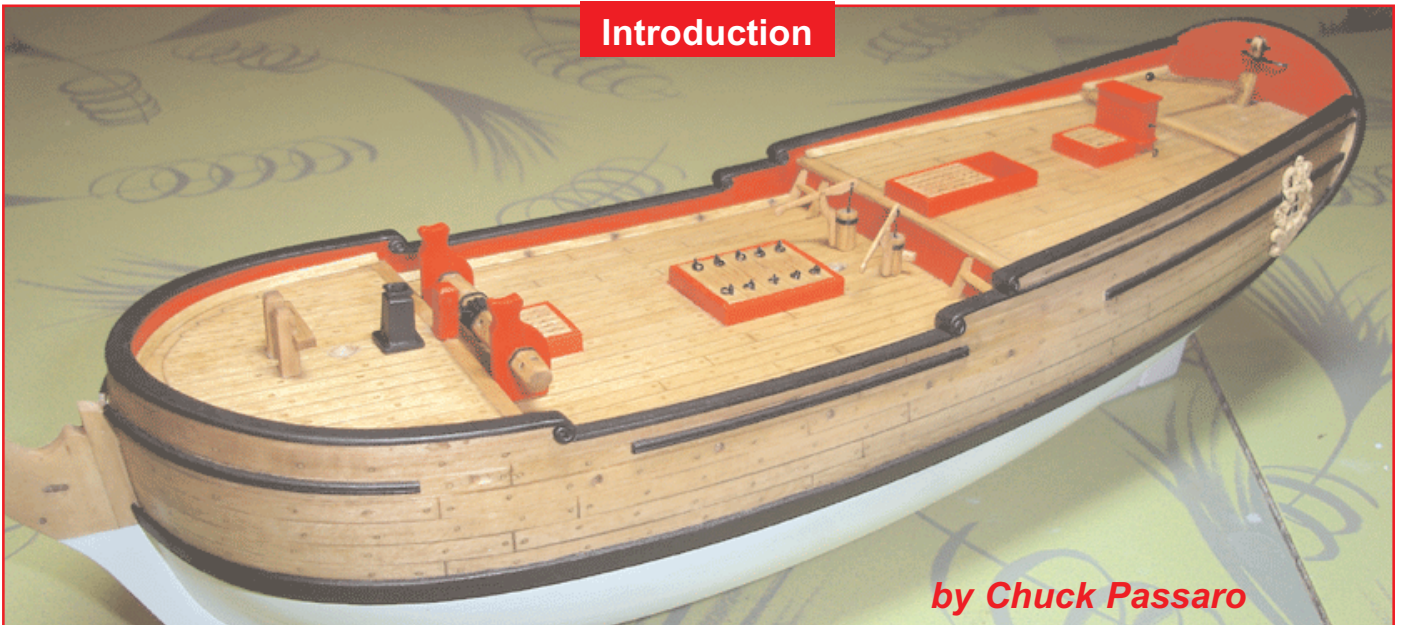


Building the Model Shipways kit of the colonial schooner **Sultana**

Introduction



These “shop notes” have been prepared for those of you who enjoy the hobby and wish to take their modeling projects to the next level. If you have been building ship models predominately from kits and find yourself deviating from the kit-supplied instructions regularly, then this manual may be of interest to you.

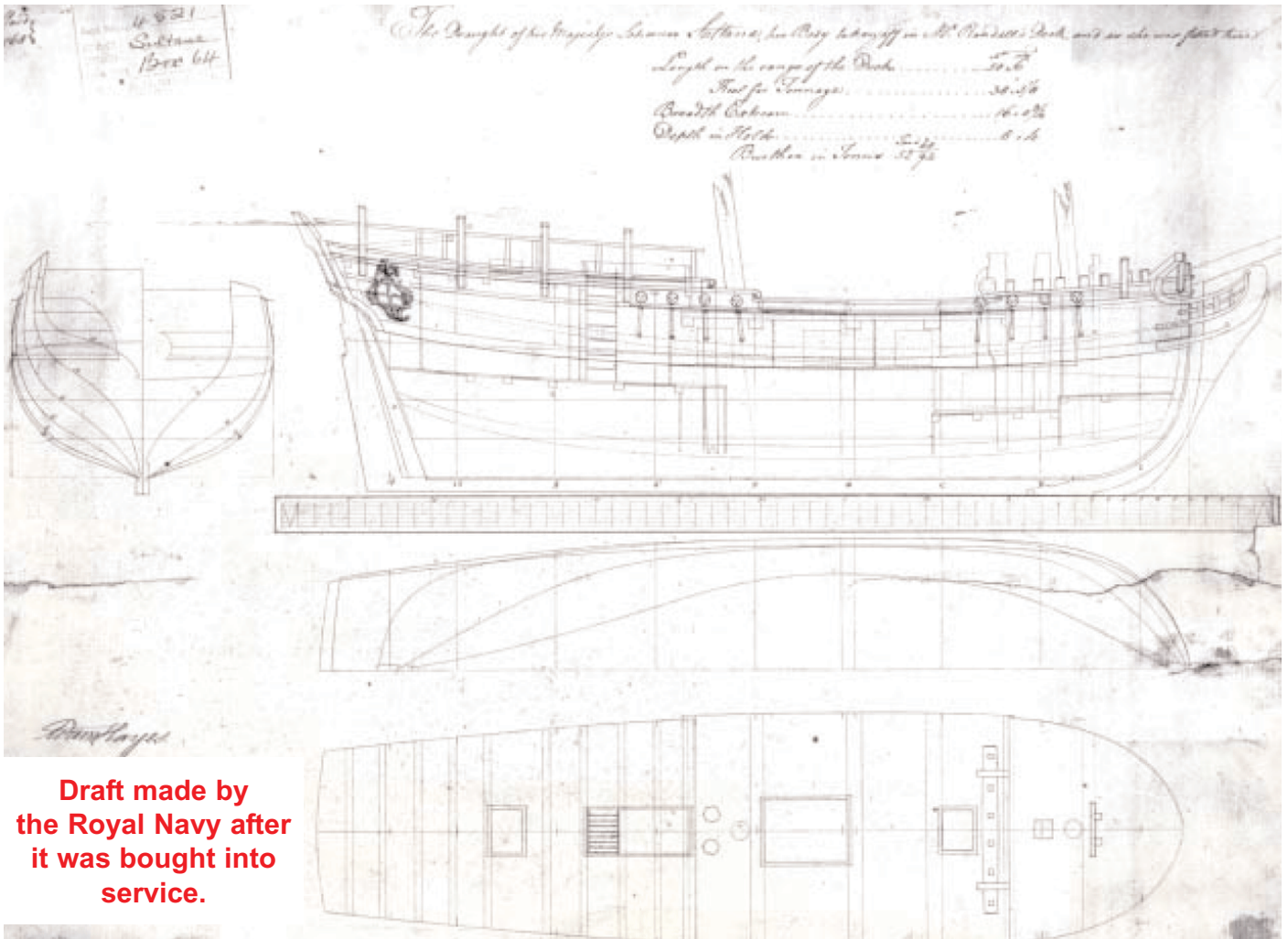
I have been building ship models for decades and now almost always build them from scratch. I spend hours of research gathering every bit of information on the ship before I can begin to draft a set of working plans and specifications. I often find myself doing this for a model of which a kit already exists and can be bought from any hobby shop. However, once you open the box for the kit, it quickly becomes clear that the level of detail presented in the instructions and supplied materials will only build a model that is “OK” in appearance. In order to raise this level to “spectacular” you realize that many modifications will be needed. A lot (if not all) of the ornamental castings and materials will need to be discarded, and rebuilt from scratch. Seasoned ship modelers affectionately refer to this phenomenon as “kit bashing”. This is what I will attempt to describe as I document my building of

the Model Shipways kit for the Colonial Schooner Sultana.

I do not intend to spend much time discussing the history of the vessel. Some of this has already been documented in the kit-supplied instructions and can be easily researched on the internet. It can be summed up quickly as is noted on the website for the replica that now resides on the Chesapeake Bay in Maryland. I recommend visiting this website as a start to your own research.

<http://www.schoonersultana.org>

“The Sultana was built in the yard of renowned Boston Shipwright Benjamin Hallowell in 1767. The Sultana might have gone on to little historical note if it weren’t for coincidence. Sir Thomas Asquith, the wealthy merchant she was built for, decided she wouldn’t be worth the expense of keeping as the combination cargo vessel & yacht he’d imagined. But through connections in the Royal Navy, he arranged for her to be bought into a new fleet the Admiralty was assembling of small, nimble vessels to ply the North America coast as Revenue Cutters.”



This little schooner of 50 or so tons is very important to model builders, not because of its history, but because this is one of the few named early American schooners of which a detailed plan and draft survive. American ship builders during this period were more likely to build a ship from a builder's model rather than from a designer's plan. Most, if not all of the surviving plans, were drawn by the Royal Navy. Ship modelers can now build only a precious few named American vessels that were either captured or bought into service by England prior to the Revolutionary War.

Lauchlan McKay explains this in the *Practical Shipbuilder* (1839). 'As vessels are almost universally built from models in the United States, and as it is much the most accurate and preferred method, I shall commence by showing that mode of construction'

He then goes on to discuss the reasons why this was the case.

'The ship-builder has labored, in the larger portion of our country, under the necessity of working by guess. The publications of other countries have been large and expensive, full of intricacy, scientific rather than practical, and consequently of little use to the uneducated mechanic.'

Fortunately for us, we have the draft of the Sultana made by the Royal Navy after its purchase (Above). The scale for the Model Shipways kit is 1:64. The overall length is 17" with a height of 15". This is a relatively small ship model, but even at this scale, we can add a significant amount of detail. I almost wish that every ship model kit came with two sets of instructions. One for the beginner using only a few details, and a second that covers as much about the ship as possible.

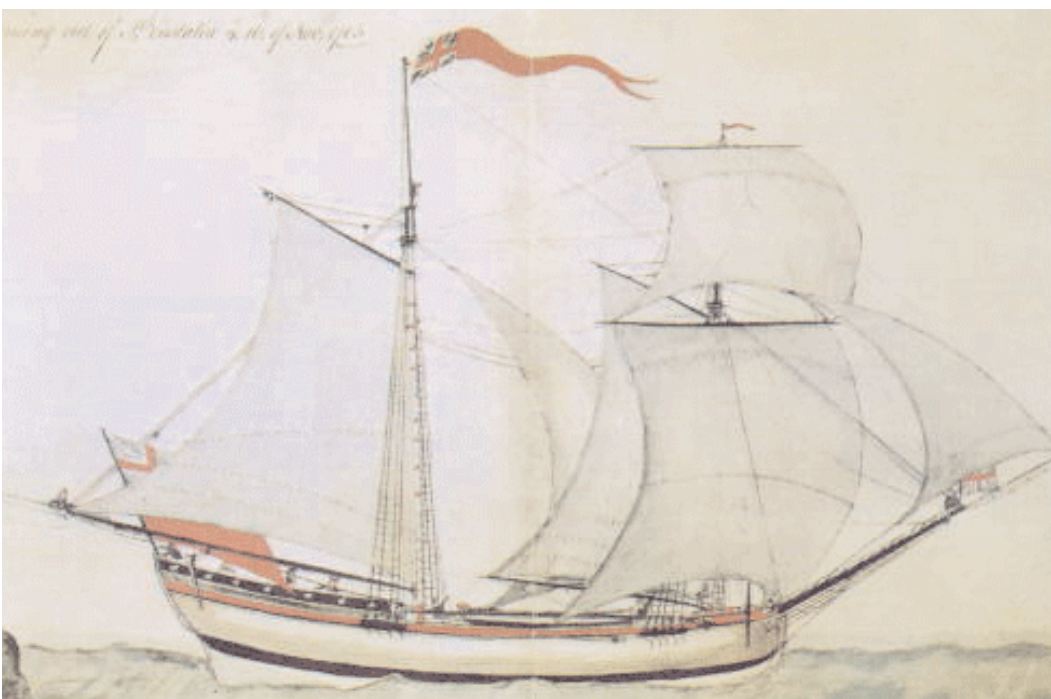
Even if the kit does not come supplied with material for these features, the instructions and techniques used to create them should be clearly described. I believe that many modeling enthusiasts give up the hobby too soon because no such material is readily available. This is the reason why I have written this companion to the kit-supplied instructions.

The photos below show the replica of the Sultana. Even though the builders of this replica took pains to keep the ship historically accurate, modifications were made to keep the vessel up to current maritime codes and safety regulations. They built the replica with an inboard engine and

prop placed into a cutout of the rudder. Even with these modern adaptations, the images make for some useful clarification as we progress through this project. At the bottom of this page is a painting that has been frequently published. Not only are the plans for early American ships scarce, but paintings and drawings of named vessels are also elusive. The Baltick is an excellent example of a schooner similar in appearance and rig to the Sultana. It offers some interesting details for the paint scheme and rigging to which I will refer later.



Photos showing the replica of the Sultana which is available for tours along the Chesapeake Bay.



**The Schooner
BALTICK**
1765
Watercolor, unsigned.
Built 1763 Newbury,
Mass. 45 tons.



Getting Started...

Upon opening the box, notice the familiar kit supplied items for a solid hull model. There is the usual roughly cut solid hull along with a small package of pre-cast fittings, not to mention the almost always insufficient amount of strip wood in various shapes and sizes. The plans accompanying the Sultana kit are quite good and, based on this information, the inadequate materials can be turned into something quite remarkable. *As we will soon see.*

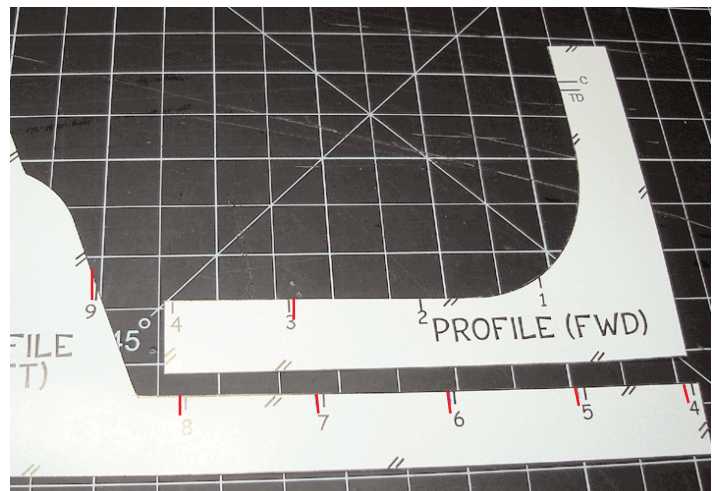
The very first thing that we need to do on the hull is to remove the bulwarks. We will be using a different technique later to create them. One of the more frustrating tasks when carving a solid hull is to thin down the bulwarks. I am sure that you will be relieved knowing that we will not have to do this.

Remove the bulwarks with a sharp blade or chisel. Remember to always carve in a direction away from your hands and body. I have seen some nasty cuts over the years, many of which have resulted in a trip to the emergency room for stitches. The wood is very soft and carves easily. The only portion of the hull that may be tricky is the bow where carving will be against the grain. The photo above shows the hull with the bulwarks removed to the deck level. Do not sand the deck smooth at this time. We will take care of this later and correct the deck camber after we shape the outside of the hull.

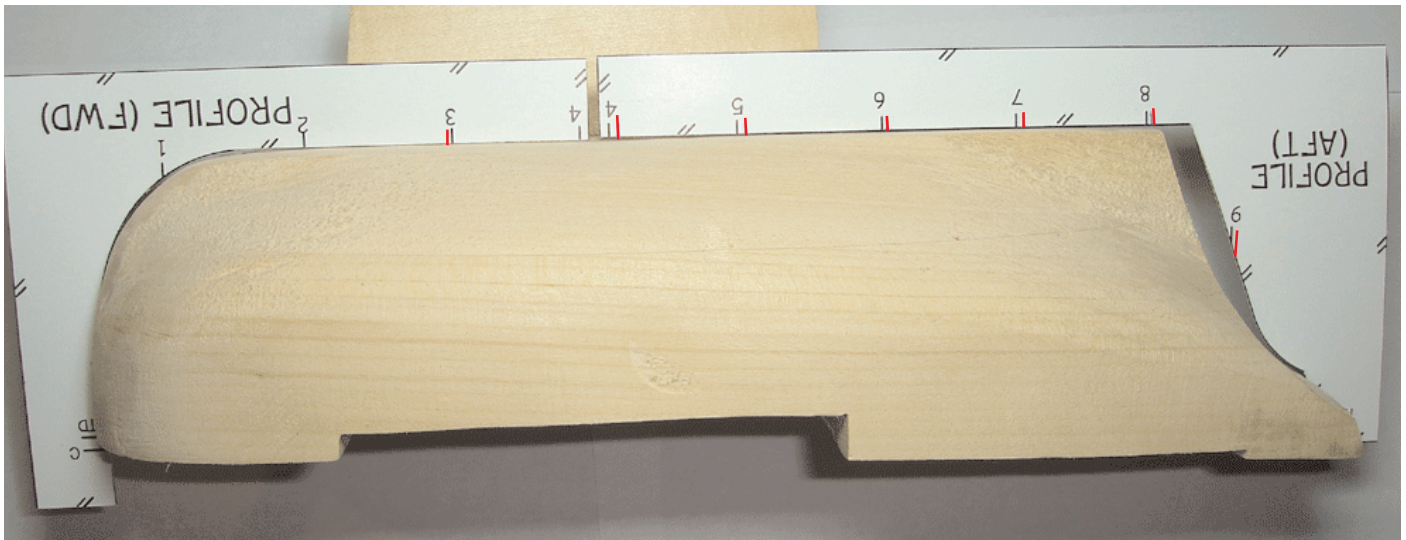
Now that the bulwarks have been removed, cut out the two templates shown in the photo (right). Use a #11 blade in your hobby knife. As the kit-supplied instructions mention, do not use scissors. Scissors may distort the template around any of the more severe curves of the template.

Before you use the templates, test them against the blueprints to see if they are accurate. I was surprised to see that the templates were not even close to the shape and dimensions on the plan. The forward half of the template isn't too bad. The station lines lined up with those on the plan with only minor fluctuations. Correct the templates before you use them.

The other half of the template was far from being correct. The station lines were way off the mark. The entire template was about 1/16" too long. I cut it to the proper length and corrected the station lines to match the blueprint. My guess is that after multiple printing, the correct scale was lost. Luckily, the overall shape of the hull appears to be correct. The photo below shows my corrections on the templates. They are shown in red. These station lines and the other reference points should be transferred to the reverse side of each template before you use them. They will be easier to use when you are shaping the other side of the hull.



Two templates with corrections shown in red



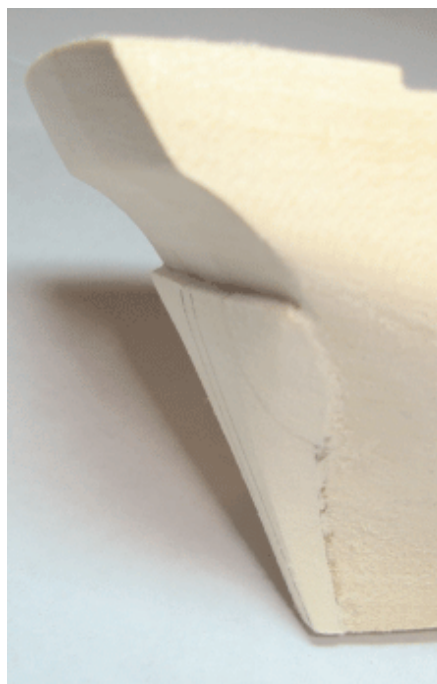
Shaping the Hull...

The bottom of the hull must be sanded before the using the templates to determine the hull's correct length. Use a sanding block to ensure that the underside of the hull (where we will attach the keel) is perfectly flat. Locate the center line of the hull and draw a reference line onto it. This line should be continuous, running down the entire length of the deck, as well as continuing down the stem and along the keel and stern post. This is the line, over which we will position our template. See the photo above.

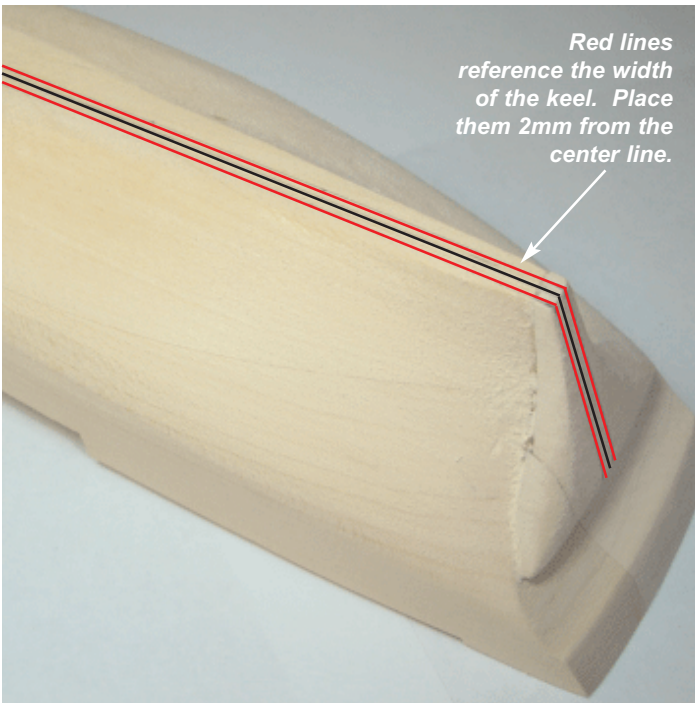
You will notice that the two templates do not fit together along station 4 as they should. The template fits fairly well at the bow, but the stern needs some carving. You could remove this excess wood by hand using a chisel or a sharp blade in your hobby knife. I prefer using a sanding drum on my Dremel rotary tool. Using the flexible shaft attachment, I slowly removed the wood. I only removed small amounts of wood at a time. Stop periodically to check the hull against the template. The final shaping of the stern is done by hand using sand paper. For me, it is easier than carving with a blade because I would be doing so against the grain of the wood. Yes, this does make a horrible mess. However, this will be one of the few instances where we will not be carving or sanding by hand.

Since we will plank the counter of the stern, the entire stern was carved $1/16$ " smaller than

the template requires. The correct profile of the stern and counter were carved to allow for the addition of $1/16$ " thick x $1/8$ " wide planking. After shaping the stern to match the hull profile, I added an additional $1/16$ " of wood below the counter. This can be seen in the photo below. Rather than try to carve only the counter which will be planked, I found it easier to remove a full $1/16$ " off of the entire stern and build the area back up below it. This allowed me to create a uniform ledge, on top of which the counter planking will sit. I will agree, at this stage of the project, it does not look pretty. But it does not have to. The area below the counter and wales will eventually be painted white. The surface will of course be prepared before we paint it.



Stern with additional $1/16$ " piece of scrap wood. This was carved and sanded to match the shape of the hull. Notice the ledge, on top of which the planking for the counter will sit.



Red lines reference the width of the keel. Place them 2mm from the center line.

We can now begin to reduce the thickness of the hull at the keel. Unfortunately, the best way to carve the hull is difficult to describe in writing. Using a flat blade on your hobby knife, start slowly removing small amounts of wood along the keel. Stop just short of the reference line that you created as this remaining wood will be removed using sand paper. Remember to always carve with the grain of the wood. Begin alternating the use of the flat tipped blade with the addition of a standard #11 pointed blade.

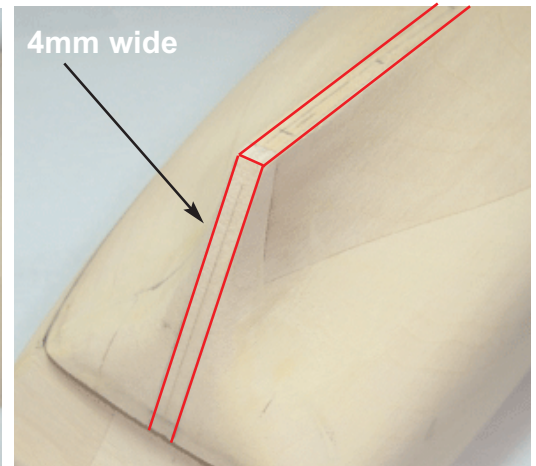
Start carving mid ship and work your way towards the bow, then reverse towards the stern. When completed the keel should be 4mm" thick and look similar to the photographs below. Only after completing this initial carving should you use the remaining 9 templates to define the proper hull shape.

Once it is completed you will never notice the seam between this additional wood and the hull. Once the proper length and shape of the hull is established, it is important to redraw the center line down the hull. It may have been sanded off while working. The remaining 9 templates will soon be used to determine the final shape of the hull. They must be positioned along this line.

Reference lines can be drawn along the keel where each of the 9 remaining templates will be positioned. Start carving at mid ship (template #4). Don't remove too much wood with one pass of the blade. Only shave off small amounts to avoid gouges and deep holes. If this should happen, the holes can be filled with some wood filler.

However, before we can use them, more reference lines need to be drawn onto the hull. Measure the width of the keel from the plans that indicate a 4 mm wide keel. The width of the keel needs to be drawn down the length of the hull. It is also carried up the stem and stern post. Simply draw another line 2mm to the left and right of the center line to establish the keel width. See the photo (above) showing these two lines in red.

This is one of the advantages of building a solid hull model. You will notice in the photos below that I used some wood filler to conceal the seam between the additional piece of wood at the stern. Sand the entire hull smooth when you are finished. Use a medium grade of sandpaper first and finish it up with a finer grade.





Preparing the Hull for Planking...

The model will be planked above the wales and on deck. These modifications will drastically improve the overall appearance of the model. To prepare for this planking, the hull will require some additional carving. The deck's surface is the first area that requires our attention. The planking material I used was 1/16" thick and 1/8" wide. I purchased these basswood planking strips from a local hobby shop where they cost about 30 cents each. I needed about 35 of these strips to complete the model. I suggest buying a few extra strips just in case there are some that get broken. They may break when we bend them while planking.

Because we know the thickness of our deck planks, the decks must be lowered by 1/16". The templates that were used to shape the hull have the top of the deck noted on them (TD). See the

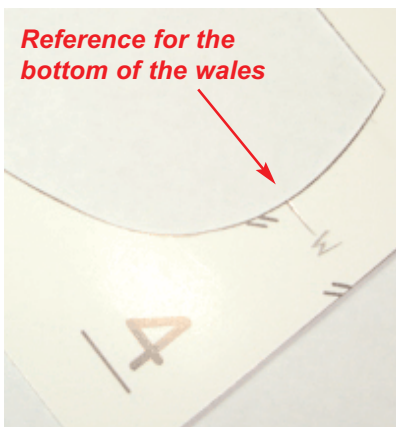
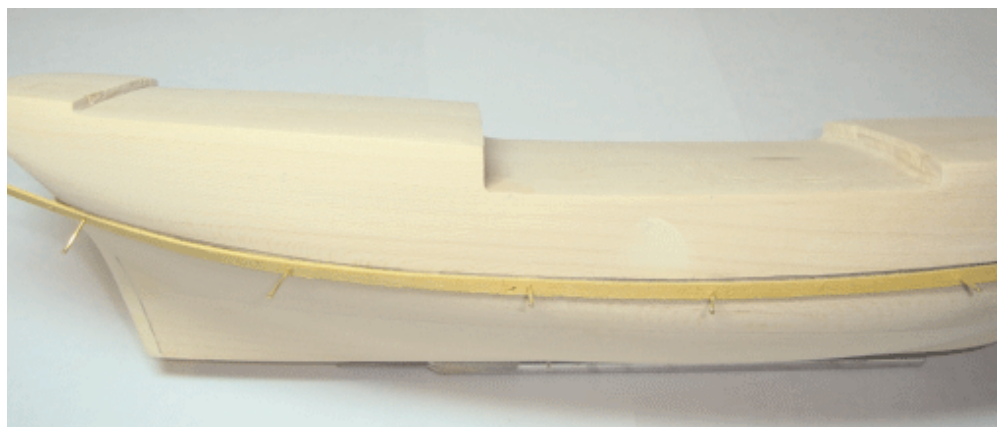


photo (left). Draw another line 1/16" below the (TD). The hull will need to be carved down to these marks along the bulwarks. It represents the deck level without the planking installed. Luckily, the deck camber as machine carved by the manufacturer is not correct. The deck does not slope enough toward the bulwarks. You may be able to achieve the correct depth along the bulwarks by simply sanding the deck camber. Use the templates when you are finished to be sure.

The sides of the hull must also be carved above the wales to accept the hull planking. We must establish the position for the wales first. This is not difficult to find. The 9 station templates can be used to mark the bottom edge of the wales along the hull.

Sheet one of the blueprints has the body plan. It includes the location for the wales. Position the templates on top of the body plan and draw a reference line to indicate the bottom of the wales. See the photo below (left). These reference points should be transferred onto the hull. A flexible wooden strip (batten) can be placed along these reference points. Hold it in place temporarily with some small pins. See the photo below right. Check the hull at various angles to ensure that this batten has no unsightly dips or rises as it runs from bow to stern. Any corrections should be made now before we begin carving. When you are satisfied with its position, draw a pencil line down the entire length as shown in the same photo. Repeat this procedure on the other side of the hull. The hull can now be carved to a depth of 1/16" above this reference line.





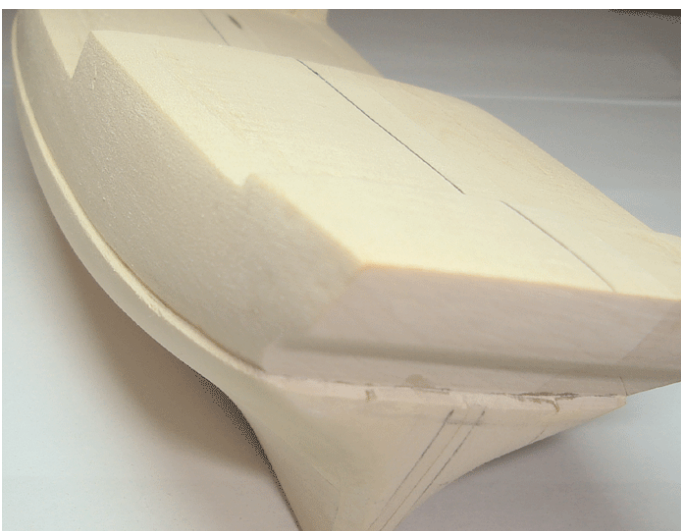
I used two types of Xacto blades to carve the hull above the wales. I used the standard #11 blade and a flat blade (#17) for all of this hull *shaving*. I characterize this process as *shaving* rather than carving. I will do my best to describe this process in writing. See the photo below for the two Xacto blades used.

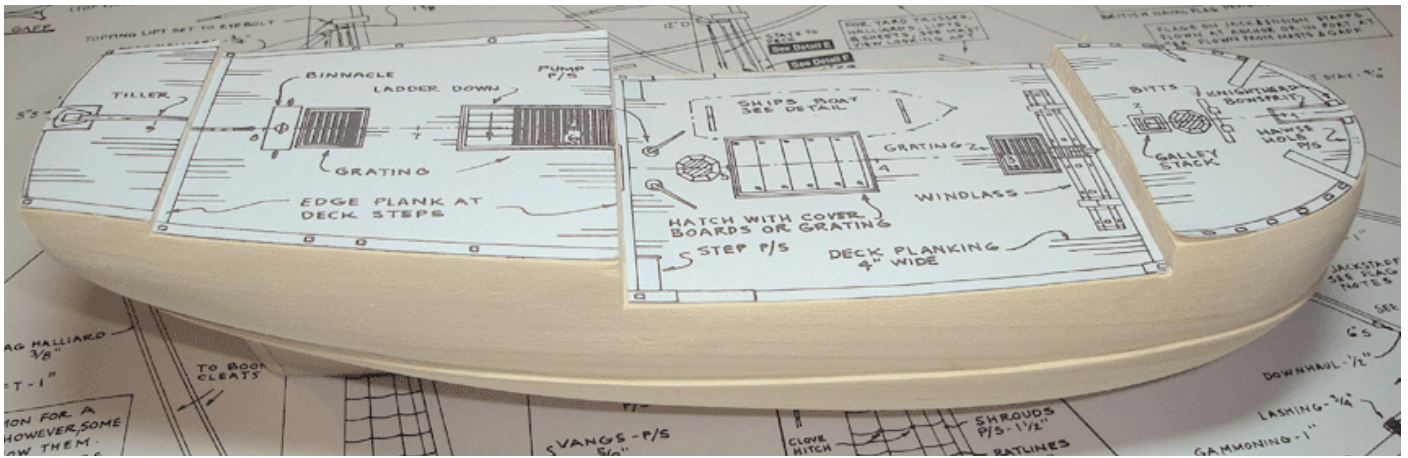
Carving this “ledge” into the hull is a slow process, but it is not difficult. It should look like the hull as shown in the 3 photographs on this page. To carve this “ledge” use the standard pointed #11 blade to score along the reference

line you just created. Score it to a depth of 1/16”. We will be using the same sized planks for the hull that we will use for the deck. Begin removing the wood up to this scored line by shaving small amounts of wood at a time. This can be done while still using the #11 blade.

After you have defined this “ledge”, remove the wood above it with the #17 blade. Slowly work from mid ship towards the bow. Then turn the hull around and shave from mid ship towards the stern. Remember to only remove small slices of wood with each pass of the blade. Always carve with the grain.

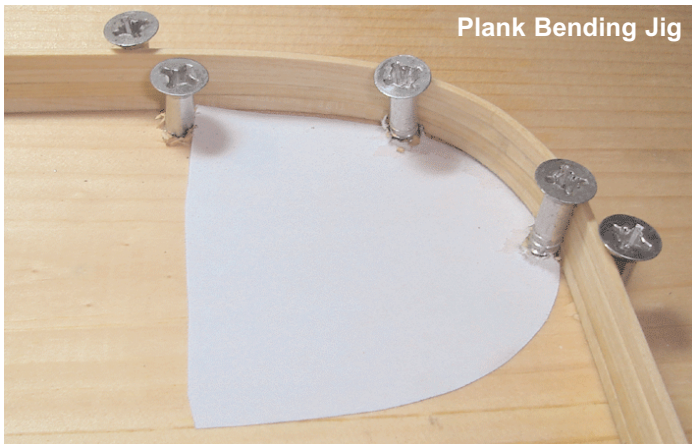
The entire surface of the hull should be sanded smooth when you are finished. Use the templates again to ensure that the hull has the correct shape. There should be a consistent 1/16” of space between the template and the hull above the wales. Sure, this does take some time to do, but I assure you it will be worth it.





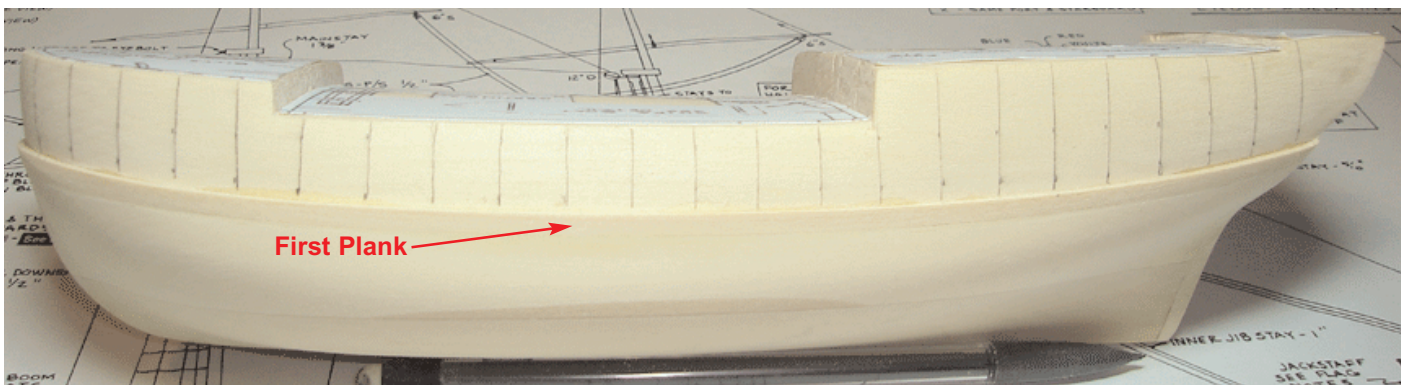
Planking the Hull...

We are almost ready to plank the hull. I like to double-check the shape of the hull one more time before I commit to planking it. Photo copy the deck layout from the blueprints. Cut out each deck as shown in the photo above. As you can see, the cap rail was left on the deck layouts when I glued them onto the model. Rubber cement was used to hold the templates in place. The edge planks for the forecastle and quarter deck were left on the template for the main deck. An additional plank will be added to the face of each step lengthening each of them. The same is true for the raised deck at the stern. The edge



plank for that area was left on the quarter deck's template. This will all make sense when we plank the deck. The real reason for doing this is to see that the outside shape of the hull is correct. You will be surprised how much additional wood may need to be removed. These templates should fit perfectly to the edge of each deck where the bulwarks will be located.

When you are satisfied with all of this checking and re-checking, you can start planking the hull. As mentioned earlier, the basswood strips are 1/16" thick x 1/8" wide. The curve at the bow is quite extreme. I wouldn't attempt to bend the wood strips as you are gluing them to the hull. They might break while under the stress of the bend. Its easier to pre-form this curve with the use of a jig. The jig is shown in the accompanying photo. As you can see, it is a very simple jig. Soak the wood strips for about 15 minutes. Then carefully and slowly bend them into the jig. When they dry, the strips will maintain the curve you created. The white paper glued to the surface of the jig was traced from the deck layout. It represents the curve of the bow at deck level. I was able to pre-form 4 strips at a time in this jig.



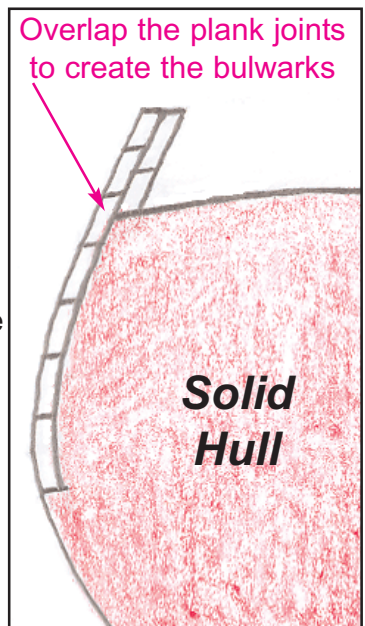
With an ample supply of pre-formed planking strips, you can start gluing them onto the hull. Instead of cutting them into smaller lengths, you can glue one continuous strip from bow to stern. Place it along the ledge you carved into the hull's side. The individual plank lengths are simulated. I drew some reference lines onto each side of the hull. The lines were spaced 10mm apart. The first line was drawn at station #4. You can see these lines in the photo on the previous page. After each strip was firmly in place, I took the flat edged (#17) Xacto blade and scored each strip at specific intervals along the plank. Each plank segment was 6 reference lines in length. When this was finished, I glued the next strip onto the hull.

This is a very effective method for smaller models. It is by no means the only way to achieve a satisfactory result. It is just as easy to cut the planks to their actual lengths before you glue them into place. However, one continuous strip will make the creation of the bulwarks much easier. This will make more sense as you read through the next few paragraphs.

As you can see in the photo below, the simulated joints look just fine. Work your way up the hull until you get to the surface of the deck at mid ship. Make sure that you scribe these simulated joints into each strip before moving ahead to the next one. When you get to the planking strip at the deck level, it should extend above the deck's surface. See the diagram above that my daughter was kind enough to color in with some crayons. You can see the arrow pointing to the plank that extends above the decks surface.

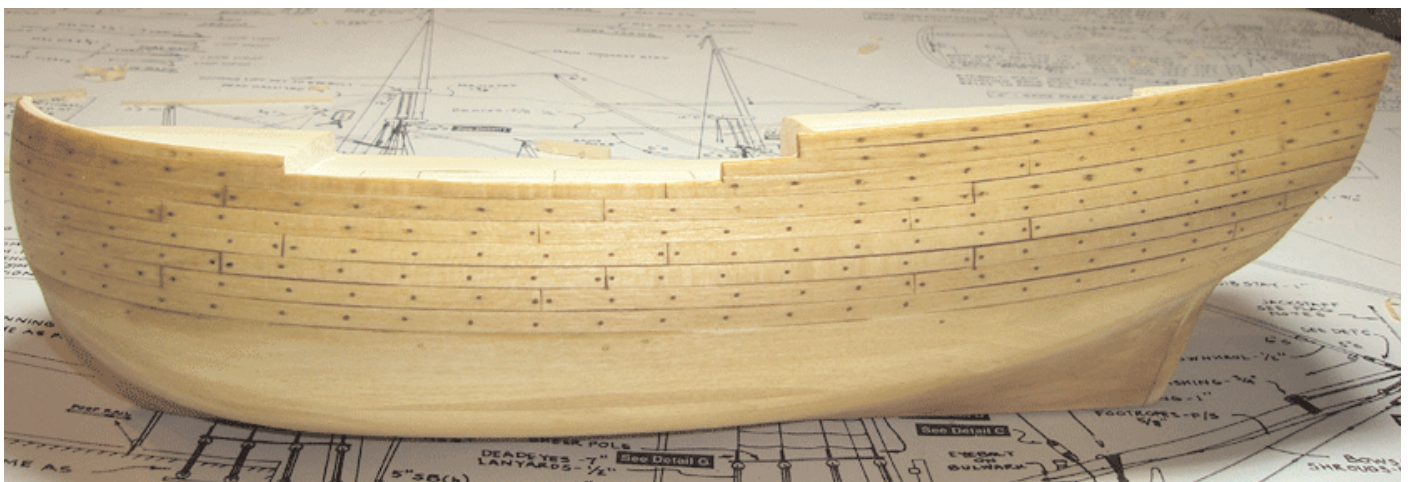
Using one continuous strip makes it easier to create the bulwarks for the bow and quarter deck.

After you glue this plank into position, it will be time to place the first plank on the inside of the bulwarks. The overlap should give you enough surface area to glue this plank onto it. Notice how they follow the contour of the hull's shape.



After the glue for this plank dries, place the next strip on the outside of the hull. Continue in this fashion until you have reached the desired bulwark height. Always remember to alternate one strip on the outside of the hull followed by another on the inside of the bulwarks. As long as you maintain the overlap with each plank, the process should go smoothly. Take the measurements for the bulwark height from the plans.

Remember to add an extra 1/16" to this measurement because we haven't added the deck planking yet. The deck planking will be 1/16" thick. See the photo below which shows one side of the hull planked. Also note how the plank joints were staggered from row to row. This is in keeping with the planking techniques employed during that time period. Sand the top of the bulwarks to the correct shape afterwards.



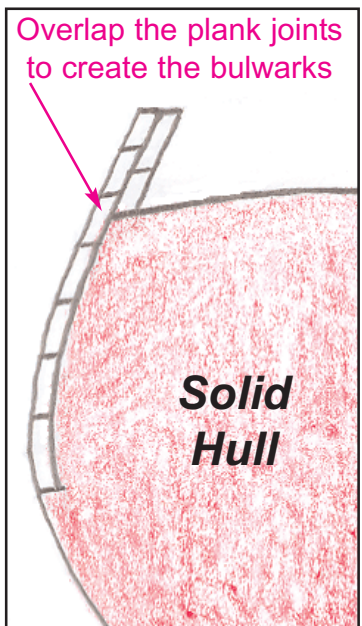
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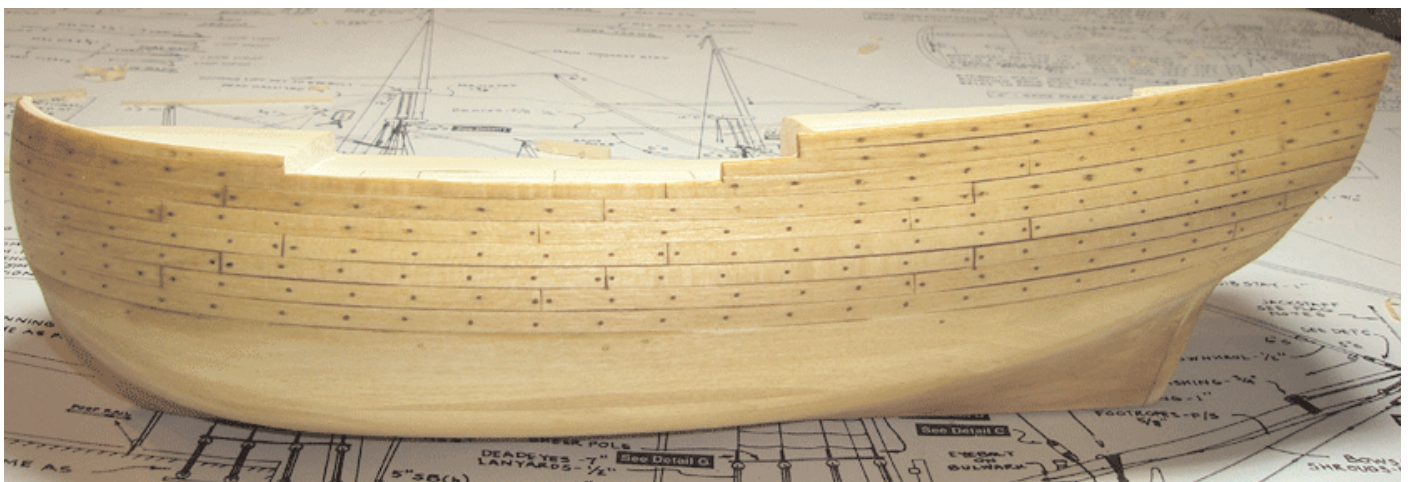
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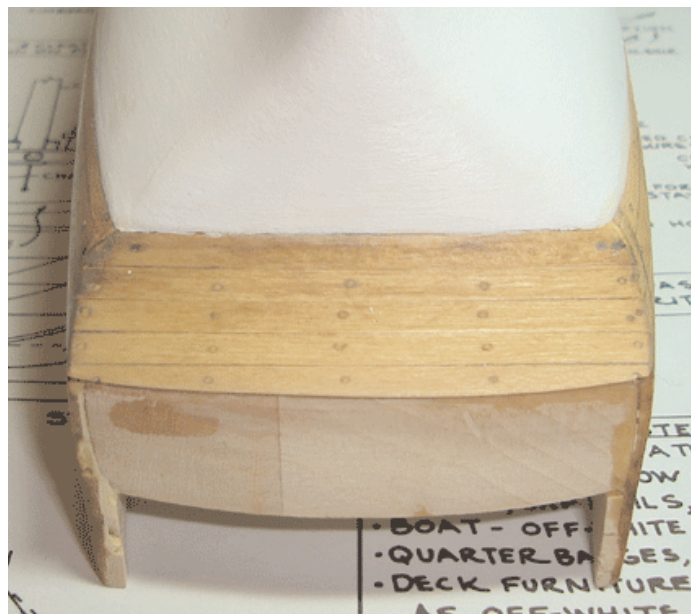
Remember to add an extra 1/16" to this measurement because we haven't added the deck planking yet. The deck planking will be 1/16" thick. See the photo below which shows one side of the hull planked. Also note how the plank joints were staggered from row to row. This is in keeping with the planking techniques employed during that time period. Sand the top of the bulwarks to the correct shape afterwards.



Some of you might be wondering why I didn't plank the entire model. If you wanted to do this it would have been just fine. There are truly no limits to how far you can "bash" a kit. I just keep reminding myself, "if I was going to modify this kit to such an extent, I might as well have built the model from scratch". So I back off just a little bit. The results are still leaps and bounds better than a model straight out of the box. I don't want any of you to hold back if you see something that you absolutely must modify. The beauty of this hobby is that there are no set guidelines.

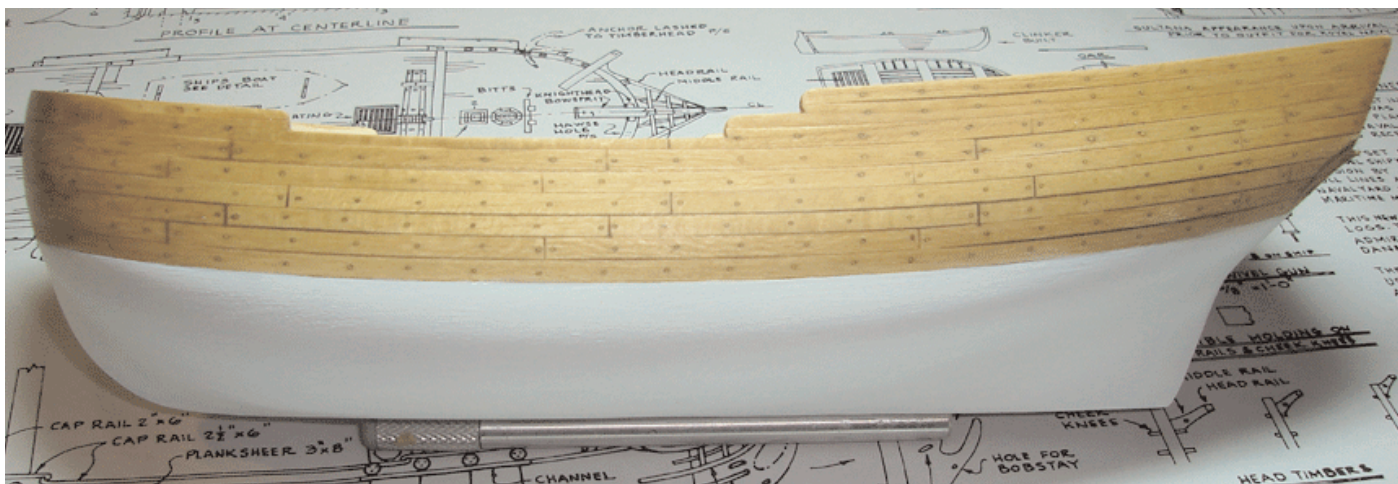
I also prefer the bottom of the hull be smooth when finished. It creates a nice contrast with the texture of the planking above it. Once painted, the bottom of the hull really shows the lovely shape of this schooner. This is my own personal preference but I hope you will agree.

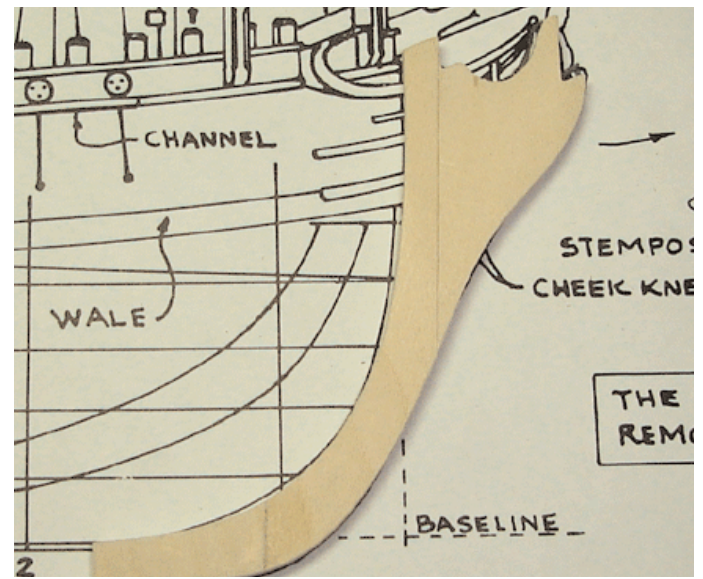
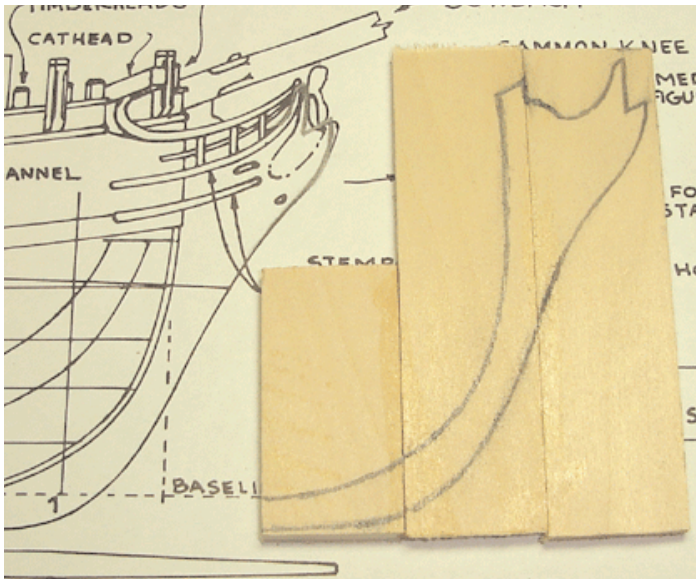
With that said, I will turn to the art of trunnel making. Instead of making wooden trunnels, I chose to use a different technique. After the hull was planked, I drilled a series of holes for the trunnels. You can see the locations in the photo below. Then I filled the holes with some Elmer's wood filler. I thinned the wood filler (which is water-based) down with some water. Then I smeared it into each trunnel hole with my fingers. When the filler was dry, I sanded the sides of the hull. The effect is quite good, and I believe on par with the time-consuming method of producing wooden trunnels. If ever there was a project to try this technique, the Sultana kit is the perfect choice. The counter was also planked and trunneled. See the photo above. I sanded the hull smooth and stained it. I used MinWax Golden



Oak stain. I prefer the golden hue over other colors. I hope you will agree that all of the hull carving was worth it. The model will look much better this way. It has a much richer look. I wouldn't have been satisfied after painting the hull with some yellow ochre acrylic paint.

I did paint the hull below the planking. It was painted white. The white paint simulates the tallo that was used to protect the wood below the waterline. This was the first of what will end up being many, many coats of paint. I will sand the bottom of the hull with sandpaper between each coat. If the white is too stark for your tastes, then stain can be applied over it and buffed off. This reduces the brightness of the white paint. When painting the bottom of the hull be sure to thin the paint before you use it. When the paint is too thick it leaves heavy brush strokes. Sanding between coats will help prevent this.





Keel, Stem and Sternpost...

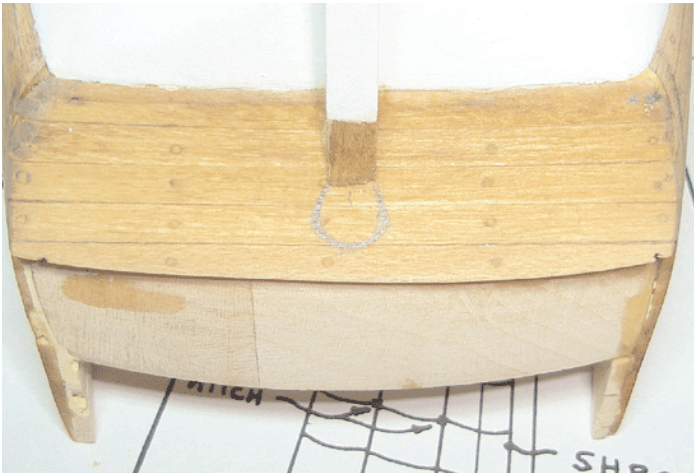
The stem will be added first. The measurements and shape of the stem can be traced from the blueprints. The tracing should be transferred to a piece of wood that is large enough to fit its shape. The wood should be 4mm thick. I am using the basswood strips that came supplied with the kit. Three pieces of this strip were glued together so I would have enough surface area to work with. See the photo above (left). The stem was cut out with a sharp #11 Xacto blade. A scroll saw could also be used for this and would probably cut your working time down significantly. The stem was test fit on the hull and adjustments were made with some sandpaper. When I was satisfied with how the stem fit, it was tapered to 3mm thick on its outside edge. This feature is shown on the plans. In my opinion the taper shown on the plans is to severe. The taper I gave the stem was less pronounced.

Before I glued it onto the hull, the slot for the bowsprit gammoning was drilled through it. It was much easier to do this while the stem was off the model. The hole for the bobstay was also drilled at this time.

After gluing it to the hull, the keel was cut to length from a piece of 4mm x 4mm basswood strip supplied with the kit. Then the sternpost was shaped and added after the keel was glued onto the model. The sternpost needed to be cut from a larger piece of wood (still 4mm thick) because it is wider at its base than it is near the counter.

When all of the pieces were glued permanently to the hull, they were sanded smooth. The bottom of the hull was also sanded again. It was all painted white. Several more thin coats of white acrylic paint were used. When I was happy with that finish, the topsides were also resanded and restained. See the photo below.

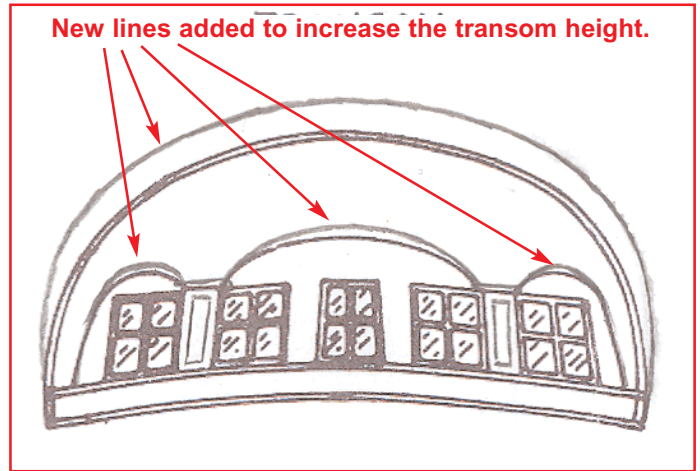




The Transom...

Now that the planking is completed we can turn our attention to the transom. The hole for the rudder will be drilled before we begin. The rudder will follow the angle created by the stern post. This hole must be drilled through at the same angle. Draw the shape of this hole onto the counter. See the photo above. Use a drill bit smaller than the hole's actual size. I used a typical cordless drill. The bit used was extra long. I happened to have a drill bit that was 6" long. The extra length allowed me to follow the correct angle along the stern post without the drill getting in the way. The hole was cleaned up with some needle files afterwards. It was filed to match the shape of the hole as originally drawn.

I examined the drawing of the transom shown on the plans. It is a *safe* representation of the transom for the Sultana. I have seen several different interpretations during my research. Some



were quite elaborate. They had carved scrolls and fancy molding. I decided to stick with a more cautious rendition. I will make the transom similar to the replica in Maryland.

I photocopied the transom from the plans. The copy was taped to the model to check its fit. The width of the transom was correct. However the height was not. A second copy of the transom was altered as shown above. The height was extended by 3/16". The altered transom was also test fit on the model. I was happy with how it looked. The photo below shows the template taped to the model. You can see that I also altered the height of the curved areas above each window. Several more copies of the altered transom were made. We will need them during the next few steps.

The transom was made from two layers of 1/32" basswood sheet. To create the first layer, tape a copy of the template to a sheet of wood as shown in the photo below. Cut each window out with a sharp blade (including the window frame

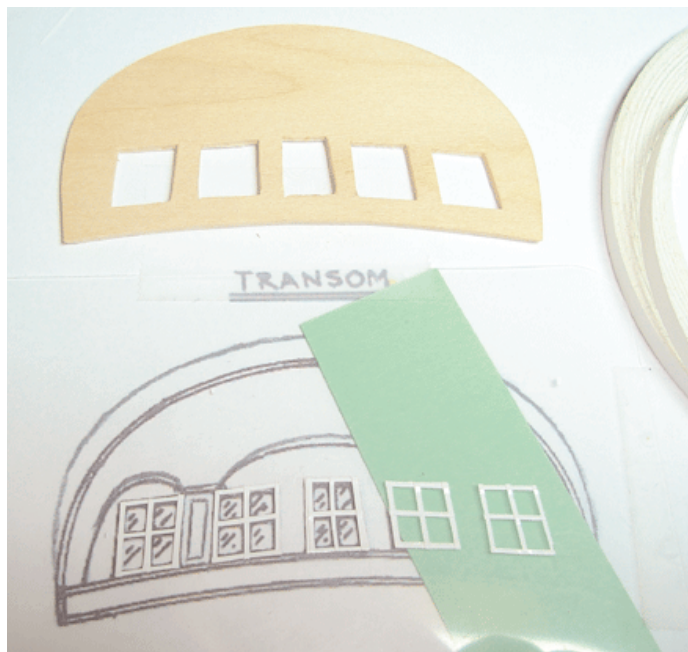


molding). Then cut the entire transom free from the sheet by scoring it along the outside edge.

The second layer was made from a new sheet in the same manner. However, this layer only has the three larger shapes removed. See the photo below that shows the second layer glued into position. They will not be glued together at this time. The window frames need to be created first.

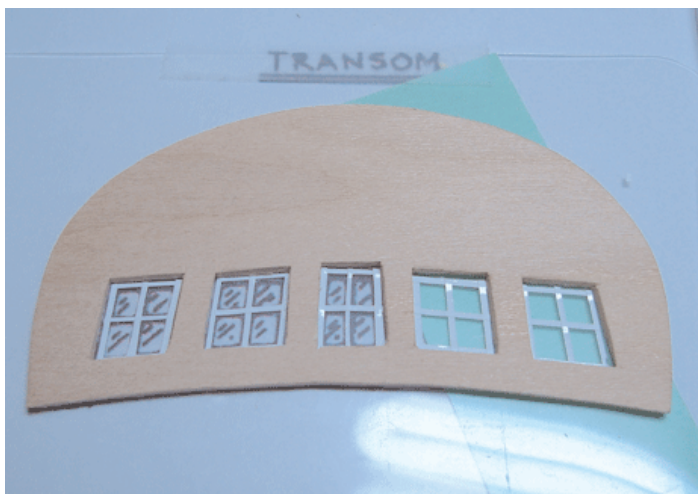
I wanted the windows to appear more realistic on the model. I didn't want to paint them onto the transom. I wanted the window panes to appear more glass-like. I took a sheet of clear acetate and placed it on top of a drawing of the transom. Using some automotive pinstripe tape, I placed some thin strips on top of the window molding. The automotive pinstripe tape comes in many different colors and widths. It is self adhesive and made of a strong nylon material. The tape I used was 1/8" wide. I cut the tape into small strips. Each strip was less than 1mm wide. See the photo (right) for details. I placed a green piece of paper under the film so it would show more clearly in the photograph.

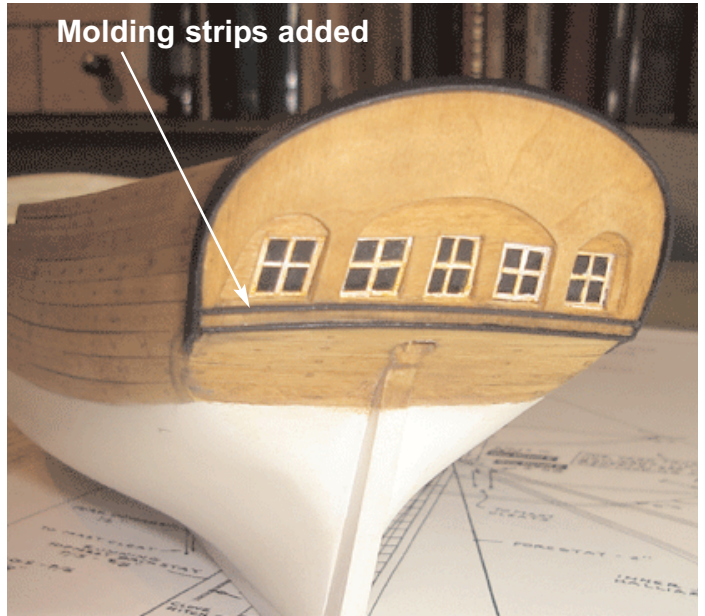
The first layer of the transom was placed on top of this film to check the position of the windows. See the photo below. When I was satisfied I painted the reverse side of the acetate black. When viewed from the front side it reflected the light nicely. This is difficult to see in the photos, but I am sure you will like the results. The acetate was trimmed closer to the window frames and glued to the back of first transom layer. This



first layer was then glued onto the model. The second layer was glued into position afterwards. If I had glued the second layer onto the first one before it was placed onto the model, it may have been too thick. I was afraid it would have been too difficult to bend the entire assembly to the shape of the transom. The transom has a distinct convex curve and there isn't much surface area for the glue to take hold (especially along the bulwarks).

The transom is not completed yet. There is still some work to be done. The photo below shows how it looks up to this point. The transom was stained and the overall shape was adjusted with some sandpaper.



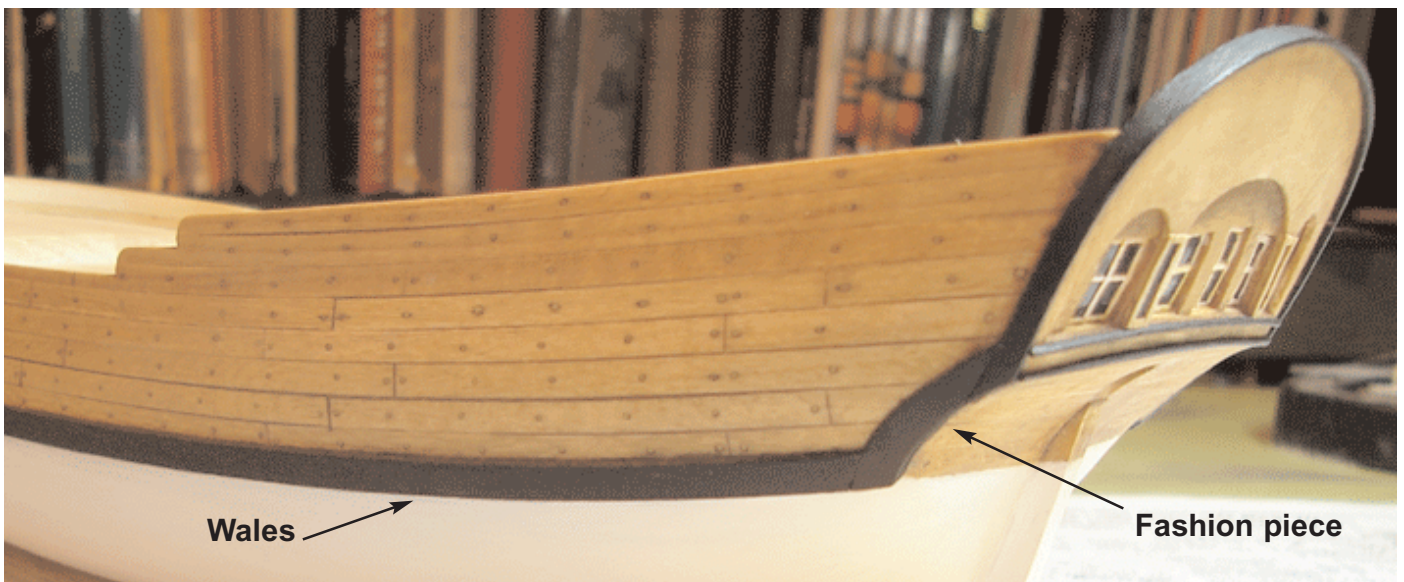


A basswood strip was glued to the edge of the transom for the cap rail. It was a kit-supplied strip that was 4mm wide and 1mm thick. The wood was soaked for 15 minutes and bent to shape. A small overhang was left on the outboard side of the transom when I glued it into place. No overhang was made inboard. The cap rail was sanded and painted black. See the photo above.

The two molding strips shown in the photo (above) were added next. They were very thin strips of wood that came supplied with the kit. The wood was very dry and rough. They needed to be sanded and stained before being used. They were eventually painted black but the stain kept the wood strips from becoming stringy.

They were painted before they were glued onto the model.

To make the stern a little more interesting, I added some trim as shown in the first photo. A manila office folder was used. I often use these folders for trim on my models. The color is very consistent with the wood being used. Thin strips were cut from the folder. The strips were stained the same color as the transom. They were stained before I glued them onto the model. The glue changes the porosity of the paper folder and causes the stain to set unevenly. If done first, the strips will take the stain beautifully. The center of these framed panels were painted black. I finished the transom by staining the pinstripe tape (window frames) as well.



Another view of the wales in place



The wales...

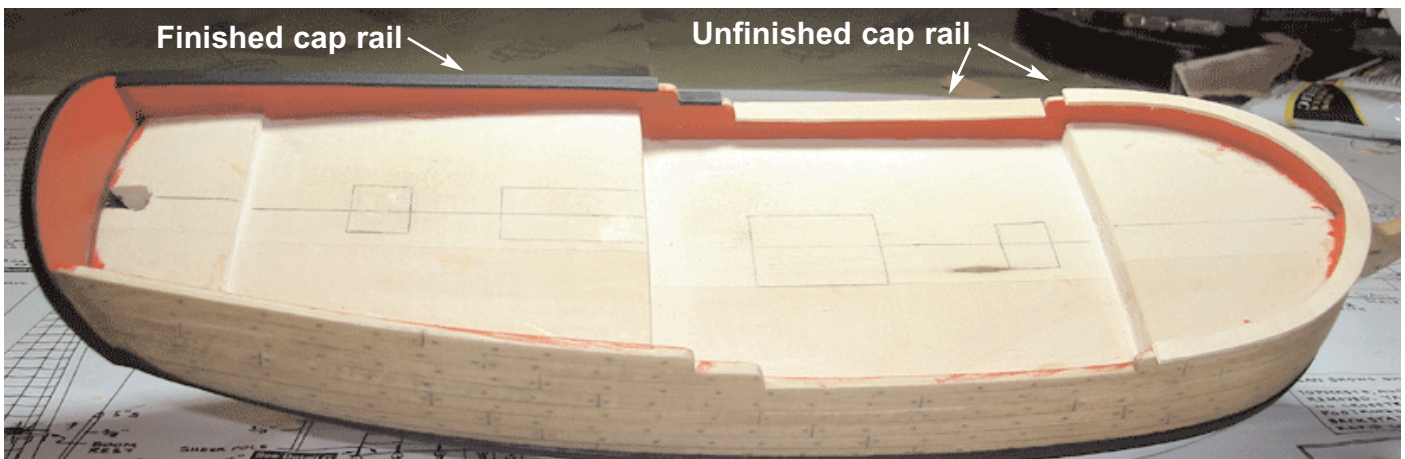
The wales were added next. Wooden strips are included with the kit. They are 4 mm wide and 1 mm thick. The strips were soaked in water and pre-formed in the plank bending jig. The fashion pieces were also shaped from this material. You can see the fashion piece in the photo on the previous page. The fashion pieces were glued onto the hull first. Then the wales were glued into position afterwards.

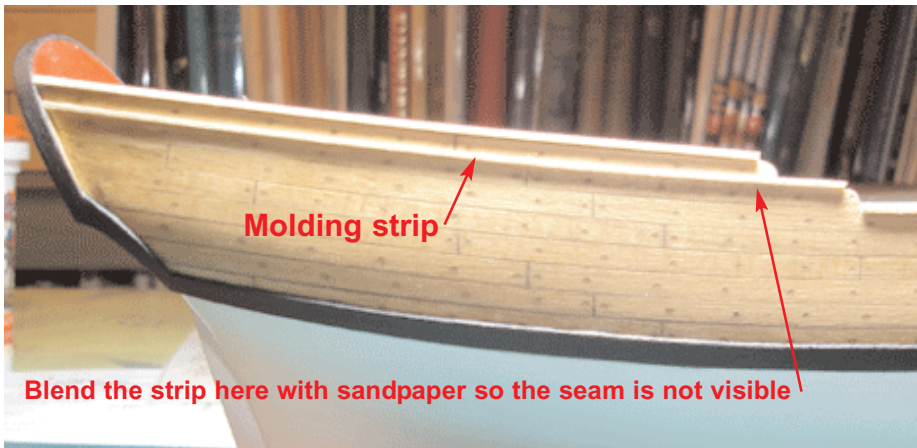
Some people may find it easier to paint the wales and fashion pieces before gluing them onto the model. These photos can be misleading. The model is not very large and painting the wales neatly is a challenge. I am much too lazy to mask out the surrounding areas. I must admit that some times I can't wait to glue them onto the model. I can't fight the urge to see how the model will look with these elements in place. However, I often regret my impatience when it comes time to paint them.

The Cap Rail...

The bulwarks were painted red prior to creating and installing the cap rail. The cap rail was cut from a sheet of basswood that was 1/32" thick. I bought it at a local hobby shop. It was 6" wide and 12" long. This was not supplied with the kit. I find it much easier to create the cap rail from a sheet rather than bend a strip to the hull's shape. Simply place the hull (deck-side down) on top of the basswood sheet. Press the sheet firmly against the hull and trace the outline of its shape. Measure the width of the cap rail from the plans. The cap rail will be 4mm wide. I drew another line on the inside of the traced outline keeping them a distance of 4mm apart.

Each section of the cap rail was cut free with a sharp #11 blade. I cut outside of the reference lines producing a larger unfinished rail that was about 6mm wide. I sanded it to the correct width after I glued it to the top of the bulwarks.





There will be a slight overhang inboard and outboard. Keep this in mind while sanding the cap rail to it's finished width. I rounded the edges of the rail with some sandpaper before painting them black. The edges should not be left sharp.

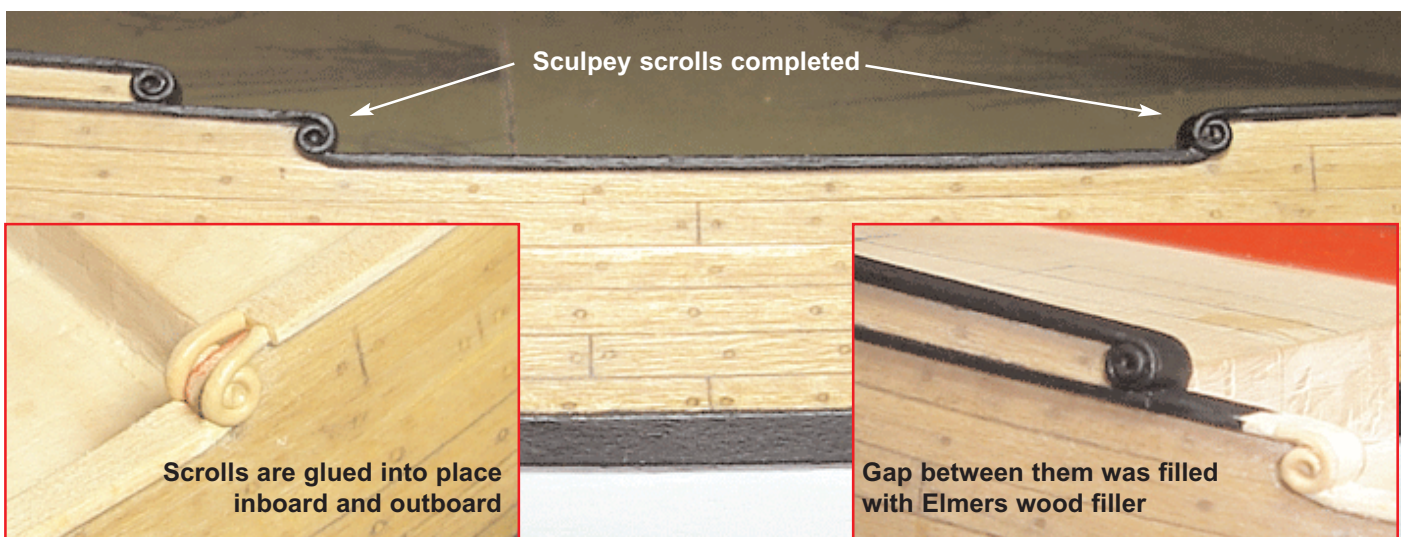
When completed, add a 1/32" x 1/32" strip of molding as shown in the photo above. It will need to be glued into place before we can add the decorative scrolls in the next step. Blend the end of this molding into the small section of cap rail as shown. It should be sanded so the seam between the two is not visible.

Decorative scrolls (Volutes)...

The scrolls can be created in many different ways. It is unfortunate that this detail is not mentioned in the kit-supplied instructions. The scrolls are very important to the look of the finished model and require careful attention. Normally I would carve these details out of pearwood or basswood. I have a variety of micro chisels

bought over the years. But these scrolls are tiny. *Really Tiny*. So I thought another technique would work even better. I will create the scrolls out of *Sculpey*. Sculpey is a clay that hardens after placed in the oven for 15 minutes at 275 degrees. It is readily available at most hobby and craft stores. Sculpey is inexpensive and comes in many colors. I chose a tan color that closely resembled unfinished wood.

I have never used Sculpey on a model before and wanted to give it a try. After some experimentation, this is how the scrolls were made. I worked the clay with my fingers until it became soft. Then I rolled it into a tube-like string by rubbing it across a flat surface with my finger. Wax paper helped to keep the Sculpey from sticking. See the photo above for details. The tube was rolled into a scroll very easily. It was like baking miniature sticky buns. You will need twelve scrolls for the Sultana. Half of them should be made going clockwise. The other half should go counter clockwise.



After thirty minutes I had made 20 small scrolls. I made a few extra just in case. They were placed into a pre-heated oven for 15 minutes at 275 degrees. When the scrolls cured they weren't the consistency and texture I had imagined. They were somewhat rubbery and flexible. This was OK with me. They looked just great. Had I decided to carve them out of wood, the first scroll still wouldn't be finished. It would have taken me days to carve the 12 scrolls out of wood. I consider myself to be an experienced wood carver but I don't think they would have looked as nice as the Sculpey scrolls.

I picked the best looking scrolls from the litter and glued them onto the model. See the photo on the previous page for details. They were placed inboard and outboard. The flexibility of the Sculpey made it easy to work the scrolls into position. There will be a space between the two scrolls that should be filled. I used some Elmers wood filler for this. They were sanded when dry. I used very fine sandpaper to blend the scrolls into the surrounding areas so the seams would not be noticeable.

When I was satisfied with the results, I painted the cap rail and scrolls black. Four or five coats of thinned acrylic paint were used. I sanded between each coat which also helped to conceal any seams between all of these elements.

Quarter Badges...

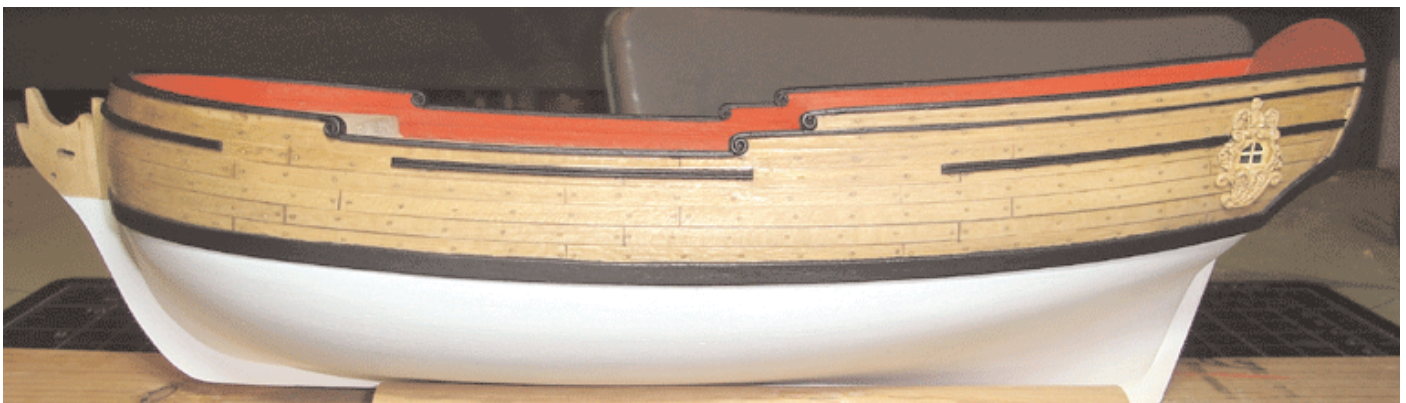
The quarter badges were also made from Sculpey. They were a little more difficult to make than the volutes. I wanted to add many details but their small size made it a challenge. I created some home made tools while experimenting



with the badges. Small diameter wooden dowels were sanded to a sharp point. These dowels were used like a pencil to sculpt the clay. I found it was easier to take small pieces of Sculpey and add it to the badge a portion at a time. The additional clay was pushed and molded with the point of the wooden dowels until I was satisfied.

The quarter badge were sculpted on top of a photocopy I made from the plans. This helped me keep the badges at their correct scale and shape. With a little more practice these badges would have turned out even better.

The windows were made the same way as the those for the stern. Automotive pinstripe tape was adhered to a clear acetate sheet. The reverse side of the acetate was painted black. It was glued behind the completed quarter badge and placed onto the model. (see below) The same photo also shows the double bead molding that I added to the hull. The breaks in run of the molding are where the channels will be located. The channels will be added later. The beaded molding could have been made from scratch but I bought it from a local hobby shop.

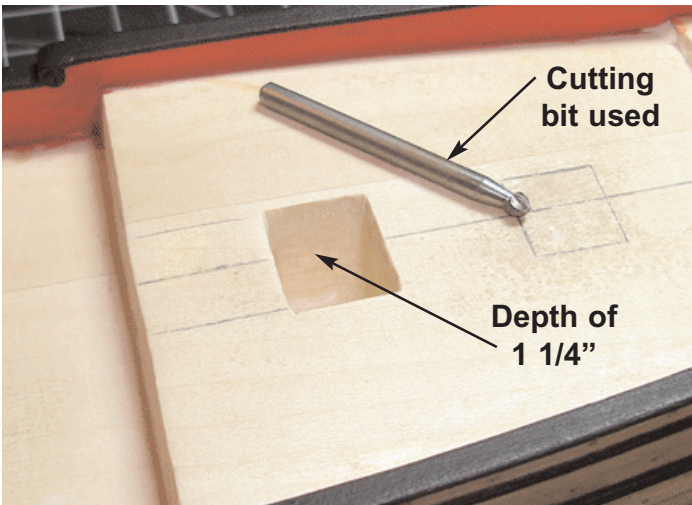


Making the Rudder...

The rudder was traced from the plans and transferred to a piece of wood. The wood supplied with the kit was 4mm thick. The rudder as shown on the plans, lacks many details. The drawing is very crude. I researched different rudder styles for a schooner of this size and time period. I have a copy of Harold Hahn's "The Colonial American Schooner". There were several photos that showed the rudder for his model of the schooner *Halifax*. This is the design I chose to replicate.

The photos (1A & 1B) below show the rudder after I cut it from the wood with a sharp #11 blade. It was sanded to shape afterwards. The carved detail in the same photos was carved with the same #11 blade. Make sure the rudder is long enough so it will protrude through the hole on deck. It should extend 5/16" above the deck's surface. Before you add any more details, test the rudder on the model to see how it will fit. The rudder hole should be large enough that the rudder can swing naturally after it is mounted. Make the rudder hole larger if you need to.

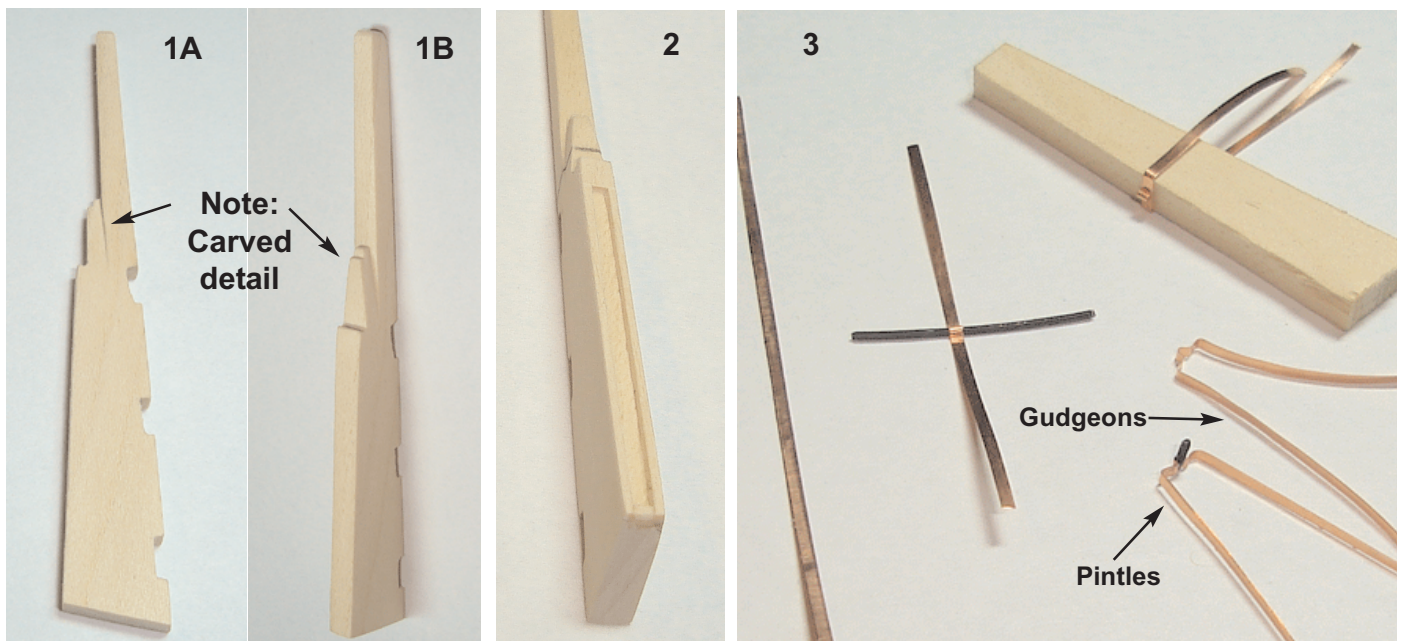
Photo 2 shows some molding that I used to create a rabbet down the face of the rudder. This is a nice little detail that was common on rudders at this time, especially the schooners intended to be used for pleasure.

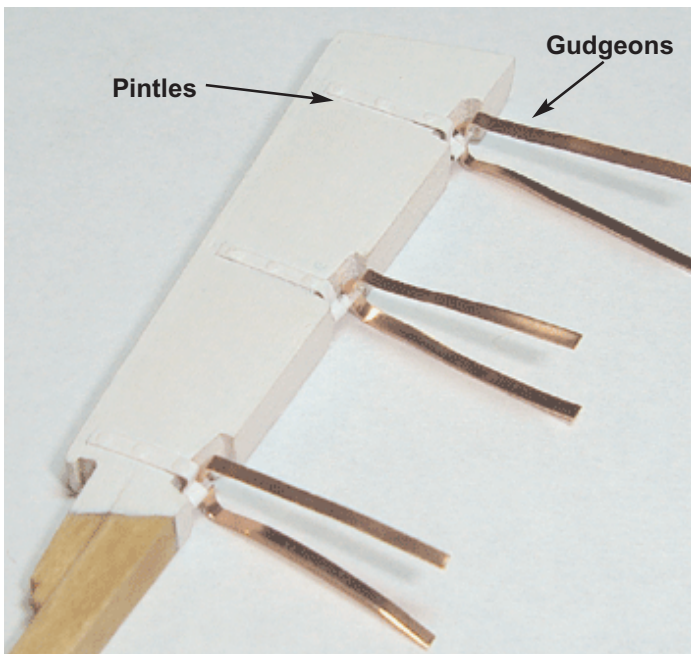


Before Moving Ahead...

A hole needs to be made on deck. This will be used for the ladder of the only open hatch on the model. Adding more details to model now would make it more difficult to create. I intend to mount the rudder next and wouldn't want it to get damaged.

The hole was made using the cutting bit shown in the photo (above). It was placed into the flexible shaft of my Dremel. The wood was extremely soft. It didn't take very long to cut this hole to a depth of 1". The hole was made slightly larger than the actual size of the hatch. This made an awful mess. The corners were squared off with some needle files.

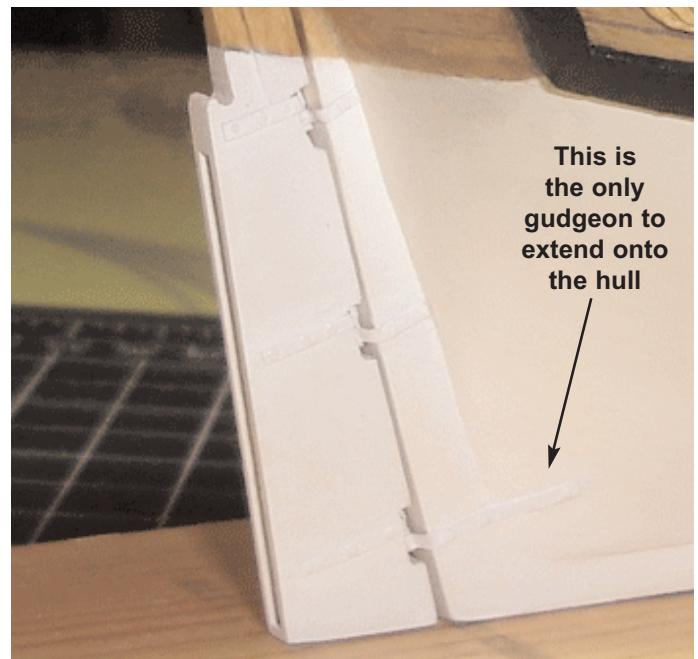




The rudder is attached to the stern post with hinges called “pintles and gudgeons”. These are the two halves of each hinge. The pintle being that which is attached to the rudder and the gudgeon is attached to the hull.

The kit-supplied instructions suggest that they can be made from cardboard. This simply won't do the job. It also says that the brass strip supplied with the kit can be used. This strip is a little wide and out of scale to be seriously considered. I purchased some sheets of copper years ago and have enough to last me a lifetime. I have many thicknesses available. I chose an appropriate thickness and will use it to create the gudgeons and pintles. Unfortunately, you will need to buy some sheets of raw material or strips of brass at the correct scale. I cut the copper sheet into strips about 1/32" wide as measured from the blue prints.

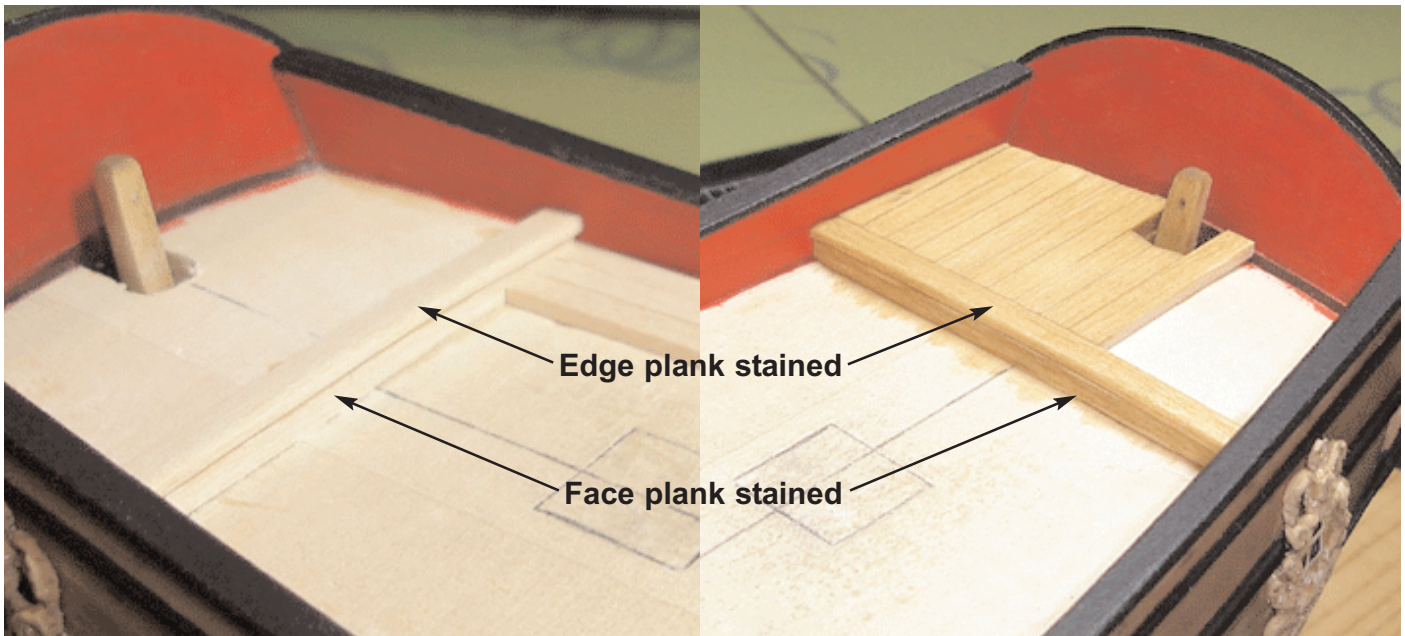
Photo #3 on the previous page shows the steps for creating the gudgeons and pintles. The copper strips are thin enough so they can be bent over a piece of 22 gauge wire. Six strips were bent over the wire as shown in the photo. The six strips were then bent around a block of wood that was the same thickness as the rudder. This created the final shape for our gudgeons and pintles. They are identical except the pintles will have a small length of 22 gauge wire glued into place.



The rudder was painted white below the water-line. I painted the first coat before gluing the pintles into position. The pintles were glued onto the rudder at a right angle to the inside edge of the rudder. This angle is clearly shown on the plans and in the photo above. You can also see that I simulated the heads of the iron nails securing the pintles to the rudder. I took a piece of the 22 gauge wire and dipped it into some super glue (cyanacrylate). Carefully place a small drop of glue onto each pintle. it will dry in the shape of a droplet. Try to space these drops an equal distance apart. Once they are painted the drops will look like the heads of iron nails.

I decided to paint the gudgeons and pintles white. You could also paint them black. This decision was based on my own tastes. I am not here to debate historical accuracy. Either color will do the trick.

The gudgeons were gingerly coaxed into position on the rudder assembly. The photo above (left) shows the completed assembly. It was test fit on the model. As you can see in the same photo, the gudgeons were left longer than needed. The finished assembly can be test fit on the hull and the lengths for each gudgeon measured and marked. You will notice in the photo above (right) that the bottom gudgeon is the only one that was extended onto the hull. The top two were only made long enough to cover the stern



post. These were cut to length with scissors because the copper wasn't very thick. Glue the rudder assembly to the hull being careful to properly line up the three gudgeons. Keep them evenly spaced and angled and don't use too much glue. Paint the gudgeons white and touch up the pintles to finish this step. The simulated nails were also added to the gudgeons before they were painted.

Deck Planking...

It is time to turn our attention to the deck planking. The decks will be planked with basswood. The strips are 1/16" thick by 1/8" wide. The planks would have been 8" wide on the full-sized ship. This was the typical width for deck planking during the mid 18th century. The pre-scribed planking sheet that comes with the kit is not the correct scale. Each plank would be only 3 to 4 inches wide on the actual ship. That is why we are not going to use it. Planking the deck with individual strips will look better and the treenailing will be a lot easier.

The face planks and edge planks should be placed on the model before we start planking the decks. The face planks were added first. They were positioned on the face of each deck break. See the photo above which shows the face plank at the stern. You will need to apply some pressure to the ends of this plank so it will

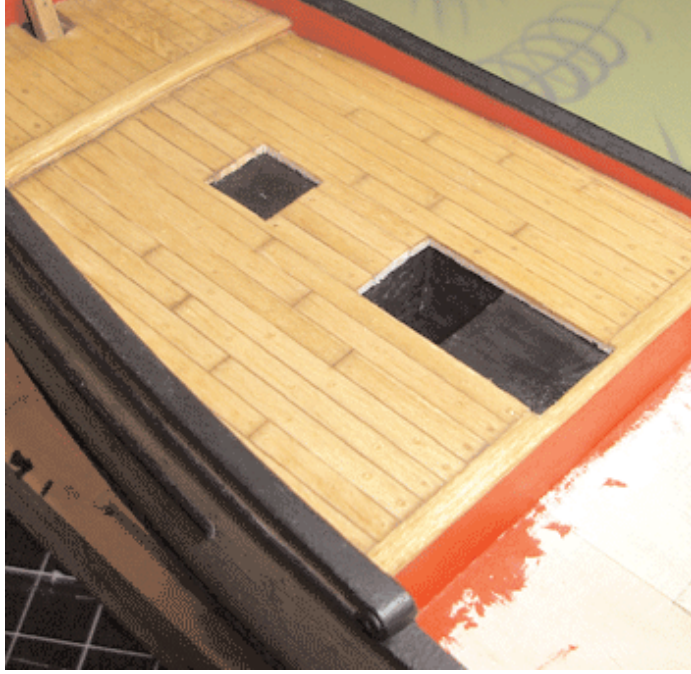
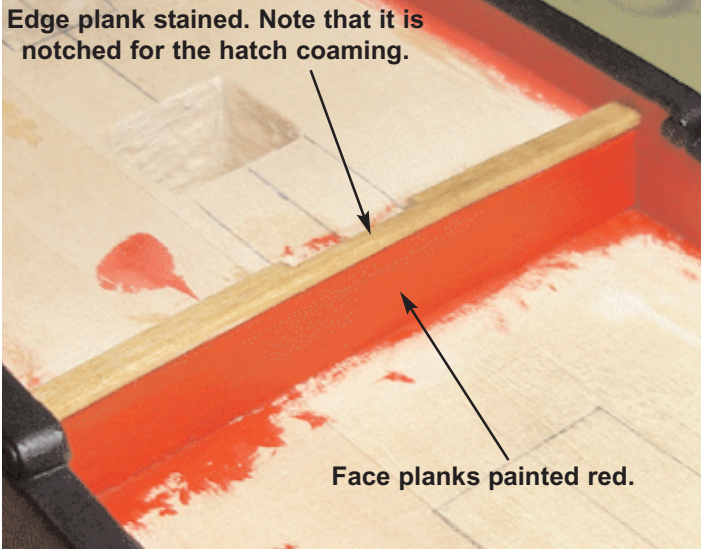
conform to the camber of the deck. These planks are also 1/16" thick.

After the face plank was glued into place the edge plank was positioned on top of it. The plank should hang over the edge a little bit. The edge of the plank that hangs over the deck should be rounded off with some sandpaper.

The deck can now be planked as shown in the photo above (right). Notice how the rudder hole was defined by cutting the planks at an angle. The best way to plank each deck is to start at the center line. Place a strip on both sides of it. You can see this line in the same photos. Work towards the bulwarks from the center line. You could also run a pencil down the side of each plank before you glue it into position. The darkened edge simulates the caulking that was placed between the planks on the real ship. I opted not to do this because I prefer a less uniform appearance. You should experiment with different ways to show the caulked seams. Some folks like to use a black sharpie marker on one side of each plank. The results are a little dark for my tastes.

The position for all of the hatches were drawn onto the deck for reference. The measurements for the hatches were taken from the plans. They were drawn to the *outside* edge of the coamings.

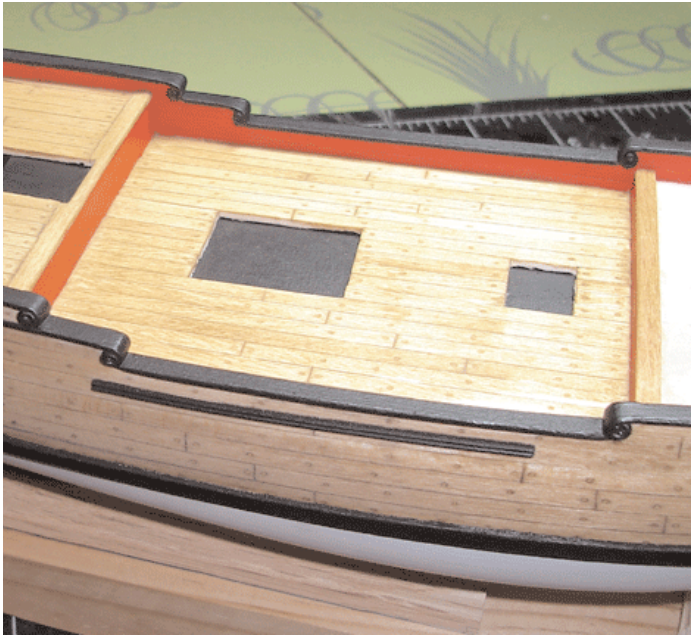
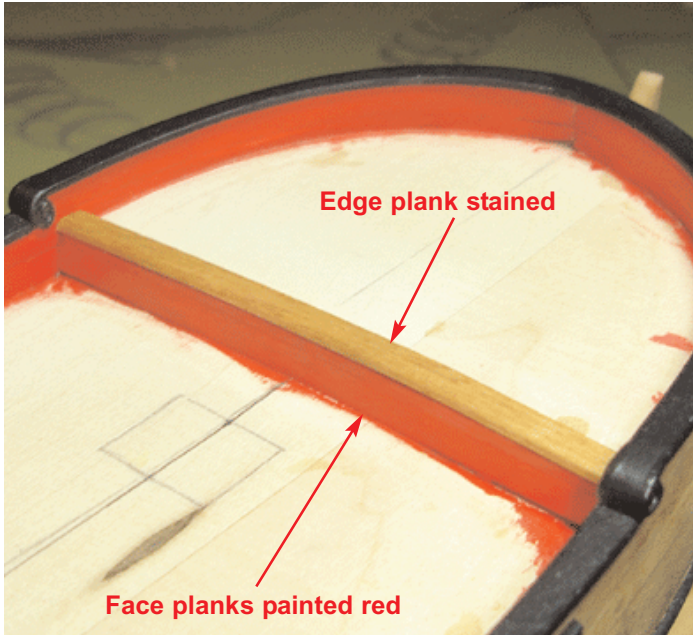
The deck was stained the same color as the hull planking. It was treenailed (trunnels) using the

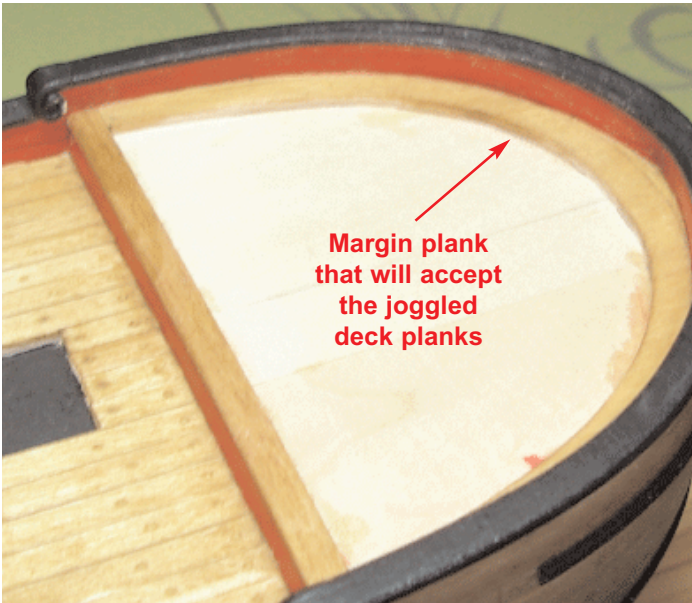


same technique we used for the hull planking. Holes were drilled and filled afterwards with some Elmer's wood filler. Sand it smooth and apply your stain. When the aft deck is finished continue working your way towards the bow. The quarter deck was planked the same way

This deck has two hatch coamings and is much larger. There are some extra details worth mentioning. First, the face planks will be painted red to match the bulwarks. See the photo above for details. The edge plank will also have a notch cut out of it. The plans show the forward hatch set into the edge plank. The 1/8" wide plank should be notched as shown in the same photo. The width of this notch was 1/16" (or half the overall width of the edge plank).

In addition to these details, the deck planking was laid down in staggered lengths. Use the same technique we used to establish the butt joints for the hull planking. Score each plank before you glue the next one into position. The placements of the joints are clearly shown in the photo above (right). I also drilled the holes for the trunnels before moving ahead to plank the deck at mid ship. It helps break up these mundane tasks into smaller ones that are more tolerable. Each deck was sanded, trunneled and stained before I moved on to the next one. I painted all the hatches black at this time. When we place the gratings over these areas, the black

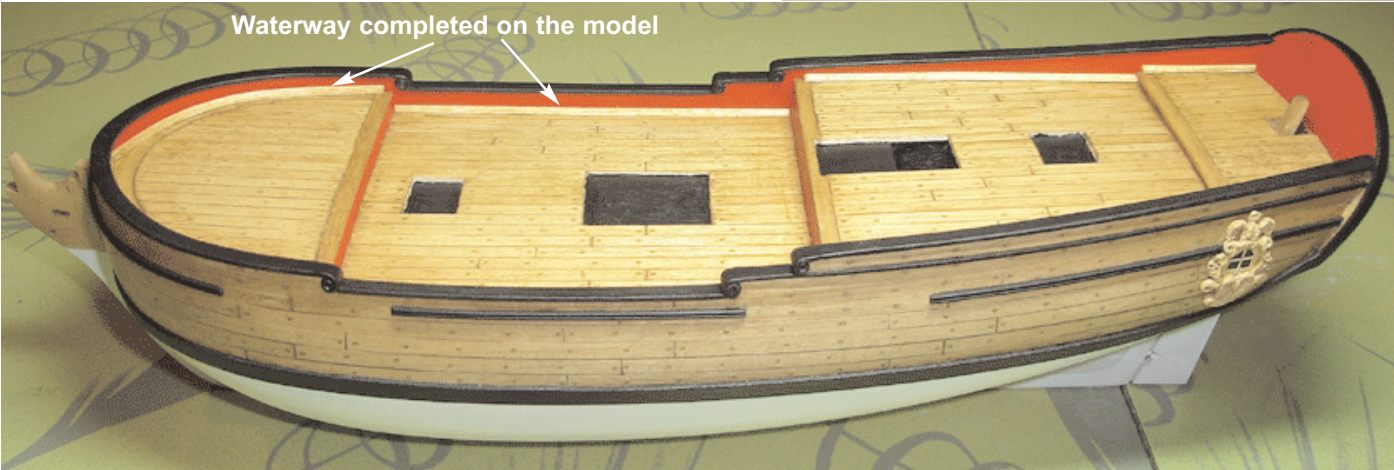
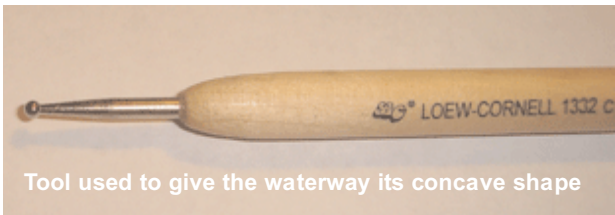
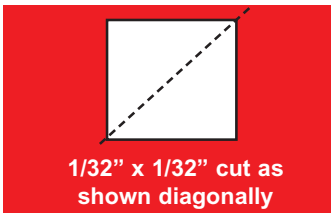




paint will help hide the fact that this is a solid hull model with no internal structure. Planking the deck at mid ship should be routine at this point. The face planks and edge planks were glued into position at the bow. See the photo on the previous page. Then the deck can be completed as were the others.

The deck at the bow will need some extra attention. The deck planks would have been joggled into a "margin plank". The margin plank should be glued into position first. It was cut from a basswood sheet that was 1/16" thick. I used the same technique that was used to create the cap rail at the bow. Trace the overall shape of

the bow by turning the hull upside down on the basswood sheet. The margin plank will be 1/8" wide and glued down in one piece. The notches for the joggled planks will be cut after the margin plank is glued in position. As before, start planking at the center line and work your way towards the bulwarks. Only the last four planks need to be joggled into the margin plank. The photos above show how this was done. I cut the forward edge of the plank into its joggled shape. Then I placed it over the margin plank as shown and traced the notch onto it. Using a sharp # 11 blade, I cut the notch into the margin plank. When you are satisfied with how the plank fits, glue it into position. After you treenail the deck,



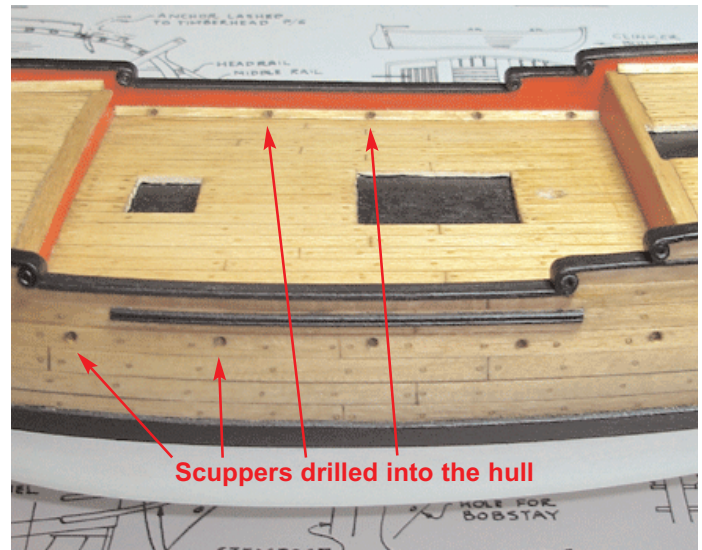
sand it smooth and apply your wood.

The waterway was added to the model next. It is shown in the photo below. The waterway should have a concave shape as it rests along the bulwarks. The waterway was made out of a strip of basswood that was 1/32" x 1/32". It was shaved to the profile shown in the diagram on the previous page. The waterway does not yet have the concave shape desired. It was still glued onto the model as is. Once in place, I used a tool to create the concave shape. This tool is pictured on the same page. It is normally used to sculpt clay. I used it to help create the Sculpey quarter badges. They come in a variety of sizes. You can find them at any craft store in close proximity to where the clay and Sculpey are displayed.

The metal ball on the end of this tool was used to burnish the waterway into its concave shape. Slowly run the tool down the waterway while applying some pressure. It will literally crush the basswood waterway into the correct shape. Remember, the wood is extremely soft and can be easily manipulated into shape.

Drilling the Scuppers...

This would be a good time to drill the scuppers into the hull. In addition to that we might as well drill the holes for the two masts. The scuppers allow water to drain from the decks. There will be five scuppers on each side of the hull. The photo above shows the locations for all of them. The scupper holes were drilled with a 1/32" drill bit. The holes were not drilled all the way through the bulwarks. The scuppers are only simulated. Each of the holes were drilled to a depth of about 1/16". They weren't deep enough to penetrate through the other side. The scuppers along the waterway were treated the same way. They were drilled partially through the bulwarks at a sloping angle. Pay careful attention to line the scupper inboard with its corresponding partner on the outside of the hull. The holes may have some frayed edges after you drill them. If this happens they can be cleaned up quite easily. Take a wooden dowel that is



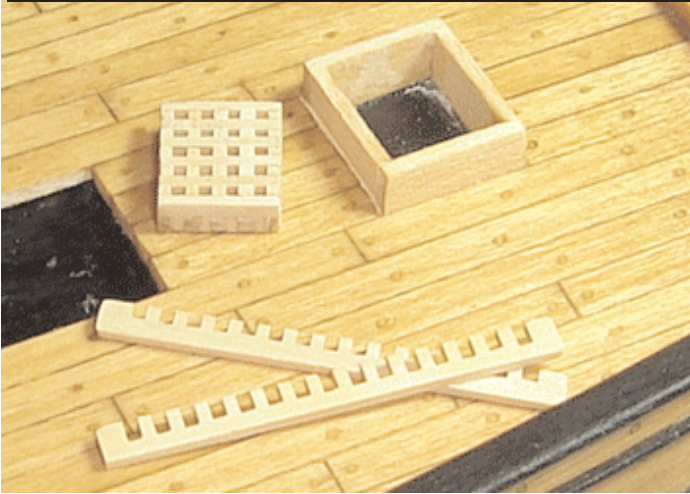
1/16" in diameter. Sand one end of the dowel into a blunt point. You can put this point into each hole and twist the dowel quickly to remove the frayed wood. It leaves a much cleaner edge. You can also run a pencil into each hole to darken it. The scuppers would have been lined with lead and the pencil does a good job of simulating the appropriate finish.

The holes for the two masts were also drilled at this time. The position for each of them was taken from the plans. Choose an appropriate sized bit and carefully drill the holes. The kit-supplied instructions has a diagram that shows you how to build a small jig. The jig will help you drill the holes at the correct angle. The masts rake significantly towards the stern as you can see on the plans. (See page 8, fig.10)

The Hatches...

The next task I wanted to tackle was the completion of the hatch coamings and gratings. I will be discarding the kit-supplied metal casting in favor of building them out of wood. The same methods will be used for all of them. The first thing I did was install the coamings (frames) for all of the hatches. I used a strip of basswood that was 3/16" wide and 1/32" thick. The strips were cut to the appropriate lengths and glued into position as shown in the photo on the next page. Simply glue the strips along the inside edge of each hatch. Normally the corners for the coamings would either be mitered or have

Grating strips and hatch under construction



Completed hatches with gratings



Hatch just aft of the windlass

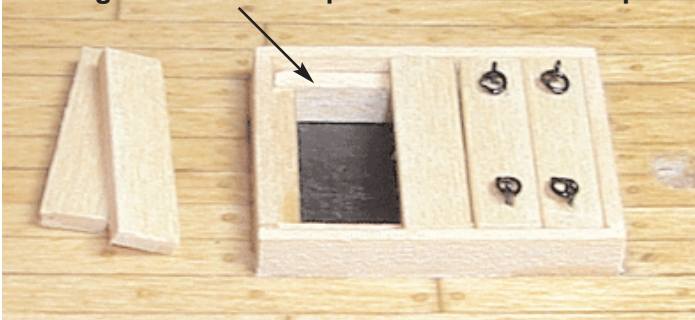
lap joints. Since I will be painting the coamings red to match the bulwarks this detail will not be necessary. You can glue another piece of 1/16" x 1/32" strip along the inside of the finished coaming to create a ledge for the grating to sit atop. I found that the grating fit tight enough that this ledge was not necessary. I only created the ledge for the main hatch which will have a planked cover rather than a grating. You can see that ledge in the photo below.

The gratings were not made from scratch. I used some grating strips that were purchased from Model Expo. The Model Expo part number is MS2873. These finished gratings are very close to the correct scale. I could have made them from scratch but only two packages of grating strips were needed. Sometimes it doesn't pay to build an item from scratch when there are perfectly suitable alternatives available. The grating strips if made from scratch wouldn't have been any different than those purchased. In this case the time saved was more valuable. The hatch just aft of the windlass should be altered as shown in the photo above. The forward corners

of the grating were removed so there was enough room for the anchor cables to fit through. The anchor cables will enter these larger holes after being wrapped around the windlass drum.

The main hatch will be built the same way. As mentioned earlier, the only difference will be the grating is replaced with planks (cover boards). There will be 5 planks. A ledge was created inside the coaming for these boards to rest upon. Use 1/32" x 1/8" basswood strips to create the ledge inside the coaming. Before I glued the cover boards onto the hatch, the eyebolts and rings were added first. The eye bolts have small rings used as handles. These were made from 28 gauge black wire. I used needle-nosed pliers to shape them. They are very tiny and it takes some practice to create them efficiently. After you make a few eye bolts and rings you should get the hang of it. The rings should be placed into the eye bolts. Glue these into pre-drilled holes on each side of the cover boards. See the photos below for details.

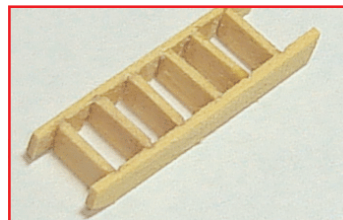
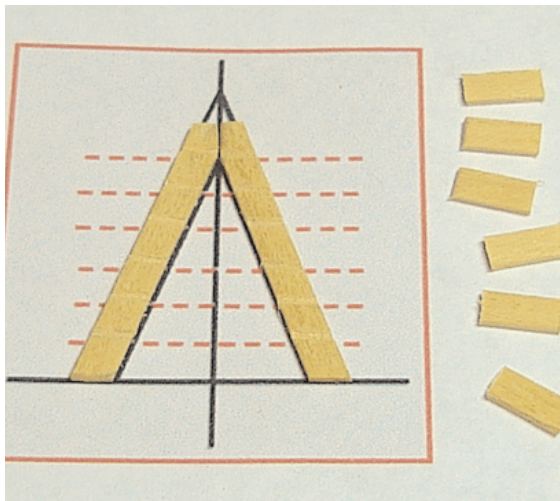
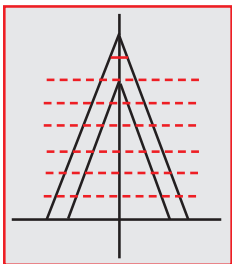
A ledge is created for planks to be set on top of.



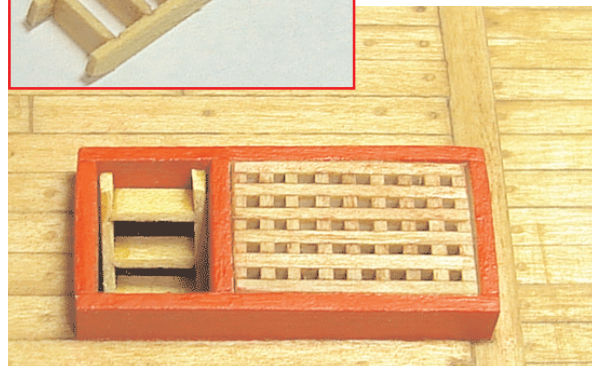
Eye bolts and rings made from 28 gauge wire.



Use the template below to create the ladder for your model.



The completed ladder.



Making the Ladder for the Hatch...

The ladder for the hatch was made from a strip of basswood. The strip was 1/32" thick. To make the ladder easier to build I have provided a template above. Simply print out this page and use it to create the runners for the ladder. Place a basswood strip on top of the template and draw some reference for each step. These are shown as dashed red lines on the template. There is a left and right pair shown on the template. The template will ensure that the steps are positioned at the correct angle. I used a hobby saw with very fine teeth to carefully create the mortises for each step. Only a few passes along each reference line are needed to score each mortise to the correct depth.

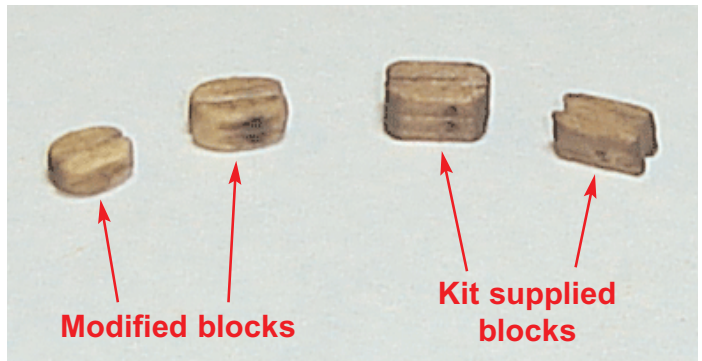
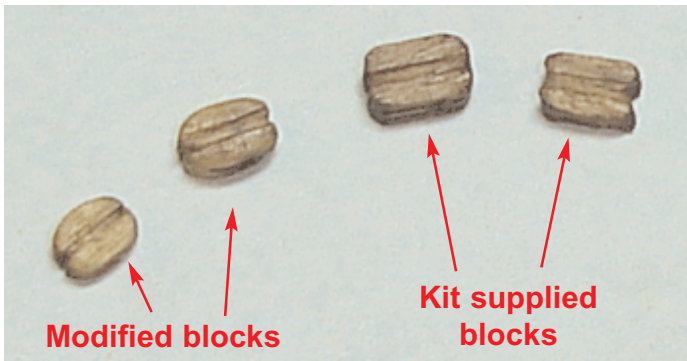
The steps were cut from the same sized basswood strip. The finished width of the ladder should fit snugly into the hatchway. Measure the opening of your hatch to establish the width you

will need. You will have to consider the width of the runners in you calculations. Cut your steps to the appropriate length. When the steps have been made you can glue the entire assembly together. I used super glue. The completed ladder will be somewhat delicate so handle it with care. It should be sanded to remove any excess glue. The ladder can be stained and placed into position on the model. See the photos above for more details. All of the hatches are now completed. The photo below shows the project as it stands thus far.

Kit Supplied Blocks...

I would like to say a few words about the kit supplied blocks. We will soon need these for multiple tasks. Most of the kits available commercially contain blocks that are very square and unattractive. The Sultana kit from Model Shipways is no exception. It is very tedious to create the blocks from scratch in the quantities





needed. This is especially difficult at the required scale. There are single and double blocks that are only 3mm long. It is possible to make these from scratch but the task is not very enjoyable. So rather than discuss the techniques used to make them from scratch, I will suggest you modify those provided with the kit. The end results might just surprise you.

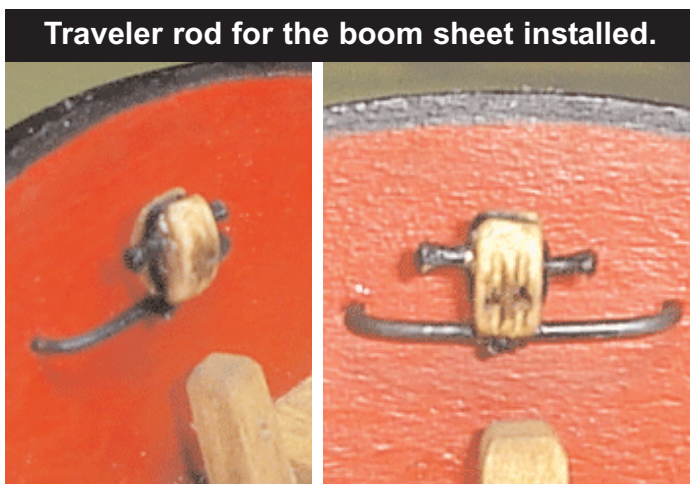
The photo above shows a single and double block that have been modified. It also shows a pair of blocks that have not been altered. Some of you may not see a big difference between each pair. If that's the case, you don't have to spend any time making adjustments. I hold a block between my thumb and fore finger and sand it to the shape shown. The blocks need to be rounded and not square. There shouldn't be any hard edges. The grooves for the simulated sheaves were touched up as well. The fine-toothed saw blade we used earlier was run through each groove several times. It cleans them up and makes them more defined. The holes for the sheaves may also need to be redrilled. This may seem like a lot of work but it makes a big difference to me. I didn't modify these blocks in one sitting. That is not my idea

of fun. Each block is modified as they are needed. They will be stained a "Golden Oak" when completed.

There are a couple of commercial sources that make excellent blocks. You can buy them in a variety of sizes. They are: Bluejacket Ship Crafters (www.bluejacketinc.com) and The Lumberyard for Model Shipwrights (www.dlumberyard.com). Keep in mind that buying good quality blocks online can get expensive quickly.

You might be asking yourself why I am spending so much time on this subject. When you look at a ship model, the blocks are a tell-tale sign of a modeler's skill level. To the trained eye these blocks are a dead give away as to whether the model was built from scratch or not. In the end, only you can decide if this is important. Throughout this project other situations will be talked about. Should you make your own rope? Should you carve your own cleats? The list is endless. My goal is to make this ship model so it looks as if it was made from scratch. The proof is in the pudding and I will let you decide.

Traveler Rod for the Boom Sheet...



The traveler rod is used to secure a double block. This double block is used for the boom sheet. It's location varies depending on which set of plans you happen to be looking at. In fact, the plans for the Model Shipways kit show the raveler positioned as shown in the photographs (left). However, the kit-supplied instructions suggest that it should be placed on deck. I am also using the rigging plans by Howard Chappelle, Portia Takakjian and Karl Heinz Marquardt as reference. All of these plans have drastic contradictions. For the most part, I will be

sticking with the kit-supplied plans. The information they are based upon are said to be the most up-to-date and reliable. Even so, I will make a few changes which will be discussed later.

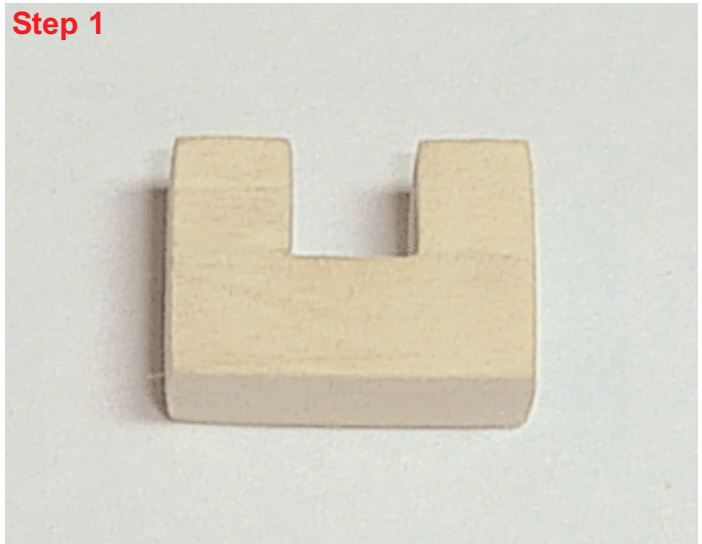
The traveler rod was made from 22 gauge black wire. Take the measurement from the plans for its length. It should be glued into two pre-drilled holes. But before you glue it into position a double block needs to be stropped to it. This double block also needs to have two little brass nails placed into each side of it. The nails will obviously need to be shortened. This detail is shown on the rigging plan. The brass nails will be painted black. The running end of the boom sheet will be belayed to one of these pins. Tie the block to the traveler rod and glue it onto the model. The photos on the previous page show how it should look when finished.

The Binnacle...

The kit comes supplied with a metal casting of a binnacle. Since I am attempting to improve the overall appearance of the model, I will not be using it. This casting is not the correct size anyway. It is much too short and a little wide. I will build the binnacle from scratch using the plans supplied with the kit. The binnacle was painted red when it was finished so the methods described take this into account. If you want to stain the binnacle, some minor changes may be warranted. The plans show a brass bell mounted on top of the binnacle. I have decided to omit this feature. It is unclear where the bell was placed on the Sultana if it had one at all. The replica in Maryland has the ship's bell hanging from the aft side of the main mast. I am still undecided as to whether or not I will include one.

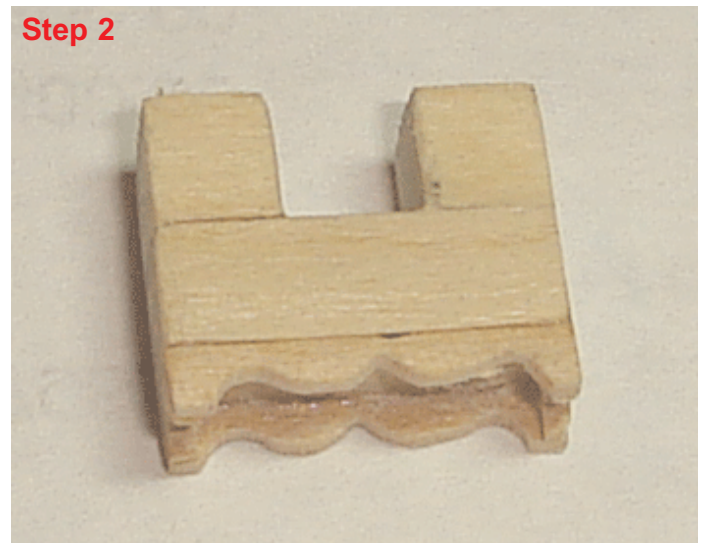
STEP 1: I used a strip of basswood that was 5mm x 5mm for the foundation of this binnacle. The binnacle is very small measuring just 1/2" wide and just as tall. I tried to add as much detail as possible. Cut a length of basswood 1/2" long. On top of this piece place two smaller cubes of basswood. See the photo above for the details. These smaller cubes are just under 3/16" long. Sand this assembly with some very fine sandpaper.

Step 1



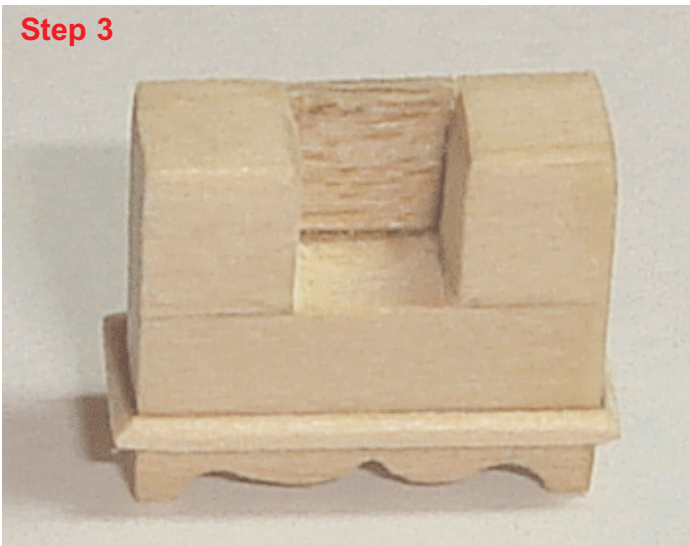
STEP 2: I created the legs and base for the binnacle. Use a strip of basswood that is 1/32" thick and 1/16" wide. The base of the binnacle has a very pleasing scalloped edge. Cut two pieces to length for the front and back of the binnacle. Rather than shape them while off of the binnacle, I found it easier to do so after they were glued in place. Draw the design onto each strip before you glue them on. Two more strips were cut to length and glued into position on each side of the binnacle.

Step 2



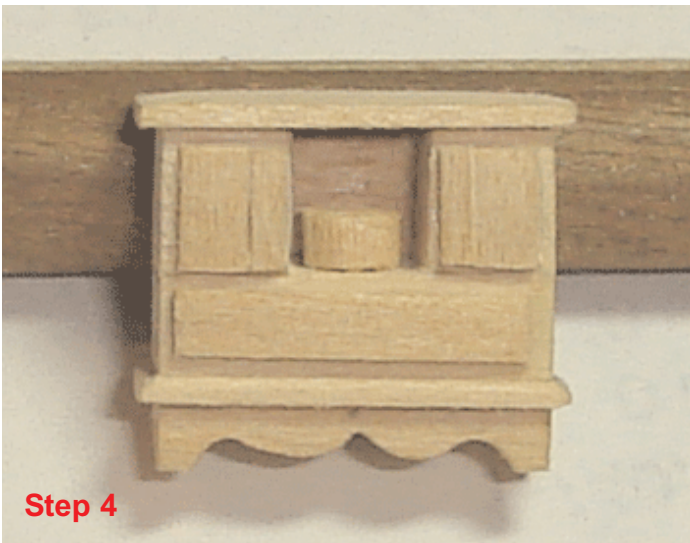
The corners weren't mitered because after a good sanding the binnacle will be painted. With all four strips glued into position the scalloped design was sanded to shape. I used a combination of needle files and fine sandpaper wrapped around a drill bit. See the photo above for the details of step 2 completed.

Step 3



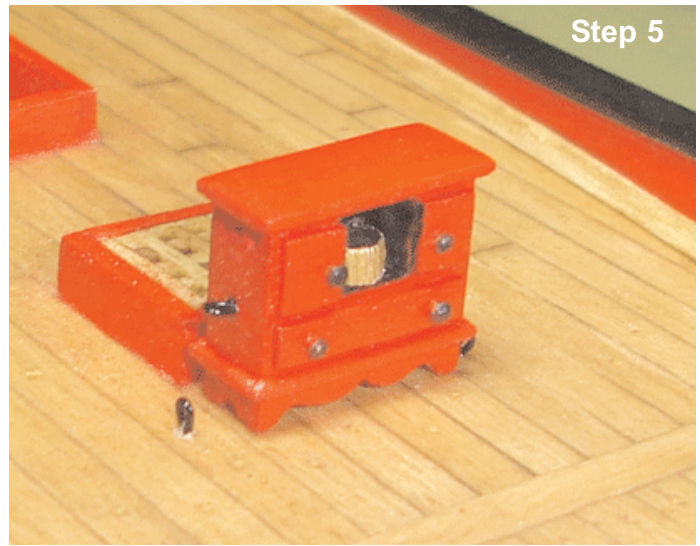
STEP 3: A 1mm x 1mm strip of basswood was glued onto the binnacle to represent the molding above the base. After it was glued into place the edges were rounded off with some sandpaper. Another strip of 1/32" thick basswood was glued into position for the back of the compass compartment. The back of the binnacle was sanded smooth after applying some wood filler on the seams. I didn't want to see any of the seams for these various pieces after it was painted. See the photo above showing step 3 completed.

STEP 4: A 1/32" strip of basswood was used for the top of the binnacle. There will be a slight over hang on all four sides. After I glued it into place I rounded the edges with some sandpaper. Then I added three strips of very thin basswood to simulate the face of each drawer and cabinet. The strip was 0.5 mm thick. They were glued



Step 4

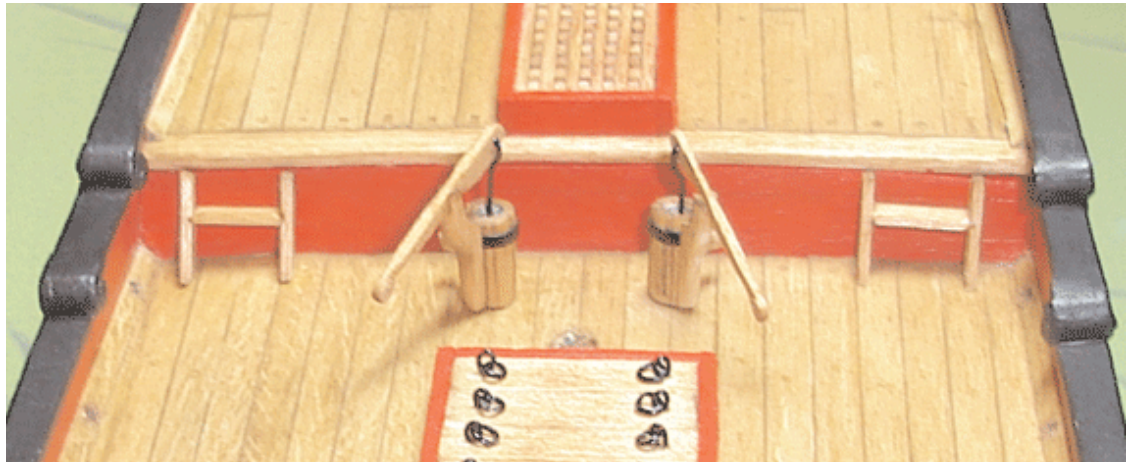
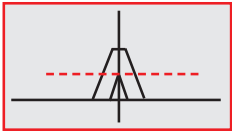
Step 5



into position as shown in the photo for step 4. The compass itself was made from a wooden dowel of an appropriate diameter. I didn't glue it on the binnacle yet because the inside of the compass compartment will be painted black first. You could also cut a small square of acetate and use it as the glass window for this compartment. I decided to omit this detail because I was afraid it would obscure the view of the compass. The compass was painted gold.

STEP 5: I drilled three small vent holes into each side of the binnacle. They are difficult to see in the photo of step 5. It shows the binnacle placed on deck. Once the holes were drilled the entire binnacle was sanded as smooth as possible. I used some very fine sandpaper. The inside of the compass compartment was painted black and the exterior painted red. Several thin coats were used until I was satisfied with the results. Once the paint dried, four brass nails were cut to length so the nail heads could be used as the drawer knobs. They were placed into pre-drilled holes and painted black. The binnacle was lashed to the deck on both sides of the binnacle. Small eye bolts were made and glued into the sides of the binnacle. Two additional eye bolts were glued into the deck. The photo shows the binnacle on deck before I rigged the lashing. I will be using tan rigging line seized on both ends. Black line can also be used but in this one instance I thought the tan line would look even better. The rigging line supplied with the kit was used.

Use the template below to create the ladders for your model.



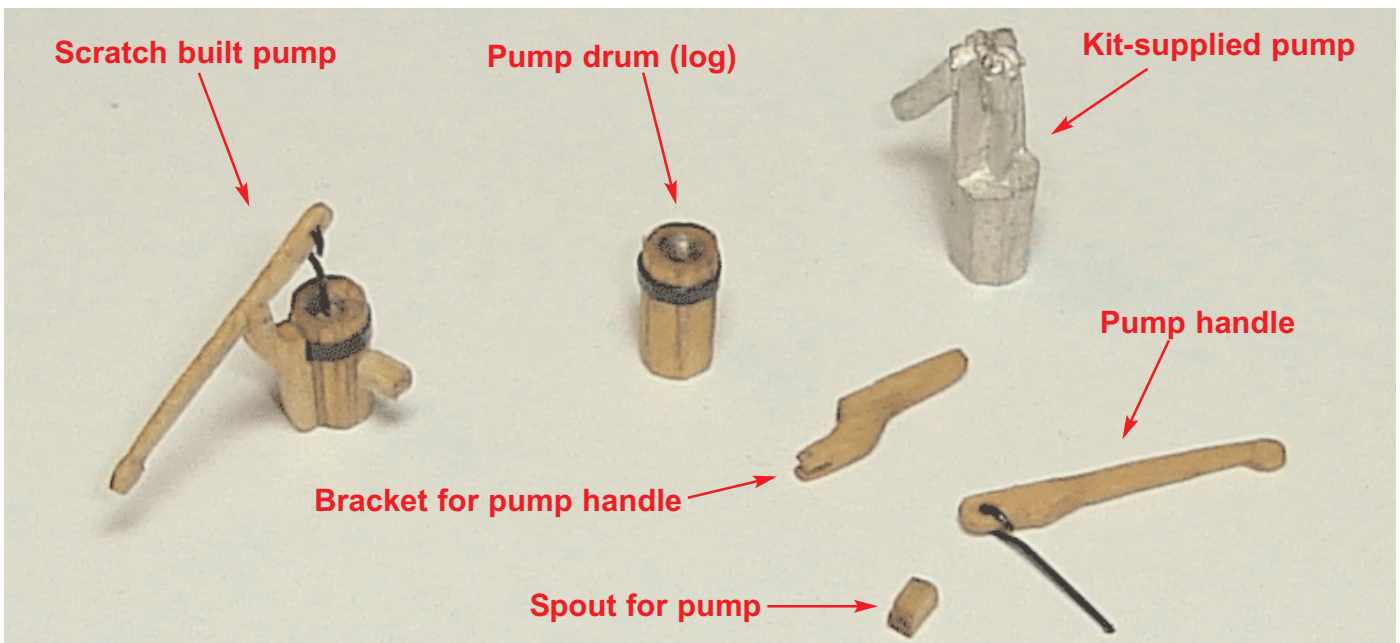
Ladders to the Quarter Deck...

The plans show one step (port and starboard) for access to the quarter deck from the waist. This detail is presented in a variety of ways depending on the set of plans you have. It is a fact that the height from the waist to the quarter deck is less than 20". Only one step is needed. Yet some plans show two. Another has none. I have decided to use one step. The MS plans show this step located on the break of the two decks. There are no runners for them. They appear to be mortised directly into the bulwarks and the break in the deck. I have decided to create a pair of steps with runners instead. These are shown in the photo above. I have provided another template should you agree with my opinion. This is a great example of why "kit bashing" is so wonderful. There are so many interpreta-

tions (plans developed by notable naval historians) available for the Sultana that you can easily project your own style and vision.

Elm Tree Pumps...

The pumps will be made from scratch. Take a look at the kit supplied casting in the photo below and there should be no debate as to why. The pumps were very simple to make. Only four components were needed for each pump. The only challenge was trying to fabricate a matching pair. Make two of each part and complete them at the same time. This will help ensure that the two pumps look alike. The main drum or "log" was made first. An appropriate sized dowel was cut to length. Take the measurements from the plans. I sanded these to an octagon shape. Log pumps were usually eight-sided. I scored



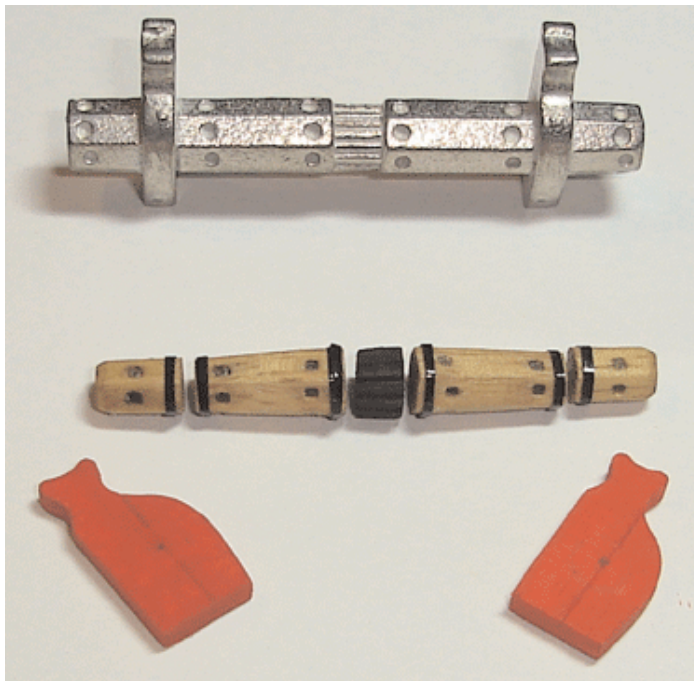
each seam around the diameter of the log with a #11 blade. This will make the eight sides more defined after they are stained. Some black automotive pinstripe tape was wrapped around each pump. It will simulate the iron bands. The tape was cut 1/32" wide. This iron band was placed about 1/32" below the top of the pump.

A hole was drilled into the top of each pump. It was large enough that the pump walls looked the correct thickness. The hole was only drilled to a depth of 1/32". I used a pencil to darken the inside of the hole. These pumps were sometimes lined with lead so I used a pencil to simulate that finish.

The brackets that hold the handles were made next. You can see how they were shaped in the photo. This shape was traced onto a strip of basswood 1/8" wide and 1/16" thick. They were shaped with some files and sandpaper. The outside edges were rounded. A slot was made on the top of each bracket to accept the pump handle. I used my Xacto saw blade with fine teeth to carefully score the slot. The slots were made wider by running some sandpaper through the each of them. The handles will be less than 1/32" thick so the slots need to be wide enough to accommodate them. Two small dots were drawn onto the outside of these slots to simulate an iron pin. This pin would have allowed the pump handle to pivot up and down. Glue the brackets onto the pump when you are finished.

The handles were made the same way. Trace the shape onto a basswood strip that is 1/32" thick and 1/8" wide. Shape them with some files and drill a small hole into the end of each handle. Some 28 gauge wire was shaped like an eye bolt and inserted into this hole. See the photo on the previous page for details.

The spout for each pump was made from a 2mm x 2mm strip of basswood. A tiny hole was drilled into the end of each spout. They were glued onto each pump at a right angles to the handle. They will be glued onto opposite sides of each pump so they will face outboard after glued into position.



The Windlass...

The windlass was also supplied as a cast metal fitting. It's not horrible but I decided to build one from scratch anyway. A windlass made out of wood will have a much better finish. I approached building the windlass the same way I do with all of my fittings. I break it down into smaller components that will be easier to build. The photo above shows all of the windlass components before I assembled them. The first pieces I built were for the windlass drum. This was broken up into five segments.

The center sprocket was made first. I chose a wooden dowel that was the proper diameter. The measurements were taken directly from the plans. I cut a small piece of the dowel to length and filed the teeth into it. A small needle file was used. When it finished I painted it black and set it aside.

The two center portions of the drum were cut to length. They will ultimately be glued onto both sides of the black sprocket. Both were shaped with some sandpaper. The windless drum should be sanded into a hexagonal (six sided) shape. They are also tapered to a smaller diameter on each end. It takes a little practice to keep the edges consistent and even. When they were finished I drilled the small holes into it as they were shown on the plans. You will notice that the

holes are square and not round. The holes are very small and can't be easily shaped with a # 11 blade or files. So I took a nail and filed the tip square. I pushed it into each hole and applied some pressure. The wood was so soft that the holes conformed to the square shape desired. This is a very effective way to create holes of any shape. The basswood I am using is extremely soft.

The two outside sections of the drum were prepared exactly the same way. All four sections were stained. Then I used some pinstripe tape to simulate the iron bands wrapped around them. They were cut into very thin strips like I have described for other tasks earlier.

Finally, the two supports for the windlass drum were traced from the plans. Some basswood strips were chosen that were the correct thickness (1/16"). I sanded them to shape being very careful to create a matching pair. Both supports were painted red. The entire windlass was assembled afterwards and glued onto the model. I was very pleased with the results considering how easy it was to build. It was well worth discarding the windlass supplied with the kit.

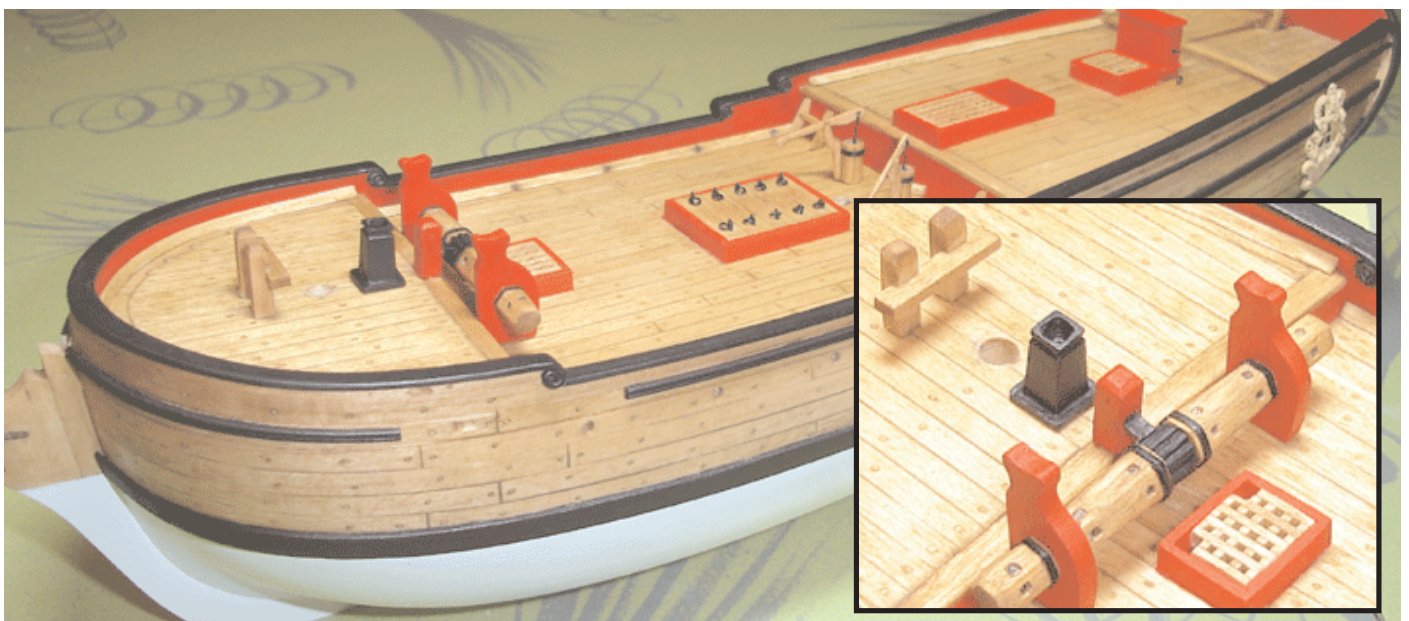
Finishing Up the Deck Fittings...

There are only a few more fittings to complete. To start, the pawl for the windlass drum was installed. The plans show the pawl simply bolted

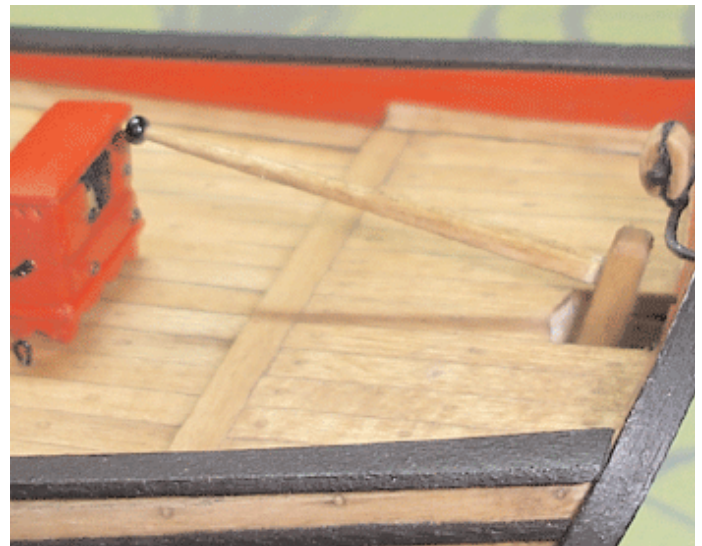


to the edge plank on deck. I wasn't satisfied with this approach. Normally the pawl was inserted into a post positioned in front of the drum's sprocket gear. This was how I decide to model that feature. You can see the post painted red in photos below. A small strip of brass was inserted into a slit on the post.

The galley stack could have been built from scratch. But after looking at the one supplied with the kit I decided to use it. The casting needed to be cleaned up with some sandpaper but overall it was acceptable. As I mentioned previously, sometimes the time saved is more valuable than creating something from scratch. In this case, a scratch built stack would not have turned out significantly different from the one kit-supplied. I painted it black and glued it into position.



The tiller was finally made and glued to the rudder head. See the photo above for details. I wanted to hold off on adding this as long as possible. It is vulnerable to breakage and has a tendency to be pulled free after getting accidentally hooked on other items. It was simple to make. I used a 2mm x 2mm strip of basswood. It should retain a square shape for the end that connects to the rudder. The other side was rounded starting at about the center of its length. The tiller tapers to a very slender point. I placed a small black bead on the tip of the tiller. These beads are very inexpensive and can be bought at any arts and crafts store. They are normally used to make necklaces and jewelry. I keep an ample supply available in different sizes and colors. When I glued the tiller onto the rudder I wanted to strengthen the joint. A small piece of 28 gauge wire was used. It was inserted into a hole that was drilled into the square end of the tiller. Another hole was drilled into the rudder and the tiller was glued into position.



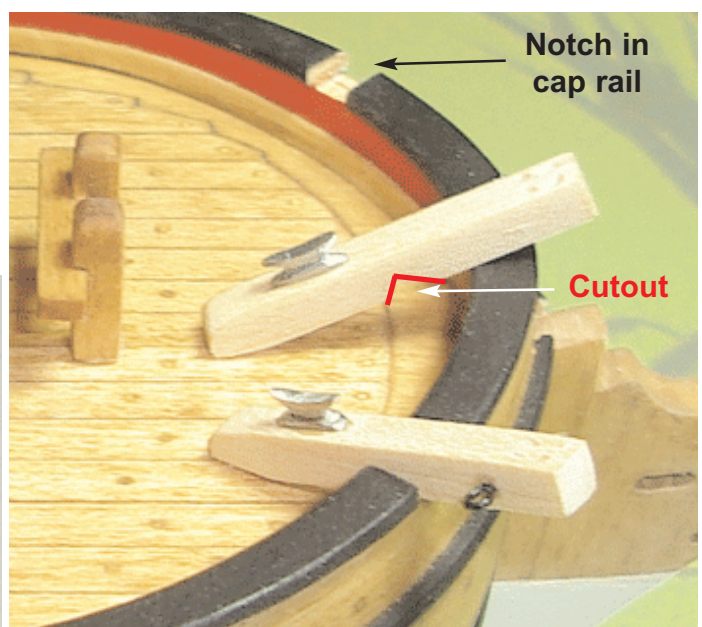
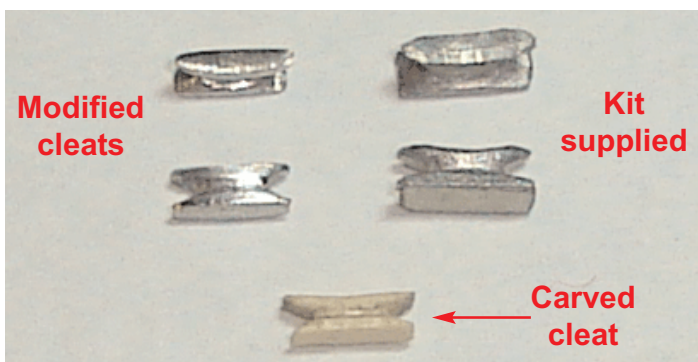
The bits are all that remain to be built (the rail just in front of the fore mast). This is a very straight forward procedure. Take some strip wood that is the correct dimensions and cut the posts to length. Carve some notches that will accept the rail. I also sanded a chamfered edge around the top of each post to add some detail. Glue the assembly together and install it on deck. I decided not to paint the bits red and stained them instead. See the photos on the previous page.

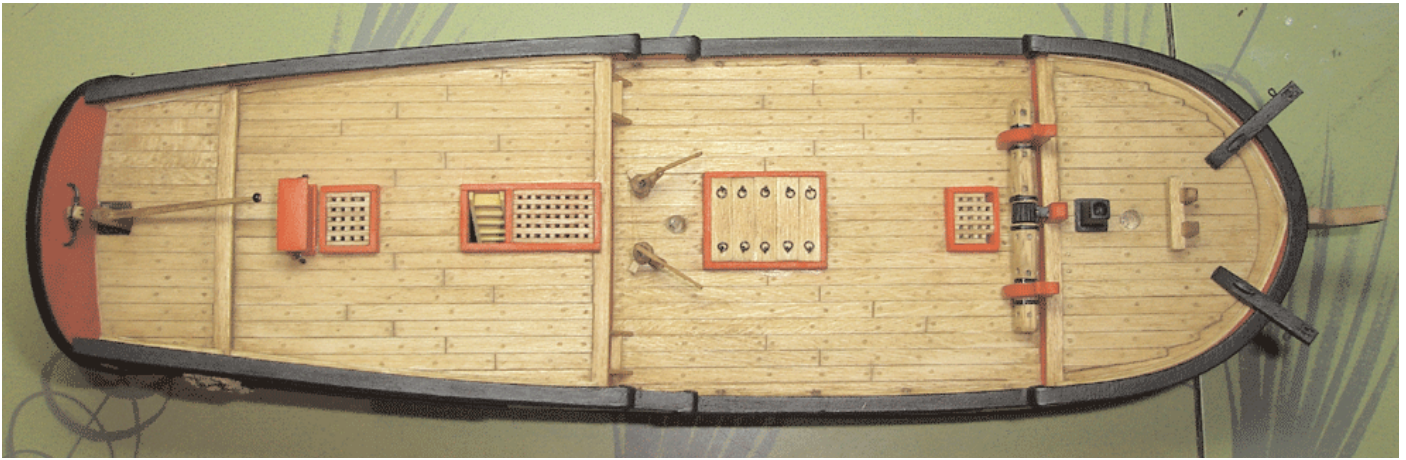
drawings and cut a basswood strip to length. Two catheads are needed so try and keep them as a matching pair. They can be shaped as shown in the photo below. Make note of the cutout on the bottom of the cathead. The cutout is shown with red lines in the photo. It will help correctly seat the cathead in position on the bulwarks.

The cap rail was notched as shown in the same photo. The catheads were glued into these notches. The position for each cathead was carefully measured and marked along the cap rail before I cut the notches. I recommend taking measurements from more than one reference point on the model. The placement for each cathead is crucial to the building of the head rails so take your time.

The Catheads...

The plans have several detailed drawings of the catheads. They are shown from many different angles. Take the measurements from these





After I created the basic shape for the catheads the small details were added to them. Two sheaves were simulated on the end of each cathead. I drilled the four holes for both sheaves. Then I took a pin vice and scored the space between each pair of holes. This created the groove that simulated each sheave. You should do this on the top and bottom of each cathead.

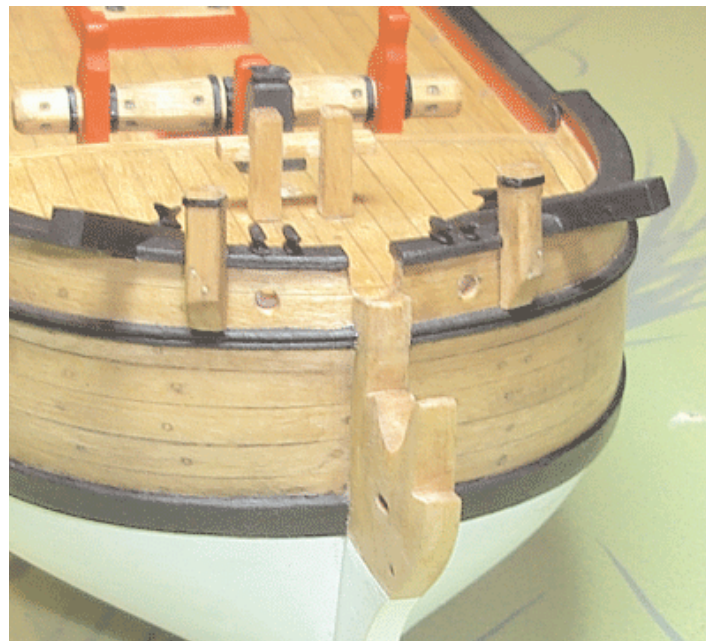
A small eye bolt was made from 28 gauge black wire and added to each cathead. You can see them in the photo on the previous page. A cleat was also glued to the top of each cathead inboard. You will have to decide if the cleats supplied with the kit are acceptable to you. Just like the blocks, the cleats should be modified or carved from scratch out of wood. They need to be slimmed down in appearance. I provided a photo on the previous page. It shows two cleats that were filed to an acceptable size and shape as compared to a pair that was not. The cleats on the Sultana were probably made of wood. You could also create them from scratch where a natural finish is more desirable. The cleats on the catheads will be painted black so I used the modified metal cleats. The same photo also shows a cleat that I carved from basswood. The catheads were painted black and glued into position. The photo above shows the catheads completed and glued into position.

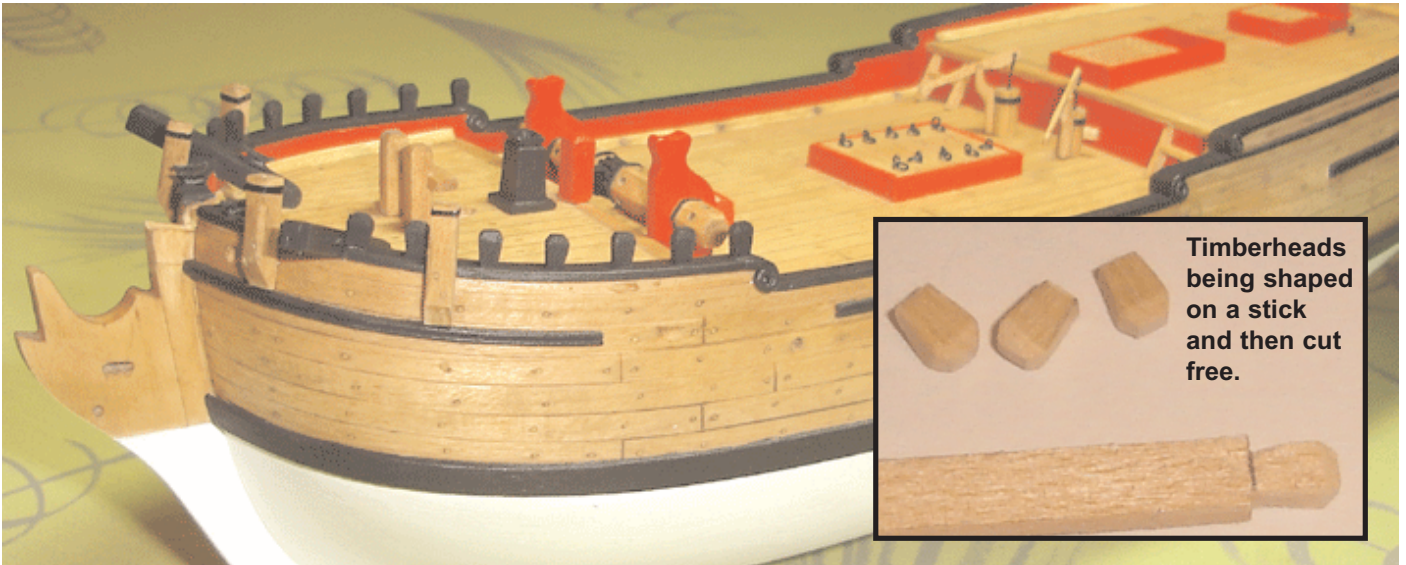
Hawse Holes and Bow Details...

Since most of the deck structures are now completed, I will start to add the details along the cap rail. The first thing I addressed was the notch for the bowsprit. You will notice that the

bowsprit will extend above the cap rail after it is installed. I used a dowel that was the same diameter as the bowsprit to establish the correct placement and angle. The notch was cut to the correct depth with a hobby saw and then rounded with some needle files. The inboard end of the bowsprit will be eight-sided. The shape of the notch will be modified when it is time to install it.

I noticed that the stem was too short after I test fit the dowel (bowsprit) in position. I added a small piece of wood to lengthen it. This "patch" is hardly noticeable and after the head rails are created will be almost invisible. I recognized my error some time ago and could have fixed it so no one would have noticed. I made a conscious decision to leave it as is so I could mention how everyone makes mistakes. It happens to the best of us and the remedies for these errors are usually easy to make. Try not to get discouraged when





something similar happens to you. Once the model is finished, no one will ever see the error as long as you correct it with skillful craftsmanship and care.

I examined the plans for the positions of the hawse holes and gun stocks. I placed reference marks on the model for them. The hawse holes were drilled and cleaned up with a needle file. It is interesting to note that the hawse holes are not shown on the original draft. There seems to be a difference of opinion whether the Sultana actually had hawse holes. Of the three plans I am using, Portia Takakjian doesn't show them on her plans. Howard Chapelle has them located on the outside of the gun stocks. The replica in Maryland has them where they are located on the kit-supplied plans. I decided to stick with the kit-supplied plans and placed them where they are shown in the photo.

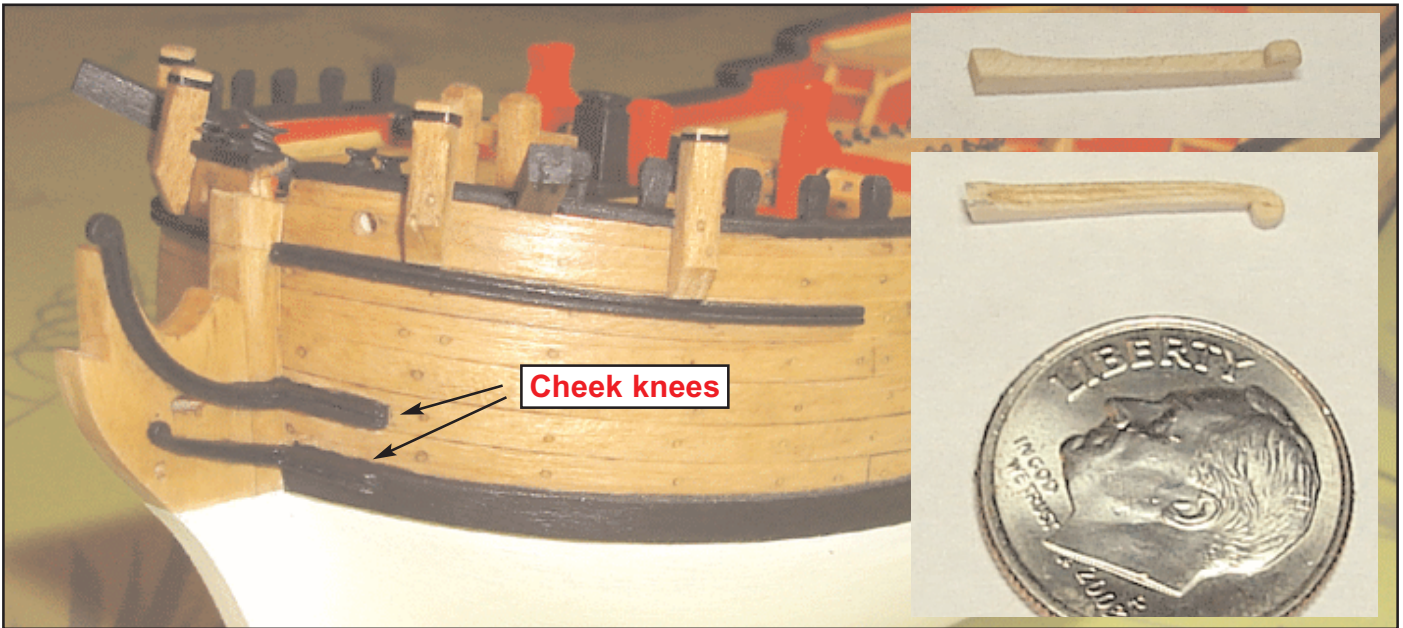
The gunstocks were easy to make. I made two of them as shown in the same photo. An iron band was simulated with a thin strip of black pinstripe tape. I also drilled a small hole on the top of each gun stock for the swivel guns. It is easier to drill them before you glue them onto the model. They were glued into position after I notched the cap rail to accept them. Afterwards, I drilled two holes on the outside of each stock and filled them to replicate trunnels. I may paint the gun stocks black but will leave them natural for the time being. I will make that decision before I start rigging the model.

The knightheads won't be placed onto the model until after the bowsprit is in position. I added 4 modified cleats as shown to the top of the cap rail. They were painted black. Measure carefully before you glue them into place. Make sure you leave enough room for each knighthead on both sides of the bowsprit.

Timberheads...

I will continue working along the cap rail at the bow. Seven timberheads will be positioned atop the cap rail aft of each cathead. They were made using a strip of 1/16" thick basswood. It was the same material that was used to plank the decks. Each timberhead measures 4mm high and 2.5mm wide. I transferred the general shape for each timberhead to the strip and shaped it with a #11 blade and sandpaper. See the photo above which shows a timberhead that I created. They are cut from the strip after they are finished because the strip makes it easier to hold as I am shaping them. The tops of each timberhead were beveled to add some interest. They were also tapered to 2mm at their bases. I used the plans to find the exact locations for the timberheads and glued them onto the model. Afterwards, I painted them black.

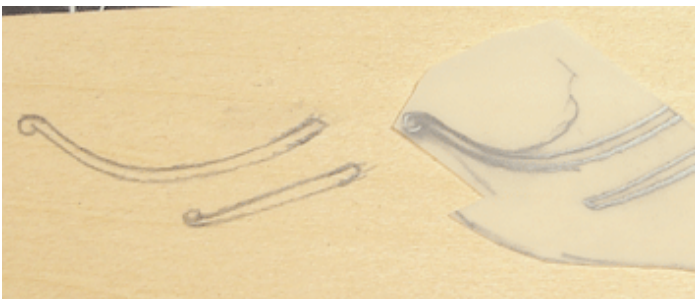
One gun stock should be made for each side of the hull as well. They were made the same way I made the others earlier. You can see where I glued them onto the hull in the same photo.



Head Rails, Head Timbers and Cheek Knees...

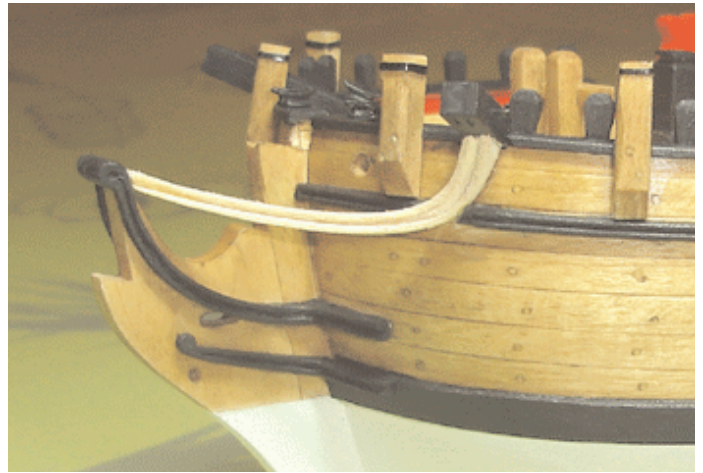
The head of any ship model is one of the more challenging areas to build on any project. It is also one of the most expressive and beautiful aspects of a ship. The head rails, cheeks and head timbers are quite complex. The number of parts and angles need to intersect and connect while maintaining the graceful curves we have grown familiar with. As always, I managed to build these components by breaking down the task at hand into smaller individual projects. There are many different techniques for constructing the head rails for a ship model. I will select the method depending on the finish being used and the scale. Since I will paint the head rails black, basswood was chosen for the material. I would have used boxwood but I didn't have enough of it to complete this operation. Bass wood should be just as suitable.

I shaped the cheek knees first. There are two knees on each side of the stem. The photo



above shows them in place on the model. I constructed each cheek in two pieces. The first piece was the section glued to the stem which curves gracefully into a small scroll at its end. These sections were glued onto the model before I carved the pieces you can see on the hull above. I was very careful when fitting them together. The seam between each segment was painstakingly blended together with wood filler so it wouldn't be seen after I painted them. They were traced from the plans and transferred to a basswood sheet that was 1/16" thick. See the photo below. I cut them out with a fresh #11 blade and sanded them to shape. 1/16" is too thick for the cheeks and was chosen so the curved area where the stem meets the hull could be shaped. Otherwise, the cheeks were thinned down to 1/32" along their length.

The photo above shows the lower cheek from two angles. I can't describe how tiny these pieces actually are. The dime in the photo gives you some indication. Even at this scale it is possible to carve a "fancy" profile into the edge of each piece. A scraper was created using a brass sheet. The profile was filed into the brass and run along each edge of the knee 10 to 15 times. The end results are shown above. Each pass of the scraper tool was made with the lightest of pressure. If you press down too hard the wood will break or fray. Notice in the photo how the scroll of the upper cheek was extended above the top of the stem.

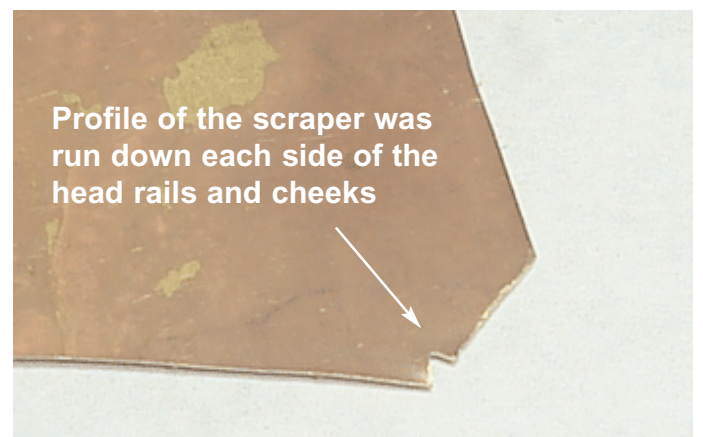


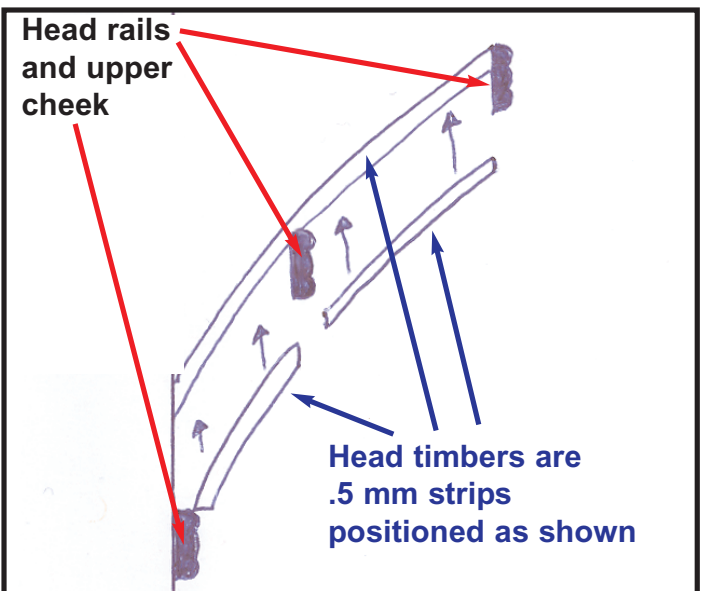
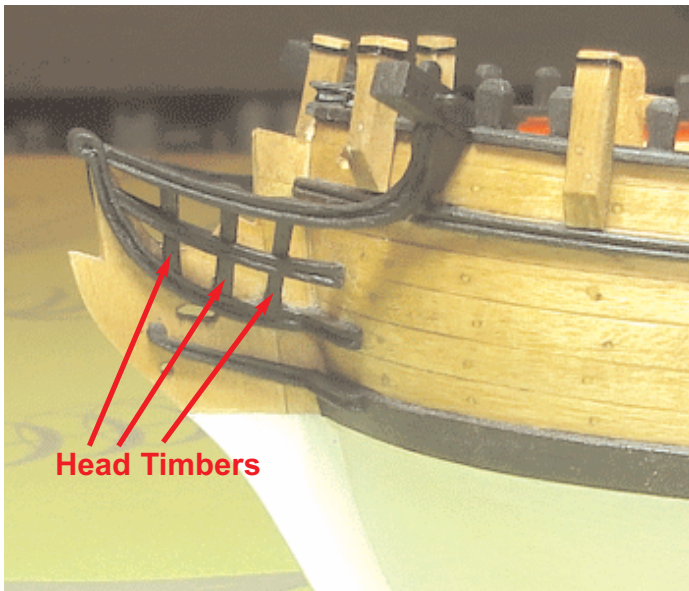
After the cheeks were glued onto both sides of the stem, I filled the void between them with some Elmer's wood filler. This was the same technique I used when filling the space between the Sculpey volutes earlier in the build. You may have noticed my generous use of wood fillers through out this project. I am very comfortable using it for many applications. You might not see other modelers using it as frequently but the end result is the only thing that matters to me. You will either be surprised when I use it or disappointed. But when the model is finally finished my hope is that no one would be able to tell how it was done.

I created the head rails next. The cheeks were the only portions of the head that I was able to trace directly from the plans. All of the remaining elements, including the head rails were shaped by testing and retesting. To make this process a little easier I used some 22 gauge wire to determine the curve of the upper and middle rails. See the photo above (left) where the wire has been placed

on the model. I was able to view the wire in place from a variety of angles and made small corrections until I was satisfied. The wire was removed and traced onto a sheet of basswood that was 1/8" thick. The extra thickness was needed for the portion of the head rail directly under the cathead. The head rail was cut free with a # 11 blade and sanded to shape. I used the scraper to create the molding profile and glued it onto the model. The head rails were painted black before they were permanently glued into position. I also notched the molding along the bow so the head rail would lay flat against the hull. The same process was repeated for the middle rail except the thickness of the basswood sheet was only 1/16". While gluing any of these elements onto the model I was determined to achieve a symmetrical appearance when the model was viewed from the bow.

It was finally time to create the head timbers. This is in my opinion, the most difficult part of the head to complete. If the model was built 50% larger it would have been much easier. Therefore I chose a simplified approach here.





The head timbers were created using thin basswood strips .5 mm thick. The strips were 2mm wide. I placed the first strip on the inside of the head rails as shown in the diagram above. Please excuse my crude rendering. After all three head timbers were glued into position I cut smaller strips which were glued between the head rails. I positioned them from the outside of the head rails as shown. They were glued to the outside of the three longer head timbers. This increased the thickness of the timbers giving them a more realistic appearance. I wouldn't have chosen this technique except for the fact that the head rails are all painted black. This helps hide the fact that the head timbers weren't carved from a single piece of wood. The small scale of this model makes it very difficult to carve them neatly.

molding that was glued along the hull. This profile can be made using a scraper similar to the one we used for the head rails. The area we need to shape is so small I decided to use a #11 blade to carve it instead.

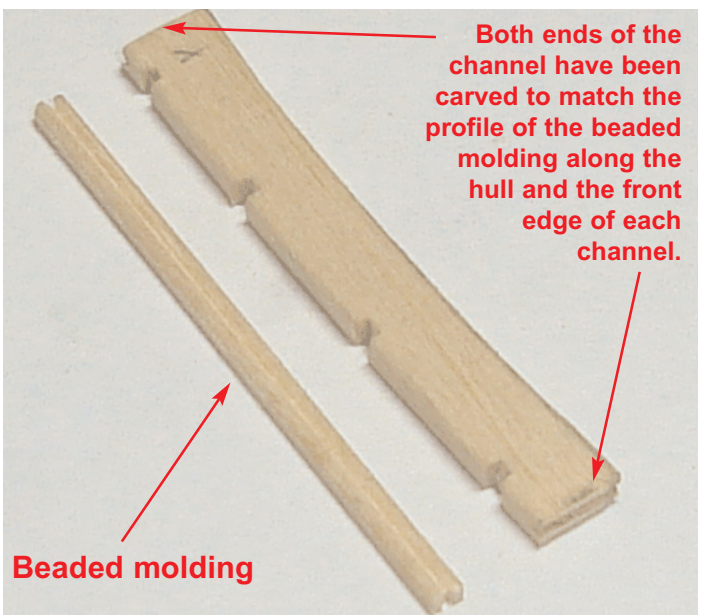
I carved little notches along the outside edge of each channel where the four deadeyes will be positioned. I used the plans to find their exact locations. These notches were cleaned up using a small needle file that was square in shape.

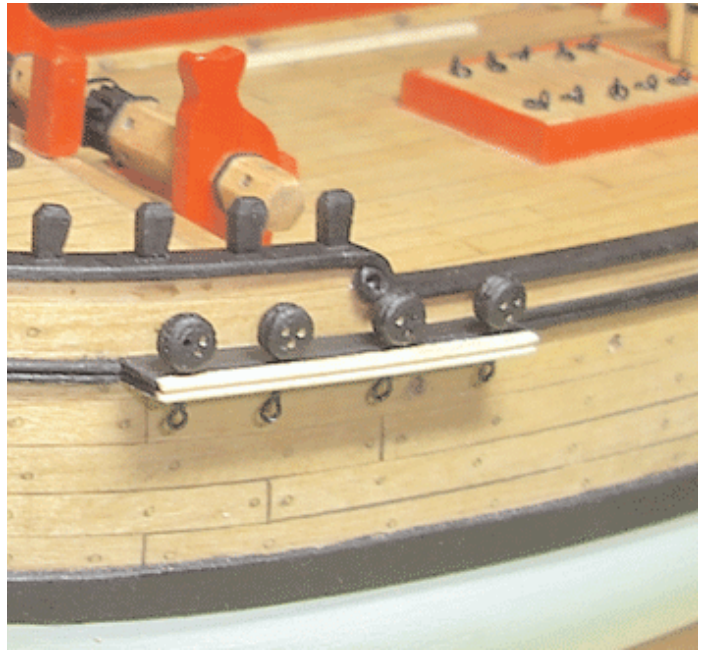
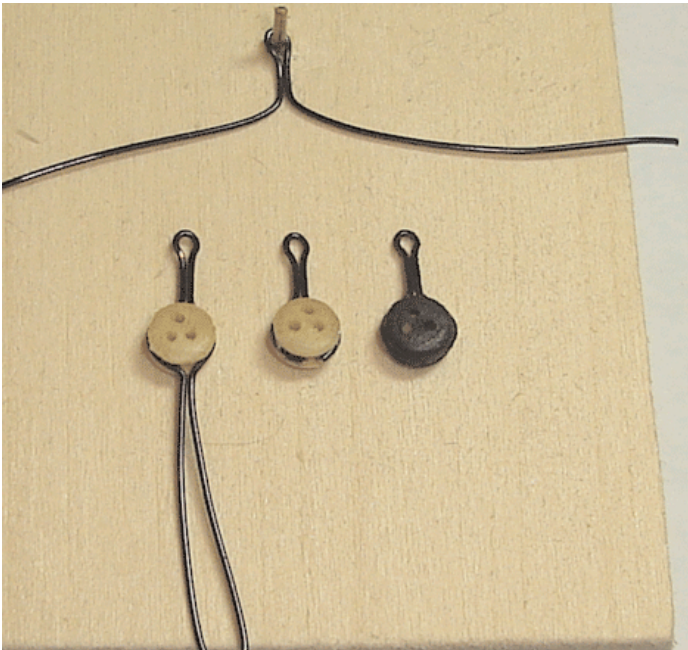
Once all four channels were completed I painted them black and glued them onto the model. The molding for the outside edge of each channel will not be used at this time. The deadeyes need to be stropped first. They will be placed into the

Channels and Deadeyes...

The channels were traced from the plans and transferred to a sheet of basswood 1/16" thick. When you trace the channels from the plans be sure to adjust the width of each channel. A beaded molding will be glued to the outside edge of the channel making it wider. Your initial tracing should be adjusted with this in mind. See the photo (right).

I carved both ends of each channel to match the profile of the molding we will be gluing to the front of each. This was the same double beaded





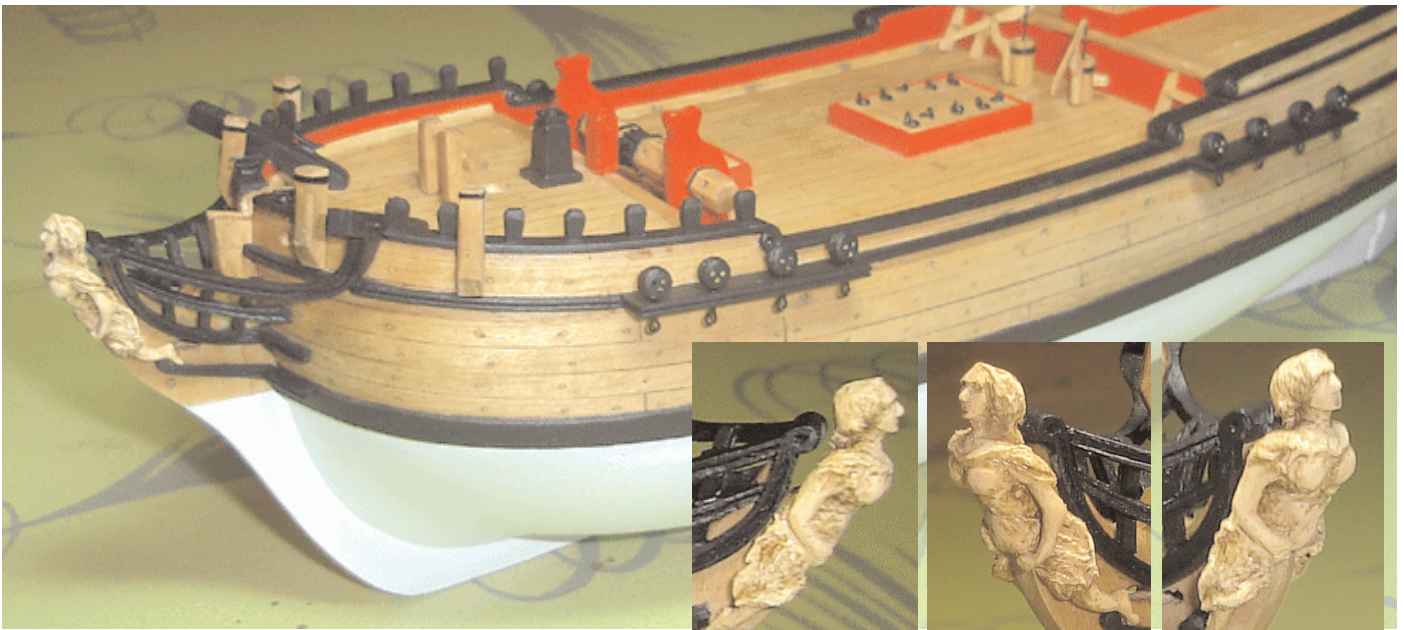
notches on the channels and the molding glued into position afterwards. See the photos above.

I built a small jig to help me prepare the deadeyes. The jig was just a block of wood with a small brass nail glued into it.. The head of the little nail was cut off so it would be easier to slip the wire strops on and off. I used 28 gauge black wire to create the strops for the deadeyes.

Using a needle-nosed pliers, I squeezed the wire tightly around the nail. This formed the loop which will be used for the chainplates later on. While still holding the wire with the pliers I bent the two trailing ends of the wire as shown in the photo above. At this point the wire was removed from the jig.

A deadeye can be held in position while you bend the wire around it. It should stay in place long enough so you can crimp the the other end with the pliers. The excess wire was trimmed with a pair of scissors. The assembly is essentially finished but the deadeyes should be secured further so they wont be pulled free while setting up the laniards. Some modelers will argue that the ends of the strop should be soldered together. I confess that I have never soldered anything for a model since I started building them. What I chose to do was apply some super glue (gap filling) along the entire outside edge of the deadeye. When they were dry I sanded them down a little and painted them black. I have never experienced a situation where a deadeye was pulled free while rigging





the shrouds. This is for me a simplified approach, but why complicate matters when it seems to do the job just fine. The deaeyes were placed into the slots on the channels and the strip of molding was glued over them.

The Figure Head...

The figure head for the Sultana was removed by the Royal Navy after it was purchased. It isn't clear if it was replaced with something other than the full length figure of a woman originally used. Even so, I will create a figure head using Sculpey. I think it will make the model more interesting. I also wanted to experiment further with using Sculpey. I am not an expert on sculpting with clay and can't offer you any tips or suggestions. I took many books out of the library on sculpture and decided to give it a try. Most of those books mentioned how a clay sculpture needs a wire skeleton. The figure head is only 1" tall and I concluded that a wire armature wasn't needed.

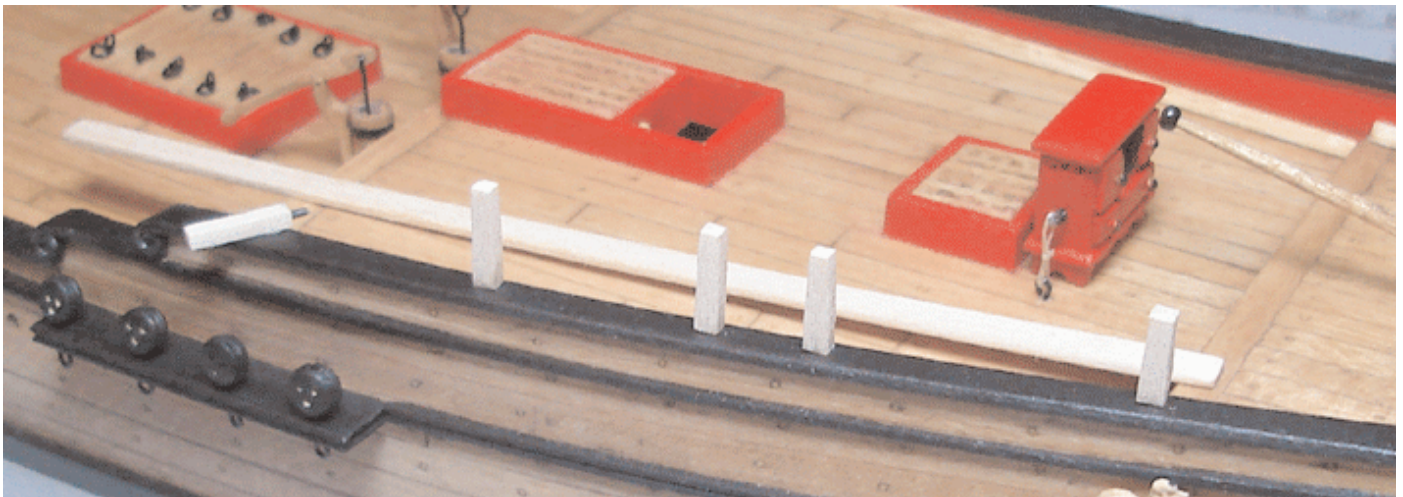
The Sculpey I chose to use was the same color as the quarter badges. I decided to sculpt the figure directly on the stem of the model. I admit this was a lazy approach. I had no idea if the Sculpey was going to stick to the model and be impossible to remove. The figure head needs to be removed when finished so it can be baked in the oven for 15 minutes. It will be baked at a



temperature of 250 degrees. I started by adding small pieces of Sculpey at a time. A small rectangle of clay was placed on the stem to represent the torso. To this I added the neck, head and legs. The arms weren't added until after I was satisfied with the details now being sculpted. I used a variety of tools including tooth picks, paper clips, and wooden dowels. After a few hours I was happy with the results so the arms were attached and the work continued.

I was surprised how easy it was to remove the figure head from the stem. It didn't stick at all. I placed it onto a cooking tray and baked it for 15 minutes. After it cooled I continued to fuss with it. I used a #11 blade to carve it further. Again, I was surprised at how beautifully it carved. If this had been a boxwood figure head I am sure it would have crumbled at the more fragile areas. The Sculpey held up nicely.

Finally it was glued to the model permanently and touched up with some paint. I used some warm brown acrylic paint to "antique" the sculpture. After applying the paint, I immediately wiped it off so only the cracks and crevasses were filled. This was my first attempt at this and there is clearly some room for improvement. Take a look at the cast metal figure head supplied with the kit. I think you will agree that this is a step in the right direction. I hope you will give it a try.



Poop Rails...

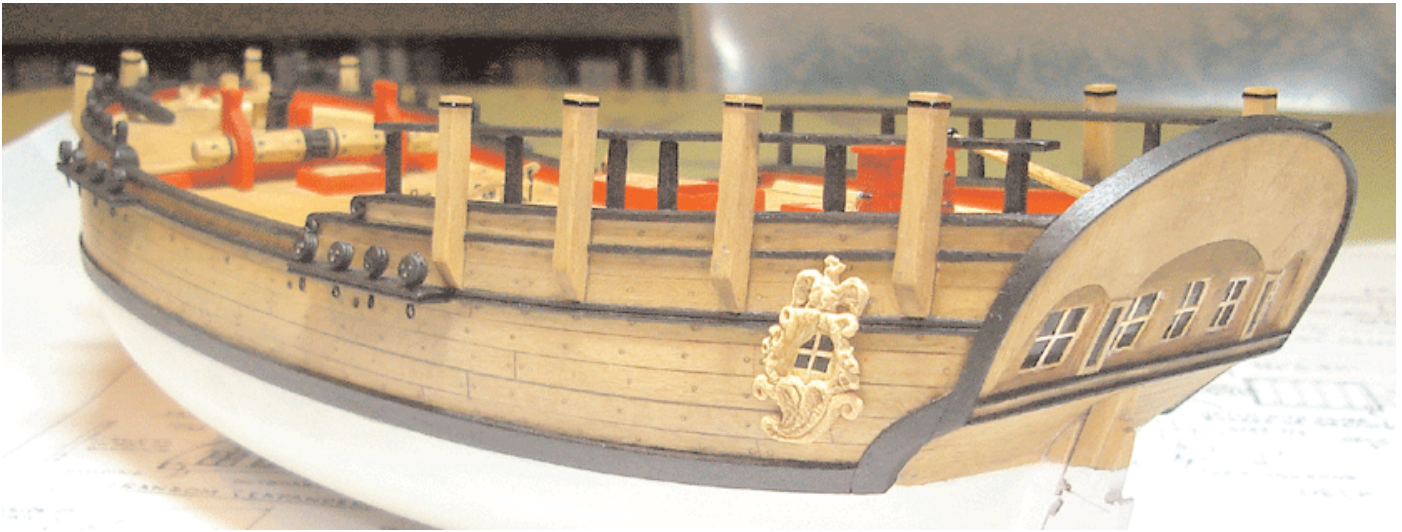
The rails for the poop and quarter deck are the last major project before building the masts and bowsprit. Building the rails was fairly straight forward. The first thing I did was create the cap for the rail. It was easier to do this now before the rail stanchions were installed. I used a basswood sheet that was 1/32" thick. The sheet was held firmly in place on top of the bulwarks so I could trace its actual shape. The cap for the poop rail will be an exact match. I wouldn't have been able to do this had the stanchions been in place. The edges of the cap were rounded with some fine sandpaper. I would prefer not to leave any hard edges. You can see the cap laying on deck in the photo above.

With the cap for the rail finished, I started building the rail stanchions. Basswood strips 2mm x 2mm were used. Place some reference points along the bulwarks where the stanchions will be placed. Take their positions from the plans. Please note

that the stanchions become shorter as the rail progresses towards the stern. The stanchions also have a slight taper to them. Each is larger at it's base and should be sanded as such.

When the rail is finished it will be very delicate. The stanchions need should be reinforced so they don't break free later. To do this, I placed a pin (22 gauge wire) into the bottom of each stanchion. I pre drilled a hole then glued the pin in position. See the photo above. Corresponding holes were drilled along the bulwarks to accept these pins. I didn't glue any of the stanchions in place permanently. I pushed them into the holes so I could double check their height first. I placed the cap for the rail on top of the stanchions in order to see if they required some adjustments. Only after I was satisfied did I glue them in place permanently. You might notice that I didn't pin the cap to the rail stanchions. Super glue will be sufficient here. If the rail was going to break free it would do so at the base of each stanchion. The completed rail is shown below. It





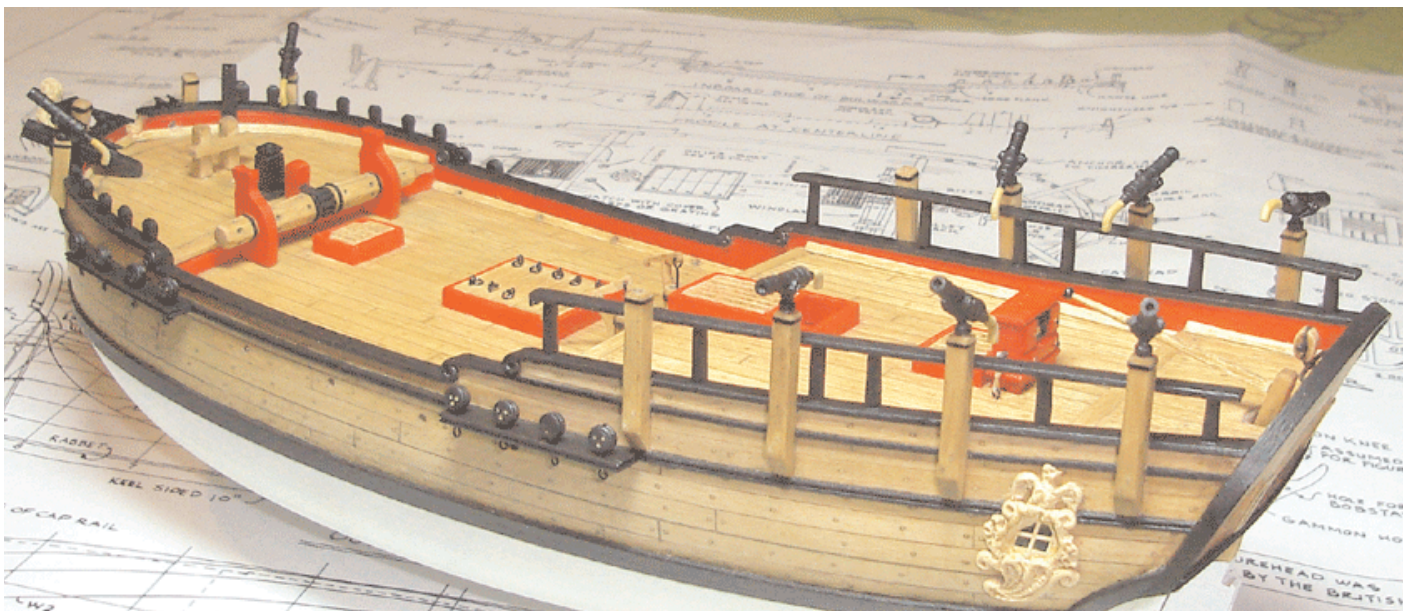
was painted black. It is also worth mentioning that the stanchions were placed at a right angle to the waterline. They should be straight up and down. I have seen many completed Sultana models that had the stanchions and gun stocks raked drastically towards the bow or stern. The plans clearly show the vertical orientation for both. This is a simple observation which seems to be over looked often.

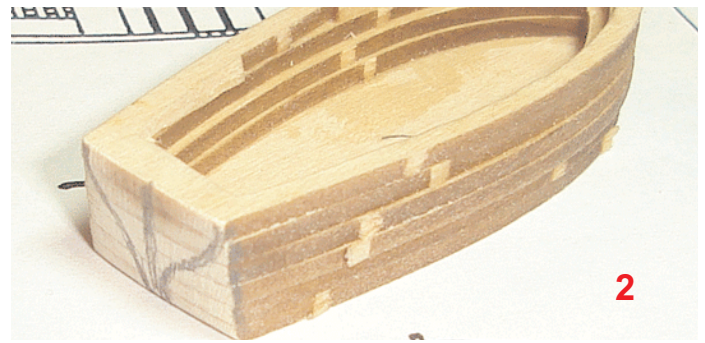
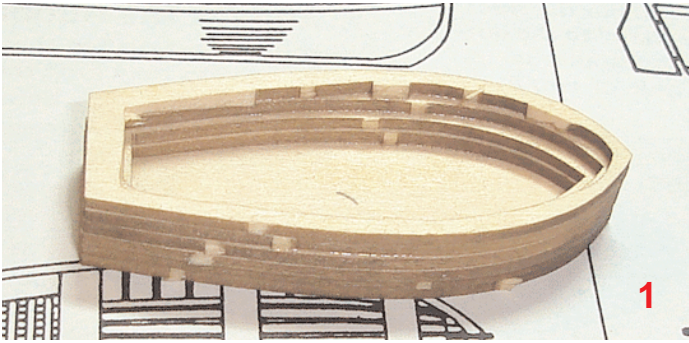
Gun Stocks and Swivel Guns...

I added the swivel gun stocks along the quarter deck rail. The location for each of them was taken from the plans. They were made the same way that the four gun stocks were created along the bow (only these are longer). After they were shaped I chamfered the two outside edges to

give them more detail. A thin length of pinstripe tape was wrapped around the top of each stock to simulate the iron band. I also drilled a small hole into the top of each gun stock to accept the swivel guns.

Rather than notch the gun stocks, I decided to notch the molding along the hull before gluing them on permanently. Their locations were carefully established before the notches were made. I haven't decided yet if I will paint the gun stocks black or keep them stained as shown in the photo above. I realize that most of the images and models show the stocks painted black but I really like the way they look this way. After I glued them to the hull, several treenails were simulated for the gun stocks the same way I did for the hull and deck planking. See the photo above.





I was going to scratch-build the swivel guns. After close examination of those supplied with the kit I felt they were satisfactory. I'm not thrilled with them, but after I clean them up they will look just fine. I weighed the time needed to build new ones from scratch vs. the time saved if I used them. The difference in appearance would not warrant such a time expenditure. I used some sand paper and files to remove the casting marks. The handles for the swivel guns were too thick for my tastes so I carefully thinned them down. I painted them black and did my best to match the handles to the color of stained wood. The Sultana carried only eight swivel guns. I placed six of them along the quarter deck rail and the two remaining at the bow. See the photo provided on the previous page.

The Ship's Boat...

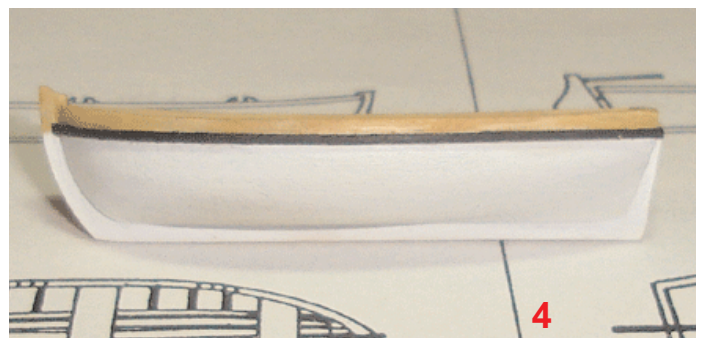
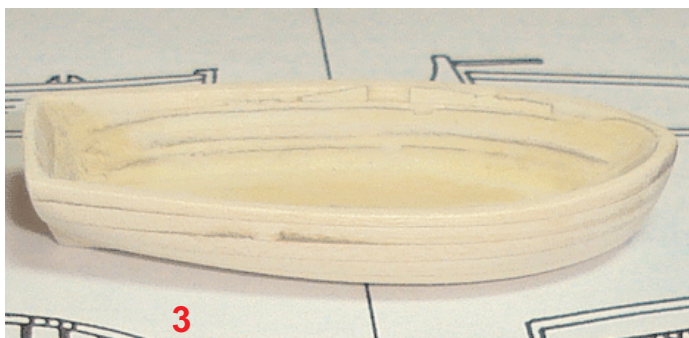
The Sultana clearly carried a small boat. It was most likely a small yawl or "jolly boat". I have been researching how this boat would have been secured on deck. What surprised me was the lack of information available. Not only with the kit but with all of the plans and drawings I have for the Sultana. In my opinion the boat would have been towed behind the Sultana and only stored on deck during long voyages. I was going to build the model without it but have given it a second thought. I don't pretend to be a naval histori-

an but will try to document my decisions here because I know how frustrating the lack of information available can be. Take it all with a grain of salt and decide for yourself if this makes any sense.

I have been looking at the small laser cut lifts supplied with the kit. I am very curious how fine a boat these pieces will make. Rather than scratch-build one I will give the "mini-kit" a try. If it turns out horrible I can always build another one afterwards. I will of course build it differently than described in the instructions.

First, there are seven lifts supplied. The instructions say to glue only 4 together and add the remaining 3 later in the building process. I threw caution to the wind and glued six of the lifts together. I removed the seats (thwarts) from lift # 5 because I will add more realistic thwarts later. Look at the photo on the cover of the instruction manual. The boat has a strange shape. It looks too high and "boxy" in my opinion. In an attempt to remedy this I will only use the six lifts mentioned. See photo #1 above. The lifts were glued together with super glue.

Once dry, I established the correct angles of the bow and stern. The bow was rounded under and the stern was raked. When I was satisfied I established a center line down the bottom of the

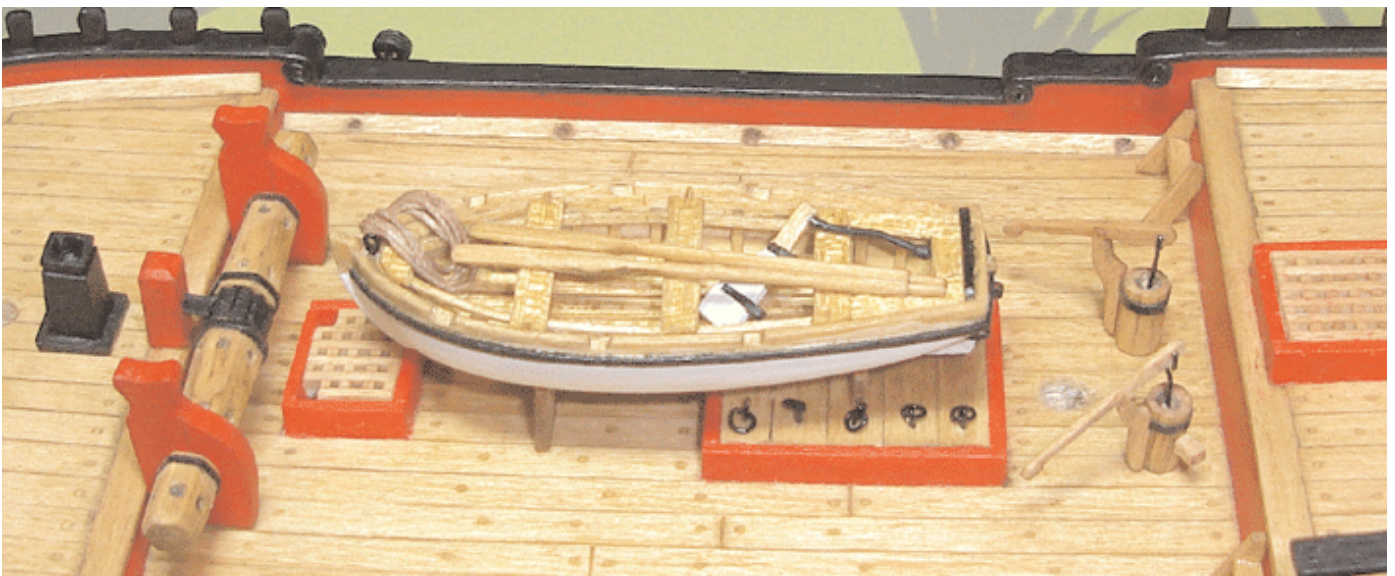


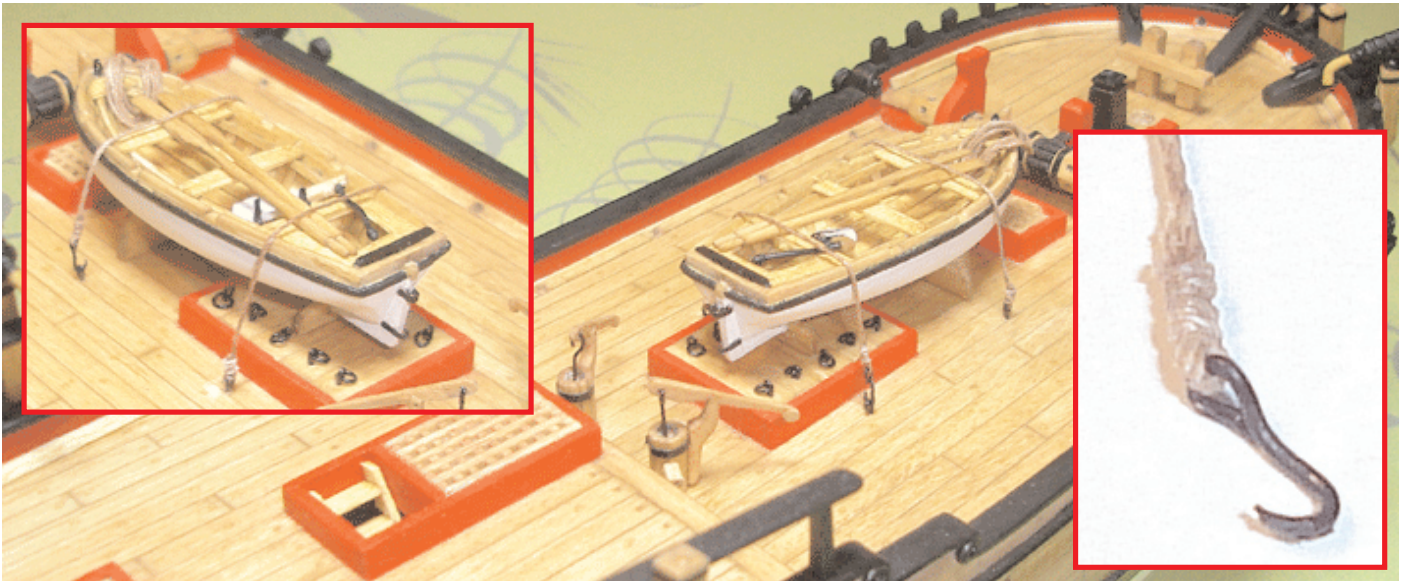


boat (along the keel). I carried this line up the stern and bow as well. The general shape of the stern was drawn as you can see in Photo #2. An Xacto blade (#11) was used to rough- carve the boat's shape. I started working on the outside of the hull first (opposite of what the instructions say). Using various grades of sandpaper I managed to shape the hull to a satisfactory appearance. The sides of the hull were very thin in some areas and left little room to carve the interior. To solve this problem I coated the interior of the hull with wood filler and allowed it to dry. Not only did this build up the thin areas of the hull but it rounded the bottom as well. I was worried that the boat would look too flat-bottomed. I carefully sanded the interior of the boat until the sides were 1/32" thick. Photo #3 shows the boat after I completed this stage of the project.

Rather than fitting the interior of the boat with details I decided to paint the exterior first. Several coats of paint were used to get a finish I was satisfied with. I wanted to get the first coat out of the way. The color scheme chosen was a simple one. I added a thin strip of molding 1/16" below the top of the bulwarks. This molding was painted black. I painted it before gluing it to the hull. The hull below this molding was painted white. Everything else including the interior will be stained "Golden Oak". Photo 4 shows the boat after the first coat was painted.

Progress on the interior went smoothly. The bottom of the yawl was 'flat-bottomed' even though I used some wood filler to round it off. To compensate for this, I decided to fake the boat's frames. Normally the frames would be steam bent to span across both sides of the hull. Because the bottom is so flat this wasn't possible. Instead, I cut some .5 mm thick strips of bass wood to use as the floor boards and glued them into position. Five strips were used as shown in photo 5. A small space was left





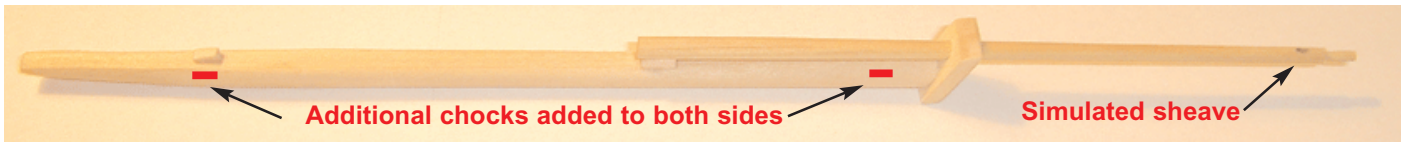
between each floor board. Then the frames were glued individually along the boat's sides. They simply rested on the edge of the floor boards. Basswood strips .75 x .75 mm were used for the frames. The frames were spaced about 1/8" apart. You can see one side of the frames completed in the same photo # 5. Also note that the frames do not extend to the top of the bulwarks. Each frame terminates about 1/16" below the top edge.

In photo 6 the risers were added. The riser is the strip of wood shown glued across the frames. The thwarts (seats) will rest on top of these risers. Basswood strips .75 x .75 mm were used for the risers. I added the thwarts as shown in the same photo. The thwarts were made from .5 mm thick strips. To finish it up I used thin brass strips to simulate the gudgeons for the rudder. These strips were painted black. The yawl will be placed on some cradles and lashed to the deck. It will be located over the main hatch. To make it more interesting I made some small accessories which were placed in the boat. I made a small rudder with pintles (small brass strips). The tiller for the rudder was made using a length of 22 gauge wire painted black. It was inserted into a pre drilled hole in the rudder. Two oars were made using the plans as a guide for their size and shape. A tow rope was coiled neatly with one end seized to an eye bolt in the stem. See the photos showing the boat completed and lashed to the deck. Normally the yawl would have been towed

behind the Sultana. It would only be stored like shown on long journeys. The Sultana is a small ship with little room on deck for the sailors to move about. Even though this is the case, the yawl makes the model more pleasing and interesting to look at. The cradles used to store the boat are different sizes. A larger cradle was used under the bow to lift the ship above the height of the main hatch. A smaller one was placed on the center cover board of the main hatch. It was used to stabilize the keel of the boat and doesn't need to be very large. The yawl will be lashed tightly to the deck.

The boat was lashed to four eye bolts glued into the deck. The eyebolts were placed alongside the boat's cradles. See the photo above. The rigging I used was .018 tan rigging line from Model Shipways. Two hooks were fabricated out of 28 gauge black wire. I used a needle nosed pliers to bend the wire into shape. One end of each lashing had the hook seized to it. A close up of a seized hook is also shown above. After I hooked the eyebolt, the remaining free end of each lashing was seized directly to the eye bolt on the opposite side of the boat. I alternated the lashings so a hook would be visible on both sides of the model.

Tan rigging line was used for all of the running rigging on this model. I don't like the fact that it looks so new and clean. Before the lashing was placed on the model permanently, I pulled the line through an oil pastel. I use oil pastels in



place of beeswax. You can choose any color to your liking which will add some depth to the rigging lines. I chose a warm brown oil pastel. After you run it through the pastel, pull the line through your fingers to even it out. The color will settle in between each strand of the rope giving it a richer appearance. The oil pastels are very soft and also “knock” down any fuzz on the line. A yellow ochre oil pastel will be used to achieve the same results on the black standing rigging for the model. I will be using 3 diameters of rigging line for the model (.008, .018, and .028). I purchased them from Model shipways in two colors (black and Beige) for the running and standing rigging. The kit doesn’t come supplied with enough variety and if you really wanted to strive for accuracy, up to 6 different diameters of each color could be used. The rigging plan shows the true scale diameter for each line to be rigged. Based on these measurements I carefully marked the plan with the size line I want to use. This will make it easier for me when the rigging begins. I prefer not to contemplate which size is more appropriate along the way which would slow me down.

Bowsprit and Jib Boom...

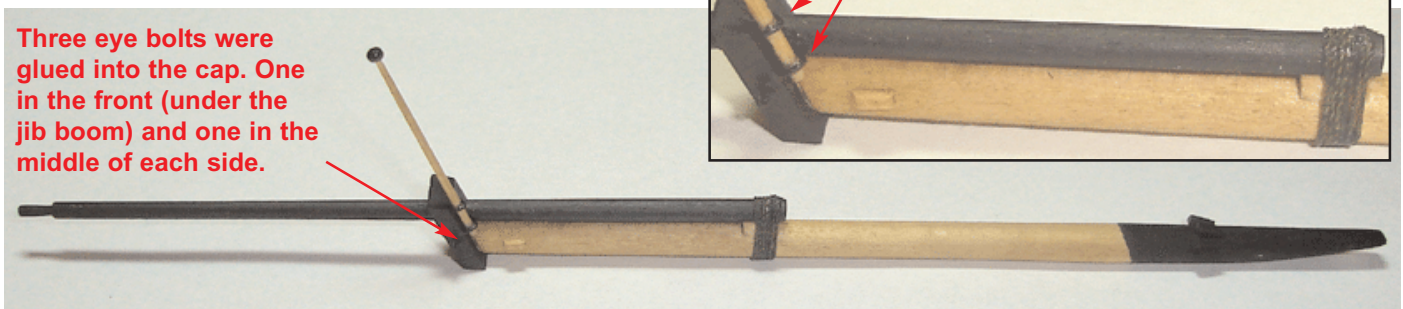
The rigging plan has all of the measurements and construction details for the masts and spars. I followed these plans but have also made a few changes along the way. These changes will be noted as I proceed. I made the bowsprit from a length of wood that was square. It was easier for me to create the eight sided portion of the bowsprit from square stock rather than a round dowel. I used a #11 blade to shave the eight sided portion to shape and afterwards it was

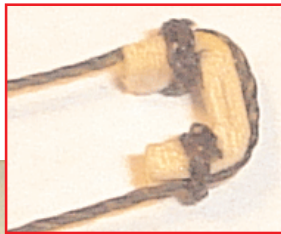
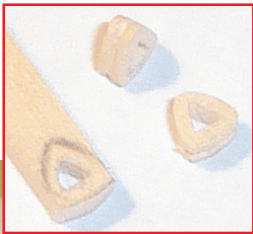
cleaned up with some sandpaper. The plans indicate that the inboard portion of the bowsprit was square and then progressed to eight sided. I did not create it this way. That end of the bowsprit was made entirely octagonal.

When I was satisfied with the eight sided end of the bowsprit, the forward end was rounded by hand using sandpaper. The eight sided detail is difficult to see in the photograph above but should be clearly visible. I established the proper angle of the inboard end and test fit the bowsprit in place. Small adjustments were made until the bowsprit sat with the correct rake as shown on the plans. The notch in the bow may also need some tinkering in order to establish that angle. Then I carved a tenon into the forward end of the bowsprit so it could be slipped into the hole of the cap.

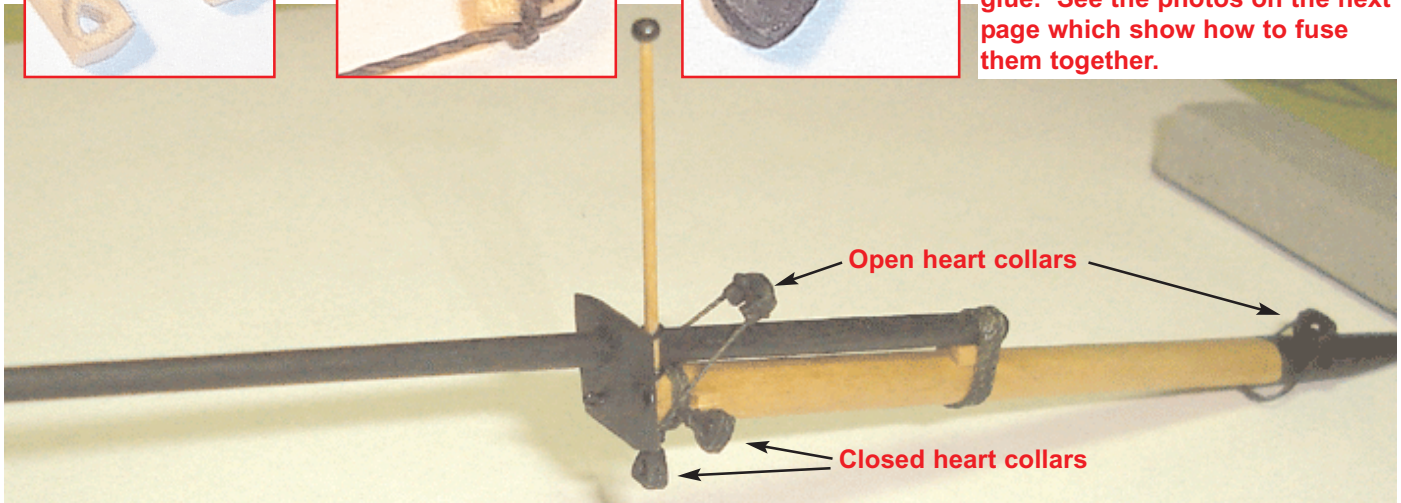
I added the small chocks to prevent the bowsprit gammoning from slipping. One chock is shown on the plans but I used three. An additional chock was glued along side the original as shown with a red line in the photo above. Another pair of chocks were glued into position just aft of the cap (one on each side). These prevent the bobstay and shroud collars from slipping and were not shown on the plans. The replica in Maryland was rigged this way and it was a generally accepted practice at that time.

I made the cap and jib boom next. These were easily made using the plans as a guide. A tiny





Collars for the closed hearts (bobstay and shrouds) were rigged to the bowsprit by fusing the ends of the collar with super glue. See the photos on the next page which show how to fuse them together.



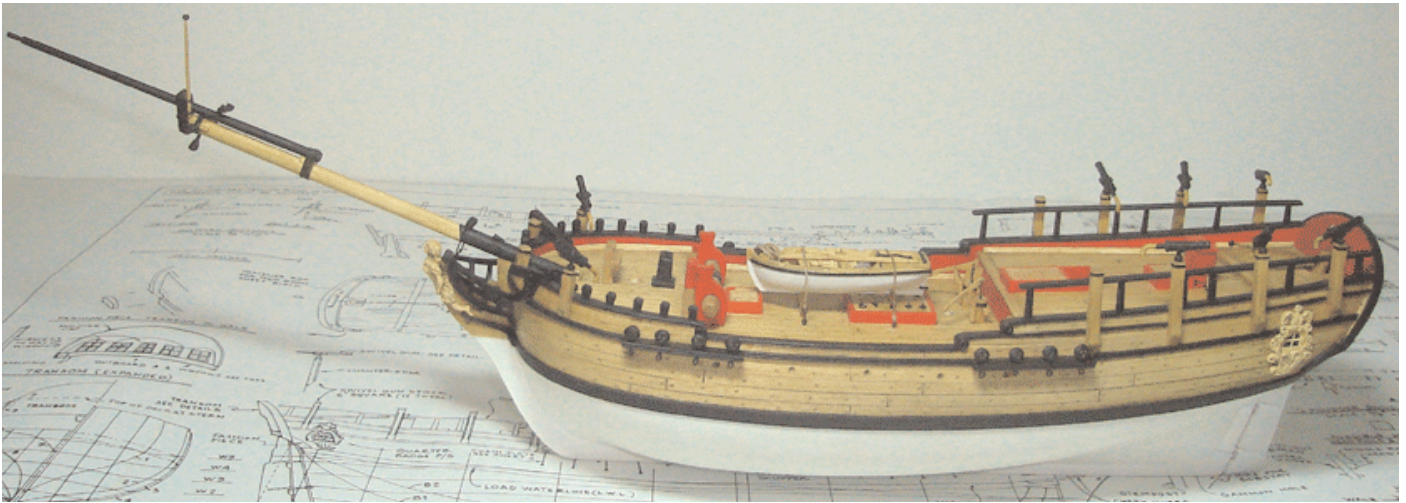
sheave was simulated in the forward end of the jib boom. Two holes were drilled through the jib boom .75 mm apart. The space between each hole was recessed. I used the tip of a nail to form the recess between the holes. This did a good job of simulating a sheave, especially for one that is this tiny. The jib boom was slid through the upper hole of the cap and rests atop the "saddle" or "jib boom rest" as it's called. This completes the initial assembly of the bowsprit. I painted and stained the individual pieces before I glued them together. You can see the color scheme I chose in the photos that follow. This is a personal choice and you may opt to use a different approach.

Some additional details were added before I glued the bowsprit onto the model. Three eye bolts were made out of 28 gauge black wire. One of these was glued into a pre-drilled hole in the front of the cap. This eye bolt will have a single block seized to it. It will be used for the tackle of the outer jib stay. The two remaining eye bolts were glued into the side of the cap (one on each side).

I lashed the jib boom to the bowsprit with .018 black rigging line. The line was treated with a yellow ochre oil pastel as mentioned earlier. These details can be seen in the photographs. The jack staff was added to the assembly next.

A dowel was hand-sanded to the correct diameter. It was tapered to a slender point and a small black bead glued on it's tip. The bead was used to simulate the ball cap of the jack staff. The jack staff would have been secured to the inside of the bowsprit cap. I bent two small lengths of 28 gauge wire into a "u" shape and glued them onto the jack staff. This was done before the jack staff was glued onto the cap. After the staff was finally glued to the cap it looked as though the "brackets" were drilled into the cap which was the impression I wanted to simulate. I decided not to paint the jack staff at this time and will live with the stained finish for now. I will complete more of the model before I commit to painting it black.

The collars for the bobstay, shrouds and stays were also added to the bowsprit before it was glued onto the model. You will need three closed hearts and two open hearts for these collars. I used a bass wood strip 1/8" wide and 1/16" thick to create the closed hearts. The finished hearts are 3.25 mm on each side. I started by drawing the outline of a heart on the end of the strip. Through this I drilled the center hole of the heart. The hole was shaped further using a needle file to obtain it's triangular shape. Only after I was satisfied with the shape of the hole did I cut the heart free from the strip. To finish it up I filed a groove along the edges of the heart with another small file. This isn't a quick process. We will



need many hearts for the model. I only needed three for this procedure so they were the only ones I made. The same process was used to create the open hearts but they will be larger. The open hearts were 4mm on each side. See the photos on the previous page.

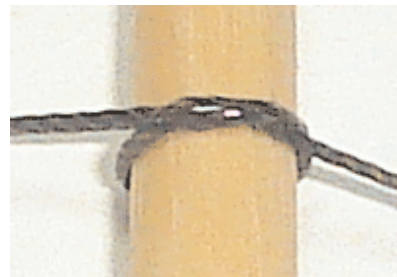
Black .018 rigging line was used for these collars. You can see how they were seized to the hearts in same photos. The hearts were all painted black. Please note on the plans that the collar for the bowsprit shrouds have two hearts. I decided to create individual collars for both of them instead. Once they are rigged on the bowsprit that detail would be lost do to the models small scale. Because of the small scale I also opted not to form small eyes in the ends of each collar. I simply used super glue to fuse the ends of the collar together neatly. I didn't tie a double knot. This would have looked sloppy. I crossed the ends (1/16" overlap) and applied the glue along the seam where they overlapped. I used a scrap piece of 28 gauge wire as my applicator. A drop of glue was placed on the tip of the wire and neatly applied to the seam of the collar. This is more than sufficient and is quite strong. The super glue soaks into the thread and both lines fuse together as one.

The shroud collars were also placed on the bowsprit followed by the two open heart collars. The open heart collars were left longer than the others. They won't be permanently glued to the bowsprit. They will hang loose until their partner hearts are secured with a laniard. You could add these later but I found it easier to do so at this

time. The bowsprit can now be glued into it's final resting place on the model. Be careful and try to establish the correct angle and position before the glue dries. The photo above shows the bowsprit glued onto the model.

How to Fuse a line together with super glue

1. Make a simple overhand knot. Not a double knot. Just criss-cross the line once.



2. Apply glue neatly to the seam with an applicator. Allow it to dry fully. The glue in this photo is not dry and appears shiny

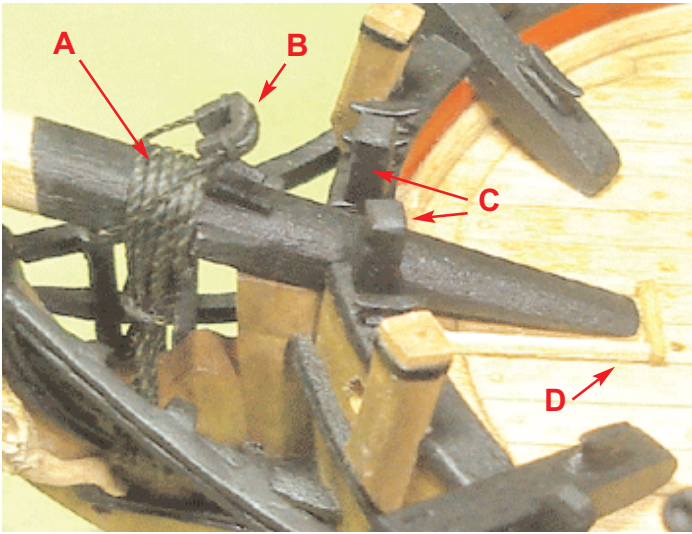


3. Cut off the loose ends with a very sharp blade.



This is a double knot. This should not be used for your collars.

- A. Bowsprit Gammoning
- B. Fore Stay Collar
- C. Knightheads
- D. Framed bowsprit with .75 mm bass wood strips



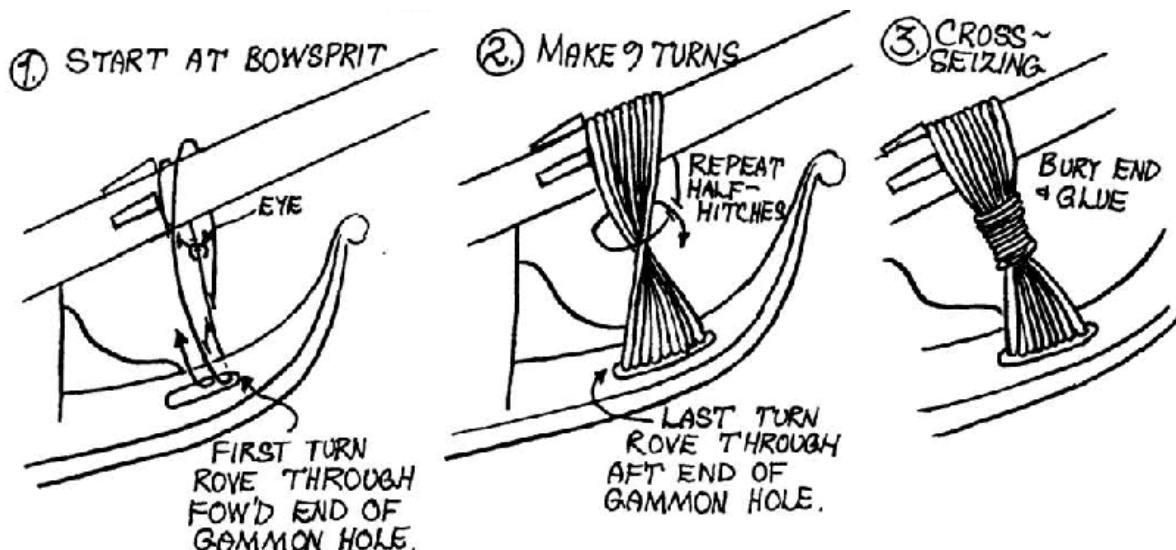
Now that the bowsprit has been glued onto the model I can finish up some additional details. The knightheads were made from 3mm x 3mm strips of wood and glued on the cap rail. One was placed on each side of the bowsprit. You can see them in the photo above. I used a round needle file to create the detailing around the top of each knighthead. I painted them black. Afterwards I used .75mm x .75mm strips to frame the inboard end of the bowsprit on deck.

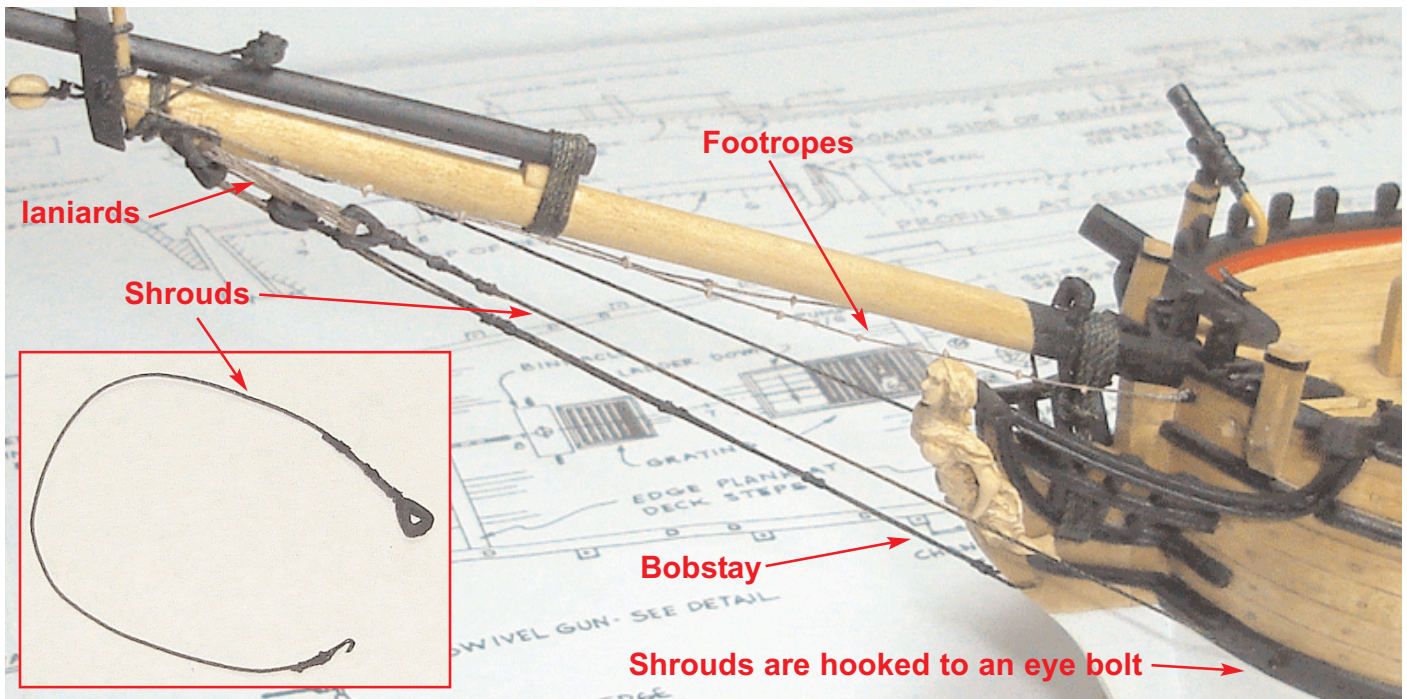
The gammoning for the bowsprit was done with .028 black rigging line. Detailed instructions on how to set up proper gammoning is not provided in the kit supplied manual. There is however a

very well done illustration in the kit supplied manual for Model Shipways Fair American. This manual is available for download in PDF format from the www.modelexpo-online.com website. I have reproduced that illustration below and highly recommend that you take a look at the entire section on rigging there. The Fair American kit is a larger scale but is rigged using similar modeling techniques. It is interesting to note how such detailed information varies from one kit to another. I guess the Sultana kit contains less detail because it is considered an entry level project.

I seized a small eye into the end of the rigging line and followed the procedures shown in that illustration. Please note how the fore stay collar on my model was positioned on the forward side of the bowsprit gammoning. The kit-supplied plans have that collar positioned close to the hull next to the stem. I decided to change its location based on where it was located on the replica in Maryland in addition to other sources. You can go either way and it would be considered accurate depending on whom you talk to.

Much of the standing rigging on the Sultana was served. Certain rigging lines were wrapped entirely with a smaller rope and then coated. The serving protected the rigging line from getting chaffed by the sails and damaged by other lines that might come in contact with them. On a larger model it is possible to show this level of detail. Our model of the Sultana may be too small for many of us to show served lines neatly and accu-





rately. I have decided not to serve the standing rigging for this model. I think that the served lines would look too heavy. You would need to start with a .018 line or smaller in order for it to look good after the serving was completed. That size line would not be thick enough to use for the shrouds where only a portion of them need to be served.

The bobstay was rigged with .018 black rigging line. It is doubled along its entire length. I seized the end of the line around a heart. Three additional hearts were carved for the bobstay and shrouds. Another seizing was made around the doubled stay 3/4" from the heart. One loose end was left generously long. The other was trimmed close to that seizing. I reeved the long end through the hole in the stem. I used an alligator clamp to hold the bobstay at the stem while I established the correct distance between the heart and its collar. I left a space just over a 1/4" between the two hearts. After I established that distance the bobstay was seized at the stem. I placed additional seizings along the entire length of the bobstay which was doubled. It was finished with a laniard as shown. (Tan .008 rigging line was used for the laniards)

The bowsprit shrouds were added next (.018). There is one on each side of the bowsprit. The

shrouds will have a tiny hook seized into one end and a heart on the other. You can see one of the shrouds in the photo above. The hook will be placed into an eye bolt glued on the hull. Take its position from the plans. It should be placed into the wales. The heart was placed at the opposite end with three seizings. As before, the hearts should be spaced about 1/4" from its partner on the shroud collars. The easiest way to establish the correct distance would be to hook the end of the line into the wales first. Use an alligator clamp to hold the heart on the other end. You can make any adjustments with the clamp in place. When you are satisfied with the placement of the heart unhook the shroud leaving the alligator clamp in place. With the clamp in place you will still be able to seize the heart permanently with some sewing thread. It was finally secured with a laniard after it was hooked to the eye bolt.

The footropes were finally added to the model. I seized one end of the footrope to an eybolt and then glued that eybolt into the bow of the model. I used .008 tan rigging line for the footropes. The other end was seized to the eybolt on the side of the cap. Dont pull the foot rope taught. Instead leave it loose so it hangs as shown in the photo above. To finish it up, tie some knots along the entire length of the footrope at 1/4" intervals.



A: Fore Mast completed B: Main Mast unpainted C: Boom Rest D: Unpainted mast detail (fore and main mast)



Constructing the Masts...

The main and fore masts are virtually identical. At least as far as the construction process is concerned. The differences between them consist mainly of the lengths for each mast and the positions of the blocks and eye bolts. The main mast will also have a boom rest. Once again, the many blueprints I have for the Sultana vary considerably with regard to their details. I followed the plans that came with the kit making only a few changes. I must note that the wooden dowels supplied with the kit were inferior and warped. They had many knots as well. I replaced them with some beech dowels that I bought at a local art supply store.

I started by tapering the lower masts. I carefully measured and cut a dowel to length. I added a 1/4" to create a tennon that will be inserted into the deck when the mast is stepped. I almost always taper my masts and spars by hand. I prefer the feeling of having more control over shaping them. It may take a little longer but I haven't found another method that makes me feel as comfortable. If you prefer, the dowel can be chucked in a power drill. Turn the drill on and use some sandpaper to taper the mast as it turns. After the mast was tapered to my liking, I began carving the tennon and squaring off the mast head. A #11 blade was used to rough cut the squared portion of the mast. I eventually used some fine sandpaper to smooth out the rough spots. The edges of the squared portion were chamfered as shown on the plans. An

additional tennon was carved at the top of the mast which will be inserted into a corresponding hole in the mast cap. This tennon was square and not round like the tennon carved at the foot of the mast. See the photo provided.

When both lower masts were finished I added the details to them. The boom rest was added to the main mast. The plans show the boom rest as completely encircling the mast. I have decided to show the boom rest on the aft most side of the mast only. Half of a complete circle was carved from a basswood sheet. The sheet was 1/32" thick. Under this I glued three chocks to support the rest which were made from 1 mm square strips. The fore mast does not have a boom rest. After a little research I added a small chock on the aft side of the fore mast. Harold Hahn uses these on his schooners to prevent the mast hoops from sliding down the mast and resting on top of the mast cleats. You can see it in the photo provided. This detail is not shown on the plans.

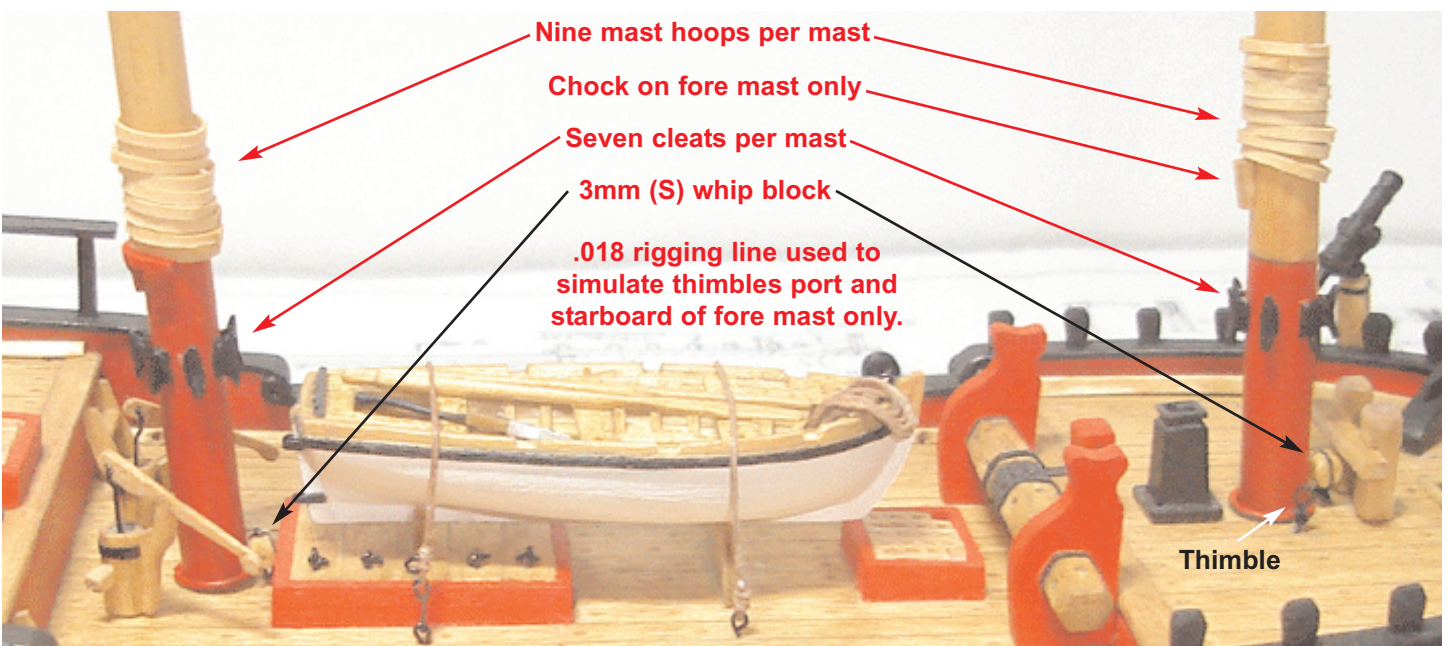
Seven mast cleats were glued around each mast. I cleaned them up with needle files as mentioned earlier in this guide. They were painted black and glued into position. The bottom of each mast was painted red before I glued the cleats in place. I also painted the squared portion of the mast heads black before proceeding to construct the mast caps and trestle trees.

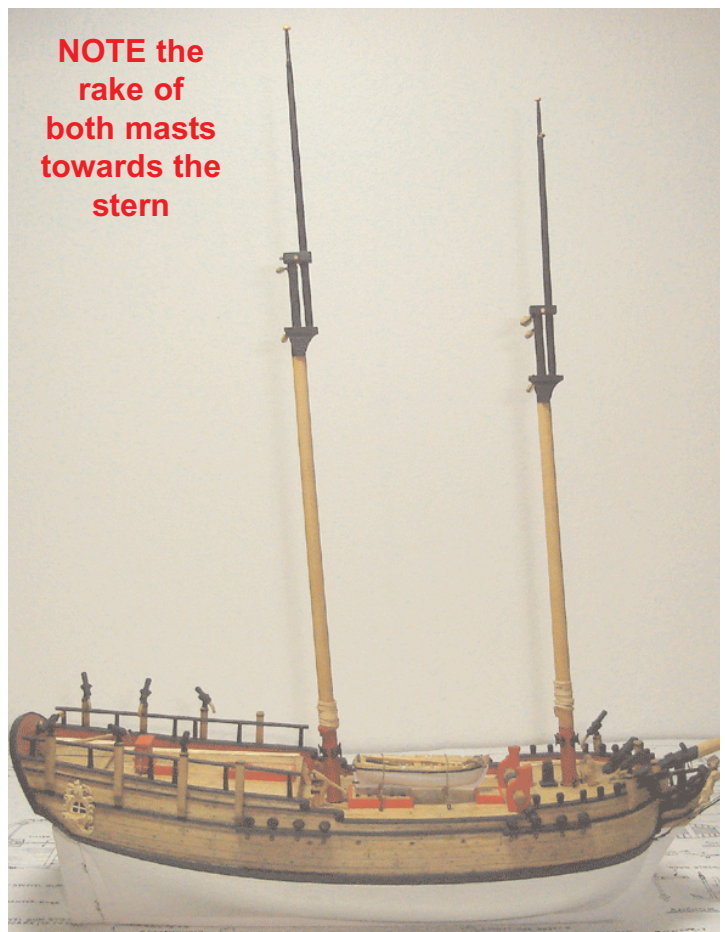
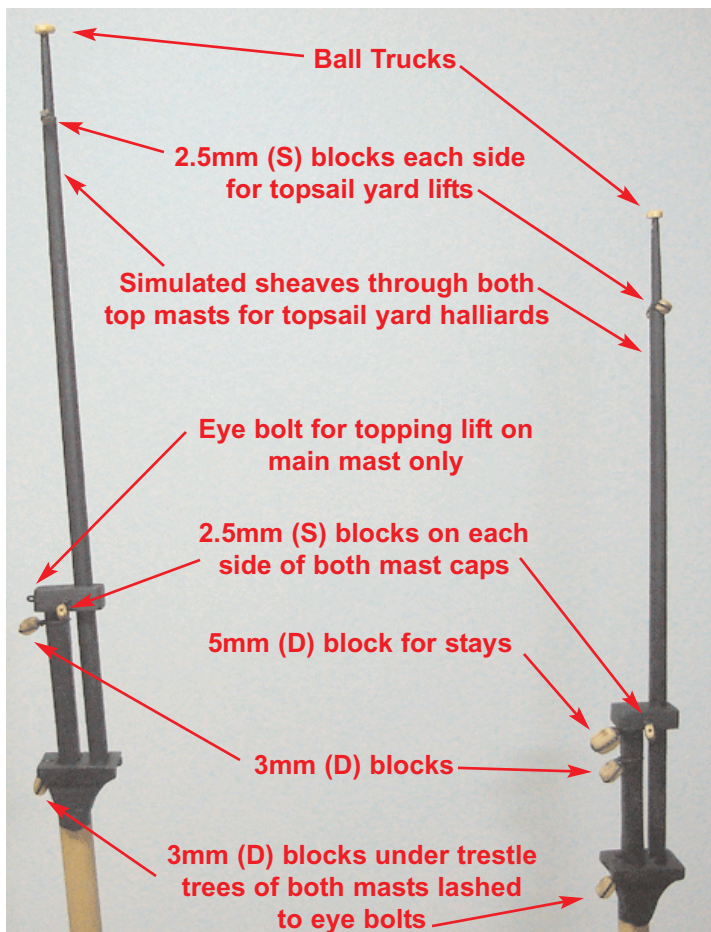
I did not use the cast trestle trees and caps provided in the kit. I made new ones from scratch. The trestle trees were easy to build. I traced the



shape of the bibs from the plans. They were cut from a 1/32" bass wood sheet. A thin strip was glued along the outside top edge of the bibs as shown in the accompanying photo. Slots were cut along this upper edge to accept the three strips of wood to complete their construction. I did not use the plans to establish the width of the trestle trees. Instead I used the lower masts as a guide to ensure they fit properly. A small eye bolt was glued into the bottom of the aft trestle tree brace. This eye bolt will be used for the gaff rigging. A double block was seized to this eye bolt. The trestle trees were painted black and set aside while I created the caps. The caps were made the same way that the bowsprit cap was earlier. One square hole and one round hole were drilled and shaped. Small eye bolts were glued into the sides of the cap for the yard lifts. Tiny single blocks were seized to these eye bolts. The main cap will also have an eyebolt glued into its aft edge for the topping lift. The caps were

also painted black. Don't glue these to the lower masts yet. You will have to create the mast hoops first. Nine mast hoops were made for each mast. I have decided to rig my model without sails so the hoops won't have to be very strong. The easiest way to make good looking mast hoops is to make them from stiff board. I used a plain manila office folder. It has a great creamy color that resembles the color of the bass wood we are using. The folder accepts stain well. I cut several strips 1mm wide from the folder. The strips were stained and cut to length. Each strip was 27mm long. I simply wrapped a strip around a wooden dowel that was slightly larger than the diameter of our lower masts. I over lapped the ends of each strip and used super glue to form a tight connection. Apply this glue with an applicator so the finished hoop doesn't stick to the dowel. The finished hoop should slide off easily. You can see the hoops in the photos throughout this chapter.





Only after you slide the finished hoops onto your masts should you glue the trestle trees and caps permanently in place.

The top masts can be tapered and shaped as we did with the lower masts. The heel was squared off and the top of each mast was shaped as shown on the plans. Afterwards a small sheave was simulated as detailed on the plans as well. This sheave will be used for the top sail yard halliards. A small ball truck was carved from a bass wood strip and glued to the top of each mast. This should have a sheave drilled through it for the flag halliard. Unfortunately the ball would crumble if you tried to drill through it. I will use another approach to rig the flag halliards. The rigging plan shows small single blocks seized to the mast but this is not historically accurate. I drilled a tiny hole through the top of the mast (just below the ball truck) instead.

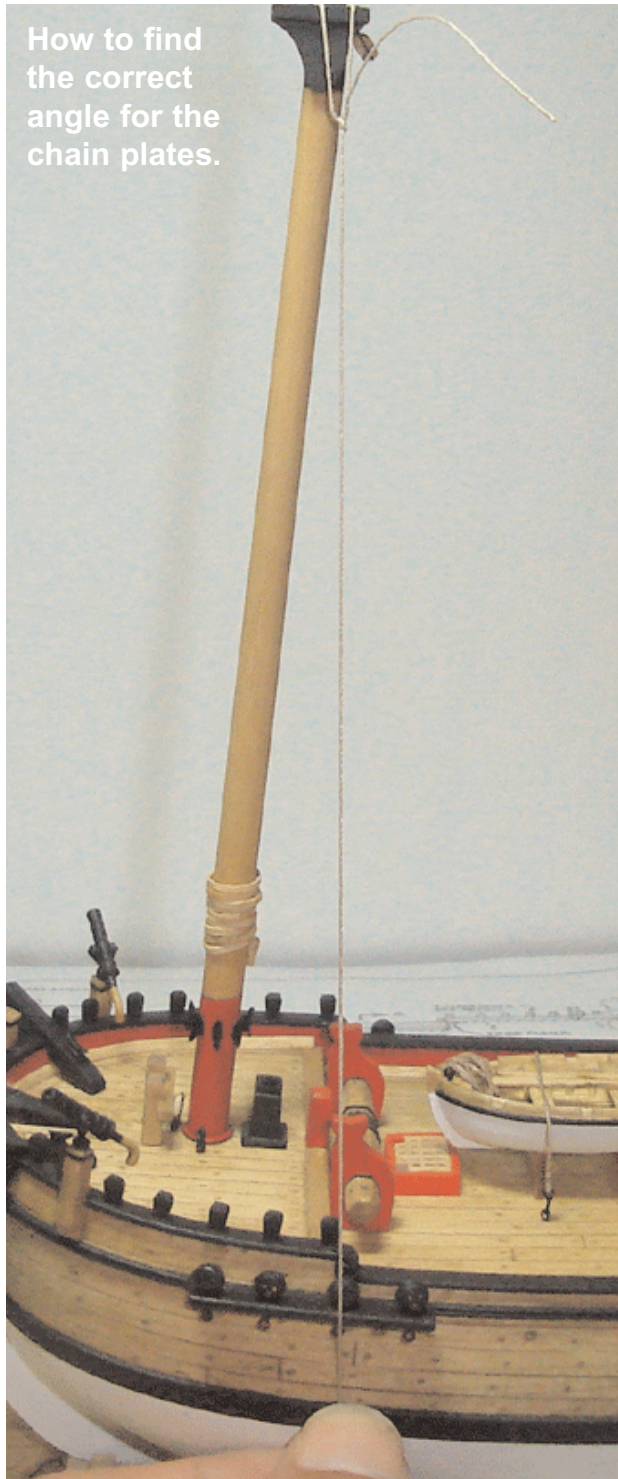
I didn't bother drilling a fid hole into the heel of each top mast. The entire top mast was painted black except for the ball cap that was glued onto its tip. Afterwards the top mast was slid through

the trestle tree and the cap and glued into position. I simulated the fids rather than have them pushed through a hole in the mast. A small strip (.75mm) was glued on both sides of each top mast as shown in the photos provided. The fid prevents the top mast from falling through the trestle trees. If done neatly no one will ever know it doesn't protrude through the mast. In fact, so much rigging will cover this area that if you chose not to show the fid it would not detract from the finished model.

Before stepping the masts many more blocks were added to them. These are shown on the plans but I have also provided some photos with each block labeled. Different sized single (s) and double (d) blocks were used. The sizes are also noted in these photos. Most commercial kits are notorious for not supplying sufficient quantities of blocks. You may need to purchase some additional blocks as we get closer to completing the model. All of my blocks were modified as mentioned earlier in this guide.

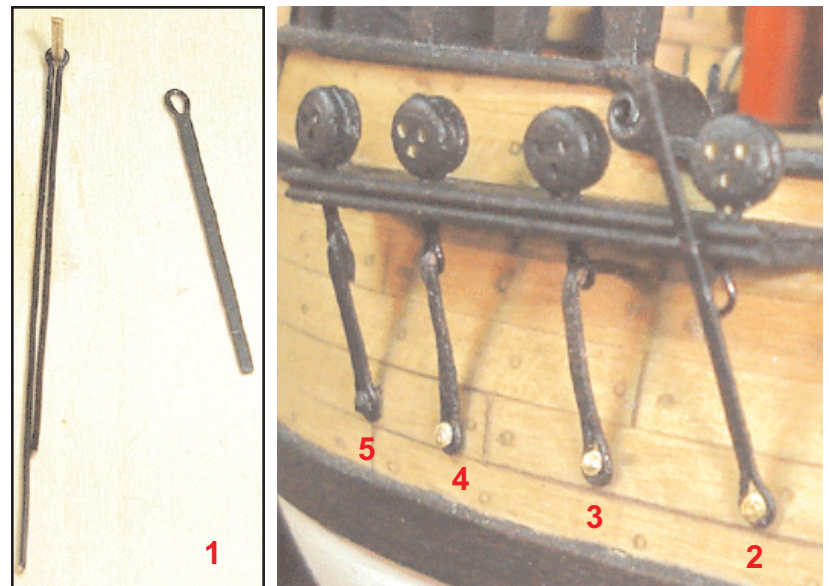
The masts are now completed to the point where

they can be permanently placed (stepped) on the model. Some folks don't glue the masts into position. They prefer to let the rigging hold them in place. They do this in case the rigging and masts get damaged and require some future doctoring. I don't prescribe to this method and always glue the masts into the deck permanently. Before doing so, several blocks and eye bolts were glued around the base of both masts. If you check the rigging plan you will see a whip block on the fore side of each mast. This 3mm single block was seized to an eye bolt and glued into a pre-drilled hole on deck. The fore mast also has an eye bolt on the port and starboard sides. Normally a small thimble (bullseye) was seized to these eye bolts. A lanyard will be set up to secure the main and main top mast stays with these thimbles. Rather than use a commercially purchased thimble, I simulated one by creating an eye in .018 black rigging line. The thimbles available commercially are too large and would look over scale.

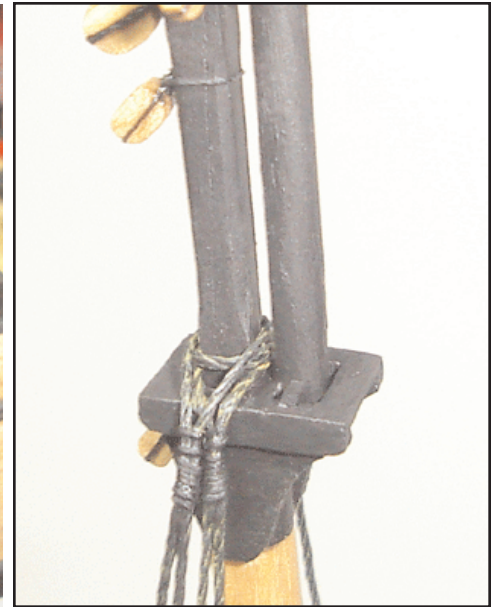


How to find the correct angle for the chain plates.

One last detail should be completed and you can glue the masts into position. The mast coats (wedges as described in the instructions) were made using a length of 22 gauge black wire. A ring was formed so it fits tightly around the base of each mast. I painted them red. You can see them in the detailed photo a couple of pages back. When you step the masts on your model be careful to establish the correct angle (rake). Both masts are raked towards the stern as shown on the plans. If you decided to glue them to your model, then you should view the masts very quickly from a variety of angles to ensure they are aligned properly. You have to do this fast before the glue sets. I recommend that you use white glue (carpenter's) instead of super glue. It will give you more time to adjust the angles of your masts.



1. The chain plates were made from 28 gauge black wire. I used the same jig we used for the dead eye strops. (above)
2. Chain plates are positioned with a nail as shown. Length of the chain plate is marked with a pencil including where I will bend it to fit into the strop. Remove the chain plate afterwards.
3. It is reinserted after being cut and bent as shown above.
4. Crimp the bent end down with a needle-nosed pliers.
5. Touch up the chain plates with some black paint (finished).



Rigging the Shrouds...

Now that the masts are in position I turned my attention to rigging the shrouds. The shrouds are rigged around the trestle trees and secured with a lanyard on the channel. To prepare for this, the chain plates will have to be created first. The chain plates will hook into the dead eye strops we positioned in the channels earlier. I used the same jig to create the chain plates that I used to create the dead eye strops. It was just a little brass nail glued into a piece of wood with its head cut off. You can see a chain plate being made in the photo on the previous page. Each chain plate was made from 28 gauge black wire bent around the brass nail. I squeezed the wire tightly around the nail so the *tail* was neatly doubled and about $\frac{3}{4}$ " long.

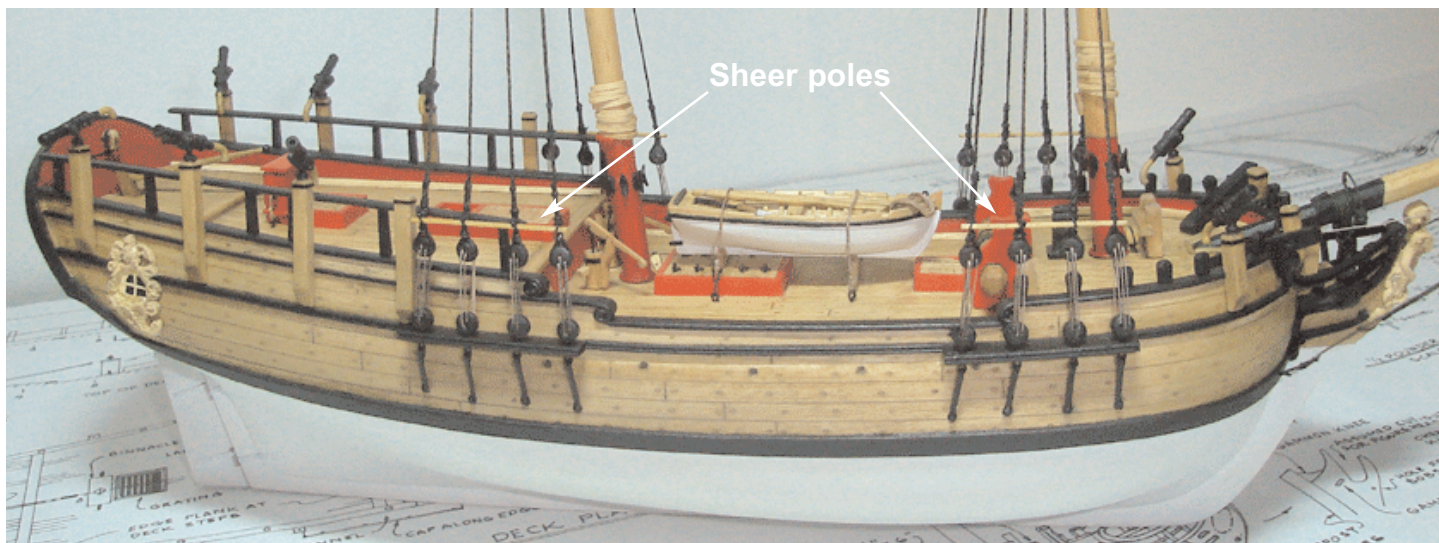
To finish each chain plate I ran a bead of gap filling super glue (CA) along both sides of it. You could also solder the two wires together as one. As I mentioned earlier, I prefer to use super glue. When the glue was dry I sanded each side flat which gave it the appearance of a flat single iron strap rather than two individual pieces of wire. I painted the chain plates black when they were finished.

The chain plates will follow the run of the shrouds and the angles for each of them were established. A photo on the previous page shows how I established the correct angle for

each chain plate. I simply tied a string around the lower mast (at the mast head) and pulled the string taught in front of each dead eye along the channel. I marked the hull with a pencil where each chain plate will be nailed. The reference point was drawn $\frac{1}{8}$ " above the wales. I drilled a small hole into the hull for each chain plate.

The lengths for each chain plate will vary along the channel. I measured the length for each one using the method shown on the previous page. First, I used a small brass nail to hold the chain plate in position. Then I marked it where the chain plate will bend to fit into the dead eye strop. In addition to this I also placed another reference point above this mark to indicate the overall length of the chain plate. I removed the chain plate from the hull and cut it to length. Then I bent it at a right angle at the reference mark and repositioned the chain plate on the hull. This time I inserted the bent tip into the strop first. I very carefully crimped the bent portion of the chain plate onto itself to complete the installation. After all four chain plates were completed I touched them up with some black paint.

With the chain plates completed it was now time to rig the shrouds. There will be four pairs of shrouds on each mast. The first pair will be rigged on the starboard side. I used .028 black rigging line. A pair of shrouds is created when a single length of rigging line is doubled at the mast head and seized. The line should wrap around

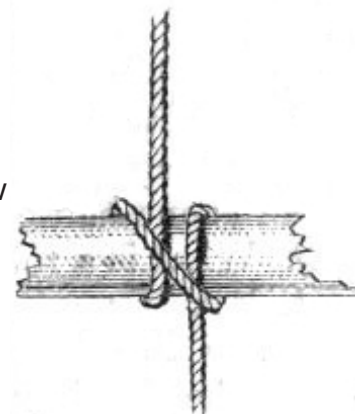


the lower mast and be seized above the trestle trees as shown in the photo on the previous page. When the first pair is in place both shrouds should be set up with their lanyards before rigging the second pair on the port side. You should alternate the shroud sequence from starboard to port when rigging each shroud pair.

A dead eye was seized into the end of each shroud. This dead eye will be spaced $\frac{1}{2}$ " from its partner on the channel. To establish this distance I used an alligator clamp to hold the dead eye. I made tiny adjustments until the proper distance was established. When I was satisfied, I seized the dead eye while it was still held in the alligator clamp. Two additional seizings were made above this which were spaced as shown in the photo on the previous page. I painted the dead eye black and proceeded to set up that shroud with its lanyard. The rigging plan and instruction manual has a diagram that details the proper way to set up the lanyard. Please note in that same photo how the dead eyes are evenly spaced and note the orientation of the dead eye holes. Only after the first shroud pair was finished did I rig the next pair on the opposite side of the hull. I was very careful not to pull the masts too tightly to one side. The shrouds were pulled taught with the lanyards but not over done.

Now that the shrouds were placed on the model I proceeded to rig the ratlines. This can be a tedious and unfulfilling experience. My only advice would be not to rush through it. Take your time because it will be a prominent feature on the

model. Before you begin, the sheer poles should be lashed to the shrouds. The sheer poles will prevent the dead eyes from twisting while you rig the ratlines. See the photo above. I used a bass wood strip that was .75 x .75 mm. Cut the strip to length and stain it before you place it on the model. You may also opt to paint them black. It was easier for me to glue the sheer pole onto the shrouds first. Then after the glue dried I lashed it to each shroud. The sheer poles are positioned directly above the dead eyes. You can now see why it is so important to have all of your dead eyes lined up properly. If they were positioned at different heights it would look just awful.



Clove Hitch.

The ratlines were normally spaced about 15" apart. On our model I spaced each row just under $\frac{1}{4}$ " apart. I have seen other modelers use a template positioned behind the shrouds to help them maintain equal spacing between the rows. I suppose it would also help to keep the rows parallel to the waterline. The Sultana has only four shrouds and I decided to "give it a go" without the use of a template. You can use whatever method that will work for you but the template seems to get in my way when I make the clove hitches on each shroud. I used clove-hitches on all four



shrouds. In real practice the fore and aft-most shrouds would have had the ratlines lashed to them through an eye spliced into each end. I used the thinnest black rigging line which was .008 diameter. I secured the first clove hitch with super glue and afterwards preceded to clove hitch the remaining three shrouds. I did not secure these with glue immediately. Before doing so, I made any adjustments to the ratline in order to insure that the shrouds weren't being pulled together. I also adjusted the height of each clove hitch before placing a drop of super glue on each of them.

Upon completing the ratlines I glued four modified cleats to the inboard side of each shroud. See the photo provided for details. Their positions were taken from the rigging plan. Once again I found it much easier to glue the cleats to the shrouds first and then lash them (.008 black rigging) afterwards when the glue was dry. The lashing was tied around the center of each cleat. *These cleats absolutely, positively need to be modified.* They would look far too thick and clumsy if they weren't. I slimmed down each cleat with some needle files and painted them black after placing them on the shrouds.

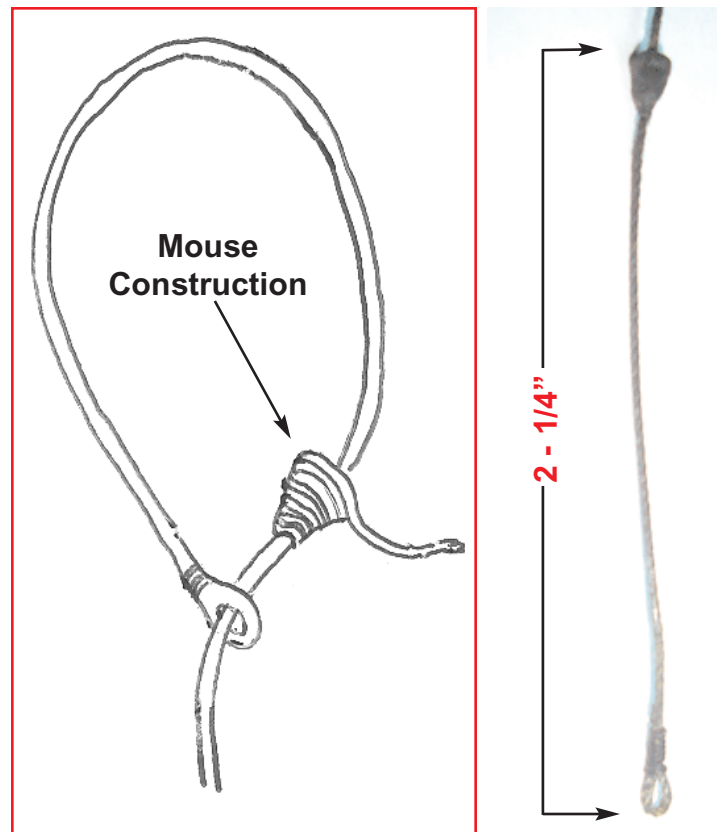
Rigging the Stays...

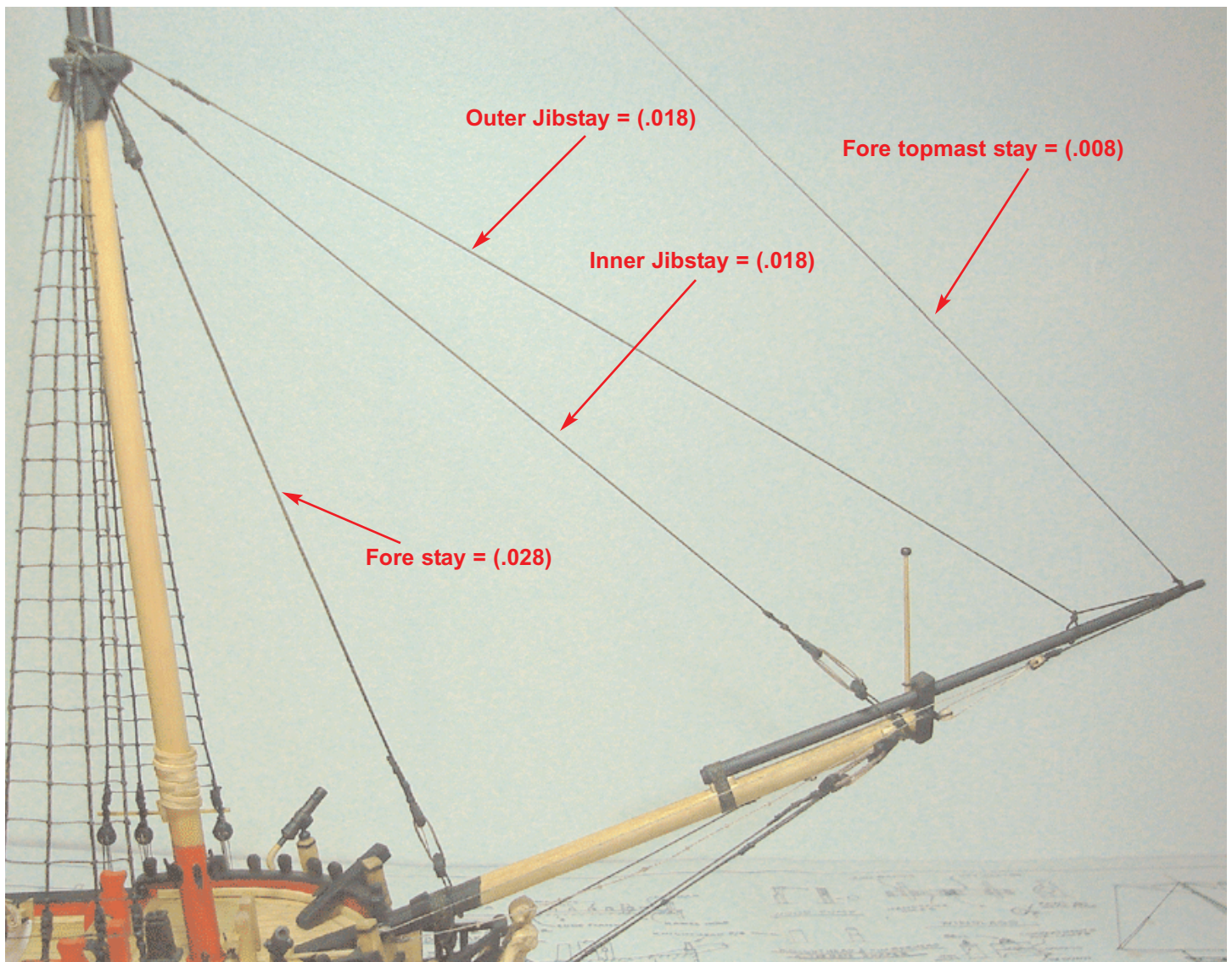
Once the ratlines are finished you can start to rig the stays. I will try and show how each one was rigged but you should refer to the rigging plans provided with the kit. I have made some modifications to those plans and will describe them as I go. I started by rigging the forestay, inner jibstay

and outer jibstay followed by the fore topmast stay. They were placed on the model in that order. I must mention before we begin that figure 27 in the kit supplied instructions is plagued with errors. Rather than point each of them out please don't use it.

The instructions mention that ALL of the stays for the Sultana were *seized* around the mast heads. I have decided that the forestay should be rigged using a mouse instead. I will let you decide which is more appropriate. In Harold Hahn's book "The Colonial American Schooner", the rigging plans for Hannah and Halifax show the forestay rigged with a mouse. Other sources I checked also follow this rule for schooners of this size and time period. Black rigging line (.028) was used for the forestay. This is the heaviest line rigged on the Sultana other than the anchor cables. If you wanted to use a heavier line I would recommend that it not exceed .035. This will be the only stay where a mouse is used.

An eye was seized in the end of a generous length of rigging line. The mouse was created 2 1/4" from this eye. See the photo below for details. A simplified approach was used to create the mouse. I made a pear shaped mouse by





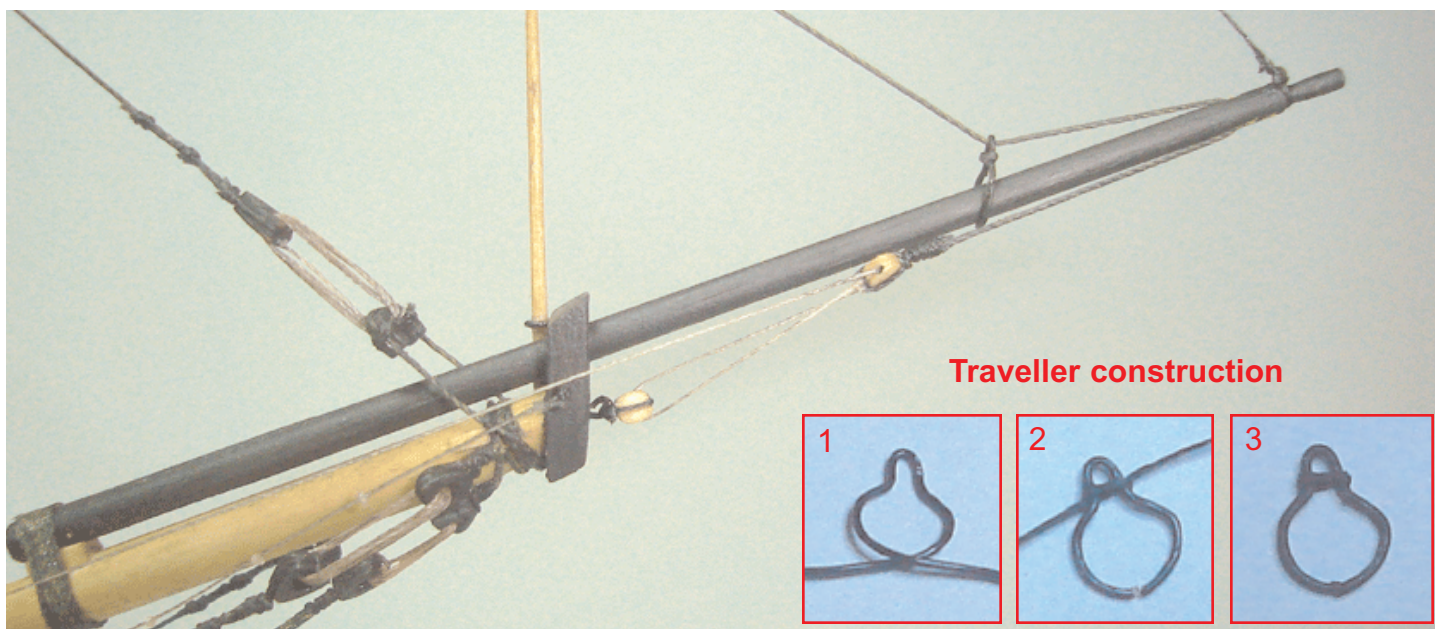
coiling some sewing thread around the stay. It was firmed up with some super glue when I was finished. I must point out a mistake that I made. In the photo you will see that I have the pear shaped mouse reversed. The largest end of the mouse should face towards the eye. Unfortunately I did not realize this until long after it was placed on the model. I have decided to leave it as is. Live and learn. The line drawing I provided shows the correct orientation for the mouse.

I secured the forestay around the mast head and finished it up with a lanyard on the bowsprit. You will need to make two more hearts for the stays we are about to rig. They will be set up using the same techniques I described for the bowsprit shrouds. See the photo above. The inner jibstay was rigged in the same manner. The only difference was that a mouse wasn't used. Instead, a

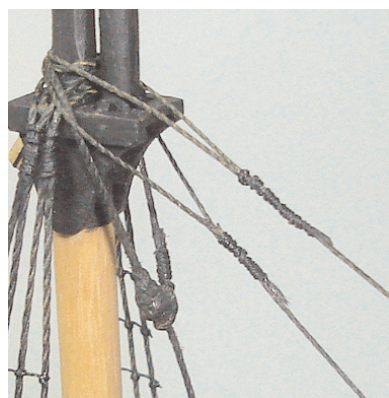
simple seizing was used to secure it around the trestle tree of the fore mast (.018 rigging line was used).

The outer jibstay (.018) was seized around the trestle tree also. However, it will then run through a small ring on the jib boom called a traveller. Then it proceeds through the sheave in the jib boom and sets up into a simple tackle. The traveller was made from 28 gauge black wire. I used the same technique we used to stop the deadeyes along the channels. Only this time I removed the deadeye after forming it. See the photos on the next page. Finally a small piece of sewing thread was tied around the top of the traveller to finish it up. This was firmed up with a drop of super glue. The traveller was painted black prior to being used.

While rigging the outer jibstay I found that it was



easier to complete the tackle first. Seize a 2.5mm single block into the end of the stay. Then place its partner on the eyebolt on the cap. The running end of the tackle can be secured to a cleat at the bow. Figure 30 of the instruction manual has a good diagram showing how this should be done. When that tackle was completed it gave the necessary tension to reeve the stay through the jib boom and traveller so I could seize it around the trestle tree. Don't forget to add



a rope coil to the cleat where you tied off the tackle. There are many ways to form rope coils. I usually just wrap the line around an appropriate sized dowel. I add a drop of super glue with an applicator to keep it from

unwinding before I slip the coil off of the dowel. If the coil needs to bend at an angle (as is the case here) another drop of glue is added and the coil is bent to shape. It will hold that shape when dry.

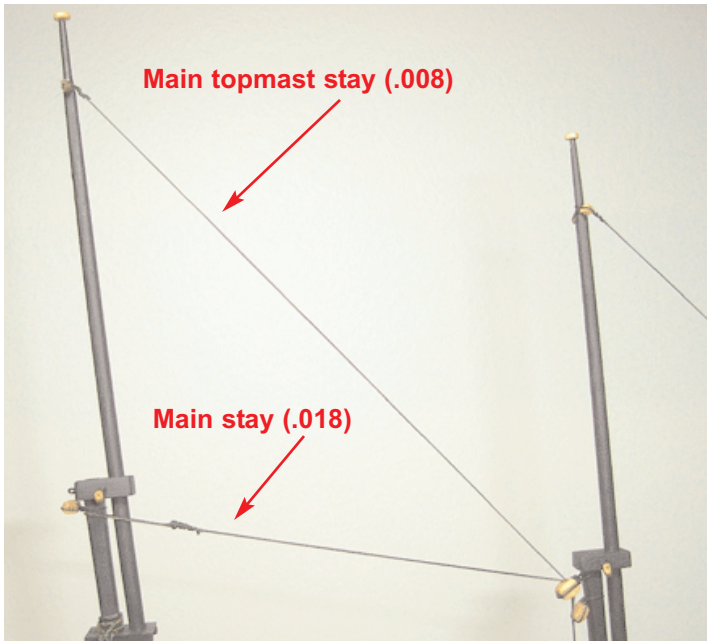
The topmast stay was finally rigged as shown on the plans. I used .008 black rigging line for this stay. At this time I could move ahead and finish all of the running rigging on these four stays. But I decided to add the main and main topmast stays first. The main stay (.018) and main topmast stay (.008) are fairly straight forward. The

only challenge here was navigating my fingers and tools behind the shrouds to set the lanyards at the foot of the fore mast. If you recall, I simulated the bulls eye on deck for each of these stays by creating a seized eye from rigging line. Another eye was seized into the end of each stay. The lanyard will be formed between these



two simulated bulls eyes. In hind sight I guess it would have been better to have rigged these two stays first, before the shrouds and ratlines (or to have just set the lanyards up and clip the stays temporarily to the main mast.). After a little fussing the lanyards were finally completed.

Once the lanyard for the main stay was secure I ran the loose end through the large double block on the aft side of the fore mast. Then I seized the stay around the main mast as shown in the photo on the next page. The lanyard for the main stay was set up on the port side of the fore mast while the topmast stay was on the starboard side. The main topmast stay was rigged in the same way. However, it was seized around the main topmast as shown in the same photo.

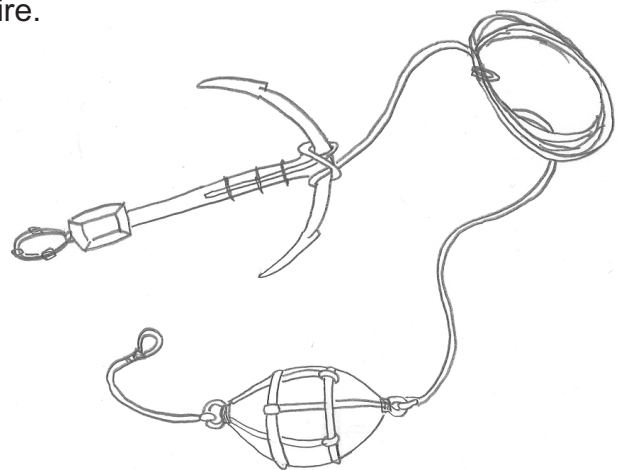
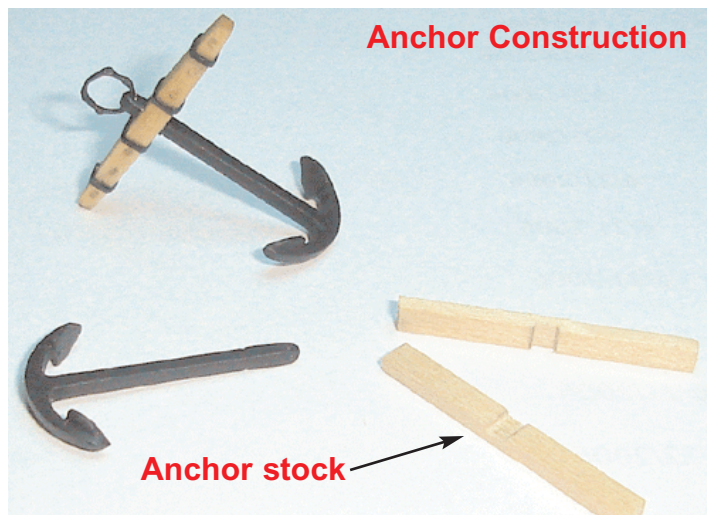


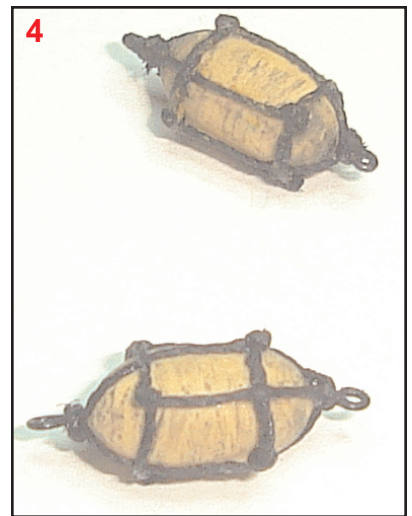
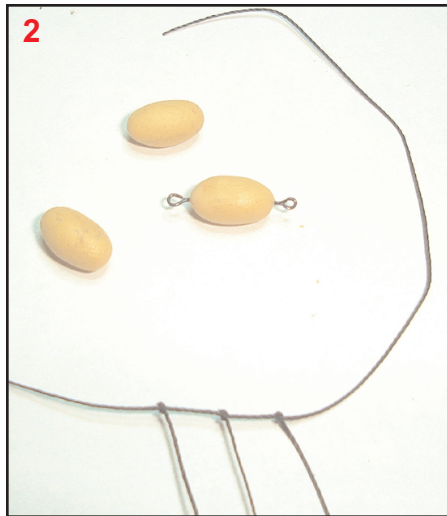
Anchor Construction...

I thought it was a good time to take a break from rigging the model. I think the backstays would make it more difficult to rig the boom, gaffs and yards. The backstays will be rigged after the boom and gaffs are in place. I find its nice to break the rigging up a little bit with other small projects. So I decided to construct and mount the anchors. They will be mounted on the model with anchor buoys. Ships similar to the Sultana would certainly have had them. There were strict laws and codes that mandated the use of anchor buoys while in a harbor or port. They weren't used for the Sultana's benefit. They were used so the other ships wouldn't get damaged by the anchor and cable. Stiff penalties were brought against a ship's crew when they failed to use a buoy. The kit doesn't come supplied with them

but they are very easy to make. Details such as the anchor buoys will set your model apart from the others who build the model straight out of the box.

I used the cast anchors supplied with the kit. They were of course cleaned up with some sandpaper and filed first. I discarded the anchor stocks and made new ones from scratch. I prefer wooden stocks and didn't want to paint the kit supplied castings. I used a bass wood strip 1/8" x 1/16" to create each half of the anchor stock. See the photo above for details. Their size and shape were traced from the plans. You can see that they are tapered on both ends. You will need to carve a small groove into the center of each half. When they are glued together the anchor should fit tightly through it. Thin strips of automotive pinstripe tape were wrapped around the anchor stock to simulate the iron bands. The ring for each anchor was made from 28 gauge black wire.



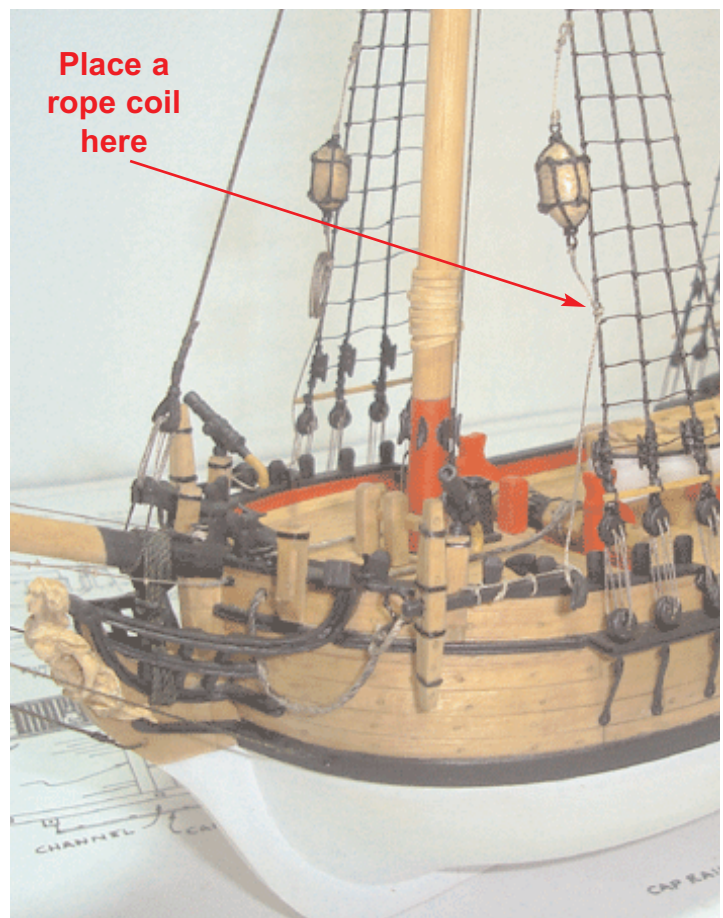


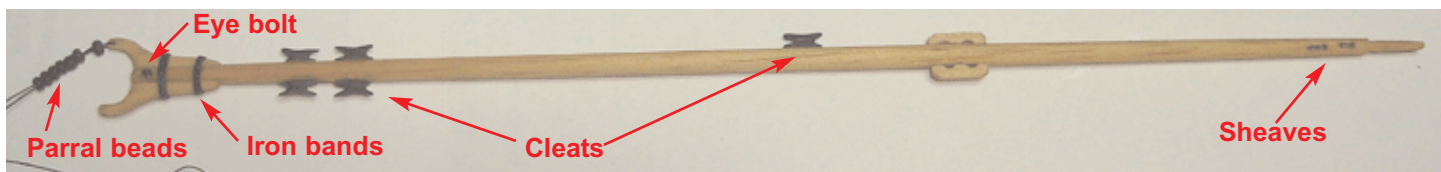
The anchor buoys were made from Sculpey. You could however, carve them from wood but I wanted to continue my experimentation with this material. A buoy from this time period would have ranged from 2' to 4' long depending on the size of the ship. I decided on the smallest size since the Sultana was a small schooner. The Sculpey was shaped into small beads 3/8" long. See the photos above for details. Six were made with the intention of picking the best from the "litter". An eye bolt was shaped and inserted into each end of the buoy. The eye bolts were not inserted fully (1/32" remained between the buoy and eye).

Photo #2 shows how I prepared a harness for each buoy. Two will be needed for each. Three lines were knotted along another length rigging line. It took a little time to space them properly so there was an equal distance between them. The harness was wrapped around the buoy and fused with super glue as described earlier. The three knotted strands are seized at the eye bolt as shown in photo #3. The space between these three lines should be tested before the harness is glued around the buoy permanently. The same process was repeated on the other side of the buoy to complete them. Only this time the three lines of the 2nd harness were run under the existing harness before being seized to the eye bolt on the opposite side. (.018 black rigging lines were used for each harness)

When the buoys were finished I weathered them with some brown acrylic paint so they wouldn't look so new and clean. The photo below shows

how I rigged the buoy to the shrouds first. Then I set up another length of tan (.008) rigging line to the anchor as shown in the line drawing on the previous page. The end was tied to the shroud at the same place where the line for the buoy was fastened. To finish it up I lashed a rope coil to the shroud in that same location. I must mention that I also placed the anchor cable on the ring of the anchor before I placed it onto the model. A generous length of .045 tan rigging line was used. The other end was run beneath the head rails and through the hawse hole. I



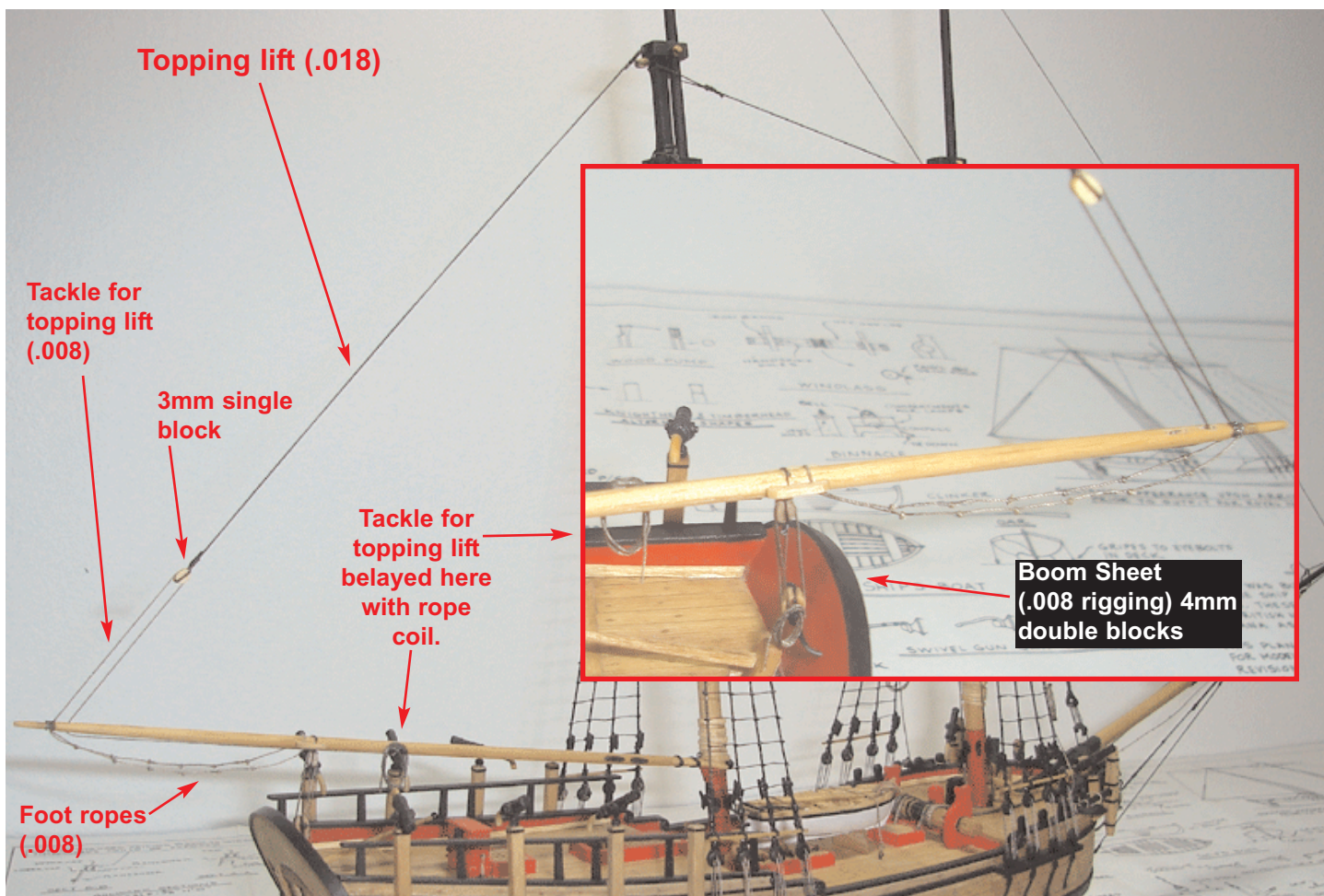


wrapped it three times around the windlass drum. Then I pushed the end of the cable into the corner hole of the hatch directly aft of the windlass. I was careful not to pull any of these lines taught. I painstakingly worked them until they hung loosely and natural. This was not a simple thing to achieve to my satisfaction but was well worth the time spent. Finally, each anchor was lashed to a timberhead as shown in the same photo.

Boom and Gaffs...

I had to replace all of the dowels provided with the kit for the boom, gaffs and yards. Most were badly warped and open grained. I could have

asked Model Shipways for replacements but I bought some beech dowels at a local hobby shop instead. The boom was assembled first and was very simple. The appropriate sized dowel was chosen by measuring the diameter against the plans. The dowel was tapered by hand as shown in the photo above. The jaws for the boom were traced from the plans and shaped from a bass wood sheet 1/32" thick. Small holes were drilled through the jaw ends so I could string the parral beads. Drill these holes *before* you cut the jaws from the sheet. They will be much too fragile afterwards and the wood will split. These beads allowed the boom to move with less friction on the main mast. They are not supplied with the kit



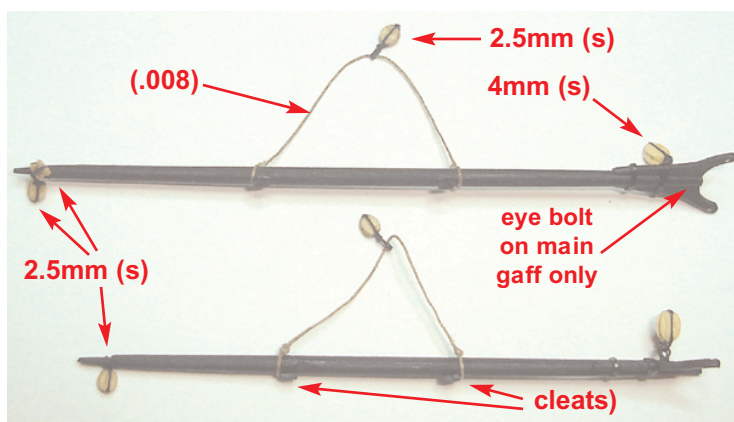
and were purchased separately. They are sold several 100 to each package.

The boom will be left natural and not painted. Eye bolts and cleats were attached as shown on the plans. I also added some black pinstripe tape to simulate iron bands around the jaws. This detail is not shown on the plans. Two sheaves were also simulated at the end of the boom as shown in the 2nd photo above. It shows the boom completed and ready to be rigged on the model. The sheaves are created by drilling two small holes about 1/32" apart. The space between them was recessed with the tip of a pin vise.

I secured the boom to the main mast so it sat on the boom rest. The mast hoops should sit on top of the boom jaws. Then I rigged the topping lift first. A 3mm single block was seized to the end of a generous length of .018 black rigging line. The other end was seized to the eye bolt on the aft side of the cap. See the photo on the previous page for details. I carefully adjusted the length of the topping lift so the single block was approximately 1 1/2" from the end of the boom. You will have to hold the boom tip above the transom in order to check that the distance looks correct. Check the plans to obtain the exact angle and distances. The tackle for the topping lift was rigged using .008 tan rigging line. After running the loose end through the aft-most sheave of the boom it was belayed to the cleat on the Starboard side of the boom. It was finished off with a rope coil.

The boom sheet was rigged as shown in figure 34 of the kit-supplied instructions. It is an accurate diagram however it shows the traveller on deck which is incorrect. A 4mm double block was seized around the boom for this tackle. See the detailed photo provided on the previous page. The running end was belayed to the pin on the double block (seized to the traveler). A small rope coil was hung on this pin afterwards. I used .008 tan rigging line for the boom sheet. Knotted footropes (.008) were added to the boom to complete the boom rigging. The knots were placed the same distance apart as those for bowsprit foot ropes.

Main and fore gaff construction



The main and fore gaffs are constructed using the same methods described for the boom. In this case they were both painted black before attaching the blocks and eye bolts. Please note that the main gaff should have an eye bolt glued into the underside of the jaws. This detail is not shown on the plans. It will be used for the throat downhaul. The fore gaff will not have this feature. See the photo above for details. After they were completed to the stage shown in the photo I placed them onto the model. They were secured around the mast with black parral beads strung through their jaws. I rigged the main gaff first.

The rigging for the main gaff was completed in the order shown below. See the accompanying photos for details. Also examine figure 33 in the kit-supplied instruction manual.

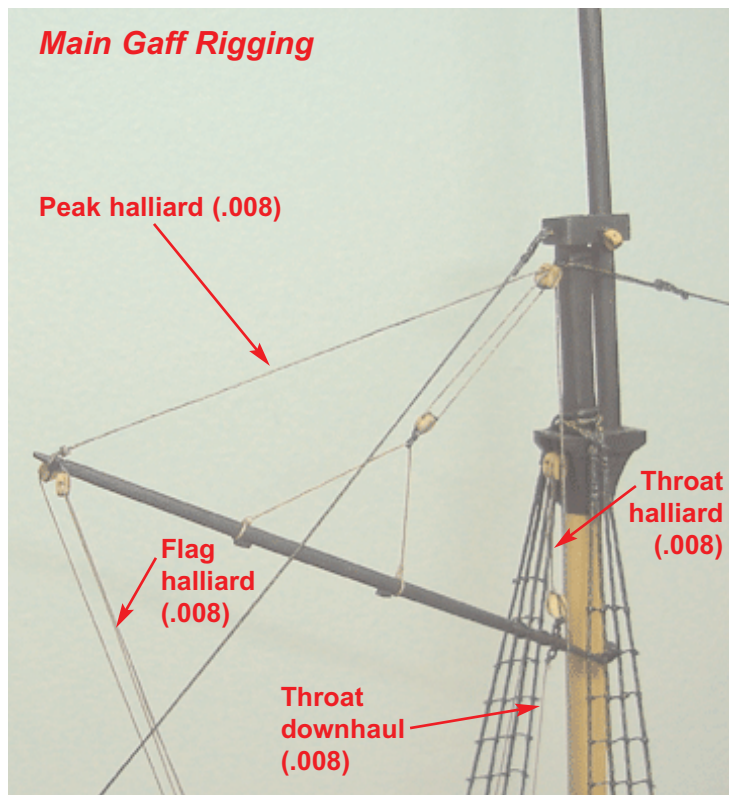
-Peak Halliard- It will be set up with a tackle on the starboard side and belayed to a shroud cleat. I seized a 2.5 mm (S) block onto the end of a generous length of .008 tan rigging line. The other end was run through the double block on the mast head. I pulled it through the starboard sheave until the single block was positioned at a pleasing height off of the deck. Then I glued the peak halliard in the double block to maintain that position. It will make it easier to set up the tackle which was completed next. The other end of the tackle will be a 2.5 mm (S) block that has a hook drilled into it. This block will be hooked into an eye bolt on deck. The position for the eye bolt was taken from the plans. The hook and eye bolt was shaped out of 28 gauge black wire. I seized another length of .008 rigging line to this block to use for the tackle. This line was run through the

single block on the end of the peak halliard and back down through the hooked block on deck. The running end was belayed to the shroud cleat and finished off with a rope coil. The other end of the peak halliard was run through the single block rigged to the gaff. Then it was taken back up through the double block and seized to the tip of the gaff as shown in the photo.

-Peak Downhaul (port) Flag Halliard (Starboard)

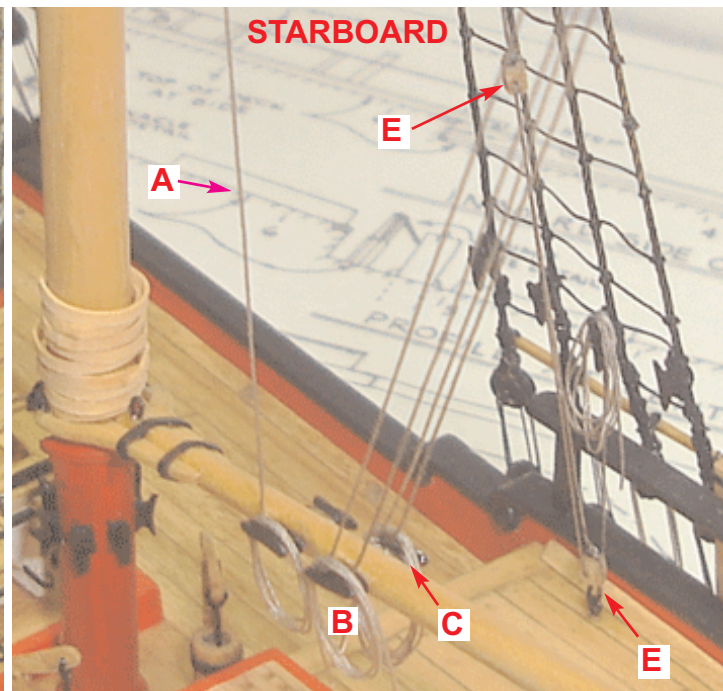
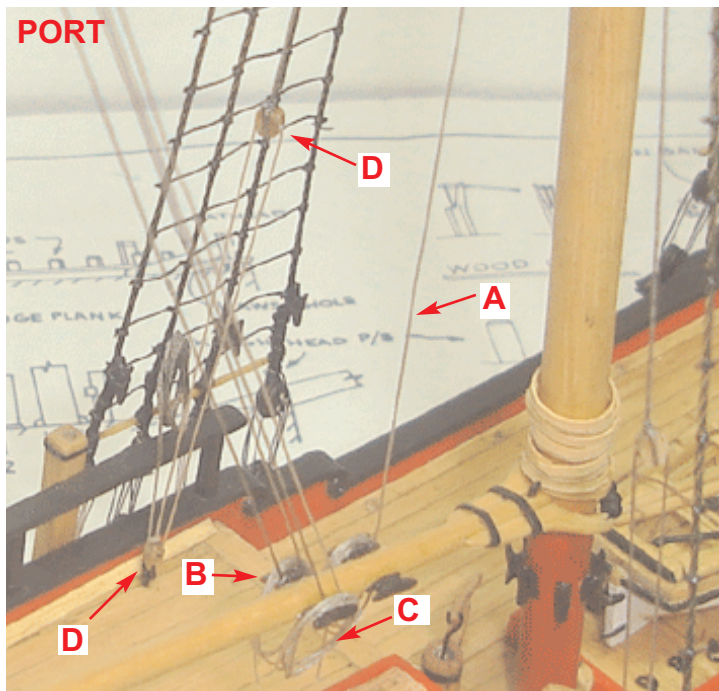
I used .008 tan rigging line for both. They were tied to the boom cleats as shown and then run through the single blocks seized to the tip of the gaff. Their loose ends were then belayed to those same cleats and finished off with some rope coils.

-Throat Halliard – Some tan rigging line (.008) was seized to the single block attached to the gaff jaws. This was a little tricky. After a few attempts I was successful. The running end was taken through the double block on trestle tree. Then it was finally brought down to the deck where it was set up in a tackle on the port side of the model. This tackle is identical to the one we created for the peak halliard. Only this time we will need to seize the 2.5 mm (S) block onto the running end of this halliard while it is on the model. I was careful to make sure it was positioned at the same height above the deck as



the block for the peak halliard. See the photo provided.

-Throat Downhaul - The throat downhaul was seized to the eye bolt on the underside of the gaff's jaws. It was brought down to the boom cleat shown in the photos provided. Finish it off with a rope coil. I used .008 tan rigging line for the throat downhaul.



A= Throat downhaul B= Peak downhaul C= Flag halliard D= Tackle for throat halliard E= Tackle for peak halliard

The fore gaff was rigged in the same manner. It was secured to the mast with parral beads. Rigging for the fore gaff was completed in the following order.

-Peak Halliard – Was completed as described for the main gaff, only this time the tackle was set up on the port side of the hull. See the photo to the right for details.

-Peak Downhaul- The downhaul (.008) was rigged by tying a generous length of line to the mast cleat shown in the same photo. It was run through the 2.5 mm single block seized to the tip of the gaff. Then I brought it back down to the same cleat and finished it off with a rope coil.

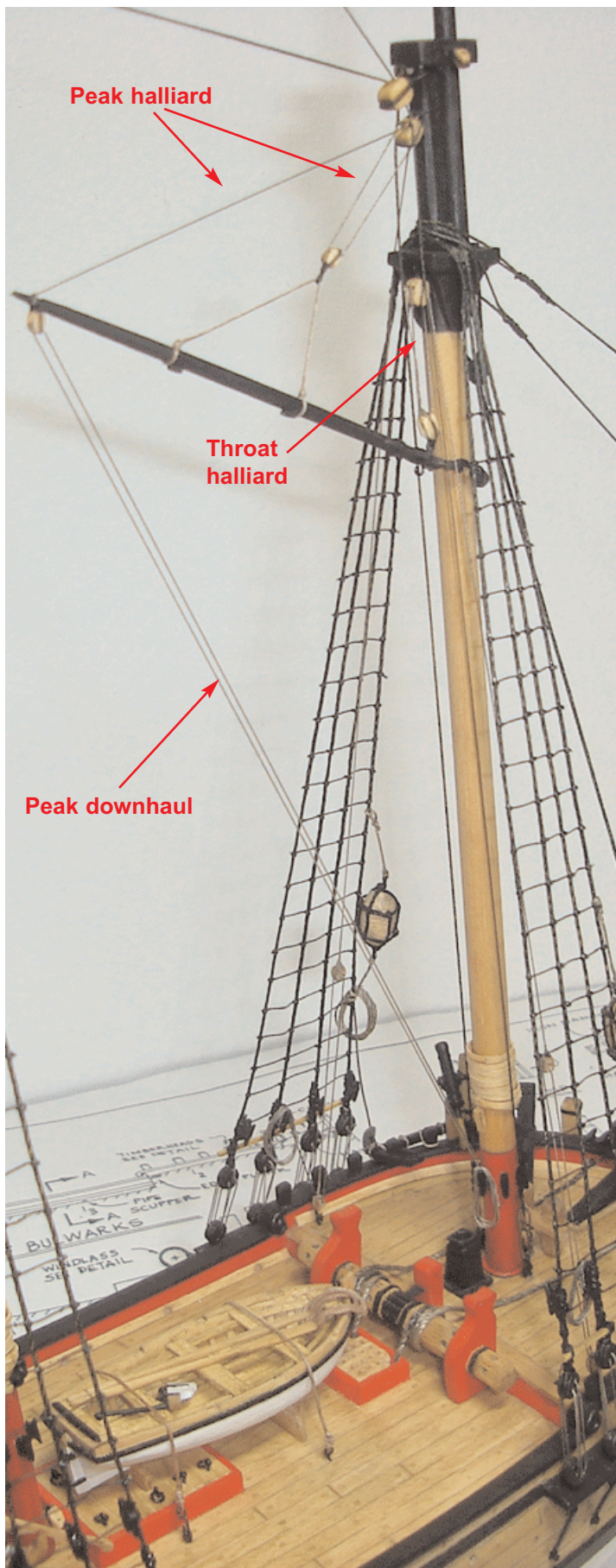
-Throat Halliard- Rigged as described for the main gaff, only this time the tackle is set up on the starboard side of the model.

-Vangs- I will hold off on rigging the vangs until after the yards are completed. They will just get in the way and make rigging the yards more difficult. I will describe it in detail afterwards while finally completing the back stays as well.

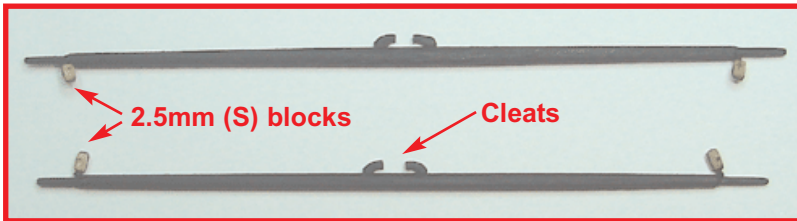
The Topsail Yards...

The topsail yards were cut to length and tapered by hand. The measurements were taken from the plans. If you examine the plans, you will notice that the yard on the fore mast is longer and slightly thicker in diameter than the yard for the main mast. I took this into consideration when I was constructing them. The tips of the yard arms were carefully shaped with a #11 blade in my hobby knife. I scored each end of the yard by rolling it under my blade. Be sure not to apply much pressure because you don't want to cut the dowel straight through. I only wanted to create a shallow cut all the way around the yard. Then I whittled small shavings of wood back to this line.

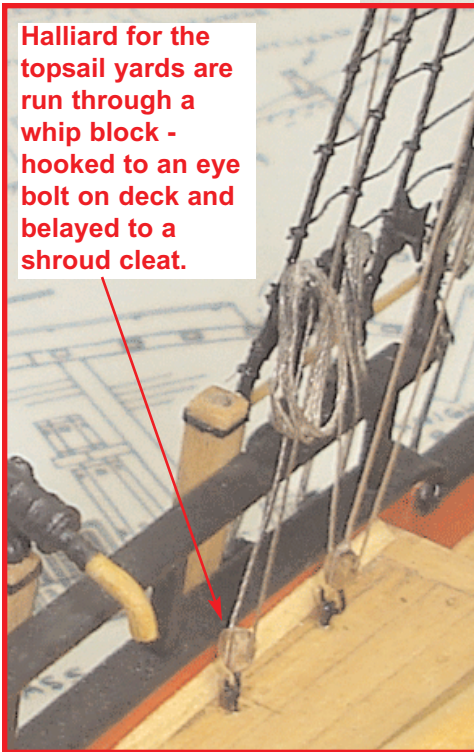
Two small cleats were shaped from a strip of wood 1/16" x 1/16' thick. See the photo on the next page for details. After they were assembled I painted both yards black. To finish them off I seized 2.5 mm single blocks to both ends of the yards for their braces.



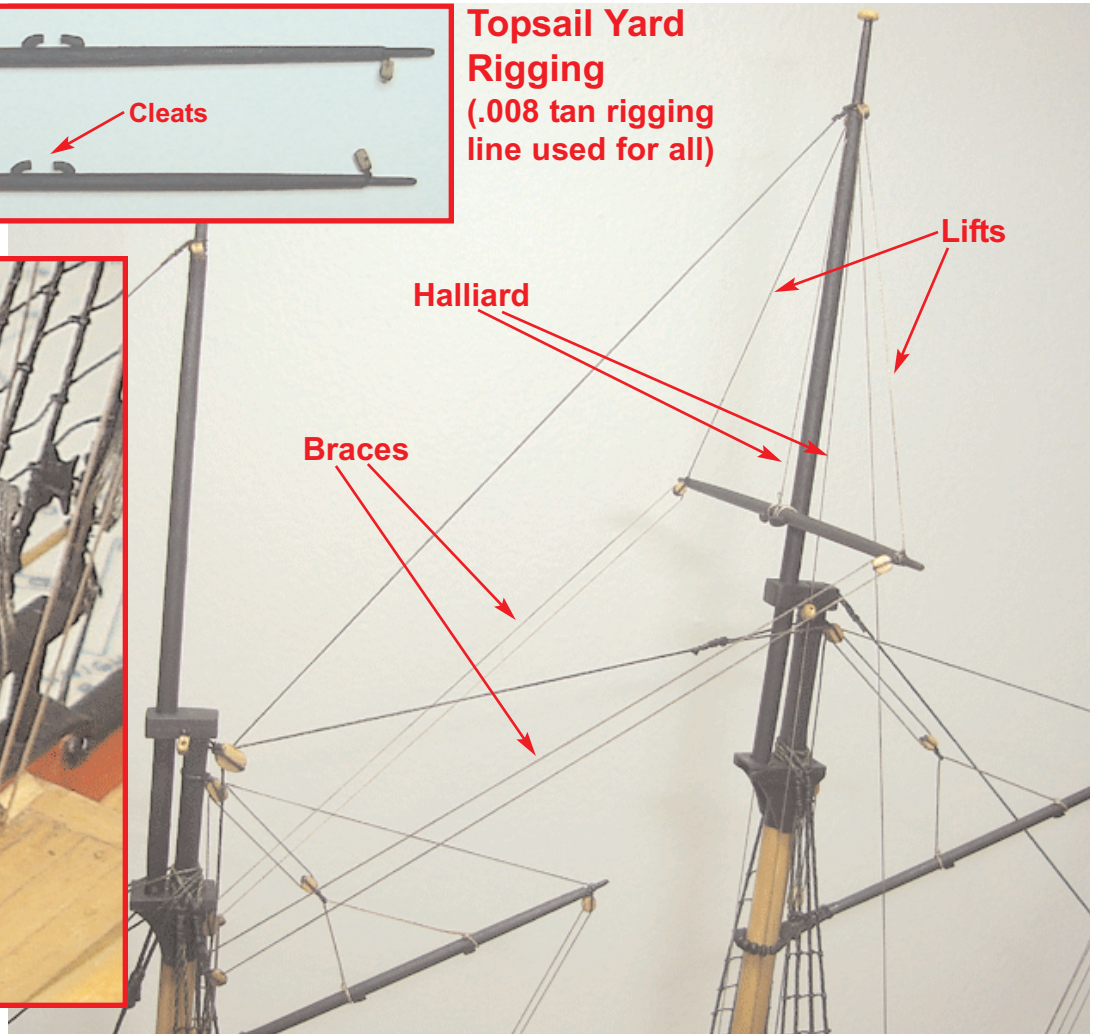
Details of the fore gaff rigging



Topsail Yard Rigging
 (.008 tan rigging line used for all)



Halliard for the topsail yards are run through a whip block - hooked to an eye bolt on deck and belayed to a shroud cleat.



The halliard was rigged to the topsail yard using the “sheet bend” shown in figure 31 of the kit-supplied manual. I would like to note that the rigging plans for this kit are outstanding compared to most available commercially. It is a testament to the Model Shipways brand. The illustration clearly shows how to rig the halliard to the center of the topsail yard. After a generous length of (.008) tan rigging line was secured to the yard as shown, I rigged them to the model. I will describe in detail how I completed the rigging on the topsail yards. Each line was rigged in the order presented below.

- **Halliard for the topsail yards** - The loose end of the halliard was run through the sheave created in the topmast. I adjusted the position of the yard and then glued the halliard into the sheave so that position could be maintained. The topsail yards will be placed in their lowered position about ½” above the cap. Then it was run through a whip block on deck. This block is a

2.5 mm single block hooked into an eyebolt on deck. A hook was shaped from 28 gauge wire and glued into a pre-drilled hole in the block. There is no tackle used for this halliard. After running the line through this block it should be belayed to the aft-most shroud cleat. The halliard for the main topsail yard was set up on the port side with a whip block while the fore topsail yard was belayed to starboard. They were finished off with a rope coil.

- **Truss** – Once again the drawing for the topsail yard truss is shown in figure 31 of the instructions. I created an eye on the end of some .008 tan rigging line. The truss was rigged as shown in that diagram and it would be difficult to describe it better than it is displayed there. The truss will hold the yard securely against the top mast.

- **Braces** – The braces were also rigged using .008 tan rigging lines. I seized the end of these



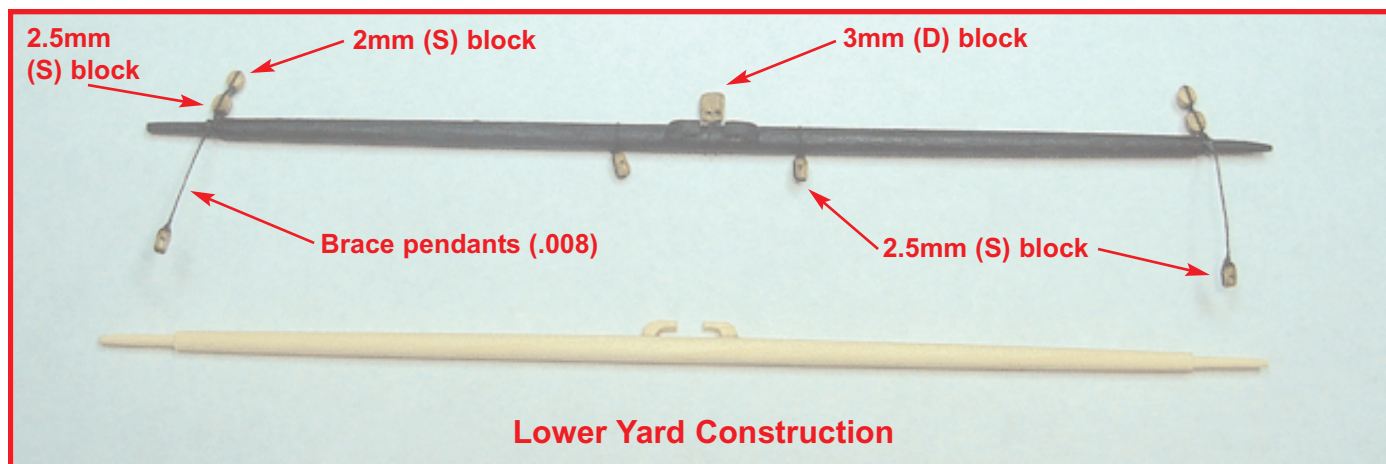
lines to the shrouds as shown in the photo above. Then they were run through the single blocks on the yard arms. From here they were brought back to the shrouds where I had seized a 2.5 mm single block. These blocks were placed just below the initial starting point for the braces. After running the line through the block they were belayed to a shroud cleat as shown in the photo above. Finish it off with a rope coil. The braces are rigged identical for both the fore and main topsail yards.

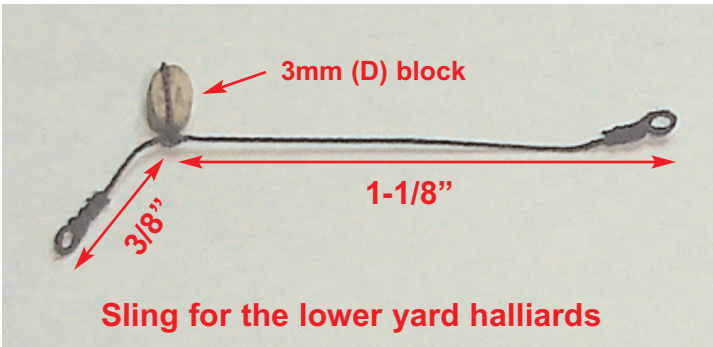
- *Topsail yard lifts* – Once again, tan rigging line (.008) was used to rig the lifts. I seized the end of the lifts to the yard as shown in the photo above. Then they were brought up through the single blocks secured to the topmast. They were brought back down to the cleats at the base of the mast and belayed there. Before doing so, adjust the lifts so the topsail yard is level and positioned correctly. Finish them off with a rope coil. The lifts were rigged identical for both the main and fore topsail yards.

Lower Yards...

The lower yards were cut to length and tapered as previously described for the topsail yards. The lower yard for the fore mast is also slightly longer and thicker in diameter than the one for the main mast. The photo below shows the lower yard completed for the main mast with all of the blocks attached. Both yards should be virtually identical when finished. After painting them black I rigged the blocks. Please note that black .008 rigging line was used to secure the blocks to the yard. The brace pendants are 1/2" long and I used 2.5mm single blocks seized to their ends. A 3 mm double block was lashed to the center of the yard as shown in figure 32 of the kit-supplied instructions. It will be used for the halliard.

Two single blocks were seized together and placed on the ends of the yard arms. One of these blocks (2.5mm) will be used for the topsail sheet while a smaller one is for the lifts. The single blocks for the lifts were sanded even





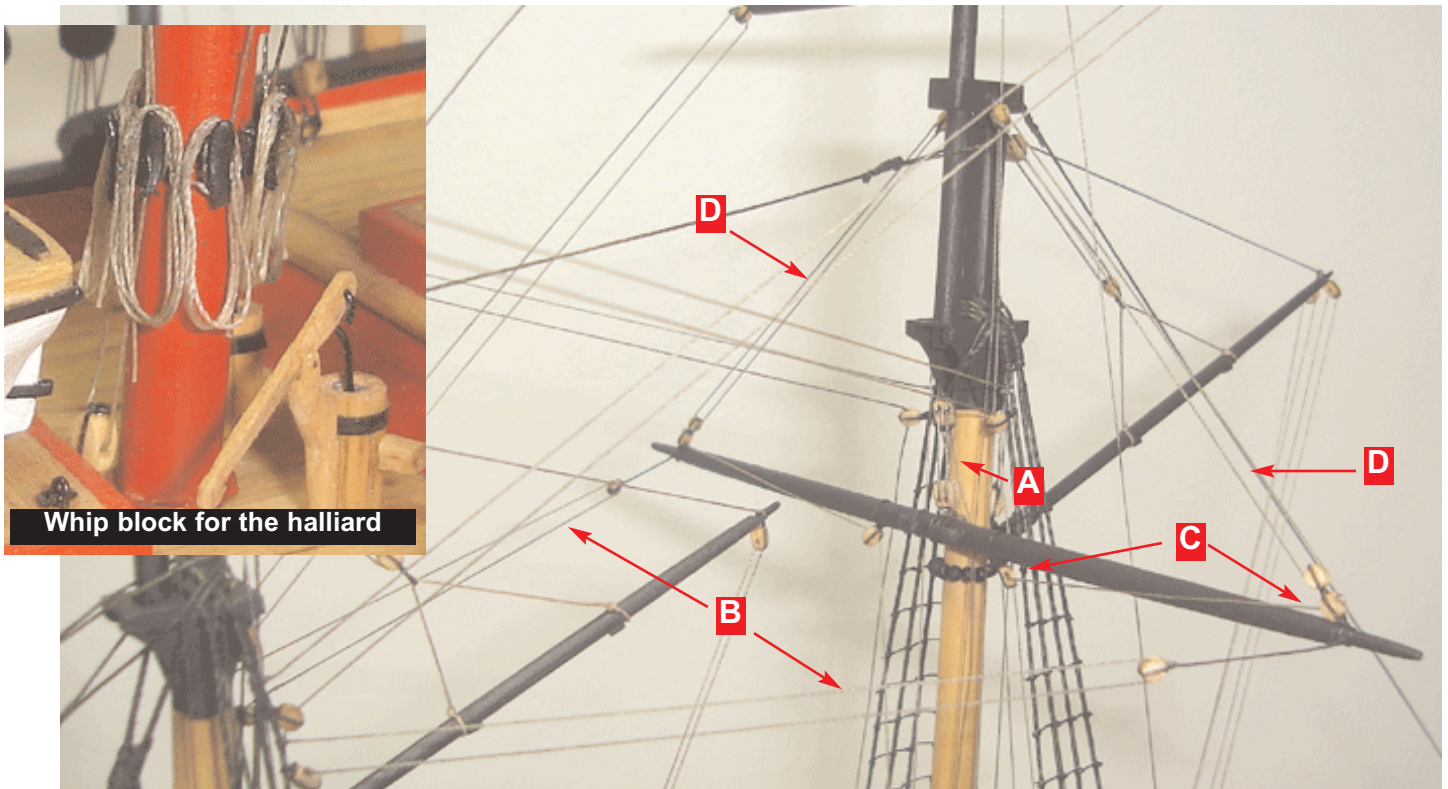
Sling for the lower yard halliards

smaller with a finished size of only 2mm. This detail is shown in the same photo. All of the blocks used were modified as discussed earlier in this builder's guide. They were all meticulously sanded to a more accurate round shape. While doing so, I sanded those for the lower yard lifts even smaller. Two inboard single blocks were lashed to the yard and it was finally ready to be placed on the model. These last two (2.5mm) single blocks will be used to take the topsail sheet down to the mast cleats where they will be belayed. When both yards were completed I rigged them to the model in the order presented below.

- **Truss for the Lower Yards** - The lower yard for the main mast will be fitted with a truss. The yard on the fore mast will not. The plans have a

detail drawing for this truss. It shows the loose end of the truss being carried to the trestle trees where it should be belayed. The only problem is that the plans don't indicate where or how the loose end should be tied off. Rather than guess, I decided to use the same simple truss described for the topsail yards.

- **JEERS (Halliards and Slings)** - These yards were lowered to the deck often. The jeers (a combination of sling and halliard) were used to do this on the Sultana. The halliard will be set up with two double blocks secured to the mast with a sling. The sling is pictured above (left). The sling is also shown in figure 32 of the kit-supplied instructions but is not labeled as such. To create the sling, seize a generous length of (.018) black rigging around a double block. Then, an eye was created on both ends of the sling as shown. I will try and save you the grief of determining how long each leg of the sling should be. Those measurements are shown in the same photo. The completed sling was secured around the trestle tree and lashed together through the two eyes with some tan sewing thread. It shouldn't be pulled tight but instead left to hang naturally below the trestle trees.



A= Halliard for the lower yards B= Braces C= Top sail sheet D= Lifts

Detail of sling and halliard (jeers) on the main mast



The halliard (.008 tan rigging line) will be secured to the double block of the sling and reeved through the double block on the center of the yard. It would be best to stop the halliard to the double block of the sling before you place the sling on the model. This would be very difficult (as you can imagine) if the sling was already in position. As you can see, there is quite a maze of running and standing rigging at this point in the project. The running end of the halliard was then taken down to the deck where it passed through the whip block we placed in front of the mast. From here it was belayed to a mast cleat and finished off with a rope coil. The halliard and slings were fashioned the same way on both the fore and main masts. See the photo above.

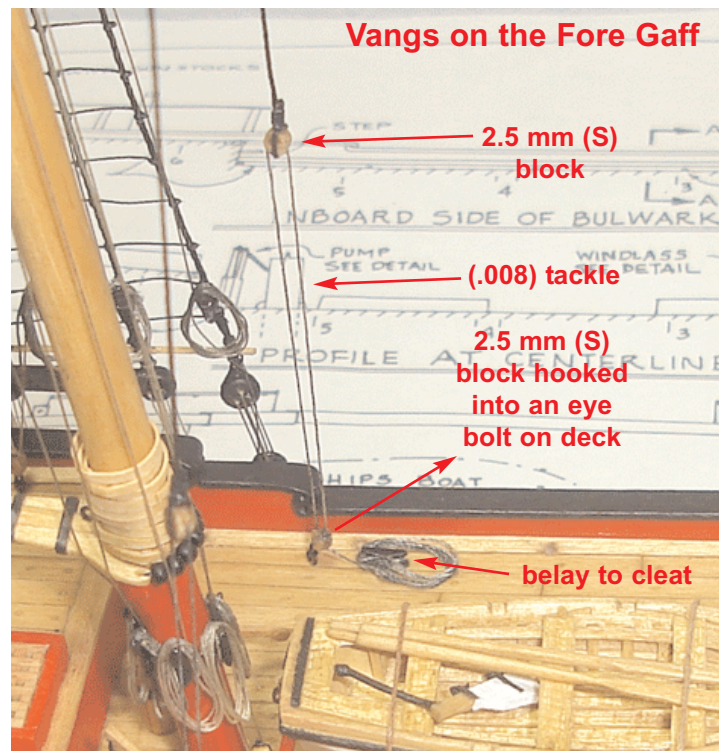
- **Top Sail Sheets** - The topsail sheets were rigged with .008 tan rigging line. A double knot was formed on the end of the line and drop of super glue was added. The sheet was passed through the single block on each end the yard. See figure 32 of the kit-supplied instructions. Then it was run through the single blocks we placed inboard on the yard and taken down to the deck. Their loose ends were also belayed to the mast cleats and finished off with some rope coils. The top sail sheets were rigged identically for the lower yards of the main and fore masts.

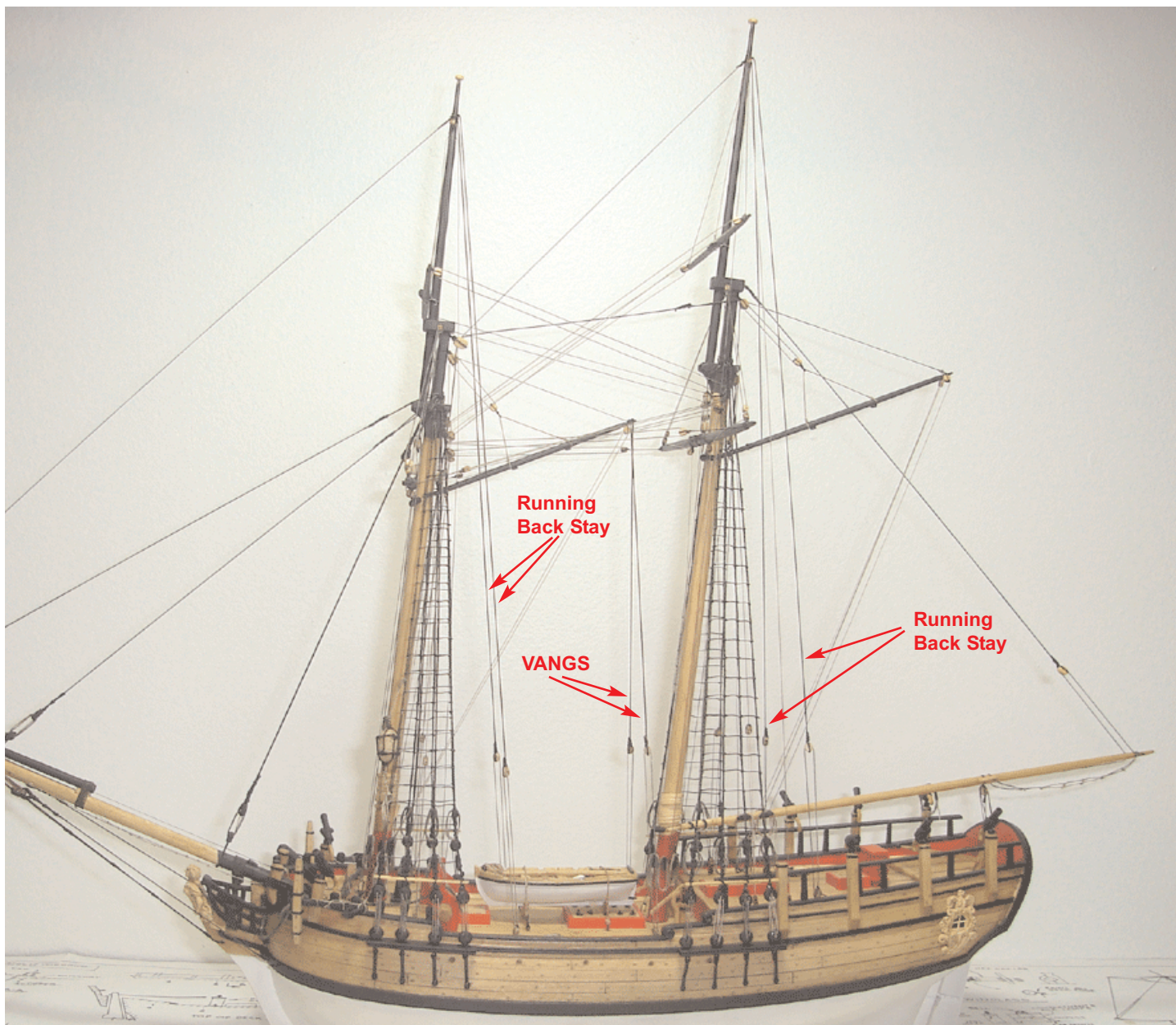
- **Lifts** – A generous length of .008 tan rigging line was used for the lifts. I secured the end of the line to the single blocks located on the mast caps. From here they were run through the remaining single blocks on the ends of each yard (above the top sail sheets). The running end was brought back up to the originating single blocks on the cap so they could be taken down to the deck. The lifts were belayed to any mast cleats not yet occupied. On the fore mast I decided to belay the running ends to the bits instead. I thought that the model would look more interesting this way.

- **Braces for the Lower Yards** - These were rigged the same way as the braces for the top sail yards. Single blocks were seized to the shrouds just below those used for the top sail yard braces. The running ends were belayed to the shroud cleats specified on the plans and finished off with some rope coils.

Vangs and Back Stays...

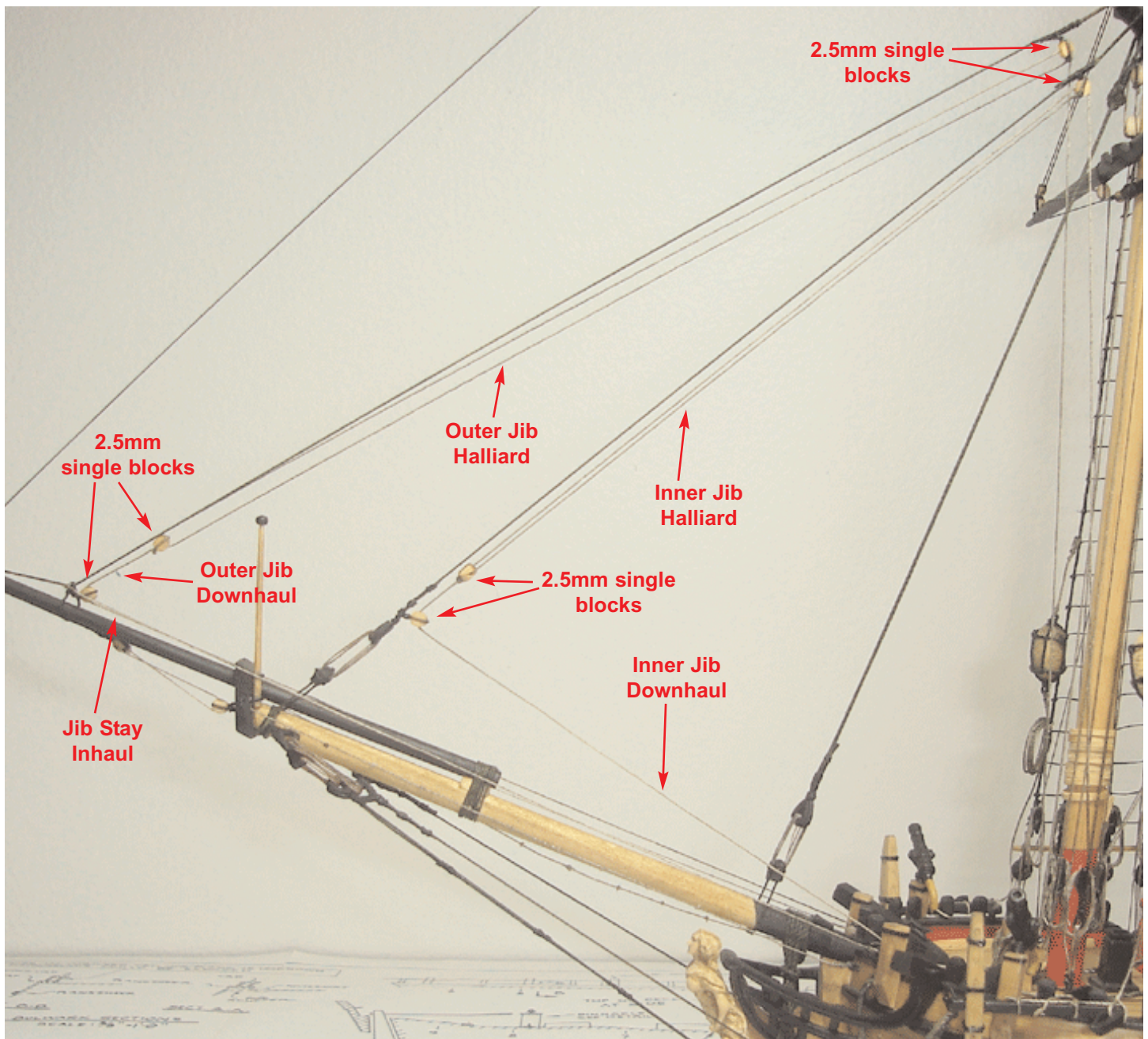
Now that most of the rigging has been completed I felt it was a good time to finally complete the vang and back stays. The vangs were only added to the fore gaff. As mentioned in the kit-supplied instructions, they most likely were not used on the main gaff. The vangs were rigged





using .018 black rigging. A 2.5mm single block was seized to one end of that line. The block is used for a tackle. The other end of the tackle also uses a single block of the same size. It is fitted with a hook and made from 28 gauge black wire. It was hooked into an eye bolt on deck as shown in the photo on the previous page. Check the belaying plan for the exact locations on deck. There are two vang, one on each side of the gaff (port and starboard). They are seized to the tip of the gaff and brought down so the single block is about 2" off the deck. I was very careful to make certain the blocks for both vangs were lined up across from one another. The tackles were set up (.008 tan rigging) and belayed to a cleat as shown in that same photo. They were finished off with a rope coil.

The back stays were handled the same way as the vangs. They were set up with a tackle hooked to an eye bolt on deck. The running ends of these tackles are also belayed to cleats located on deck. The same sized rigging lines were used. Check the belaying plan for the locations of the cleats and eye bolts. The only difference here is that each backstay (port and starboard) was seized to the topmast. See the photo provided showing the running back stays for the main and fore masts. I must note that according to the plans the back stays for the main mast were belayed to the quarter deck railing. I am not convinced that this was the method used to secure them. I decided to add some cleats on deck like the other stays instead.

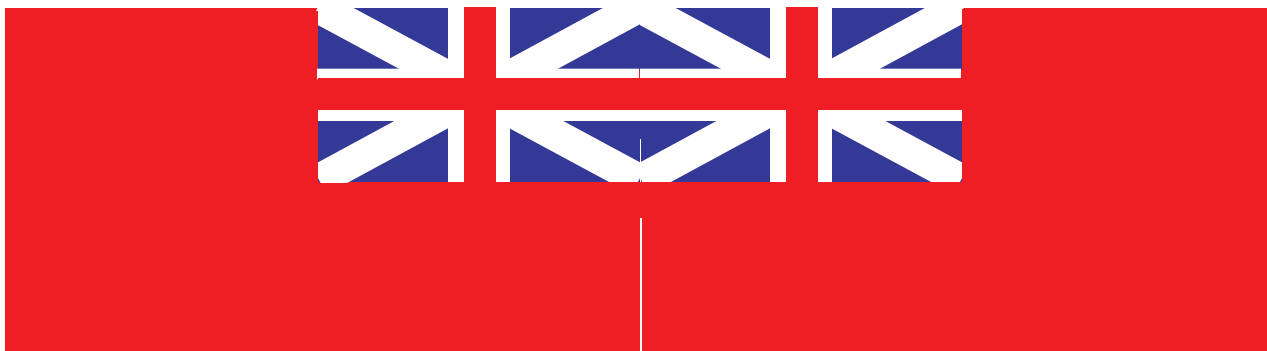


Jib Rigging...

We are in the home stretch here folks. Only a few more details remain and the model will be finished. The rigging plan in the kit clearly shows the placement for all of the single blocks for the jib rigging. These blocks are all 2.5 mm. I secured them as noted on the plans. Two blocks were positioned high up on the inner and outer jibstays. You can see in the photo above that they are lashed around the seizing of the stays near the trestle tree. Another single block was positioned just above the heart on the inner jibstay. The remaining single block was tied to the traveler on the starboard side.

I rigged the downhauls first. Another single block was seized to the end of some (.008) tan rigging line. The lines were run through the lower single blocks and belayed to the cleats on the rail (Either side of the bowsprit). These were finished off with some rope coils. I spaced the block for the downhaul about ¼" above the single blocks lashed to the stay and traveler. I placed a drop of super glue in each sheave to establish this position before belaying the end of the line to the cleats.

The jib halliards were done next. The halliards were stropped to the single blocks secured high on the stays. From here they were reeved



through the blocks on the end of each downhaul and taken back up to their originating blocks. Each halliard was run through these blocks and brought down to the deck where I belayed them to a mast cleat. You could take them down to the bits and belay them there as well.

Lastly, I rigged the jib stay inhaul. A length of (.008) tan rigging line was seized to the traveler on the port side. There is a nice detailed drawing of this on the rigging plan. From here it was brought to the only remaining cleat on the rail (starboard side of the bowsprit). Check the belaying arrangement on the rigging plan. Finish it off with a rope coil. All of the rigging is now completed. The only task remaining is to raise the flags.

The Flags...

Flags are provided with the kit but they are from the wrong country. The kit came supplied with several American flags from the 18th and 19th centuries. The Sultana was never sailed under American control (unless you are referring to the modern replica). I have created several flags appropriately used by the Royal Navy at this time. Simply print out this page and cut the flags out using a sharp hobby knife. Fold them down the center line and glue them together using an Elmer's glue stick or similar product. There is nothing worse than a stiff flag rigged on a ship model as if it was actually left on the moon. I have seen this many times and you

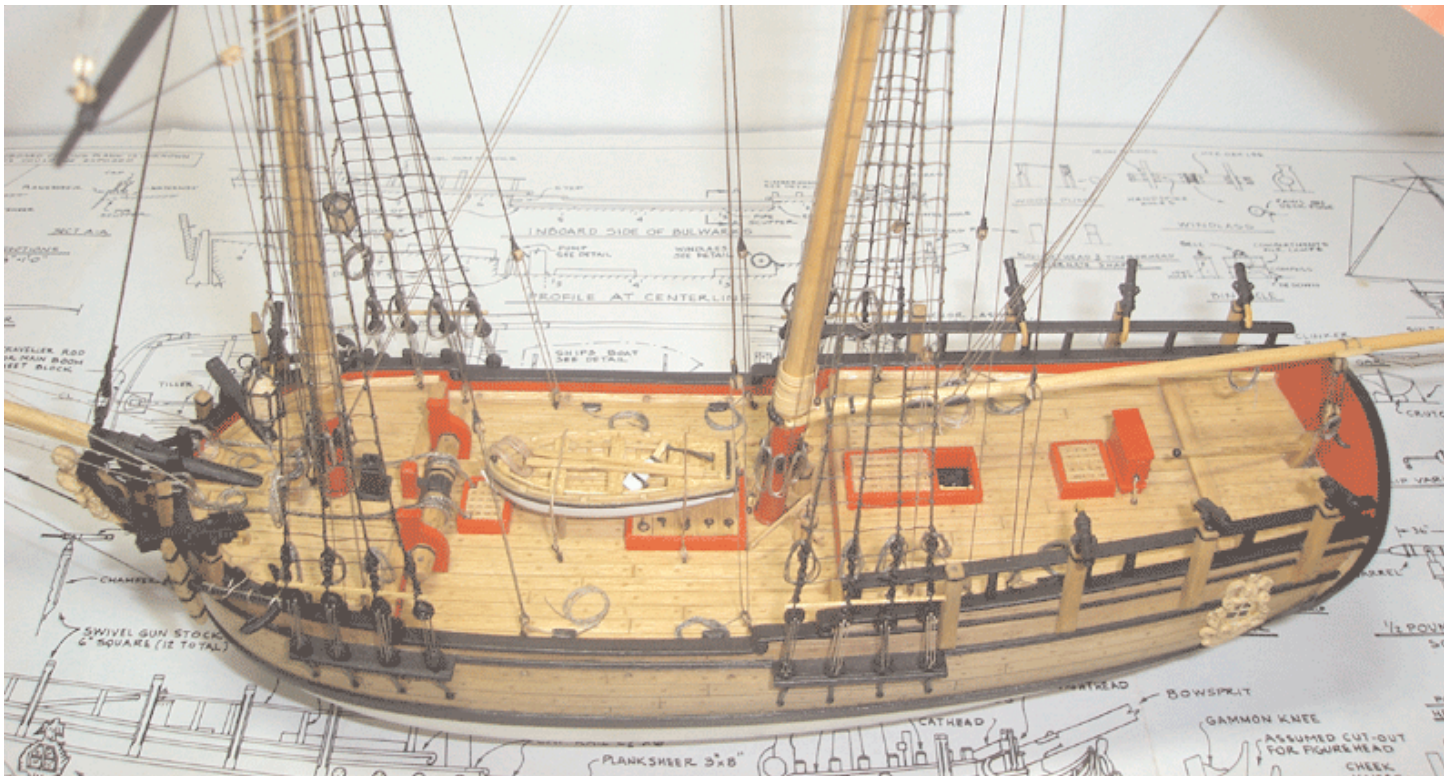
probably have as well. To remedy this I take the flags and wrap them around a wooden dowel. I continue to work the flag every which way imaginable. The folds should run diagonally and not vertically. The folds should radiate from the top corner where the flag hangs. The worse thing that could happen is I ruin the flag. Then all I have to do is print out another one. Try to avoid repetitious folds. The flags should never be bent or creased. The moment that happens, throw it away and start over.

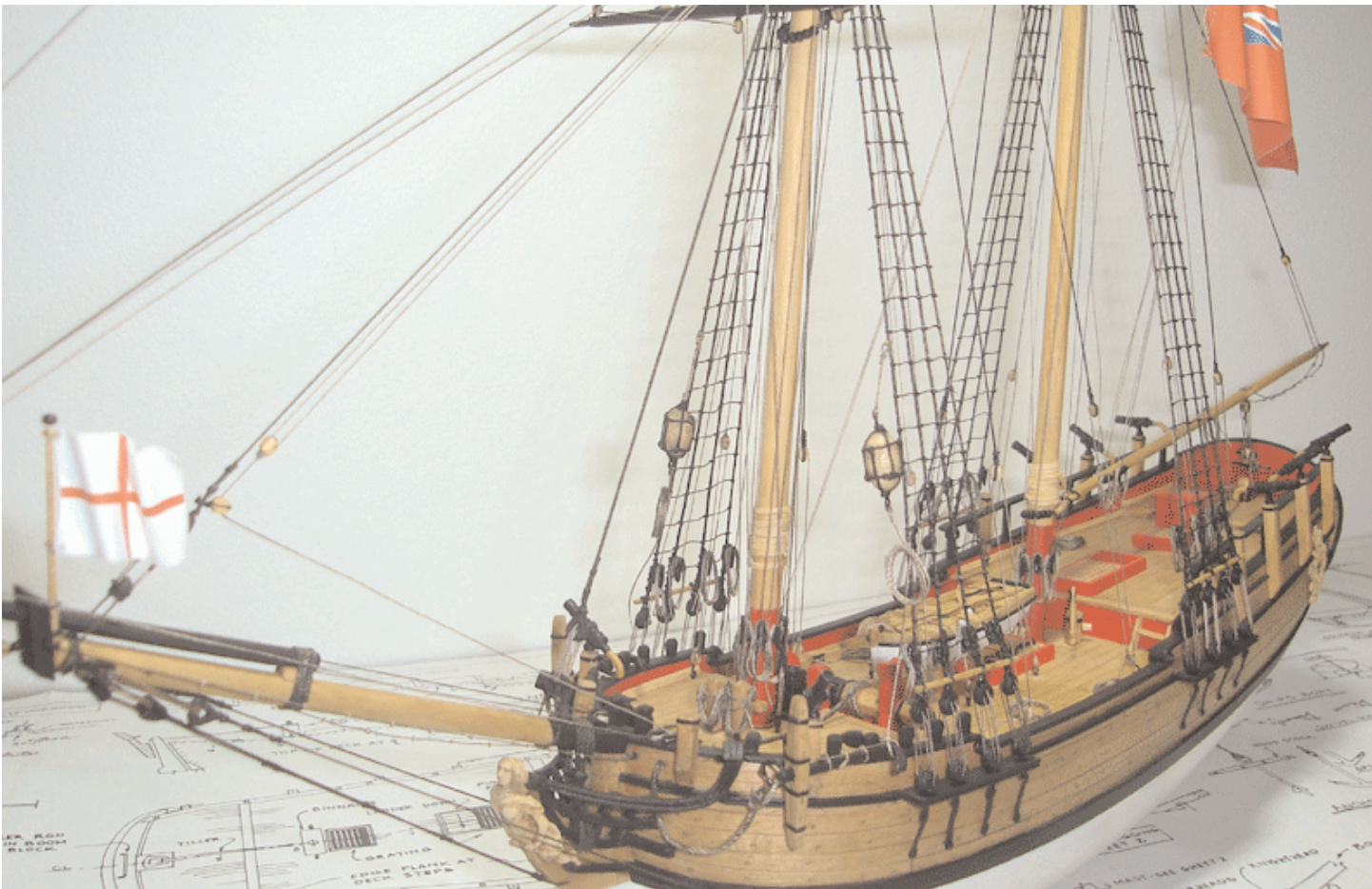
I decided to hang the large flag from the gaff halliard instead of from an ensign staff. Either way is acceptable. I have seen the staff attached to the stern in various ways and haven't liked any of the interpretations. The kit shows the tapered dowel drilled into the top rail of the transom. What ever method you choose this one should definitely be avoided.

The flags are secured to their halliards by drilling tiny holes in the corners of them. The flags are then lashed to the halliard or staff with some sewing thread after running it through these holes. I created a pennant for the model in addition to the smaller flag flown on the jack staff. I decided not to use the pennant after all but will provide it anyway in case you disagree. After I rigged the pennant I thought the flags overpowered the model so I removed it. Some folks might think the Royal Navy ensign flown on the stern is too large. I personally like a large flag there. It is reminiscent of those early oil paintings showing huge flags waving in the wind during battle.

Anyway, THE MODEL IS NOW FINISHED.









I hope you are happy with your Sultana. This project has been an interesting one. I hope it has inspired you to try other solid hull ship models, especially those kits now being offered by Model Shipways. These relatively inexpensive kits can turn out fantastic with a little creativity and modification.

Chuck Passaro