

## Adjusting and Trimming Your Roller Furling Headsail

*A layman's guide to getting the most from your headsail*

*By Bob Pattison*

Most contemporary mid-size sailboats built in North America over the last twenty years have been, by and large, masthead sloops with one or two sets of spreaders and fly a headsail that is between 140% and 155% in size. Generally these headsails are set flying on roller furling gear. With this in mind, here's an easy and straightforward approach to trimming roller furling headsails and setting them up for quick and precise reefing.

### First Things First: Halyard Tension

Luff tension is used to remove wrinkles from the luff of the genoa, so that the sail is smooth from tack to head along the luff. Increasing the luff tension beyond this amount will affect the overall shape of the sail by inducing stretch along the luff, which will pull the draft (shape) of the sail forward for a better shape in heavier wind conditions. Don't do it (!), as you will more than likely, furl the sail as the wind strength increases negating the need for additional luff tension. On occasion your halyard may stretch or slip and you will need to re-tension the luff.

In general when sailing close hauled in 10-12 knots of true wind the genoa halyard tension should be such that the luff does not exhibit wrinkles (appearing at right angles to the luff). You can easily get them to form by releasing an inch or two on the halyard when sailing close hauled and you will see the show up quickly. To re-tension the luff, it is always best to release the genoa sheet in part or completely prior to raising the halyard, as this will reduce the overall load on the sail allowing the halyard to go up much easier. Bring the halyard in slowly until the wrinkles disappear and then take one half turn more on the halyard. This should be enough so that when the sail is once again sheeted in the luff will be free of wrinkles.

### What's in a Name?

*Headsail size percentages refer to length of the "luff perpendicular" or L.P. This is an imaginary line that runs from the clew of the sail and intersects the luff at a right angle, the length of which is relative to the "J" measurement of your boat. Thus, if you have a "J" of 10-feet, and an L.P. of 15-feet, your headsail size is a 150% of the "J" measurement.*

### Adjusting the Sheet Lead Position

Getting the genoa lead position correct is a combination of factors and once you have located the 'sweet' spot, any further adjustments will be quite small. Let's look at the basics; the genoa lead position (fore and aft) has two functions:

1. Adjusting the balance of tension between the foot and leech of the sail.

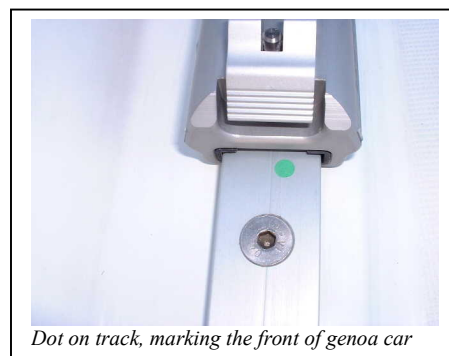
By moving the genoa car or lead forward, the angle of the genoa sheet from the genoa car to the genoa clew becomes steeper and in turn when the sail is sheeted in there will be proportionally more load exerted on the leech rather than the foot. Conversely, the opposite is true if you move the lead aft. To establish your initial setting, bring the boat up to close-hauled in 8-12 knots of wind and slowly bring the sail in to its final trimmed position. Now look forward along the foot of the sail at the point where it passes the shrouds. The sail should be between 3-6 inches outside of the shroud in this condition.

Likewise, if you look up to your spreader the sail should be about the same distance outboard of the

spreader. Boats with double spreaders rigs, trim to the top spreader and not the middle one.<sup>1</sup> If the sail is further in distance out at the foot than at the spreader, ease the sheet out and move the car aft one hole (usually between 2-3 inches). Bring the sheet back in and check the settings until you have this equal balance. Conversely, if the initial setting had the sail tight at the foot and further outboard at the spreader, move the car forward one hole and check your settings. Once this is established, make a mark on the track or deck at the front of the car (see photo) with a permanent marker or sticky dots. This then will be our base point.

## 2. Adjusting the overall shape (fullness) of the sail.

In certain conditions the lead position is used to add shape to or flatten out the shape of the headsail. Think of this like an accelerator pedal...if you need more power (going faster) move the lead forward, stepping on the gas. This will make the bottom of the sail fuller (further away from the shroud base) giving the sailplan more power in light air conditions or when reaching/running. On a typical 36 foot boat you will need to move the lead forward 2-3 inches or one hole forward to increase the fullness of the sail quite a bit, two holes or six inches forward should produce a very powerful light air shape.



*Dot on track, marking the front of genoa car*

Conversely, if you move the lead aft, the sail will be sheeted tighter along the foot, *flattening* the sail. This will reduce the amount of power the sail generates (backing off the accelerator and slowing down) and help the boat perform better in windier conditions. In most cases though, as the breeze increases you will want a smaller sail in addition to a flatter sail so you will take a turn or two up on the furling drum, reducing the sail area, reducing the power.

Moving the lead further forward than 6-8 inches indicates that you are no longer sailing upwind and have entered the reaching mode. In reaching conditions, the genoa sheet will now be eased as the sail is being adjusted to wind angle and not for upwind work. Reaching is generally a point to point activity...so the boat is sailed on a steady heading...at this time the trim emphasis moves from getting the sail trimmed closely to the rig to the luff tell tails. Here the proper sheet trim is accomplished by watching the lower and forward most tell tail. If the weather tell tail stands up more than 45° then the sheet should come in, if the leeward tell tail stands up vertically, the sheet should be eased. If you find yourself sailing lower than 50°, then it's time to consider going to an asymmetric cruising spinnaker for optimum performance.

## And Lastly: Reefing the Headsail

The need to reef your headsail is dependent on several factors, all of which will vary from boat to boat and sailor to sailor, but the basic concept is this: as a boat becomes overpowered because of increasing wind strength, the sail area needs to be reduced, keeping the boat balanced (reducing excessive helm), and sailing on her lines (not excessively heeled) both of which will make the sailing safe and comfortable.



*Genoa furling to first reef mark*

<sup>1</sup> It could be said that getting the sail finely tuned to be equidistant from both (or 3) spreaders requires **both** a good sailmaker and a new sail. As sails age and stretch, this is one of the first places they start to show their age. So target the top spreader as your trim point.

Generally, the need to shorten sail will become apparent when either the above conditions are encountered but you may also find the need to reef when sailing shorthanded (making sail handling easier) or in situations where forward visibility is needed, such as entering a crowded anchorage. A top notch furling genoa will be equipped with head and tack reefing patches and *reefing marks* (see photo). The additional reefing patches help to re-enforce the sail at times when it is reefed and the reefing marks are designed to facilitate quick and easy reefing in conjunction with preset genoa leads. Using this system will save time in reefing set up and also ensure reproducible results with a minimum of fuss. The first step is to furl the headsail to your first furling mark.<sup>2</sup> It is not important that the mark faces aft or to the side...but you should make a mental note and do it the same hereon. In furling the sail you have effectively shortened it, pulling it forward towards the bow. This means that your genoa car **will need to move forward as well**. The distance will vary from sail to sail, but move it at least 12" / 300mm. The genoa sheet must not be under tension while you make this adjustment otherwise it will be virtually impossible to move. Once this has been moved forward, bring in the genoa and check the trim as you did above. The sail should set in the same manner...being equidistant from both the spreader and the shrouds at the foot of the sail and if it doesn't adjust the lead accordingly. Once you have the location of the genoa car finalized, make two marks at the front of the car at this point. Carry out this same procedure for the 2nd and third marks (if you have three). In setting up the last mark, we are going to assume it is quite windy and in these conditions you should have the foot closer to the shroud than at the spreader. In fact, the foot should probably touch the shroud while the sail at the spreader is 6-10" away. This setting will flatten out the lower section of the sail (less power) and allow the top to be more open which also reduces the power. Now you can duplicate the marks on the opposite genoa track. Do this with a tape measure, measuring the finished marks from the end of the track or by counting 'holes' or bolt heads from one end or the other. Make note of the distances and take your marker or stickers and set up the other track in the same fashion. The beauty of this exercise is this: the next time you go sailing and decide to reef your headsail, you can move the car forward to the first mark (on the lazy sheet side) and then do a nice slow tack, furling the headsail to the first mark as you go through the tack. As you sheet in, the jib lead and sail trim will be perfect, with little thought and a minimum of anxiety. Once sheeted in remember to move the old lead forward as well.

*Bob Pattison has been sailmaking since the late 70's and currently is the Technical Director for Neil Pryde Sails Int.*

---

<sup>2</sup> A lot of sailmakers put these marks at incremental distances based on the L.P. So the first reef mark is say a 140% and the second a 130%. The reality is that as the sail furls, not only does it shorten along the foot/L.P.; it also shortens at the head and tack. This means a reef mark that is, say at 100% L.P. will in fact have the area of about a full hoist 90% jib. For this reason, I choose to use them as relative **guides** and not steadfast percentages. The important thing is reducing area to a comfortable and safe size, not to a known percentage!