



THE SAIL

The junk sail is a fully battened lugsail. Several vertical cloth panels are sewn together as shown on the plan and, as is often the case in traditional Chinese sail construction, the angle of the panels varies at most battens to stay parallel with the leech. The sail is reinforced on both sides with narrow bands of sailcloth (60 mm wide, with edges turned in), and the battens are bound to two rows of eyelets evenly distributed along the length of each reinforcing bands (see plan for spacings and appendix for bindings). The sail can be set either side of the mast, but the battens should be between the mast and the sail. Because the battens greatly reduce the stress on the sail, we can use lighter fabrics than what is generally used for Western rigs.

Recommendations:

The French sail maker mentioned in the list of suppliers has already constructed sails for the Jonques de Plaisance... Sail making is a profession, and it is also an art, but ... the JDP sails are simpler and easier to construct than for any other Western sail; moreover the junk sails are flat, no 'scalloping'. The plans are easy to follow, the result: less work therefore cheaper. We recommend that amateur builders have their sails made professionally, not on account of the cut but because the seams, the reinforcing bands and the eyelets require professional equipment.

However, for the Jonquinettes, amateur builders can envisage constructing this small sail themselves provided they have access to semi-industrial machines. Be sure to respect the plan which is easy to trace.

The sailcloth can be Dacron TAN for a more authentic look, but a white sail is always more visible by day or by night. Choose a fabric treated against fading.

THE MAST

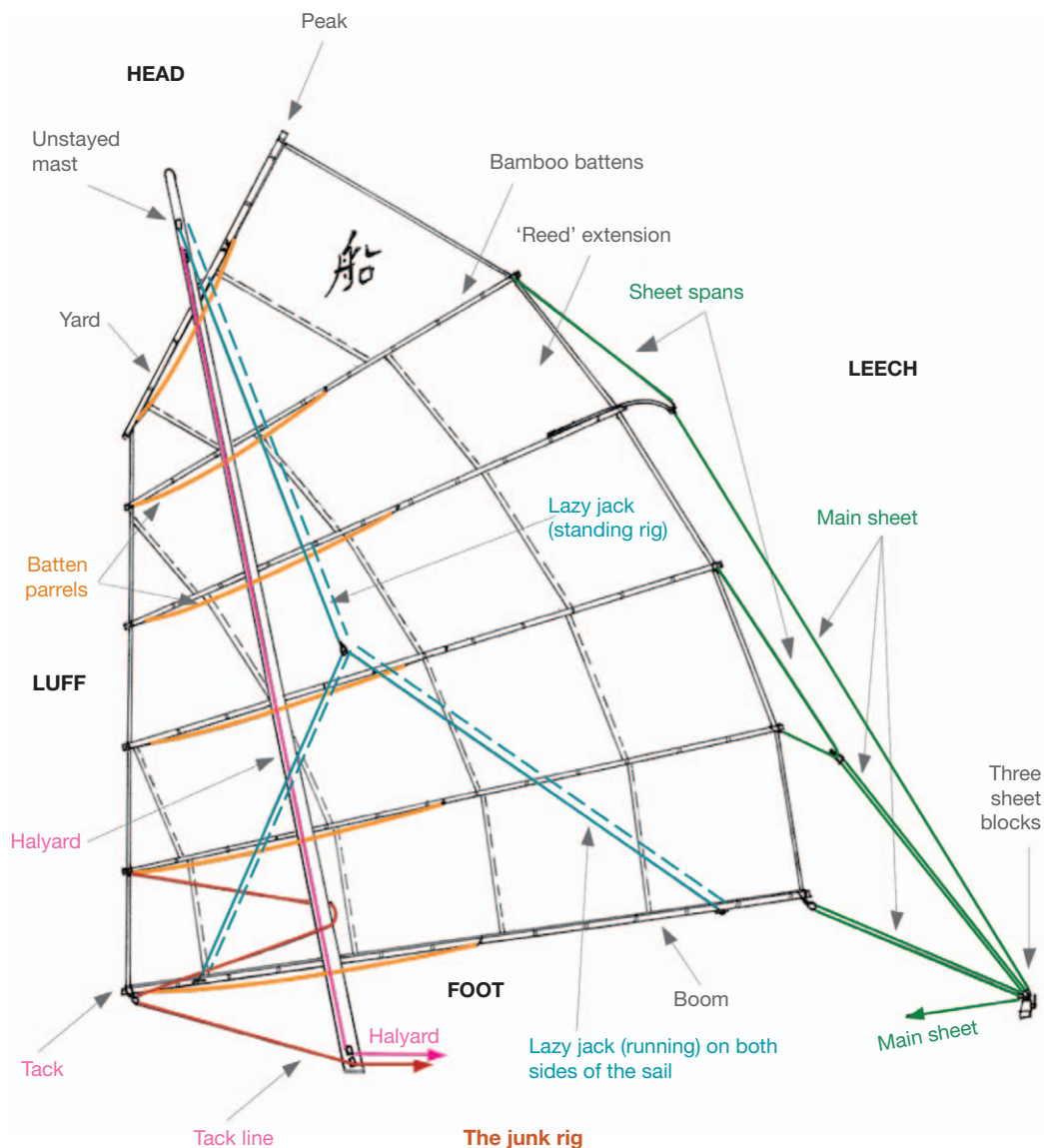
The mast is unstayed, it is stepped securely on the keelson and, for the 4.72M Jonqunette, the mast partner is reinforced by two boards which runs from the stem to the front of the centreboard case. The fact that the mast is unstayed means that it can absorb wind pressure better (when a mast breaks, it is often caused by the shrouds which prevent the natural movements of the mast). The absence of shrouds also means that the sail can be squared at 90° on a run or broad reach.

The mast carries only one sail which does not need to be changed (for example when the weather changes).

The masts on the JDPs are **never straight – for very good reasons!** The purpose of the forward rake is to facilitate tacking by making it possible to change the centre of gravity of the sail: The centre of gravity is brought forward or back by easing off or tightening the tack line – much simpler, very efficient, in fact very Chinese.

It is more difficult to change the centre of gravity if the mast is straight and this is sometimes compensated by the addition of a jib, which shows a lack of understanding and is an aberration from a design point of view.

This ability to change the centre of gravity of the sail can also be put to good use to make the boat more weatherly (or the opposite) if necessary.





THE BAMBOO BATTENS

The battens lie between the sail and the mast, they are kept close to the mast by batten parrels. On the larger JDPs, two or more battens are doubled for added strength and to prevent excessive bending. The length of each bamboo is adjusted as per the plan, and they should not protrude more than necessary on the leech side to avoid getting tangled with the main sheet when tacking. The diameter of the bamboo should be as even as possible along its whole length.



Clove-hitch knot



Halyard sheave



Eye strap



Nylon eye



Cleat



Fairlead

THE RIG - All Ø 8 mm

The halyard: The halyard is bound to the yard as shown on the plan with two clove-hitch knots, it passes around the sheave at the top of the mast and runs down on the other side of the sail, so that it lies on the same side as the tack line. Note that the halyard sheave and the eye straps on the mast are set perpendicular to the boat's longitudinal axis. The halyard runs down and passes through a sheet block (Hye LB1) which is fixed on the mast below the boom, and terminates at a jam cleat which can be fixed to side of centreboard case (for the Jonquinettes).



Sheet block
Hye LB1



Jam cleat



Bow shackle
and D shackles

THE LAZY JACKS: This system support the boom and acts as a cradle to hold the bundle of sail and battens as the sail is reefed or furled.

The standing (fixed) lazy jacks: There is one fixed lazy jack on each side of the sail. They are fitted with an eye splice at both ends of the rope, and a small D shackle is used to attach one end of the lazy jacks to the eye straps at the top of the mast. These lazy jacks end where they meet with the running lazy jack.

The running (mobile) lazy jack: This is a single rope which starts at one side of the boom near the tack, where it is secured with a small cleat – the cleat is glued and bound to the side of the boom (Two cleats are needed, symmetrically placed on each side of the boom). This rope goes up to pass through the eye of the standing lazy jack, it continues back down to pass through a small fairlead which is fixed to the underside of the boom (near the clew). The rope then goes up on the other side of the sail to pass through the eye of the standing lazy jack on that side, then it descends again to be secured to the second cleat at the fore end of the boom.

For the Jonquinettes, the running lazy jack also determines the height of the boom in relation to the thwarts. The length of this lazy jack is finalised during the first trials and rarely needs adjusting afterwards.

The batten parrels: Their lengths on the Overview Plan should be respected. Parrels need to be reasonably tight to hold the sail close to the mast, but not too tight because the sail should be allowed to curve and the parrels give the sail its curve in the wind. Note that the sail should not curve too much either. If the parrels are too tight they may also hinder the furling of the sail. The bindings at the luff edge of the parrels can be fixed permanently, but the lengths of the parrels will be finalised during the trials. The length of the yard parrel is also finalised during the trials.

THE SHEETS:

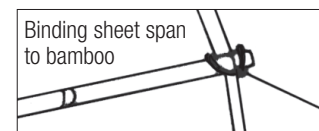
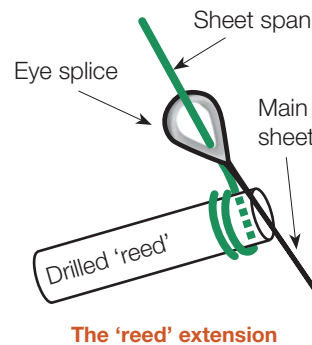
The sheet system consists of a five-part main sheet and two sheet spans on the leech side. Most battens are sheeted and the main sheet ends at the lower sheet blocks (3) which are fixed slightly off-centre on the davit's crossbar with three ring bolts (see Construction Plan).

The main sheet: It must be long enough for the sail to be fully hoisted at a 90° when running (before the wind), and have sufficient slack to be secured to a jam cleat within easy reach of the helmsman.

1. The main sheet begins with an eye splice at one end, through which the upper sheet span is threaded. The main sheet descends to the first lower sheet block (Hye EB1) on the davit's crossbar. This sheet block is fixed to the crossbar by a small bow shackle and a ring bolt.
2. The main sheet then goes up and passes through a small sheet block (Hye EB1) on the second sheet span, and returns down to the second lower sheet block on the crossbar.
3. The main sheet continues to a sheet block (Hye EB1) which has been fixed to the boom's end (at the clew), it then returns down to the third lower sheet block on the crossbar, to finish at a jam cleat conveniently located.



Block Hye EB1



The sheet spans: They help prevent the main sheet from getting tangled with the ends of the bamboo battens.

The upper sheet span controls the second and third batten (the yard being number 1), and the third batten is lengthened by the 'reed' extension. The extremity of the 'reed' extension can be drilled to thread the sheet span through it when binding it.

The second sheet span controls the fourth and fifth batten, it is fitted with a sheet block (Hye EB1) through which the main sheet passes.

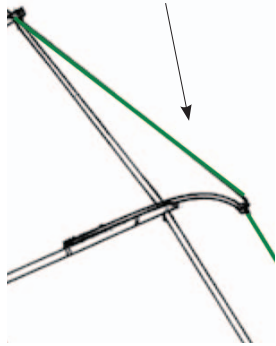
Sheet spans are secured to the battens by two clove-hitch knots: One on each side of the bamboo-sail binding (straddling it), so they can't slip out.



STANDING AND RUNNING RIG

(Continued)

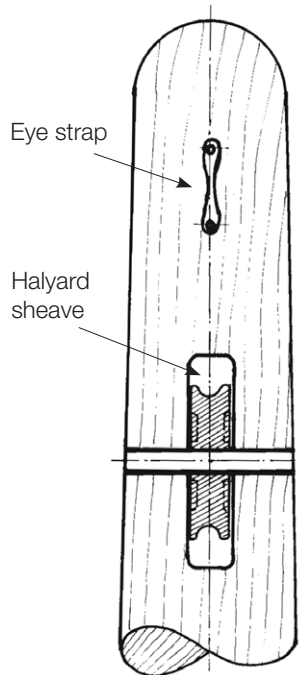
Original 'reed' extension represented here



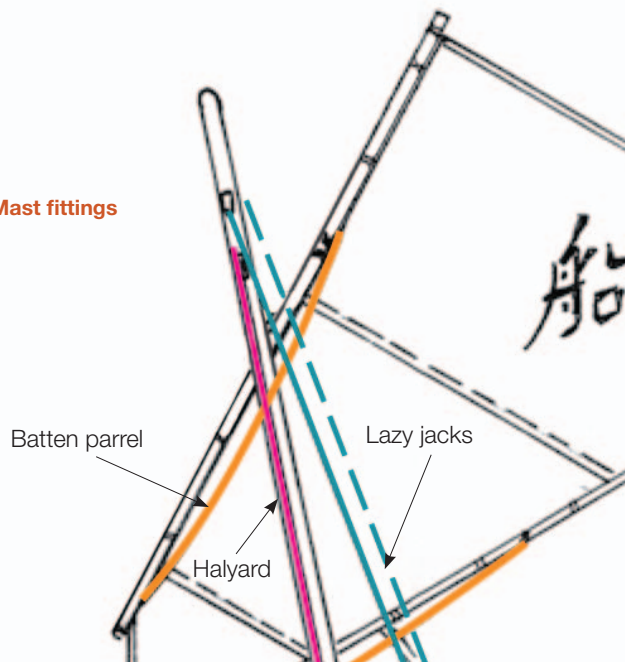
The 'reed' extension:

The reed extension reduces the risk of the main sheet getting tangled in the ends of the bamboo battens. Originally, I had planned to use the thin end of a deep sea fishing rod (strong and flexible) to extend the length of the batten. I had to abandon this solution because no supplier could confirm that this type of fishing rod could absorb the stresses caused by the main sheet (which I find surprising since these fishing rods are used to catch very big fish!).

My adopted solution is to use a bamboo with a diameter of 30–35 mm and a length of 1 m: Half of this length overlaps the third bamboo (to prevent breaking), and the sheet span is fixed to the end of the remaining 500 mm which extends out, either bound to or drilled through (see drawing on previous page).



Mast fittings



Sheet block Hye EB1



Sheet block Hye LB1



Jam cleat



Recessed sheet block

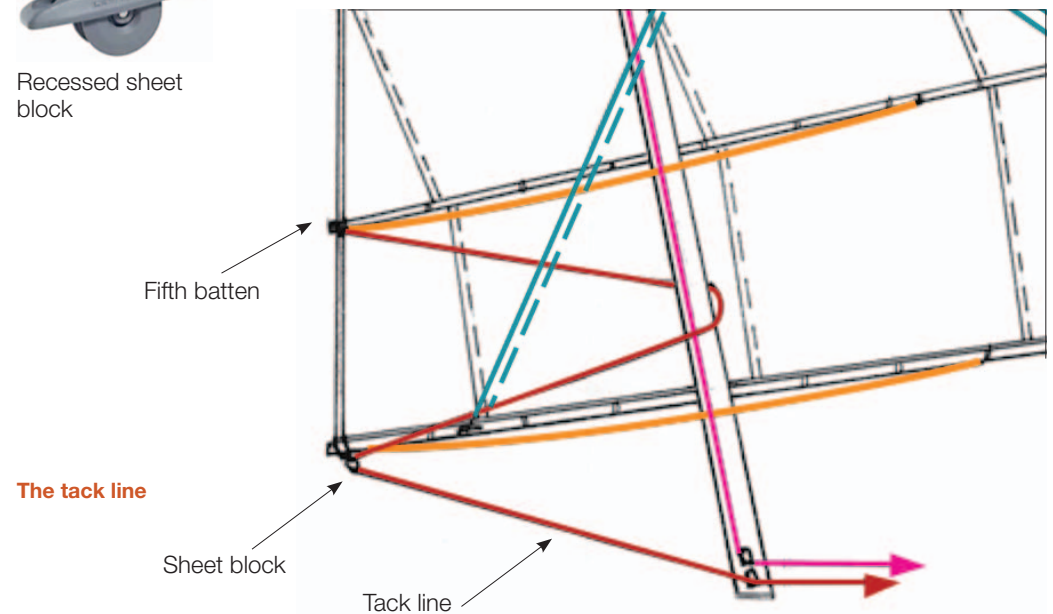
The tack line:

Its role is to control the centre of gravity of the sail

1. It is secured to the fifth batten on the luff side of the sail with two clove-hitch knots straddling the bamboo–sail binding.
2. The tack line passes between the sail and the mast, and returns to the tack point where it passes through a sheet block (Hye EB1) which is fixed to the fore end of the boom.
3. The tack line then goes back to pass through the tack block (Hye LB1) which is fixed to the mast just below the halyard block.
4. The tack line ends at a jam cleat which can be fixed to side of centreboard case (for the Jonquinettes).

The centreboard halyard:

This halyard is fixed to the centreboard with an eye and a shackle; it passes through the recessed sheet block on the case lid, to finish at a jam cleat fixed behind the recessed sheet block (see plan).





NOTES ON HANDLING

With the sail hoisted, the rig (main sheet, tack line, parrels etc.) is fine tuned to obtain the best course and speed. The battens stiffen the sail, so that it will not shiver (flap) even if there is no wind at all.

Reefing:

It is most important to release the tack line first when reefing or furling the sail, so that it can move forward naturally.

We then ease out the halyard to reef the sail by one or more battens (Fig. 3). The traction on the main sheet is sufficient to keep the battens neatly stacked in the lazy jack, and there is no need for reef points or other bindings. There is also no need to change course for this manoeuvre, we simply trim the main sheet to suit.

When the wind abates, we hoist the sail again by easing out the main sheet to resume normal course.

Tacking:

This example refers to the 3M, 4.72M Jonquinettes and the 9M Minijonque which have only one mast: When we sail on a beam reach starboard tack or close hauled starboard tack (the wind is coming from starboard), the tack line is set for optimum efficiency and everything is normal (Fig. 1).

But if we want to change from a starboard tack to a port tack and the boat is sailing at a good speed: At the same time as we push the tiller to start the tack, we pull the tack line in (Fig. 2). The front part of the sail being pulled back and its surface no longer opposes the tack.

Then, as soon as the front of the boat has crossed the path of the wind, we release the tack line and it is at that moment that the mast's rake comes into play, as it allows the sail to move forward (driven by its own weight), the sail now exposes its surface to the wind, which helps to complete the tack.

On my larger Jonques de Plaisance which are schooner rigs, it is the foresail which acts as a jib and functions in exactly the same manner as described here.

CAUTION:

Never force any sheet or line (halyard, main sheet or tack line) or you might break something. This sail is naturally very well balanced even in a breeze. Instead, take a good look, something is probably blocked somewhere.

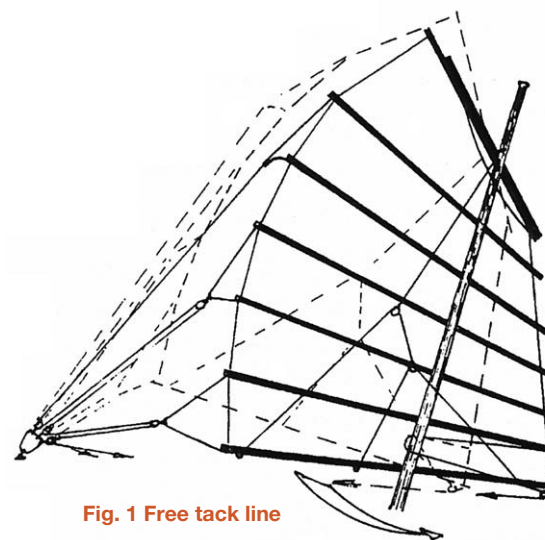


Fig. 1 Free tack line

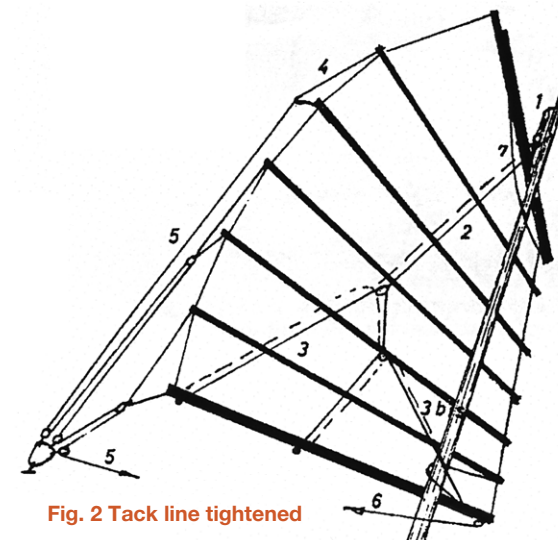


Fig. 2 Tack line tightened

1. Halyard
2. Lazy jacks (fixed)
3. Lazy jack (running)
4. Sheet span
5. Main sheet
6. Tack line
7. Batten parrel

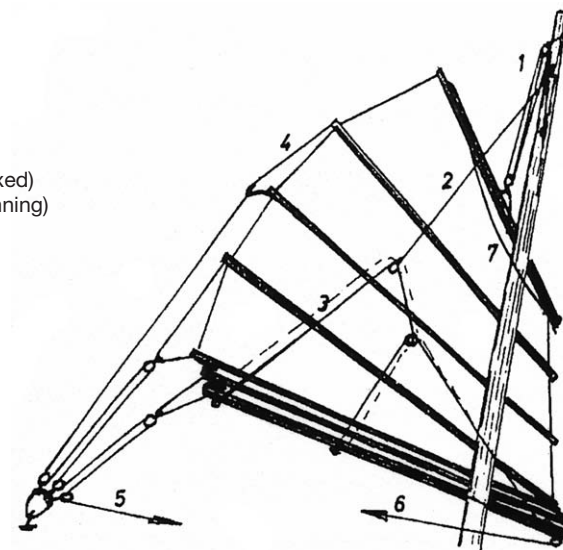


Fig. 3 Sail reefed by two battens