

## Starling Rigs (Mast)

To be fair, there is quite a lot that can be covered here. It is common questions of:

- 1) Should I run a tight or loose rig?
- 2) What should my mast rake be?

and really, the answers to these questions without working with the sailor for a constant week, is “No idea”. However, do some research, and understand what is going on to get the best performance from your rig.

This document is going to only look at the mast set up.

### Tension

Let’s address this one first. Let me begin by saying I sailed with a loose rig, it was fast, for me. At the same time, my competitors around me were running tight rigs. They were just as fast. So what to run?

In short, a loose rig should technically be slower in general. The reason being is think of an aeroplane wing. When you go through turbulence and look out the window the wing is moving around and makes it uncomfortable inside, and a loss of flow over the wing. Your sail is a wing. It needs enhance, not hinder, the flow over the sail. The loose rig was fast for me downwind, but purely because that was my strongest point of sail. A mast rocking forward made it more unstable but sailed right, was fast. A tight rig is also fast downwind as the pressure on the sail transfers into the boat, rather than the energy to move the rig around. A tight rig is good for waves and S curving to enhance the drive.

### Rakes

Firstly, the formulas you see, toss them out. The formulas do not take any where near enough factors into account.

Things that effect where your rake could be:

- Your weight
- Your fitness
- Your sail, how old, the leech length
- Your battens
- Your mast stiffness
- Your stay attachment points
- The conditions
- Gooseneck height
- Your foils
- Get the picture yet?

This is what rakes are good for:

Measuring your mast rake is a really good way of knowing where your setup is, so that if you have a really fast day, or a really high mode, you are able to note down the rake you are running so that you have a reference point. Rakes are just reference points. By all means, use the standard measuring technique of – 10ft from the deck (note that is the deck!) up the mast, -measure from the back of the mast track at 10ft up, to where the transom meets the deck. Note: fiberglass boats have a curved gunwhale, so the point used in the ‘formulas’ are based at where the transom would intersect with the

deck level. Now, for you, all you need to do is put a mark somewhere that you measure to each time. Then YOU know what rake you are running. That way you can fine tune from YOUR base point.

The best way to get your rake into the ballpark figure is hoist the sail. Set the outhaul to mid-range condition setting. Hold the traveller pulley in the corner of the boat (you might need a hand with this). Pull on the mainsheet hard. Just before the blocks at the traveller go block to block, the second full length batten should be flat, or starting to S bend. That is a good indication that the rake, combined with the mast setup factors, matches the leech length of THAT sail. If you were to put a brand new sail on... have a think as to which way the rake is likely to need to go..... Lay the new sail over the old one....

### Experimenting with setups

This is where the younger generations lack the knowledge.

Did you know you have a 150mm range to attach the stays onto the mast?  
Did you know that your fore stay and side stays can all come from one point, or separate?  
Did you know you can put stiffeners into your mast?  
Did you know you can have fixed OR rotating masts?  
Did you know you can attach your vang to the mast?

All these things alone, have a massive influence on your sailing performance. The chances are the stock standard mast "off the shelf" is not the right setup for you!

This is where you need to experiment, but before you do, do the research. How does mast bend effect the sail shape? What would attaching the stays at the lowest point allow? And what are you trying to achieve from your boat? This will relate to your style of sailing as well.

If we all had the same boat, with the same rigs, the same sails, but different sailors, there is always going to be a sailor that is best suited to that particular setup. The rest, will be slower. At the top end, everyone should be going fast, with varied setups. They may not be massive differences, but they are differences none the less that mean the difference to winning a seasons worth of regattas, or not.