

# Greg Goodall Tunes a 4.9

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## Taipan 4.9 Tuning and Setup Guide

By Greg Goodall, Australian High Performance Catamarans.

Hopefully the following information will be helpful I will do my best to tell you what I know.

### Boat Setup

The Taipan4.9 is a very fast high performance boat with impeccable handling qualities. When you first sail one you are aware that every thing happens very quickly. This can also include getting into trouble. As a result it is important that the set up of your boat is kept clean, simple and efficient. Things that tangle or are difficult to adjust should be eliminated. Almost any system can be made to work in light winds but if it doesn't work in strong winds then you would be better not having it on the boat. Have a look at the boats of the top sailors and copy the best of the ideas that you see.

### Platform

It is important to have you boat as stiff as possible. Make sure that the beam bolts are tight. The beam pads should also be accurately molded to your beams. if necessary reseating the beam pads will improve the boats stiffness

Keep the tramp laced up tight as this makes it much easier to move about on the boat.

### Rudder Alignment

The simplest method is to support the boat so that the rudders can be put fully down. Use a tape measure to measure the distance between the leading edge of the blades at the bottom of the transom. Adjust the rudder alignment so that trailing edges are the same distance apart within the tolerance of +3, -0 mm.

### Mast Rake

On our boat we set up the mast with about 5 deg. of aft rake for all conditions. We have found that it doesn't seem to make any significant difference if we change it for different wind conditions. Although we do increase the mast rake for rough water, i.e.. 1 meter+ waves.

On our boats we set the mast rake by using the trapeze wire. Measure the height of the trap ring off the centerline of the deck at the front chain plate and then take the trap towards the stern. With normal mast rake the trap ring is the same height off the deck about 100mm behind the rear beam.

### Rig Tension

Rig tension on a Taipan4.9 needs to be relatively tight. The tension is about 50 -80 Kg. depending on the wind strength. Tighter in strong winds to reduce forestay sag. In light winds the rig tension can be light to allow a little more forestay sag down wind. This allows the jib to be take up more shape and also allows the mast to be over rotated easily.

## Mast setup.

### Spreader Rake

The spreaders should be set close to the maximum length allowed in the class rules. For the Taipan4.9 this is 700mm. measured between the diamond wires at the spreader arms

Spreader rake is the method of tuning the fore aft stiffness of the mast below the hounds. The ideal amount of spreader rake is dependent on the fore-aft stiffness of the mast and to a lesser extent, the amount of luff curve cut into the sail. Stiff masts require more rake to make the mast bend sufficiently, soft masts require less rake.

Crew weight effects the required amount of spreader rake as it has a significant effect on the amount power developed by the rig.

The spreader rake is measured by placing a straight edge or string-line between the diamond wires at the spreaders and measure the distance to the back of the mast. We are currently using 40 - 65mm of spreader rake.

To answer how much is sufficient rake can only be determined by sailing the boat and knowing what to look for.

If you have excellent height, but lack boat speed up wind and the boat does not want to accelerate in the wind gusts, then you need more rake. This helps the mast bend fore and aft which allows the sail to flatten and the leech to open in the wind gusts. ( See also notes on diamond tension.)

If you are lacking height and "grunt" in light to medium weather, then you have too much spreader rake.

### Diamond Tension

This primarily controls the side bends of your mast. Loose diamonds allow the middle of the mast to bend to leeward and the top of the mast to hook to windward. If the diamonds are too loose the mast will bow into the jib slot in the wind gusts. When beating this makes the boat feel bound up and it does not want to accelerate in the wind gusts,. This also tends to cause the boat to heel very easily in wind gusts. Very tight diamonds do the opposite.

Downwind, tight diamonds keep the mast bent reducing camber and power. On our boats the diamond tension is set at 42 on the Loose gauge.

### Pre-Bend

Pre-bend in a mast is the result of diamond arm rake, diamond tension and mast stiffness. These days we do not really measure pre bend; as the same pre bend can be achieved with varying degrees of spreader rake and diamond tension on any given mast. This is even further confused when the mast stiffness varies.

### Battens.

Battens should be shaped to match the general curvature of the sail. The battens that I recommend and use are the Fibre foam battens. These are a fiberglass foam sandwich construction that is light, strong and have excellent bend characteristics. All battens need to be looked after and stored so that they do not become permanently bent or twisted.

Battens should be tied firmly into the sail to remove creases along the batten pocket when sailing. (See attached Batten Tying Guide).

Battens 2 & 3 (counting from the top) need a lot of tension.

Batten stiffness can effect the camber and twist characteristics of a sail. They are an important aid for tuning your sail and rig.

Stiff battens hold the sail flat and help the sail to twist more easily.

A soft batten allows the sail to develop more camber and reduces leech twist.

Many thanks to Greg Goodall for compiling this tuning guide.