

Coaching Tips - J/24 Tuning Guide & Sail Trimming



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Stuart Jardine, J/24 national champ five times over, tells you how to get the best results from your '24' and teaches you how to tune and trim.

The J24 was designed way back in 1977 and was soon established as the World's most popular One-Design keelboat, which it has remained ever since. The robust construction has ensured that most of the older boats can still compete with the new.

The Class is established in nearly 40 Nations with well over 100 active fleets and you do not have to go far in any country to get a sail in a J24. Many of the most talented sailors in the world from Grand Prix events to the America's Cup and the Olympics have been attracted to the Class.

Sail shapes have not changed much over the years but the method of sailing has been fine tuned. Tuning guides are provided by most sail makers these days. They are all very similar in their approach, passing down the accumulated knowledge developed over 25 years. It is worth remembering that only a 1% increase in average speed would put you more than 1 minute ahead on a normal length course.

The Hull

The bottom, keel and rudder need to be smooth whether you dry sail or have antifoul, however I am not suggesting, as some do, that you should spend 200 hours under the boat. Profiling the keel to the minimum thickness is usually necessary because they are often fatter on one side when taken from the mould, computer cut templates are available for this task. If you are working on an older boat ensure the keel and rudder are in line and that the keel is not loose.

If your boat is heavy do your best to optimise both the mandatory and optional

Photo ©: Ocean Images



Crew Clothing at full speed

equipment to ensure the boat is as near as is possible to the minimum sailing weight of 1375 Kgs. This can be achieved by carrying minimum weight mandatory items such as the outboard, battery and anchor, in addition to leaving ashore most of the optional equipment like fenders, warps and tool kits.

The Mast

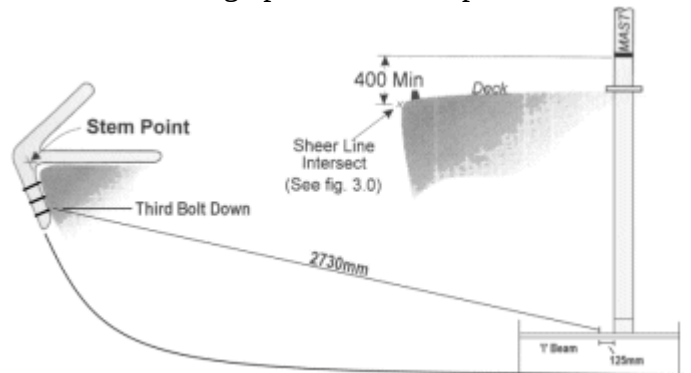
Three basic checks on the mast are necessary. First ensure that the mast length is within 5mm of the minimum, then check that the forestay is exactly to the maximum of 8670 mm from the sheerline at the stem to the intersection of the mast and forestay. Then set up the spreaders with a deflection of 155 mm having first checked that they are at the minimum length of 760 mm. Finally, whilst the mast is down ensure that all the sheaves are running smoothly. See the mast diagram set out in this article and consult the Class rules.

Setting Up

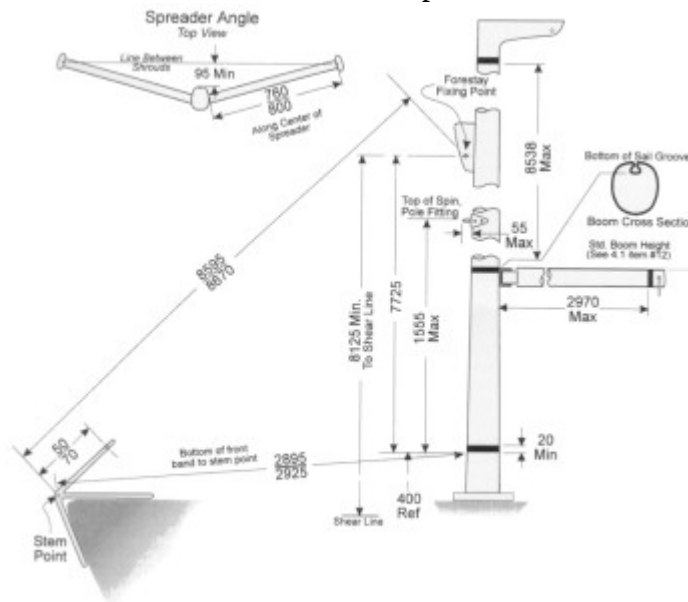
Once the mast is up there are three items to optimise. One, set up the butt of the mast so that the forward face of the mast at the foot is 2855mm from the stem. This is done by measuring from the side of the 3rd bolt down on the stem fitting, inside the forecabin back to the "I" beam 2730 mm and scribing a permanent mark, then from there 125mm to the mast face. Then ensure that the mast partners at the deck hold the mast at maximum "J"; again see the mast diagram and consult the rules.

Finally centre the mast by taking up the upper shrouds to 20 on the model B Loos gauge or equivalent on other gauges. Measure back from the stem to equal points on the sheer line adjacent to the mast and then measure in to the mast from each side. Chock the mast, remember the mast gate (hole through the deck)

Setting up the mast foot position



click for full size picture



click for full size picture

is unlikely to be exactly centered. Then using the genoa halliard adjust the length to just touch one side at your mark, check the opposite side and adjust the upper shrouds until the mast is upright. Then adjust the lowers to straighten the mast. At this point you should have achieved a prebend of 30/35mm.

1. The backstay should be disengaged whilst setting up as it could influence your measurements.
2. Stem fittings and "I" beams do vary, therefore the 2730 mm could produce small differences; common sense is required in measuring the final 125 mm. Adjust the foot to induce a 30/35 mm prebend. Three groups of holes corresponding to the four holes in the mast step, centred 10mm apart along the "I" beam both fore and aft of the mast should be predrilled for ease of adjustment. I use these three sets covering a length of 30 mm. Aft for more prebend in light airs, centre for most normal conditions and forward for 30 knots plus.
3. Consult your sailmakers tuning guide for recommended prebends as they do vary a little.

Shroud Tension

The sail shape is ruled by the shroud tension as it both controls the mast bend and forestay tension. There is a simple rule to follow; the uppers control forestay tension and the lowers the mastbend. As you can see from the table below, the balance shifts from the uppers to the lowers as the wind increases. There are four basic settings but finer tuning can be achieved once your crew have mastered the basics. All my measurements are achieved using the Model "B" Loos gauge. The newer Pro Loos gauge can be used, but beware, despite numerous checks this gauge tends to give you tighter rigging; err on the looser reading is my advise.

Shroud Tension Guide:

Knots	Uppers	Lowers
0 – 5	20	15
5 - 10	23	20
10 – 15	27	24
15 +	29	30

A gauge guide should be kept aboard at all times. It is also often essential to know how many turns are required on the uppers and lowers to bring them up and down to these figures. This can be written on the deck alongside the shrouds for ease of reference and rapid adjustment, for example between races.

For accuracy, ensure that the backstay is completely off and that the boom is

centred. Finally, when you have brought your rigging to the required tension always look up the mast track to ensure that you have not induced a bend to port or starboard.

Deck Layout

Only one golden rule, remove all the clutter off the deck between approximately 300mm aft of the forward end of the cabin top to the cockpit. The crew will double their speed in tacking, be far less bruised and stay with you a lot longer. Only the backstay, mainsheet and traveller and genoa/jib sheets should finally lead to the cockpit.

Sail Trim

Mainsail – Always take the head of the sail right up to the black band, I also always take the foot right out to the band and only ease it if I know the crew will remember to pull it on again for the beat. The traveller should be centred for all winds up to 15 knots, very occasionally in very light conditions you may find it necessary to bring the traveller to windward or in gusty

conditions ease it. Above 15 knots you will need to use the traveller, backstay and mainsheet. It is absolutely essential that the boat is kept upright, the J24 keel is very small, any heel induces sideways motion. Finally, do not overtighten the kicker, I only have the kicker tensioned sufficiently to prevent the boom flying up if the mainsheet is eased when going to windward. Clearly mark both the mainsheet and kicker when you are happy with position as a future reference.

Genoa – It is crucial that the halliard is marked. The modern genoas are designed to only have minimum scallops; tension the halliard to just maintain a straight luff, whatever the conditions, do not over tension or ever permit the halliard to be winched as that is the quickest way to ruin the sail for ever. Assuming that your mast is set up correctly then the genoa cars should be in the forward position at all times. When you get to the top of the wind range for the sail, ease the sheets a little, this will open up the leach. My advise is to play with sheet tensions. Most crews over tension, this sometimes works in calm water but is very slow in a chop.

Jib – Changing down to jibs usually occurs when the wind strength is between

Photo ©: John Adams



Big fleet start at the worlds

18/20 knots depending on the crew weight. Tension the luff just to remove any scollops. Adjust the jib cars so that the bottom batten is parallel to the centreline; usually the car on the newer jibs is very nearly in line with the shrouds.

Spinnaker – In light airs use the lower ring on the mast. Always try to keep the clews level by adjusting the pole height. Try to keep the spinnaker luff just curling, this will prevent over sheeting, constantly ease the sheet to ensure that the luff is on the curling point. Ensure that the head of the spinnaker flies about 15 cm off the mast to keep the spinnaker in clear air.

The Crew

Your first aim is to get the crew weight as close to the maximum 400 Kgs as is possible, unless you know the wind will not get above 5 knots, racing more than 20 kgs light will give you a significant disadvantage.

Then try to ensure that you all work together as a team. Make sure there is a proper task for everyone on board, ensure that all the controls run to their hands not yours. Another point is that very few of us can race regularly with the same crew, therefore keep everything simple “the simpler the better”. Make sure all your halliards are marked at the correct height when the sails have been set to your liking, so that any crew can return the sail to the same position every time.

Here is a basic breakdown of crew tasks starting at the front:

Foredeck – Call the starting line, call the waves, watchout for starboard tack boats upwind, carry out all spinnaker pole work, responsible for the genoa/jib halliard up and down. (We clip the spinnaker pole to the shroud base upwind and re-attach the sheet to the pole while still sitting on the rail by running the pole aft before sliding it forward and clipping onto the shroud base. For those with older poles and bridles also ensure that they are the right side of the lazy sheet on Genoa or jib.) Note : The newer poles are much stronger and it is possible to connect the uphaul to the centre of the pole and use your twinning lines to hold the pole down.

Mast(No 4) – Clears the weather sheet in the tacks, responsible for the twinning lines, kicker,outhaul and cunningham, also controls the spinnaker pole height. Calls the wind both up and down i.e. puffs etc. On the runs sits with his back to the boom far enough from the mast to allow the helmsman a sight of the instruments and looks for the wind or other boats covering your wind.

Spinnaker Trimmer (tactician) - Trim the spinnaker, feed and douse the spinnaker, ensure the spinnaker and sheets are organised, call the time at the start, monitor the relative boat speed and ensure messages get through from back to front or visa versa. Could be tactician if experienced.

Cockpit (tactician) - The tactician on my boat. Trims the genoa/jib and also spinnaker guy in heavy weather, able to discuss options with both the helm and spinnaker trimmer, look for the shortest, clearest or quickest route, keep track of the windshifts and finally the main task is probably to keep errors to the minimum.

The Helmsman - Steers, mainsheet, traveller and backstay, his main task is to concentrate and keep up the boat speed. At the start decide where to be, understand the foredeck signals, listen to the trimmers count down and ensure you are on the front row. Continuously ask the crew for information, use them all, encourage them all to become tactically aware at all times. Discourage irrelevant conversation, the helm will lose concentration and the crew will lose the plot.

Summary

Finally, remember this is only a guide. It is more important to try to understand why all these points put together contribute to finishing at the top of the fleet. Try to reduce the number of mistakes you may make during the race. Do not go off on a flyer unless you are really sure it could be a winner. To conclude, do not forget to thank your crew as without them you would get nowhere and they may not come with you again when you need them!

Photo ©: Mary-Ann Jardine



Stuart Jardine

Stuart Jardine has been racing J/24s since the mid '80s and racing dinghies for some 60 years. He has won the J/24 nationals six times, the 2002 championships being the most recent and the XODs four times. He also won the J/24 Europeans in 1995 and the US Masters Championships (helmsmen over 55 years of age) three times in the same period. He credits his skill at setting up and tuning boats to his 25 years of Olympic campaigning, particularly in the 'International Star'.