

BOAT CARE

– Stresses and Strains

The Laser boat has an excellent record of durability but like any piece of equipment it can break if overstressed. Weight for weight it probably has one of the strongest constructions of any boat of its type, a fact we are all aware of on occasions when we see Lasers over 10 years old, sailing happily when other classes are retired to the scrap heap. Further the Laser has proved itself in very strong winds when other classes are reduced to wreckage. It never ceases to amaze me when I see Lasers sailing in 40 knots plus.

Over the years, small changes have been made to the Laser to strengthen it as we sail in increasingly stronger winds. However, there is a limit to the number of changes that can be made before performance is affected.

Mast and Boom

One particular area where strengthening is not possible without affecting performance is the mast. Any increase in strength of the mast would dramatically affect stiffness and therefore performance. This would be totally undesirable.

The Laser mast is produced to the highest possible manufacturing standard in the aluminium trade for a specified wall thickness. Within this standard the Laser requirements demand an even tighter tolerance which is controlled at the Laser factories. Even with this high standard it is possible, when sailing, to stress the mast beyond its yield point which causes a permanent bend. In some ways it is like a car engine. If you allow an engine to 'rev' beyond its designed maximum, you risk blowing it up!

The lesson to be learnt is if you don't want to bend a mast, don't use enormous boom vang loads.

Some of the biggest causes of bending are sailing with a lot of boom vang on and:

- 1 capsizing at speed;
- 2 catching a wave with the boom end, either offwind or whilst gybing; or
- 3 sailing into the back of a wave causing rapid deceleration.

Recognising these causes tells us that it is very important to release the boom vang before sailing offwind, ideally just before you round

the windward mark. In strong winds, this will reduce the risk of bending with the added advantage that you will open up the leech of the sail which is fast for offwind work! As a guide for letting off the boom vang, trim the mainsheet tight until the rear boom and traveller blocks are just touching then release the vang until there is no pressure on it.

One final point to keep in mind is that it would appear that an old mast that has been used for some time can bend further without bending permanently than a new one. It is therefore advisable to take it easy during the first few months of a mast's life.

Rudder and Tiller

Rudders and tillers like everything else are not indestructible. On the very few occasions when we have seen damage to either the rudder or the tiller, it has been caused by trying to bear away at speed while the Laser is heeled to leeward. When a Laser is heeled over it takes on severe weather helm. If you try and bear away whilst heeled, you place great loads on the rudder and tiller. The simple answer is to bring the boat upright first before attempting to bear away. This can be done by either hiking more and/or releasing the mainsheet.

