



# Lido 14 Tuning Guide

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## INTRO

In this edition of the Lido 14 Tuning Guide, we introduce new material from our Lido 14 partner DoubleWave on the topics of weather helm, mast tuning, and centerboard tuning. In addition, we've added the Quick Tune section so that you can easily find the typical settings.

## QUICK TUNE

Use these parameters for a quick, all-purpose, setup. Please review the detailed notes before using.

	<u>Classic Lido 14</u>	<u>6000 Series Lido 14</u>
<b>Aft Mast Rake</b>	20'4"	Very slightly aft of vertical
<b>Forward Mast Rake</b>	21'	About 7" forward of aft rake position
<b>Jib Halyard</b>	Very slight wrinkles at lower jib hanks	Same
<b>Outhaul</b>	4" between the foot of the main sail and the boom	Same
<b>Centerboard Traveller</b>	Leading edge ninety degrees to the hull	Same
<b>Cunningham</b>	Centered	Same
	Tighten just enough to keep the sail in its track	Same

## WEATHER HELM

Much of the upwind performance tuning of the Lido 14 is related to the weather helm of the boat. Weather helm is the tendency of a boat to steer itself upwind (to weather) and is the result of the positional relationship between the sails and the centerboard. Weather helm also varies with wind speed – it increases in higher winds and decreases in lighter winds. The primary method of controlling weather helm is to adjust the aft rake (or lean) of the mast.

A bit of weather helm is a very good thing to have - it's nice to have a boat that "wants" to go upwind. Too much weather helm is a problem, however, because the skipper will have to continually fight the boat's upwind ambitions by steering the boat back down to a close-hauled course. This added steering both slows the boat down and demands a lot of attention and effort from the skipper – neither of which contribute to good performance on the racecourse.

We encourage you to test the full range of recommended aft mast rake settings to learn how it changes the weather helm of the boat. An easy test of weather helm is to sail close-hauled and to judge how quickly the tiller swings to leeward when you let go of it. Of course you should do this test with the utmost of caution. A rapidly swinging tiller indicates a lot of weather helm while a stationary tiller means no weather helm. We recommended that you set your weather helm so that in fully powered conditions (see below) with the boat trimmed flat (no heeling) that the tiller should swing slowly to leeward.

## CENTERBOARD

When sailing close-hauled, the centerboard should be set to a specific angle. This angle can be set roughly by inspection or precisely by measurement. To roughly set the angle, rotate the centerboard down so that the angle between the hull, in front of the centerboard, and the centerboard's leading edge is ninety degrees. The precise method requires that you mark the hull 36" aft of the centerboard's leading edge and also mark the centerboard's leading edge 36" down from the hull. The precise angle is attained when the distance between these two marks is 52".

Classic Lido 14 centerboards have a metal arm that hits the front of the centerboard trunk cap – stopping any further rotation of the centerboard. It is best to adjust the classic Lido 14 centerboard cap so that the arm strikes the cap when the centerboard is at the precise angle described above. Most 6000 series Lido 14s have no equivalent to the arm and thus have no way to reliably stop the rotation of the centerboard at a precise angle. For such boats, it is critical to establish and use calibration marks on the centerboard control line or on the head of the centerboard.

When sailing off the wind, the centerboard should be raised to reduce drag; however, if it is raised too far, the boat will slip sideways. We recommend that the centerboard be raised approximately 1/3 of the way when on a beam reach and all the way up when running straight down wind - unless the conditions make the boat too unstable for your skills.

Lastly, the fore/aft position of the centerboard is important as it affects the weather helm of the boat. Set it so that the leading edge is as far aft as is possible while staying within the class limits.

## **MAST**

Most racing sailboats have masts that are bent with controls to change the behavior and performance of the boat (to change weather helm, reduce power, etc.). This is not the case with the Lido 14 mast. In lieu of such controls, the shrouds are set loosely so that the mast automatically leans aft when sailing upwind and forward when sailing downwind – giving increased performance compared to a boat with shrouds that are always taught. Loose shrouds result in two tuning parameters – forward mast rake (for downwind sailing) and aft mast rake (for upwind sailing). Of the two, the aft mast rake is by far the more important as it directly impacts the performance of the sails and the amount of weather helm.

The forward mast rake setting is based on a combination of performance and safety considerations. Allowing the mast to lean further forward generally improves downwind performance however it also increases the risk of the mast falling down and increases the sideways (leeward) leaning of the mast when sailing upwind. Our tuning recommendations reflect a very good all around setting however you may consider tightening the shrouds (for improved safety) if you are consistently sailing in overpowered conditions.

### ***Measuring Mast Rake***

Classic Lido 14s, those produced prior to the 6000 Series Lido 14, had the same mast head fitting and halyard – making it very easy to quote specific mast rake dimensions that could be used universally across all classic Lido 14s. The method of measuring mast rake on a classic Lido 14 consists of attaching a tape measure (with a hole in the end of the tape) to the main halyard shackle (assumed to be ¾” long – adjust according to your hardware), hoisting the halyard to the top of the mast, pulling gently on the tape to ensure that the opposing rigging is taught, and measure the distance to the aft lip of the transom at the centerline of the boat.

The 6000 Series Lido 14 changed all that with the introduction of a new style masthead fitting, halyard, halyard shackle, and transom shape. To make matters worse, the standard rope halyards offered with the 6000 series Lido 14 often produce variations in measurement from one hoist of the halyard to the next, making it all but impossible to get reliable mast rake settings. In short, any Lido 14 with any of these newer style main halyard components cannot use standardized mast rake tuning methods to compare the configuration of one boat to another. Therefore we have two systems for calibrating mast rake: one for pure (unmodified) classic Lido 14s and another for all other boats (including all 6000 series Lido 14s and all classics with non-classic halyard systems).

### For Classic Lido 14s with Classic Lido 14 Mast Head Fitting

- **Aft Mast Rake:** Pull the mast aft so that it is resting on the forestay and one shroud. The aft rake measurement range is 20' 3-1/2" to 20' 4-1/2". You should set your rake to the mid point of the range and rake further aft if you are consistently sailing in powered or underpowered conditions or rake further forward when you are consistently sailing in overpowered conditions. Note that more aft rake means a shorter distance from the head of the mast to the transom and vice versa. Novice and intermediate sailors should consider sailing with the mast in the forward end of the rake range (i.e. 20' 4-1/2") until they develop better steering and boat balancing skills – skills that are needed to properly manage excess weather helm that comes with additional aft mast rake.
- **Forward Mast Rake:** Pull the mast forward gently until it is resting on both shrouds. The forward mast rake measurement should be between 20' 11" and 21". A popular alternative to setting the mast forward rake is to first set the mast aft rake and then set the length of the shrouds (equally) so that you can grip a "palm width" of forestay and easily turn it ninety degrees. Yet another method of setting the mast forward rake is to tighten the shrouds so that when sailing close hauled upwind, you can trim the jib sheets in without them pressing up against the leeward shroud.

### For all other Lido 14s

- **Aft Mast Rake:** After years of investigation by, only one system has been found that can reliably and easily set the mast rake of a Lido 14 equipped with a 6000 Series masthead fitting. That system is DoubleWave's calibrated forestay. The calibrated forestay system eliminates all the variables (mast head, halyard construction, transom height, etc.) and works equally well on classic and 6000 series Lido 14s. Contact DoubleWave for details. Alternate methods include setting your mast so that it is just slightly (a degree or two) aft of perpendicular to the deck and the weather helm test described earlier.

- **Forward Mast Rake:** After having established the mast aft rake, you may use one of several methods to set the mast forward rake. The more accurate method is to use a measuring tape as describe for Classic Lido 14s but in this instance you measure the difference between aft and forward rakes – the difference should be 7-1/2". Of course, you can also use the "palm width" and jib sheet based inspection methods too, as described above.

## SAIL TRIM

In discussing sail trim, there are four wind conditions the sails will be adjusted to.

<b>Drifting</b>	0 to 3 knots
<b>Underpowered</b>	3 knots to both people sitting on the weather rail
<b>Powered</b>	Both people sitting on the weather rail to hiking as hard as they can while keeping the boat flat
<b>Overpowered</b>	Both people hiking hard and not keeping the boat flat

### Jib

There are four variables to consider when trimming the jib: Jib leads, Jib halyard, Jib sheet-upwind, jib sheet-downwind.

#### Jib Leads

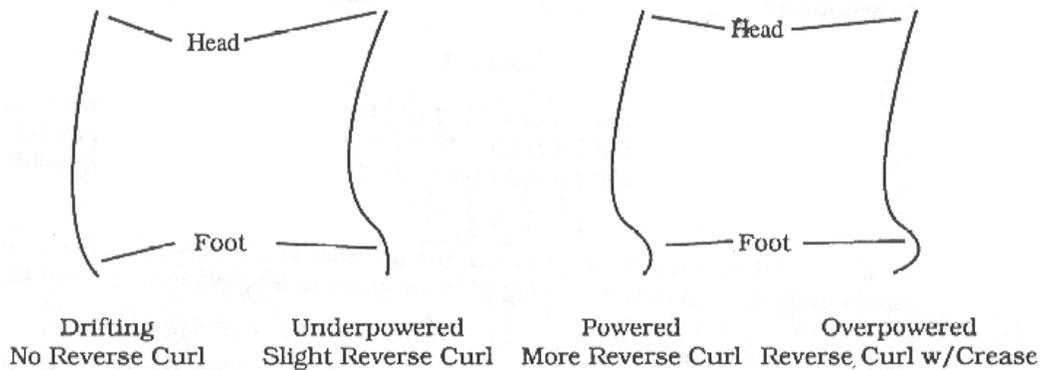
The jib leads should be as far forward as possible, per class rules, and to a lesser degree they should be moved inboard towards the class rules limits. Note that the Lido 14 hull is asymmetrical – that the left half is not a mirror image of the right half. This leads to difficulties in deciding where to place the jib leads when moving them inboard towards the class rule limits. We recommend that they be placed equally port and starboard to create equal “response” from one tack to the next.

#### Jib Halyard

The draft of the sail should be about 40% back from the luff, the position of which is controlled by the jib halyard. When the jib halyard is at the proper tension, the lower third of the sail should have VERY slight crow's feet (i.e. wrinkles) emanating from the jib hanks. The halyard must be tensioned as the wind increases to keep these crow's feet in place.

#### Jib Sheet-Upwind

The jib should be sheeted as tight as possible for the wind conditions. Sheeting tension is specified by curl of the foot of the jib per the diagram below – which shows the jib leech as viewed on starboard tack.



#### Jib Sheet-Off the Wind

When reaching without the whisker pole, the jib sheet should be eased until the jib is just about to luff. If the wind conditions allow the crew to sit to leeward without heeling the boat, they should hold the jib sheet between the jib lead and the jib clew. From this position, the crew should pull down on the sheet to tighten the jib leech so that the jib luff breaks evenly. Also, the crew should adjust the jib foot tension to achieve a similar foot shape as seen when going upwind in drifting conditions. If the boat heels, have the crew trim the jib through the jib lead from a sitting position where the boat can then be kept flat.

When reaching and running with the whisker pole, the pole should be trimmed so that the draft is at 50% (i.e. midway between leech and luff). Because the whisker pole is relatively short, do not use the pole when reaching if you doubt it will be effective.

## **Main**

The main halyard should be pulled to the top of the mast in all conditions.

There are five adjustments to make on the main as wind conditions change (Cunningham, outhaul, mainsheet, vang, and traveller).

### Cunningham

The main should have wrinkles from the luff to the clew in the lower third of the sail. The Cunningham must be tensioned as the wind increases to keep those wrinkles in place.

### Outhaul

The outhaul setting is specified by the maximum width of the gap between the foot of the main sail and the boom, when sailing close hauled.

<b>Wind Condition</b>	<b>Outhaul Setting (Distance between main foot and boom)</b>
<b>Drifting</b>	6"
<b>Underpowered</b>	6" to 4"
<b>Powered</b>	4" to 2"
<b>Overpowered</b>	2" to 0"

### Mainsheet, Boom Vang and Traveller Trim Upwind

In all conditions, the boom vang should be slack when sailing upwind. Also, the mainsheet should be tightened until the top batten is parallel to the boom. The ribbon at the top batten should be flowing between straight back and just drooping or curling behind the leech. In all conditions except overpowered, the traveller should be centerlined. In overpowered conditions, the traveller should be dropped to leeward to help keep the boat flat.

### Mainsheet, Boom Vang and Traveller Trim Off the Wind

In all conditions, the traveller should not be adjusted. Also, the boom vang should be tensioned to keep the top batten parallel with the boom. Finally, the mainsheet should be eased until the sail is about to luff.

## **BOAT TRIM**

### **Heel**

The boat should be sailed as flat as possible in all conditions and points of sail except downwind with the whisker pole. When sailing downwind, heel the boat to weather to reduce wetted surface of the hull however heeling should be discontinued if the boat cannot be kept stable or if the wind is too light for the boom to stay in position without assistance from the crew.

### **Skipper and Crew Position**

In Underpowered conditions, the skipper should sit just aft of the jib lead. The crew should sit just in front of the jib lead. In drifting to underpowered conditions, the skipper and crew should move 6" to 12" forward. In overpowered conditions, the skipper and crew should move aft.

## **SUMMARY**

This guide assumes new or nearly new sails. As the usage of a sail increases, the cloth changes, becoming increasingly softer and more flexible. Accordingly, some portions of this guide will no longer apply. Similarly, brand new sails are very stiff and may temporarily exhibit different behavior – such as difficulty in sheeting the jib so as to curl the foot or the initial tendency of the top batten of the main sail to “hook” to weather slightly. These affects will disappear after just a few uses so we recommend that you use your brand new sails at least once before a major event to get used to these slight differences.

Please contact us if you have any Lido 14 questions and the best of luck!

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