

BODs

Boom Height, Class Rules, Raising the boom, Options

The present typical boom height results from mast rake, strong booms and powerful kicking straps, all of which result from competitive racing. Also, sometimes, the mainsail is not effectively held to the top mast band.

Current Class Rules

The class rules have a number of effects on boom height and on changing it, while also providing that existing measured hulls, rigs, and sails always remain legal.

1. The rake of the mast is not measured. (With the rake that Robbie Stone drew, the aft end of the boom is some 6-8" higher than that currently fashionable and can therefore be raised by optionally re-setting the rake.)
2. If the currently fashionable mast rake is desired together with a higher boom then the boom can be optionally raised in its full length. This is allowed in the class rules since the mainsail leech measurement is a maximum and the lower mast band (gooseneck) height a minimum. (On existing masts, especially wooden ones, an assessment would need to be made of the effect of the boom thrust at a higher point on the mast and of the vacated gooseneck fastening holes.)

A mainsail shorter in the luff and leech would need to be used but this would be broader because the $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ height cross measurements would all move closer to the head of the sail. If 6", parallel, is taken off the foot of the sail losing 6 sq.ft. then the cross measurements grow by 2", $1\frac{1}{2}$ " and 1" and 2.4 sq.ft. would go back on the leech.

Calculations for the effect on performance of these sail areas, lost and gained, using known data for windspeed at various heights (Bethwaite) indicate definite gains for a higher boom with more roach in light airs, and little difference above 6 knots when suddenly there is less difference in windspeed at height.

Just above this critical point of 6 knots the BOD mainsail is developing approximately 8,700 grammes of pressure. With the boom raised 6" (150mm) parallel, the calculated losses at the boom are 30 grammes ($1\frac{1}{4}$ oz) more than the gains at the leech. (198 minus 168)

These gains and losses can be balanced within 1 gramme, by calculation, if the boom is, instead, raised by $4\frac{3}{4}$ " (120mm) at the mast and $5\frac{1}{2}$ " (140mm) at the aft end, and would remain very close indeed for any approximately parallel re-positioning between that and the present.

Changing the rules

Any prospective decision to change the class rules with a view to making a higher boom/mk 2 mainsail mandatory in the interests of universal comfort or commercial saleability may need to consider the following:

1. The need to introduce a maximum forestay length or other control so that boats could not simply rake the mast back further until the sheet comes chock-a-block at the horse again. Possibly causing everyone to either copy (and hit their head again!?) or lose.
2. Calculations aside, and since this would be the first ever proposal to effectively make a sail smaller, the possible need to assess the relative and all round merits of current and high boom rigs on the water. Especially in light of rules D.1.2., F.1.1. and G.1.1. which allow hulls, rigs and sails in class from the date of Fundamental Measurement.

Mandatory change to a parallel higher boom would deny any further supply of masts and mainsails to the current design but could not prevent the use of existing stock. And mainsails could continue to be made with long luffs to fit pre-existing low goosenecks because luffs are not measured.

3. An understanding of achieving fair racing with a higher boom by altering existing mainsails would also be necessary. It is not good practice to cut a slab off the bottom of the sail because this is complicated by the lens foot and would cut across the shaped seams running to the tack and cunningham. Best practice would be for the sail to be "cut and shut" at the bottom of the third panel.

Either way the batten pockets and reef points would be out of class and require moving. The total cost would need to be assessed.

Assuming the expectation that the sail would then be the same size as a new sail with a similarly shorter leech, then the $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ height widths currently given in the rules would need to be re-calculated and reduced before the new sail was made. But both sails would then be smaller and develop less pressure than the existing grandfathered stock.

This, as illustrated previously can only be matched with brand new sails made with a shorter leech but to the existing cross measurements.

4. Bearing in mind the status of the BOD an assessment of any change in the appearance or character of the boat and the responsibility of making it both mandatory and permanent.

That the intention of the class rules is for the boats to be as "nearly alike as possible" (A.1.1.) and this will need to be sustained when any change in the rules is made.

When such a change involves equipment protected by the Fundamental Measurement clauses then owners unanimous agreement to abandon such equipment, and re-equip or make properly valid changes, would be the only means of sustaining rule A.1.1.

Alternatively, in the absence of such agreement consider the merits of continuing to set (rather narrow) limits, within which there is no perceivable gain, and allowing progress to establish the norm.

(In that context I can report that it would be wise to consider the available pressure from a currently legal mainsail, with full length luff but 2ft shorter on the leech!)

M. GOODWIN,

Alloy Mast tip

The present alloy mast is rather stiffer than the spruce one with the possible potential for spruce, which is more expensive to make and maintain, to become an "exotic material".

We cannot now change the alloy section and indeed none are available, but one remaining easy step to bring the characteristics of the two spars closer together is to consider reducing the fore and aft tip measurement, of the alloy mast only, from 70mm to 50mm.

The Dragon keelboat class has a similar weight and section of spar, but with fore and aft tip dimensions at 50mm.

Dimensions of section of mast at upper band:

currently	70 x 40	
suggest	50 x 40	(Dragon 50 x 45)

If there is sufficient straw poll support, by that I mean virtually unanimous, then I would propose this now as a recommendation for final verification by the measurement committee (David Chivers indicated no reason against) - but otherwise ask the measurement committee to consider the technicalities and report back for voting next year.

Proposal

"That we recommend to the measurement committee a new reduced fore and aft measurement for the alloy mast only, of 50mm at the upper measurement band to bring the bending characteristics of the spruce and alloy masts closer without compromising the strength of the alloy mast."

