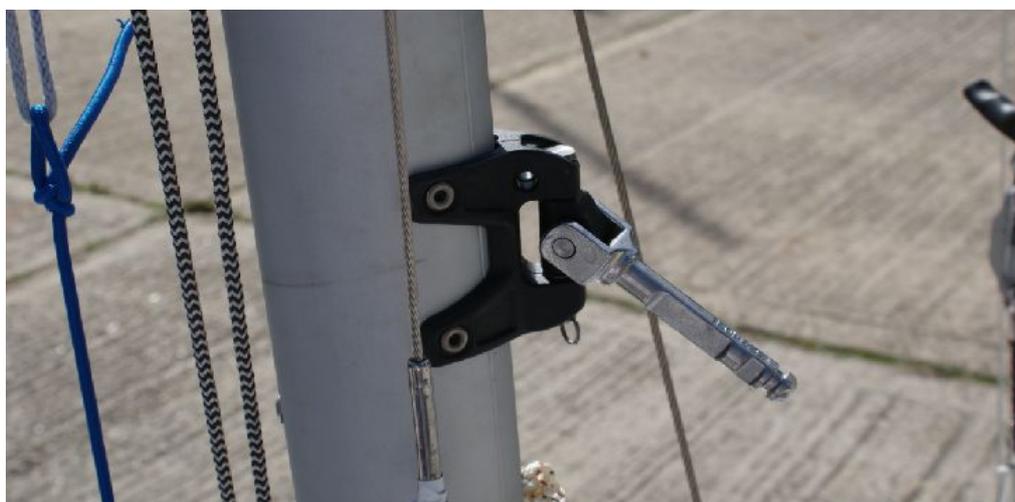
The mast is a tapered [Selden Kappa section](#) section which felt fine. During the sail it behaved nicely, a good sail shape was easy to find, and the bend induced by kicker made the boat feel very responsive.

However several problems were encountered when rigging the mast and hoisting the sails.

- Mast foot: the new mast has a different foot to the original, meaning that it does not fit into the step (Mast foot is now 60mm long, just too big to fit within the original bolts. Dan Slater at Sailboats mentioned that customers of the new mast will be supplied with a new mast step.) The potential problem with this is that the footprint of the new step will not exactly overlap the original, so the compression put into the boat by rig tension could be offset from the below deck mast strut, leading to a structural collapse beneath the deck (bearing in mind the age of many boats). To get round this, I removed the mast step, measured the heel on the new mast and drilled a second hole, which was through bolted (diagram below) the original aftmost bolt (shown in red) being removed. This allowed the small groove on the mast step to sit over the new central bolt, stopping all movement. This solution is reasonably simple and worked well – it would be easy to put together a simple guide to go with new masts.



- D-ring: again too high; the ideal / common location is around 79cm from the end of the mast section. (The prototype will be changed to this height.) All other spinnaker fittings are good quality and in the correct locations, although wind strength and space dictated that spinnaker flying wasn't appropriate, sadly.
- Gooseneck: correct height and looks robust, but is too small a diameter! This problem was spotted when the boat was rigged in Northampton, but but it was decided that it was the worn out boom plug that was at fault. However, even with a newer plug, it still had some play in it, so really a better fitting alternative needs to be found.



- Main halyard: this is similar to the original system, a wire halyard with a rope tail. However instead of going through a sheave at the bottom of the mast, it comes out through a slot which it is very tricky to feed the wire join through. It is then secured onto a rack as per the original mast. This would be a better arrangement were a complete low-stretch rope halyard to be used with a simple clam cleat, like other more modern classes (Laser 2000 etc.).



- Spreaders: these short aero-foil section diamonds were slightly swept backwards, but actually worked very well. A quick chance to sight up the mast during the sail showed that the bend was 'perfect'. Rig tension measured with a loos gauge (not guaranteed 100% accurate) was 30 on the shrouds and 24 on the diamonds. In terms of balance: the shrouds were set to the middle of the range using an extension piece in the jib halyard. It was very raked when I sailed (6.22m tip to gudgeon) but still felt reasonably balanced. A further few sails are required to take make a good judgement.



4. Conclusions

The mast worked very well with the boat during the brief test sail. The shape seemed very nice, and it felt more responsive than the usual borrowed (25yr) old mast.

Aesthetically the mast was very good, and made the boat look quite modern. Whilst sailing the mast looked nice, with a good progressive bend creating a sail shape that was easy to control. However this test was both too short and made under very gusty conditions to draw any firm conclusions. More sailing time on open water is needed to give the mast a more thorough test, but hopefully this initial report will be of use to class association members. Further tests will be made in the near future under better conditions, with more pictures, measurements and possibly video to demonstrate how it works.

Andrew Whapshott, 9212
3 July 2012