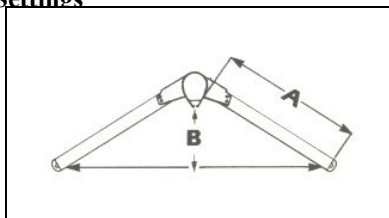




## Scorpion Tuning Guide

Some time should be spent in setting up the Scorpion to ensure the rig is correctly calibrated and every thing clearly marked. Doing this will make sailing the boat fast through the changing wind strengths a much easier task. Speed Sails have put together this tuning guide to help you ensure you have your boat set up correctly to get the best performance from your new sails.

### Spreader Settings



**A = 360mm**  
**B = 160mm**

**(1986 =170, P&B = 165)**

The two measurements for the spreader are Spreader Length (A) and Spreader Deflection (B). Spreader length controls the sideways stiffness of the mast and is taken by measuring the side wall of the mast to the shroud. The deflection is measured by putting a straight edge from shroud to shroud and then measuring to the mast from this edge.

### Pre-bend

This setting is the most important and so time should be spent getting this correct. Pre-bend is controlled by angling the spreader tips forward or aft. Angling the tips aft increases the pre-bend by pushing the middle of the mast forwards. The spreader deflection gives a good starting point but may need to be changed slightly to get the pre-bend exactly right.

We recommend sailing with a pre-bend of **20mm**. To measure this, set the mast rake at 22°2 with rig tension of 250lbs. The pre-bend is then measured by pulling the main halyard tight against the top of the gooseneck. The distance between the halyard and the mast at spreader height is the pre-bend

### Rough Guide to the Settings

For the rest of this guide we will refer to settings 1, 2, 3, 4. Below is an idea of the conditions that fit each setting.

**Setting 1** – Drifting conditions up to Helm & Crew sitting on the side deck.

**Setting 2** – Helm & Crew sitting on the side up to both sitting out hard with mainsail still on the centre line.

**Setting 3** – Full power up to constantly over powered. (i.e. spilling the main to de-power).

**Setting 4** – Constantly over powered to racing abandoned.

## Rig Tension

Rig tension is measured on the shroud. Try to use the same tension gauge each time and measure at the same height e.g. eye level.

Setting 1 – 350lbs

Setting 2 – 350lbs

Setting 3 – 400lbs

Setting 4 – 400lbs

## Mast Rake

Mast rake is measured from the top of the mast to the inside bottom of the transom. Hoist the jib with the appropriate tension (see above). Shackle a long measuring tape to the main halyard and measure 18'1" to the top of the black band at the gooseneck. Cleat the main halyard and measure to the bottom of the transom inside the boat. This is the mast rake.

Setting 1 – 22'8"

Setting 2 – 22'2"

Setting 3 – 21'10"

Setting 4 – 21'6"

## Jib Sheeting

The position of the jib fairleads affects the tension in the foot & leech of the jib. Moving the fairleads aft increases the tension in the foot and allows the upper leech of the jib to open (top windward tell-tale breaks before lower ones). Conversely, moving the fairleads forward decreases tension in the foot and closes the upper leech of the jib (lower telltale breaks first).

**Setting 1** – The pulley on the floor should be set so as the jib sheet bisects the clew of the jib at roughly 45degrees. It is very important to ensure the top of the jib is kept quite open in the light airs to allow the air to flow through the slot. The top tell-tale on the inside should just lift before the bottom ones. (This will give you roughly the right jib sheet tension).

**Setting 2** – As the wind increases you should try and keep the jib sheets bisecting the clew of the jib at 45 degrees. Due to the extra rake you may need to move the jib fairleads forward slightly to achieve the same angle. Sheet the jib again using the top tell-tale as the guide for correct tension. (Top tell-tale just lifting).

**Setting 3** – The same approach as with setting 2 should be taken in that you may need to move the fairleads further forwards again to get the same sheeting angle.

**Setting 4** – Move the fairlead back to open the upper leech and prevent the slot getting choked. If you find the mainsail backing a lot then you may need to ease the sheet a bit, again making the slot wider.

## Kicker

In light winds you should only put on enough kicker to remove the slack from the system when sailing upwind. Once you start becoming overpowered and have to ease the main you should aim to have the top leech telltale on the main flying approximately 80% of the time i.e. occasionally flicking back behind the main.

In the Scorpion it is important not to use too much kicker as there is very little support for the bottom of the mast. Consequently it is quite easy to over bend the mast so that the sail becomes too flat in the bottom half. Look for diagonal creases from the spreaders to the clew of the main as a sign of too much bend and therefore kicker. When sailing downwind aim to have the leech telltale flying continuously.

## **Outhaul**

When sailing upwind this should just be kept on tight in all conditions with the exception of light and choppy conditions where it can be eased approximately **1 inch** to give a bit more power through the chop.

Downwind on broad reaching legs you may ease it out **2-3 inches** to give more power to the base of the sail.

## **Cunningham**

This should only be used in very windy weather to de-power the main. It should be the first thing that is let off when the wind drops.

## **Flattener**

This should only be used when you are on maximum rake and it is very windy so you are struggling to get under the boom. It should make life easier!

## **Jib Cunningham**

This should be set to just remove the creases from the front of the jib. It will require more tension as the breeze increases.

## **Centreboard**

In very light wind you should have the centreboard angled forwards slightly. As you begin to get to the stage where you are both sitting on the side, the centreboard can be moved to the vertical.

When it is very breezy and you are seriously over powered, raising the centreboard (up to a maximum of **3 inches**) will help stop the boat tripping over itself.

## **Spinnaker**

The spinnaker pole should be set so that as you are reaching along the clews are at the same level. We generally tie the head of the spinnaker so that it flies a couple of inches from the block in the mast. In a very light breeze when it is difficult to get the kite to fill, dropping the pole height will encourage the sail to fly again.

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We hope this guide will prove helpful to you and wish you all the best with your Scorpion sailing. Should you have any further questions regarding any areas of Scorpion sailing then don't hesitate to contact us on 01922 455503 or you can e-mail the SPEED TEAM on [sails@speedsails.co.uk](mailto:sails@speedsails.co.uk)