

A-Class Tuning Guide.

I have written Tuning Guides at different times over the past 10 years but rigs and sailing techniques keep changing. Hopefully the following information will be helpful I will do my best to tell you what I know.

Boat setup

The A-Class is a very fast single-handed 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 moulded 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

With canted boats it is not easy to measure the rudder alignment, as the blades are no longer parallel. The simplest method is to support the boat on 4 supports so that the centreboards and rudders can be put fully down. Stand about 5meters behind the boat and sight along the keel line. Adjust the rudder alignment so that they are in line with the centreboards and keel line.

Mast Rake

On our Auscat boats 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, ie. 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 deck at the front chainplate and then take the trap towards the stern. With normal mast rake the trap ring is the same height off the deck about 150mm behind the rear beam.

Rig Tension

Rig tension on an A-Class doesn't need to be tight when compared to other classes. The tension is about 50 –60 Kg.

MAST SETUP

Spreader Rake, Diamond Tension and Mast Prebend.

Spreader rake.

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.

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. On the Saarberg and Australian masts we are currently using 40 – 60mm 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.

If you are lacking height and "grunt" in light 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. This 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 30 - 34 on the Loose gauge.

Pre-Bend

Prebend in a mast is the result of diamond arm rake, diamond tension and mast stiffness. These days we do not really measure prebend; as the same prebend 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 Fibrefoam battens. These are a fibreglass 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.

Soft battens allow the sail to develop more camber and reduces leach twist.

General Sailing Philosophy Of Catamarans

A number of years ago I heard the following quote applied to catamaran sailing.

"It doesn't matter where you are going as long as you are going there fast."

The element of truth in this statement is that boat speed is ultimately important.

Go fast. Look for pressure then angles; opposite priority compared to dinghies.

Upwind sail and rig settings.

Light Winds: 1 -5 knots

Luff Tension - just remove the wrinkles down the luff.

Mast rotation - 50 deg.

Mainsheet - light, all telltales should be flowing.

Foot - ease foot to give 50mm camber in foot.

Light / Medium Winds : 6 - 10 knots

Luff Tension - just remove the wrinkles down the luff. Pull on luff tension rather than easing mainsheet if you start to get over powered

Mast rotation - 45 deg.

Mainsheet - firm to hard, to stand up the leech for maximum power. All telltales should be flowing.

Foot - gradually flatten foot as the wind increases to 10mph.

Medium Winds : 11 - 15 knots.

Luff Tension - pull down the luff to flatten the sail and to induce twist in the top of the sail. Max luff is usually required by 15mph.

Mast rotation - 40deg.

Mainsheet - firm to hard, ease the mainsheet in the gusts to control the power in the sail. The top windward telltales will be stalled, all other telltales should be flowing.

Foot - pull foot out flat and tight.

Strong Winds : 16 - 21 knots

Luff Tension - pull down the luff hard to flatten the sail as much as possible and to induce twist in the top of the sail.

Mast rotation - 35 deg.

Mainsheet - firm to hard, ease the mainsheet in the gusts to control the power in the sail. The top 2 or 3 windward telltales will be stalled, all other telltales should be flowing.

Foot - pull foot out flat and tight.

Downwind sail and rig settings.

Light Winds : 1 -5knots

Boat is sailed flat. Keep your weight forward to make sure the transom is not dragging.

Luff Tension - just remove the wrinkles down the luff.

Mast rotation - 90 deg.

Mainsheet - light, keep leeward telltales behind the mast flowing.

Foot - ease foot to give 150mm camber in foot.

Traveller - out as far as it will go.

Light / Medium Winds : 6 - 10 knots.

Luff Tension - just remove the wrinkles down the luff.

Mast rotation - 90 deg.

Mainsheet - light to firm, keep leeward telltales behind the mast flowing.

Foot - 150mm camber in foot.

Traveller - out as far as it will go.

When possible change into the "Wild Thing" mode.

Luff Tension - just remove the wrinkles down the luff.

Mast rotation - 80 deg.

Mainsheet - firm, to stand up the leech for maximum power.

Foot - 100 mm camber in foot.

Traveller – pull traveller up to 300 in from inner gunwale.

Move your weight back and to leeward to help lift the windward hull.

Medium Winds : 11 – 15 knots. *Ideal "Wild Thing" wind range.*

Luff Tension - pull down the luff slightly to induce twist in the top of the sail

Mast rotation - 75deg.

Mainsheet - firm to hard, ease the mainsheet in the gusts to control the power in the sail.

Foot – 50 mm camber in foot

Traveller – set traveller 100 to 200 in from inner gunwale.

Steer down in the gusts and up in the lulls.

Move your weight back and to leeward to help lift the windward hull. This also keeps the bow up and makes the boat easier to steer.

Strong Winds : 16 – 21 knots. *"Wild Thing" this is where it got its name.*

Luff Tension - pull down the luff firmly to induce twist in the top of the sail.

Mast rotation – 80 deg.

Mainsheet - firm to hard, ease the mainsheet in the gusts to control the power in the sail. Play lots of mainsheet. The harder you work the faster you go.

Steer down in the gusts and up in the lulls

Foot – 50 mm camber in foot

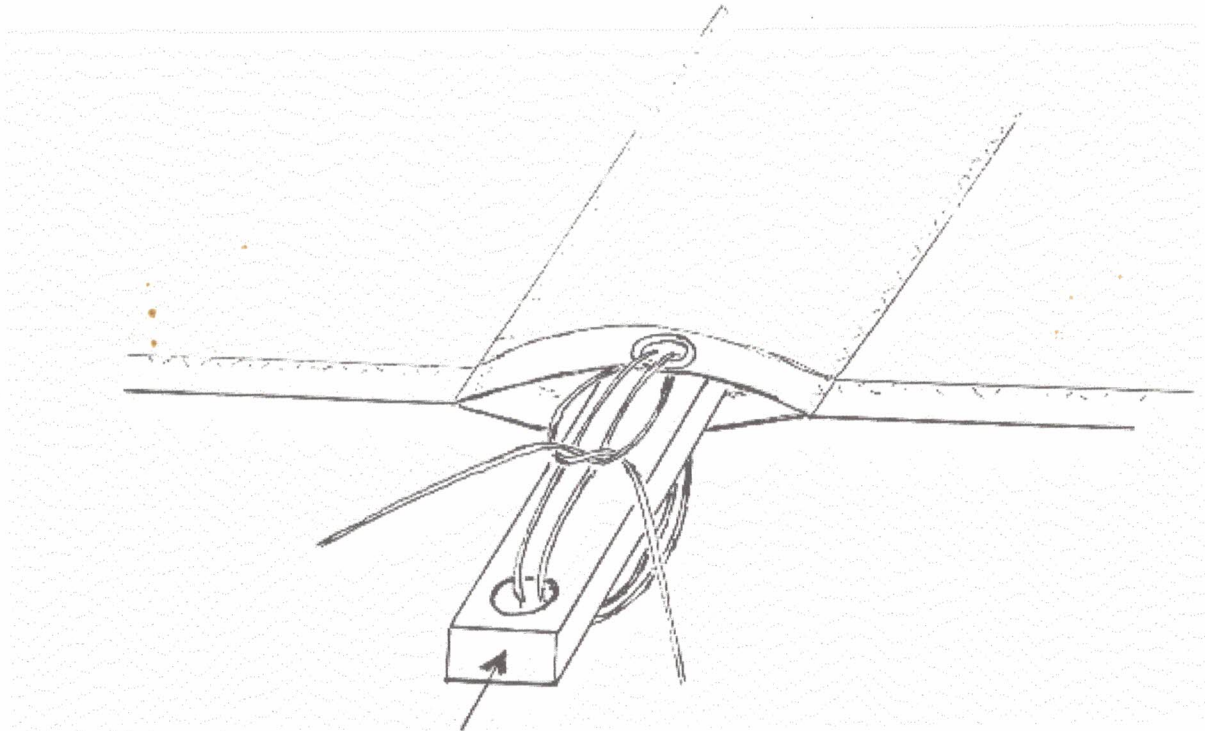
Traveller – set traveller at inner gunwale.

Move your weight fully back by sitting on the rear beam.

I hope the above will be of some help.

Regards,
Greg Goodall

BATTEN TYING – FOAM BATTENS



Push in with thumb.

- The tie-in strings should be tied to the bottom eyelet, have both ends of tie-in string the same length.
- Pass both strings through end of batten, then down through top eyelet.
- Separate tie-in ends, one each side.
- Tie half hitch around the tie-in string snugly against the top eyelet.
- Adjust the batten tension using your thumb to push the batten in as you pull on the ends of the string tie-ins.
- The half hitch will hold the batten tension at the selected pressure.
- Complete the knot by tying another reef knot on top of the half hitch.