



Tuning guide

Welcome to the Olimpic Sails Optimist Tuning Guide realized in cooperation with Alejandro Solè at OPTISAILORS.COM (we suggest you to stay in tune with this brilliant website very useful for Optimist sailors).

The purpose of this guide is to help you get the maximum speed out of your sail by finding the appropriate shape for the different wind conditions.

The first thing that is very important to understand, is that there is no magic recipe that will always work to get the most out of our sail. Even more, the right setting of the sail not only depends on the wind and waves, but also on the weight and technique of the sailor.

Because each sailor is different, and every day we face a new condition, we need to understand how the controls work and how they affect the shape of the sail in order to find that perfect combination that will make us sail faster. Constantly adjusting the sail to the changes of the conditions is the key to maximize our speed.

Lets take a look at the controls that we have:

Sprit:

The sprit is the control that we most frequently adjust, and the one that we change more often during racing. Basically we need to adjust the sprit to take the creases from the top of the mast to the end of the boom when it's too loose, or when there are creases from the top of the sprit to the bottom of the mast when it's too tight.

This makes the setting of the sprit a little restricted to what the sail looks like.

But there is something very important that we need to know: The sprit is the control that has more influence on the leech. This is very important to understand, especially when we sail in light or very heavy winds.

Recommended Range: Keeping the sail with no creases. In light air conditions, always better to have the sprit perfect on the lows and loose on the highs to prevent having the leech over tight.

Vang:

Controls the tension of the leech when we are going on a reach or downwind. When we go upwind, most of the times it doesn't have any tension, as the tension of the leech is controlled by the mainsheet.

Vang:

Controls the foot of the sail making the overall shape of the sail flatter or deeper. This is a control that we are going to use a lot when working on our upwind boat speed. It can be easily changed in the water, and provides a great tool to adjust the sail depending on the conditions.

Recommended Range: The vertical creases that go from the boom sail ties up on the sail, should go no further than the first seam of the sail.

Vang:

These two lines will determine the tension of the luff. Making any of the two lines longer will increase the tension on the luff. Making them shorter will decrease it.

The Top one also prevents the mark from going off the bands. That is why for practical reasons: first we find the proper setting for the Top preventer, and then we play with the boom preventer to find the right luff tension for the condition we are sailing in.

Recommended Range:

Top Preventer: Keep the mark on the sail between the bands.

Bottom Preventer: From no turns (very important: Always have it on), to 4 or 5 turns.

Main Sheet::

It not only determines how far in we want the sail to be, but it also has a huge influence on the leech when we go upwind. This means that every time we trim in and out we are not only adjusting the position of the sail but also we are changing the shape of the leech.

Sail Ties:

Sail ties are not something that we will be changing too much in the water, but it is necessary that they are set up properly in land, so that the sail works correctly. The limitation on this control is that according to Class Rules, the distance between the sail and the boom or mast is limited to 10 mm. But we can still change the setting to gain a little extra speed.

Recommended Range: The distance between the sail and the rig should be between 2 to 8 mm.

Basic set up, setting the sail on land:

The final setting of the sail always has to be in the water, once we know exactly what the conditions are; but still, it is important that on land we set up the sail for the conditions we expect, and we properly adjust some controls that are difficult to fix in the water.

Rake:

- The rake range "distance between back-top-of-mast to stearn" should be from 278 to 286 cm. (109-113 Inches).

It is important that the rake is always on the range that we mentioned before. But after you make sure it is in that range, you need to realize that most of the times the speed won't happen just by moving the rake!. There are a lot of adjustments you need to work on before moving the mast step. It's also important that you don't change the rake every race. You need to get used to sailing with a rake that seems good to you, and only change it when you are testing new set-ups.

Sail Ties:

Although 95% of the sailors don't adjust the sail ties every day, we can make some little adjustments in order to achieve a super fine-tuning.

All the Olympic Sails have a Pre-Curved Luff. This means that the luff has a little curve on any condition. On the other hand, as we know, the mast only bends in heavy breeze.

That means that we need to adjust the sail ties so the curve of the mast follows the pre curve on the sail.

In light winds, the mast doesn't bend, that is why we let the sail ties closer to both ends a little loosened. This is also

important so the sail can go from side to side easily.

In heavier winds, when the mast starts to bend, we tie all the sail ties with the same tension. Tight enough so we can just see between the Sail and the mast.

It is important that we let the boom sail ties more loose than the ones from the mast. This will improve the performance of the sail, and will also help the sail go from side to side when we either tack or jibe. The maximum allowed distance by Class Rules is 10MM.

What we do is let the center sail boom sail ties be as loose as we can (always less than 10MM)

The Corner Sail ties of our boom shouldn't be too tight, so the sail can easily go from one side to the other.

The ones of our mast should be a little bit tighter, but always making sure that there is a little space between the boom and the mast.

Top Preventer:

It is extremely important that we properly set up the Top preventer on land, as it is harder to tie it in the water. As we have already said, we adjust the top preventer so the Mark on the sail sits between the 2 bands on the mast.

A good reference when we tie the Top preventer is that after stretching it, the top Sail Tie will run parallel to the mast edge. This means that the mark will be between the bands.

We need to properly tie and stretch the knots on the lines. The Top preventer is the one supporting all the tension of the sprit. Always tie, stretch, and then make sure it is correctly set up. Otherwise the stretching in this line will allow the sail to go higher and, in windy conditions, the mark will go out of the bands.

Boom Preventer:

Always attach the boom preventer. This control will be most of the times set up on the water. But it is very important that we always attach it.

Fine Tuning; on the water adjustments:

The tuning of the sail has to be done in the water, once we know what the conditions are, and when we can feel that the boat needs to go faster.

Light Air set up (0-8 knots range):

Flat Water:

On flat water, we want a sail that can make us point very high. As the water is flat, we don't have problems going over the waves, and we want to transform the power of the sail into pointing ability.

Luff Tension: We want to have a loose luff tension. This will move the draft backwards on the sail, giving us a flatter entrance and better pointing. Having some creases coming out of the sail ties is not a problem, as these are often called "speed creases".

Sprit: As we mentioned before, the sprit has a huge influence over our leech tension. That is why in light air conditions, we set up the sprit so it looks perfect in the lows, and a little too loose on the highs.

If the sprit is too tight, this will result in a very tight leech tension. In light air this is the worst thing that can happen. Always make sure in light air that the sprit is loose enough. A very small crease due to it being too loose, could improve the speed in extreme light conditions. This is the reason why it is so important to adjust our sprit every time we go from upwind to off the wind.

Outhaul: Although the wind is light, in flat waters, it is better to have the outhaul a little tighter. Having a flatter sail in this kind of condition will reduce the drag that the sail is producing, improving the flow of the wind. This will also improve our pointing ability too.

Vang: When there is light air, we never have the vang working on the upwind. The vang should be set up so it keeps the shape of the leech on the reach and downwind. But when we go upwind we should have no tension on the Vang line, so the control on the leech stays on the mainsheet.

Mainsheet: The mainsheet will control the leech tension on the upwind. We should adjust the mainsheet constantly in the lows and the highs. Every time we trim out, the leech opens up, and when we trim in, the leech closes on the top.

The proper trimming of the mainsheet will keep the Leech Tail flying, and will give us the best twist for that condition. Over trimming the sail will tighten up the leech too much and will slow down the boat. Under trimming the sail, will leave the leech too open, and will not let the boat go as high as it could.

Light air and Chop:

As the chop gets bigger, it is important that we power up the sail. Every time the boat goes through a wave, the boat speed decreases. We want a sail shape that will get us back to speed very quickly. We need acceleration.

1 Draft: We call draft the deepest point of the sail. In Optimist Sails it is usually at 45 to 55 % (measured from the mast)

Outhaul: Now we should start to loosen up the Outhaul to power up the sail, and get a shape with better accelerating abilities, that will work better on the chop.

Luff Tension: A little more tension on the luff will move the draft forward, giving a little more push on the sail that can help on the chop. We still want a loose Luff, because putting too much tension on the luff will flatten up the sail, and that will not help in these kind of conditions.

Mainsheet: It is important to be constantly working on the trim to make sure that the boat can go as high as possible and, at the same time, accelerate when we slow down. Don't forget that by doing this we open and close the leech giving the right power to each moment.

Medium Wind Conditions (9-17 knots range):

As the wind increases we need to tighten up the sprit and the vang. We still need to have power on the sail to go over the waves. In these kind of conditions it is always good to remember that we can't go high if we don't start by going fast. That is why flattening up our sail to achieve better pointing results will not work in a lot of conditions.

Sprit: As we mentioned before, the sprit setup is limited to keeping the sail with no creases. But again it is important that we set up the sprit for the lows, and that we never have it too tight.

Outhaul: The outhaul needs to be set up depending on the wave conditions. The flatter the conditions, the more we can tighten it up. The feeling of the boat is very important to determine how much outhaul we need. If the boat is having problems going through the chop, we can try by loosening up the outhaul. If the boat can't go as high as the other boats, but we are going fast, then we can tighten up the outhaul to get better pointing.

Luff Tension: If we are sailing in flat water, some creases of our mast sail ties might work to make our boat go really fast. But as the waves get bigger, this sail will not help us at all to accelerate over the chop. Then we would need to take some twists of our bottom preventer to move the draft forward, giving more push to the sail, and a better shape to accelerate quickly.

Vang: In this kind of condition it is very important that we have enough vang tension so the leech remains when we go on a reach or downwind. If we don't have enough vang tension, as we get off the wind, we will see how the top of the leech opens up, and the sail loses all the power.

Heavy Wind Conditions (18 and + knots range):

In these winds, our main priority is always to have our boat flat when we sail upwind. A flatter sail will help us achieve these results:

Outhaul: Having it tight will give us a flatter sail. The more we need to depower the sail, the more we should tighten up the outhaul. In overpowered conditions we should tighten the outhaul all the way to the back.

Luff Tension: In order to make the sail flatter, we will put more tension on the luff by taking the twists off the preventer. This will also move the draft forward giving us better push to sail over bigger waves, but mostly it will help us keep the boat flat by flattening up the sail.

Boom Preventer: Even in extreme conditions, when we want to have the sail as flat as we can, DON'T take the boom preventer out. If it is not attached, the vang will stop working properly as the hook will be able to move down, allowing the other end to move up, opening up the leech.

Sprit: If we have already tightened up the outhaul and the luff tension, and we still can't keep the boat flat, we can use the sprit to depower our sail. Instead of taking all the creases off the sail, we don't tighten it all the way, creating a big crease across the sail. This will open the leech, and will seriously depower the sail.

Vang: Proper vang setup is essential to be able to get quickly on a plane when we go reaching. It is also very important as it makes the boat much more stable when going downwind, helping us surf the waves, and making jibes a lot easier. To get enough Vang on the sail we should:

- 1) Lift the dagger board as if you were sailing on a reach
- 2) Sail into a clause haul and trim as much as we can. The boom should be almost touching the rail.
- 3) Grab the mainsheet with the same hand we are steering.
- 4) Reach forward by passing our leg in front of the volquet, tighten our vang, and then let our sail out.

2 Overpowered: We use it to describe those conditions when, even if you hike all the way out, you are not able to keep your boat flat. Only at this point we should start depowering the sail.

Getting 100% out of your Sail:

Are we getting the most out of our sail?

As we have mentioned before there is not one "proper" way to set up your sail. So, how can you tell if you are setting the sail perfect for that condition?

Testing is the answer. The best and only way to see if your sail needs adjustments is by testing your boat speed against another sailor that has similar sailing skills. It is very important that when testing, any changes on the sail are made one at a time, and they should be tested several times before making a new change. If you are adjusting one of the controls, the only way to see if this change had a positive or negative influence on your boat speed, is to leave all the other controls the same way, then test and compare your boat speed. If you change more than one control, and then you carry out the test, you will not know which of the changes is really affecting your speed.

So go out every day before racing, and speed test with someone in your team. This will lead you into your Top speed, and get you ready for the race!

Good Luck!