

OPTIMIST TUNING GUIDE



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This guide aims to help you get the maximum speed out of your sail in all wind conditions. This guide is quite technical and pitched to quite a high level.

The first thing we must understand is that there is no magic formula that achieves maximum performance from our sailing. The correct setting of the sail depends not only on the wind and waves but also on the sailor's weight, strength and technique. The Doyle sail range went through a redesign in 2018 and as developments happen it will be updated in the sails we produce.

Every sailor is different, and every day we face different wind and sea conditions. We must understand how the different controls we have on board work and how they affect the sail; to find the perfect combination that will make us faster. The constant adjustment of the sail to the changes of conditions is the key to maximize our speed.

CHOOSE YOUR SAIL

Dinghy sailing is more or less the same: for light weight sailors, flatter sails are faster. If you're a stronger sailor you will need more power. You can also choose a sail for your peak regatta - if it is predominantly light wind venue, a bigger sail could be a better sail for that regatta, or if it is a strong wind venue, then a flatter sail could be the better choice.

Doyle Sails NZ has 3 sizes of crosscut sails in the range:

- The ORANGE is the smallest in the range and is a flat, easy to use sail.
- The BLUE is for those over 34kg and is a small-medium size.
- The RED is for over 42kg sailors and is designed as a medium-large sail and is the most popular sail in the range.



SPRIT

The sprit tension is the control that we will re-adjust most frequently with different winds. The sprit tension is very important on the Doyle range of sails, as the design concept of the sail is that it is designed with a full entry sail. We need the sprit to be firm with minimal creases in the sail unless it's very light or windy.

Something to consider is that when sailing we have two winds: the prevailing wind and the gusts. We should always adjust the sprit tension to the prevailing wind and when the gusts blow we should see some creases on the sail as if the sprit was not tight enough.

ALWAYS SET UP FOR THE LULLS.

There is something very important that you must know: the sprit is the control that has the most influence on the leech. This is very important to understand, especially when we sail in very light or strong winds.

If the sprit is too tight, it will cause excessive leech tension. This is the worst thing that can happen to us in light winds. Always make sure that in light wind the sprit is quite weak. Even a tiny crease due to being too loose could improve the speed at extremely light conditions.

In case of very strong winds, when you are over powered (this wind strength is different for each sailor depending on your weight, strength and technique) you should reduce the sprit tension in such a way that a crease appears on the sail, as if the sail was divided into two halves. The look is not very elegant, but it is very fast! Relax and enjoy the speed you'll get from letting the sprit off in the breeze. However if you have to set up like this too frequently you should ask yourself if a less powerful sail would be better for you.

In the moderate wind when you want full power make sure the sail looks perfect upwind with no creases at all.



VANG

The vang is another control that adjusts the leech of the sail. Again it is imperative not to over tighten the vang in light winds (set the vang up for downwind tension only in lighter conditions).

The vang keeps the leech tension when in the gusts we ease the mainsheet upwind; or (and most importantly) when we go downwind the vang tension keeps the leech trimmed so there is not a 'big balloon' in the leech. Downwind the top batten and the boom want to be at the same angle.

When we go upwind the vang often doesn't have any tension (the vang is loose)... in this case the leech is controlled by the main sheet tension.

In moderate and strong winds we tighten the vang enough to keep the boom to the correct height even when we ease the mainsail in the gusts.

OUTHAUL

The outhaul controls the depth of the sail in the lower part of the sail. The outhaul also controls the amount of leech round in the bottom of the sail; the more you ease the outhaul the more rounded the leech becomes.

Recommended tension: When the outhaul is loose, the vertical folds should appear. It is important that the boom ties are tied to 8-gmm off the boom. In flat water and moderate wind it is preferable to have the outhaul eased, to gain height from rounding up the bottom leech. When it is difficult to keep the boat flat in strong wind, we must tighten the outhaul to flatten the sail. Tight outhaul means pulling on as much outhaul as possible; then pulling it on some more!!!



RAKE

With mast rake this guide gets reasonably technical, but we will also give you some 'base' settings. Measuring rakes from boat to boat and mast to mast is all slightly different as mast steps are a few mm different, and every mast is a mm or 2 different as well. Rake should mainly depend on the feel of the boat – not the number that you have been told! A number is just a number at the end of the day.

A base mast rake measurement for the Doyle Cross Cut sails is 2780-2820mm in the light wind – however when it gets windier 2820-2850mm is better. Read below on what you should be 'feeling' on the water and what you change.

- You must be sailing upwind on starboard tack, to avoid the sprit interference. We are trimming the boat fore and aft and having the boat flat. The boat must be perfectly flat, not heeling at all (remember that the maximum speed going upwind is always like that).

- All the controls (vang, sprit, outhaul, cunningham) must be correctly adjusted to the current conditions and you must be steering perfectly with the telltales flowing. If the rudder is heavy (weather helm), you need to put the rake forward. If there is no feeling at all in the rudder then rake the mast back. The other way to test how rake should be is by: letting go of the tiller to see what happens; if the boat luffs too quickly we must move the mast forward. If, by contrast, the boat wants to go downwind, we must decrease the rake of the mast. Repeat this operation until the boat luffs gently. This is the balance we want.

In medium or strong wind days we need to rake the mast forward to compensate for mast bend. By doing this we balance the center of effort. We must maintain this balance in any wind conditions, and that is only achieved by modifying the rake in the described way. Don't be scared to give many turns on the mast step. The only target is the balance.

Top tip: make sure the sprit is off when measuring rake with sail up



THE SAIL HEIGHT LIMITERS

Height Control:

It controls the sail height. In case of light wind the sail must be as high as possible (without touching the upper limit of the measurement stickers); in case of strong wind the sail should be as low as possible (without touching the lower limit of the measurement stickers). This is the diagonal rope at the top of the mast.

Twist tie (or cunningham):

It controls the luff tension. The cunningham; which has to be always installed, has to be adjusted in the following way: Have your rope set up so that at 0 turns yours is very tight. This is your very windy setting. It takes a bit of time to set this rope up so it is the exact right length. Then you count the number of turns you have in your rope for the different conditions. When you're not full powered it is good to have this setting loose (maybe about 4-5 twists in the rope), then in the moderate to strong you have the luff firm and in the very strong wind you have this setting tight (0 turns). A good length for this rope is to measure the bearing point of rope to top of boom, this should be 100mm.



Boom to rope measurement



Twist tie/cunningham

SAIL TIES

Mast Ties:

Fit the sail as always, tying the mast ties with a distance of around 1mm to 2mm between the mast and sail. It is not necessary to readjust the ties for different wind conditions.

Boom Ties:

The maximum the sail can be tied from the boom is 10mm as per the rules. It is best to then tie the sail at 8 to 9mm to be within the rule. For very big regattas to be safe, super glue the knots together to avoid a penalty from the measurers.

MAIN SHEET

This not only determines the sail angle, but also has a huge influence on the leech when we go upwind. This means that whenever we sheet in or ease it, we adjust the sail angle against the wind, but also change the leech tension.

The mainsheet is the sail control we are always holding and also is the control with the biggest influence over the sail. The Doyle sail is quite easy to trim when you are used to what your trying to achieve with trimming the mainsheet.

With the sail being fuller in the luff, you can sheet the sail firmly to gain your height. In the lulls be active by letting the sail out a little, bearing away to gain speed before trimming back in again for pointing. Look at your leech telltale and see what it is doing when you're going fast. In chop and extremely light conditions make sure you do not over trim the sail. If you are unsure on sail trim, ease the sail a little, get your speed up then go for pointing again and trim the sail back in.

Make sure you have a nice long strop to your mainsheet block so you have less actual heavy mainsheet rope in your boat that is wet! Have the strop long enough until you are nearly block to block on your mainsheet when you're fully sheeted in. This also makes it faster on the mark roundings pulling the sail in and letting it out again.



FINAL PREPERATION

The fine tuning needs to be done while sailing, when we know the real wind and wave conditions on the race course. You can readjust the outhaul, the sprit, the vang, the rake and the cunningham on the water. You must ensure that the boat has enough power to pass through the waves and that the boat is going fast! You need to test your set up before the race to get the boat tuned for the race conditions.

QUICK GUIDE	RAKE	SPRIT	VANG	LUFF	OUTHAUL
LIGHT WINDS 0-6 knots	2780-2800	Very slight crease appearing in sail	Just holds boom on downwind (loose upwind)	Firm, one off from light medium	Loose
LIGHT MEDIUM 7-12 knots	2780-2820	No crease	Holds boom on down wind	Loose (max turns, more twist than in light)	Loose, scallops appearing
MEDIUM HEAVY 13-20 knots	2800-2850	No crease	Firm to tight	Firm, 1 to 2 off from light medium	Loose and tightening as sailor gets overpowered
HEAVY WINDS 21+ knots	2820-2850	Let off as you get over-powered with fold appearing in sail	Very tight, max vang	Firm, 2 to 3 off from light medium (0 twists)	Tight to max on



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