

Mast tabernacle for trailer sailers with JR.

Making a mechanism for quick manual raising and lowering of a JR mast.

This is half-and-half an armchair advice. I have had two small junks, one with the mast weighing only 10kg, and one with it weighing 23kg. Since they stayed in their finger berth all summer, there was no need for a quick method of raising and lowering their masts. Still I have a feel of how they behaved, so I have some ideas...

Case 1, mast weight up to 12kg:

In case I had a big dinghy, with or without a cuddy, with the mast in the 8 – 12kg range (depending on strength of the owner), I would simply suggest that the ‘tabernacle’ consisted of a slightly oversize aluminium tube, into which I would plonk the mast. I would let this tube stick up somewhat from deck, say 30-50cm, so it ends below where the boom comes when in use. This protruding upper end of the tube will be referred to as *the stub*.

After a sail, I would lower the furled and secured sail bundle down on the deck with the batten parrels passing around *the stub*. To do this, there must be some clever, well-numbered sort of quick-release connections at boom lift and topping lift etc.

The mast is to go all the way down into the bottom of the boat, or almost: To keep the mast from revolving during sailing, I would fit the bottom end of it with two notches and have a bolt through the lowest end of the tabernacle-tube. With the notches hitting the bolt, it will be prevented from revolving

Clearance between mast and tabernacle tube.

As said, I think I would choose the tabernacle tube to be slightly oversize compared to the mast. To keep the inserted mast from moving about, I would simply add two 100mm wide grp ‘waistbelts’ to the mast at the root end and at the top of *the stub*.

Lowering the mast

With the sail bundle lowered to the deck and halyard topping lifts and mast lift lashed to the mast, one simply lifts the mast out of the tabernacle by hand and lower it onto two pre-arranged crutches on deck.

Trailer-sailing a boat with a junkrig obviously requires some thinking ahead to avoid fouling the lines, but if loose ends are well labelled or colour-coded, one should soon get the hang of it

Case 2, mast weight in the 12 to 20kg plus range.

At some point, one will find that the taller and heavier mast cannot be manhandled safely with just brute force.

When under sail, this tabernacle will look just like the simple tube tabernacle in Case 1. The stub of the tabernacle will again end about 10cm below the boom position, and the mast will also be resting on a bolt near the root end of the tabernacle to avoid revolving.

Added hardware to let one safely raise and lower the heavier mast - the support.

To give the needed support to the mast when raising and lowering it, and thus restrict it from

falling forward or to any of the sides; enter the hinged removable support, just called *the support* from now on.

The support could be made of the same tube size as the tabernacle, and say 50cm long. This thing will be hinged to the top of *the stub* at the aft side (diagram below). A (horizontal) rod, easy to insert and pull out, will act as the pintle of that (stout) hinge.

The support must be able to be opened (split lengthwise) and closed as well, to easily let one clamp it onto the mast prior to lowering it. It must also be easy to remove the support after erecting the mast: It would be in the way for the batten parrels when sailing. I would make the support as two halves with a similar (vertical) rod-style hinge.

Raising the mast after arrival in the harbour step by step:

During road transport, the mast will have rested in the mast crutch aft, and in the support, still attached to the stub. One may well have pushed the mast quite a bit forward to reduce the length of the overhanging mast top behind the trailer.

- First thing is to release any transport ties used up along the mast – it is a little late when the mast is upright.
- Then pull the mast aft into position and insert the short stop-bolt, A. This bolt prevents the mast from sliding down in the support with the mast only half-raised.
- With the mast correctly oriented (use clear marks on the mast to help you get it right), it is time to ‘walk’ it up. Thanks to the support and the stop-bolt, A, it will stop when upright.
- Lowering the mast into the tabernacle is done by first grabbing it firmly, and then pulling out that stop-bolt. Now you just ease the mast down into position. Again, a mark on the mast above the support will be there to tell you that the mast’s two notches has hit the bolt in the bottom end.
- This *Case 2 mast* needs a third grp waistbelt, 40cm above the lower end. This is to reduce play when the mast is on the up-position, only held in the 50cm support.
- With the mast well planted into the tabernacle, the support must be removed before ‘dressing’ the mast with sail. This is done by pulling out the horizontal rod pintle in the support-to-stub hinge. Then one of the vertical rods is pulled out to let one open the support and remove it from the mast. All these rods should have rings and be secured with lines to avoid dropping bits overboard.
- With the support stored down below, one is ready to finish rigging, removing the mast crutch, and then go sailing. (I guess the mast can be raised and lowered either with the boat on the trailer, or with it afloat)

Lowering the mast after sailing, step by step:

This is quite like playing the *raising video* in reverse:

- Start with erecting the aft mast crutch.
- Lower the sail bundle on deck and secure the untied lines as with the Case 1 mast.
- Clamp on the support and make sure you have stop-bolt A ready. Then you start lifting the mast, step by step (high-friction gloves is recommended) with an eye nailed to the mast to spot the marks indicating that it is high enough for inserting the stop bolt. So far, so good.

- Now it is time to carefully lean the mast aft and ‘walk’ it down, right into the crutch, waiting for it. In case the mast is in the high end, weight-wise, this may be a two-man job. A forestay may be helpful in lowering the first 45° to let you position yourself well for the last bit. I have also seen long sticks with a jaw on it in use to help raising and lowering long and heavy poles (the way the Swedes raise their midsummer poles).
- Again, you may want to shift the mast forward through the support for easier trailing. just remove the stop-bolt first.
- Then on with extra ties before heading home.

Constructing the tabernacle:

The tabernacle is basically an aluminium tube which you secure semi-permanently to the boat. The way the partners and step is to be made, is up to you; just install it firmly so it doesn't move, twists (revolve) or leaks. In addition, fit a hot dip galvanised 10mm bolt through it, about 50mm above the step, oriented fore to aft. The two mating notches in the mast will lock onto this bolt and keep the mast from revolving.

The only special to the Case 2 version is that horizontal bolt-hinge connection between the upper end (the stub) and the needed support.

Constructing the support:

As roughly indicated on the sketch below, all hinges will be simple metal ears with a rod through it.

The two vertical opening hinges I would make like this, to ensure a good fit to the rod pintle:

- Starting with a 50cm long tube, I would cut it in half with two lengthwise cuts, one on port and one on sb. side - that is, I would leave a few cm uncut in the middle of both.
- Then I would align the number of hinge ears with the rod through their holes. The rod makes up the pintle and the ears will act as gudgeons in these simple hinges. This method ensures that there is good alignment. Only when all the gudgeon-ears have been firmly welded on, can one complete the two vertical cuts to let one pull out a rod and swing the support open.

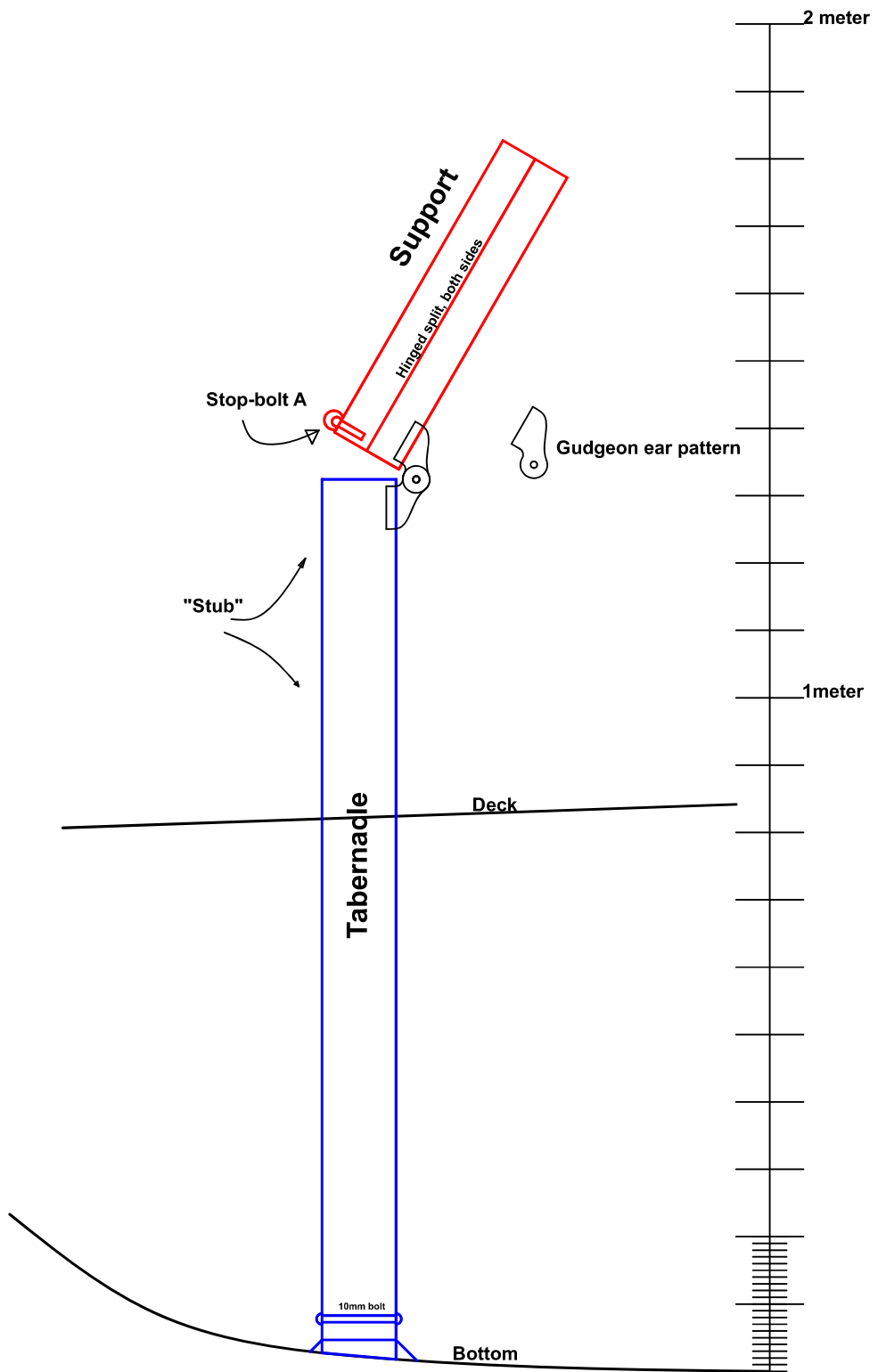
The horizontal hinge between the stub and the support could be made in a similar way. I don't know if the ears should be made to be welded right onto the tubes (as on the sketch), or if a horizontal flange should be added to make it stronger. This hinge sees quite some load, although you will not be raising and lowering the mast in a jumpy sea. I leave that to you.

Hope some of this makes sense

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Tube style tabernacle with hinged support



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