

UNDER SAIL

4 Now go sailing in a moderate breeze

Put the boat on the wind, power her up, then look up the mast to see how much it is bending. If you have never done this before you will be surprised and perhaps scared by how much it bends, but don't worry, all structures deflect to some extent under load. Aim to adjust the rig to keep the bend down to no more than one mast diameter in any direction. If a mast bends too much out of line it is liable to fail under compression, frequently called going 'out of column'.

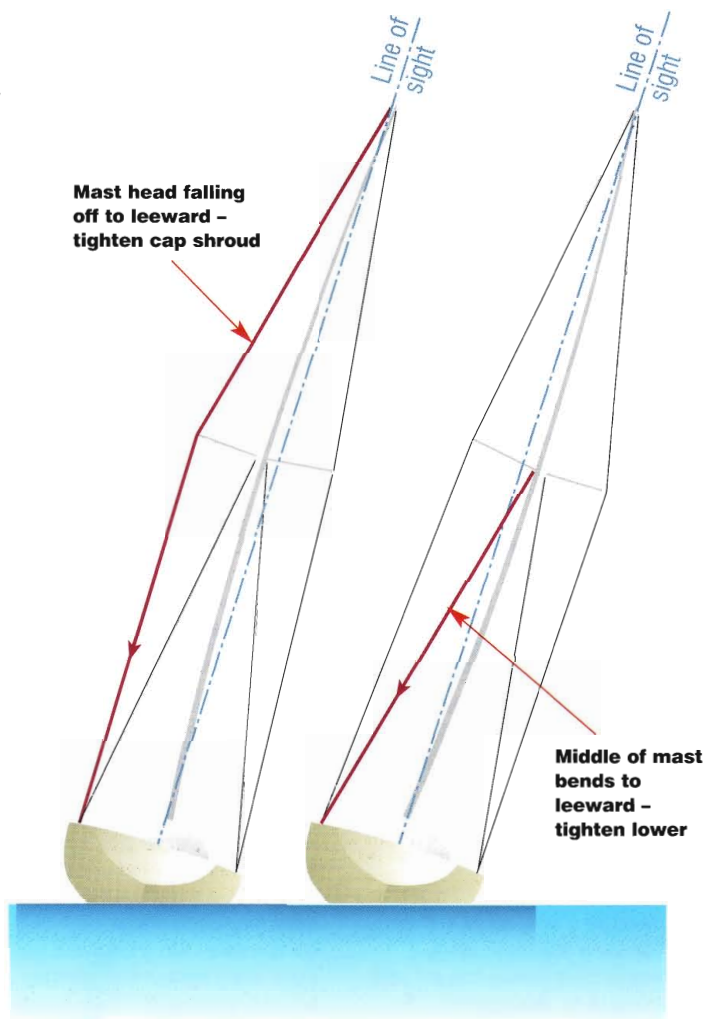
First see how much it is bending fore and aft. It should be bending gently forward in the middle, by about half the diameter of the mast section. If it is bending aft, tighten the inner forestay or the forward lower, or on fractional masts with swept aft spreaders tighten the windward cap shroud or ease the windward lower.

Then check the athwartships bend. When a boat is sailing and the lee rigging becomes slack, it is only the windward rigging that is supporting the mast and keeping it straight. So if the middle of the mast is bending to starboard, this has to be corrected by tensioning the starboard cap shroud or easing the starboard lowers – not by tensioning the port lowers.

Do not forget to record how many turns you have made on the cap shroud rigging screw, and do the same later on the opposite cap to keep the mast upright.

Check the overall tension by noting the heel angle at which the leeward rigging goes visibly slack. A good rule of thumb is that the leeward rigging should go slack when beating to windward at an angle of heel of around 20°. If it slackens at a lower heel angle than this, as it almost certainly will at first, then all the rigging must be tightened. The cap shrouds, being longer, will require more turns than the lowers.

This is a circular process. Tightening one shroud will alter something else and the mast is likely to bend elsewhere but, gradually, the adjustments required will get smaller. Time can be saved by sailing on one tack, say starboard, noting the changes required and tacking onto port to make the adjustments. Then, before tacking again, note what adjustment is required on the port shrouds, then tack and check if the starboard shrouds are now OK and make the adjustments to the port shrouds. The rigging should be checked

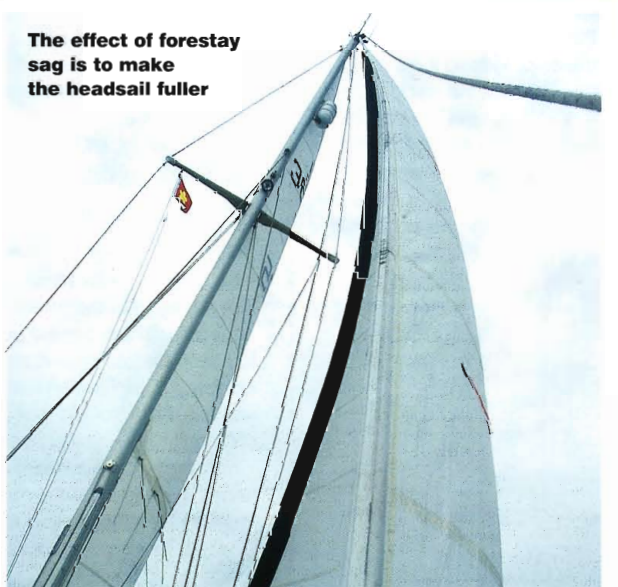


and re-adjusted in varying conditions. Go sailing again in a strong breeze, with the main reefed, and re-set the rigging, if necessary. It will be found that

there is no single perfect set-up that suits all conditions, so a compromise is needed. It is best to set the rigging for the strongest wind you are likely to sail in.

5 Forestay tension

The tension on the forestay is largely a matter of sag in the headsail luff. Look up the forestay under way with the biggest headsail set. It will sag, because however tight the stay is set it will be pulled out of line to some extent by the tension in the sail. The effect of forestay sag is to make the headsail fuller, perhaps too full for heavy winds. The sailmaker will have cut a concave curve in the luff of the jib to allow for some sag, but if the sail seems too full, the stay will need to be tightened. Do this by tightening both the forestay and backstay, to keep the rake and forward mast bend correct.



Finally

When you are happy with the rig, it is a good idea to record the pin-to-pin length of all the rigging screws in the boat's maintenance log. This will help to quickly re-set the rigging next time the mast is stepped.

Remember that the rigging on a boat will always slacken with time, and will need periodic re-tensioning. This is because the 1x19 rigging wire will bed in, the mast step will settle down – even the chain plates will creep up as fastenings take up load. The angle of heel at which the shrouds become slack is the measure of this slackening.