

Tuning Guide for the Supernova with square top sail

Version 12, October 2026

This Tuning Guide is intended to provide instructions for the basic set-up and adjustment of the Supernova with the square top sail. There are two sections in this guide: on-shore settings and on-the-water settings for light, medium and strong winds.

Everyone sails in their own unique style, at different weights and heights and on different waters, so you may wish to set up your boat in another way. That's fine, there's no 'right' answer, and we can all learn from each other's experience.

On-shore settings

Mast foot position

The recommended mast foot position is 1100mm measured from the front of the mast foot to the middle of the forestay U-bolt. However, you will see a variety of mast foot positions in the boat park. Not much can be learned from this except that different things work for different people. However, 1100mm won't be far wrong.

Spreaders

Most Supernovas are equipped with 'swinging' spreaders which swing forward on the run to allow the sail to go out a little further. Make sure yours can swing easily. If necessary, use lubricant or gently sand the spreaders around the pivot point with 400-grit sandpaper to make them smooth.

A standard starting point for spreader length is 375mm, measured from the side wall of the mast along the spreader to the centre of the shroud wire where it goes through the hole. This setting will typically have one whole hole showing on the hole-plate. The length can be adjusted by removing the pin and sliding the hole-plate in or out.

Conventional wisdom suggests that you should have the spreaders one hole shorter if you're lighter, or one hole longer if you're heavier. However, the Supernova is unlikely to be highly sensitive to spreader length because the leeward shroud is loose while beating.

Mast rake and tension

Mast rake is a key setting. Sailing upwind in a strong breeze, most top sailors use a lot of rake to depower the rig, with the boom coming very low. However, in lighter winds or when sailing downwind, you'll want the mast more upright to maximise power. Therefore, the on-shore setting should position the mast more upright, and on the water, you can rake it back as necessary by loosening the forestay.

To set the mast rake accurately, your boat should be equipped with a pair of 'vernier' shroud adjuster plates (e.g. Allen A4272), which have two lines of holes to allow 'half a hole' increments. You will also need a long tape measure and a shroud tension gauge. If you don't

have a gauge, someone at your club may be able to lend you one. These gauges aren't very accurate, but consistency is more important than absolute accuracy.

1. On a calm day, place the boat on level ground, without the sail on the mast. The lowers should be temporarily removed or slack.
2. Position the shroud tension gauge on the shroud at just below shoulder height and tighten the rig tension until the gauge measures 160lbs. This is simply a calibration point so you can repeat the settings accurately.
3. Tie your halyard to the end of the tape measure and pull the end to the top of the mast. Measure the distance from the top of the mast to the top of the upper gudgeon on the stern (the upper grey rudder fitting). The ideal measurement is 6080mm.
4. If it's more than 6080mm, temporarily loosen the tension and move the shrouds half a hole down. Then return the shrouds to 160lbs of tension and repeat the measurement. If it's less, do the same but moving the shrouds half a hole up. Keep doing that until it's as close as possible to 6080mm. Make sure the shrouds match!
5. Note that, with these settings, you can sail with the rig even more upright if you wish, up to about 6100mm, by increasing the tension to 200lbs.
6. It's a good idea to use calibration marks so you can easily reproduce the desired rake when on the water. There are various ways of doing this, e.g. using lines on the foredeck or pieces of tape wound around the forestay adjustment. Many sailors mark three points:
 - A mid-point around 6030mm, which will be good for beating in medium winds. At this setting, the leeward shroud will be fairly slack.
 - The most rake at around 5900mm, which is for beating in heavy winds. The leeward shroud will be very slack. (You should ensure that the mast can't fall out of the step if the boat is turtled, i.e. completely upside down.)
 - The least rake at 6080-6100mm, which is for downwind sailing.
7. You may wish to mark intermediate points too, e.g. 6050mm and 6010mm, but this is personal preference.

On the water, you should adjust the forestay progressively and often as the wind picks up and drops off. If you're light, you'll be over-powered sooner on the beat, so in general will want more rake than will heavier sailors.

N.B. Sailors with more experience of the Class may remember that the traditional mast rake recommendation was 6050mm, not 6080mm. But that guideline was offered without a tension setting. If you set the mast to 6050mm with the shrouds fairly slack, and then tighten the shrouds to 160lbs, you will find that the mast rake goes to about 6080mm. Therefore, this is not necessarily a change from the earlier recommendation, just a more accurate form of calibration.

Lowars

When you tighten the kicker, you don't only pull the boom down, you also bend the lower part of the mast, which flattens the sail. The lowers are there to restrict how much the lower

part of the mast can bend. As a general rule, tighter lowers mean more power (fuller sail) and looser lowers mean less power (flatter sail).

You will see two types of lowers in the dinghy park: those that can be adjusted on the water and those that can't. There are top sailors using both types, so it's down to personal preference.

Lowers that can be adjusted on the water

Lowers that can be adjusted on the water offer the ability to reduce or increase mast bend independently of mast rake. In general, tighter lowers mean a fuller sail and more power, while looser lowers mean a flatter sail and less power. However, this can be tricky to get right, and how best to set them on the water very much depends on your leverage (weight and height) and experience level. It's one more rope to get wrong or trip over – and getting it wrong is slow. See the tables at the end of this document for on-the-water settings guidance.

You should set your lowers with two calibration marks on the foredeck, indicating the range from slackest to tightest:

- Setting 1: Raise the mast to its most upright position (6080-6100mm rake) and pull the lowers just tight. On the water, this is actually your slackest position as the mast will generally be more raked.
- Setting 2: Then rake the mast to 6030mm and pull the lowers tight. This is your tightest position for when you want more power when beating in medium winds. Even at this setting, the mast will still have some bend when the kicker is pulled on.

If you don't want the faff of adjusting your lowers, follow the advice for fixed lowers below.

For your adjustable lowers, you should use a low-stretch Dyneema rope (such as Marlow D12 78 3mm) for the highly tensioned part, and 5mm rope for the control line (such as Marlow Excel Control).

Lowers that can only be adjusted on land

Lowers that can only be adjusted on land (via a vernier shroud plate) offer simplicity, but not perfect adjustability because the tension of the lowers will be determined on the water by the mast rake.

How you should set them depends on your weight/height. If you are average or above (i.e. heavier or taller) you may want the lowers to be fully tight with the mast in its most upright position (6080-6100mm rake). If you are below average (i.e. lighter or shorter), you may want your lowers 5mm looser than that. The reason is that, on the beat in medium winds and above, heavier/taller sailors will want less mast bend, while lighter/shorter sailors will want more mast bend.

Batten tension

Batten tension is set by the sailmaker when new, but it's worth checking from time to time. Lay the sail on a flat surface and adjust each batten screw just enough so the batten can't move in the pocket and the wrinkles are taken out, but no more. If you increase the tension too much, they won't 'pop' over easily when tacking or gybing in lighter winds, plus you may get an undesirable S-bend in the sail on a run.

Some sailors have started to set the top three battens a tiny bit looser than the others, which may give the very top of the sail more depth. This is a marginal difference, no more than a half-turn of the adjuster screw. However, batten tension can be tricky, and it's wise to stick with the standard tension for a while before making any changes.

Please note that the Class Rules state that battens are defined as a 'major component' of the square top sail. This means that you may not swap the standard battens for third party ones, nor may you file them down or otherwise adapt them in a manner which may affect performance. (This doesn't apply to the previous, non-square sail design).

Mainsheet blocks and bridle/strop

The first mainsheet block in the chain attaches to the hull via a bridle (or strop) spliced to eyes on either side of the cockpit. The standard length is approximately 500-550mm on each side (measured from the eye to the knot). The exact length depends on your sailing style. Those with a habit of over-sheeting (pulling in too tight) may want to set the strop long enough to go block-to-block without over-sheeting (but make sure you test that with different mast rakes and kicker tensions).

The last mainsheet block in the chain is the one that comes to your hand. This is commonly attached in one of three ways, and there are top sailors using each, so it's a question of personal preference.

- Perhaps the most common is to attach the ratchet block to an eye on the tower in the cockpit using a shackle and often a spring to keep the block upright. This is fine, having the clear advantage that you'll always know where the sheet is if you drop it.
- An alternative is to have the block 'floating' on a bridle that leads to the eyes on either side of the cockpit. The block is spliced to the bridle so, when you sheet in, the bridle allows the block to rise perhaps 25cm from the floor. There are two main benefits to this. First, it avoids having too much downward pull on the boom because the angle is more 'in' than 'down'. Second, the higher position of the block reduces the load on your arm muscles. The downside is that the extra bridle going across the cockpit makes sitting forward in light airs a little more awkward.
- The other 'floating' option is a middle road between the above two. The block attaches to the tower eye, as with the first option above, but not directly. Instead, a piece of Dyneema perhaps 25cm long connects the tower eye to the block. This has the advantages of the second option while still allowing you to get forward easily.

Most people include a ratchet block in the mainsheet system somewhere to help with mechanical load (a mainsheet cleat is not recommended as you will need to play the

mainsheet constantly). For either of the 'floating' options, you might consider putting the ratchet block on the boom (as the second-to-last block in the chain), with the final block (the one that leads to your hand) being a normal bearing one. This offers a mechanical advantage because the mainsheet then wraps round half the ratchet block, making the holding power of the ratchet more effective. In this case, you may prefer an 'automatic' ratchet block (e.g. the Harken 57mm Automatic) which applies the ratchet only when under load.

Outhaul

The outhaul acts to flatten the bottom third or so of the sail. Outhaul tension is usually measured by the distance from the centre of the boom to the foot of the sail at its widest point (i.e. roughly at the centre of the boom). The outhaul should have enough travel to allow the sail to be pulled completely tight along the boom but also allow the sail to be at least 300mm from the boom.

As you round the leeward mark, especially among other boats calling for water, it helps to have an easy 'mid-point' reference, so you can set it quickly and know it won't be far wrong. A sensible mid-point setting would be 200mm. You may want to mark that point by sticking a short strip of insulation tape to the mast at the height of the block on the control line.

Many people use 5mm rope for their outhaul control line, such as Marlow Excel Control, which is slightly easier to grab with wet gloves than 4mm.

Kicker

The kicker attaches to the boom via an eye that can be adjusted by sliding it along the boom track. Straight from the factory, the eye is held with a screw that keeps it in place by friction. This can lead to slippage. You may want to drill a hole in the boom at the appropriate point, so the screw goes into the boom and can be tightened, fixing it permanently in place. A sensible position for the kicker attachment is 59-60cm, measured from the centre of the eye to the front of the metal part of the boom (i.e., not the gooseneck fitting).

There are various ways of attaching the kicker at the lower end. The consensus among top sailors is that it's best to attach the kicker to the mast, rather than the mast step.

The higher-tensioned line on the kicker should be Dyneema (such as Marlow D12 Max 78 3mm) to ensure maximum strength and minimum elongation under load. This should be spliced in because splices are much stronger than knots. For the control line, many people use 5mm rope such as Marlow Excel Control, which is slightly easier to grab with wet gloves than 4mm. The kicker must have enough travel to be able to be fully tensioned with the mast raked right back, but also to be fully slack while running in light winds with the mast upright.

Upwind, the kicker acts in two ways. As well as controlling leech tension, it creates mast bend, which flattens the sail. The sail is quite sensitive to kicker tension, so you'll need to adjust it often, especially in variable conditions. You usually want a small amount of twist in the sail, meaning it's very slightly more 'open' at the top than at the bottom (you can see this by comparing the angle of each batten to the boom). Judging how much twist to use can

be quite challenging, but it's minimal in all but the lightest winds. The best way is by experience – i.e. trial and error – and then marking the kicker line using coloured tape so you can repeat the settings.

(With many sail designs, including the previous Supernova sail, you can judge the correct amount of twist by keeping the top leech tell-tail stalling about 50% of the time. But that doesn't work well with the Supernova square top sail because the kicker doesn't provide much tension to the leech at the top. The 'square' part of the sail is supported by the top two battens, and tends to 'open' automatically in puffs, so the tell-tails fly fairly consistently almost regardless of kicker tension.)

Cunningham

The Cunningham acts to flatten the front and top of the sail. The kicker and Cunningham work in tandem, i.e. more kicker tension should be matched by more Cunningham tension. This enables you to make the sail flatter or fuller as required without moving the draft (curvature) of the sail forward or backwards.

You can use 5mm rope such as Marlow Excel Control, but if you have a 16:1 system you may find a 4mm rope runs through the blocks more smoothly. Rooster EasySplice is a good choice. Again, make sure you have enough travel to be able to pull it on tightly or let it off completely.

Halyard

The halyard must neither stretch nor move in the cleat (if you have one), otherwise your sail will come down the mast slightly.

If you use a standard metal Clamcleat to hold the halyard, you will need rope with an outer cover and a low-stretch core, such as Rooster Halitech.

If you use a hook rack to hold the halyard, you'll need bare Dyneema rope with a loop spliced in and a lightweight tail such as Rooster Halitail. With regards to the Dyneema, note that breaking strength isn't the major requirement; the priority is low elongation. Even regular Dyneema SK78 will elongate by 1%, which means your sail may come down as much as 6cm under load. A better bet might be Marlow D12 Max 78 3mm, which is pre-stretched and heat-set to minimise elongation.

On-the-water adjustments

The Supernova is very tolerant of a wide variety of weights and heights, so the correct on-the-water settings for you will depend on these factors.

The following tables provide guideline estimates for light, medium and strong winds:

LIGHT WINDS	Beat	Reach	Run
Boom position	At or beyond the rear quarter	Play gently as required	As far out as possible, one hand on boom if required
Mast rake (by adjusting forestay tension)	Mid-to-upright (around 6050mm rake)	Upright (around 6080-6100mm rake)	Upright, but just slack enough to let the spreader swing forward and the boom go out as far as possible
Lowern (if adjustable on the water)	Setting 1 or a little tighter, to bend the mast a little and flatten the sail.	Setting 1	
Kicker	Low tension, but enough to flatten the sail a little and stop the boom from lifting.		Slack but not dangling
Cunningham	Slack or just take out wrinkles		
Outhaul (distance of sail from centre of boom)	80mm	120mm	80-120mm
Centreboard	140mm up	250mm up (more if broader reach)	Fully up

MEDIUM WINDS

	Beat	Reach	Run
Boom position	At the rear quarter	Play as required	As far out as possible
Mast rake (by adjusting forestay tension)	Mid-point (around 6030mm rake)	Upright (around 6080-6100mm mm rake)	Normally upright. A little looser if by the lee so the boom can go out further.
Lowars (if adjustable on the water)	Setting 2, to maximise power (depending on your leverage)	Setting 1	
Kicker	Fairly tight, minimal twist	Medium. Tighter if it's a closer reach.	Enough tension to maintain the sail shape. Looser if running by the lee.
Cunningham	Enough to keep the sail shape (in sync with the kicker). Tighter if becoming over-powered.	Take out wrinkles	Take out wrinkles
Outhaul (distance of sail from centre of boom)	200mm (A little tighter on the sea)	250mm-300mm	200mm (but opinions vary on this)
Centreboard	140mm up	250mm up (more if broader reach)	350mm up

STRONG WINDS

	Beat	Reach	Run
Boom position	Beyond the rear quarter, and play as required to keep the boat flat	Play as required to keep the boat flat. Bear away in gusts, head up in lulls	Out. Pull in a little if the boat starts to roll in to windward
Mast rake (by adjusting forestay tension)	Slack (5900mm max)	Fairly upright if you can. Rake more if over-powered but keep the boom out of the water.	Fairly upright
Lowars (if adjustable on the water)	Setting 1, to flatten the sail and de-power	Setting 1	
Kicker	Tight.	A balance. Fairly tight on a close reach, medium tight on a broad reach.	Medium. Tighten a little if the boat starts to roll in to windward. Loosen a little to gybe.
Cunningham	Tight to 'harden' the top two battens	Medium unless over-powered, in which case tighten	Medium (if too tight, the sail will S-bend)
Outhaul (distance of sail from centre of boom)	30mm or less	150mm unless over-powered, in which case tighten	150mm or less
Centreboard	200mm up	300mm up	300mm up