Instruction Manual

ENGLISH PINNACE

(Circa 1750-1760)

Kit No. MS1458

Scale: 1/2” = 1 ft.

Overall Length: 11 ¾”

Height: 2 ½”

Instructions and model prototype prepared by

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Model Shipways

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Having recently designed the Model Shipways kit for an 18th century longboat, I wanted to follow up that project with something that would complement it. I wanted to create another small boat from the period, as I find very enjoyable to build. Searching for inspiration, I came across some models for 18th century pinnaces. There were large 32 foot pinnaces and many smaller examples to look at. I was particularly fond of one model from the NMM in Greenwich. It was a model of a 21 foot long single banked pinnace from around 1750. It would make an excellent subject for this new project. It has a paneled interior and some decorative merits. I found an original draft that was almost identical to this small 4-oared pinnace. Things were starting to come together nicely. I recommend that all of you browse the National Maritime Museum (Greenwich) website. There are thousands of photos of contemporary models as well as the original drafts for them. The website is www.rmg.co.uk.

I wasn't necessarily thrilled with the color scheme shown on this model (pictured above), so I continued looking for some decorative alternatives. The pinnace was used as a means of transport for a ship's captain or other officers. It was not intended to be used to perform any other task. Tasks such as transporting water and other stores were normally left for the larger and heavier built boats like the longboat or launch. It was basically an officers' private transport. It was designed to be rowed although larger pinnaces could be sailed. It wasn't very seaworthy and was designed for primarily shore duties. After all, the officers needed a stylish way to get from their anchored ship to the dockyard. As such, the decorations were usually added much later at the officer's and captain's own expense.

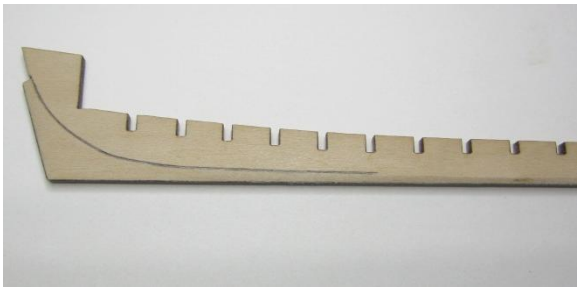
The pinnace was almost indistinguishable from what were called barges during this same time period. These were lightly built, carvel planked boats designed for rowing as well. The pinnace and the barge were very long boats in comparison to their beam. What determined their designation was merely the number of oars. Any boat with these distinct characteristics with more than ten oarsmen was called a barge, while those designed with fewer were referred to as a pinnace.

So I searched for more models of either a pinnace or a barge that was more appealing to me as far as the painting and decorations were concerned. I wasn't looking for anything that was too elaborate, as the smaller pinnaces were rarely as richly decorated as the larger admiral's barge. I managed to find several other models that appealed to me. I decided to take a few decorative elements from each and add them to the smaller 21' pinnace for this kit. I was much more satisfied with simple red panels inboard and painted frieze outboard on this model.

It didn't take too long before I had a working set of plans that contained all of the parts for this model. At ¼" scale, a model of a 21 foot pinnace is not even 6" long. This would be very finicky to put together, so I decided to double its size. I have scaled it up to ½" which should allow for more detail as well.

I think it will be an interesting and fun kit to build and shouldn't take longer than just a few weeks to finish.

Getting Started…



To begin, examine the laser cut basswood sheets for the bulkheads and keel parts. You will notice that there is some laser char on both sides of each sheet. There will be a lot more laser burning on one side vs. the other. This is because the side that faces down on the laser cutter usually receives more burning than the other side. Before you remove any of the parts from either sheet, sand both sides of each sheet smooth with some 320 grit sandpaper to remove this laser char. It is easier to do so now than after you cut them free from the sheet.

Remove the slotted false keel from the basswood sheet. Then carefully remove the stem and keel strip from the 1/8" sheet as well. Sand the laser char from the edges of each piece. It isn't necessary to do this for each slot in the false keel. In fact, it's probably better not to sand the slots yet. You don't want to enlarge these slots so the bulkhead frames would be loose. This kit was actually designed so the frames would fit snugly into each slot. In fact, they probably will not fit yet, as you will need to adjust the notches in each bulkhead and its corresponding slot on the false keel individually later. These adjustments should be left until it is time to dry fit them one at a time later. Right now we will concentrate on preparing the false keel properly so you can attach the stem and keel.

You will notice in the photo provided that the bearding line has been laser-etched onto one side of the false keel. This detail should be transferred to the other side of the false keel using the plans. It would be very difficult to build a small model like this in the exact same way that the full sized pinnace was built in the 18th century. But it is still very important that some of the construction features are designed into the model. It would be very difficult to properly plank the boat if the keel is not tapered at the stern. You will need to gradually taper the false keel from the bearding line towards the outside edges.

This piece is only 1/8" thick but it will be necessary to gradually reduce its thickness along the edges of the false keel. It should be reduced to slightly LESS than1/16" thick. I realize that this sounds incredibly difficult and you would think that it would become too fragile. But that will not be the case. This is crucial in order to have the planking sit flush against the keel and stern post. If the false keel isn't reduced in thickness, the planking will actually stand proud of the keel and stern post which would look just awful. You should taper the area from the bearding line as shown. Sand or file it so it gradually reduces in thickness from that line to the edge. Then carry that bearding line forward along the bottom of the keel and up the stem at the bow. The hull planking will sit in this rabbet which will be formed once the keel and stem are glued into position.

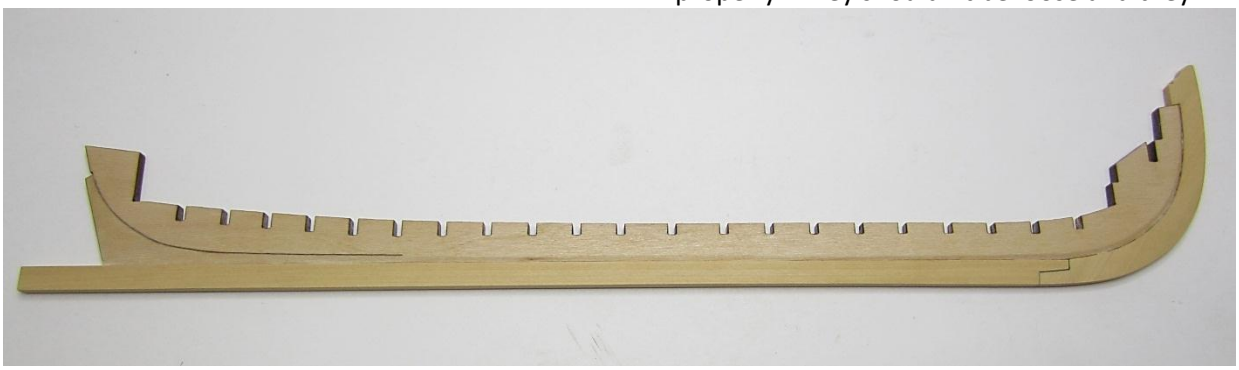
One good trick that you will help you bevel the edges of the false keel: Run a length of 1/16" wide pinstripe tape down the bottom edge of the false keel and up the stem and stern post. Be careful to center it so you have 1/32" on each side of the tape. A dark color tape is easier to use so you can see it better. Now you can sand or file that bevel from the bearding line to the edge of the tape. This will make it easier to get a really neat and consistent bevel along its entire length. In the photo provided above, you can see that I used black pinstripe tape. Once you pull off the tape it will reveal quite a straight edge.

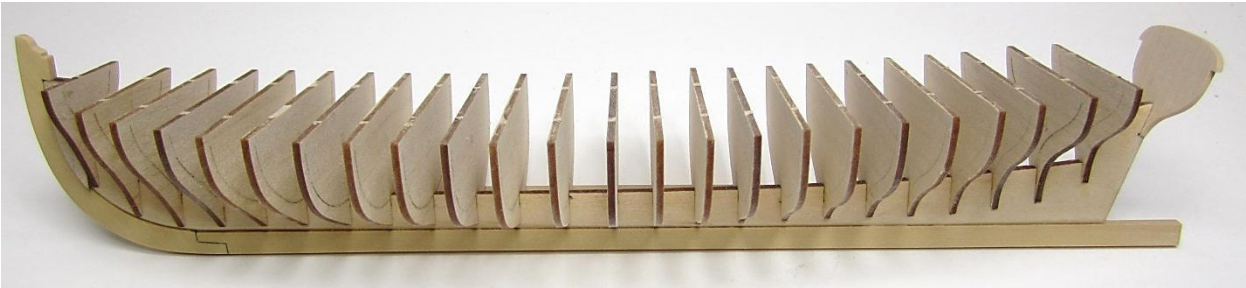
Once the false keel is tapered on both sides as described, you can glue the keel and stem into position. Be careful to center the keel along the bottom of the false keel. This will create a consistent *rabbet* for the planking. Allow the basswood keel to run beyond the aft end of the false keel. You will trim it to the proper length later after the planking and stern post are added.

Adding the Bulkhead-Frames…

The bulkheads were designed in basswood for a specific reason. The softer wood will allow you to snap the center tab of each bulkhead to remove it after the planking is completed. Once the center tabs of all bulkheads are removed, it will leave the outer frames intact and simulate an actual framed appearance. To do this, the wood grain actually runs across each bulkhead. This makes is easier to snap the center tabs free to remove them. Do not remove the center tabs of any bulkhead until after you plank the hull.

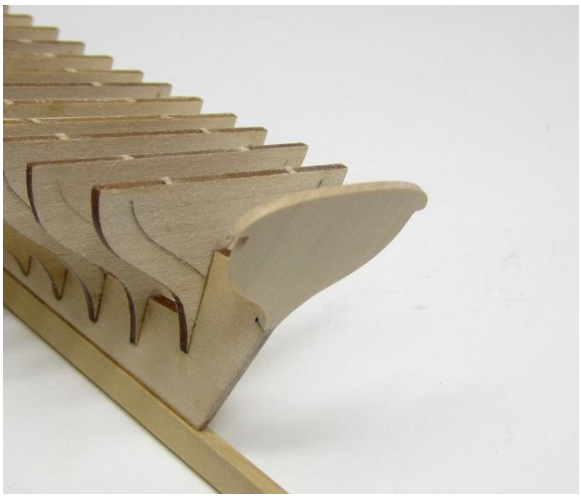
There are 24 laser cut bulkheads for this model. They are 1/16" thick. They should be glued into their respective notches along the false keel. THIS IS WORTH REPEATING: Make sure you leave the center of each bulkhead intact when you glue them into position. The center of each bulkhead is held in place with three small tabs, one on the bottom and one on each side of the top of each bulkhead. Test each bulkhead to see if it will fit into each notch of the false keel properly. They shouldn't be loose and they





shouldn't be too tight. They should be a snug fit. If you think they fit too tightly, a little filing of each notch will do the trick. This will absolutely be needed. Take your time tweaking those notches. Dry fit all of the bulkheads before you glue them into position.

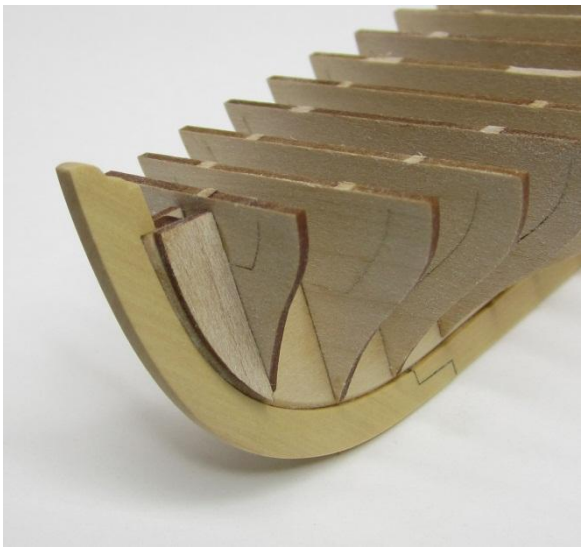
As you are adding the bulkheads, make sure you view each of them from the bow and stern "head-on". Look down the keel to make sure they are all centered and lined up correctly. This is a tricky and important step. You should have enough time before the glue dries to make sure that a bulkhead isn't leaning crooked to one side. You can draw a reference line down the center of each bulkhead if it will help you keep them all lined up with keel properly. The flat tops of the bulkhead centers are another good focal point for observation. They should all be straight and consistent with one another as you glue more of them into position. This is important as the hull will not be faired properly if they are not lined up. You should view the bulkheads from above to make sure they are glued in at a right angle to the keel and spaced evenly apart as well. You might consider using yellow wood glue for this because the open time is longer. This will give you more time to make adjustments before the glue sets permanently.



Fairing the hull is the process of sanding the outside of the hull carefully. You must sand the outside of the bulkheads so the planking will lay flat against each edge. Use 220 grit sand paper or finer. The basswood is soft and will sand easily. Don't use a lot of pressure. Use a light touch because the bulkheads are delicate and they will move and bend as you work. Take your time here. Some builders like to glue a strip or two of wood across the tops of the bulkheads to secure them better (from bow to stern). This will stop them from moving and bending as you fair the hull. If you do this, the strips will need to be removed before you can cut the centers of each bulkhead free later on. So do not use too much glue and make sure the strips can be easily removed.

After the hull is faired, you can add the transom (1/16" thick -photo provided left). This piece was added after the hull was faired because it is only glued to the edge of the false keel. It might split or break off otherwise. It is only 1/16" thick but still needs to be faired with the

bulkheads. Please use a very light touch. Carefully glue it to the back edge of the false keel. There is a small notch to help you line it up correctly. Just sit the bottom of the transom on top of the notch. Make sure it is straight and at a right angle to the keel before the glue dries. Drawing a line down the center of the transom should help you line it up with the edge of the false keel.



At the bow, there are two basswood filler pieces that will help make the hull planking easier (photo above). These 1/16" thick pie-shaped pieces should be glued to the sides of the false keel at the bow. A photo is provided that shows these two pieces glued into position along with the transom. Fair the two bow fillers to get a smooth run of your planks onto that first bulkhead. It's a tight area to work in but this is essential if you want to create the correct shape of the bow while planking. Pay close attention to the front edge of the filler pieces at the bow. It should have a 1/32" wide space between it and the laser cut stem stem. This space should be consistent along the length of the stem. See the detail photo on the previous page. Your planking will be inserted into this rabbet at the bow and give you a nice clean appearance.

Planking the Pinnace…

The hull will be planked using 3/16" x 1/32" basswood strips. It will accommodate 10 strakes on each side, although there may be a need to use a wider strake to complete the planking effectively. Some ¼" wide planking strips are included for this purpose. What follows is a description of how I planked my prototype for this kit.

Some might argue that the only way to properly plank a small boat like this would be to spile each plank individually. Because it is presented as a kit, most folks are accustomed to receiving pre-milled strips for their planking. It is indeed very possible to plank a small hull like this using pre-milled strips. It will just require that each strip be pre-bent to the proper shape and possibly tapered to get the job done.

I dip my planks in a glass of water for about 10 seconds. Then I clamp them to various jigs and shapes in order to mold them. While they are clamped into the shape required, I quickly dry them using an old blow dryer. The hair dryer is turned up to its hottest setting and used to heat up the planking strip. In just a minute or two, the strip is completely dry. I will give it another minute to cool down before it is removed from the jig. Each strip should hold its shape well with minimal spring-back.

The basswood strips can be clamped around a bottle cap as shown, or clamped to a flat surface to achieve an edge-wise bend (photos on top of next page). Both types of bending will be required in order to properly shape each strake so it will lie flat against each bulkhead frame. You could, however, spile the shape for

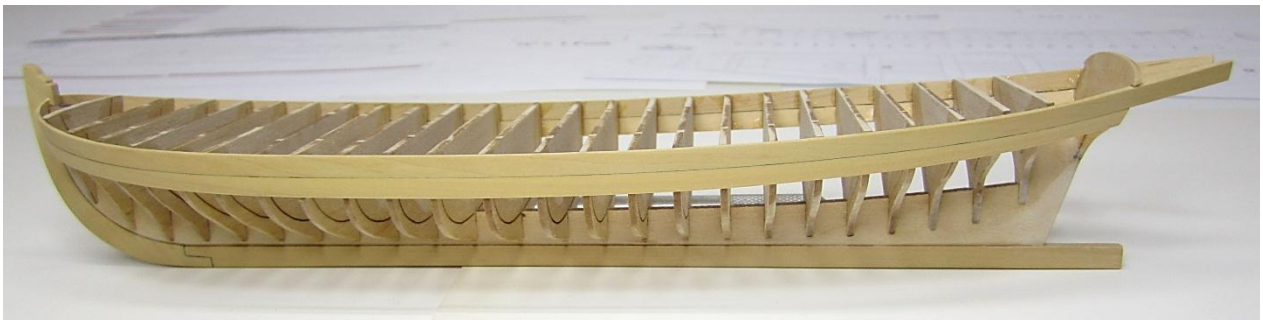
each plank and cut it from a wider sheet of 1/32" basswood, if you prefer. There are many books available on the topic and making this a treatise on planking is beyond the scope of these instructions. One such book is "Planking the Built- Up Ship Model" by Jim Roberts. It is available from Model Expo.

To begin, glue one strake along the sheer of the hull. This first strake should extend well past the transom at the stern. The decorative cast "second-transom" will be glued directly to the ends of these two planks. Examine the plans to determine how long this first plank should extend past the transom.

Immediately below this sheer strake, glue another. This one will not extend beyond the transom. I simulated the caulking between each strake using a soft #2 pencil. I ran it down one edge of each seam. Each strake was glued to the hull in one length from bow to stern. These two initial strakes of planking are very

important. You will see how strong the hull becomes after they are completed. Make sure you use plenty of glue to secure these strakes to each and every frame. You must create a strong bond for them. It will help immensely when trying to remove the bulkhead centers later. If they are not glued to each frame securely, the thin and fragile framing might split as you try and cut through the tabs on each side holding them in place.

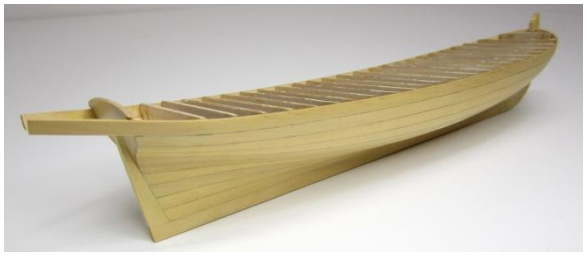
Then I began planking the hull from the keel upwards. I added two strakes against the keel. The first strake (the garboard) has quite a twist in it as it progresses towards the stern. One edge of the garboard strake was beveled so I could fit it into the rabbet. By sliding it in the rabbet between the keel and false keel, you can produce a really clean and neat corner with no gaps or spaces. Each strip was allowed to extend past the stern post. I filed them neatly flush against the false keel afterwards. Examine the photos on this page which show the planking process progressing.



I progressed with the planking by adding two more planks under the sheer and then alternated again by adding two more working up from the

keel. By planking in this manner, I was able to meet in the middle. Note in the photo below how each plank was pre-shaped as described earlier. You can see the pre-formed curve for the bow and the twist of the plank needed for the stern. As you start to close up the hull, you will finally reach the point where only one strake remains to be added. This space will not

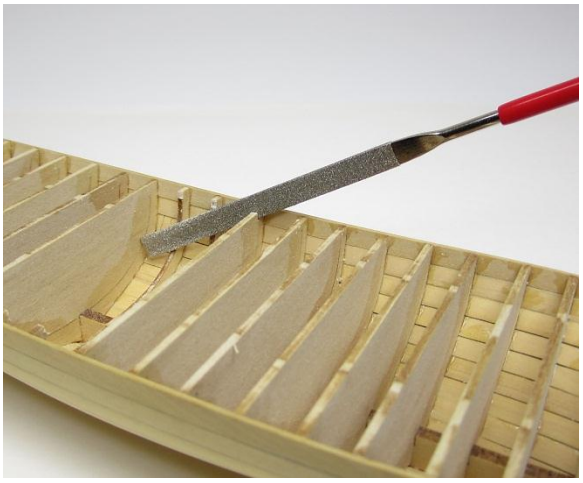
be consistent at all. In all probability, it will be wider than 3/16" (especially at mid-ship). A wider 1/4" x 1/32" strip is provided in the kit for this purpose. Carefully shape this final plank to fit the opening on your hull. Because it is in the middle of the hull where it begins curving towards the keel, the wider plank won't be noticeable when viewing the model from port or starboard.



Sand the hull smooth and apply a finish. I used some MinWax Wipe-on Poly. I have posted a few photos of the hull to show the planking completed. Please note that the stern post was also added at this time. The planks were filed flush against the false keel. Then the laser cut stern post was glued into position. The keel was then cut flush to the aft edge of the stern post to finish it off.

Removing the Frame Tab Centers…

I realize that it can be a bit worrisome when it comes time to remove the bulkhead centers.



Basically you have to cut through the top of each bulkhead down to the laser cut line on each side. Then bend the center so it snaps off at the base. I recommend using a needle file as shown in the photo. I had tried using a mini razor saw, but it pulled too much and split the wood along the top of the frames. Use a gentle stroke and don't apply too much pressure.

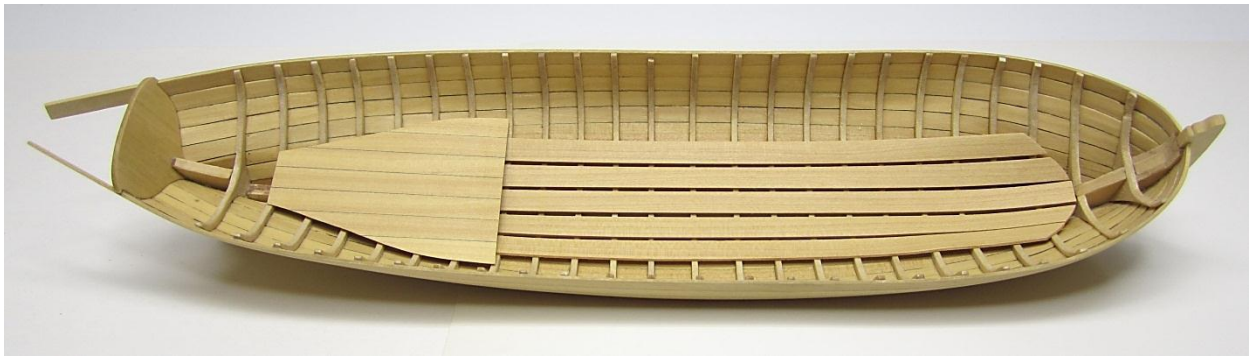
I am right-handed so I hold the model in my left hand while filing the tabs. I place my thumb from my left hand on the top of the bulkhead I am filing to stabilize it. You want to restrict the fore and aft movement. This is especially true when filing the first tab on one side. As you make your final pass to free the first side, the center will want to bend forward or aft, which will split the other side you have yet to file. So, make sure you stabilize the bulkhead from moving with your thumb as you file. I would also give all of your bulkheads a "wiggle" before you even start filing. Make sure you have firmly secured the first two planks to the bulkhead. If you find that the bulkhead wiggles and isn't secure, add a drop of glue to be safe.

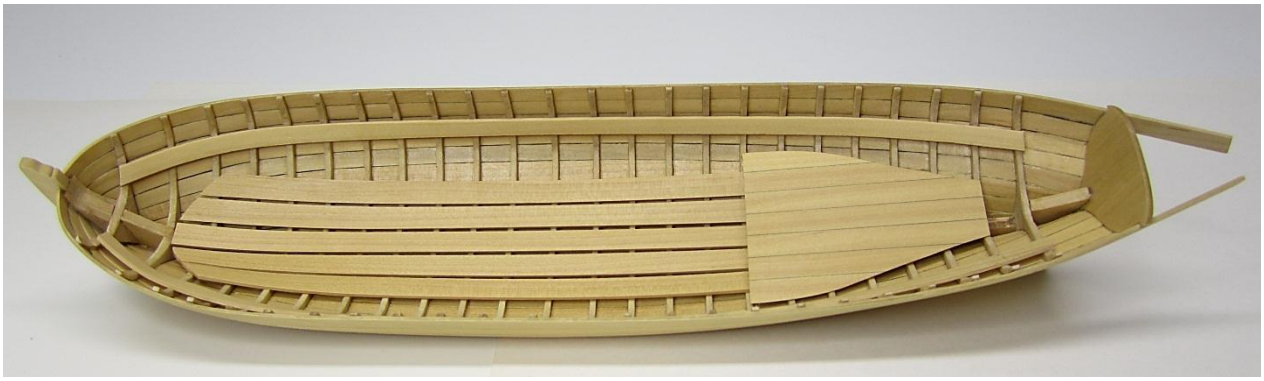
Once all of the centers are removed, you must fair the inside of the hull. This is a messy chore but not very difficult. I used some 220 grit sandpaper. Try and clean up the inside edge of the frames as well as reduce their overall thickness. The hull will be fairly rigid at this point so don't worry too much about crushing the hull. Examine the photo which shows my

hull after it was faired. You can get a sense of how thin my frames are along the sheer line. They gradually increase in thickness as they curve towards the keel.

Adding Some Inboard Details…

As shown below, the floorboards were added next. The floorboards are 1/4" x 1/32" boxwood strips cut to length. Start by gluing





one down the center of the false keel. Then add two on each side of that initial strip.

The aft platform was made by gluing 7 small strips of 1/4" x 1/32" strips together edgewise. I simulated the caulking between the seams using a #2 pencil. I created a paper template from the plans to test the shape of the platform as drafted. I recommend you do the same. I placed the paper template in the boat to test how well it fit. I tweaked that paper template until I was satisfied. The goal here is to make sure the platform will sit as low in the hull as possible, and just above the floorboards. Then I traced my paper template onto the wood I glued together. Cut out your platform and glue it into position.

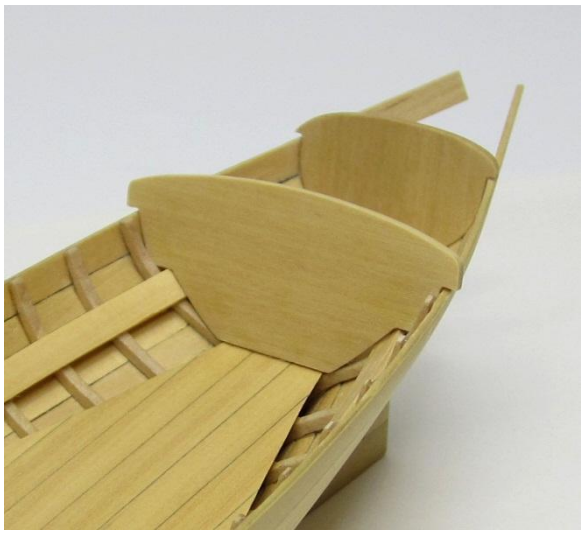
Installing the Risers…

The risers are long strakes that are nailed to the inside of the hull. The seats (thwarts) sit on top of these strakes. They run almost the entire length of the hull. These two boards are one of the most important parts of this model. Poorly placed risers will affect many of the future parts of the project. Use 1/32" x 3/16" basswood strips for the risers.

The importance has to do with the position of the risers. They must be placed an equal distance from the sheer line. They must also NOT be placed too high on each side or you won't have enough room to create the panels above them. Examine the plans carefully before you glue these into position. As a guide, use the external planking to help you establish the run for these strips. They should be positioned along the third exterior planking strip. Use this as your reference. In fact, the risers might even be placed just a hair lower (about 1/64") but following the run of that third exterior plank. I have posted a photo of my model above.

You will notice that I placed my risers just a little bit too high in relation to the third exterior plank. Unfortunately I didn't realize it until it was too late. This will make life somewhat more difficult when it comes time to create those panels. I placed mine about 1/32" too high. My panels will now have to be slightly narrower when I get to that stage of construction.

I painted the risers red after they were installed. I didn't bother with trying to paint the underside of each riser since it won't be seen. But painting them will be a lot tougher once the thwarts are installed. These strips should be pre-bent to shape just like the outside planking was. Carefully align both risers port-to-starboard so they are the same distance from the sheer line. Otherwise your seats (thwarts) will be crooked and uneven.



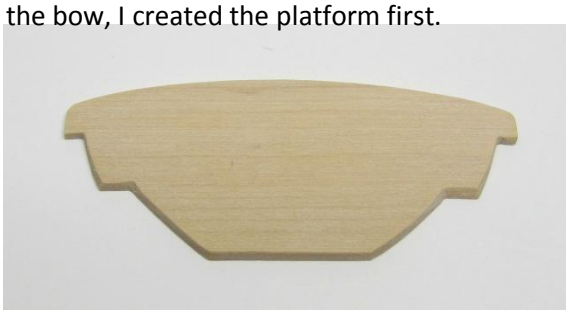
Adding the Thwarts and Cockpit Seats…

The first thing I added at this stage was the seatback for the cockpit area. This can be a tricky piece to add. The back of the seat has been laser cut for you and is 1/16" thick. It will not fit properly after you remove it from the sheet. The shape is only approximated. Depending and how you faired the interior and at what height you placed the risers, there will be too many variables from model-to model to laser cut them perfectly.

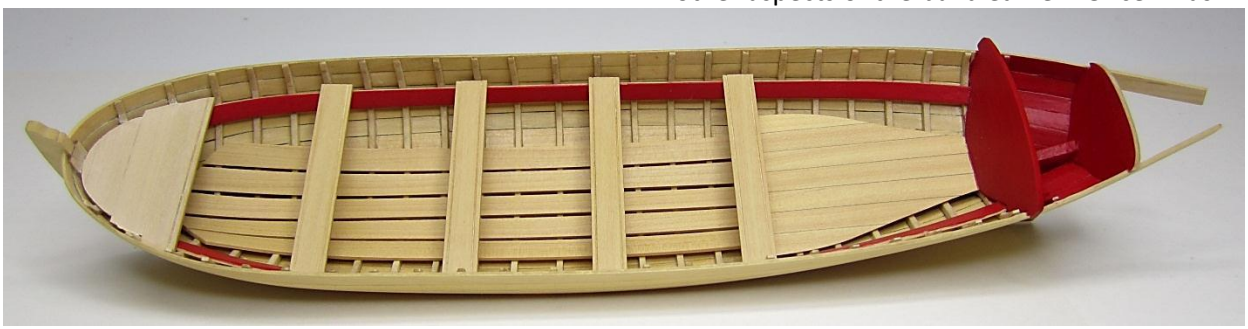
My solution was to pop the laser cut seatback from the sheet and trace it onto some card stock. I used the card stock template as my working pattern. I tested it on the model. Try and establish the correct angle when testing your card stock template. The seatback reclines as shown on the draft. Slowly and carefully tweak your template so your seatback fits over the risers. It should fit snugly against the side of the hull above the risers too, which means you will have to notch your template accordingly.

Once you are satisfied, place the template over your laser cut piece and trace its refined shape. File and sand your seatback to match the card stock template and glue it into position. See the photo of my seatback and its shape prior to being installed below.

Bypassing the cockpit seats for now, I added the five thwarts first. The thwarts sit on top of the risers as I mentioned earlier. The thwarts are made by cutting a 5/16" x 1/16" strip to the lengths needed. They were glued into position and evenly spaced as shown on the plans. Forward of the first thwart, there is a small platform. Before gluing this thwart into place at the bow, I created the platform first.

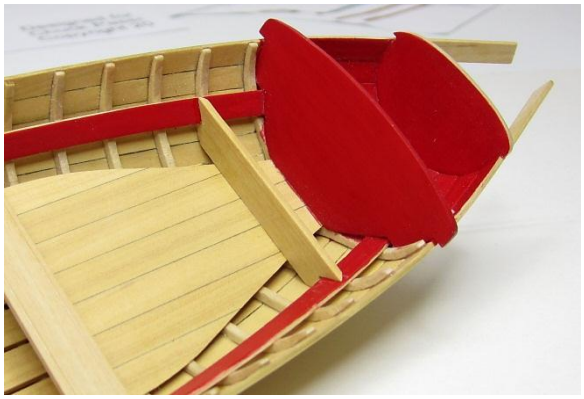


The platform was made by gluing three small lengths of 5/16" x 1/16" boxwood strips together edge-wise. No need to simulate the caulking this time since the platform will be painted. I created a card template to create the shape for the platform just like I discussed for other aspects of the build earlier. Once I was



sure it fit properly, I cut the platform to shape and glued it into position. Then I glued the first thwart on the model. The thwart actually butts against the platform and sits flush with it. Also note in the photo posted on the previous page that the seatback and helmsman area were painted red before the thwarts were added.

Note: The thwarts can have a small detail added to them. If you look at contemporary models of ship's boats, the thwarts have a decorative groove on each side. This creates a nice beaded edge. I decided to include this detail and you might consider it as well. I created the groove by using a sharp awl. I ran the sharp awl down the edge of the basswood strip before I cut each thwart to length. I used a metal straight-edge for a guide. Just a few passes with the awl can create a nice groove along the edge of the strip. You can see the decorative grooves well on these unpainted thwarts. They are a little hard to see in the photos of the painted thwarts on this pinnace.



Cockpit Trunk

There is a small trunk concealed under the cockpit seat. The front of the trunk was added next. It is laser cut for you, but must be refined with a template first. Use the same technique that was described for the seatback. The top of this piece should be flush with the top of the risers. The photo below shows the shape of the front of the trunk before it was installed.

Returning to the cockpit seats, these were finally tweaked to shape and glued into place. The two seats (port and starboard) are laser cut for you. But because there are too many variables that might affect their placement, once again, always start by using the piece as a guide to create a template. Then trace the template onto the laser cut piece once you are satisfied they will fit properly. These are pretty straight forward, although you will have to remember to bevel the aft edge so it fits flush against the seatback. As you can see, I painted all of these parts soon after installing them. I try to paint as I go. Some folks prefer to paint