

Build Progress Update

Build: HMS Bellerophon, 74 gun Man of War (1786) - 1:64 Scale

By: Alan O'Neill (31 March 2020)

For those unaware, this is my second ship model, ever. My first, in 1990, was a 27 foot sailing and pulling Montagu Whaler at 1:12 scale. It was scratch built, made with balsa wood, a hot glue gun, and an X-Acto knife. I had no idea what I was doing but I jumped in. I am a novice, a beginner, stubborn, and a little bit OCD. There are times I am completely lost, overwhelmed, and doubt I can get to the next step in my present build. That is when the stubbornness steps up and takes over. The hardest lesson learnt was to accept that I could, and should at times, remove parts and do them over, better, the second or even third time. The thought of it scared the hell out of me, and the first few times was quite tough. Now, thankfully, I don't give it a second thought. In another life seemingly long ago, I was a draughtsman which explains my drawings below. In this life, I am happily retired, with not nearly as much time in any given day as I had imagined.

Last year I had made my **Bowsprit** and **Jib Boom** but they were bare masts, missing all the little items to complete them. The **Bowsprit** is the larger of the two masts, installed on the bow of the ship at a 30° incline. The **Jib Boom** is the smaller extension piece extending $\frac{2}{3}$ rds its length forward of the cap end of the Bowsprit.



Figure 1 - (top to bottom) Bowsprit and Jib Boom

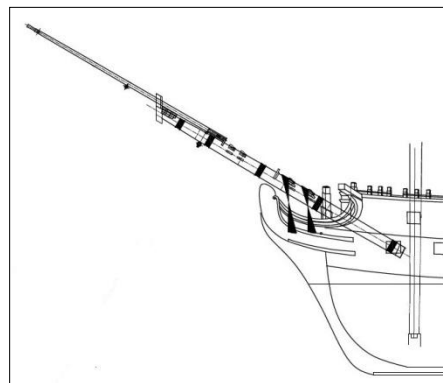


Figure 2 - Bowsprit and Jib Boom installed at 30° incline off the bow of the ship

Recently I decided to add those missing items: two sets of seven **Gammoning Cleats**, two sets of five thumb **Stop Cleats**, **Woodling Hoops**, **Fairlead**, and the Sprintsail Yard **Sling Saddle**. I then made the **Sprintsail Yard**, **Sprintsail Topsail Yard** and **Parrel**, but we can discuss these at a later date.



Figure 3 - (from top to bottom) Jib Boom, Bowsprit, Sprintsail Yard, and Sprintsail Topsail Yard

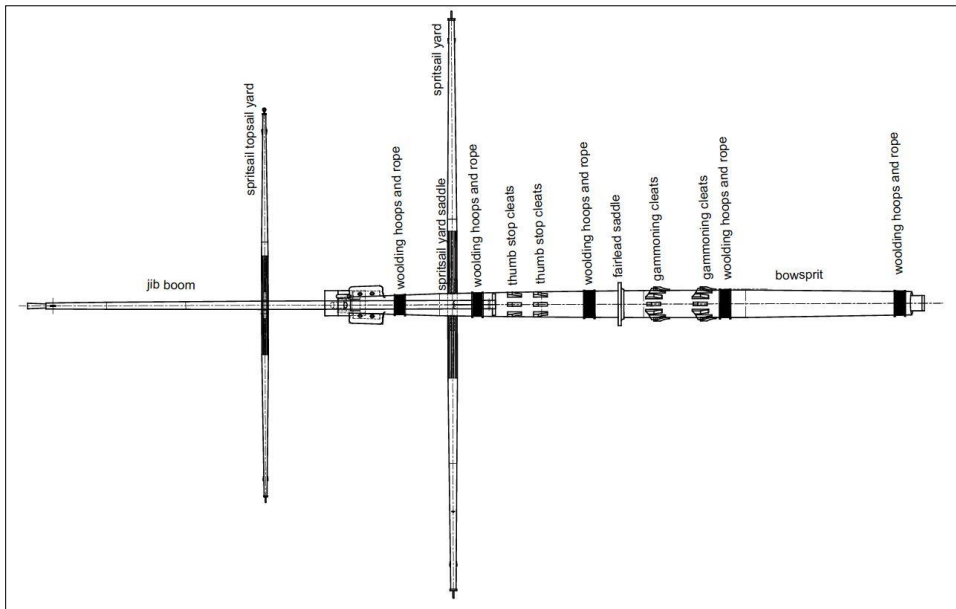


Figure 4 - Sketch (looking down) of the assembly and location of various items on the Bowsprit

My drawings are made using **DraughtSight**, a 2D CAD drawing program. Originally it was a free download, but as of 31 December 2019 they charge an annual subscription of \$US99 for the least expensive Standard package. I also use the free limited 3D program **AutoDesk Fusion 360** "for hobbyist".

I located exactly where these items are placed on a drawing, made all the items, and affixed them to the **Bowsprit** with yellow wood glue. The **Bowsprit** requires finish sanding and if my eyesight were any better I wouldn't need a close-up photo to see that it is indeed required. The following is a description of how the items were made and a bit of an explanation of what they are for.

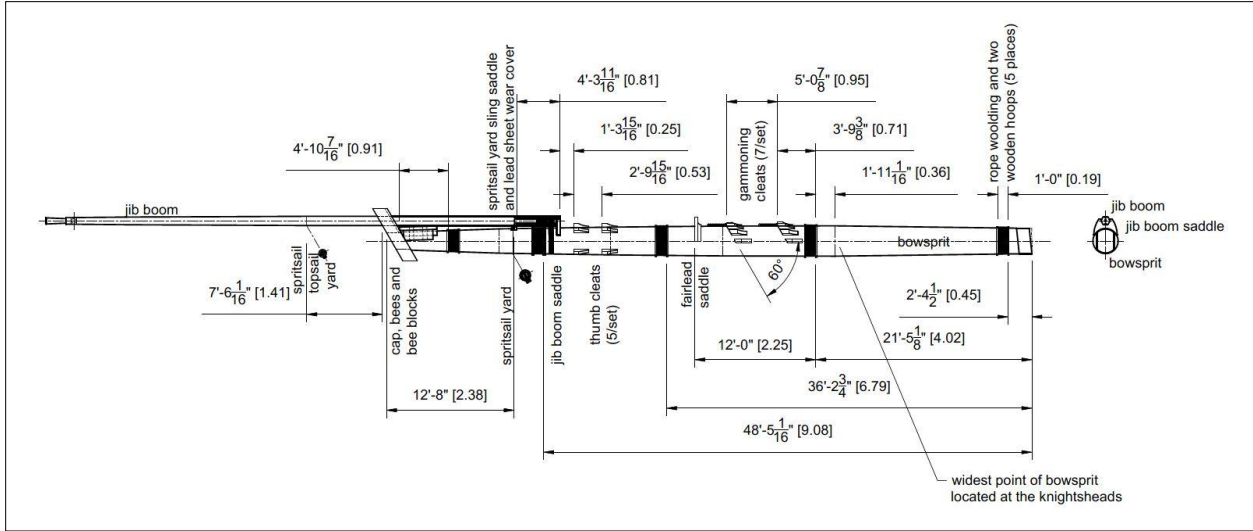
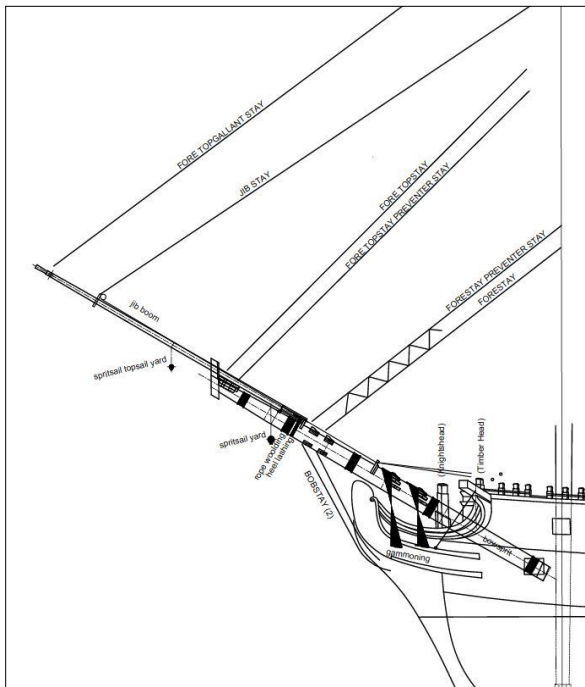


Figure 5 - Assembly of the Bowsprit and Jib Boom with all the components located and labelled

The **Gammoning Cleats** and **Thumb Stop Cleats** were the first items made and are all similarly shaped.



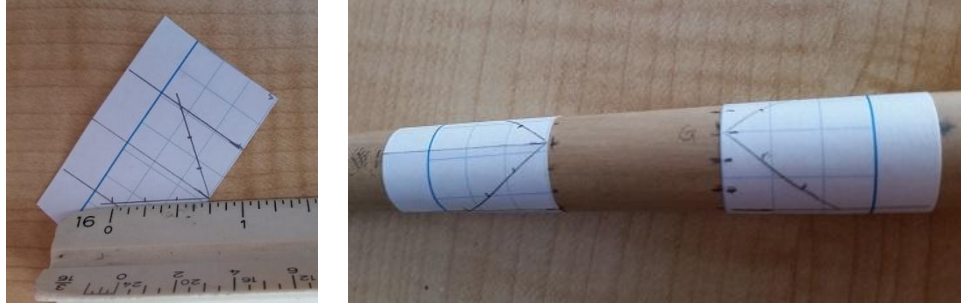
The Gammoning are the two sets of ropes that hold the bowsprit down against the upward pull of the mast stays, as can be seen in Figs 2 & 6.

*The **Gammoning Cleats** (Figs. 4 & 5) prevent the two sets of gammoning ropes from slipping back down the (angled) bowsprit.*

*The **Thumb Stop Cleats** (Figs. 4 & 5) perform the same function for the forestay, preventer stay and bobstays.*

Figure 6 - Location of cleats and identification of ropes attached to them

The seven **Gammoning Cleats** install at a 180° wrap about the mast with the top most at the 12:00 position. The lower **Gammoning Cleats** install progressively aft of the one above so as to be vertical on an inclined mast. All but the top one needed to be longer to allow their face to be chamfered at 60° to be perfectly vertical on the 30° inclined mast. To get the locations correct I wrapped a strip of paper around the mast to get the proper circumference for the location (the mast is tapered) then folded the strip into half and quarters to indicate the 12:00, 3:00 and 9:00 locations. Then I used a scale at an incline to equally divide the quarters twice more. Yellow wood glue was used with rubber bands as clamps.



Figures 7 & 8 - Templates to locate the Gammoning Cleats

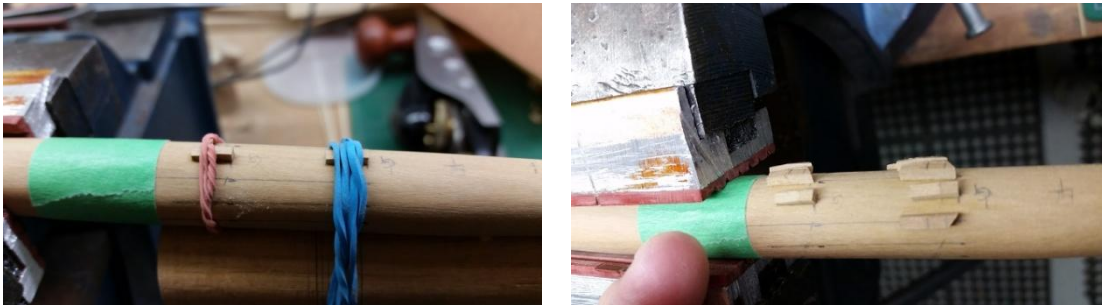


Figure 9 & 10 - Installing and clamping the Gammoning Cleats

The five **Thumb Stop Cleats** were installed perpendicular to the mast with a 360° wrap, those at positions 3:00, 6:00 and 9:00 being left vacant. I used the same strip of paper idea but needed to only divide the half and quarters (90°) into half that once again (45°).



Figures 11 & 12 - Templates to locate the Thumb Stop Cleats



Figures 13 & 14 - Installing and clamping the Thumb Stop Cleats



Figure 15 - Cleats Installed

The **Woolding Hoops** were made from shavings hand planed off a 0.03" thick strip of Castello wood.

The Bowsprit on large naval ships like Bellerophon was made of multiple lengths of wood (the full length of the mast) for strength, and due to the availability of material to make a 32" diameter mast. The Woolding Ropes are turns of rope binding the mast pieces together.

Woolding Hoops are bands of wood wrapped around the mast on each side of the woolding ropes to hold the wraps together

These shavings were soaked in boiling water and then wrapped around the mast to dry to shape. They were cut to length with a scalpel to provide a butt joint on the underside of the mast, and glued to the mast with yellow wood glue. Clothes pins were used as clamps. The **Woolding Hoops** were installed in pairs, spaced to provide a gap for 13 to 15 turns of 1 inch diameter rope.



Figures 16 & 17 - Planing and installing/clamping Woolding Hoops



Figure 18 - Woolding Hoops Installed

The **Fairlead Saddle** was made twice. I felt the first attempt was too tall and the holes were too small. In the photo below you can see the second (right) set on the mast next to the original (left).



Figure 19 – First (left) and replacement (right) Fairlead Saddles

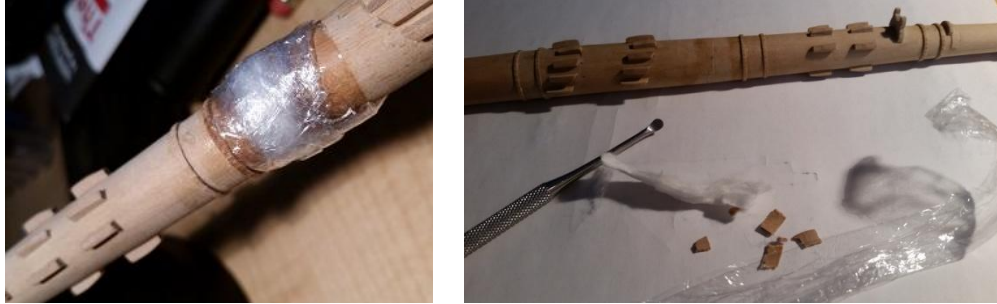
*The **Fairlead Saddle** was used to keep the running rigging untangled as each line would pass through its own hole keeping it orderly and apart from other lines.*

The diameters and hole locations were laid out on a scrap of wood. A pivot hole was drilled into the centre and it was mounted to a block of wood with a finishing nail. The nine running rigging rope holes were drilled through by locating the bit over the first location, plunging it through slowly, then spinning the wood about the nail to the next location. A bull nosed cutter was used in my drill press to mill away the aft face profile utilizing the same spinning action. The outside radius was sanded into the item, once again spinning it. The mast hole was drilled through. It was then sanded to the finished thickness and cut free.



Figures 20, 21 & 22 - Making the Fairlead Saddle

I had to remove my first **Fairlead Saddle** before I could fit the replacement properly. This was done by sanding its thickness down to almost the surface of the mast, soaking a piece of cotton batting (that I save from my Low Dose Aspirin bottles) in rubbing alcohol and placing this on the remnant of the **Fairlead Saddle**, then wrapping that in plastic wrap and letting it sit overnight. The next day it peeled away. More sanding of the inside diameter of my second **Fairlead Saddle** got it to fit onto the mast correctly and it was done and glued in place.



Figures 23 & 24 - Removing the old Fairlead Saddle



Figure 25 - New Fairlead Saddle Installed

The **Spritsail Yard Sling Saddle** was the last item.

*The **Spritsail Yard Sling Saddle** holds the Spritsail yard sling in place, so it doesn't slide down the Bowsprit. The Sling suspends the Yard below the Bowsprit; it wraps over top of the Bowsprit with both ends secured to the yard below. The yard has the spritsail attached to it.*

It consists of a **Stop Cleat** and a **Sheet of Lead** that acts as a wear plate to protect the mast from chafing by the sling. I used a shaving of wood to simulate the lead sheet. It was soaked in hot water and clamped to the mast to get a proper curl set in it. The cleat is a tiny piece that leans forward. While dry fitting this to the mast I had lost it twice to it bouncing away on the shop floor, so I had in fact made the darned thing three times!



Figure 26 - Spritsail Yard Sling Saddle (and Lead Sheet) Installed to the right (forward) of the Woolding Hoops