



INTERNATIONAL DESIGN AND TECHNICAL OFFICE

***Sail Trimming Guide for  
the Beneteau Oceanis 46.1 ICW Rig***

**2018**

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## HEADSAIL OVERVIEW:

The Oceanis 46.1 ICW rig built in the USA and supplied with Neil Pryde Sails is equipped with a 107% overlapping headsail that is 516sf / 48m<sup>2</sup> in area and is fitted to the Facnor LS200 furling unit. The sail is built using Challenge Sailcloth 7.88 balanced woven polyester.

The following features are built into this headsail:

- The genoa sheets in front of the spreaders and shrouds for optimal sheeting angle and upwind performance
- The genoa size is optimized to sheet correctly to the factory track when fully deployed *and* when reefed.
- Reef 'buffer' patches are fitted at both head and tack, which are designed to distribute the loads on the sail when reefed.
- Reefing marks located on the starboard side of the tack buffer patch provide a visual mark for setting up predetermined reefing locations. These are located 750mm/29.5" and 1500mm /59" aft of the tack.
- All seams triple stitched in V-92 thread in a '3-step' stitch and in contrasting color to help identify chafe issues later in the life of the sail.
- A telltale 'window' at the leading edge of the sail located about 14% of the luff length above the tack of the sail and is designed to allow the helmsperson to easily see the wind flowing around the leading edge of the sail when sailing close-hauled. The tell-tales are red and green, so that one can quickly identify the leeward and weather telltales.
- A draft stripe for quick sail shape/depth reference.
- A Furling cover in white, sewn to the **starboard** side of the leech and foot designed to cover the sail when furled, protecting it from U.V. damage. It is important to remember that the furler and sail should rotate **counter clockwise** when furling in order for the cover to be on the outside/starboard side of the sail; protecting the sail.

## Set Up Considerations:

- All measurements are taken from the *aft* end of the genoa track forward to the *aft* end of the genoa car.
- Boats may have fully adjustable genoa cars or a car that has a button that is lifted up to disengage the pin that holds the car in place. When moving the car, always move the 'lazy' sheet, so that there is no load on the jib sheet or car when making adjustments. Lift the pin or adjust the line and move the car forward or aft.
- There are evenly spaced holes on the genoa track fore and aft and on 4"/100mm centers. The adjustment pin of the car will lock into these holes.



*Stock Genoa Car Pin release located at front of car*

## Why Mark The Lead Position:

Once the initial trim settings are made to the genoa lead (car) position (which is critical to good performance) the cars will not require much movement fore and aft for different conditions. However, as one reefs/furls the headsail to the furling marks on the sail, the sail moves forward as it gets smaller and the clew elevates slightly as a result of the furling process. This changing dynamic requires that the genoa lead position be adjusted to ensure proper trim when sailing with the reefed sail.

By marking the location of the cars on the deck or track so that they coincide with the reefing marks at the tack of the genoa you will take the guesswork out of setting the leads when reefing. The lazy genoa car can quickly and easily be moved forward to the pre-marked location and then during a slow tack the genoa can be reefed to the coinciding reef mark at the tack. The sail trim will be properly set on the new tack. When measuring the lead positions (as described below) you need to mark the track at the front edge of the genoa car. You can do this with permanent marker, tape or some sort of self-adhesive 'dots'. The marks should be on the deck as track mounted tape/marks can be rubbed off by the car.

## MARKING THE LEAD POSTION:

### Full Size:

When your genoa is completely unfurled for sailing, the forward edge of the genoa car should be 15" / 380mm from the forward end of the genoa track. This will be your 'all-purpose' lead position.

- This will be appropriate for wind strengths of 7-12 knots true wind.
- Sailing in less than 7 knots of true wind you can move the lead position forward one hole or 4"/100mm making the genoa more powerful for these conditions.
- In more than 12 knots of wind, you may move the lead aft one hole 4"/100mm from the all-purpose setting (de-powering the sail slightly) or you might at his time, consider reefing the headsail.
- The genoa should be sheeted so that there is sufficient tension on the sail to bring the leech almost to midway at the lower spreader. Note that in very light air, you can sail with the leech further outboard or more 'open' which will help keep the slow moving air attached to the sail and working for you. Do this by easing the sheet slightly.



*Genoa full size and trimmed correctly*

### First Reef Mark:

Move the lazy genoa car forward so that the forward face of the car is 9"/228mm from the front of the track. Mark this location on both port and starboard tracks.

Do a slow tack and furl the genoa so that the first tack reef mark is still just visible and then sheet in the genoa to the new position.

Move the new lazy car forward to same point. Both sides are now set.

### Second Reef Mark:

Move the lazy genoa car forward so that the front face of the car is almost to the track stop. Mark this location.

Carry out a slow tack and furl the genoa so that the second reefing mark is just visible and then sheet in the genoa to the new position.

Move the old lazy car forward to same point. Both sides are now set.

Conditions that require this reef will be quite windy and depending on your comfort level may be put in place anywhere from 20 knots on up. This position will keep the foot of the sail quite tight, flattening the shape for good breezy air performance.

Depending on sea state and wind strength you may need to move the car back to ensure the foot is very flat.

### Genoa Notes:

Generally, sail trim is a bit of science, a bit of feel and a bit common sense. As a basic rule, we like to say *that if it looks right, it probably is*. Your Neil Pryde sails are designed, tuned, and tested for each specific model and as such, you will be able to achieve proper trim using this guide.

Take a minute and look at each of the pictures of the reefed genoa. What they all have in common is that the leech of the sail is quite vertical...not falling off to leeward (twisting). You can see that the leech relative to the spreader is in about the same location...which indicates that the genoa sheet tension and sheeting angle of the sheet is correct.



*Genoa reefed to the 2nd reef mark*

Occasionally, you might find that the leech flutters a bit. If this happens, it's usually indicates that the sheet tension is not tight enough (you need to winch the sail in a bit tighter). However, if the boat becomes over-powered (heeling excessively) when sheeting tighter, you should consider reefing the sail at this time.

Assuming you have the leads in the right location per our instructions and the sheet tension is correct, but the sail still has a bit of flutter, you should adjust the leechline to keep the leech from fluttering.

The leechline pocket opened to reveal the leechline, cleat and the leechline 'tail' pocket. The leechline has an internal 2:1 purchase system. The 'tail pocket is on the inside of the leechline cover and you can put the excess leechline tail into this pocket before closing the cover. To adjust, take up the line by pulling downward until any leech flutter stops. Cleat the line and insert the tail into the pocket and close the flap.

## Mainsail Overview:

The Neil Pryde Sails Furling Mainsail is 489.5sqft/45.5m<sup>2</sup> and built with Challenge Sailcloth 9.88oz Dacron and fitted to a 703E Z-Spar mast.

The following features are built into this Mainsail:

- Reef 'buffer' patches are fitted at both head and tack, which are designed to distribute the loads on the sail when reefed.
- Reefing marks located on the port side of the tack buffer patch provides visual marks for setting up pre-determined reefing locations. These are located 300mm/12" and 700mm 27.5" and 1400mm/55". These reefs will reduce the area by 10,25 and 50% and keep the battens to the outside or inside of the spar.
- External clew furling block.
- All seams with 3 rows of V-92 thread in a '3-step' stitch and in contrasting color to help identify damage thread.
- A draft stripe for quick sail shape/depth reference.
- A reefing sticker at clew to indicate when the sail is furled completely and just the U.V. cover remains on the outside.
- Leech Tell Tails for seeing proper air flow over the leech of the sail
- Vertical 'bow' style batten pockets to support the roach found in this style furling main. Visit <https://www.neilprydesails.com/beneteau-videos> for details in how to insert and remove the battens.



*Mainsail full size*

## Furling Notes:

If there is friction in the outhaul/inhaul systems when unfurling or furling the sail you will have problems furling the main. To facilitate easy and smooth furling, we recommend that you lubricate the entire outhaul and inhaul systems with McLube or other dry lubricant. Spray the boom track, the car, the car bearings, the sail clew block the outhaul sheaves at each end of the boom, the blocks at the mast, deck and turning blocks. Spray the top and bottom of the bearing case of the furling unit inside the mast. Check also for friction with in the halyard organizers or at the mast base blocks, if these do not move freely it will cause slowing of the gear. Spray the mast on both sides at the slot that the sail goes into, as high up as you can reach. Friction is your enemy here. Carry out this once a month. If you live near or in an area with a fair amount of industrial pollution, wash the above systems with soap and water, rinsing clean, allowing to dry and then lubricate.

When furling, make sure the outhaul line is free to run with no kinks, knots, or the crew standing on it. This is important! Have the boat head to wind or with the wind slightly to port and slow down the boat as much as possible. When furling make sure the boom vang is off and then pull out several feet of the vang line in front of the stopper to ensure you are free to run. Ease the mainsail at least 2' /60cm. Snug up the topping lift if it has been off.

With a properly set up system you should be able to furl the main by hand..the first turn might be a bit stiff, but as soon as it turns the rest of the sail will follow with ease.

Visit <https://www.neilprydesails.com/beneteau-videos> for a series of videos on 'how to furl'

## Reefing Notes:

Reefing the mainsail, headsail or both in combination allows the skipper to keep the trim of the boat in a more upright mode. This is a safer, more comfortable and faster way to sail in strong breezes. In addition, reefing the sails importantly affects the

balance of the boat and can increase or decrease the amount of weather helm that develops at the wheel. The timing and sequence of reefing is up to the skipper of the boat to consider and will vary from skipper to skipper, as some conditions or ones preference in how the boat is sailed in reefing conditions are variable. With this in mind, the following points are general observations.

1. The 'balance' of helm is regulated through mast rake, fore and aft when the forestay is adjustable and by sail trim. In the case of the 46.1, the forestay length is preset from the factory. In sailing this boat, you will find it to be very balanced due in large part to rudder/keel/hull design.
2. Weather helm is desirable in all sailing yachts. It keeps the bow into the wind while sailing upwind and improves your VMG to weather.
  - a. In 10 to 12 knots of wind with the sails fully deployed the helm will be neutral or with a very small amount of weather helm. This means in releasing the wheel, the boat will (depending on wind, sea conditions and boat trim) slowly come into the wind.
3. As you reef the sails, you are also going to affect the balance or center of effort on the sail plan.
  - a. **Reefing the genoa will reduce the area of this sail and in turn moves the center of effort aft, increasing weather helm.**
  - b. **Reefing the mainsail first, will move the center of effort forward and decrease the weather helm.**

The 46.1 is a modern easily driven hull and in sailing the 46.1 we have found that it is a very balanced boat and as such you can reef the mainsail or jib first and the balance will be fine. We recommend that you reef the main and/or the jib to the first mark as you approach 15 knots true wind as at this wind range and anything above this you will be reducing sail area as the rig and sails will provide you with all the power you need to sail the boat comfortably. Reefing early to the first reef marks will make for comfortable sailing and ensure a balanced helm as the breeze initially builds.

In more than 15 knots true wind, you will need both the mainsail and genoa reefed to the first reef mark and though you may be somewhat under powered initially, as sailors we find it safer to assume the wind will continue to build at this stage and it is always more prudent to reef earlier than later. Should the wind decrease, increasing the sail area is easily accomplished by deploying the sails so they can be full sized again.

Assuming the breeze continues to build into the twenties we then reef the jib to its second reef mark, followed by the second reef in the mainsail. This will establish good helm balance and also decrease the total net area, making the boat more upright and comfortable. Remember: a boat sailed flatter is faster and sails higher than the same boat with excessive heel.

#### **Mainsail Reef Note:**

Furling mainsails offer the user infinite reefing positions as compared to fixed reefing points found on the classic mainsail. Our reef marks are approximate guides...you may find you need more or less area reduction depending on wind strength and density, all-up weight of your boat or other parameters that can affect how the boat feels and sails when reefed. Experiment!

\*\*The only rule in regards to reefing the main is to make sure that when reefed that you should never have a batten partially in or out of the mast. All the way in, or all the way out. This will keep chafe issues to a minimum.

## **MAINSAIL TRIM:**

The following points on mainsail trim apply both to the Furling and Classic mainsail, as the concepts are the same.

The Oceanis 46.1 has a center mainsheet system designed to do away with the clutter of the mainsail traveler system in favor of the triangulated mainsheet system.

This system requires owners to trim the mainsails quite a bit differently than boats with traveler and requires this overview:

- With a traditional traveler/mainsheet system, the mainsheet is used to coarsely bring the boom near centerline and then to apply tension to the leech of the mainsail. The traveler is used to fine tune the sailing angle of the mainsail/boom...to accommodate for changes in sailing angle or to depower the boat in increased winds.
- The triangulated mainsail sheet system also brings the boom to centerline, and applies tension to the leech of the mainsail...but only when sailing close-hauled. The minute the mainsheet is eased to adjust the sailing angle of the boom (as if you were using the traveler) the leech tension also slackens and the sail loses proper trim as there is no longer any tension being applied to the leech of the sail. Visually it is the same thing that would happen should you be sailing upwind and ease the genoa sheet...the genoa leech and sail would start to flap

because it is not trimmed for upwind sailing! By easing the mainsail without boom vang tension, you will be doing the very same thing.

- To compensate for this, the boom vang (or kicker) becomes a much more important part of your mainsail trim by keeping constant tension on the leech of the sail throughout the range of motion of the boom, regardless of mainsail tension. Correct mainsail trim requires that once the mainsail is sheeted hard upwind with the boom near centerline and the leech tight, the boom vang must be pulled on tight and with one extra turn on the winch to ensure the leech trim will be correct when you ease the mainsheet. The two work hand in hand.

## Upwind

1. Upwind in up to about 8 knots true wind the boom can be brought up as close to centerline as possible which puts the leech of the sail in a powerful upwind mode.
2. The outhaul should be eased 2" / 50mm - 3"/75mm at the stopper, easing the foot of the mainsail away from the boom about 8"/200mm – 10"-240mm.
3. Mainsheet sheet tension should be tight enough to have the uppermost tell tail on the leech streaming aft about 50% of the time in the 7-12 true wind range. *(For those with furling mainsails the action of furling and unfurling the sail can play havoc with keeping the telltales on the sail and you may need to replace them from time to time.)* Trim the mainsheet until the tell tail stalls to leeward and then ease it just a bit to get it streaming. A common mistake is to be over trimmed at the top tell tail!
4. In 8-12 knots the outhaul should be brought in ½ of light air setting.
5. **\*\*With the mainsheet tension set, the boom-vang should be tensioned until it is quite tight ...right at the point that it starts apply more leech tension than you have with just the mainsheet. (As general rule, we would pull the vang on as tight as possible by hand and then wind on one full turn on the winch)With this set, you can now ease the mainsheet to adjust for sailing angle or wind strength AND have the proper leech tension via the boom vang.**
6. In over 12 knots, the upper tell tail should be flowing almost all the time.
7. As the wind builds above the 12-knot range you will need to de-power the boat to keep her on her lines and to reduce weather helm. Start by getting the outhaul all the way on (ease the mainsheet to reduce the load the sail while pulling the outhaul on) and then bring the mainsheet back in at 3" /76mm increments until the boat balances. By letting the boom out you are changing the angle of the main relative to the angle of the apparent wind and this reduces the forces on the sail, relieving loads, helm and heel. **If the leech starts to flap or vibrate this is an indication that you should tighten the boom vang and increase the leech load.** And if the mainsail is out far enough that the mainsail starts to backwind, this means it is time to consider reefing the mainsail.
8. It is important to remember that when your boat becomes over powered and you release the mainsail to depower the sailplan, you are in effect putting the sails 'out of trim'. This is a great indicator that it's time to reef...as you can shorten sail and then sheet the sails back in tight to the correct trim and the boat will sail better, flatter, as fast and with better VMG.



## Downwind

1. With the boom-vang set as outlined above the mainsail will have close to the right trim for downwind sailing.
2. As soon as the sails are eased and you are sailing lower downwind angles (even as little as 3<sup>0</sup>) ease the mainsheet to allow the boom to travel out in 3" increments until the boat balances and drives well.
3. Bearing off 12<sup>0</sup> and deeper keeping easing the mainsheet until all your telltales will be flowing aft. The leech tension should correct assuming the boom-vang was tightened as above.



- With a battened mainsail (Classic), one normally keeps the top batten parallel to the boom while off the wind. Achieve this with the boom vang keeping the leech adjusted and the telltales flowing aft. Obviously, without the battens (furling mainsails) you will need to eyeball it. If the top batten or sail is falling off to leeward from this position, tighten the vang to bring it back in line with the boom.  
With the leech trimmed this way, both tell tails should fly aft 95% of the time.

## SAIL CARE:

Both mainsails and headsails will get dirty with time and use. A primary source is air pollution which deposits grime on the standing rigging. The sails in turn will pick this up when they come in contact with shrouds, mast and spreaders. This obviously affects the headsail to a greater degree as it is dragged across the rigging with each tack and gybe. We recommend cleaning every few years either on your own or through a commercial sail cleaner or sail loft. Your local Neil Pryde Sails Agent can help you in this regard.

Roller Furling Mainsails are equipped with a small label on the starboard clew of the sail. This is designed as a 'marker' that will indicate when the mainsail is furled inside the mast far enough so that the U.V. cover on both sides of the sail will protect the sail. It is imperative that the sail be furled so that the label is clearly inside the mast, thus protecting the sailcloth from harmful U.V. If you do not take care in this regard, your sail will be weakened and may be permanently damaged in a short amount of time. Make sure this furling label is inside the mast when furled!



*A special thanks to the Team at Beneteau France and the use of hull number 5 in preparing this guide..*