



J24 TUNING GUIDE

UK-HALSEY
TEXAS

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UK Halsey J-24 Tuning Guide

This **J-24 Tuning Guide** was written to help you get the best performance from your boat. It represents years of sailing success in the class as well as computer analysis of the sail plan. The measurements and settings included in this tuning guide are the fastest for your J-24 UK Halsey 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 it is faired. You are not going as fast as the boat's capability if you don't have a faired bottom. Wet sand the bottom with 400 grit sand paper, 600 for the keel, and then clean it with soap before each regatta (If you moor your boat you will need a different bottom finish.)

Keel: One of the most critical factors in speed gains is over the keel shape. Move the keel as far forward as the rules allow and 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 clean as possible, repair all the damage immediately, especially on the trailing edge.

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

- Remove the spare Genoa halyard.
- Remove the running light and wiring. Cover the holes with sail number material.
- Cut mast butt off to the class minimum length (ask your class measurer)
- Install a small size Windex wind indicator on the back of the mast-head crane.
- Exit the Genoa halyard to the lowest slot on the starboard side of the mast. Mount two Harken Camcleats (one below the other) just below the cutout, pass the halyard to a small ratchet on deck. Exit the main halyard to the lowest slot on the port side.
- Exit the Spinnaker halyard 8 feet above deck level, and mount a camcleat just below the cutout.
- Exit the topping lift to the upper slot on the port side.
- Take off both ends of the boom and replace the outhaul system using a 6:1 Harken micro block system with 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 kg. It is better to be heavy in light winds than lighter in high winds, and since the J-24 starts to heel at around 8 knots,

you will be hiking almost always.

Boat Weight: Remove everything from the boat. Carry only what is requested by the rules (each item at minimum weight).

Crew Gear: You spend hours removing things, cleaning the boat, buying lighter shackles and reducing every weight of spare equipment. Limit what every crew member can bring onboard.

You can't imagine how much 5 bags full of clothes can weigh. Be careful on this point.

Tuning the rig

Headstay Length: The headstay length should be the 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. 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

Mast length: The mast length should be minimum allowed by class rules. Contact a class measurer as this is a complicated process.

Your shrouds may be too long to get adequate rig tension once you've cut the mast. 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. using a string, tie the shrouds together from the center of where the shroud lies 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 should get 165 mm. Tape the spreader ends to protect the spin and Genoa.

After Steeping the Mast

Butt position: Position the front face of the mast at 2845 mm from the bottom bolt of the bow stem fitting (looking inside forward) to the forward face of the mast at the "1" beam. Block the mast (at the partners) solid at 2910mm from the stem/

sheer line intersection for maximum "J" length.

Adjust the upper shrouds, then measure from the bow to the sides of the boat two equal measurements (one on each side) no farther aft than the turnbuckles. With the Genoa halyard measure to each mark to find if the mast is centered on the boat, also measure side to side to find out if the mast is in the middle of the boat at the partners.

Using a Loose Tension Gauge Model B, tighten the upper shrouds to 20 and the lowers to 15.

Adjust the backstay bridle turnbuckles so that the roller is about 10" below the connector plate. With this measurement, you will need to have 2 1/4" of prebend. Tighten or loosen your backstay until your reach (-12) in the headstay. This will be the base setting. If you get more than this prebend move the butt position 1/4" forward. Conversely, if you get less than the suggested prebend, allowed by the class.

move the butt position 1/4" aft. You will need to move the base forward or aft until you get the desired pre bend.

Pre bend is measured holding the main halyard directly to the gooseneck, measure at spreader height.



Spreader Angle/Deflection

"Race always at maximum weight allowed by the class"



Fine Tuning the Rig

Your mainsail is designed to perform in 10 knots of wind with a 2 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 conditions, the 2 1/4" of bend must be achieved by more prebend in the mast.

Once the wind lightens you will ease shroud

tension, this will increase headstay sag, improving pointing ability and gaining power. As the wind picks up progressively, you will tighten the lowers more than the uppers. 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 for an ideal shape in heavy air. When you want to gain power, ease the backstay again.



SHROUD TENSION CHART

Wind - Knots	Uppers*	Lowers **	Stay*	Genoa**
0 - 3	16	10	-12	6 - 8"
4 - 10	20	15	-12	3 - 4"
10 - 15	24	21	- 5	1 - 2"
15 - 18	27	26	0	6"
18 - 22	29	29	+5	Jib (Leech straight)
22 +	29	29	+5	Jib (Leech twisted)

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

** Loose gauge Model B.

Tip: Write this chart on the deck with the amount of turns you need to move from one tension to the other.

Genoa tracks: To fine tune the Genoa, it is important to have extra holes in the Genoa track. Drill holes between the existing factory holes.



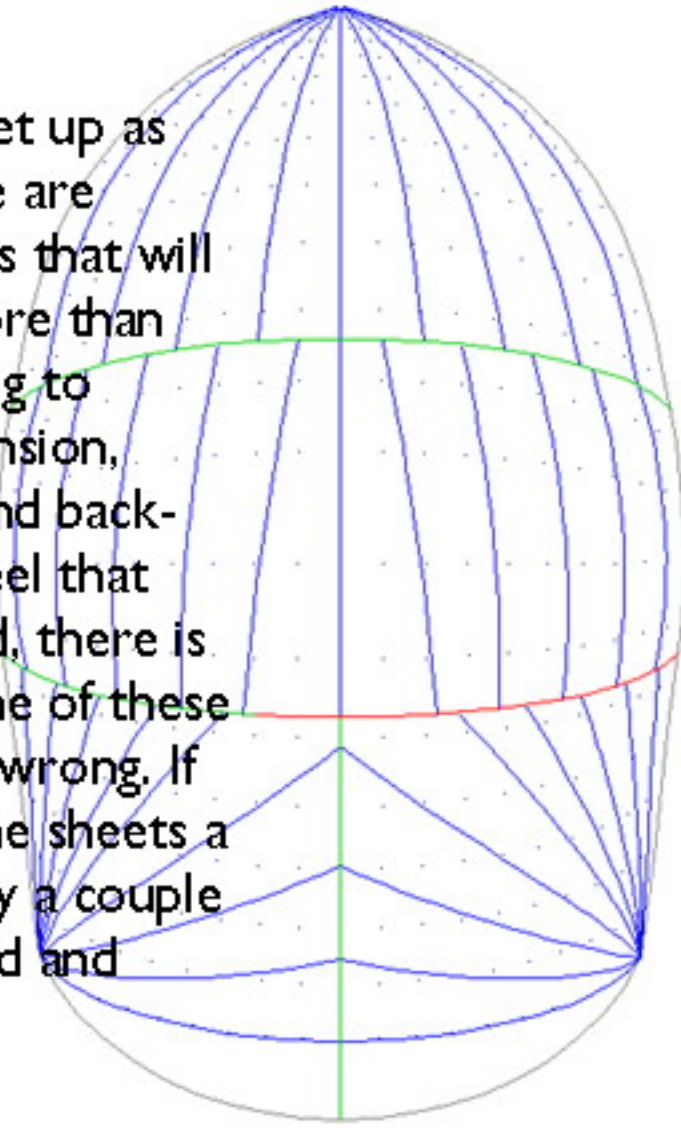
"In heavy air, bend can be achieved through the backstay tension"



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Sail Trim

Once your boat is set up as outlined above, there are three sail adjustments that will affect your speed more than any other while sailing to weather: jib sheet tension, mainsheet tension, and backstay tension. If you feel that you are lacking speed, there is a 90% chance that one of these three adjustments is wrong. If you are slow, ease the sheets a few inches, bear away a couple of degrees, gain speed and then try pointing.



Jib trim: Once the wind picks up over 19 knots, you will need to change to the little jib. Set the lead so the foot of the sail 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 to open the leech directly to the spreader end.

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



Genoa Trim: Position the Genoa lead so when over trimming, the Genoa touches the turnbuckles and the sail remains 1" from the spreader. Then free the sheet and position the sail according to the tuning chart. With the sail in position, head slowly toward head to wind. The telltales will need to break first in the upper part of the sail a second earlier than the lower part. If the telltales break evenly, 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 increases, 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. Do not over tension the luff of the sail. Use the Genoa cunningham to fine tune the luff. If you cannot point, chances are one of these items has occurred:

- An over tensioned Genoa sheet.
- Too much tension in the Genoa luff
- A loose mainsail leech.

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.

At 10 knots of breeze, the traveler will be in the middle of the boat. 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, free the sheet a small amount and drop the traveler a bit.

Don't let the boat over heel. If you're used to playing the sheet, you will probably need to apply a lot of vang tension. This will maintain the leech of the sail when you ease the mainsheet. Don't use the vang until you start heeling. In puffy conditions, use the backstay to depower and power up the boat.

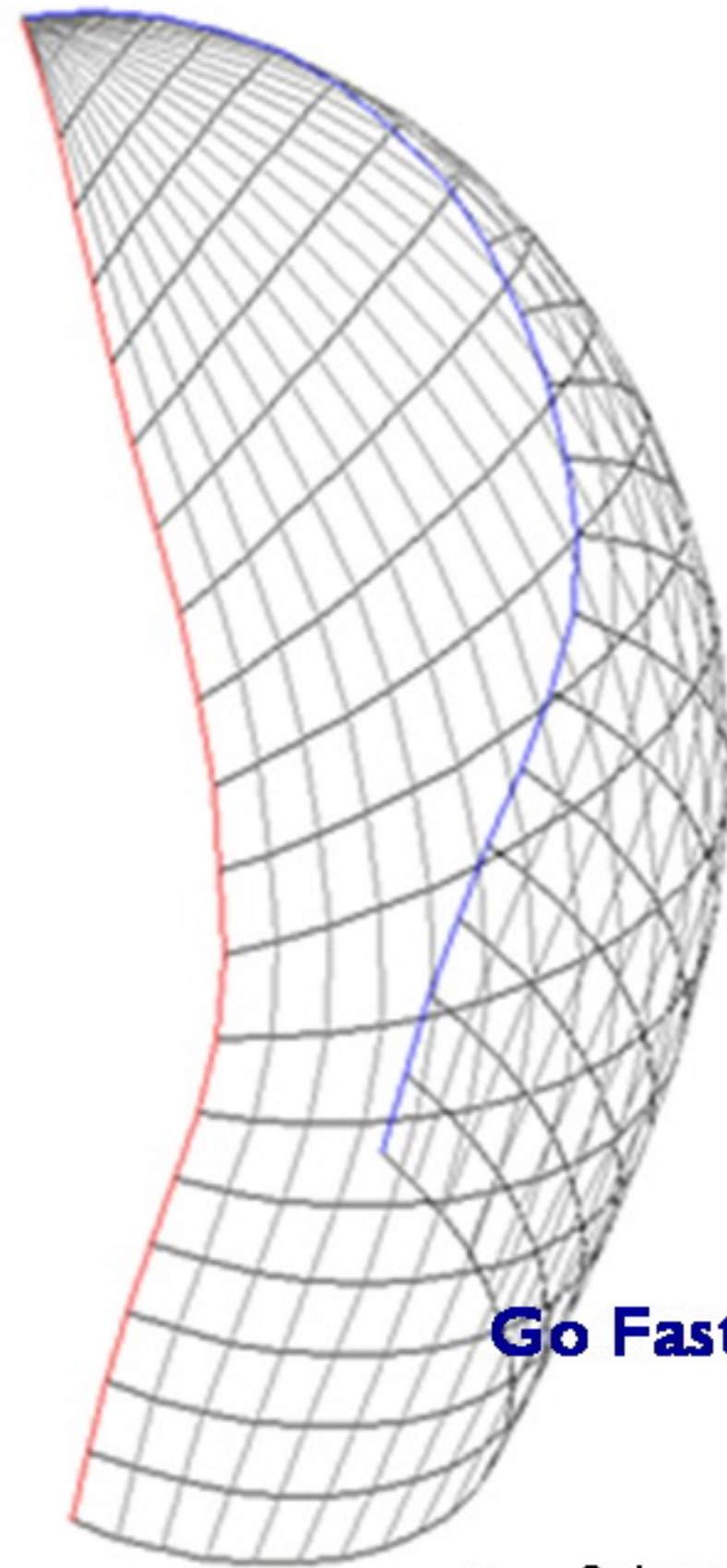
Remember, don't try to point until you are at full speed. Also, if the boat heels in a puff, don't point to avoid heeling. Ease the sheet and let the boat bear away a bit. You will end up in better position than a boat that points and then slows down. A slow boat upwind will slide sideways (not go where the boat is pointing.)

While running, free the sheet until the luff breaks, or directly to the shrouds. Set the vang so the upper leech is parallel to the boom. Don't over tighten the vang to the point that the boom breaks in heavy air. Remember to ease the vang at the weather mark if you are "vang sheeting" upwind.



Spinnaker: Downwind you can gain or lose the most distance. It is the time to either attack the leaders or consolidate your advantage on the fleet. The full, max size Matrix Spinnaker is a true runner, so you can sail lower than other boats. 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. This will help project the spinnaker away from the main-sail and allow the boat to sail deeper. Don't do this if you have to steer too much or if you start feeling pressure in the rudder. Bring the pole end of the sail lower than the clew.

NEVER allow the tack to be higher than clew. In almost all conditions, set the tack about one foot lower than the clew. Select the ring that gets the pole more perpendicular to the mast. Use the lower ring for the pole as long as you can.



Go Fast Tips

- Sail at maximum crew weight.
 - Sail the boat as flat as possible.
 - Do not pinch.
 - Set the shroud tension for the wind you are expecting in the first part of the race.
 - When in doubt select the more powerful option (it is easy to de-power.)
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- Downwind, heel the boat to windward.
 - Downwind, use as much crew weight as possible to steer the boat.

Heeling: Upwind, never heel more than 10°. If you start heeling more than this, start reducing power only after you are sure that the crew is hiking at their maximum potential.

Deck Layout

Rule: Simple is fast. Try to place all the cleats as close as possible to the mast. Remove the secondary winches. Use double winch handle pockets and place them in front of the traveler.

Running Rigging: New materials appear in the market on a regular basis, keep lines updated and at the minimum size allowed by the class rules.

Questions?

If you have any questions or comments, please call us directly at UK-Halsey Houston

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