Sobstad Australia J-24 Tuning guide

GENERAL ABOUT THE J/24

The J/24 is a short, wide and quite heavy yacht which requires powerful sails to maintain boat speed - which gives lift to the keel which in turn gives correct pointing ability. The fractional sail plan has small mainsail (14.00m2) and a large Genoa (18.00m2) so the Genoa is the "speed" or "power" sail, while the mainsail is the "balance" sail. The J/24 has a very small keel and rudder so in many ways the sails and the way they are trimmed help enormously to steer the boat, especially in medium to strong winds.

As the class rules do not allow a medium sized headsail, the 150% Genoa is sailed in winds from 0-20 knots. To cover the wind ranges the sail is designed flatter than a normal light wind Genoa.

To get the needed power in light winds the headstay must be quite loose. Using this technique will bring the draft further forward than wanted. You can slide the draft back by easing the halyard thus producing the typical wrinkles.

Another problem is the lee helm of the J/24. Therefore it is important to bring the sail plan as far aft as possible. Maximum headstay length, maximum J and minimum mast length is needed (ask local measurer). At Sobstad Sailmakers we have a fairly straight mast in all sailing conditions controlling the bend with backstay only. This gives excellent control over the power of the mainsail and thus the helm. The Headstay tensions and thus the amount of power in the Genoa is mainly adjusted by mast buff position.

RIG TUNING GUIDE

Headstay

The headstay length should be the maximum of 8670mm allowed by class rule 3.5.3 © to get maximum rake. Because the headstay hole at the bow of your J/24 is approximately 65mm above measurement point, the actual length of the headstay between the centre of each hole should be about 8605mm. On older boats you may need to add a toggle to your headstay to bring it up to maximum length.

Mast Length

The mast should be the minimum length of 8125mm above "shear line" according to class rule 3.5.3 (b) to get maximum rake. Ask your local measurer for exact measurement points. When cutting the mast remember that these shrouds could be too long afterwards.

Stepping the Mast

1. Tighten the upper shrouds with loose lowers.
2. Mark the rail at approximately 3m from the stem.
3. Pull the Genoa halyard with two (2) fingers and maximum pressure to the mark on the rail.
4. Repeat the procedure on the other side.
5. Adjust the uppers until the mast is centred.
6. Straighten the mast with the lowers.

Mast Blocks

The mast should be maximum aft. The maximum of this so called J-measurement is 2910mm by class rule 3.5.2 (b).

If you have problems getting the mast straight, there is a good chance that your mast is not centred at deck level. To set the mast sight up the mast groove. This way you will be able to see where the mast should be blocked.

Spreaders

The spreaders should be a minimum length of 760mm in accordance with class rule 3.5.3.(f). This will produce the correct pressure to the middle section of the mast. To measure the sweep back you should tie the spreaders from shroud to shroud , using a thin rope. Then measure the shortest distance to the after face of the mast. We recommend a sweep back for general purpose between 150mm and 160mm for Kenyon masts.

Mast Butt

The mast butt position is a critical speed factor. Too far aft and it will produce too much pre-bend, with the headstay too loose and a very flat mainsail. Too far forward it will produce an overtight headstay, thus a flat genoa, and a very full mainsail with big back winding.

We recommend a straight mast in all sailing conditions, producing the needed bend with the backstay only. As you will need more headstay tension as the breeze builds, the mast butt has to be moved. Therefore you should grease the sole. Two positions are measured from the forward face of the main bulkhead to the aft edge of the mast.

Wind Range	0 - 10km	10 - 15km	15 - 20km	20+km
Mast Heel	160mm	170mm	180mm	195mm
Uppers	20	29-31	31	32
Lowers	20	25-28	28 - 33	34

The numbers are taken from "loose gauge" Model B.

MAINSAIL

The mainsail is trimmed or over trimmed to balance the boat. Always set the halyard at maximum for the black band at the top of the mast. The "floating" tack slug will rise up and down depending on the cunningham tension (do not attach the tack of the sail to the boom fitting).

LIGHT AIR

The sail should be powerful with the maximum draft almost 50% aft. Set the Luff with some horizontal wrinkles with no cunningham. Set the foot 30/40mm less than the black band at the end of the boom. The shelf will be half closed. The traveller should be 100mm to windward. Trim the sheet so the top batten is slightly to windward of parallel to the boom (1 or 2 degrees). The boom should be centred. You might check this by sighting along the boom to a mark on the push pit. There will always be a little back winding in the Luff of the sail. Make sure the top telltale is flowing back about 1/3. The vang should be slack, as well as the backstay.

MEDIUM AIR

The vang and cunningham should still be slack. Set the foot within 20mm of the black band - the shelf will be ¾ closed. Trim the sheet so the top batten is 3 or 4 degrees to windward of the boom, as you will need to feel the rudder for correct pointing ability. The boom should be centred.

STRONG AIR

Set the foot to the black band. The traveller should be 50mm to windward. Trim the sheet so the top batten is twisted off 2 or 3 degrees to leeward of the boom. The boom should still be centred. Have the vang tensioned very light. The front 1/3 of the Luff will be backwinding.

HEAVY AIR

In extreme conditions the traveller should be cleated in the centre, have the vang tight and ease the mainsheet in the gusts. Tension the backstay to maximum - the pulleys almost to the top of the pushpit. The sail should be flat with the maximum draft about 45% aft.

DOWNWIND TRIM

Tension the vang enough so the leech ribbon is just flowing.

In overpowering conditions pull the backstay and lower the pole slightly to open the leeches of the sails.

THE BACKSTAY

Is used to control the fullness and thus the power of both sails. Pulling the backstay does two things:

1. The mast bends, flattening the main.

2. The headstay tension increases, flattening the headsail. Generally the backstay should

not be tensioned until the wind reaches 10 knots. Remember to readjust the mainsheet

and the vang every time to touch the backstay.

<u>GENOA</u>

The 150% Genoa is used in 0-18 knots. The genoa is affected by halyard tension, car position, sheet tension and backstay. Always set the tack of the genoa in the front hole of the bow fitting and use a snap shackle (Wichard, Ronstan) to set the round and also for the genoa sheeting position. The genoa tracks have standard holes 50mm apart - too far, so drill an extra hole in between for finer adjustments - you will use only in this section. Use Harken Hexaratchet and pre-stretched polyester genoa sheets as they are less elastic and do not catch on the shrouds when tacking. Allow the cockpit tailor to mark the sheets relative to the pulley blocks.

HALYARD TENSION

Genoa cunningham control the draft position to be about 40% aft. There should be some wrinkles in the Luff, the halyard tension increases as the breeze builds. From the 14 knots the genoa is set without any wrinkles.

TWIST

Can be achieved by easing the sheet or by moving the genoa car aft. As a rule of thumb you should twist by easing the sheet in a chop and de-powerr in flat water by moving the car.

0 - 8 KNOTS

The halyard should be pulled only hand tight so that the Luff has small wrinkles from each hank. The genoa lead should be very powerful, with about 1 150mm of Luff sag and the foot very round.

8 - 14 KNOTS

The halyard should be tensioned a little more, 20 to 30mm. Move the genoa lead aft 2 or 3 holes and use more sheet tension so that the leech 50 to 60mm from the spreader tip and the foot 20mm from the shroud. Tension the backstay about 1.3 so you have 80 to 90mm of Luff sag. The sail should be quite powerful, especially if you have choppy conditions.

14 - 20 KNOTS

Tension the halyard another 20 to 30mm and move the genoa lead aft another 2 or 3 holes. Tension the sheet so that there is a horizontal fold from clew to tack and the sail touches the shroud. The leech should be about 150mm from the spreader tip. The sail should be quite open in the leech to stop excessive heeling. The backstay should be tensioned. This is the most difficult sail combination for boat control on a J/24. Lighter crews should change to the jib earlier and also in choppy water change earlier as the boat will be difficult to control and steer.

JIB

The halyard should give smooth Luff, not too tight. The jib track is inside the shroud base so position the lead exactly halfway along the track, this gives a quite powerful foot and leech twist. Sheet the jib so the leech is in line with the end of the spreader tip. In heavier conditions move the lead back one hole. The backstay should be at maximum except when lacking power, ease a little backstay and jib sheet. Remember to mark the sheets where they touch the lead block so you can duplicate sheet tension from one tack to another.

SPINNAKER

LIGHT AIR

Keep the pole below, the tack should be slightly lower than the clew. Do not use any barber haulers, allow the sail to fly - do not over trim. In very light conditions the cross cut wants to be ‘ventilated’ so do not sail dead square and gibe through 90 to 100 degree angles.

MEDIUM AIR

Always let the pole rise, keep the clews level with the tack slightly lower to project maximum area. When running use a little barber haul. When reaching keep the windward Luff rolling slightly, always try and keep the pole just off the forestay.

HEAVY AIR

In heavy airs it is 90% crew work and 10% sail shape - when reaching keep the pole slightly higher than horizontal at the outer end. The spinnaker tailor must be ready to ease and re-trim up to half a metre of sheet into each gust. The boom vang should be played continuously with the mainsheet. When running keep both barbers level with the line slightly lower. Do not pull the pole too far out as the yacht will lose control - the vang should be tight.

TEAMWORK OF THE J/24

1. HELMSPERSON

Beat : Steer, mainsheet, traveller, backstay. Crank the winch (with cross

sheeting).

Call for sail and weight adjustments.

Tack: Steer, Tack the traveller. In light air or a chop, case the mainsheet. Winch the new genoa sheet.

Windward Mark: Call for the spinnaker hoist. Ease the mainsheet, release the backstay, dictate the vane adjustment.

Jibe: Throw the mainsail.

Leeward Mark: Pre-set the traveller backstay. Tail the mainsheet.

2. COCKPIT

Beat: Trim the genoa sheet continuously. Adjust sail trim and compare speed and pointing to nearby boats.

Tack: Tack the genoa. Fin trim the sail from the weather rail while the helmsperson cranks the winch.

Windward Mark: Ease the genoa to the lifeline and cleat it. Pull the spinnaker guy around and trim it.

Jibe: Trim new guy.

Leeward Mark: Pull the spinnaker sheet through the blocks. Tail the Genoa.

3. BOX MAN

Beat: Tactics

Tack: Pull hard on the genoa sheet.

Windward Mark: Feed spinnaker out of the companionway. Tail the spinnaker sheet.

Jibe: Trim both spinnaker sheets.

Leeward Mark: Collect spinnaker into companionway.

4. MAST

Beat: Adjust the cunninghams. **Call puffs, lulls & waves.**

Windward Mark: Set the haul for the beat. Hold the guy outboard while the pole is stowed, pull the spinnaker around the rig to the box man.

Jibe: Jibe the pole.

Leeward Mark: Hoist the genoa, stow the pole and drop the spinnaker.

THE BEAT

Always keep the crew weight close together, no matter where on the boat you place it. In hiking conditions, allow only one person at a time off the rail. There are very few reasons to get off the rail when sailing upwind. You can attach the guy to the pole by passing the pole back along the rail, loading it, then pushing it back into position. If spinnaker gear is fouled to leeward, clear it on the next tack. Pick your lightest crew member to leave the rail if necessary.

THE TACK

Most bad tacks are the result of poor steering. Start the tack with a slow turn and once through the wind slow down again to allow the genoa tailor to trim the sail in.

The box man should pull hard on the genoa sheet. If it fouls on the pulley it is faster to pull the pin to release the car. There will be enough time on the following tack to clear the problem and to reload the car.

ROLLING TACKING

Start your tack with a slight heel to leeward, simultaneously pushing your tiller to leeward in a smooth arc. As the boat heads up into the wind, everyone on board should quickly move his or her weight to the old weather side, staying there until the boom crosses the centreline, then, slowly bring the boat back to it’s optimal upwind trim. This tack should be well practised as it demands a lot of co-ordination.

DUCKING THE BOAT

This is a critical manoeuvre that many people take for granted, yet, done poorly, it can cost several unnecessary boat lengths. Cut a smooth arc through the water, never going beyond a close reaching angle and wind up close hauled as you cross the other boat's transom. As you bear off, ease your sails, keeping optimum trim throughout by keeping an eye on the telltales. Also, as you bear off, be sure to keep the boat flat. When rounding up behind the other guy's transom, heel slightly to help cut across the wake and bad air, then bring the boat flat as you get back into clear air.

RESPONDING TO A QUICK LIFT

First ease the sails to reattach the air flow, then head up. In a strong breeze, heading up might take place a split second after the sails are eased. In light air, the time lag might be as long as five seconds. The genoa tailor must be alert to the telltales on the luff, easing the sail before the helms person heads up. In lighter airs, quickly heel the boat slightly to leeward to help to head it up.

RESPONDING TO A QUICK HEADER

Quickly move to leeward, as the boat will want to stand up or heel to windward. Momentarily add a touch of leeward heel, then, to help the boat keep up speed, return the boat to its optimal heel.

RESPONDING TO A PUFF

Keep the boat flat. For every second you heel in a puff, you are going forward slower and sideways faster. Anticipate the puff, let one crew member count them in, and actually heel slightly to weather right before the puff hits. If the boat begins flat, it will accelerate quickly, the increase speed providing added stability. If the boat heels at the outset (when the puff first hits), it can be really difficult to bring back down. In puffy conditions, put your vang on fairly tight.

Then as the puff hits, sheet the main out as much as it takes to keep the boat level. However, always maintain optimum jib trim. Its more important to keep the boat flat and the jib full than to keep the main full. As you sheet out on the main simultaneously pinch up a tad and hike hard. Once the boat is zinging along, re-trim the main.

RESPONDING TO WAVES

You should ease the headsail as the boat comes into bad wave and re-trim it afterwards. Plan to play the sails continually as you sail through the waves. The skipper is the best judge of how much ease is correct, or feels right. Add a touch of heel as you approach a wave. Try not to hit the wave head on, but pick the path of least resistance. Generally this means heading up on the front of the wave and bearing down on the back. Study the water ahead to figure out what will work best. Let one crew member count the waves in.

ROLL JIBING

It is illegal to start the jibe with a slight heel to leeward. Simply roll the boat sharply to weather as the tiller is turned smoothly. As the boom comes flying across (light air, someone should pull it hard by grabbing the vang or all of the mainsheet parts), the crew crosses the boat and resumes optimum downwind trim.

Windward Mark

Jibe Mark

Leeward Mark

Sailing your J/24 properly around the course all the time is as important a part of boat speed as having the right equipment, yet there is only one way to get it - practice. Remember, there is no substitute for plenty of crew training and two boat tuning.

SOBSTAD SAILMAKERS TRIM TABLE

Wind Strength in Knots	**0**	**2**	**4**	**6**	**8**	**10**	**12**	**16**	**18**	**20**	**22**
	<<<< 150% GENOA >>>>>								**<<100% JIB>>**		
SHROUD TENSON: **(Metric Loos Gauge)**											
Upper	**21**			**25**		**28**		**31**		**31**	**32**
Lowers	**18**			**21**		**25**		**28**		**32**	**34**
Mast Heel to Bulk in-mm.	**160**			**170**			**180**			**195**	
Car position-Bulkhead to pin	**100**			**228**		**254**		**304**		**JIB** **Cntr Jib track**	**JI** **1 H Bac**
Genoa Leech Spreader Tip-mm.	**100**			**80**		**50-60**		**100**		**150**	
Headsail Luff Tension	**Wrinkles**			**Slight Wrinkles**			**Smooth**				
Outhaul from black band - mm.	**50**			**25**				**0**			

Top Batten Twist	**0-2 Ww**	**3-4Ww**	**Parallel**	**2 Open**	**Parallel**	**3 Op**
Traveller to Windward of Centreline in mm.	**100**		**70**	**50**	**Centred**	
Backstay	**Loose**	**1/3**	**2/3**	**Max**	**2/3**	**Ma**

This table is a summary of our Sail & Rig Tuning Guide. It will help you quickly find the fast settings of your J/24. We feel that you will have the optimum from your sails, rig and boat if our trim tips are followed. If you have any questions or problems left, please don't hesistate to contact us.

Yours faithfully,

Sobstad Sailmakers J/24 Group
Bruce Anson and Bradley Anson

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