

Staying Safe and Legal

whilst

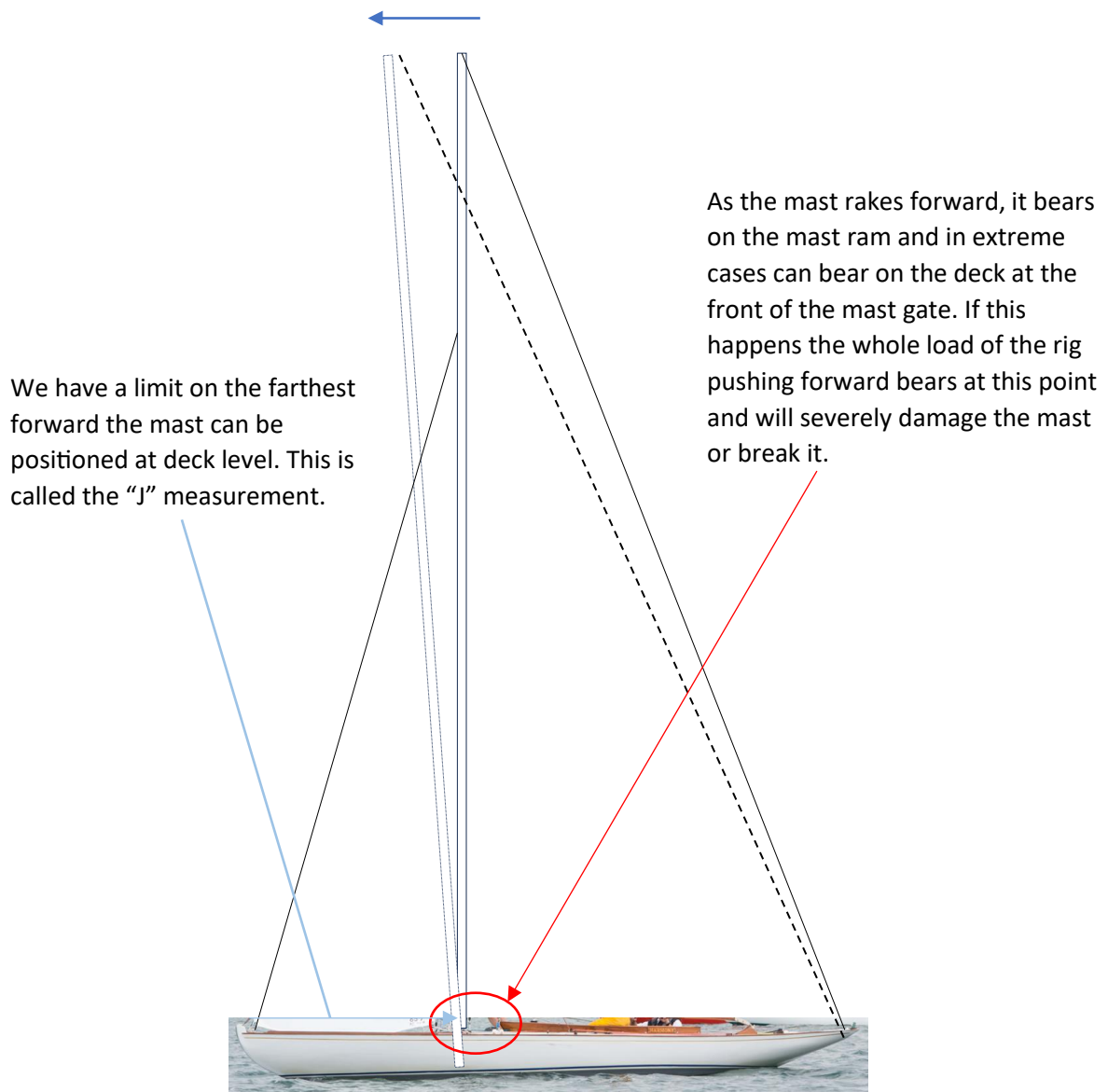
Raking Your Mast Forward Downwind

Introduction

Raking your mast forward when running provides a small benefit to speed by increasing the projected sail area and altering the flow across the sail. The gain reduces as the apparent wind angle moves towards a broad reach and most likely disappears when the wind is close to the beam.

With the current Solent Sunbeam rig options, raking the mast forward downwind is only possible for those boats fitted with in-line spreaders. Boats with swept back spreaders are unable to rake their masts forward when sailing.

Raking the mast forward is achieved by easing the back stay and presents a very real risk of breaking the mast if the procedure is not set up and controlled carefully.



How to Stay Safe and not damage your mast:

If you intend to rake your mast forward downwind then you need to ensure that your boat is correctly set up and then follow a simple but essential procedure to rake the mast safely when sailing.

Set up

Firstly, establish the maximum forward rake for your boat as follows:

1. With the boat on its mooring and sails down, let off the mast ram controls completely and ensure they can run free.
2. Let off the back stay.
3. Attach the jib halyard to the jib tack attachment point on the bow using a spare bit of line if the halyard isn't long enough.
4. Carefully tighten the jib halyard using your winch to pull the mast forward taking note of its position in the gate, making sure the mast ram does not run out of travel. If the mast ram runs out of travel this can be adjusted with the bottle screw on most boats.
5. The maximum forward position should leave a gap between the front of the mast and the front of the mast gate of at least 25mm for safety. (Backstay systems can stretch!)
6. With the mast in this position pull on the backstay hard and check the mast position in the gate.
7. Place a stopper knot / bobble in the backstay to prevent it ever extending beyond this point.
8. The principle of the safety stop is to catch the rig if the stopper knot slips, or a block or line fails. We have a variety of backstay systems in the fleet so your safety stop system will have to be modified to suit your boat. The stop should be 4-6mm dynema and attach at the dead end of the backstay and onto a fixed point on the hull where available, the picture below shows the principle. The stop should be set slightly tighter than the backstay in its fully off position.



“J” Measurement

The position of the front end of the mast gate on most boats in the fleet prevents the mast from ever being forward of the “J” measurement limit of 2591mm from the bow at deck level (see picture above and class rule C7.3 (a) for more detail). However, some boats have mast gates which could permit the mast to rake beyond this measurement. These boats must therefore ensure that the backstay is limited with stopper knot and safety stop to prevent the mast infringing this measurement.

The boats which have been measured recently and cannot infringe the “J” measurement rule due to the position of the front of their mast gate are, Argosy, Bryony, Query, Danny, Sugar Daddy, Symphony, Fleury, Honey and all the GRP Sunbeams. All other Sunbeams should check this measurement if they are using in line spreaders and raking their masts forward downwind.

Raking the Mast Safely

Correct set up and a safety stop should protect you from breaking the mast due to contact with the deck however this will be ineffective if you don't ensure the mast ram is fully off before you ease the backstay. The procedure to rake the mast forward on a run is:

1. Release the mast ram and make sure the line is free to run.
2. Gradually ease the back stay and make sure as you do so the mast ram is moving forward.

NEVER RELEASE THE BACKSTAY WITHOUT HAVING FIRST RELEASED THE MAST RAM

3. Its optional to pull up on the jib halyard to stop the rig slopping around and to take the slack from the jib. However, if you do this then go gently, just take up the slack, do not apply tension in the jib halyard as this will load the backstay unnecessarily. Some boats are fitted with an additional control which takes some of the slack out of the halyard.

To bring the mast back to its upwind position the process is reversed.

1. If you have tightened the jib halyard then ease it back to its upwind position
2. Pull on the backstay to upwind position.
3. Pull on the mast ram to upwind position.

In practice this can be very difficult to pull on the backstay when running downwind in breeze. If that's the case round up onto the upwind leg, the mast will naturally rake back and then pull backstay and mast ram.

And if the booms unusually high as you set up off upwind then you forgot to ease the jib halyard back to its upwind position!

Considerations

- In most boats the mast ram control is forward and the backstay aft. Some boats have modified their controls so the helm is responsible for both the mast ram control and the backstay. Having these controls in the same place and operated by one person avoids the chance of an enthusiastic helm in the heat of battle releasing the backstay without having checked that the crew has released the mast ram.
- It is possible when passing a withy or similar navigation post with the boat well-heelled for the unwary to hook their backstay over a withy. The absence of a stopper knot or safety stop in the backstay system is viewed by some as a fail safe for this eventuality.....you could simply let the backstay go to unhook from the withy. The recommendations above remove this failsafe option.