## Tuning Guide - F-18 (Hobie Tiger)

## Mast Set up – Spreader Rake/Diamond tension

The mast set up is crucial to tuning the Formula 18. The combination of spreader rake and diamond tension has a major influence over the power of the rig.

| ***Body Weight Kg*** | ***Spreader Deflection*** | ***3-9 Knots Diamond Tension*** | ***10-14 Knots Diamond Tension*** | ***15 Knots+ Diamond Tension*** |
|---|---|---|---|---|
| **<140** | 60-65mm | 37-39 | 39-40 | 41 |
| **140-150** | 55-60mm | 37-39 | 39-40 | 41 |
| **150+** | 50mm | 37-39 | 39-40 | 41 |

* *Diamond tensions measured on the black Loos gauge, note that they do vary slightly and will read higher with age. Rotate the wheels periodically to change the ware point.*

As a general rule, set the mast up according to the guidelines above. Then adjust the settings according to your body weight and how you like to sail. There will be a slight variation in the stiffness of different masts, so again use the above as a guide and then go from there. Ideally go tuning against another boat in just twin wiring conditions, and assess the amount of power that you have. If you generally feel overpowered, the boat is healing and not going forward and you are wanting to downhaul very early then it is likely that the spreaders are too far forward. Try increasing the diamond tension within reason (1-2 turns), and test again. If you still feel overpowered increase the spreader rake, go at least 6mm at a time or it will be hard to notice a difference. On the other hand if you feel underpowered, you are slow to fly a hull, ease the diamonds first and then if necessary rake the spreaders forward. Different teams alter the way they set their sails up, some use quite a large range on the diamond tension. Other teams like to leave it much the same, optimised for max power (spreader and tension combination) and then depowering predominantly with downhaul and rotation.

**Mast Rake**

This is measured by swinging the trapeze wire forward to the bridle and then back to the transom. Many teams set the rake and leave it. A few teams will increase rake in strong winds. Increasing rake will increase the feeling on the rudder, moving the mast forward makes the rudder lighter. The range of mast rakes are from the middle of the inspection hatch to 10cm down the transom. Lighter teams will sometimes go further back, especially in strong winds.

**Rig Tension**

As the wind increases, increase the rig tension as below. If the tension is too high in the light airs it will interfere with the mast rotation.

| ***Wind speed*** | ***3-9 Knots*** | ***10-17 Knots*** | ***18 Knots+*** |
|---|---|---|---|
| ***Rig Tension*** | ~26 | ~28 | ~30 |

**Outhaul**

In the maximum power condition, when you are just hull popping, you can ease the outhaul so that there is approximately a 10cm gap between the foot of the sail and the boom to give more power. In very light and winds a 4-5cm gap is fine. In breeze a 4-5cm gap will suffice, as the downhaul is pulled on, the outhaul is effectively tightened so that this gap will reduce to about 2cm.

**Battens**

The North sail is engineered to gradually twist and depower as more downhaul is applied. However to make sure that there is maximum power in the marginal conditions the head of the mainsail has a reasonable amount of shape. 16 knots plus, when a lot of downhaul is being applied is the point when you should be thinking about the stiffer battens. It depends somewhat on your body weight and the conditions you want to optimise for. Pull the battens to remove the creases and then a little bit more to allow for the knots setting in. It is not necessary to over tighten the battens.

**Jib Settings**

The jib set up is crucial to the speed and balance of the boat. Even though the sail is small relative to the main it is crucial to get it right.

**Jib car position**

The jib car should be moved out as the wind increases from around 38cm from the centreline in light, 40cm medium and 42cm windy.

**Jib sheet angle**

In light winds you want to sheet more vertically on the jib, giving a deeper and more powerful jib. As the wind increases start moving down on the sheeting angle. If the boat feels very stalled and difficult to sail, quite often it will be because the jib is set up too full.

**Jib downhaul**

Just as with the mainsail, increase the jib downhaul as the wind increases, again this has a surprising effect on the feel of the boat. The North jib is engineered to depower significantly as the jib downhaul is pulled on. In light winds pull just enough downhaul to remove the horizontal creases. As the wind increases increase the downhaul tension, trying to keep the draft of the jib at about 40%.

**Spinnaker**

Luff tension is the key factor in setting up your spinnaker for maximum speed. As a guide, set the pole height so that when the spinnaker is hoisted on shore the luff is just tight. Try folding the luff in your hands and you should get about an inch of cloth. This may involve raising the pole height and/or tying a slightly larger knot at the spinnaker head. This will be your luff tension setting for 8 knots plus. In less than 8 knots ease the halyard about 10cm which will help you to keep the spinnaker flying. If the spinnaker looks very rounded in the front then it is likely the luff tension is too tight. If the spinnaker luff is sagging off to leeward a lot then it is likely the luff is too loose.

**Good luck on the water!**