

## Tuning Your Manly Junior

These are some guidelines to what some of the boats are doing. Note that they change from time to time as developments are made or even the “flavour of the season”. For example MJ’s some years ago used “floppy rigs” where the forestay was loose and the mast leaned in different directions depending on if the boat was going up or down wind. (Sabots are currently using this rigging technique)

The best person to help you tune your boat is your sail maker for they design and cut the sails to suit the rigging / sheeting style. The sail maker in turn needs to take into account the mast manufacturer.

The end result is the important bit. Does your boat equal or outperform the other boats in the fleet. When fine tuning, adjust 1 thing at a time & compare your boat to others. Speed upwind is not the only thing to look for – also compare pointing angle (to the wind) & downwind speed. Of course things change in different wind & wave conditions that just makes it all trickier.

### ***Mast Rake***

This will influence boat speed & pointing angle.

If the mast is more upright it can help pointing however the boat is more “twitchy” & harder to control – too far forward & the boat gets “lee-helm” (if you let the tiller go, the boat tends to bear away – bad).

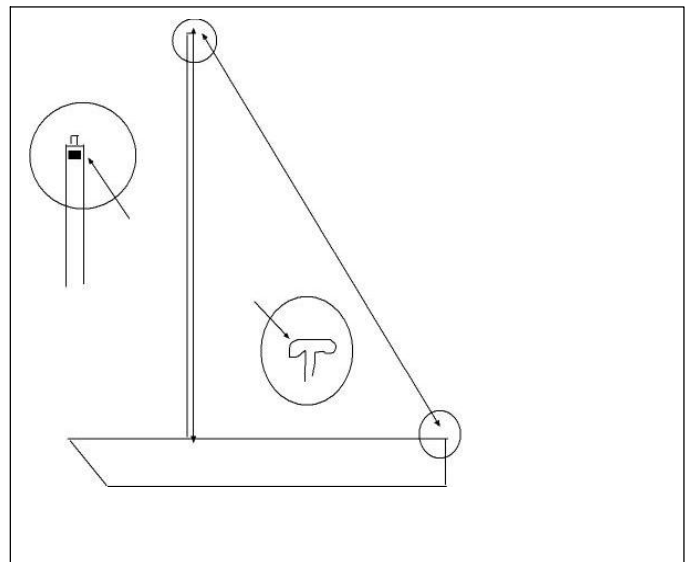
If the mast is raked back it can be easier to control, particularly for learners. In a puff of wind the boat tends to point up (for learners, a safe option) – too far leaned back will cause “weather-helm” causing the boat to violently round up out of control in the gusts – bad again.

Measure mast rake from the top of the transom (in the middle of the boat) up to the bottom of the black band on the top of the mast. (Some people measure to the top of the band, even the top of the mast – all depends on the boat)

Distance is between 4070mm ~ 4100mm.

Note:

If your boat goes fast one day – measure the distance and rig the boat using this distance in the future.



## ***Rig Tension***

This is closely coupled with mast rake.

Current trends for MJ's is to run a "tight" tension. Note that the hull needs to be strong enough to take the tension or damage may occur. Seek advice before applying these tensions to your hull. Things that may indicate problems with the (hull withstanding the) tension include:

The boat creaks and groans as the load is applied – (seen / heard this happening in a yacht with a hydraulic tensioning system)

### **Problems on an MJ:**

The rig appears tight when you first rig it but when sailing downwind in a stronger breeze the forestay goes "floppy"

With no mast, if you push down on the mast-step it "flexes" up & down.

Cracks on the front bulkhead in front of the mast-step.

### **Measuring it:**

When the rake is correct, the tension on the shrouds is between 17~20 kgs (you need a "wire strain gauge" to measure this). "Plucking" the shrouds gives a distinct "twang" sound.

### **Adjusting it:**

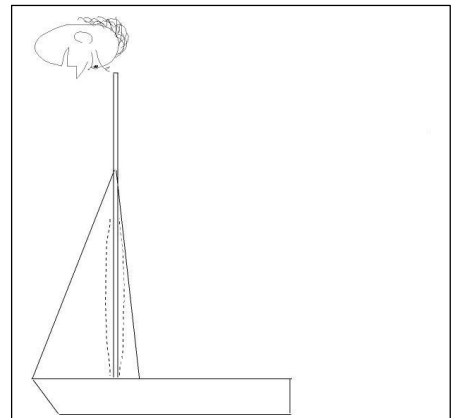
Lengthen or shorten the adjustment on the end of the shrouds as required. 1mm adjustment at the chainplate gives a change of 8mm to the rake at the top of the mast. Check that both sides are equal distance (length of shrouds when rigged)

### **Chainplate Position:**

The position of the "chainplates" is where the shrouds join onto the hull at the gunwhales. Many boats have the chainplates approx 1070 (some 1040) from the bow – measured along the gunwhale. Too far back and the shrouds get in the way of the crew / boom etc. too far forward and it can cause difficulty holding the rig tension.

### **Mast Shape:**

When the mast is rigged with little or no tension it has a slight "bow" forward, sighting down the mast, about ½ way up between the mast step & where the shrouds join – the mast bows forward slightly. As tension is applied the mast straightens, to a dead straight line. When the sails / boom & boom vang are added – a slight bow forward will return. The mast step in an MJ is angled slightly so when the mast is straight (with tension on), the foot of the mast should sit squarely in the mast step, adjust this by removing the mast foot and shaving the bottom of the



mast slightly. As the vang is increased – so does the bend forward in the mast.

### **The aim:**

The art of the process is to get the mast rake, rig tension & mast shape all happening correctly at the same time. Allow an hour or two to get it right the first time. After that, all that is required when rigging each week is to set the mast rake (by distance).

### ***Jib lead Position***

This has a major effect on 3 things:

- The shape of the jib
- The angle of the jib to the boat / wind
- Changing the “slot” width

Most MJ boats have a “set and forget” spot where it works.

As important as the jib lead position is, it is next to worthless if the jib sheet tension is not correct each time it is pulled on (see later for suggestions)

This tension may need to be varied in different wind strengths.

### **Jib Shape**

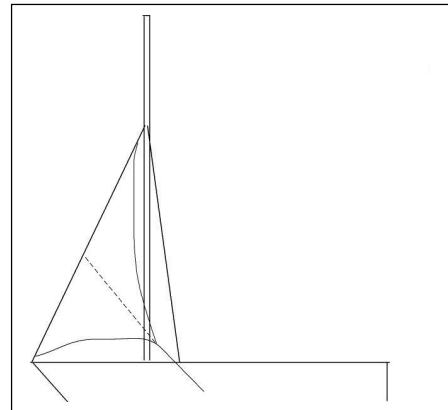
Changed by the angle (up or down) of the jib sheet as it pulls on the jib.

If it pulls in a downward direction too much – the foot of the jib goes loose and the jib leech tends to hook inwards – bad. (Like having the brakes on!)

If the sheet pulls along the line of the foot – the foot will be tight but allow the leech to “twist” off – bad – poor pointing & loss of boat speed. Note that some twist in stronger winds can be very useful as it reduces the heeling force but still allows the boat to point high.

### **Just right**

If the tension is balanced between the leech & foot – as a guide if you were to have an imaginary extension of the jib sheet up to the forestay – it would be about ½ way up the luff.



### **Angle of jib**

The closer the sheeting angle to the centreline of the boat – the higher the boat points to the wind – good, but (particularly in stronger winds) a close sheeting angle will cause too much heeling & not enough forward drive – bad.

## Slot size

The slot is the distance between the leech of the jib and the luff of the main. It has a major effect on the wind that flows across the windward side of the jib & continues to flow on the leeward side of the mainsail.

A close sheeting angle reduces the slot – restricts the air, causes the main to backwind & loses power – bad.

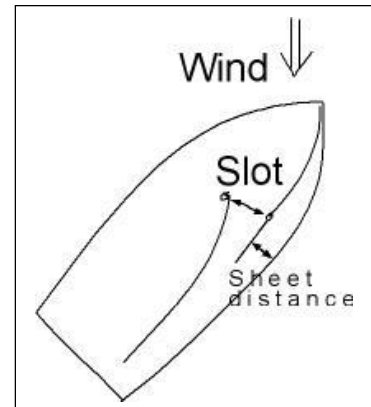
The right angle makes everything work really efficiently

A wide sheeting angle reduces the positive effect of the slot & also slows the boat down – bad.

## Adjusting it

Measure the distance from the jibsheet to the inside edge of the gunwhale at the same height as the gunwhale.

The correct angle is largely determined by the cut of the sail however most boats are between 200mm~300mm, average 240mm.



## Jib sheet tension

The aim is to be able to repeat the same tension quickly every time you tack going upwind. A difference of 1cm pulling (or easing) the jib sheet can make an enormous difference to the performance. Too tight will stall the slot.

One way is to mark the jib sheets so that the mark is just under / next to the jib block.

Note: Light air & stronger winds will most likely require different tension. In larger boats the position can be repeated by for example the clew of the jib being xx cms from the block, the jib leech just touching / clear of the spreader etc etc. whatever reference works.

## Spinnaker Pole height

This depends dramatically on the cut of the spinnaker however the aim is to go fast downwind. If the luff has a slight curve this is good – too much or too little will reduce the spinnakers effectiveness.

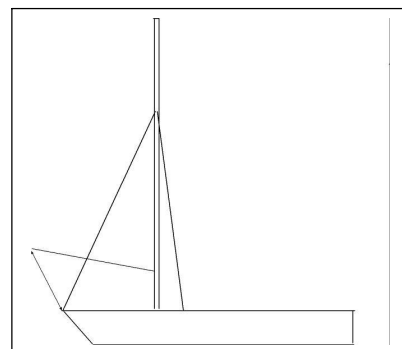
Spinnaker luff tension is adjusted by the length of the “topping lift” – the rope supporting the end of the pole, going up to the mast.

## Adjusting Pole Height

Rough guide – adjust the topping lift so that the end of the spinnaker pole is about 1100~1150 above the bow where the jib is fastened. (Pole in normal position on mast –pointing forward)

## Mainsheet hawser

Most boats have end of boom sheeting. Adjust the



hawser on the stern so that with the tension correct it is block to block in light air. The block on the hawser is knotted at centre.

### ***Disclaimer***

Please remember that this is only a starting guide – if you have someone to help set up your boat – listen to them and try it.

The author takes no responsibility for the results, damage or otherwise in adopting any of these techniques.

This information is simply provided to help boats who may not have access to knowledgeable MJ people to help them get started in the setup process.

Also while many boats may be adopting these techniques it does not mean that another idea may not be faster or better.

If your boat is going fast compared to others – record what you are doing & do it again.

### ***Final Note***

People can spend years and years setting up boats and there will always be different views on what is right or fastest – welcome to sailing.

This guide has been produced with the assistance of Allan Carney and Ian Souter & I thank them for their contributions.

Kingsley Forbes-Smith

Manly Junior Association NSW President (Nov 04)

### ***Other information:***

Free online coaching videos are available from my website [www.miboat.com](http://www.miboat.com)