

**J**  
**24**

# **Tuning Guide**

**UK Sails take Second Overall  
2000 US Nationals!**

**The only boat using Tape Drive!**



Produced by:



1717 W. Cass St.  
Tampa, FL 33606  
813-250-1968

## J-24 Tuning Guide

This J-24 tuning guide was written to help you get the best performance from your J-24. It represents years of sailing experience, speed testing, boat to boat training programs. The measurements and settings included in this tuning guide are ones that we found to be the fastest settings for the J-24 UK Sails. Since crew, wind, and sailing conditions vary, you may find different settings that are best for you. However, by following these instructions you can be confident that you are well set up to win the next regatta. Always remember that besides having a prepared boat, nothing replaces time on the water.

### PREPARATION:

**Hull:** The hull of a J-24 requires little attention once is faired. Wet sand the bottom with 1000 sand paper and 600 for the keel, then clean it with dishwashing soap before each regatta (If you moor your boat you will need a hard bottom paint sanded and burnished to a mirror like finish).

**Keel:** One of the most critical factors in speed gains are over the keel shape. Move the keel as far forward as the rules allow. Fair to minimum thickness. A well faired keel will provide more lift (better pointing ability) upwind and less drag (better speed) off the wind.

**Rudder:** Keep it as clean as possible, repair any damage immediately, especially on the trailing edge.

\* If your boat has not been faired, your local UK sail loft can direct you to qualified individuals and boat yards in your area.

**Rig:** There are several things to do before stepping the mast:

- 01) Remove the spare genoa halyard.
- 02) Remove the running light and wiring. Cover the holes with sail

number material.

Cut the mast butt off to the mast to class minimum length (ask your class measurer)

Install a small size Windex wind indicator on the back of the masthead crane.

Exit the genoa halyard to the lowest exit on the starboard side of the mast. Mount on the mast two Harken camcleats, one just below the other, just below the exit. The tale of the halyard should then lead to a small ratchet on deck.

Exit the main halyard to the lowest slot on the port size.

Exit the spin halyard 8 feet above deck level, and mount a cam cleat just below the exit.

Exit the topping lift to the upper slot on the port size.

Take off both ends of the boom and replace the outhaul system using a 6:1 Harken micro block system and 3/16" prestretch line.

Before stepping the mast, clean it and give it two coats of silicone based marine wax.

### WEIGHT:

**Crew weight:** Race always at maximum weight allowed by the class: 400 kgs. (881 lbs.). It is better to be heavy in light winds than light in high winds, and since the J-24 will start to heel in around 8 knots, your crew will be hiking almost always.

**Boat Weight:** Remove every thing from the boat and carry only what is required by the rules (each item at minimum weight).

**Carry ons:** You spend hours removing things, cleaning the boat, buying lighter shackles and reducing 20lbs of spare equipment. The day of the race each crew member brings to the boat one bag full of clothes weighting 5-15 lbs. Limit what every crew member can bring onboard. You cannot imagine how much 5 bags full of

clothes can weigh, when you are only going to day race.

#### DECK LAYOUT:

Simple is best. Try to place all the cleats as close as possible to the mast. Remove the secondary winches.

#### Running Rigging:

Main Halyard	5/16"	63ft	Spectra
Jib Halyard	1/4"	56 ft	Spectra
Spin Halyard	1/4"	53 ft	Spectra
Topping Lift	1/4"	44 ft	Spectra
Jib sheet	5/16"	58 ft	Spectra /Polyester
Mainsheet	3/8"	49 ft	Polyester
Spin sheets	5/16	58 ft	Spectra /Polyester
Twing Line	1/4"	23 ft	8 plait polyester
Vang	5/16	16 ft	Spectra
Traveler	1/4"	6 ft	8 plait polyester
Backstay	1/4"	31 ft	8 plait polyester
Foreguy	1/4"	13 ft	Spectra
Outhaul	3/16"	23 ft	Pre stretch
Jib cunningham	1/4"	29 ft	8 plait polyester
Main cunningham	1/4"	3 ft	8 plait polyester

Lines need to be minimum length and minimum size.

#### TUNING THE RIG:

**Headstay Length:** The headstay length should be maximum allowed by class rules. The measurement is taken from the center of the headstay pin at the hounds to the intersection of the stem/sheer line. The total length should be 8670mm. (28.44) Because the headstay hole in the bow of your boat is approximately 65mm up from the stem/sheer line intersection, the actual length of the headstay from the centers of each hole, should be 8605mm  
You might need to add a toggle to your headstay to bring it up to

maximum length.

**Mast length:** The mast length should be the minimum allowed by the class rules. Even do this is not the way the measurers are going to measure. Your mast will need to be 8973mm. 29.44' from the center of the headstay pin at the hounds to the bottom of the stainless base plate. Allow 5 to 10mm for differences in measurers and different heights of I beam (ask your measurer about it).

Your shrouds may be too long to get adequate rig tension. If this is the case you may be able to shorten the shrouds by cutting the turnbuckles.

**Spreader Angle/Deflection:** First cut the spreader length to minimum allowed by class rules, 760mm. 30". Using a string, tie the shrouds to pull the spreaders back as far they will go. Then measure from the string in straight line to aft face of the mast. You want 145 mm. 5.71". Tape the spreaders ends to protect the spinnaker and genoa.

#### AFTER STEPPING THE MAST

**Butt position:** Measure in straight line from the 3rd. bolt of the stem fitting (looking inside forward) to the lower forward face of the mast. Position the front face of the mast at 2845 mm, 9'4". For maximum J, block the mast solid at 2910mm. 9.55' from the stem/sheer line intersection. To Adjust the upper shrouds, establish two equal points on each side of the deck no farther aft than the turnbuckles. Swing the genoa halyard side to side to the marks on deck and adjust the shrouds till the masthead is centered in the boat. Also measure side to side and find out if the mast as it come through the deck, is in the middle of the boat.

Using a Loose Tension Gauge model B, tighten the upper shrouds to 20 and the lowers to 15, make equal number of turns side to side to keep the mast head centered. Adjust the backstay bridle turnbuckles so that the roller is 10" below the connector plate. With this measure you should have 1-1/4" of pre-bend. Tighten or loosen your backstay until you reach (- 12) on the headstay tension. This will be the base setting. If you get more than this amount of pre-bend move the butt forward 1/4". Conversely, if

you get less than the suggested pre bend, move the butt position 1/4" aft. You will need to move the mast butt forward or aft until you get the desired pre bend.

Pre bend is measured by holding the main halyard directly to the gooseneck. Measure at spreader height.

#### FINE TUNING THE RIG - SHROUD TENSION CHART

Your UK mainsail is designed to perform in 10 knots of wind with a 1 1/4" pre bend. In heavy air, bend can be achieved through the backstay tension. Backstay tension will bend the upper part of the mast and increase headstay tension, flattening the genoa.

Because we don't want to flatten the genoa in light air races, you can set up the pre-bend for 1 1/2". This can be achieved by prebending the rig with the mast butt position farther aft. By moving the butt aft it will push the mast head forward and will help induce headstay sag.

If the wind lightens between races, ease the upper and lower shroud tensions, this will increase headstay sag and will make the headsail more powerful. As the wind picks up, you should begin to tighten the shrouds. Begin with the lowers. The lowers will reduce pre bend and stiffen the middle of the mast, every time you apply backstay tension the upper part of the mast will bend, freeing the leech of the main and flattening the genoa. When you want to get power back, just ease the backstay.

#### SHROUD TENSION CHART

Wind - Kts	Uppers**	Lowers**	Headstay**	Genoa*
0- 3	16	10	-12	8"
4- 7	20	15	-12	4"
8-10	23	20	-5	3"
10-12	25	23	-5	2"
13-15	27	26	0	3"
16-18	29	29	+ 5	6"
+ 19	31	33	+ 5	Jib

\*\* Loose gauge Model B.

Distance from genoa to spreader: If the sea conditions are smooth (flat seas) in winds from 8 up to 16 use 1" less of distance to the spreader.

Tip: duplicate this chart with the amount of turns you need to move from one tension to the other and then laminate it and keep it on board.

Genoa tracks: To fine tune the genoa lead drill holes between factory holes.

#### SAIL TRIM:

Once your boat and rig is set up, there are three sail adjustments that will affect your speed more than any other while sailing to weather. If you feel that you are lacking speed, Ease the jib sheet tension, mainsheet tension, or backstay tension. I there is 90% chance that one of these three adjustments is wrong. If your are still slow, ease sheets, bear off a couple of degrees, gain speed and then try pointing again.

Genoa trim: With the sail in position head slowly toward head to wind, the luff will need to break first in the upper part of the sail slightly sooner than the lower part. If the sail breaks even, move the lead back one hole. If the upper part breaks first (by more than one second) move the lead forward one hole.

In light air the halyard should be tensioned for no wrinkles in the luff (nothing more than that). As the wind increase allow wrinkles in the luff, this will move the center of effort of the sail back, improving pointing ability. With more wind, tension the halyard until the wrinkles disappear.

In a practical way, pull up all the halyard, then start easing until the wrinkles start to appear or to the desire point. Do not over tension the luff of the sail. Use the genoa cunningham to fine tune the luff of the sail. If you not pointing, probably will be one of these items:  
 a) An over tensioned genoa sheet. b) To much genoa luff tension or  
 c) a too open mainsail leech.

Jib trim: Once the wind picks up over 19 knots, you will need to change genoa to the to the jib. Set the lead so the foot touches the foot of the pulpit and the leech remains 2" inside the spreader. If the wind goes over 25 knots move the lead back 1" to tighten the foot of the sail and ease the sheet till the leech is directly in line with the spreader end.

Also, when you first change to the jib loosen the shrouds one scale.

Heel: Upwind never heel more than 10 degrees, if you start heeling more than this start reducing power, only after you are sure that the crew is hiking at max.

Main Trim: Until you start heeling, maintain the boom on centerline. In light winds pull the traveler to windward so the upper batten is 3 to 5 degrees open and the boom is in the center of the boat. As the wind increases, start dropping the traveler and increasing sheet tension.

In 10 knots, The traveler will be in the middle of the boat and you will need to apply more sheet tension so the top batten is pointing 3 degrees to windward. When you reach more than 13 knots start freeing the main sheet and begin dropping the traveler a bit.

Try to sail the boat flat. If you're used to playing the sheet, you will probably need to apply a lot of vang tension so every time you free the sheet, the boom will go out instead of up. Don't use the vang until you start getting over powered. In puffy conditions, use the backstay to power and depower the boat.

Remember, don't try to point until you are at full speed. Also, if the boat heels in a puff don't point to avoid the heeling, free sheet and let the boat run, you will end up forward but in the same line as the other boat that points (but goes sideways).

On the run, ease the sheet until the luff breaks, or directly to the shrouds. Set the vang so the upper leech is parallel to the boom.

Spinnaker: On the run is where you can gain or lose the most distance, it is time to attack the leaders or consolidate your advantage on the guys behind. The Matrix spinnaker is a true runner, so you can sail lower than other boats, but you will need to sail taking in mind this point:

- The sail is designed to project maximum area, so don't pull the pole too far aft. 80 degrees of the apparent wind proves to be faster

than the standard 90 degrees. Over 8 knots, sail the boat heeling to windward as much as 10 degrees, as you heel more, start going deeper, but don't do it if you have to steer to much or if you start feeling pressure on the rudder. Position the pole end of the sail slightly lower than the clew. Select the ring (usually the lowest) that gets the pole most perpendicular to the mast.

#### HELPFUL HINTS:

- 1) Sail at maximum crew weight.
- 2) Sail the boat as flat as possible.
- 3) In light to medium breeze, don't pinch.
- 4) Set the shroud tension for the wind you are expecting in the first part of the race.
- 5) When in doubt select the more powerful option (it is easier to depower).
- 6) On the runs heel the boat to windward slightly.
- 7) On the runs use the crew weight as much possible to steer the boat.