

# INSTRUCTION MANUAL

## *Modeling The* **MAYFLOWER** *1620*

### Technical Characteristics

Model Shipways Kit No. MS 2020

Scale: 5/32" = 1 ft.

Overall Length: 22"

Height: 17"



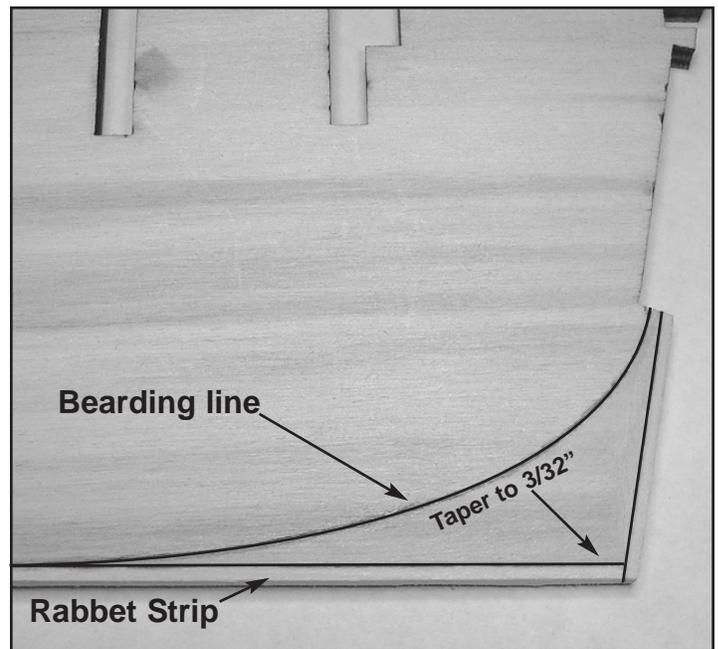
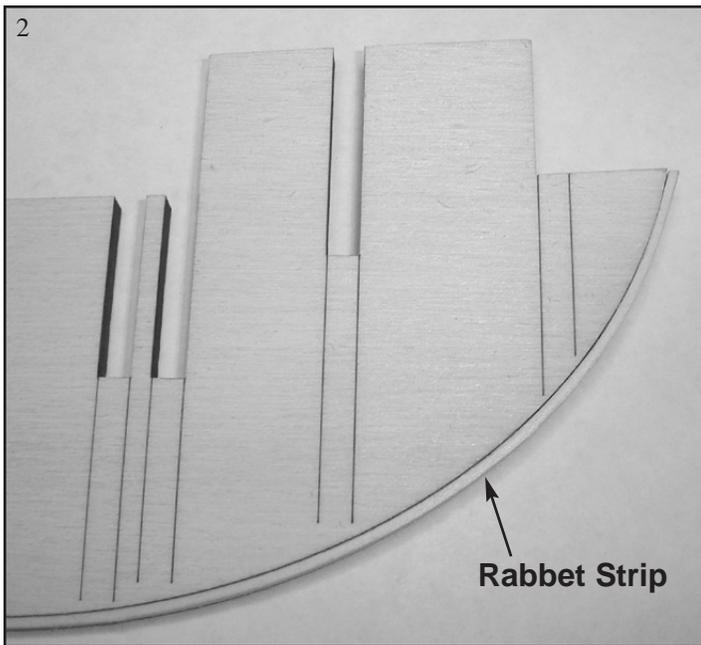
**MODEL SHIPWAYS**  
• QUALITY KITS SINCE 1946 •



Instructions and model prototype  
prepared by **Chuck Passaro**

**Manufactured by Model Shipways, Inc - Hollywood Florida**  
**Sold by Model Expo, a division of Model Shipways, Inc. - [www.modelexpo-online.com](http://www.modelexpo-online.com)**





The two photos above show the rabbit strip glued to the bottom of the bulkhead former. The bulkhead former is tapered from the bearding line to the rabbit strip.

## GETTING STARTED

The Mayflower has been designed as a plank-on-bulkhead kit. Many of the elements have been laser cut for you and only need some minor sanding before assembly. Cut all of the laser cut elements free with a sharp blade to avoid splitting them. Be sure to sand any “burn” residue from the part edges before applying any glue for assembly.

To begin, remove the false keel (bulkhead former) and lightly sand its edges. Glue a 1/16” x 1/8” basswood strip along the bottom edge of the bulkhead former. See the photos above. The bulkhead former is 3/16” wide. When you glue this “rabbit strip” along the bottom of the bulkhead former be sure to leave an equal amount of space on both sides of it. The rabbet that is formed will help you while planking the hull. An additional rabbet strip should be glued to the stern post as shown in the second photo above.

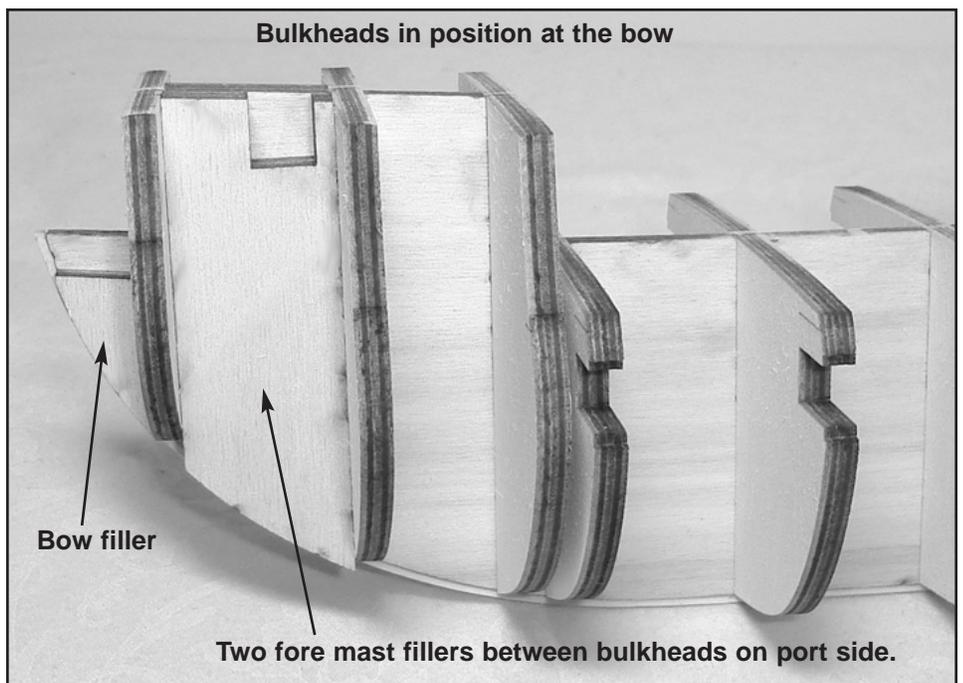
You will notice that there is a laser etched reference for the bearding line at the stern. This is also shown in that same photo. The etched reference line only appears on one side of the bulkhead former and you will need to transfer this reference line to the other side. The bulkhead former needs to be tapered gradually from this bearding line to the rabbit strip. Reduce the thick-

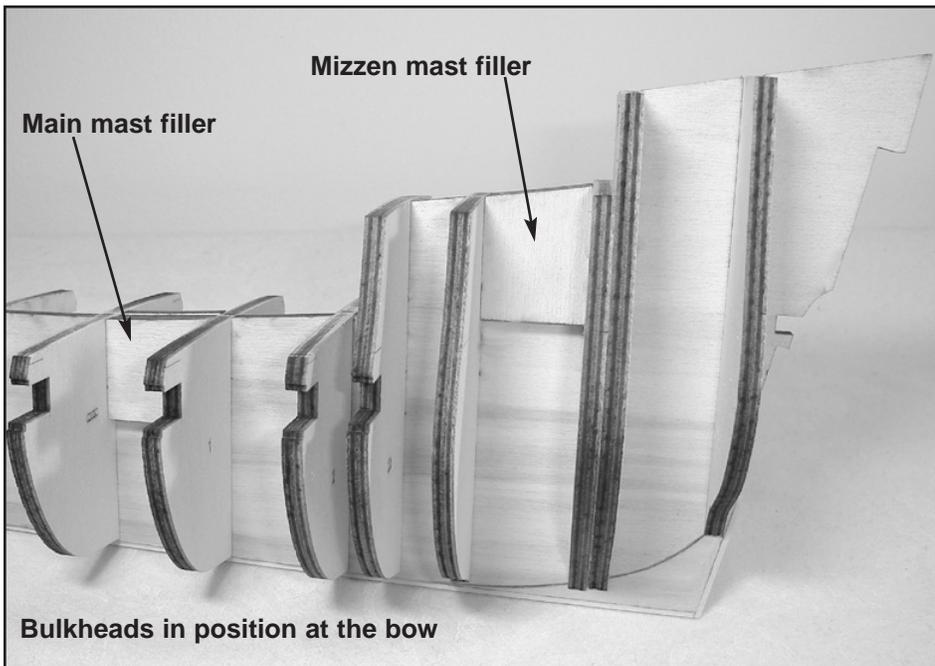
ness of the bulkhead former gradually to 3/32” wide. This means you will actually be reducing the thickness of the rabbit strip somewhat also. The bulkhead former only needs to be tapered in the area between the bearding line and the rabbit strip. You do not need to taper the bulkhead former forward of this area. Check the tapered area on both sides of the bulkhead former to ensure it is consistent.

## Assembling the bulkheads...

Remove all the bulkheads and test fit them

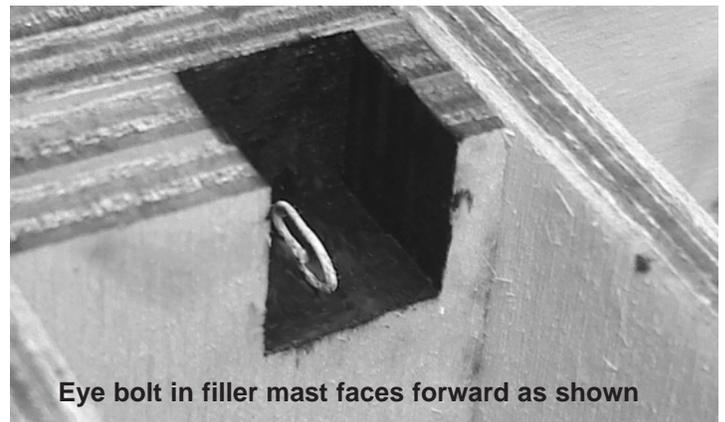
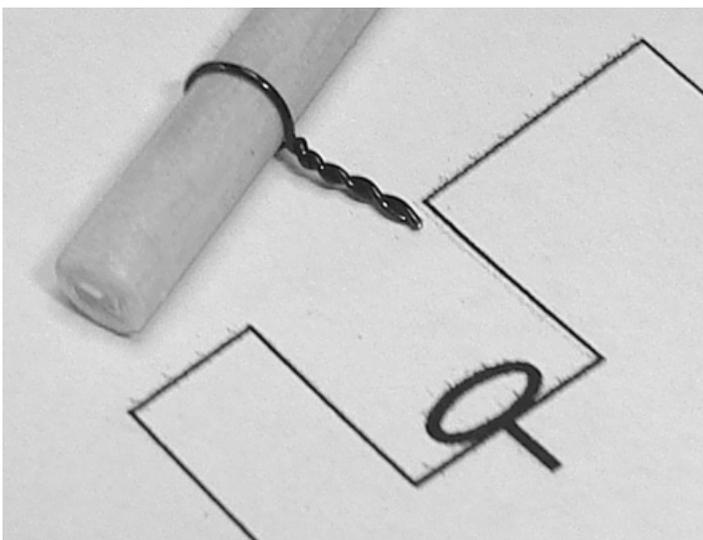
in their respective slots on the bulkhead former. Use the laser etched reference lines under each slot of the bulkhead former as a guide. There are also etched reference lines on one side of each bulkhead. All of the reference lines on the bulkheads forward of the center line should face forward. All the reference lines on the bulkheads aft of the center line should face the stern. When satisfied with their fit you can glue them permanently into position. To complete this step glue the bow, fore mast, main mast and mizzen mast fillers into position. See the photos provided



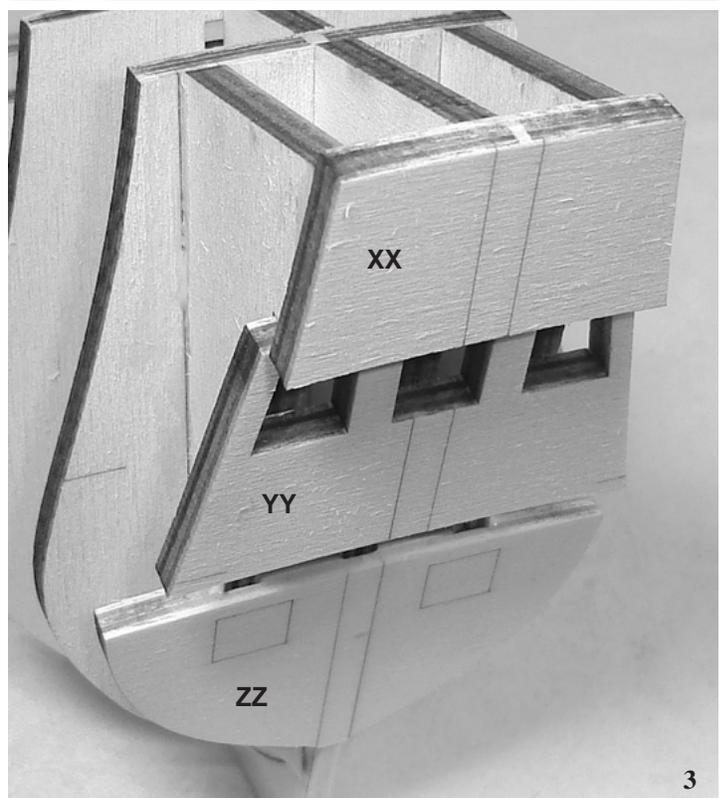
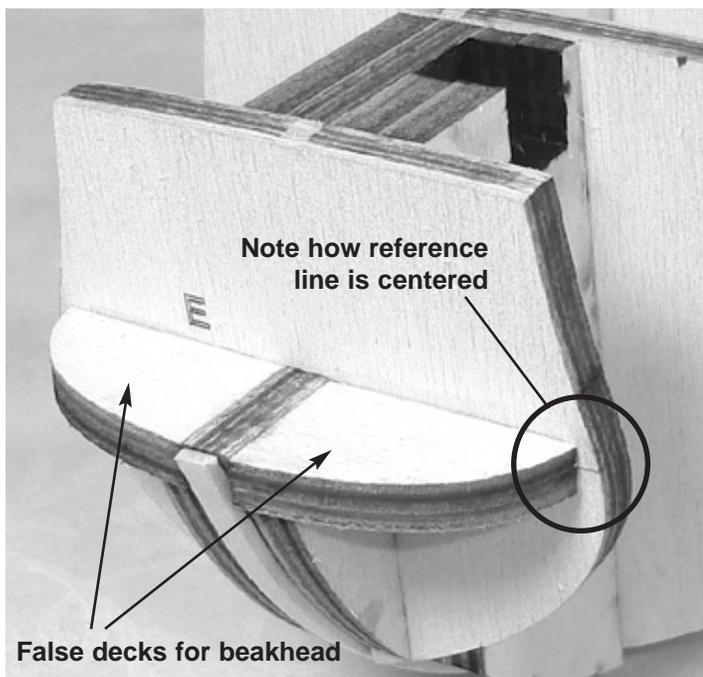


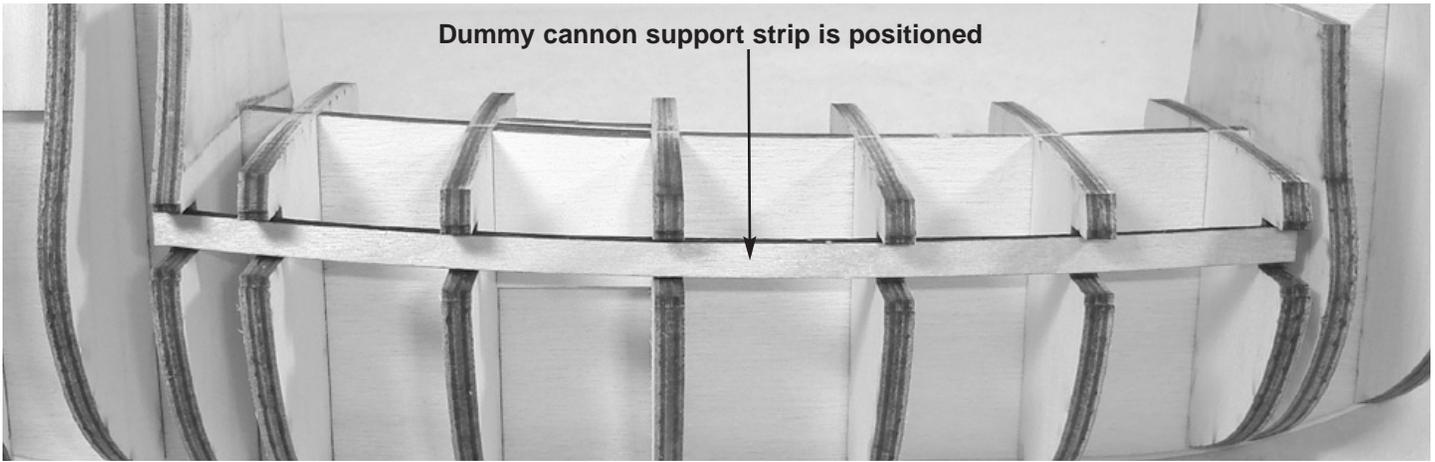
which show the bulkheads and fillers glued into place on the prototype. Please note that two fore mast fillers are supplied for the port side of the bulkhead former. They are both notched out to receive an eye bolt in the next step. These filler pieces should fit “snug” between their respective bulkheads without forcing them out of square with the former.

Paint the recessed area of the fore mast filler notch black. Then create a large eye bolt from some 28 gauge black wire as shown in the accompanying photo below. Use an appropriate sized wood dowel or drill bit to make it. You can compress the “eye” somewhat before installing it into the notch. The eye bolt should be inserted into a pre-drilled hole in the notch. Drill the hole in the center of the notch which will be directly on the seam between the



Eye bolt in filler mast faces forward as shown





two filler pieces. See the photo showing the eye bolt in position. It has been painted white so that it will show up in the photo. Take note of its orientation as the eyebolt should face forward as shown. It is shown differently on the plans so you would know the approximate size of the eye bolt needed.

### Finishing the bow and stern framing...

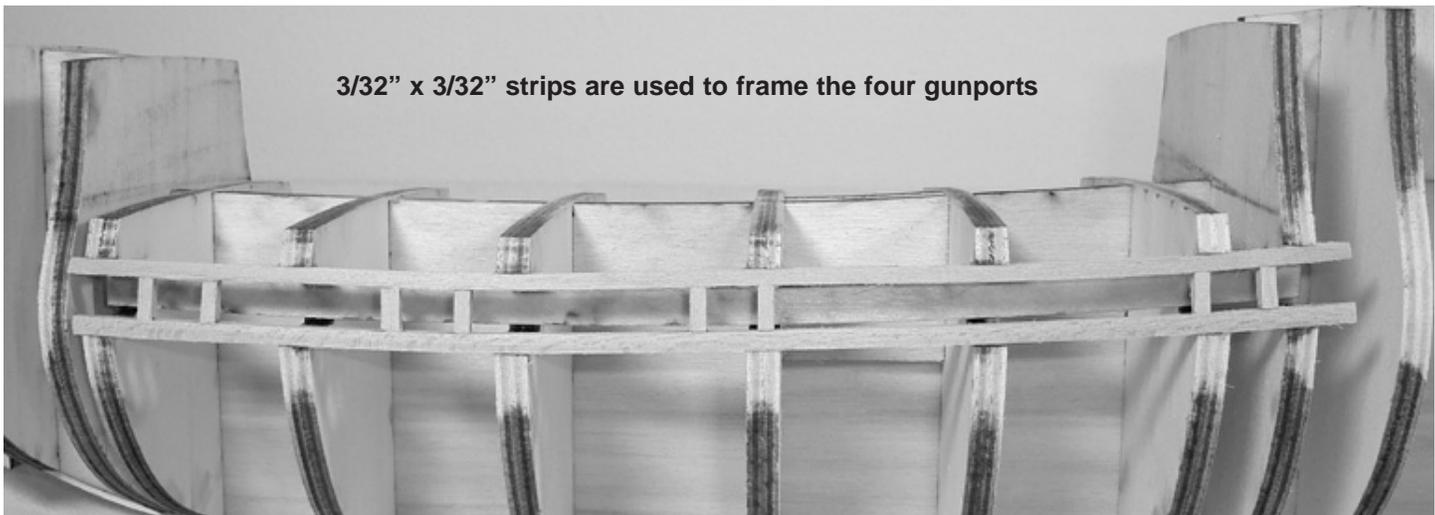
There are two laser cut pieces that form the deck for beakhead. Glue them into position as shown in the photo provided. Note that the reference lines etched on bulkhead "E" are centered within the width of each deck filler. The top of each piece should also be flush with the top edge of the bulkhead former.

There are two laser cut stern frames. They should be glued to the face of bulkhead #5. There are two laser etched reference lines indicating where each stern frame needs to be positioned. The top edge of the stern frames should be flush with the top edge of bulkhead #5. Once the glue for the two frames is thoroughly dry you can attach the three stern pieces XX, YY, and ZZ as shown. Examine plan sheet four for more details. There are more laser-etched referenced lines on each of these pieces to help you center them with the bulkhead former. Note that the two laser etched reference lines on part (ZZ) are only 1/8" apart. This will be important while you are planking that area of the stern.

### Gun Port Framing...

This Mayflower model is designed so the four gun ports on each side of the hull can be shown open. All of the ports will have dummy cannons inserted into a support strip. This dummy cannon support strip has been laser cut for you. It is 1/16" thick. Glue the support strip against the back side of the notches cut into the bulkheads. See the photo provided. You could paint the strip black at this time also so it won't be seen through the finished ports.

Begin framing the gun ports as follows. The top and bottom frames for each port are defined using 3/32" x 3/32" strips. Glue these into position first. There are small notches laser cut into each bulkhead for them. These strips should stand proud of the outside edges of the bulkheads so you can sand them "true" to the shape of the hull later. The space between the two strips should be 1/4". The sides for each port opening are created using the same sized strips. You will have to determine their position using plan sheet four as a guide. Transfer the locations for each of these port frames using a "tick strip". Place a piece of paper on the plans and draw tick marks to identify the locations of each vertical port frame and the bulkheads surrounding them. Hold the tick strip against the hull and transfer the locations of the vertical frames. The top and bottom of these vertical port frames should be angled as shown on plan sheet four. There is a small detailed drawing on that plan that shows a side view of the port framing and support strip.





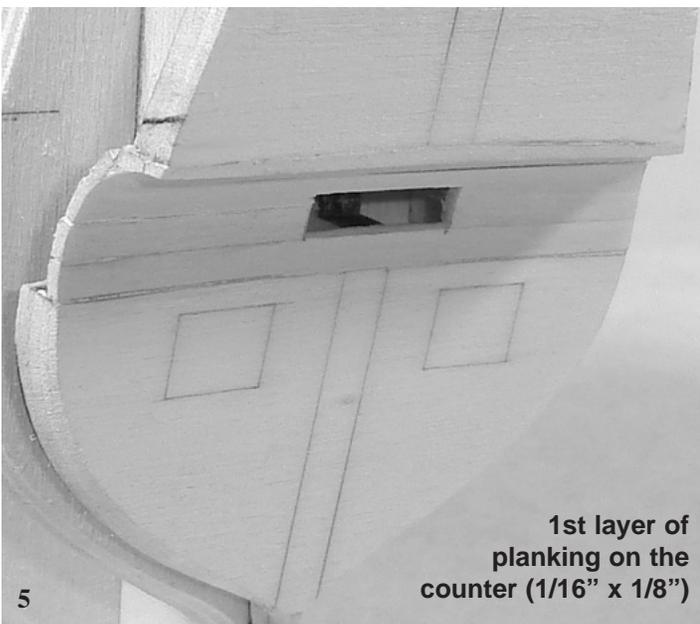
*False decks are in position and the hull is faired. The bulkhead edges are beveled more severely at the bow and stern*

## Fairing the hull in preparation for planking...

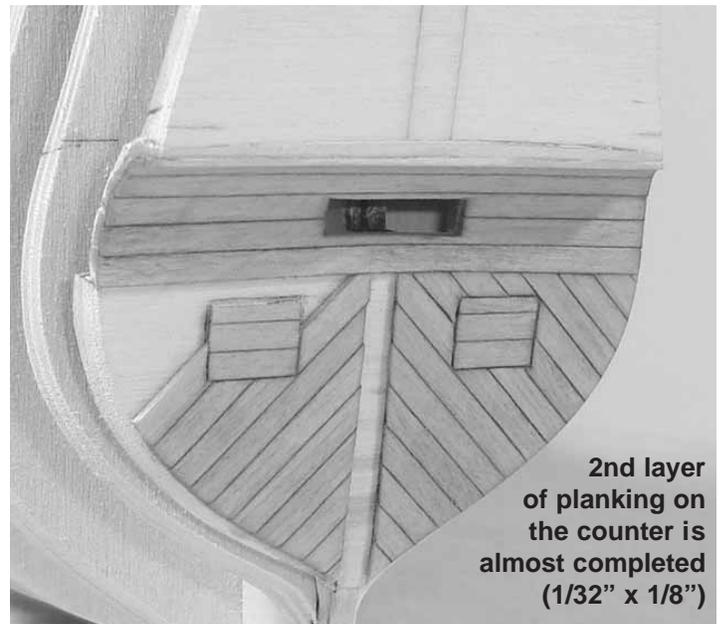
The skeleton of the Mayflower is essentially completed. Before planking can begin, the hull needs to be “faired”. To fair the hull you need to bevel the outside edges of the bulkheads so they create a smooth run for the planks. The hull needs more beveling at the bow and the tuck of the stern. Use a long piece of medium grade sandpaper that will span across several bulkheads at a time. Begin shaping the hull until a “batten” will lay flush across every bulkhead edge. A batten is a thin (1/32” x 1/8”) planking strip that is periodically tested against the hull to check its consistency. Make sure the batten has no unsightly dips and it smoothly spans across each bulkhead edge as it bends around the bow and stern. Use the batten at various levels on the hull. Check its run along the bottom of the hull at the keel.

Also check it at mid-hull level and at the deck levels. See the photos provided showing the beveled bulkheads at the bow and stern. Compare these photos to the earlier ones presented in this guide.

To complete this step, glue the four laser cut false decks into position as shown in those same photos. Sand the top edges of the bulkheads first to ensure the decks sit flush against them and lay flat. The top of the bulkheads should be faired the same way as you did for the sides of the hull. There are four false deck templates. A center line has been laser-etched down each false deck to help you line them up with the bulkhead former. Center them properly so the gratings and other deck fittings referenced on them will be correctly located. Note that the square opening in the forecabin deck will be aligned over the recessed notch and eye bolt. Sand the edges of these decks to conform to the faired hull.

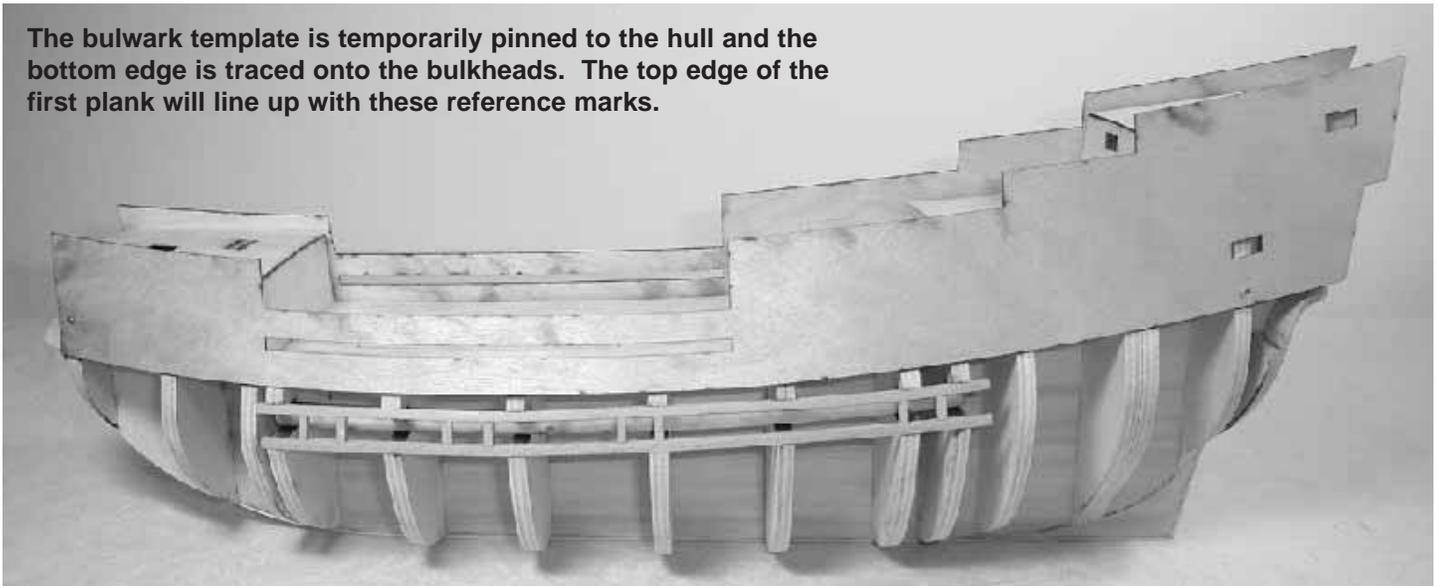


**1st layer of planking on the counter (1/16” x 1/8”)**



**2nd layer of planking on the counter is almost completed (1/32” x 1/8”)**

The bulwark template is temporarily pinned to the hull and the bottom edge is traced onto the bulkheads. The top edge of the first plank will line up with these reference marks.



## Planking the hull...

To make planking the hull easier, the process will be broken down into separate steps. Planking strips of different widths will be used depending on the area being discussed. There will be many steps in the process but take your time completing them all.

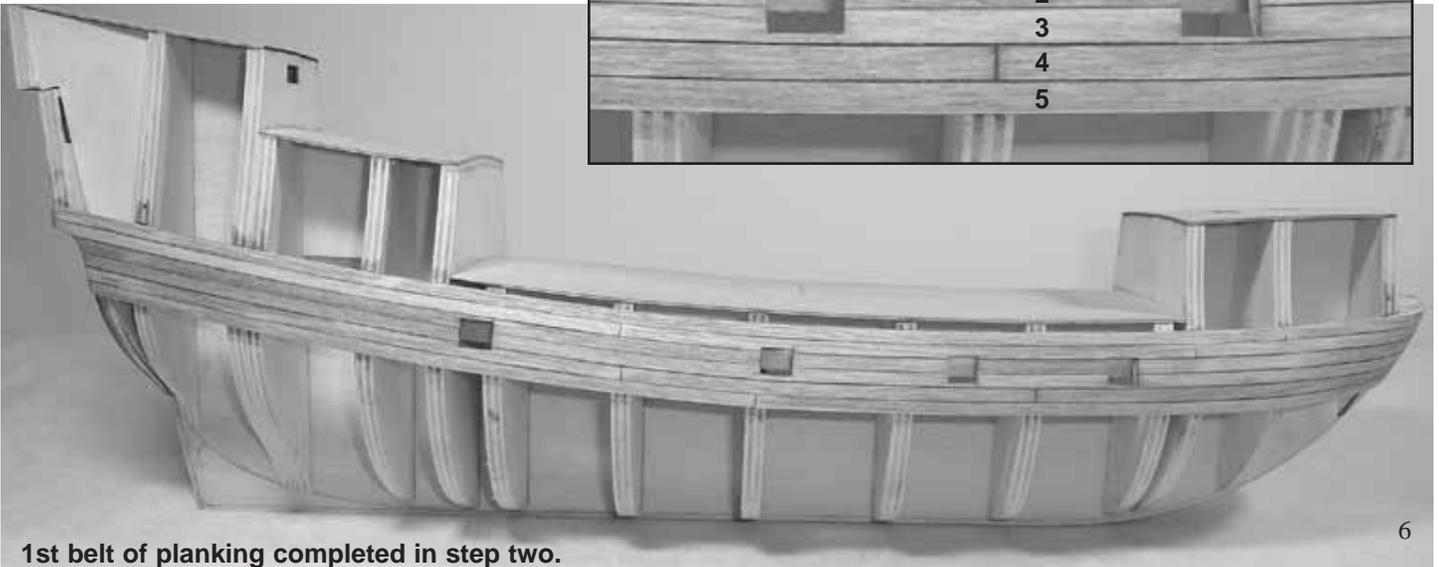
**STEP 1- Planking the counter** – The counter will be planked with two layers. Use 1/8" x 1/16" strips for the first layer. Cut these strips a little longer than required so you can "fair" the counter to shape afterwards. The final shape of the counter on both sides should be symmetrical. A batten placed across the both sides of the hull should smoothly transition from bulkhead #5 onto the edge of the counter. See the photo on the previous page. Note how the counter planks create a graceful curve. Sand them all smooth and apply some wood filler if needed to prepare the surface for the second layer of planking. Before you start the sec-

ond layer of planking you must cut the opening in the counter for the tiller. See the same photo and the plans for details. Examine plan sheet one to find the size of the tiller opening. Start by drilling a hole in the center of the opening and use some needle files to enlarge it to the correct final shape and size. This first layer of counter planking should make a flush transition onto the stern piece (ZZ).

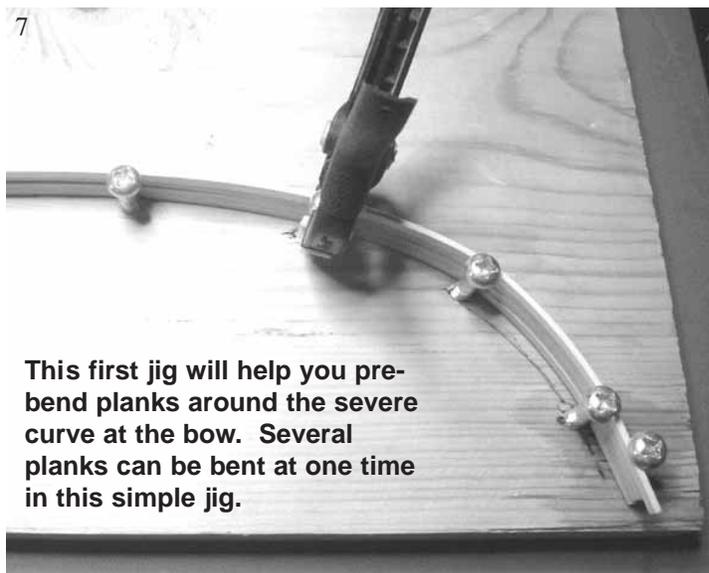
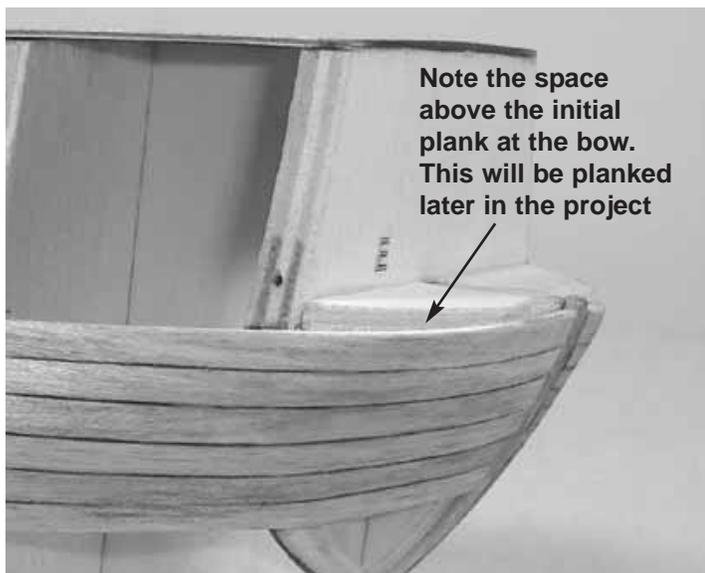
The second layer of planking will cover the counter and stern piece (ZZ). This must be done now so the planking on each side of the hull will overlap this stern planking rather than the other way around. The stern planking above the counter will be addressed later.

The second layer is planked with 1/32" x 1/8" strips. Plank the counter first and trim the planks neatly around the tiller opening. Since this is the final layer of planking you may want to simulate the caulking between each plank which would have

The five rows of planks placed under the initial plank will frame the gunports. The planks are trimmed flush with the port edges.



1st belt of planking completed in step two.



been standard practice at the time. To do this, simply run a soft pencil down the edge of each plank before gluing it into place. This will darken the seams and define each plank.

Then proceed to plank stern piece (ZZ). Use the same sized strips. Start by planking the port lids first. The planking on the lids will run horizontally. Then plank the area around each port. You will notice on the plans that the planks around these ports and beneath the counter run diagonally. Once again you can simulate the caulking between each plank. See the photos provided. You may opt to add more detail to your Mayflower planking. The planks would have been fastened to the hull using wooden pegs called “trunnels” or “tree nails”. There are several ways you can create them for the model. Keep in mind that the area below the lower wales will be painted over with “white stuff”. Should you decide to tree nail the planks, the area below the lower wales including stern piece (ZZ) can be left as is. The tree nails won’t be visible once the area is painted. Please note that the port lid hinges and other lid details will not be added at this time. We will address this a little later in the project.

One easy way to simulate the tree nail pattern is to drill tiny holes where the ships frames would be located. Then sand the surface with some fine sandpaper so the holes will fill up with wood dust. After being stained the tree nails will show up nicely. Another method would be to fill in the holes with some wood filler. Sand it smooth and then stain. A more elaborate approach would be to actually use wooden trunnels. Tooth picks can be inserted into each hole with some white glue. Snip off the excess with a nail clippers when they are dry. This technique creates a good effect but is very time consuming. Experiment on some scrap planking and choose the method that works best for you.

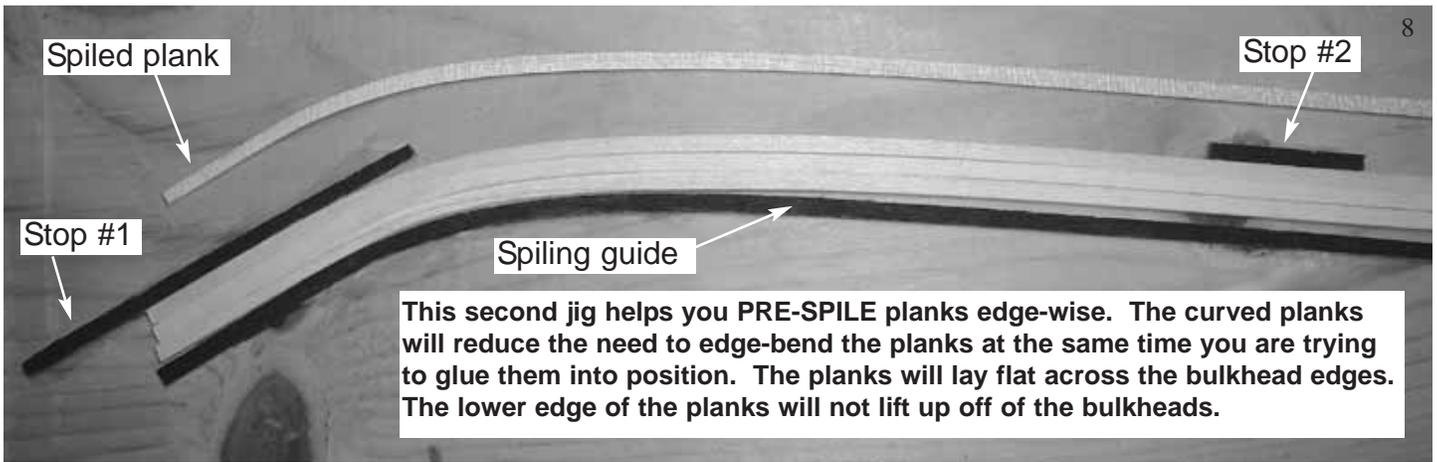
## **STEP 2 - First layer of planking on the port and starboard sides of the hull**

This Mayflower kit was designed to be planked with two layers. The first layer of planking will be done using 1/8” x 1/16” strips. To prepare for the first layer of planking you must establish the run for the planks along the hull from bow to stern. Use the two laser cut bulwark templates to create reference lines on the bulk-

head edges for this purpose. Temporarily pin the bulwark templates in position. Pre drill holes through the template and into the bulkhead edges to temporarily position them. Use the tiny brass nails provided in the kit to secure them. Do not use any glue as they will be removed once you have established the reference marks. You will notice that there are reference lines already laser-etched on one side of each bulkhead to help you establish their placement. The bottom edge of each bulkhead template should line up with these etched reference marks, more-or-less. By using the template you will be correcting any minor fluctuations with the original laser-etched references. The bottom edge of the bulwark template will establish the correct smooth run for the hull planking. Pin both bulwark templates into position so you can check that they are symmetrical with each other. Once you are satisfied, mark new reference lines in pencil on each bulkhead edge following the bottom of each template. Remove the bulwark templates when you are finished. See the photo provided on page 6 showing the bulwark templates temporarily pinned into place.

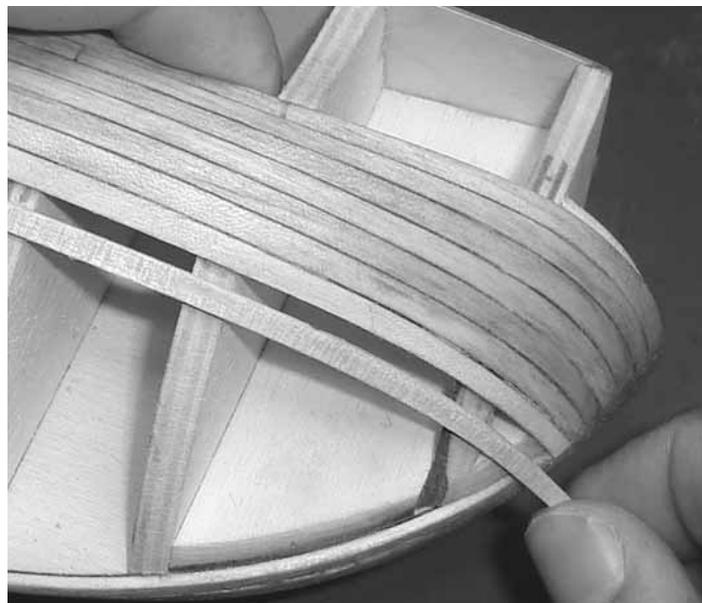
All of the planks need to be tapered on one end before you start gluing them to the hull. The last three inches of each plank should gradually taper from 1/8” to 80% of their width. The tapered end will be placed at the bow. Take your time gluing the INITIAL plank into position. Establish a smooth run for this plank across the hull from bow to stern. The top edge of this first plank should line up with the reference lines you made on the bulkhead edges. Bending the planks around the curve at the bow can be made easier by soaking the planks and placing them into a jig. See the photo above. The jig is very simple to make. Just use a few screws strategically placed along the approximate curve you need. If you place the tapered end of the planks into this jig when they are wet, they will retain the appropriate bend after they are dry. If the screws are long enough you can pre-bend several planks to shape at a time. You should pre-form 12 planks for this step.

Keep in mind that this is just the first layer of planking. There is no need to simulate the caulking or to tree nail this layer. But take your time trying to neatly plank the hull by getting nice tight joints. It will be good practice for when you start the final layer.



To complete this step you will be planking only five more rows on each side of the hull (under the initial plank you positioned). These five planks will complete the framing around each gun port. This first layer of planks can be glued to the hull in one length or two. There is no need to plank the 1st layer in 25' lengths as would have been the case on the actual ship. You might find it easier to plank around the bow first with a shorter piece and then apply one longer plank to complete that row. Whatever method you choose, each row should be notched around the top and bottom of the gun ports as needed. Cut the planks so they are flush with the inside edges of each gun port. See the photos provided on page 6 which show step 2 completed. Note how the planks were trimmed flush around each gun port. Another photo (top left on page 7) shows the bow planked after step 2 was completed. Note how the initial plank doesn't sit flush with the deck of the bulkhead. This area will be planked later in project.

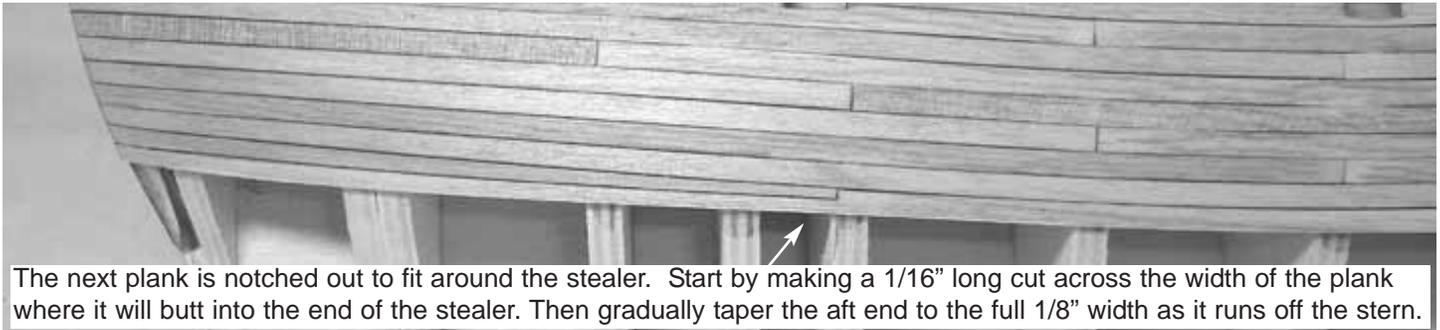
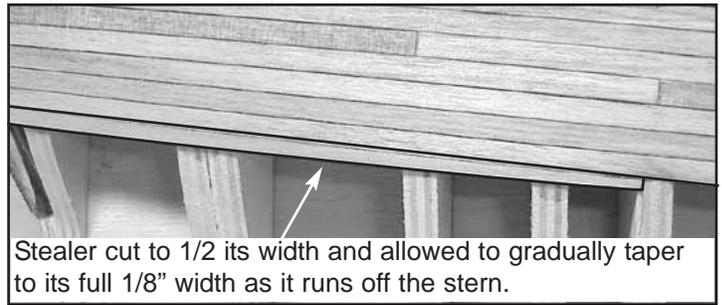
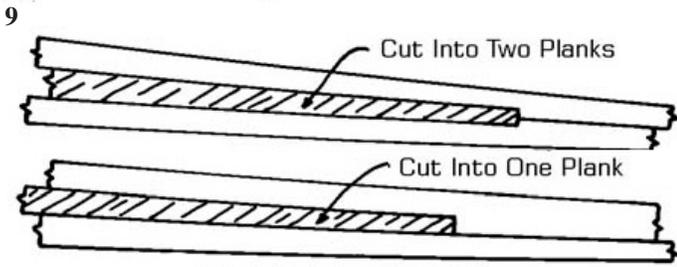
**Steps 3 and 4** - The third step would be to plank the hull further so that half of the remaining space towards the keel is planked. The fourth and final step would logically be to complete the planking towards the keel, but this time you could reverse your direction by starting from the keel UP. For both of these steps you won't have to contend with notching or trimming the planks around the ports. But there are other considerations which you are probably starting to encounter. As you progress further down



the hull you will no doubt notice how the planks at the bow are no longer sitting flat against the edges of the bulkheads. Even though you took the time to pre-bend these planks in a jig, when you position them around the bow they need to bend edge-wise in order to get a tight seam with the previous row. By trying to force this edge bending, the bottom of the plank lifts up and doesn't sit flush against the bulkhead edge.

To address this issue, you will no longer need to pre-bend the remaining planks in the jig you constructed. The bend around the bow is less severe now as you progress towards the keel. But a second jig built to pre-bend the planks edge-wise will correct the lifting of the planks. It will make it easier for you to get them to sit flat against the bulkhead edges. In real ship building practice, this phenomenon was prevented by "spiling" each plank to its proper shape. The planks would not be straight along the bow and would instead be curved edge-wise so they would fit properly. You would need to start with a plank three times as wide as those provided in this kit. After you determine the correct curve for a plank it would be cut from this wider strip. This method creates a huge amount of waste and takes a considerable amount of time and practice to master. The additional jig offers an alternative to this process. Should you want to learn some advanced planking and "spiling" techniques, Model Expo offers an excellent book on the subject. A superbly illustrated guide called "Planking the built-up ship model".

This second jig will "pre-spile" each plank to the approximate shape you need without having to cut and trim them. A laser cut "spiling" guide has been provided for this purpose. It is 1/16" thick. The curve for the remaining planks has already been determined. Simply glue this spiling guide to a scrap length of 1" x 6" inch lumber. Then position the two "stops" as shown on the photo provided above. The stops are positioned so three tapered planks will fit snugly into the jig. Each stop was cut from a scrap length of 1/16" x 1/8" strips. That same photo shows the jig with three planks being pre-spiled to shape. The spiling guide and stops have been painted black so you can see them in that photo. A pre-spiled plank is also shown and you can see how it retains its shape. Soak the strips and push the three tapered ends into the jig together. Then carefully bend each plank slowly, edge-wise until it is firmly against the spiling guide. Bend one strip at a time back towards the guide. Hold it down flat against the jig's surface as it will want to twist and spring free. The last strip will be bent back and held in position by the 2nd "stop".



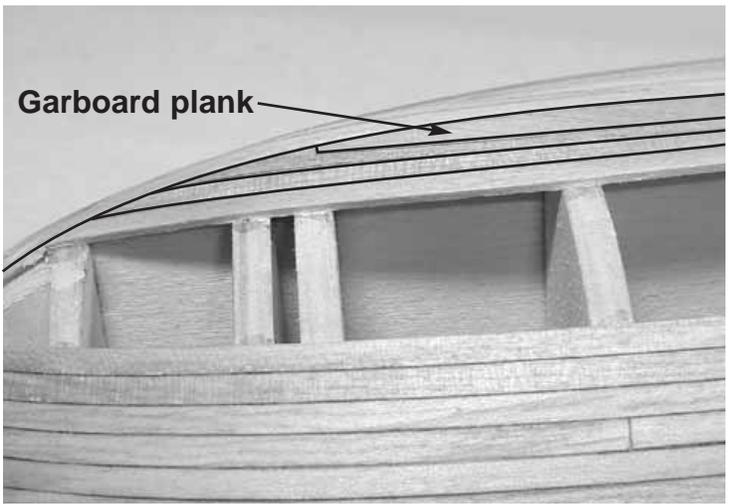
Before you stop holding the three planks down firmly against the jig's surface you should place a heavy book, brick or item on top of them. This is the reason why the spiling guide and stops are the same thickness as the planks being shaped. The book needs to lay flat across the spiling guide and the planks. They will always want to spring free because of the tension created. But after they are fully dry and you remove the planks, they will retain the artificially "spiled" shape. See the photo (on the previous page) of a spiled plank held against the hull. You can see how the shape mirrors the run of the planks already glued around the bow. This process takes a little practice but once you get the hang of it you will appreciate how much easier it will be to plank the balance of the Mayflower hull (any hull for that matter). You might even want to try using a plank from this second jig while planking the first belt in step 2. You might find it helpful for the last few planks in the first belt. The edge-bending required is not that great but the choice is yours.

twist to them. Soaking the plank with water before hand will make it easier to glue into position. There is no need to pre-spile the garboard plank in the jig first.

The area to be planked is greater at the stern then it is at the bow. This is the reason why you tapered every plank at the bow. But the area to be covered is still greater at the stern and more rows of planks will be needed there. In order to fill the additional space, two stealers will be required. You can place one of them in the planking belt for step 3 and the another in the final planking belt. To create a stealer, simply taper a plank to half its width (1/16" wide). See the photo above showing a stealer glued to the hull. The next row of planking needs to be notched to fit around the stealer. Start by making a 1/16" long cut in the plank where it will meet the end of the stealer. Then taper the plank gradually so it is the full 1/8" width as it runs off the stern. See the additional photo that shows the notched plank after it was glued to the hull. The stealers will only be long enough to span across about a third of the hull at the stern.

**Some additional notes for step 3 and 4** - Begin step 4 by placing the first plank (called the garboard plank) against the keel. The garboard plank should be 3/16" x 1/16". It is slightly wider than the other hull planking. The forward end of the garboard plank is actually tapered to a flat edge. See the photo provided. The forward end of the garboard plank starts at bulkhead (C). The next few planks positioned can have their ends flat also. This would require that you notch each plank around the end of the previous one. The flat forward ends are optional though.. This would have been the way the planks ended at the bow on the actual ship, but you can taper them to a point if you prefer. The bottom of the hull will painted and there is another layer that will cover these. Unless you plan on leaving the second layer natural this extra detail will not be seen if painted. Depending on your experience and comfort level the option is yours. You can see both methods used in the same photo at the left. Note how only the garboard plank has a blunt end and the next plank is notched around it. The other planks are just tapered to a point and some of you might find that easier to do. You may need to clamp the aft ends of the planks against the bulkhead former at the stern since there will be a significant

Once you complete step four, sand the hull smooth. Use some wood filler to fill any gaps between the planks. This will prepare the surface for the final layer of planking.



**Planking completed on the port side**



**Hatches framed with 1/16" x 1/16" wood strips**



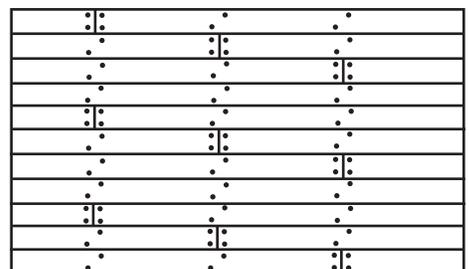
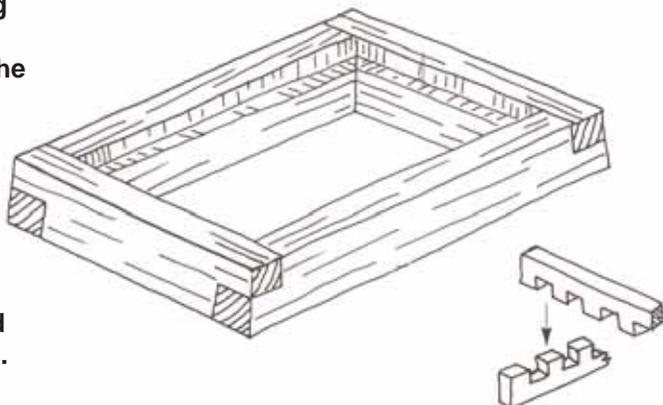
**Beakhead is not planked yet.**

**Planking the Decks...**

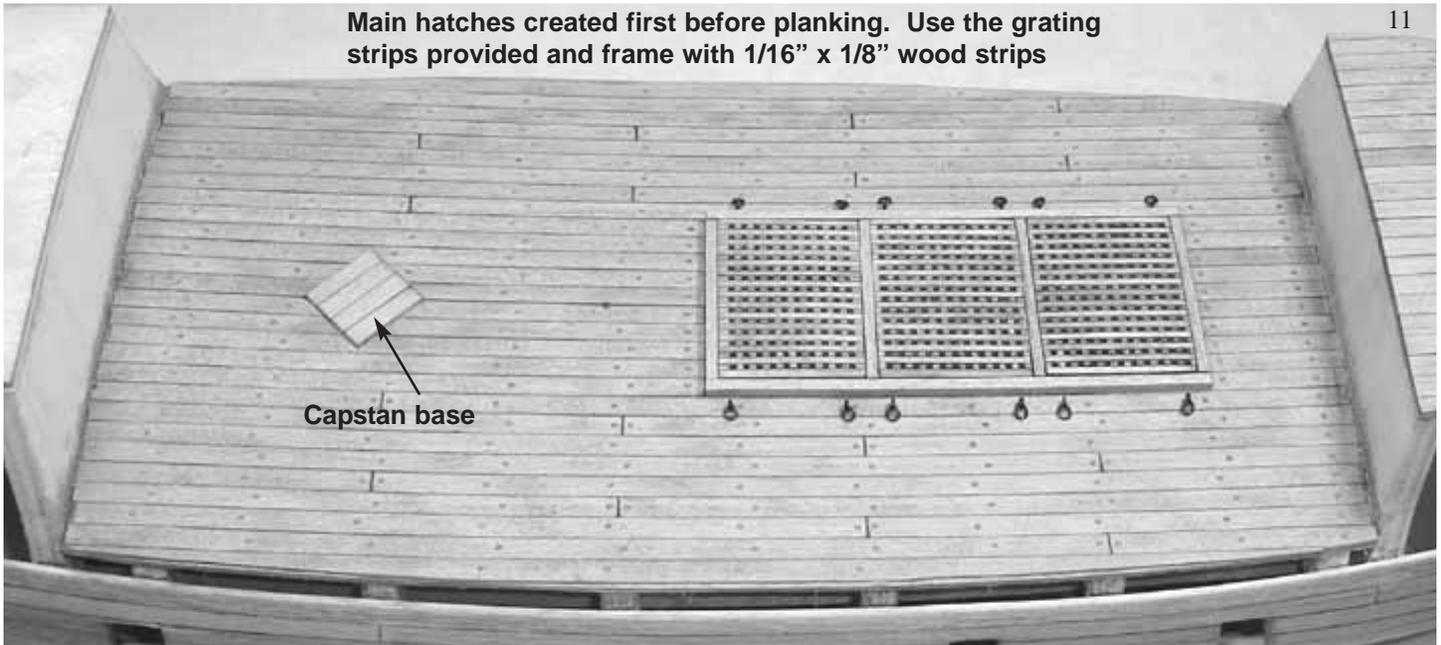
It is much easier to plank the decks now before the bulwarks are attached to the hull. All of the decks should be planked except for the "half deck" and "beakhead". These decks will be planked later in the project. Bass wood strips (1/32" x 1/8") are supplied for the deck planking. The hatches on the upper deck and forecastle deck can be completed at this time as well. See the photos provided. Stain the decks a light color. They would have been lighter in appearance than the other planking used throughout the ship. The prototype model was stained using MinWax "Golden Oak" stain but any light shade would suffice.

Construct the hatches first before laying your planks. Use 1/8" x 1/16" strips to make the coamings (frames) for the main hatches on the upper deck. Then use the grating strips provided to finish them up. The base for the capstan on the upper deck is made using 1/8' x 1/16" strips. They were glued to the deck and stained before the thinner deck planking was added around them and the hatches. Several ring bolts are shown along the sides of the main hatch and can be created using the brass

**Method for creating the hatch coaming and grating. Note the ledge inside the coaming. The grating will sit on top of this ledge. It was made using a thinner strip of wood glued to the inside edges. (1/32" x 1/32")**



Main hatches created first before planking. Use the grating strips provided and frame with 1/16" x 1/8" wood strips



eye bolts and rings provided with the kit. Paint them black before gluing them into pre-drilled holes along the hatch.

### Planking and detailing the bulkheads...

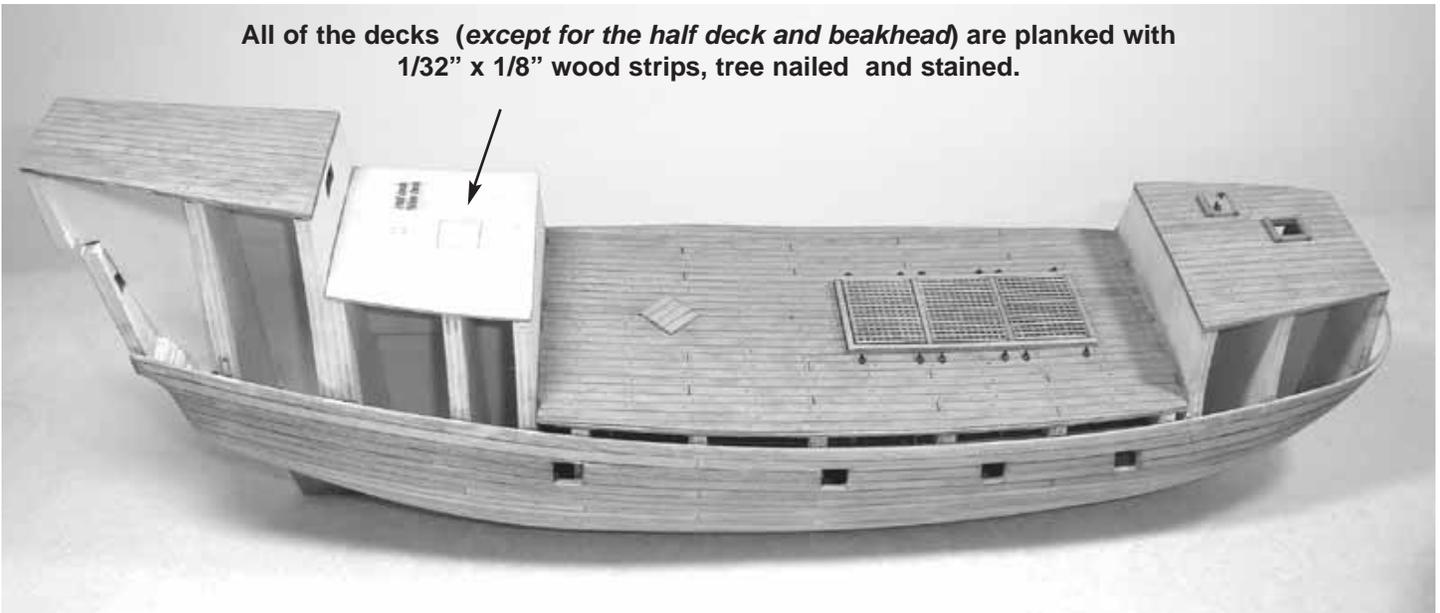
The deck planking should be staggered as shown in the drawing on the previous page. You can color one edge of each plank with a soft pencil to simulate the caulking between them. Do not add the waterway at this time. It will be added later. Depending on how much detail you want to add to your model, the planks can be *tree nailed* also. As mentioned earlier, depending on your skill level, you can add them to the model as shown above.

There are five bulkheads that need to be planked and detailed. Most of them will be completed now so we can add the two bulwark templates in the next step. The first three are shown in the photos on the next page. It is easier to complete them while they are off the model and they should only be glued into position once finished. These bulkheads will be positioned at each break in the deck levels. The remaining bulkhead (beakhead) will be planked and added after the bulwark templates are positioned later.

The forecastle deck has two hatches. First there's the hole you created for the running rigging and there is another that was used for a removable galley stack. This hatch was covered with boards when the galley stack was not in use. The cover boards have ring bolts on both sides for handles. See the photos provided. The coamings (frames) for these hatches are made from 1/16" x 1/16" bass wood strips. The Poop deck doesn't have any hatches or deck structures. You can plank it as you did the other decks.

The bulkhead for the **GREAT CABIN** is a good one to start with. It will be mostly hidden under the half deck once it is extended later in the project. All of these bulkheads will be planked with 1/8" x 1/32" strips. Plank the door first. You can simulate the caulking between each plank as done earlier. Then finish it up by gluing the horizontal planking around the door.

All of the decks (except for the half deck and beakhead) are planked with 1/32" x 1/8" wood strips, tree nailed and stained.



Be sure to bend each plank so it follows the camber created by the bottom edge of the bulkhead. The hinges for the door are made using card stock that is painted black. Glue them into position. Then place a tiny length of 28 gauge black wire on top of them to simulate the hinge pin. You could also place tiny droplets of white glue or super glue along the hinge straps to simulate the bolts that would secure them to the door. Use a pointed dowel or nail to apply each droplet. You should practice on some scrap cardstock first until you are confident that you can create the bolt heads consistently (size and shape). Surface tension keeps each droplet round and properly shaped. Let these bolt heads dry completely and then paint them black. The handle for the door is made by gluing an eye bolt into a pre-drilled hole and bending downward so it looks like a handle. They should be painted black also. As mentioned earlier, there is really no need to treenail this bulkhead since it will be mostly unseen under the half deck.

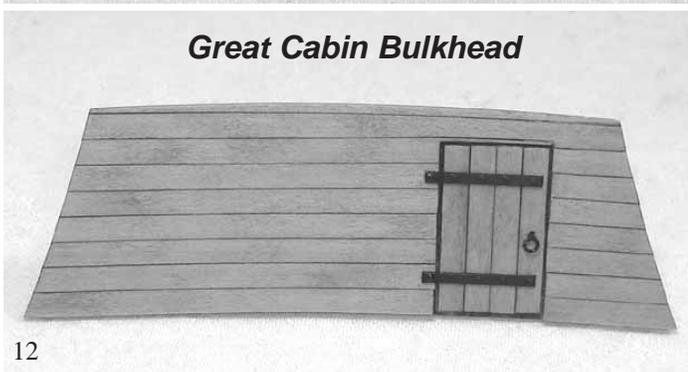
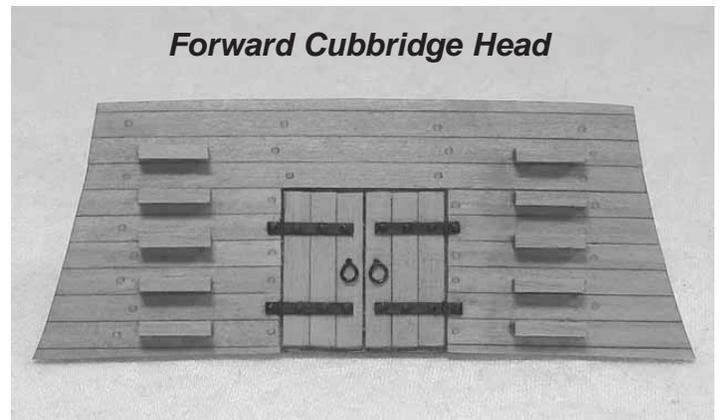
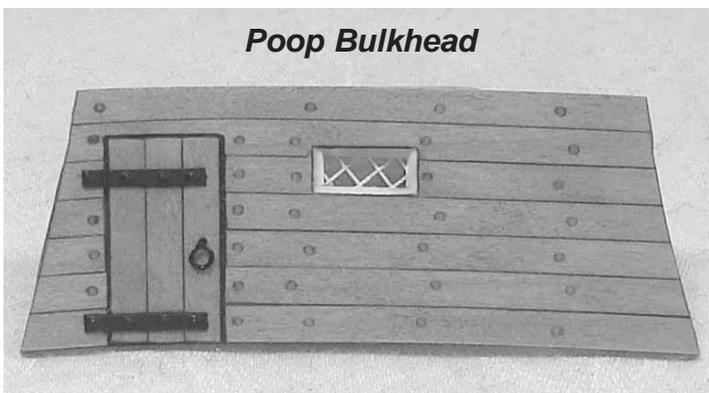
The **POOP DECK** bulkhead should be planked the same way. Start with the door and plank around it. You can treenail this bulkhead when you are finished. Estimate where the beams would be and treenail accordingly. You can see where they were located for the prototype in the photo provided. There is an additional feature on this bulkhead. It has a window. Clear acetate film is provided in the kit for this purpose. Cut a small section of acetate larger than the window itself. Tape it over the drawing of this window on plan sheet one. Use the thinner .010" wide white tape to create the diamond pattern on the film. It is self adhesive and will stick nicely to the acetate. Then use the thicker 1/16" wide white tape to frame the window. You only want half the width of the frame to show once you position it on the reverse side of the bulkhead. Place the tape so it will extend beyond the boundaries of the window itself. Glue this film with its diamond pattern to the back side of the bulkhead. Be careful to make the pattern appear straight from the front side of the planked bulk-

head. Test it first to see if an equal amount of the frame shows around the window on all four sides. You can make adjustments if needed before you glue it into place permanently. Use white glue when attaching the film to the bulkhead. The fumes from super glue will fog up the window and it will be ruined. It can not be removed after it develops. See the photo provided.

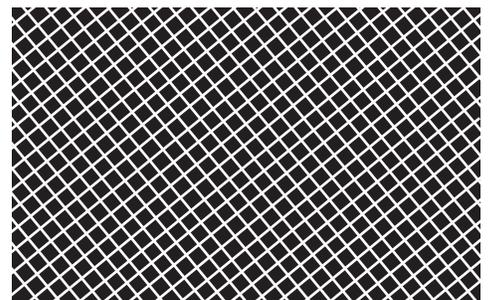
Another simpler alternative would be to make a photocopy of the diamond pattern shown in this manual. The photocopy can be placed behind the acetate and used to simulate the diamond pattern. Finish it off by framing the window as described above. The choice is yours.

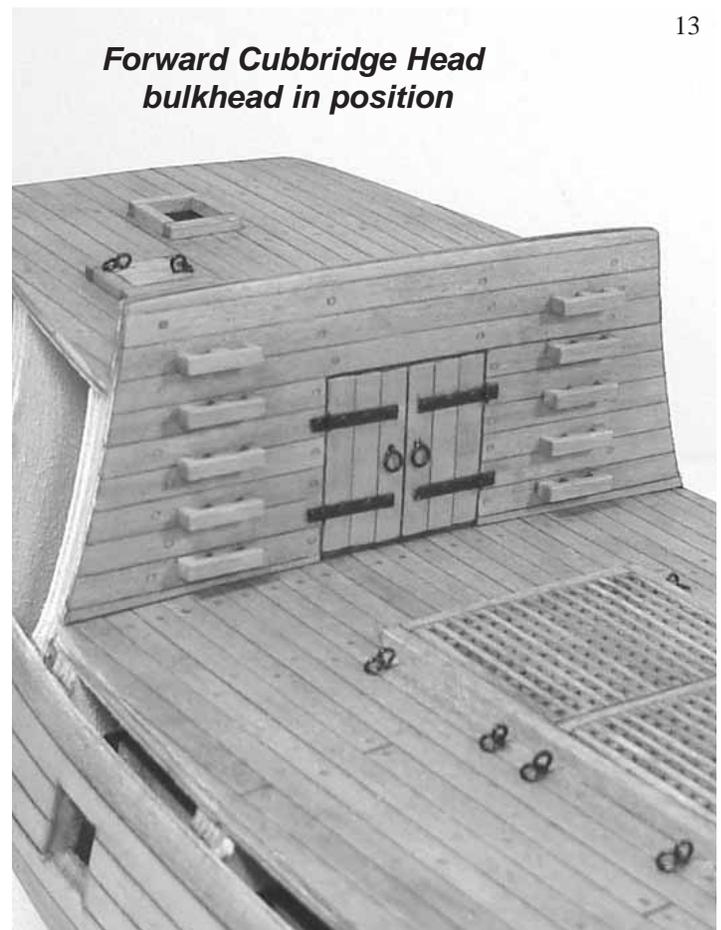
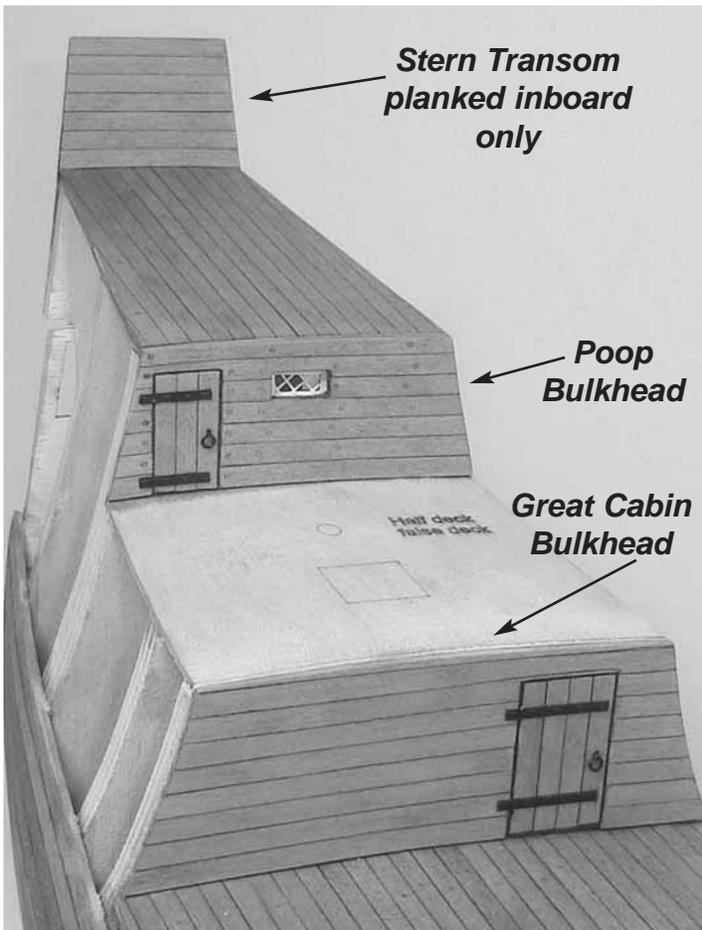
Note: You could paint the inside of the window opening that was laser cut out of bulkhead 4B before you glue the planked poop bulkhead over it. This will help hide the internal construction from being viewed through the completed window and make the diamond pattern more visible afterwards.

The bulkhead for the **FORWARD CUBBRIDGE HEAD** can be planked like the others. The only difference this time would be the addition of two ladders that flank the doors on each side. Take the locations for these steps from the plans. The steps have a unique shape and are laser cut for you. Note that this bulkhead will have a 1/32" x 1/16" molding strip placed across the top of it. **DO NOT** add this strip at this time. It will be addressed later to ensure it lines up with the molding strips on the outside of the hull. In anticipation of the placement of this molding strip, make sure the top steps for each ladder are not placed too high or they will interfere with it. Once this bulkhead is glued onto the model you will notice that it extends quite a bit above the forecastle deck. This is OK and not a mistake. After being glued on the model you should plank the inboard side that extends above the forecastle deck with 1/32" x 1/8" strips to finish it of. Do not treenail this side of the bulkhead.



Diamond pattern used for the windows. Place the acetate on top of this and use the thin white pinstripe (.010) tape to make the pattern. It is self adhesive and will stick to the clear film.





The last bulkhead to address in this step is the STERN TRANSOM. This bulkhead has no details and is pretty straight forward. The outboard side of this bulkhead should NOT be planked at this time. Simply glue it to the outside of stern piece (XX). The bottom of the transom should be flush with the bottom of stern piece (XX). It will extend well above the deck level so be careful not to break it. Plank the inboard side of this bulkhead instead after you glue it into position. Use 1/8" x 1/32" strips. Sand the bulkhead flush with the sides of the hull afterwards. NOTE: All of the bulkheads are provided slightly oversized. This will leave enough room for you to sand them flush with the sides of the hull after you glue them into place. When all of the bulkheads are completed you can glue them onto the model. See the photos showing the four bulkheads glued onto the model.

## Planking and detailing the bulwark templates...

It is now a good time to plank and install the two bulwark templates. The bulwark templates are laser cut for you. They are 1/32" thick. Plank the inboard side of each bulwark before you glue them onto the hull. Start by planking (1/32" x 1/8" strips) them from the bottom edge of the template upward. This edge creates the correct run for all of the planking from bow to stern. There is no need to treenail or stagger the planks inboard. These features will be added when the outside of the hull is planked later. However, you may want to simulate the caulking between each plank as suggested earlier. You can run each strake in one

continuous length across the templates. The two windows (port and starboard) can be completed using the same techniques described for the poop bulkhead. You can see them in the photo on the next page. Both were glued to the inboard side of the bulwarks after the planking was sanded and stained.

That photo on the next page shows the finished results. Glue the bulwarks to the hull. Position them along the rabbet (the top of the 1st planking belt). You should line up the bulwarks with the Cubbridge head bulkhead. The remaining breaks at each deck level, including the bow and stern, can be sanded flush afterwards. They are slightly oversized and will require some light sanding afterwards for a proper fit. Any gaps left along the rabbet should be filled with wood filler and sanded smooth.

## Finishing the bow...

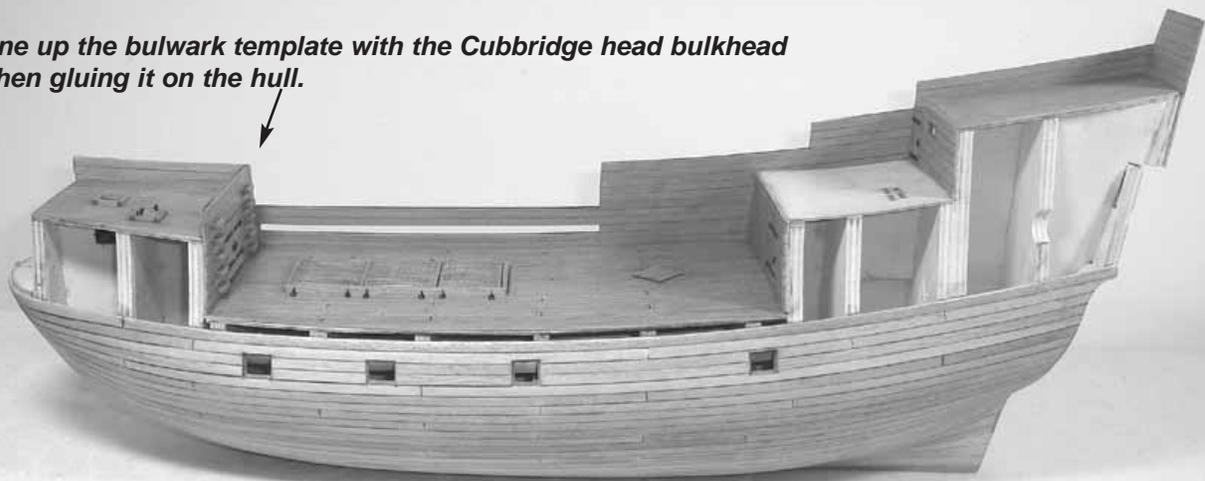
The bow can be completed in three steps. See the photo provided for details.

*Step one* – Complete the first layer of planking by inserting the missing plank at the bow. Use a 1/16" x 1/8" strip. Sand it flush with the deck afterwards.

*Step two* – Plank the deck for the Beakhead. Use 1/32" x 1/8" strips. Sand them flush to the shape of the hull when you are done.

*Step three* – Detail the bulkhead for the Beakhead. You can do

**Line up the bulwark template with the Cubbridge head bulkhead when gluing it on the hull.**



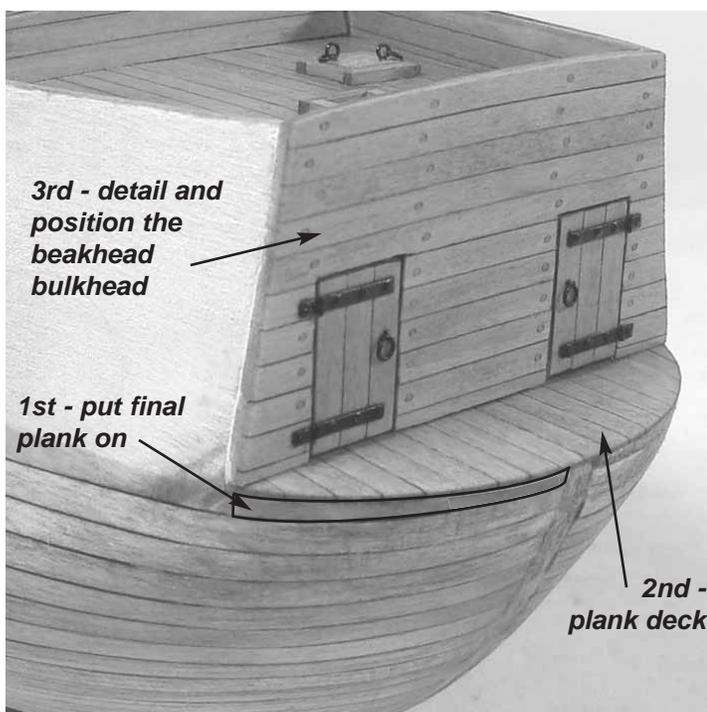
**Planked inboard with 1/8" x 1/32" planks. Note the windows glued to the inboard side of bulwarks.**



this before you glue it into position. There are two doors shown on the plans and they can be made just like the others earlier. These doors appear on the original plans William Baker developed for the Mayflower replica. At some point since its launch the doors were replaced. They were replaced with two ladders like those shown on the Forward Cubbridge head. There are more than enough laser cut steps provided in the kit and you can opt to model it with either configuration. Glue it into position and sand it flush to fit. See the photo below.

## Finishing up the Stern...

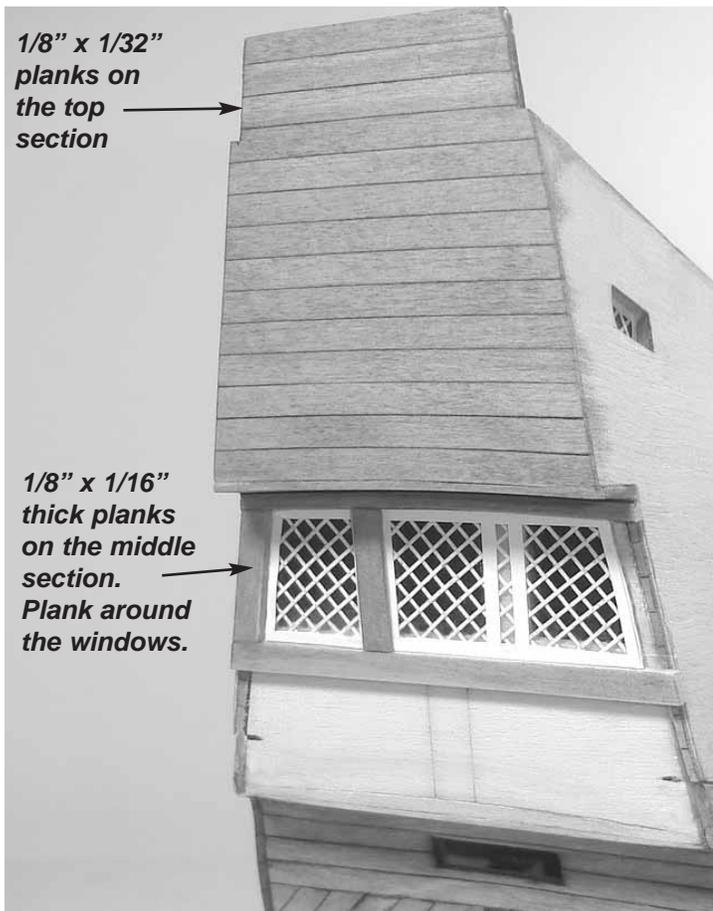
There are two remaining areas on the stern that can now be planked. The top area is fairly straight forward. Use 1/8" x



1/32" strips to plank this area. It can be treenailed and stained when you complete it. You should also plank the underside of this top section with 1/32" thick planks before you move ahead to the windowed area of the stern.

The middle section has a row of larger windows. The windows should be completed first. Use a single piece of acetate that stretches across the stern. Tape it on top of sheet one of the plans so you can create the diamond pattern with the .010 wide pin-stripe tape. Then frame each window with the thicker tape. This time you should cut the 1/16" wide tape in half so it is only 1/32" wide. This is a simple procedure. Just run a length across your cutting board and make sure it is straight. Then use a metal ruler to carefully cut it in half. The tape should still adhere to the acetate after you remove it from the cutting board. After framing the windows you should cut them along the outside edge of the window frames. The acetate will be too thick to plank over. Leave the group of windows together as shown in the first photo provided on the next page.

Before you glue the windows to the stern, paint the inside of the openings black. Then glue a 1/16" x 1/16" strip under the overhang of the stern. You can now glue the bank of windows to the stern. Set it against the 1/16" strip and center it side-to-side. Then glue a 1/8" x 1/16" strip under the windows. The remaining vertical timbers can now be cut to fit around the windows to complete them. The two vertical planks that appear to the left and the right of the center window can be cut to length. Because they will be placed on top of the acetate you should use thinner (1/8" x 1/32") strips. The two remaining vertical planks on the outside of the hull should be 1/16" thick since they will be set against the windows rather than on top of them. Finish off the planking beneath the windows with 1/16" thick planks. Treenail and stain them when you are finished. Finally, there are four laser cut knees that should be sanded smooth and glued between the windows. The knees on the edges of the stern should be set flush with the outside of the hull. The final layer of external planking



*1/8" x 1/32" planks on the top section*

*1/8" x 1/16" thick planks on the middle section. Plank around the windows.*

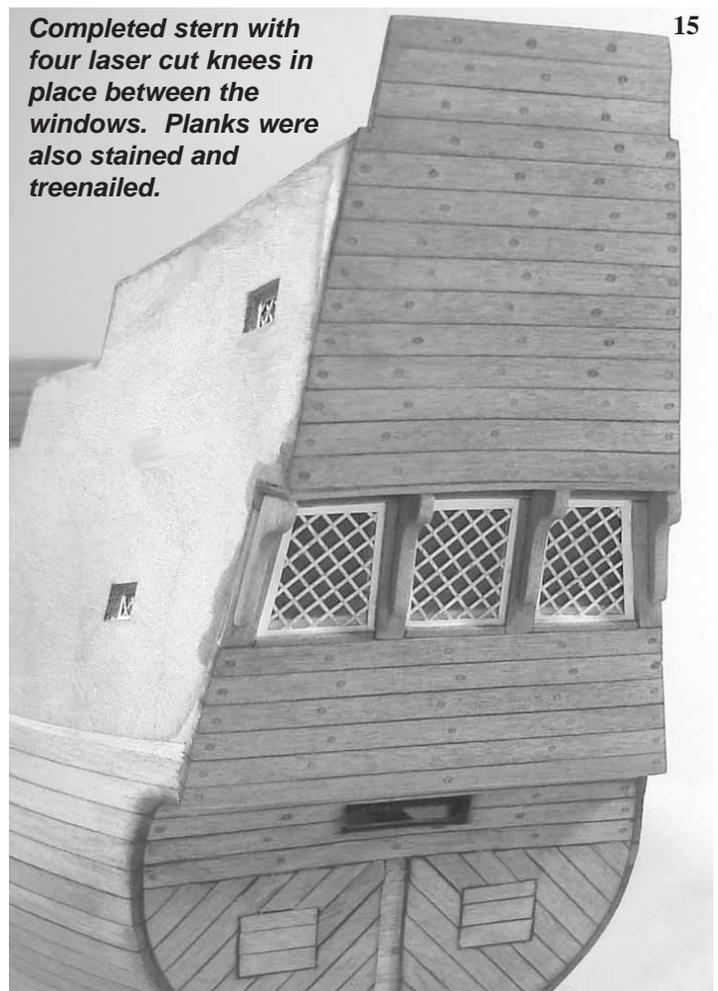
will run right over these knees and be sanded to match their profile. See the photo provided that shows this step completed. The port lids and other stern molding will be addressed later in the project. You can now focus on the bulwark stanchions in preparation for the final hull planking.

## Adding the Stem, Keel and Stern Post...

Before you start the bulwark stanchions, it would be a good opportunity to glue the stem into position. The stem has been laser cut for you. You can glue it onto the hull. It is notched out where it will fit onto the deck of the beakhead. Center it down the rabbit strip. Then glue the keel into position followed by the stern post. Use 1/8" x 1/8" strips for these. The stem knee will not be added yet since it will be quite fragile. That won't be glued into position until you begin the head framing and planking later on.

## Bulwark Stanchions and pre-planking...

The frames or stanchions are glued to the inboard sides of the bulwarks. Bass wood strips 1/6" x 3/32" are provided for them. The plans have been drawn to scale and can be used to accurately find the locations and lengths for each stanchion (see the overhead deck layouts on sheet one of the plans). A tick-strip will help you mark the locations for each stanchion along the bulwarks. Simply take a long strip of paper and hold it against the plans. Place a tick mark where each stanchion is shown. Then hold the tick strip along the model and mark each frame location using the tick strip as a guide. Cut each stanchion about 1/16" longer than



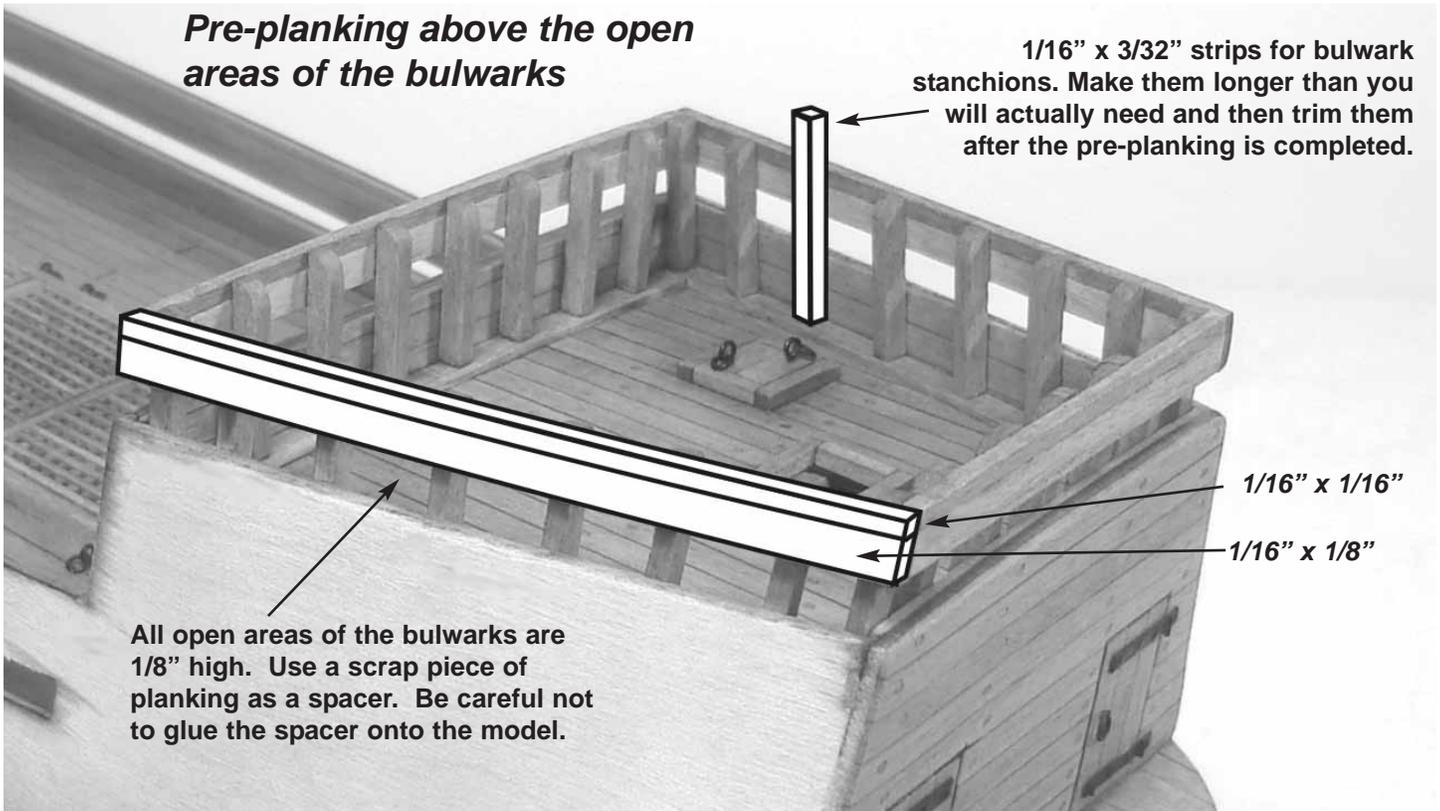
*Completed stern with four laser cut knees in place between the windows. Planks were also stained and treenailed.*

15

shown on the deck profile. They can be properly trimmed and shaped after the pre-planking is completed. The photo on the next page shows the pre-planking glued to the stanchions on the fore castle. Before you glue the stanchions into place you must first place the waterway on deck. Use 1/8" x 1/32" strips for the waterway. They should run along all four sides of the forecastle. Check the plans for details.

Glue each stanchion against the inside of the forecastle bulwarks. Don't be skimpy with the glue here. These will need some holding power. It might be a good idea to stain all of the stanchions prior to gluing them on the model. The super glue has a tendency to prevent stain from penetrating into it. This will make the final finish blotchy and uneven. With all of the stanchions completed on all four sides of the forecastle, you can now glue the pre-planking strips to them. The open areas of the bulwarks are 1/8" high. You can use a scrap length of planking as a spacer. Glue the pre-planking into position as shown in the photo provided on the next page. Then remove the spacer to reveal the open areas. Be very careful not to glue the spacer to the stanchions. The pre-planking strips are all 1/16" thick and the specific widths for them are shown in the same photo.

Add the waterways to the poop deck on all four sides as shown on the plans. The upper deck will only have the waterway along the bulwarks. The half deck will not have any waterway added at this time. The photo on the next page shows the pre-planking on one side of the hull in place. These planks are added after all of

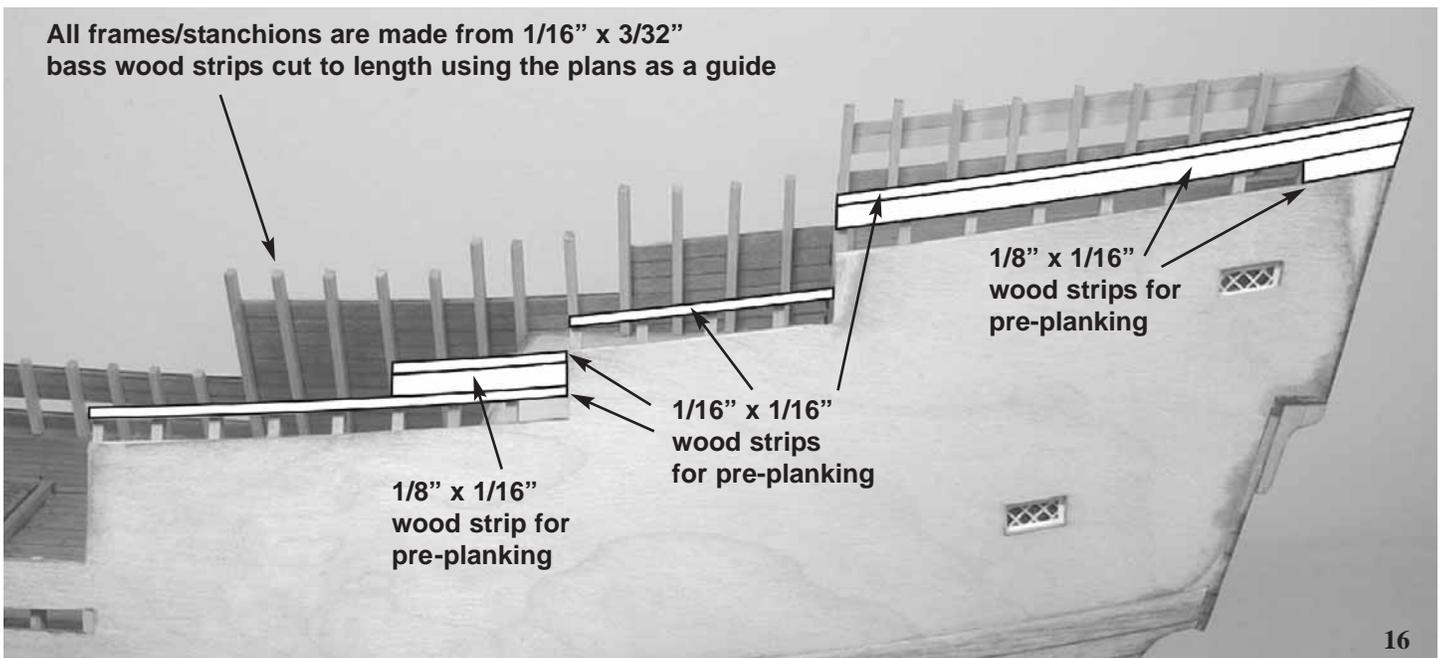


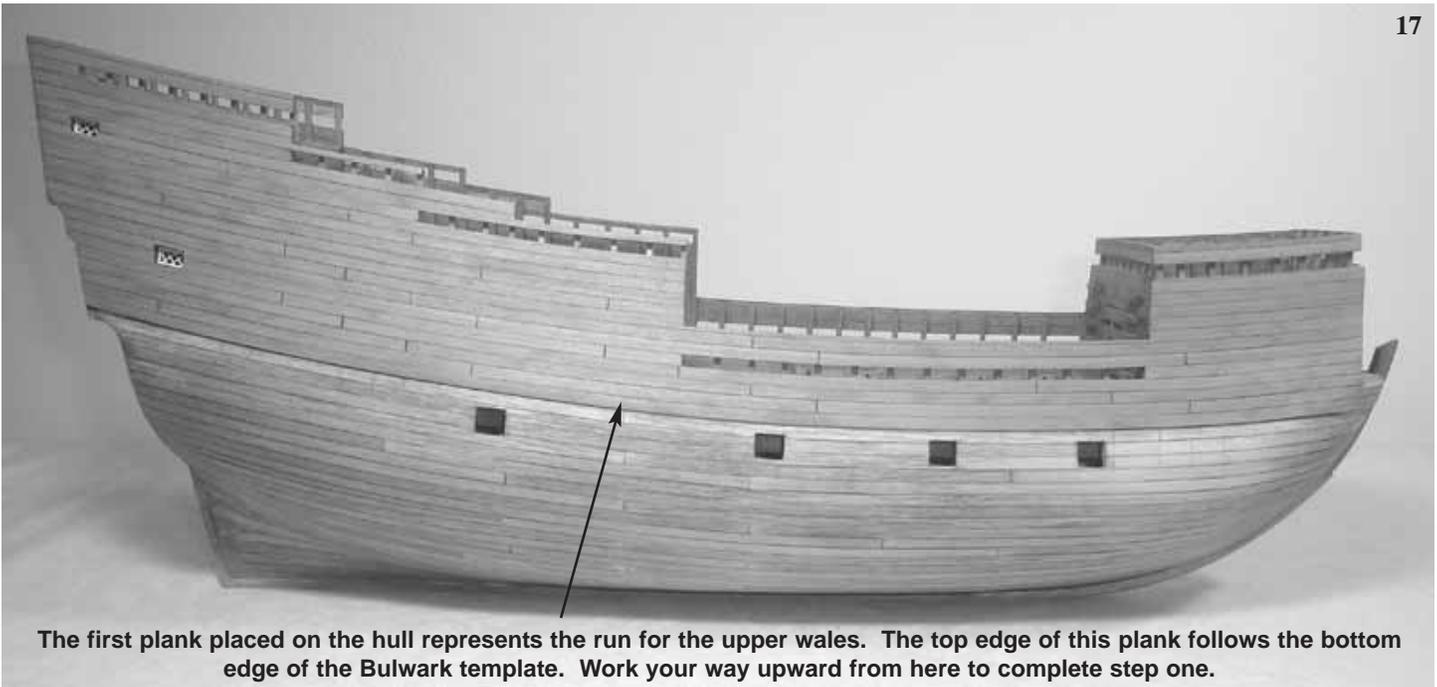
the stanchions are glued into position just like on the forecastle deck. Note how they were cut longer than needed. The pre-planking is used to complete the bulwarks above the open areas of the hull. Your bulwarks should be about 1/16" thick at this point. That is why the pre-planking will also be 1/16" thick. The photo shows the exact orientation and planking sizes needed to complete the pre-planking process. All of the open bulwark areas here are 1/8" high as well. You can use a length of

1/8" wide planking as a "spacer" just like on fore castle. Remove the spacer immediately after you glue and clamp the pre-planking in position.

When dry the stanchions can be sanded to length and shaped. The top of each stanchion is actually rounded off as shown on the plans. With all of the pre-planking completed, sand the hull smooth in preparation for the final layer of exterior planking. Try and reduce the thickness of the bulwarks while doing so. Don't be afraid

to sand the outside of hull vigorously. The final exterior layer will increase the overall bulwark thickness to 3/32". This is too thick. At proper scale, the bulwark thickness should be approximately 1/16" after the final layer of planking is completed. The more you can reduce that thickness now, the less sanding will be required on the final layer. This sanding will no doubt create a lot of dust. Make sure the model is completely free of dust before you stain the inboard side of the bulwarks. The Final





The first plank placed on the hull represents the run for the upper wales. The top edge of this plank follows the bottom edge of the Bulwark template. Work your way upward from here to complete step one.

## Final Layer of Planking...

The final layer of planking will be done using 1/8" x 1/32" strips. The procedure will be broken down into four steps. Many of the techniques and jigs used for the initial layer of planking will also apply to the final layer. You can simulate the caulking between strakes with a lead pencil and stagger you joints between plank segments. You can stagger the plank joints every 8 to 10 bulwark stanchions. Line the plank joints up with the bulwark stanchions as you progress. To make this process easier you can mark the locations for each bulwark stanchion on the outside of the hull. The planks can also be treenailed if you decided to add this detail to your model. The treenails should also line up with the bulwark stanchions as they are what the planks were fastened to. Be careful not to drill your treenail holes all the way through the bulwarks as they shouldn't show up on the inboard side.

**STEP ONE** – The first plank glued to the hull is the most important. Take your time positioning it correctly. It will dictate the run of the remaining planks on the hull. This first plank glued to each side of the hull **MUST** follow the bottom edge of the bulwark template. The top edge of the plank should follow that curve exactly. It will create the proper run for all of the remaining planks. It will also ensure that the many molding strips applied in step four will line up properly. Examine the plans and you will see how the molding runs along the top and bottom edges of each window and bulwark opening. If the planks don't follow the bottom edge of the bulwark template this will surely be more difficult to accomplish.

This initial plank actually represents the position for the upper wales. In step four we will place another planking strip on top of it as the wales were much thicker than the general planking. Once the first plank is in position, work your way up the hull to complete step one. A photo is provided that shows the hull after

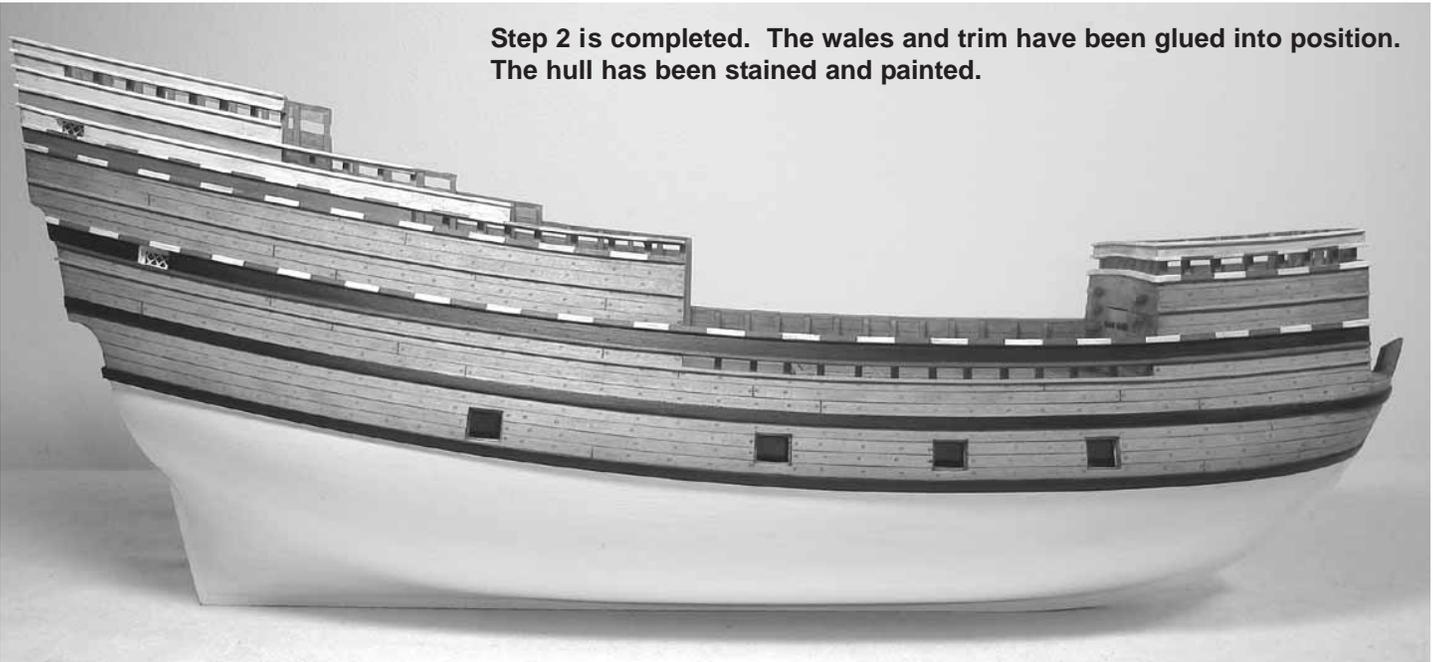
this step was completed on the prototype. Notch your planks around the windows and port openings when needed.

**STEP TWO** – Work your way down the hull from the initial plank you added in step one. This belt will consist of only FIVE more rows of planks. The fifth and lowest plank in this belt represents the lower wales. You can taper each plank at the bow as you did for the initial layer but make the taper slight. The last two inches of each plank should only taper to 90% of their width. Use the two jigs if necessary to making the planking process easier. The thinner planks may be easier to bend in both directions than the first layer of planking but the choice is yours.

When planking around the port openings leave a rabbet/reveal around them. This rabbet would have formed a tight seal with the port lid when closed. A corresponding rabbet on the port lid would make the seal very water tight if done properly. The rabbet is created by leaving a reveal around each port so you can see the initial layer of planking on all four sides. The reveal should be about 1/64" wide around each port. Try to keep it as consistent as possible.

**STEP THREE** – This step is optional. Step three would consist of planking the balance of the hull down to the keel. The hull will be painted below the lower wales. It will be painted White (tallow). The tallow was actually a mixture of ingredients that was closer to a dirty yellow color than white. It was used to protect the hull from rot and worms that would bore into the planks. Since it will be painted, if you are happy with your first layer of planking below the lower wales, there is really no reason to do it a second time. If you decide not to plank the hull with a second layer below the wales, then sand second layer of planks from step two so they taper nicely into the initial layer below them. There should be a gradual taper towards the initial layer of planks but it doesn't need to be a completely smooth and flush transition. Sanding them to half their thickness will suffice. You will be placing another planking strip on top of the final strake in step two

**Step 2 is completed. The wales and trim have been glued into position. The hull has been stained and painted.**



which will represent the lower wales. This was a thicker plank as mentioned earlier and makes sanding this belt so it is absolutely smooth and flush with the initial layer below it unnecessary.

**STEP FOUR** - The wales and molding strips can now be glued onto the hull. Use the plans as a guide for their placement. The wales should be glued into position first (1/8" x 1/32"). Both the upper and lower wales are painted black. Glue each strip directly on top of the first layer of planking following their run from bow to stern. See the photos provided.

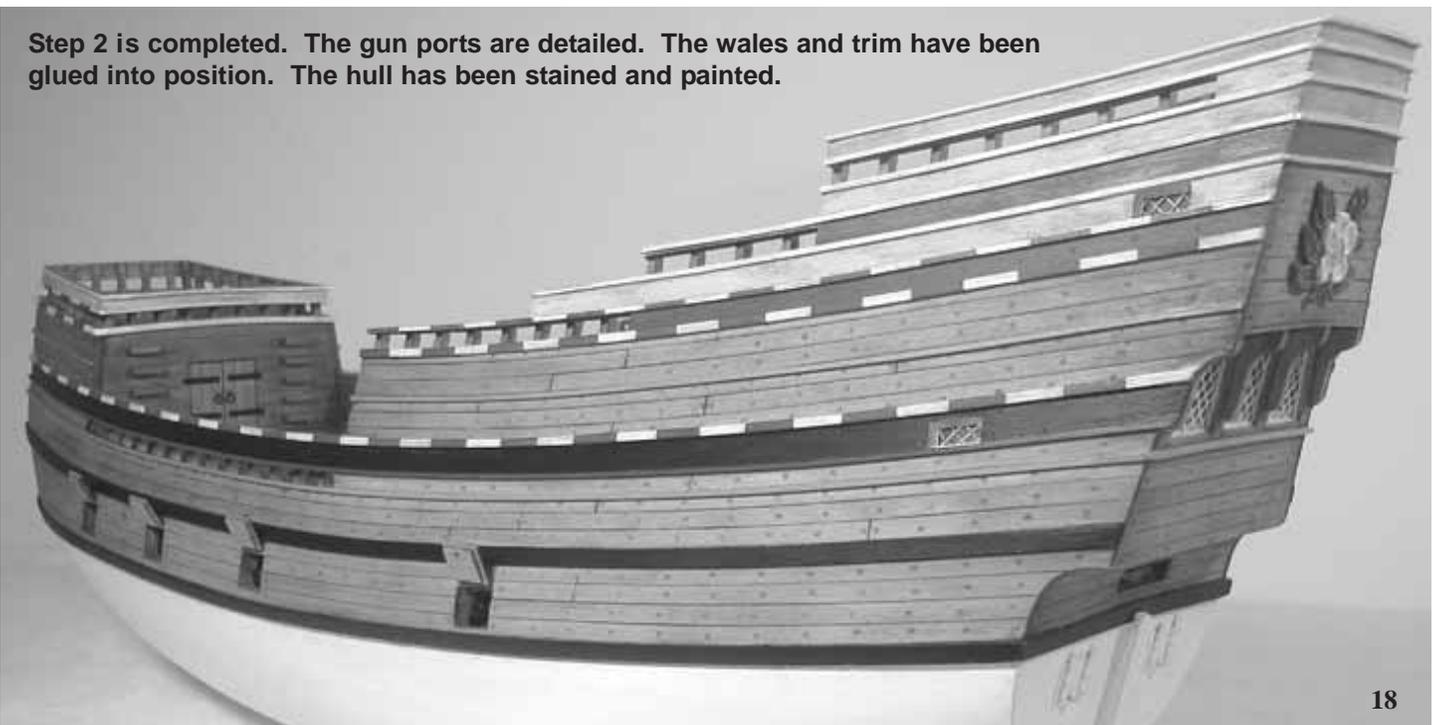
Remember that the upper wales are placed over the initial plank from step one and the lower wales are placed over the final strake from step two.

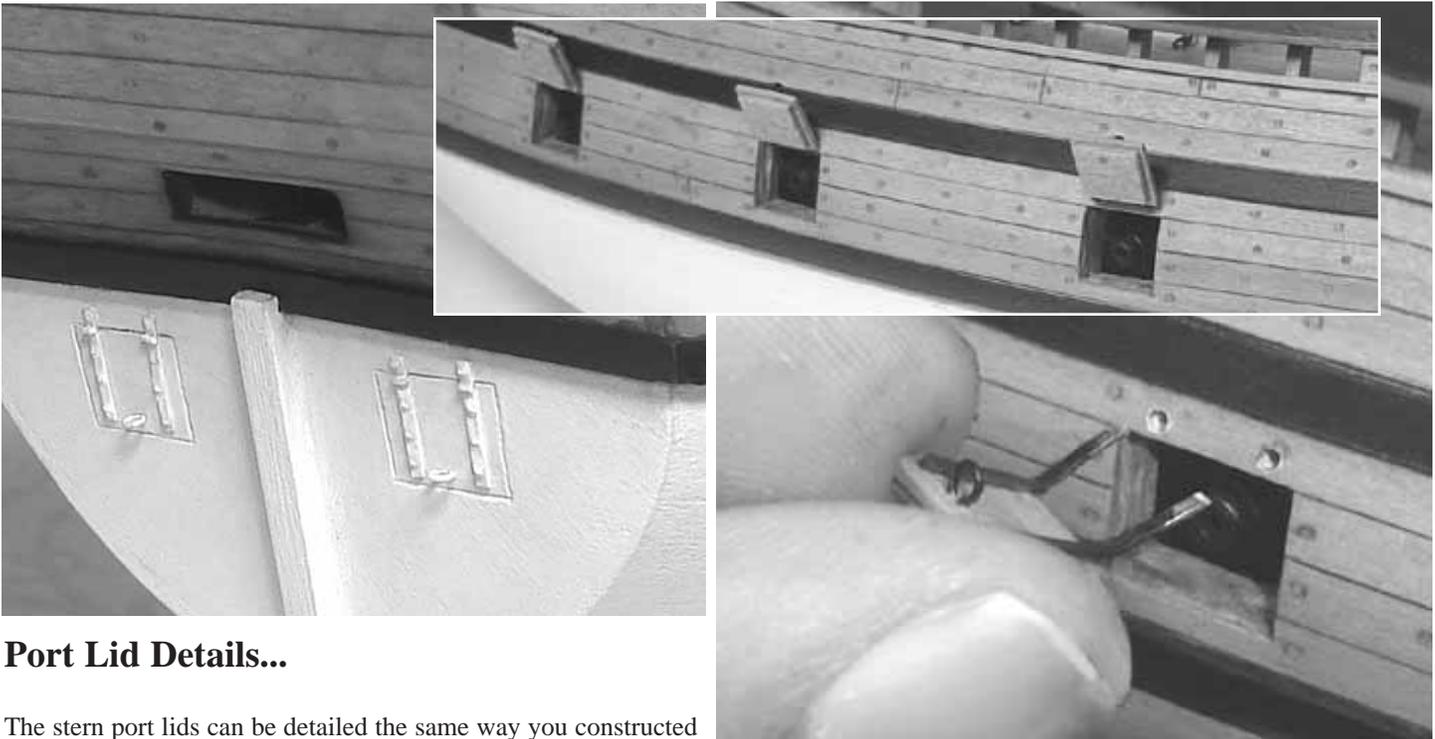
The remaining strips of molding will also follow the run of the planking. There are two sizes of molding strips (1/32" x 1/32" and 1/32" x 1/16"). Those that are 1/16" wide are noted on the plans. All of the other molding is 1/32" wide. Some strips will be painted with two colors (green and white or red and white). The color schemes for every strip of molding are shown on the plans. Those not mentioned

will be left natural and stained to match the underlying hull planking.

Note that some of the molding strips and the lower wales will continue around the stern. Some molding can also be seen on all four sides of the forecastle. Examine the plans carefully for these features. Keep in mind how the molding on the port and starboard sides of the hull need to be placed at consistent levels so you can position these additional strips properly. Otherwise it will be difficult to prevent a crooked and wavy appearance for them on the stern transom and forecastle bulkheads.

**Step 2 is completed. The gun ports are detailed. The wales and trim have been glued into position. The hull has been stained and painted.**





## Port Lid Details...

The stern port lids can be detailed the same way you constructed the doors for the bulkheads. Simply use some card stock for the hinge straps and add a tiny length of 28 gauge wire to simulate the hinge pin. Then add an eye bolt between them as shown in the photo above. You can also simulate the bolt heads as was discussed earlier. The port lids on the side of the hull can be shown open or closed. The choice is yours. Consider the fact that the Mayflower wasn't a warship. To construct the port lids shown open follow the four steps shown in the photo below.

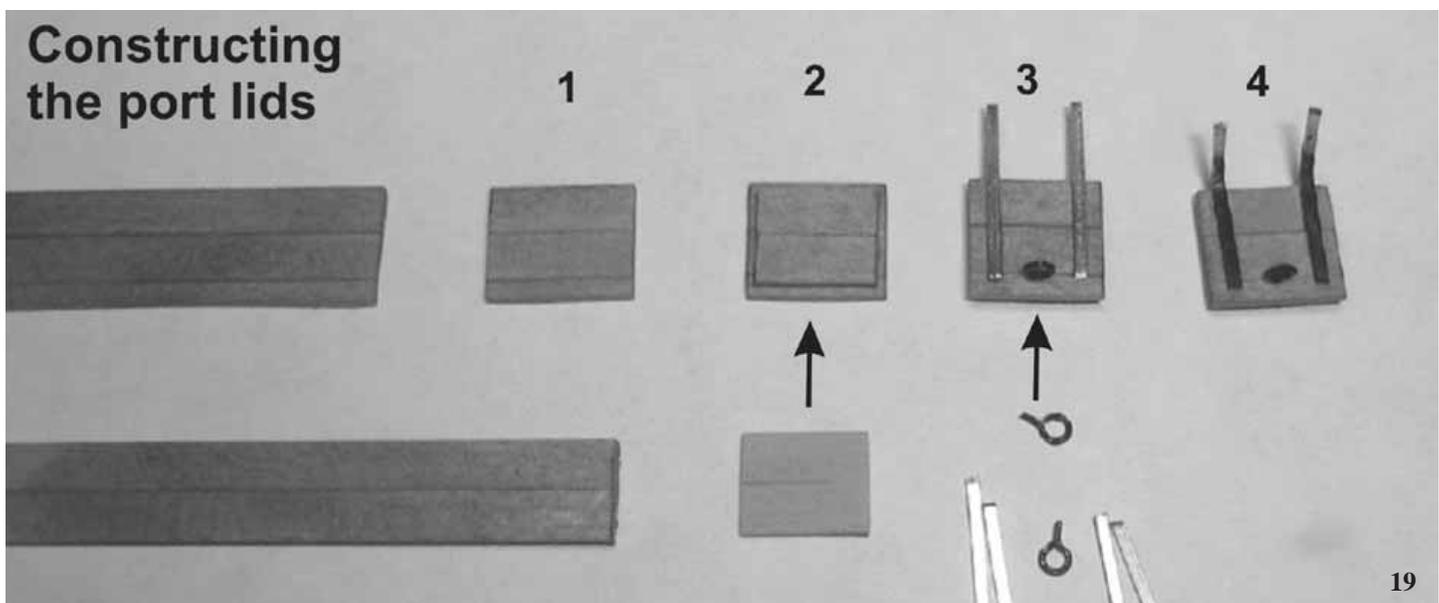
But first ...drill holes through the dummy cannon support strip inside each port opening so you can glue the dummy cannons into position. Paint them black first.

**STEP ONE:** Glue two lengths of 1/8" x 1/32" strips together edgewise and then add a 1/16" wide strip to get the appropriate height for the port lids. Hold them against the hull so you can cut them to the correct width to fit each port opening.

**STEP TWO:** Glue two strips of 1/8" x 1/32" strips together edgewise to create the inboard layer of each lid. The lids will be created in two layers. Cut the inboard layer so it leaves a 1/64" rabbet around the port lid. Glue the inboard layer into position.

**STEP THREE:** Use the thin brass strips provided to create the hinge straps. Cut them longer than needed and glue them to the outboard side of each lid. Then glue an eye bolt between them as shown.

**STEP FOUR:** Paint the hinge straps and eye bolts black. Bend the extensions for the hinge straps back slightly. Position them in front of each port opening so you can mark the locations for each strap extension above each opening. Drill holes and insert the hinge strap extension into them as shown in the photo above. You will notice other photos throughout this guide that show the port lids closed to help you decide which version to choose.



## Color Scheme...

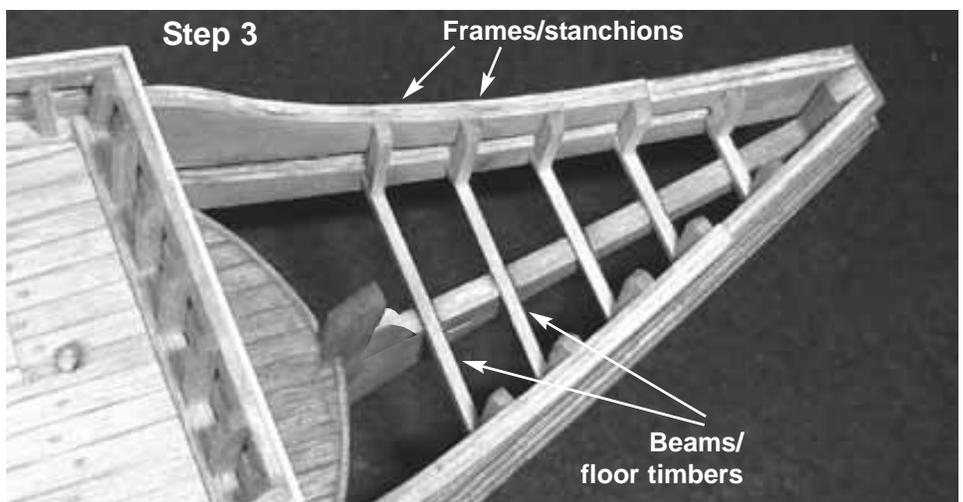
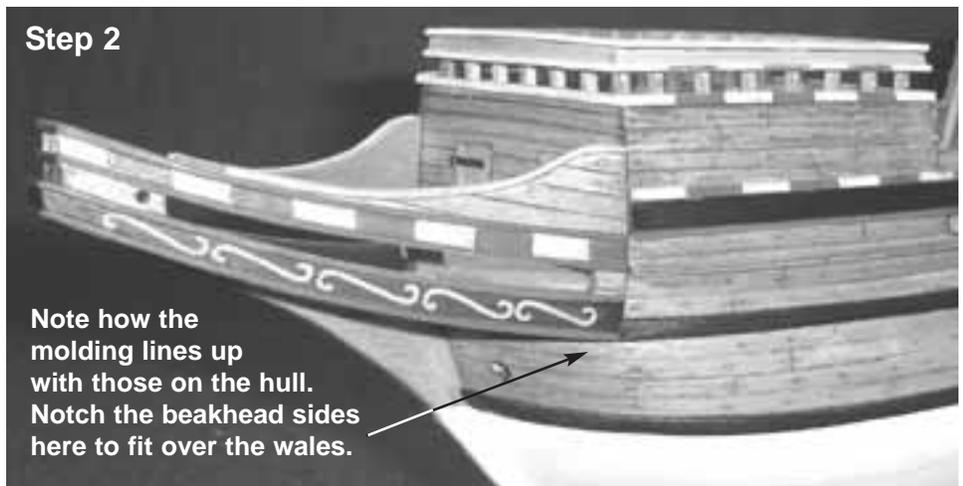
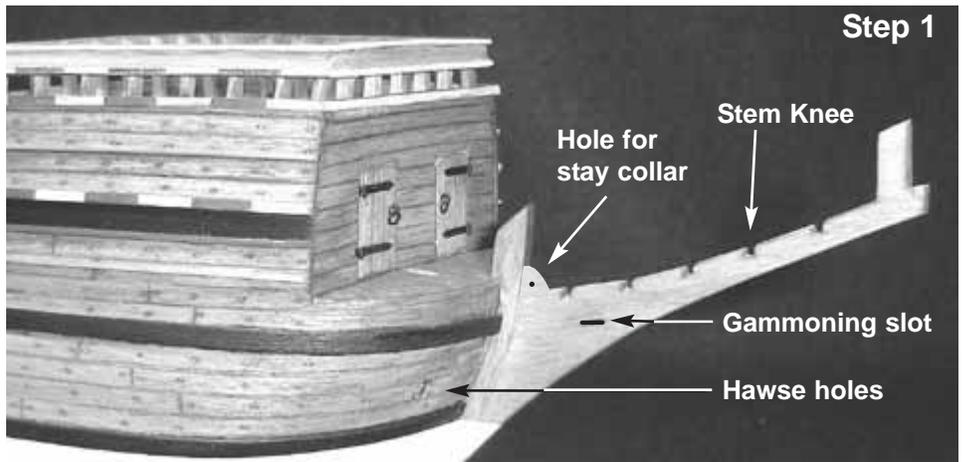
Paint the bottom of the hull tallow - or eggshell. You might consider muting the painted areas of your model. They may appear too bright and "new". A thin wash of watered down brown acrylic paint was used on the prototype. After painting a small area of the hull immediately wipe it clean leaving only a trace of brown

The colors and design chosen for this model are a variation on those used by William Baker. William Baker was the designer of the replica now residing in Plymouth Massachusetts. The prototype was painted similar to how the replica looked at the time it was launched. You will no doubt find countless variations while doing research on the Mayflower. Most historians now agree that more elaborate designs would not have been used for the Mayflower because she was a simple merchant ship. The more elaborate patterns and colors would have been reserved for important vessels.

The same thinking carries over to the "Mayflower" emblem used on the stern. There is a debate over whether the flower design would have been a carved decoration or simply painted on the stern of the ship. A casting is provided in the kit and can now be painted and glued to the stern. The center of the flower is pale yellow with white petals. The leaves surrounding this are painted green. This design also varies throughout history. This kit uses the emblem that was shown on the replica at the time of her launch.

## Constructing the Beakhead...

The beakhead was a prominent feature of a merchant vessel at this time. The head of any ship is very complex. There are many structural elements that shape the beakhead. Many elements for the beakhead are laser cut for you. However it is recommended that each one is test fit as a card board template first before shaping them from the wood provided. Small differences in the way you shaped the hull, bow and stem can have an impact on how all of these beakhead elements fit together. The plans should be used as a guide. After you make any minor modifications to



these cardboard templates, reshape the laser cut pieces to fit properly.

As done previously we will break down the construction of the beakhead into individual steps. However, before you begin the hawse holes should be drilled into the bow. The hole for the bowsprit should also be made now because it will be more difficult to do so when the beakhead is completed. The hawse holes for the anchor cables are 1/8" in diameter. They are positioned 3/16" from the stem. See

the plans for details.

**Step 1** - Position the the 1/8" thick laser cut stem knee. See the photo above which shows the knee glued to the stem. Note the slot made for the bowsprit gammoning. The knee serves a similar function as the keel does for the hull. It supports the floor timbers which lay across the knee in the slots provided. On top of these will be a grating and planks that the sailors would stand on while tending to the rigging. Frames were attached to the ends of these

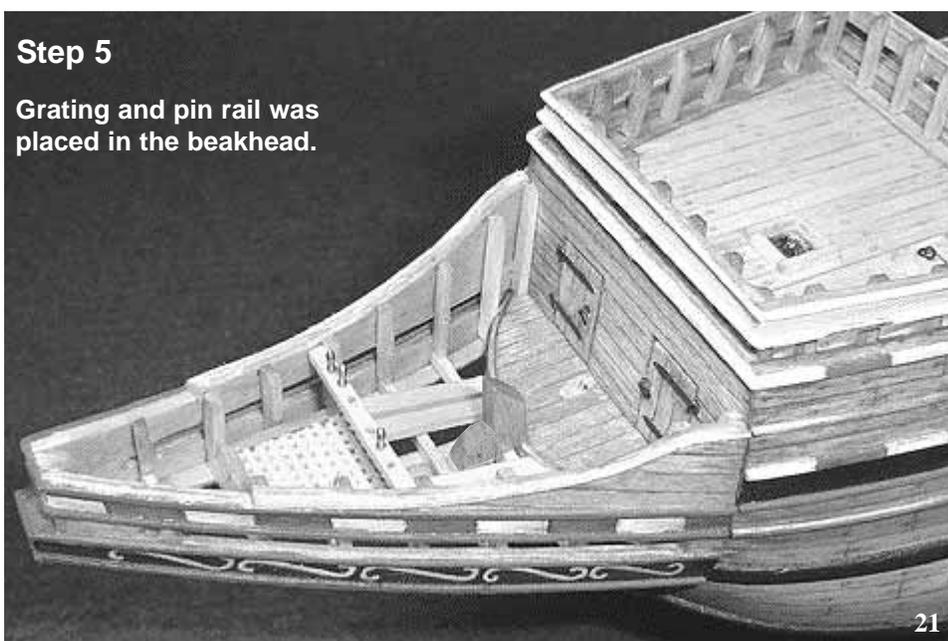
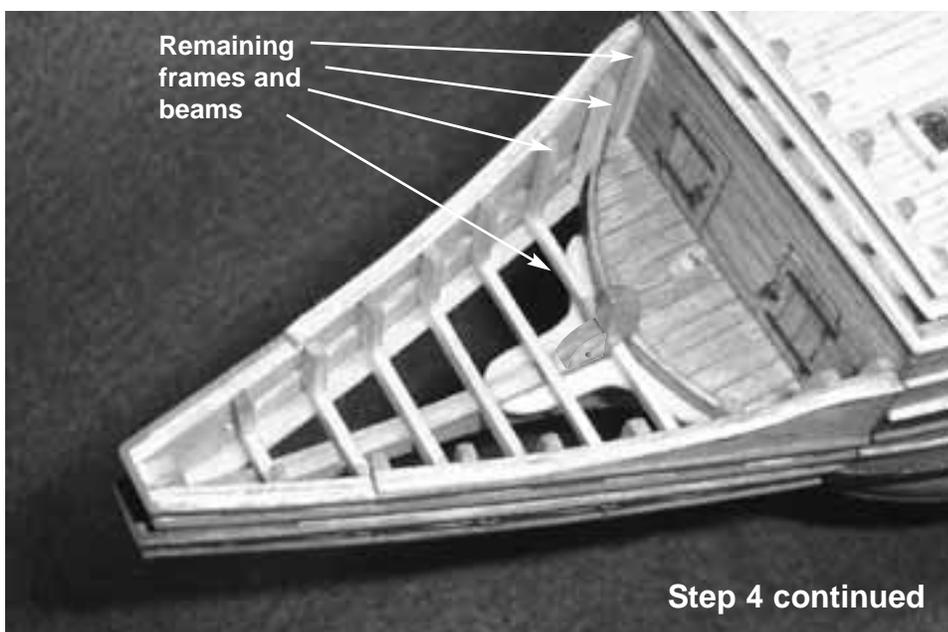
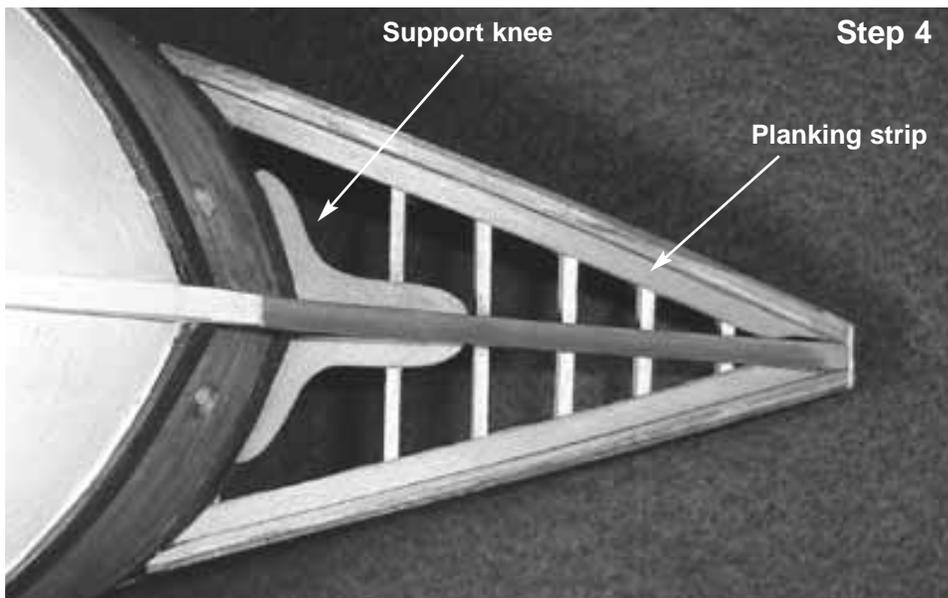
timbers. Finally the outside of these frames were planked over to provide protection from any storms and rough weather. The entire beakhead is quite structurally sound when completed. For our little model this construction process will be simplified.

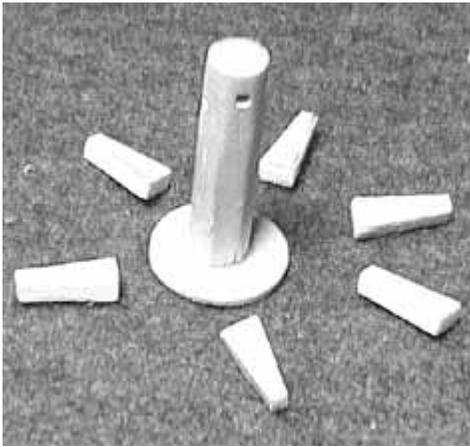
**Step 2** – Rather than install the frames and floor timbers first, we will add the planked sides of the beakhead instead. This will eliminate the precise measuring needed for the internal structure. Remember this is a very complex structure with many angles and curves.

The two beakhead sides have been laser cut for you. They are 1/32" thick. Only the outboard side of these will need to be planked using the 1/8" x 1/32" strips provided. After both have been planked it is easier to apply the molding (1/32" x 1/32") and paint them before gluing them permanently to the model. The photo of step 2 shows the sides of the beakhead in position. Note how the molding applied to the beakhead lines up with those already on the hull. This should be studied carefully from the plans and any adjustments made before you glue them into place. The colors and designs painted on the beak head are described on the plans (except for the molding strips which are all painted red).

**Step 3** – With the sides of the beakhead in position the floor timbers and frames are addressed next. The five beams stretching across the stem knee are cut to length and inserted into the slots provided for them. Use the strips that are 1/16" x 3/32" for these timbers. The frames (stanchions) can be glued to the inboard sides of the beak head by placing them on top of the floor timbers. See the photo on the previous page. The top of each frame is rounded off as done with the other stanchions of the model. The interior of the beakhead will be left natural so it can be stained to match the other portions of the model.

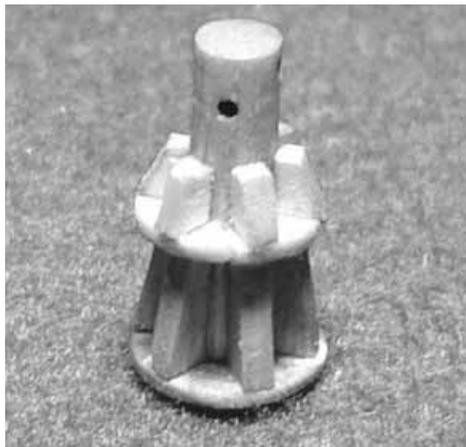
**Step 4** – Turn the model over so you can work on the bottom of the beakhead. There are two knees glued against the bow and stem which strengthen the beakhead. They are 1/16" thick and are laser cut for you. Glue them into position as shown in the photos above. A 1/32" x 1/8" planking strip should also be glued along the edge





of the beakhead. They should be glued to the underside of the beakhead beams (floor timbers). A few more stanchions and beams will rest atop these to finish off the initial beak head construction. See the same photos.

**Step 5** - Last you will create and install the grating inside the beak head. Use 1/16" x 3/32" wood strips to create the frame for the grating. Test fit a photo copy of the grating shown on the plans so you can make any adjustments to its shape before you begin. Glue the grating into place when it is finished. Finally a pin rail stretches across the beak head where the rigging is belayed. Drill six holes into a length of 1/32" x 3/32" wood strip. See the plans for details. The photo provided shows three belaying pins inserted into the holes along this rail. Do not glue the pins into the holes at this time. They are only shown to demonstrate how it will eventually be set up. There are also two planks



(1/8" x 1/16") on each side of the stem. They lead from the bow to the grating on the beakhead. These simple planks made it easier for the sailors to reach the grating.

### Extending and Completing the Quarter Deck...

If you examine the plans you will see that the quarter deck (also called the half deck) extends out over the upper deck. An open bulkhead called the "After Cubbridge Head" needs to be built followed by the placement of deck beams. The deck extension will rest on top of these. Before you begin the following detailed steps provided, the capstan should be made and glued onto the upper deck. A casting for the capstan is included in this kit. It should be painted to look like wood. Another alternative would be to build one from scratch. Templates are located on the plans. Either way the capstan is partially obscured under the half deck and will not be openly visible.

The two photos above show you how to construct a capstan from the wood supplied in this kit. The first photograph shows a wooden dowel (3/16" diameter) cut to length. The bottom portion of the dowel (capstan drum) was filed to a six-sided shape. 4 small holes were drilled into the top of the capstan drum. The crew inserted two long wooden bars through these holes and used them as handles to turn the capstan. You don't have to drill your holes through the drum. Because it will be obscured below deck, drilling the holes part way through from both sides will be sufficient. You can darken the insides of these holes with a sharp pencil. The holes are square and not round. This shape can be obtained with a sharp blade in your hobby knife.

The drum was glued to the center of the capstan base which is essentially a wooden disc cut from a 1/32" thick bass wood sheet. The lower whelps are glued around the base as shown in the photographs. They are 1/16" thick.

Then a smaller wooden disc (washer like in appearance) is slid over the top of the drum and rests on the lower whelps. This smaller disc is also shaped from a 1/32" thick bass wood sheet. The smaller upper whelps are then placed on top of this inline with the lower whelps. The capstan is completed and can be stained and glued to the base already built on deck.

The First step towards extending the quarter deck will be the completion of the After Cubbridge Head. Several photos are

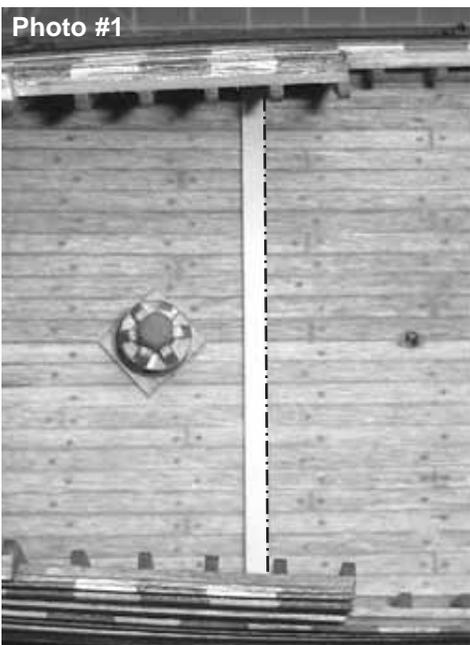
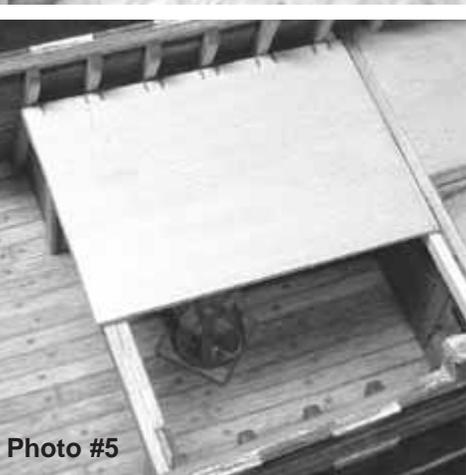


Photo #1



Photo #2



provided to document the entire process. Follow the steps outlined below and examine the plans carefully for details.

**Step 1** – Use a scrap piece of planking as a straight edge. You can see how it was used in Photo #1. It was placed on deck against the aft side of the bulwark stanchions shown. It was used to draw a reference line in pencil on the deck which will be used to line up the two bulkhead templates (J). This line should run port to starboard across the entire deck. The reference line in the photo is shown as a dashed black line.

**Step 2** - Make two identical copies of template J. Cut them out of the 1/32" thick bass wood sheet provided. Only the forward side of each template should be planked using 1/32" x 1/8" strips. Stain them and when dry glue them onto the model. Glue them to the aft side of each bulwark stanchion shown (use the reference line you made in step 1 to ensure they are both aligned properly). See photo #2. Put some glue on the bottom edge of each piece as well. This will be more than enough adhesive to secure them to your model.

**Step 3** - Now you can place the deck beams onto the model. The false deck will rest on top of these. The first beam (use a 1/16" x 3/32" strip) is glued to the face of the great cabin bulk head. See photo # 3. Leave 1/32" of space above the beam to accept the false deck which you will add later. It will rest on top of this beam and end up level with the deck. Measure the distance across the deck and cut the beam slightly longer. As you will soon see, placing the longer beam on the model will force it to bend a little matching the camber of the deck. Test fit the beam in position and make any tiny adjustments to its length until you are satisfied it fits properly.

The second beam is handled the same way but this time it will be glued to the front of each template (J) you created. The beam will stretch across the hull from template-to-template. It should fit snugly between the two bulwark stanchions. Once in position, a second length of strip wood (1/16" x 3/32") is glued on the inside of the beam to strengthen it as it spans across the two templates. Take a look at all of the photos as it shows the beams from a variety of angles.

**Step 4** – Two support knees are shown under the beam that stretches across the

bulk head templates. These were made using the plans as a guide to shape them. Trace the design on a 1/32" thick bass wood sheet and cut them free with a sharp blade. Glue them into position. Two additional strips of 1/32" x 1/8" planking were glued along the front edge of each bulk head to simulate the columns you see in photo #4

**Step 5** – The false decking can now be placed on top of the beams to complete the extension of the half deck. They are laser cut for you. It is easier to put the false deck into position using two pieces. They approximate the shape of each half needed. Because there may be minor fluctuations with the positions of the bulwark stanchions you will have to notch them out of template. Simply rest one half of the decking on the beams and mark the locations for each of them. See photo #5. Once both false deck pieces are glued into place run a bead of glue down the seam between each half. Draw the center line down the length of the half deck in preparation for final planking. The positions for the two hatches should be transferred on to the deck as well. See photo # 6.

**Step 6** – When you planked the other decks on the model you added the waterway along the bulwarks after the planking was finished. There were no bulwark stanchions on the model yet. Planking around the bulwark stanchions could be a difficult and tedious job. Therefore we will add the waterway now in order to make planking the half deck easier.

This time you will use a planking strip that is 1/16" thick x 1/8" wide. This is twice as thick as the waterway used earlier. Once the 1/32" thick deck planking butts up against the waterway, the waterway will appear to be the correct thickness. Take a length of this thicker planking and notch out the bulwark stanchions the same way you did for the false decking. Glue these into position. Do not add the waterway on the forward edge of the half deck. This will be added after the deck is planked. See photo #7.

**Step 7** – Now you can plank the deck as you did the others for the model. Create and install the hatches first. Plank around them. See the plans for any details. The coaming or frame for each hatch was made first using 1/8" x 1/16" Bass wood strips.



The grating is added to finish off the larger hatch. If the capstan ever needed to be replaced it would have been hoisted up through this larger hatch. The smaller hatch in front of the mizzen mast does not have a grating. Simple planks (cover boards) were fitted with handles instead. They are made using the eye bolts and split rings supplied with the kit. Photo #8 shows the quarter deck completed. Note the waterway added to the front edge of the quarter deck. It is the last wood strip (1/32" x 1/8") needed to complete this step in the project.

#### Making the Rudder...

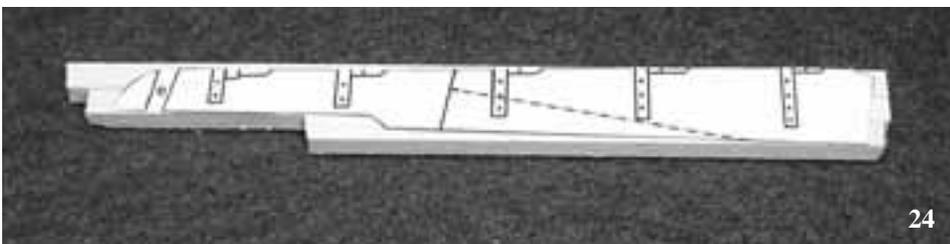
Take 3 lengths of the 1/8" x 1/8" strips supplied and glue them together edge-to-edge. Paste a photo copy of the rudder on the top of it and cut it to shape with a sharp blade. See the photo below. The photos (1A & 1B) on the next page show the rudder after it was cut to shape with a sharp #11 blade. It was sanded

afterwards.

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 brass strip supplied with the kit can be used to make the gudgeons and pintles. The photos on the next page show you how to create the gudgeons and pintles. The brass strip should be cut into 10 smaller lengths. See the plans for the approximate sizes. The 10 strips were then bent around a block of wood that was the same thickness as the rudder (1/8"). 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 the inside of them.

The rudder is painted white below the wales. Paint the first coat before gluing the pintles into position. The pintles are



glued onto the rudder at a right angle to the inside edge of the rudder. This angle is clearly shown on the plans. Once in position, slide the gudgeons behind the the pins as shown in photo 1B. You can apply a drop of glue if needed to keep them in place.

The tiller was created by gluing a small piece of 1/8" x 1/8" strip wood to the rudder first and adding another strip (1/16" x 1/8") on each side. Photo 2 shows a close up of the the rudder tiller. It only has to be long enough to fit into the carved hole above the stern post.

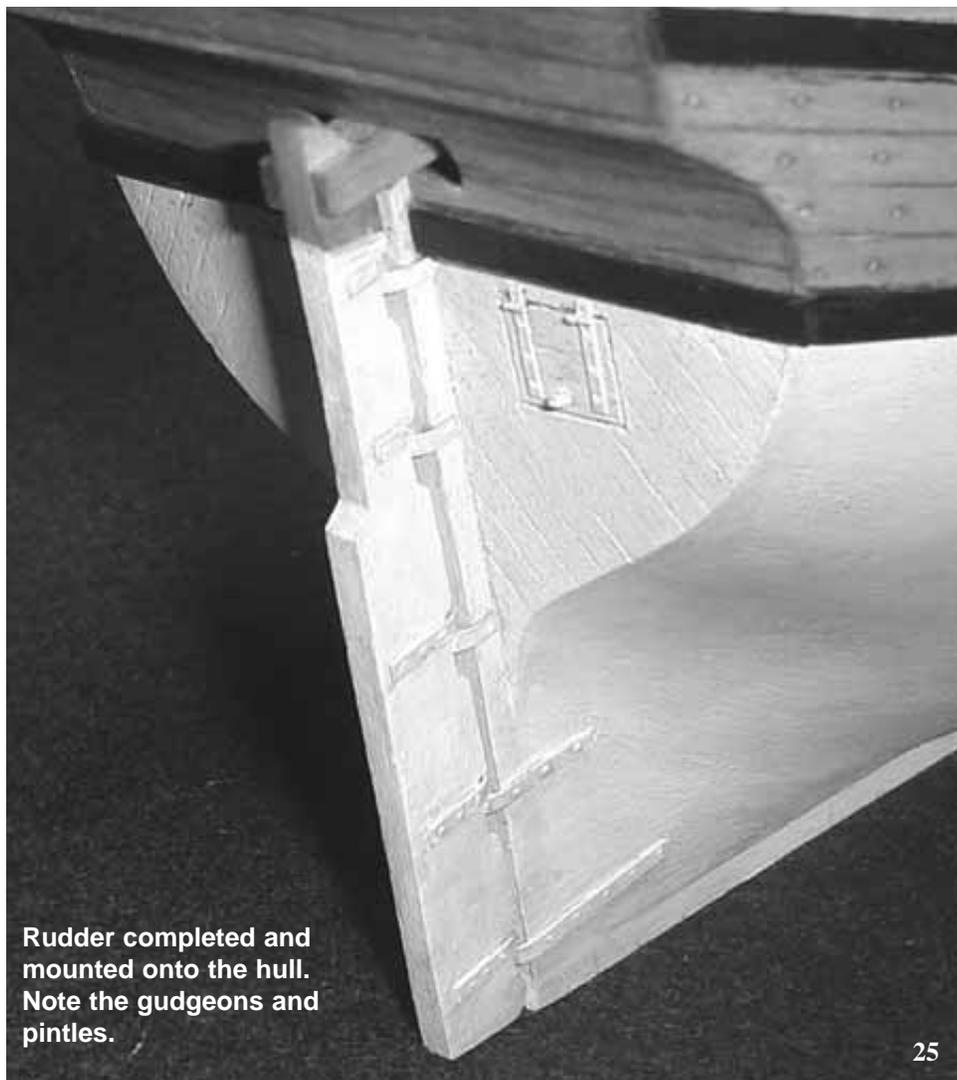
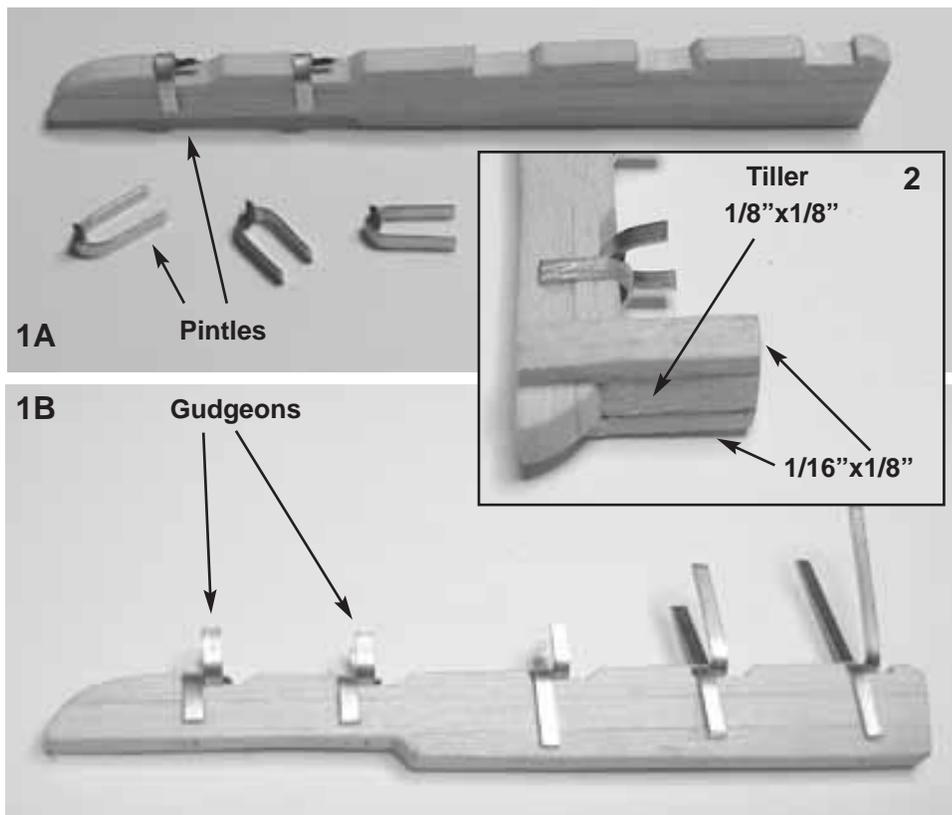
The finished assembly can be test fit on the hull and the angles for each gudgeon measured and marked. You will notice in the photo below (right) that the two bottom gudgeons are the only ones that extend onto the hull. The top three are only made long enough to cover the stern post. Make any adjustments after test fitting the assembly on the hull. When you are satisfied, glue it to the hull being careful to properly line up the gudgeons. Keep them evenly spaced and angled and don't use too much glue. Paint the gudgeons and pintles white and touch up the rudder to finish this step. Simulated nail heads can also be added to the gudgeons and pintles. For the prototype model, small droplets of white glue were added to them with the tip of a small brush. When dry they will maintain their shape. Paint them white with a final coat of paint.

## Deck Fittings and Details...

Up to this point in the project most of your time has been spent working on the outside of the hull. Enough of that work is now completed and you can turn your attention to the deck detailing. You can proceed in any order you find comfortable, but for instructional purposes this manual breaks down the process by examining each deck and the fittings they contain.

### The Poop Deck...

The Poop deck contains few deck fittings and is a good place to start. There are two kevels (one on each side of the deck). Castings are provided with the kit but



Rudder completed and mounted onto the hull. Note the gudgeons and pintles.

depending on your skill level, you may want to replace them with some that are scratch-built. The kevels would have been made of wood and as such should be painted to look like wood. Examine the plans for their exact locations and glue them to the bulwark stanchions. See the photo provided.

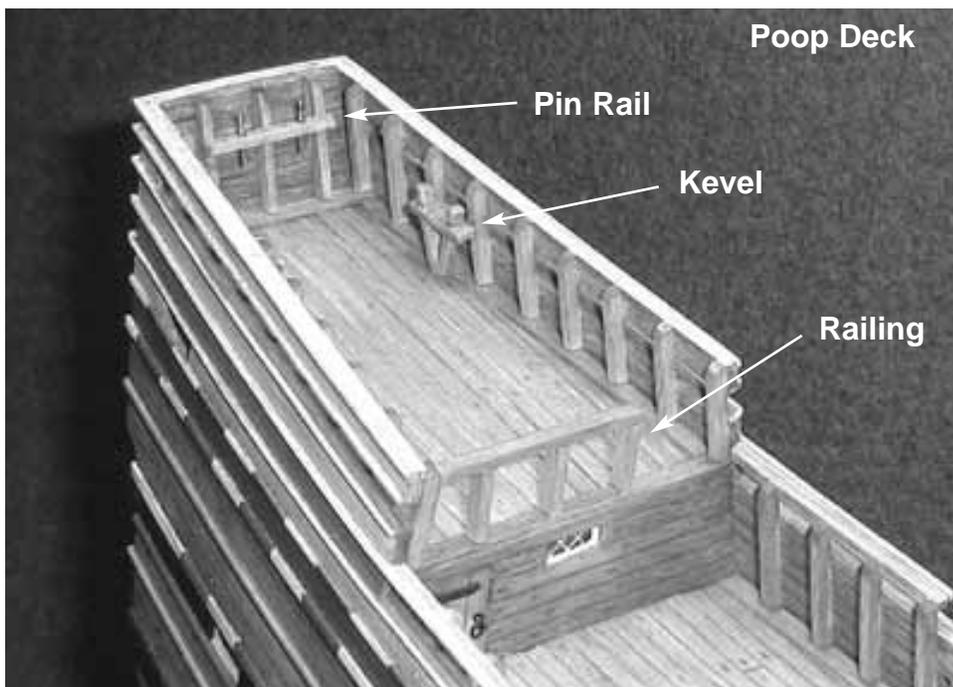
In addition to the kevels you will notice a pin rail in the same photo. It is located on the inboard side of the stern bulwarks. All of the pin rails needed for the model are made using the 1/16" x 3/32" Bass Wood strips provided. Cut a strip to length and drill the appropriate amount of holes as shown on the plans.

The hand rail located on the edge of the Poop deck is made using the same Bass Wood strips. Take the measurements from the plans and stain them match the rest of the model. The replica based in Plymouth MA has the top of this rail painted white. You can also paint it white, but this is a subjective decision and should be made based on your own personal tastes.

The stairs/ladder leading down from the Poop deck can be made using the template shown on the plans. Take two small lengths of 1/16" x 1/8" strips and position them on top of this template. See the photo below. The template is used to establish the shape for each side of the ladder. While positioned on the template, mark the locations for each step on the face of each wood strip. Using a small file or your hobby knife, create the small slots which are used to attach each step. The 1/32" x 1/8" strips are used to create the 5 steps. Cut them to length and glue them into the slots you made. Examine the same photos below. Only insert them into one side of the ladder. Once dry, glue the other side of the ladder into place.

### The Half Deck...

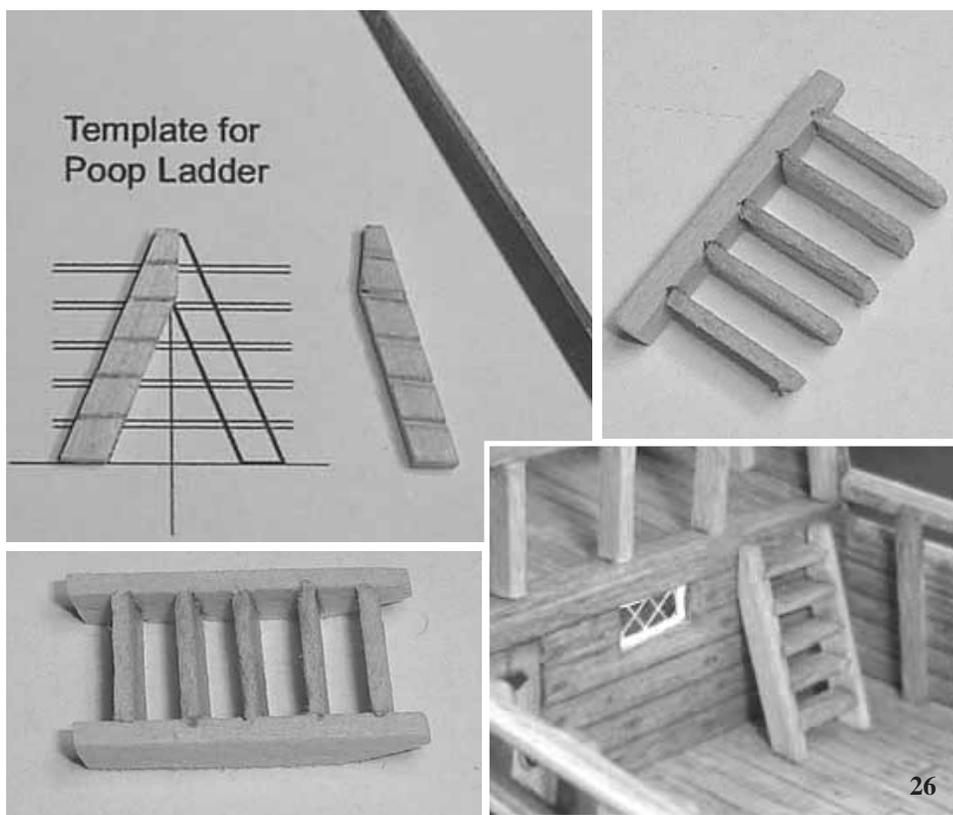
Create and glue the four pin rails on the Half deck. See the plans for their exact size and location. A knight head is positioned just in front of the mizzen mast. Examine the plans and photos for details. This knight will be used to secure the tie for the lateen yard. A casting of the knight is provided with the kit but you may opt to build one from scratch. It is not difficult at all, and if made from wood will improve the overall look of your model.



The knight is made using a length of 1/8" x 1/8" strip wood. See the photo on the next page. The head of the knight can be carved with a sharp #11 blade in your hobby knife. Afterwards, the three sheaves can be simulated in the following way.

Three holes are drilled to represent the top of each sheave. They should be drilled straight through to the other side. You can start drilling each hole from the front of

the knight but only go half the way through. Then finish each hole from the back of the knight, drilling each of the three holes deep enough to meet those drilled from the front. This method should help ensure that the holes line up front-to-back. Repeat this process to create the three bottom holes that simulate the sheaves. With the holes completed, use a sharp pencil to create the groove for each sheave. You should be able to easily indent the soft wood between the top and bottom holes of each sheave. This also



colors the groove with pencil which further enhances the appearance of an iron sheave. Do this on both sides of the knight.

Glue an eye bolt on one side just below the three sheaves and a kit-supplied cleat on the other. These should be painted black. The photo above shows a completed knight next to the drawing on the plans. You will notice on the plans that the knight is raked aft. When you glue it onto the model be sure to angle the knight to match the rake of the Mizzen mast.

The belfry and railing at the edge of the Half deck is built using 1/16" x 3/32" strips. It is probably easier to glue the uprights/stanchions for the rail into position first. Then place the hand rail on top of these. To give the rail some extra strength you might consider drilling a tiny hole into the bottom of each stanchion. Then insert a small length of wire into this hole leaving just a small amount sticking out. Drill a corresponding hole in the deck where each stanchion will be glued. This small wire will increase the strength of the rail considerably once they are pegged into the deck.

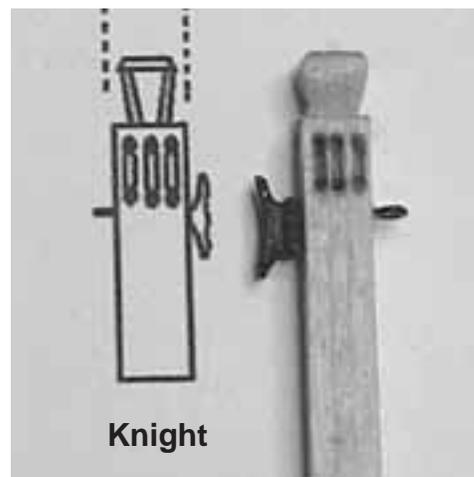
The bell supplied with the kit is attached to the stock with an eyebolt. The loop on top of the bell is slipped into the eyebolt. Then the eyebolt is glued into a pre-drilled hole in the stock. Place the bell into position between the two uprights before you glue the roof on the belfry. 1/32" x 1/8" strips are used for the roof. The hand rail and the roof can be painted white but as mentioned earlier this is optional.

### The Upper Deck...

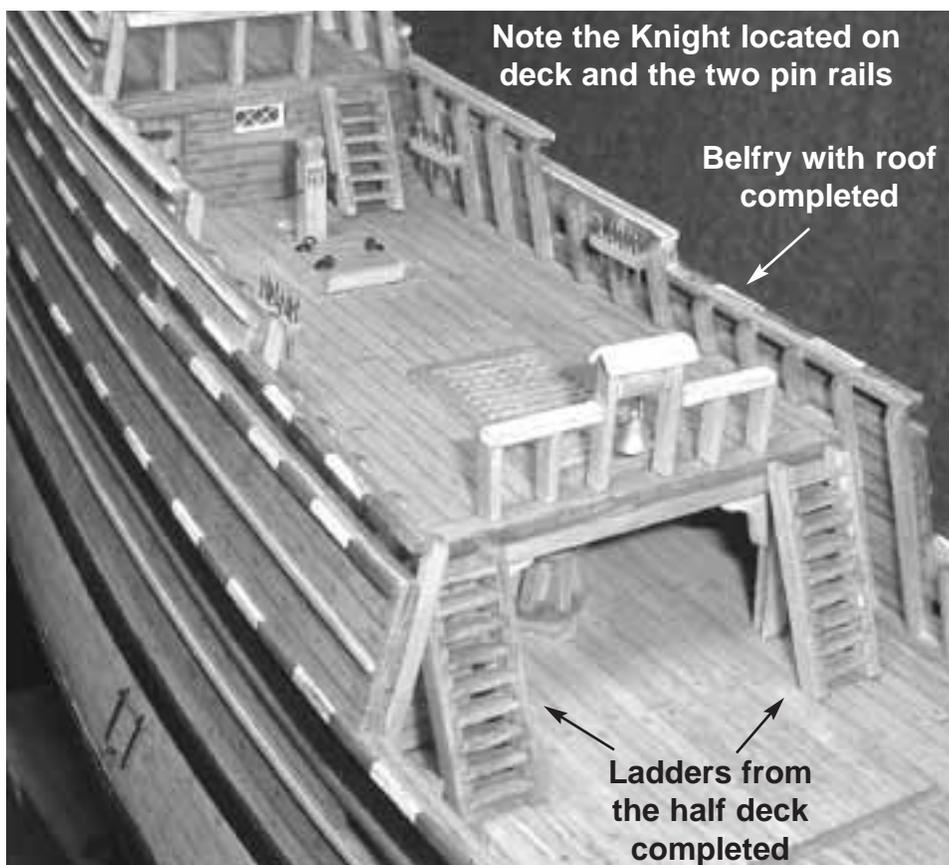
Two ladders lead to the upper deck from the half deck. Make these using the template provided on the plans. You can make them the same way as you did for the ladder on the poop deck. There are also more kevels and pin rails along the bulwarks. A knight also needs to be made similar to the one on the half deck. It is positioned aft of the main mast and on the starboard side. Check the plans for its exact location. The only new fittings that need an explanation are the pumps. Cast pumps are supplied with the kit but as is true with everything else, building them from scratch will look so much better. Should you decide to do



**Belfry without roof**



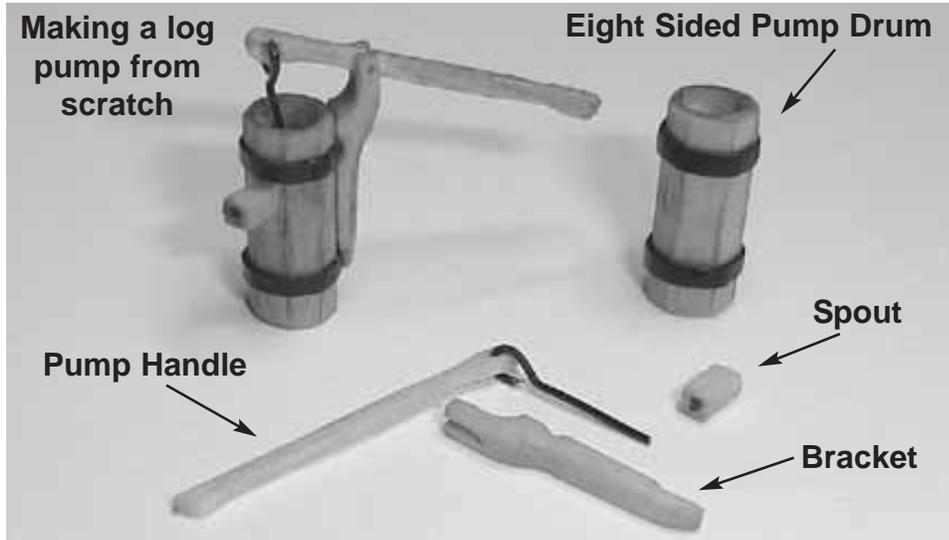
**Knight**



**Note the Knight located on deck and the two pin rails**

**Belfry with roof completed**

**Ladders from the half deck completed**



**Making a log pump from scratch**

**Eight Sided Pump Drum**

**Pump Handle**

**Spout**

**Bracket**

so there is a photo on the previous page that shows a completed pump. That same photo also shows the four pieces needed to construct them.

**Step 1.** – Create the main cylinder for the log pump. The cylinder is made using a 3/16" diameter dowel. Cut it to length and sand it so it has eight flat sides. The pump is octagonal. Create two of each pump element at the same time. This will help ensure that you have a matching pair when you are finished. Drill a shallow hole in the top of the "log" as shown in the photo. Two metal bands are wrapped around the cylinder to complete this piece. You can use black tape cut into thin strips or heavy paper to create them.

**Step 2.** – The bracket and spout for the pump are made from a scrap of 1/16" thick sheet or planking strips. Use the plans to trace their shape onto the wood. Drill a tiny hole in the end of the spout and glue it onto the pump drum. The bracket holds the pump handle. Creating it is straight forward however you can see in the photo that a small slot is filed into the top of the bracket. This slot will accept the pump handle. The bracket is only 1/16" thick and the photo can be misleading. Carefully file the groove into the bracket trying not to split the sides. Glue this onto to drum when finished.

**Step 3.** – The pump handle is made using a scrap piece of 1/32" thick planking. Sand it to shape and drill a tiny hole through one end. An eye bolt is placed in this hole as shown. Drill a corresponding hole in the pump drum to accept the other end of this eye bolt. Drill it into the center of the pump drum. Lastly, place the handle in the groove of the bracket and at the same time guide the eye bolt into the hole of the pump drum. Your pump is now completed and can be glued onto your model.

The photo on the top of this page shows the upper deck after all of the fittings have been completed.

### The Forecastle Deck ...

See the photo above. You only need to add a few pin rails and kevels as shown on the plans. Don't permanently glue any belaying pins to these rails yet. They are only shown in the photos for scale



Upper Deck



Fore Castle Deck

purposes.

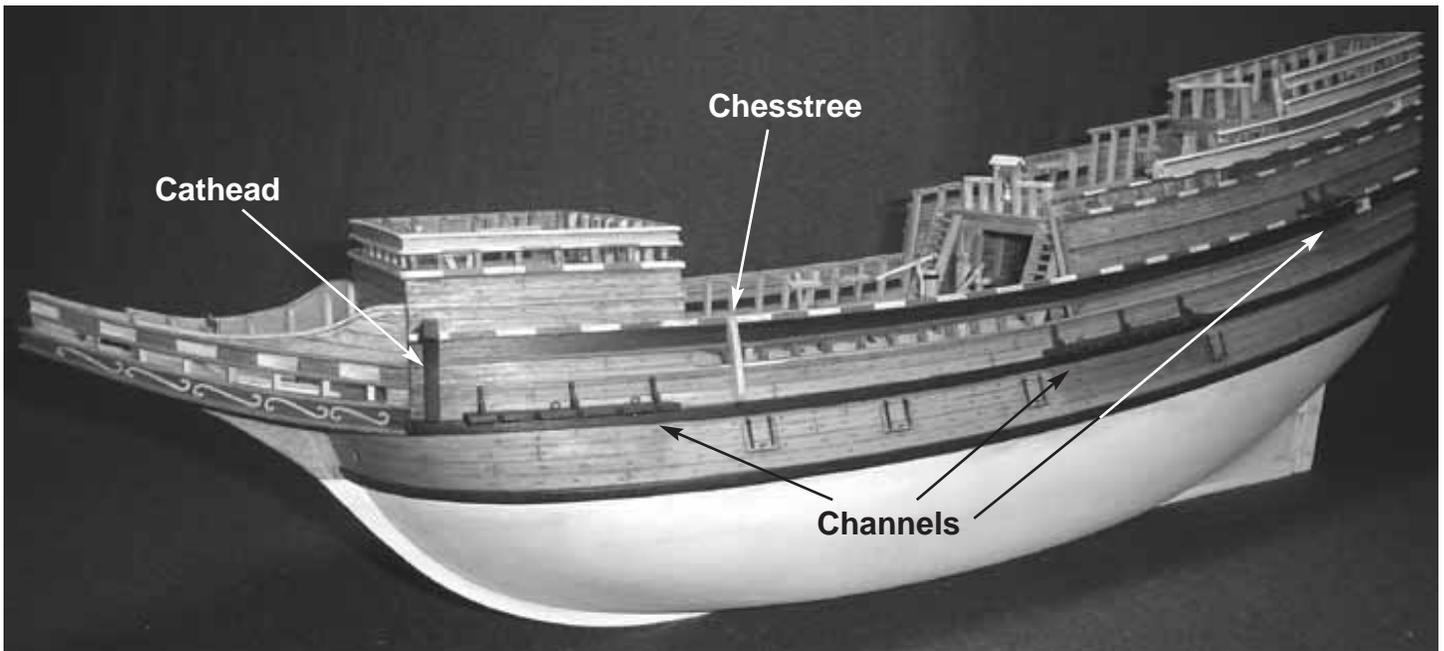
### Finishing up Some Small Details Before Starting the Masting and Rigging...

Only a few details remain before you can start constructing the masts in preparation for rigging your model. The chesstrees, channels and catheads will complete the exterior of the hull.

**Catheads** – The catheads are made from the 1/8" thick bass wood sheet provided. Trace their shape from the plans using the "Beakhead Bulkhead" drawing. The profile for each cathead is provided on that drawing. Create two simulated sheaves through the end of each cathead. Use the same technique as described for creating the sheaves on the knight heads. Paint the catheads black and glue an eye bolt into the forward side of each of them. See the plans for details. The photo on the next page shows the cathead in position on the

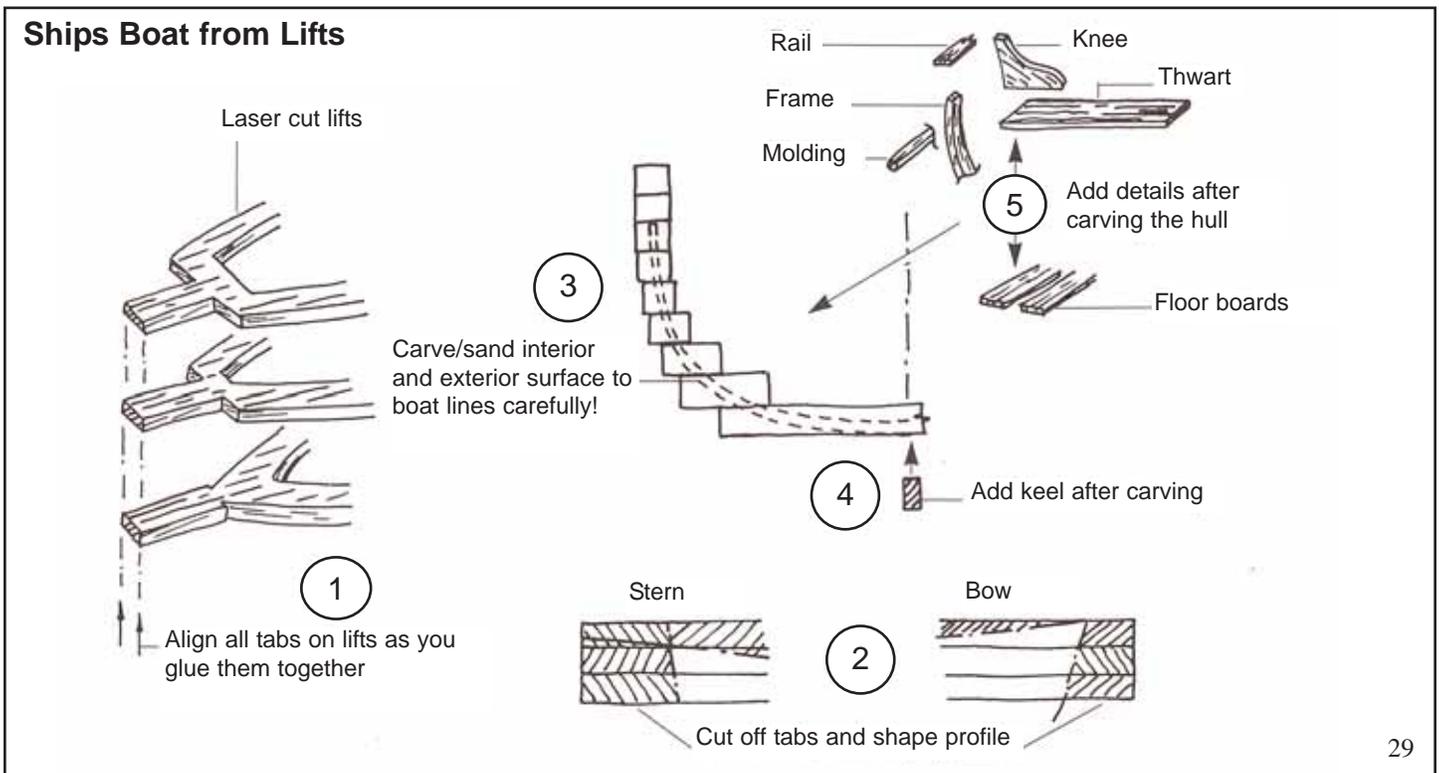
port side of the hull. You will need to notch the molding on the hull so each cathead fits properly before you glue them into position.

**Chesstrees** – A chesstree is positioned on the outside of the hull and lines up with the first bulwark stanchion on the upper deck. See the same photo on the next page and check the plans for details. The shape for the chesstrees are shown on the plans but should be used only as a guide. Minor differences from model-to-model will probably require some slight modifications be made. The chesstrees are 1/16" thick and are cut from the bass wood sheet provided. Drill a small hole through them as indicated on the plans. Glue them into position on the model. The chesstrees for the prototype model were left with a natural finish however you may also paint them black.



**Channels** – Examine the plans carefully for the shape and locations of the channels. You will notice that the outside edge of each channel is shown with a 1/16" thick molding in place. This molding will help secure the dead eyes and chain plates to each channel. You should however, initially create them without this molding strip. The dead eyes and chain plates will be added later. For now trace the shape onto a 1/16" thick bass wood sheet and cut them out with a sharp blade. Use a small needle file to make the small notches along the outside edge of each channel. You will slip the dead eyes into these notches later and place the 1/16" molding across the front of them. This won't be done until after the masts are in position and the rigging is under way.

Paint the channels black. Two eye bolts are glued into pre-drilled holes on top of the channels. Only the fore and main channels have these two eye bolts. They are used to secure the tackles for the lower fore and main masts. When completed, glue the channels to the hull. The fore and main channels will sit on top of the upper wales. The mizzen channels will rest on the top edge of the molding shown on the plans. The photo above shows the channels in position on the port side of the hull. You will also notice that several support knees are glued on top of each channel. These knees are traced from the plans onto 1/32" thick planking strips (or a bass wood sheet). The mizzen channels only have two support knees. They are also painted black.



## The Ships Boat...

The Mayflower carried a small boat. It would be a good idea to build it before you start the masting and rigging. Rather than supply a Britannia casting for the boat, seven lifts are laser cut for a bread-and-butter hull. You will need to do some shaping and carving and this can be challenging on a hull this small (about 2 1/2"). How thin can you carve the hull without breaking it? The model's appearance will be much improved by adding it. However, depending on your skill level, you may decide not to include one at all. In most cases the boat would have been towed behind the ship. It was only stored on deck during long journeys. One such as the noted trip across the atlantic for which the Mayflower is best known.

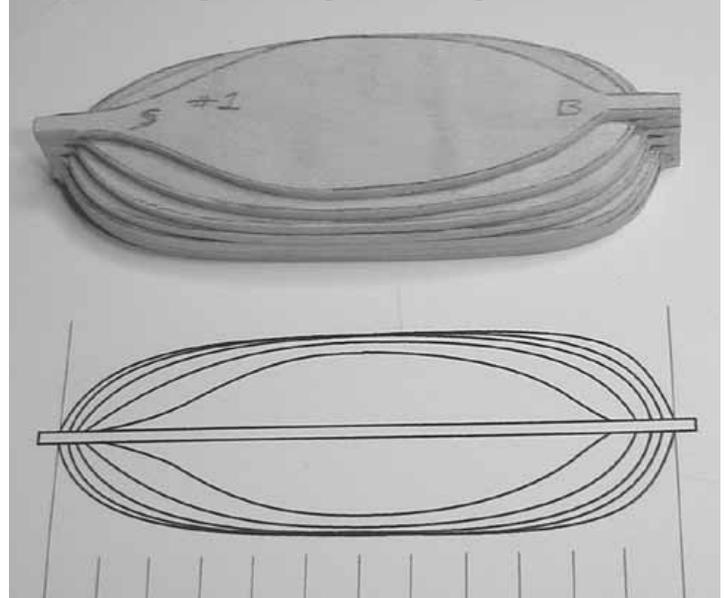
You will see that each lift has two tabs on each end to ensure proper alignment. Align these tabs as shown in the first photo above. Be sure to mark the stern and bow ends to ensure each lift faces the proper direction (you can see these marked as "B" for the bow and "S" for the stern). Glue all of the lifts together using a thin even coat of glue. Carve the outside of the hull first. Use sand paper or carving chisels. Sand the corners of each lift down to the intersection of the next lift. When the hull is smooth you should have the correct shape. Next, cut off the tabs and draw the correct profile for the boat. The second photo shows a pencil line running from bow to stern. It follows the correct profile as detailed on the plans. The sides of the boat curve downward towards the center. The bow is slightly higher than the stern. Shape the top of the boat to match this profile.

The third photo shows the hull after the inside was sanded. This is the most difficult part of the operation. Try and make the hull as thin as possible. One option would be to not glue lift #1 to the hull until after the inside has been thinned down. It makes the interior more accessible with your tools. There are many techniques for creating a bread-and-butter hull. Another diagram is also presented on the previous page to help you. Try to establish a consistent thickness for the hull.

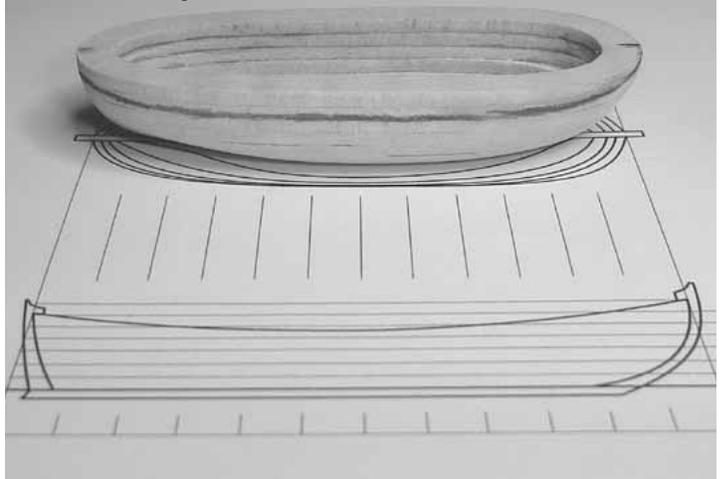
You can add many details to this little boat. The decision is ultimately yours. In the fourth photo the keel and frames have been glued to the boat's interior. 1/32" x 1/32" strips were used. The keel was run down the center first and the frames added afterwards. Soaking these thin strips in some warm water will make them very pliable. They should bend easily to the shapes needed. Be sure to stain or paint the interior of the boat as you proceed. It will be difficult to do so when the entire boat is finished. On the prototype, the entire boat was left natural and stained to match the rest of the model. Photo #5 shows some interior details of the boat. You can see the five floor boards placed on the bottom of the boat. These strips were 1/16" x 1/32". Then the risers are glued into position. The riser is the strip of wood shown glued across the frames. The thwarts (seats) will rest on top of these risers. Basswood strips 1/32" x 1/16" are used for the risers. Add the thwarts (seats) as shown in the same photo. The thwarts are made from 1/32" x 1/8" strips.

Photo #6 shows some details added to the outside of the hull. If you examine the plans you will notice that the top four planks on

### 1. Lifts are glued together, align tabs.



### 2. Shape the exterior and establish the correct profile



### 3. Shape the inside of the hull...



The hull should be as thin as possible.

this boat are “clinker” style. This means that each plank overlaps the edge of the plank below it. This is quite a challenge to do on such a small hull but well worth the effort. Should you decide not to place 3 or 4 clinker style planks (1/64” x 1/16”) on the boat; a simple molding can be used instead. A 1/32” x 1/32” strip can be glued across the hull just below the cap rail. A laser cut cap rail is provided for you. It looks like a lift but without any tabs. It is 1/32” thick. This rail is purposely left oversized. Once glued atop the ships frames sand the inside edge flush to the frames. The outside of the rails is sanded so a small overlap can be seen outboard. The keel, stem and stern post is also laser cut and can be attached to the boat now as well.

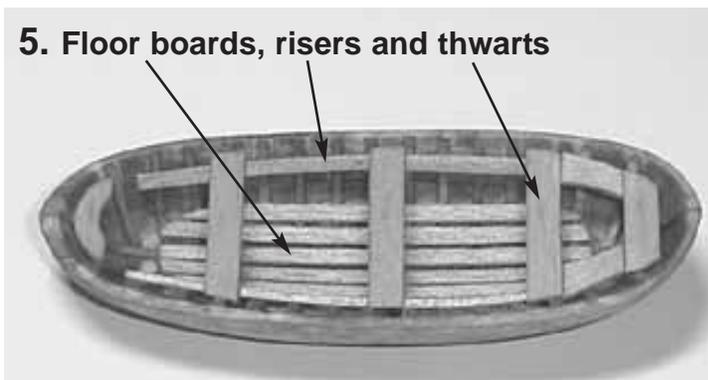
Finish up the boat by adding the oar locks (optional as they are quite tiny) and construct the rudder. It is also laser cut for your convenience. The rudder tiller is made using a length of 22 gauge black wire. Bend it to shape and glue it into a pre-drilled hole in the rudder. The rudder will not be placed into the gudgeons and mounted on the hull. Instead, the rudder was removed and stored inside of the boat while it was lashed down on deck. The gudgeons can be simulated on the rudder post with some paper strips. The pintles on the rudder can be made the same way with the addition of some small pins made from thin wire. You can also add some oars if you wish to include even more details. A few coils of rope placed inside the boat can also add to its overall appearance. See photo #7.

The final photo (#7) shows the boat lashed to the deck with all of its fittings completed. It is lashed to the eye bolts glued along the main hatch on deck. Two cradles are laser cut and supplied with the kit. Glue them on top of the main hatch frames as shown in that same photo. Use the .018 diameter tan rigging line to lash the boat down. Make two hooks out of 28 gauge black wire or modify the eye bolts supplied with the kit. Use a needle nosed pliers to bend the wire into shape. One end of each lashing has a hook seized to it. A close up photo of a seized hook is also shown below. Place the hook into the eye bolt on deck and run the remaining free end of each lashing over the boat to the opposite side of the deck. Seize it to its “partner” eye bolt on the opposite side of the boat. Alternate the lashings so a hook is visible on both sides of the model. Touch the knots and seizing with a drop of super glue to secure them.

#### 4. Frames were added



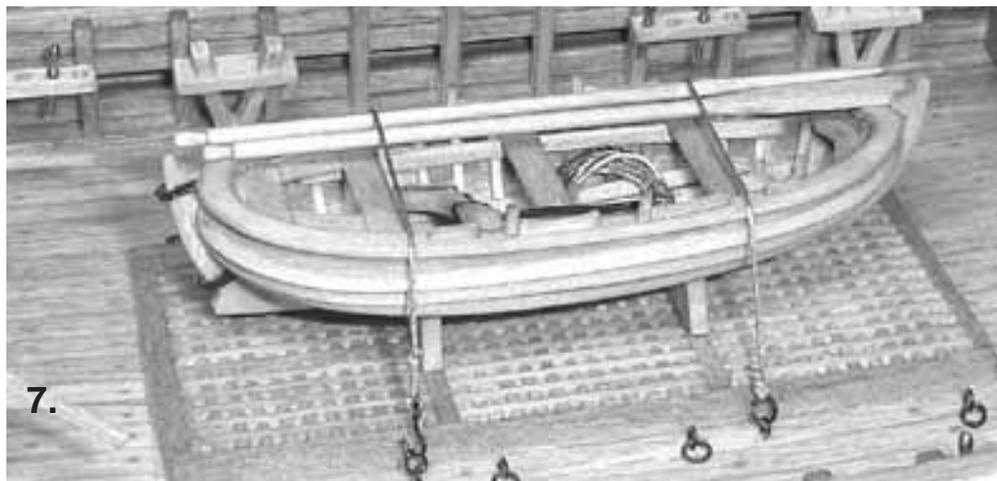
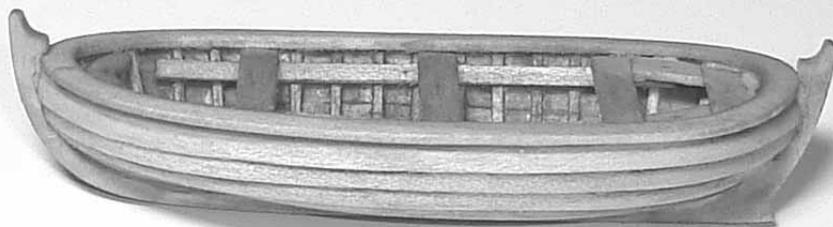
#### 5. Floor boards, risers and thwarts

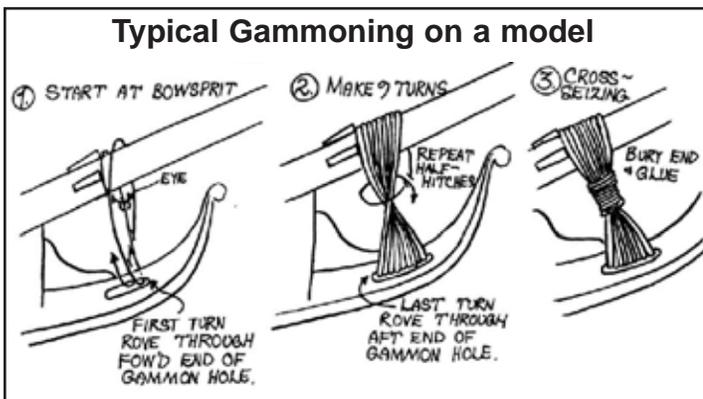


**Seizing a hook to rigging line to lash the boat on deck.**



#### 6. Clinker planking, cap rail, keel, stem and stern post





## Masting and Rigging

### The Bowsprit...

To make the bowsprit, take the appropriate size dowel from those supplied and taper it to match the plans. All of the masts and spars on the Mayflower are tapered. There are many ways to shape them. One method that works well would be to place one end in the chuck of a portable hand drill. As the dowel spins in the drill run some sand paper across it until the appropriate shape is obtained. This is a quick way to shape your masts and spars but stop periodically to check it against the plans. It is very easy to quickly remove too much wood using this technique.

Also note that the bowsprit and lower masts can be “stepped” several ways as well. They are inserted into pre drilled holes on deck. Some modelers will not glue them permanently into the deck. There may be a need to re-rig the model in the future and this will make that job much easier. It is entirely up to you. One method for securing the masts into the holes on deck would be to drill those holes the same diameter as each mast. Then you can slip the masts into these holes. The angle of each hole will have to be precise in order to obtain the correct mast angle (rake). Another method (as used for the Mayflower prototype) would be to carve a small tenon on the bottom of each mast and bowsprit. The tenon is inserted into a smaller hole. This alleviates the need to create a deep hole at precisely the right angle. The mast will still have enough movement so the angle can be established. The only drawback is you will have to permanently glue the masts into these holes because they are not as deep. Otherwise they would move around too much as you begin rigging the model.

You should decide which method to use before you begin shaping the bowsprit. The tenon and other small details can be carved using a sharp #11 blade in your hobby knife. These features are not difficult to create. However, depending on your skill level it

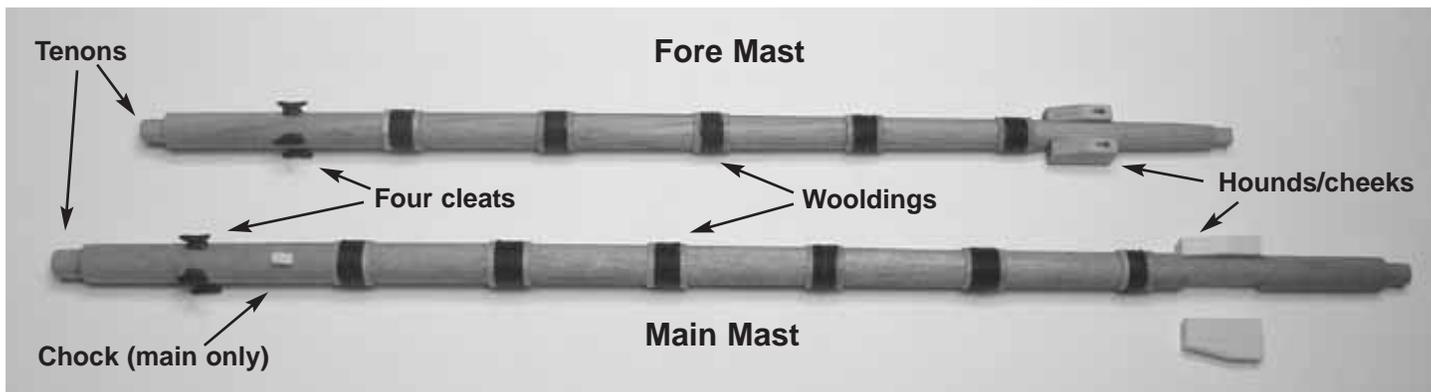
might be a good idea to practice on some scrap pieces of wood first. Once the bowsprit is tapered and shaped, test fit it on the model. As you can see on the plans, the bowsprit is positioned on the starboard side of the stem. It is positioned at an angle. While on the model, mark the locations for the gammoning chocks and cleats. Compare them to the locations shown on the plans. When satisfied with their placement create the chocks from 1/16” x 1/16” strip wood and glue them into position along with the cleat. The cleat is painted black. Don’t forget the chock for the stay collar. It is not shown in the photo because it is on the underside of the bowsprit.

The photo above shows the bowsprit completed with the tenon at its base. Also note how the outboard tip of the bowsprit was shaped as shown on the plans. Glue the bowsprit on the model being careful to establish the correct rake.

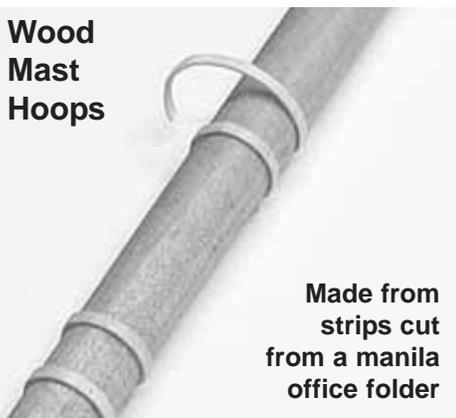
The bowsprit is secured to the stem knee with gammoning and should be done at this time. Use the black .021 rigging line supplied with the kit. The illustration above shows the method used for typical gammoning on a model. Run the line through the slot on the stem knee around the bowsprit as shown. The bowsprit is now completed and you will return to it later to add more rigging details. But at this point you can move ahead and start building the lower fore and main masts.

### Fore and Main Masts...

The fore and main masts are virtually identical except for their size. Therefore both can be made at the same time which will ensure that they look similar. The only difference is that the main mast has a chock used as a stop for the mizzen stay. Begin by selecting the appropriate sized dowels. Cut them to length and taper them as described earlier. If you decided to use tenons for securing the masts into the deck then shape them at this time. See the photos on the next page. The top of each mast will also need a tenon carved but this time it will be square. The mast cap will slide onto it. The mast cap has two holes. One is square and the other is round. The topmast will be inserted into the round hole.



### Wood Mast Hoops



Made from strips cut from a manila office folder

With the tenons completed, the hounds should be shaped in preparation for assembly onto each mast. The hounds are cut and shaped using the 1/8" thick sheet provided. Do not drill the holes through the hounds at this time. This will be easier to do once the hounds are glued onto the masts. The detailed photo above shows that the hounds are actually set into carved notches on the mast. Use a sharp blade to carve these notches and glue the hounds into position. Once dry, drill the holes through the hounds as shown in the same photo. Start drilling them from one side and only go half way through. Then finish the hole by drilling from the other side. The ties for the lower yards will pass through these holes. Sheaves were not used. Instead the holes were curved as shown on the plans. For our little model this detail is optional and need not be shown. A simple hole drilled straight through the hounds will be sufficient.

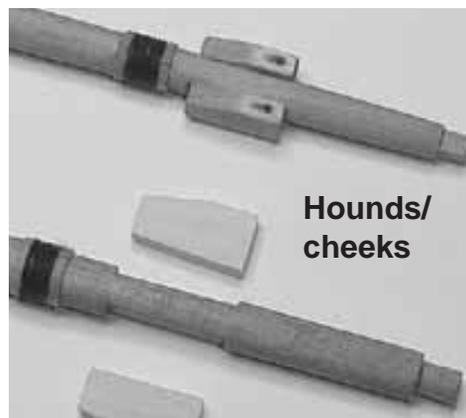
The lower masts were actually quite large. They were not made in one piece. The diameter would have been achieved by building the thickness up using several timbers. "Woodings" were used to hold these timbers together. They consisted of rope wrapped around the mast with a wooden hoop placed above and below them. The woodings will add great char-

acter to your model and are historically accurate for the time period. They are also not difficult to create.

Start by creating the wooden hoops. Mark their locations as shown on the plans. One technique used to create them (as done on the prototype) would be to use stiff cardboard or a manila office folder. The manila folder is ideal because it has a similar color to the wood being used and takes stain well. Cut the folder into thin strips and stain them. It is important to stain them first and allow them to dry. Wrap them around the mast and secure them with a drop of super glue (CA).

Next, take the .021 black rigging line supplied and wrap it between the hoops. You should be able to wrap the line around the mast eight times. Use more super glue to secure the line to the mast. See the photos above for details. Four cleats are glued to each mast and painted black. Their placement is clearly shown on the plans. To complete the lower masts don't forget to glue the "chock" to the main mast. The fore mast will not have one.

Please note that the masts will not be glued onto the model until they are completely finished. The entire assembly including the tops, trestle trees, topmasts

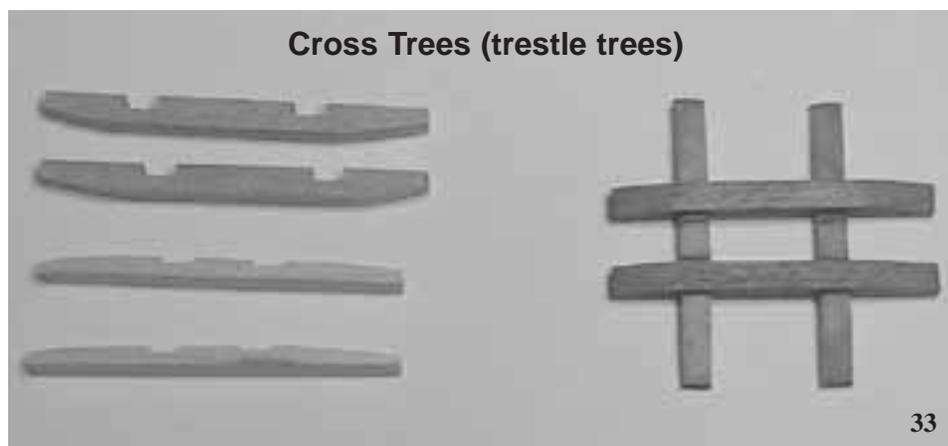


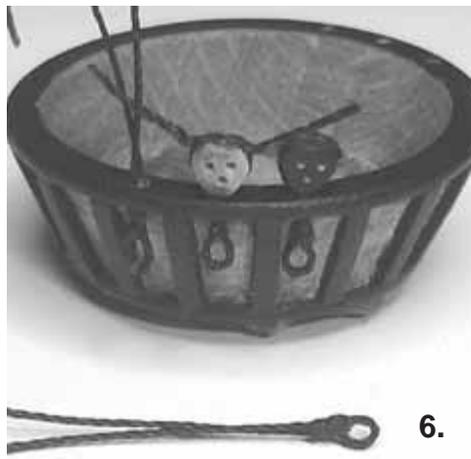
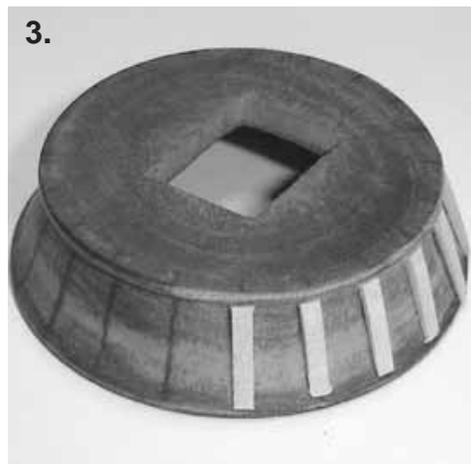
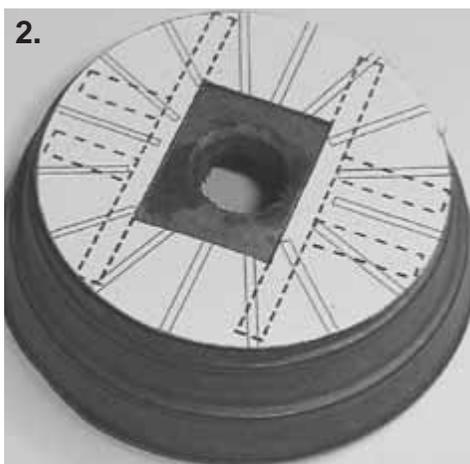
and poles will be completed before they are stepped into position.

### Cross Trees (trestle trees) and Tops...

The cross trees for the main and for masts are made as shown in the photo below. Use the appropriate sized strip wood to shape each timber. Carve or file small notches into these timbers. Assemble them and place them aside. You will need them shortly after the tops are completed.

The tops supplied with the kit have been pre-milled but still require some shaping and detailing. Photo #1 (on the next page) shows the tops as supplied. The remaining photos are sequenced and follow the steps





outlined below to complete them. Make a photocopy of the tops from the plans. In photo #2 you can see how they were used to mark the squared opening on the bottom of each top. With the shape of the opening marked in pencil, carve the opening with a sharp blade. A “starter” hole has been drilled to help you with this process.

You will no doubt see that there are decorative moldings which have been pre-shaped around the outside of each top. Depending on your skill level, or how much detail you intend to add to your model; the tops can be used as is. Simply paint the molding black and skip the next step. If you are up to the chal-

lenge however, the tops can be modified to more closely resemble those shown on the plans. The plans show a more accurate depiction of the tops used on the Mayflower. In photo #3 you will see that the pre-milled molding was sanded down and removed. Thin strips of wood were cut and glued around the top. The positions were carefully marked with pencil to ensure equal spacing before gluing. These strips are painted black along with the top and bottom rims.

Photo #4 shows the cross trees glued into position. Before you do so, double check that there is sufficient room on either side of the cross trees for the shrouds and rigging to pass through.

Mark in pencil the locations for the dead eyes along the rim of each top. Use the plans as a guide to ensure their correct placement. There are three dead eyes on each side of a top. Holes need to be drilled through the rim at the angle shown in photo #5. The dead eyes supplied with kit come in three sizes. You will need twelve of the smaller dead eyes for this task. The dead eyes supplied are round. A ship like the Mayflower had dead eyes that were pear-shaped or triangular. Again, depending on your skill level, the round dead eyes can be modified to more accurately reflect the time period. Simply sand the dead eyes to a triangular shape and use a small needle file to reestablish the groove around the outside edges.

Photo #6 shows the sequence used to place the dead eyes into position. Start by seizing a small eye into some .021 black rigging line. Use some black sewing thread to create the seizing. A drop of super glue will stiffen the eye. Before it dries you can also

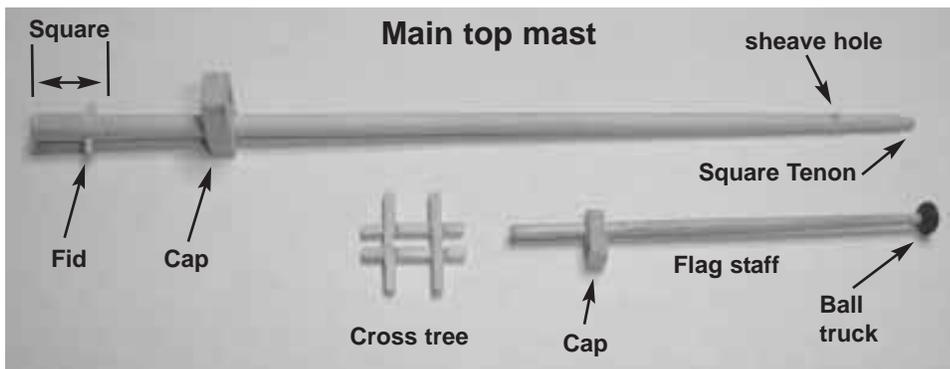


ream the eye with a pointed dowel. This helps to form the eye while the glue sets, quickly forming its shape. Push the two loose ends through the hole in the top as shown on the left side of photo #6. The seizing on the eye should be large enough so it doesn't pull through the hole in the top's rim. Then tie a dead eye in place with the two loose ends. A drop of super glue on the knot will be more than sufficient to hold it securely. Trim off the excess with a sharp blade or nail clippers. Finish it up by painting the dead eyes black.

The tops are now finished. If you want to take it even further, a series of knees or frames lined the inside of each top. This detail is shown on the plans but is optional depending on your preference and skill level. The tops can now be glued onto the lower masts. The cross trees sit on top of the hounds. Be careful before you glue them and make sure they are facing the right direction. The deadeyes are positioned slightly aft of the center on each top. Check the rigging plan to be sure. With the tops in position you can now glue a cleat on each side of the masts inside the top. These are shown in the photo above. Paint them black. These cleats will be used to belay the lifts for the topsail yards.

### Main and Fore Topmasts...

The fore and main topmasts are also identical except for their length and size. The caps for both have been laser cut for you. Begin by taking those caps to check that the square opening will fit the square tenon you created on each lower mast. Don't glue them into position yet. Then take the appropriate sized dowels and taper them to match the shapes of each topmast from the plans. Note that the heel of each topmast is squared off. See the photo above. Through this squared portion you should drill a small hole to accept the "fid". The hole runs port to starboard.



The fid is nothing more than a length of 1/32" x 1/32" strip wood pushed through the hole. The fid prevents the topmast from falling through the trestle trees. Drill another hole to simulate a sheave close to the tip of each topmast. This will be used for the topsail yard tie. Last you will carve another square tenon on the very tip of the topmast. The cap for the flag staff will slip onto it.

Once the topmast is shaped, test its diameter to see if the cap will slide into position as shown in the same photo above. If everything fits together you can permanently glue them into place.

### Flag Staffs...

The fore and main topmasts have flag staffs. Small caps are laser cut for you. They are used the same way as the caps for the lower masts. A smaller cross tree will also need to be constructed. The cross tree is slid into position on the topmast. A small "lip" is visible on the plans above the sheave for the topsail yard tie. The cross tree will sit on top of this lip. Place the cap into position on the square tenon of the topmast.

With these elements temporarily in position, taper the appropriate sized dowel to create the flag staff. A ball truck is made out of some scrap wood material and glued on the tip of the staff. Paint the ball trucks

black. These trucks would have actually had small sheaves in them for the flag halliards. The scale of our model makes them difficult to create. Instead we will simply tie the halliard to the staff. Test fit the staff to ensure that it fits through the round hole of the cap. The flag staff really should have a fid much like the ones you created for the topmasts. Otherwise they would simply fall through the trestle trees. But again, the scale of our model makes creating them difficult (but not impossible). If all of the elements fit together well you can glue them into place permanently.

### Mizzen Mast Assembly...

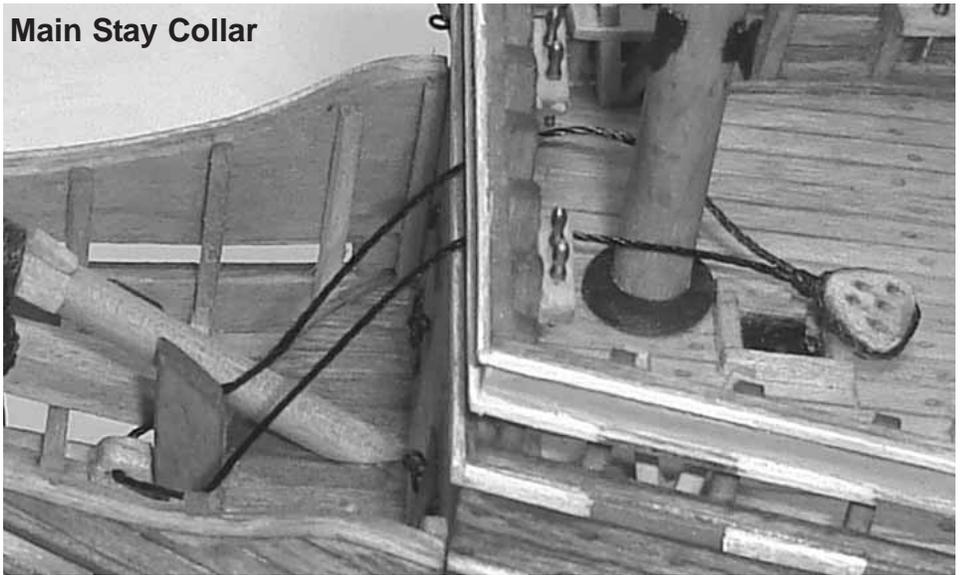
After completing the main and fore masts, the mizzen mast should come together without any problems. The mizzen mast is tapered like the others. Two cheeks or hounds are created from the 1/16" thick basswood sheet provided. A small sheave hole is simulated through the mast between these cheeks. Construct the trestle tree and glue it into position on top of the cheeks. Place the cap onto the squared tenon you will carve on the tip of the mizzen mast. To finish it off, create the flag staff with ball truck and glue it into place. Note the round tenon carved at the heel of the mizzen mast. This will be used to secure the mizzen mast onto the deck. See the photo below. Note that the two cleats are not yet placed on the mast.



**Stepped fore mast**



**Main Stay Collar**



**Stepping the Masts...**

All of your mast assemblies are now completed. It is time to place them on the hull. The rigging plans show the rake (angle) of each mast. The fore mast is nearly vertical. The main mast leans aft very slightly. The mizzen mast leans slightly more. Before they are glued permanently onto the model you will need to prepare the mast coats. The masts on Mayflower would have been held securely by forcing small wedges around its base where it travels through the deck. This group of wedges were wrapped in a canvas-like cover and coated with tar. Hence the term mast coat. In actuality only the tarred cover was called the mast coat.

Three small washer-like hoops have been laser cut (1/8" thick) for your use as mast coats. The top edge of each mast coat should be rounded off before using them. They are painted black to simulate the tarred cover. Slide them onto each mast before you glue them into position. The photo above shows the fore mast on the model with its mast coat in position.

**Standing Rigging**

**Lower Stay Collars...**

Before you start rigging the model some careful planning is required. You must think several steps ahead to make sure you don't "rig yourself into a corner". It can be quite difficult navigating your fingers and rigging tools through a maze of rigging. To make this as systematic as possi-

ble, the rigging will be presented in the order used to rig the prototype.

**Main Stay Collar** – The main stay collar (.028 black rigging line) was rigged first. Run the line through the hole in the stem knee and through the open bulwarks. See the photo above. Seize the two ends together on the aft side of the fore mast. Then secure a deadeye to the collar. This deadeye is heart-shaped and has five holes. The deadeyes supplied with the kit (7mm) are round and only have 3 holes. If you are up to the challenge, they can be replaced with the more accurate representations shown on the plans. They are not difficult to make. Each deadeye should be 1/16" thick. Use the plans as a guide for their shape, size and hole configuration. The photo shows a deadeye made using the plans as a guide. Four of these will be needed.

**Fore Stay Collar** – This is shown in the photo below (.021 Blk). The line is seized around the bowsprit against the chock. Another 5-hole deadeye is seized to it as shown.

**Mizzen Stay Collar** – Rigged similar to the fore stay collar except a 3-hole (5mm) deadeye is used. (.021 Blk) Once again round deadeyes are supplied with the kit and can be sanded to the more accurate triangular shape if desired.

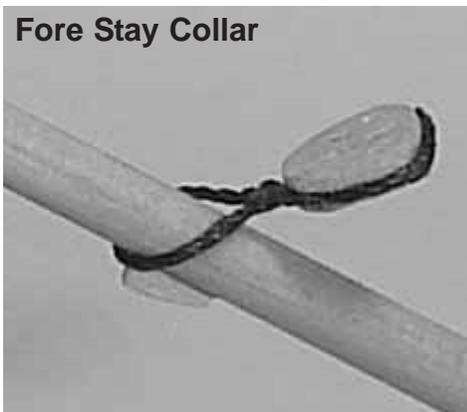
**Lower Shrouds...**

The shrouds will be rigged next starting with those for the mizzen mast. The deadeyes should be secured along the channel first with "chain plates". Black chain is supplied for this purpose. A photo on the next page shows the 5 steps used to prepare the deadeyes. A tiny brass nail (supplied with kit) is glued into a pre-drilled hole in a piece of scrap wood. The head of the nail is snipped off.

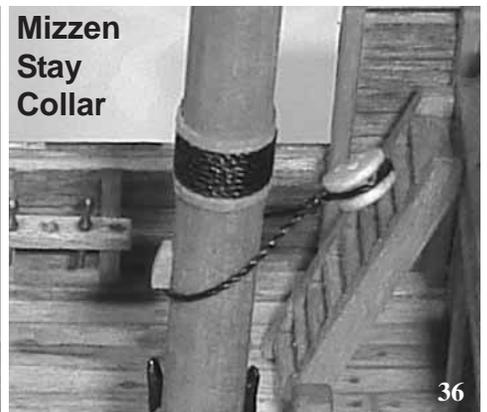
*Step 1-* Take some 28 gauge black wire and crimp it around the brass nail as shown. A needle-nose pliers does the job nicely.

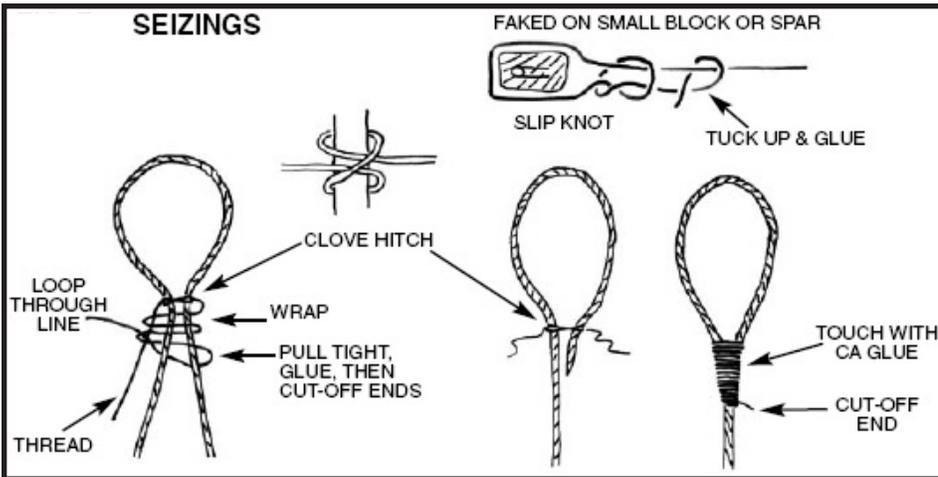
*Step 2-* Bend the two ends back while holding the wire crimped with the pliers. Slide the wire off of the nail for the next

**Fore Stay Collar**



**Mizzen Stay Collar**





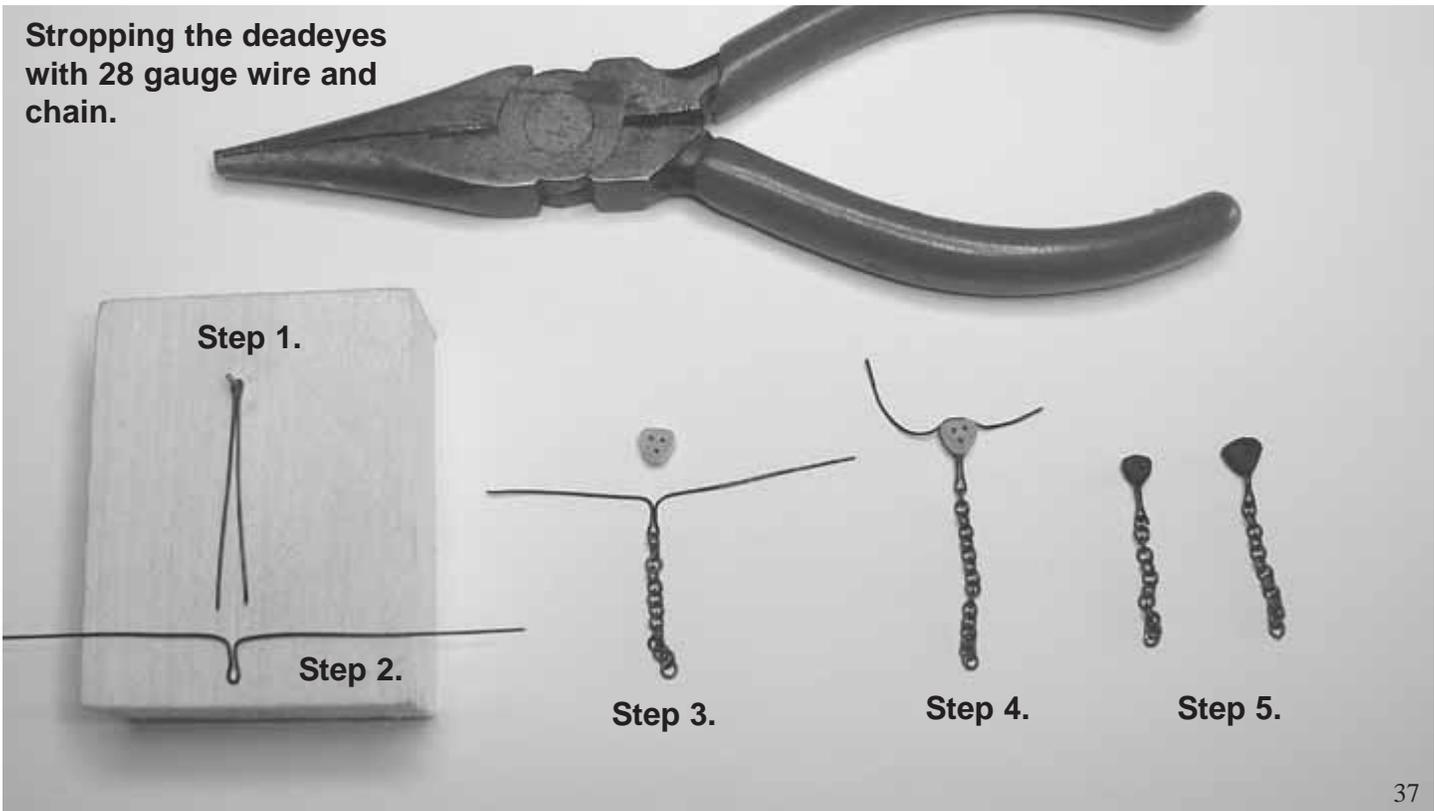
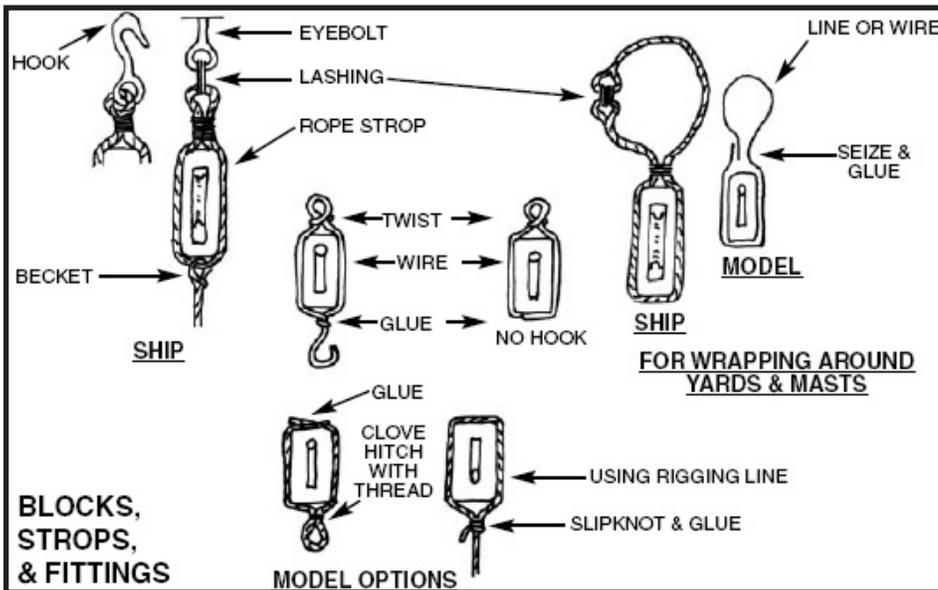
step. You will need six of these for the mizzen shrouds.

*Step 3* - Slide a length of chain (about 3/4" long) into position.

*Step 4* - Round deadeyes are supplied but can be reshaped as mentioned earlier. Use the smaller 3mm deadeyes provided. Bend the ends of the wire around the top of the deadeye as shown. A drop of super glue will hold the dead eye securely in position. Set it aside until the glue dries.

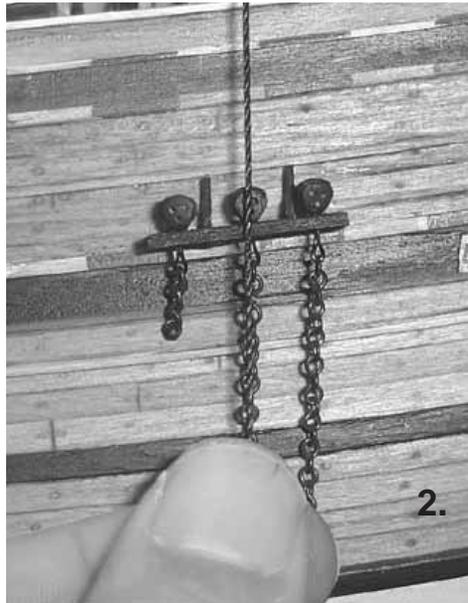
*Step 5* - Snip off the excess wire and clean up the ends with some sandpaper or files. Paint the deadeyes black.

You can now place the deadeyes on the mizzen channels. Place them into the grooves you created along the edge of the channel. Let the chains dangle below the channel. Take a wood strip 1/16" x 1/16" and glue it along the outside edge of the channel to hold them in place. Paint it black. See the photos provided on the next page. If you examine the plan for the standing rigging you will notice how the chain plates follow the angle of the shrouds they secure. To establish the correct angle an extra long temporary shroud is seized around the mast head. Hold this shroud in front of each deadeye and mark the spot on the hull (below the channel)





1.



2.

where the chain should be pinned. Make sure the shroud is held tightly so the correct angle is easily established.

Use the brass nails supplied to pin the chains to the sides of the hull (pre-drill all of the holes first). Cut the chains to length and pin them to the hull with super glue. See the two photos above.

The shrouds are rigged on the model in pairs. Start with the foremost pair of shrouds on the starboard side. Alternate the next pair on the port side. To create a pair of shrouds simply seize a generous length of .028 black rigging line around the mast head. Each shroud has a deadeye seized ("turned in" as its called) to its end which is secured to the deadeye on the channel with a lanyard between them. See the illustration provided below. The upper and lower deadeyes should be spaced the same distance apart for all of the shrouds. Failing to do so would hurt the overall appearance of the model. You can create a deadeye claw such as the one shown in the illustration to help you space them. With the claw in position wrap the shroud around the upper deadeye and seize it into position as shown. Then reeve the lanyard between the deadeyes to finish rigging the shroud. Use .008 tan rigging line for the lanyard.

If an odd number of shrouds are present as is the case here (3 on each side for the mizzen mast), only create one shroud as you are seizing it around the masthead instead of creating a pair. This single shroud should always be the aft-most shroud on each side of a given mast. This will also be the case while rigging the shrouds for the main and fore masts. The ratlines need to be rigged on all of the shrouds and you could do that for those on the mizzen mast now. You may however choose to wait until *all* of the shrouds are completed and rig *all* of the ratlines at the same time. This will ensure that they are evenly spaced and consistent.

**Mizzen stay...**

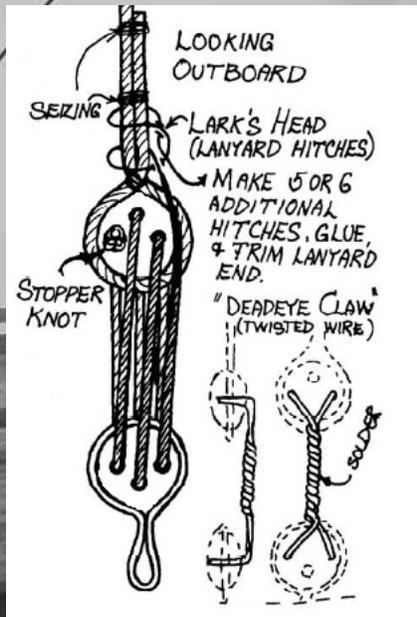
You might have thought it logical to rig the shrouds on the main mast next. But doing so would make it harder to tackle the mizzen stay. You would have to reach around the shrouds to set up the lanyard between the deadeyes of the stay. It would be a lot easier to rig the stay first without any obstacles.

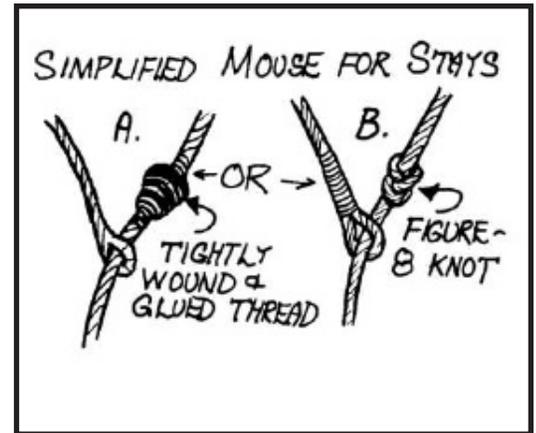
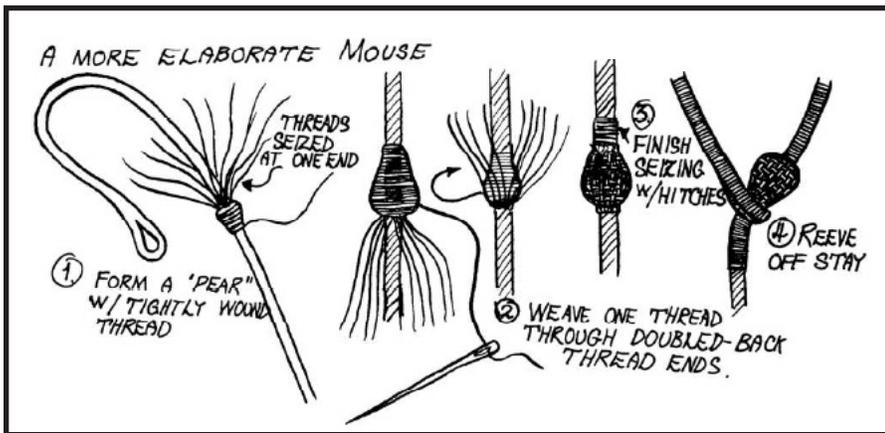


Mizzen Stay Collar

Eye and mouse

Shrouds





The stay (.028 Blk) is secured around the mizzen masthead on top of the shrouds you just completed. Seize an eye on the end of the stay. The other end of the stay is run through the eye and synched up like a noose around the mast head. To prevent the noose from closing up completely around the masthead, a lump of rigging line (a “mouse”) was weaved onto the stay. Examine the illustrations provided above which show several techniques used to create a mouse.

The loose end of the stay is rigged just like the shrouds. Another deadeye is seized to the end of the stay which is secured to the deadeye on the main mast with a lanyard. See the photos provided on the previous page including the detailed photo of the mizzen stay collar.

### Main Tackles...

With the mizzen stay completed you can now rig the Main Tackles before turning your attention to the main shrouds. The main tackles consist of three parts, the pendant, a runner and a fall. There will be two main tackles. One is rigged on the port side and the other on the starboard side. See the photo provided.

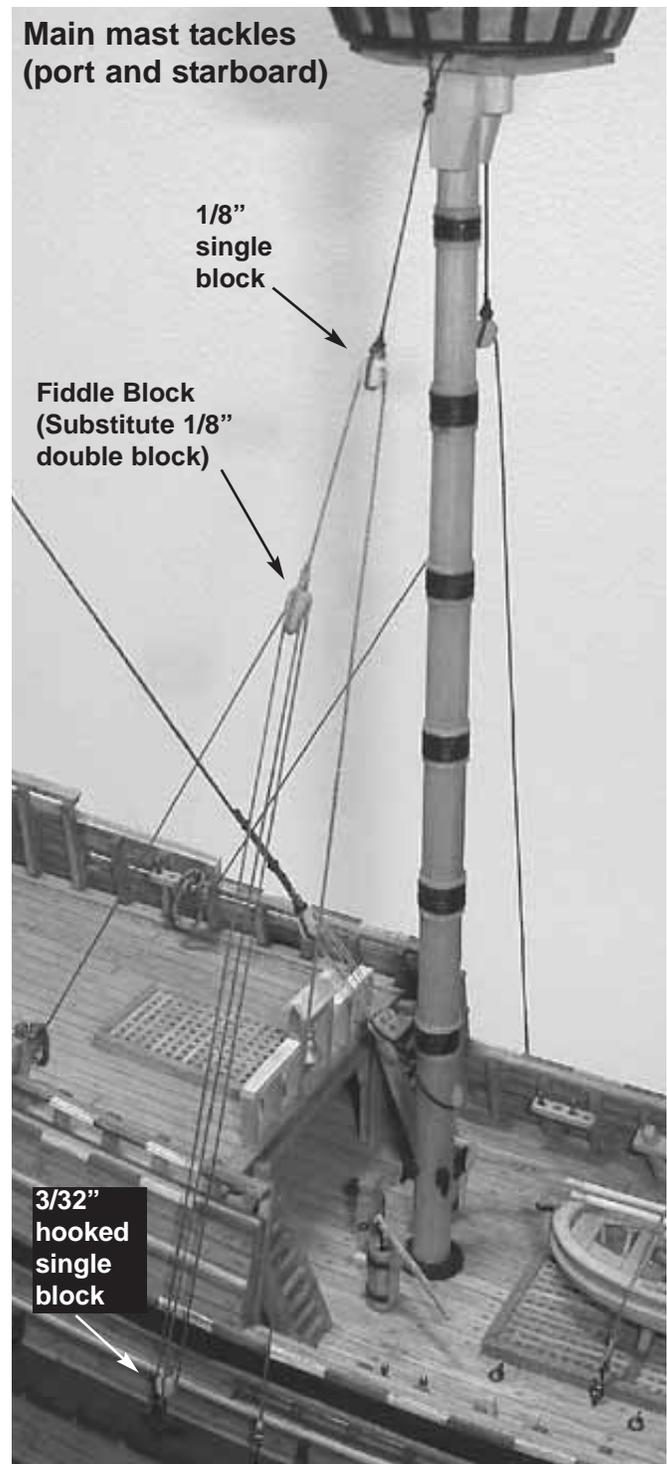
- *Pendant* – is seized around the mast head like the shrouds (.021 BLK). A 1/8” single block is seized to the end of the pendant.

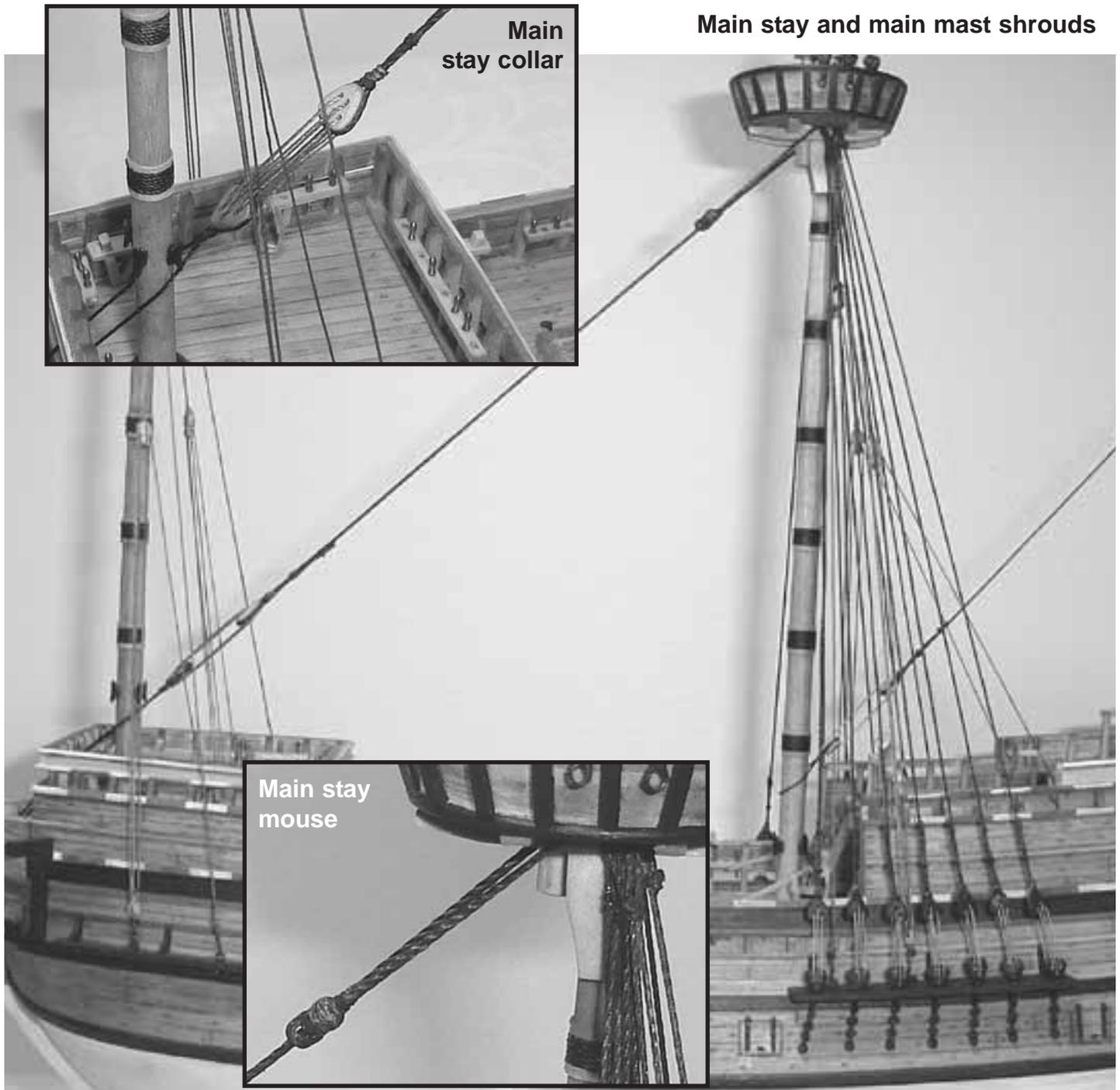
- *Runner* – has a hook seized to its end which is secured to the foremost eye bolt on each main channel (.021 Tan). The runner is then taken through the pendant block where a fiddle block is stropped to its end. The fiddle block needs to be made from scratch or substituted with a 1/8” double block.

- *Falls* – seized to a 3/32” single block that is hooked to the aft-most eye bolt on the main channel (.018 Tan). The fall is run through the fiddle block and taken back through the single block hooked on the channel. Then it runs back through the fiddle block and is belayed to the pin rail on the half deck. Finish it off by adding a rope coil over the belaying pin.

### Main Shrouds...

The shrouds for the main mast can be set up exactly as described for the mizzen shrouds. There will be 7 shrouds per side and the larger 5mm deadeyes are used. These are supplied round but can be reshaped to more accurately reflect the triangular deadeyes used during this period.





**Main stay and main mast shrouds**

**Main stay collar**

**Main stay mouse**

**Main Stay...**

When the main shrouds are finished you can rig the main stay. It is secured to the main stay collar with a lanyard and deadeye. It is done the same way as the mizzen stay only this time a 5-hole dead eye is used. This will need to be made from scratch or substituted with the round (7mm) 3-hole deadeye supplied with the kit. The lanyard is .018 tan rigging line. The stay is set up with a mouse and .040 black rigging line should be used. See the photo provided.

**Fore Tackles...**

These tackles are rigged the same as the main tackles only the fall is hooked to the fore-most eyebolt on the channel.

**Fore Shrouds...**

These shrouds are rigged like the mizzen and main shrouds. There are five per side and the 5mm deadeyes are used.

**Fore stay...**

This is rigged like the main stay. Use .040 black rigging line for the stay and set it up with a mouse around the fore masthead. A 5-hole deadeye secures it to the bowsprit (fore stay collar) with a lanyard (.018 tan).

### Futtock Shrouds...

The futtock shrouds can be rigged next. Each shroud (.021 black) has a hook seized onto one end. This hook is secured to the eyes located beneath the rim of the top. These are the eyes you formed for each of the three deadeyes on both sides of the top. The futtock shrouds are taken down to the main shrouds and wrapped around the futtock pole and then seized to the main shroud itself. See the drawing provided (right).

The futtock poles should be lashed to the main shrouds first. They are 1/32" thick. Lash them to all of the main shrouds with some sewing thread. Follow the plans for their distance from the top. Paint the futtock poles black before rigging the futtock shrouds as described above. You can rig the futtock shrouds on both the fore and main masts at this time.

### Main Topmast Tackles...

These tackles consist of a pendant and a runner. They are rigged port and starboard. The pendant (.021 black) is seized around the topmast-head and has a 3/32" single block seized to its end. The runner (.018 tan) is secured around the bottom of the aft-most deadeye (or futtock plate). It is run through the pendant block and belayed to the fore-most futtock plate. Finish this off by lashing a rope coil to this belaying point. See the photo provided (right).

### Main Topmast Shrouds...

These (.021 black) are rigged just like the main shrouds. See the photo on the next page.

### Main Topmast Stay...

This stay (.028 black) is rigged very much like the other stays. Only this time the collar is set up in the fore top. Use two 5mm three-hole deadeyes to create the collar. See the detailed close up of this stay collar in the photo on the next page.

### Fore Topmast Tackles...

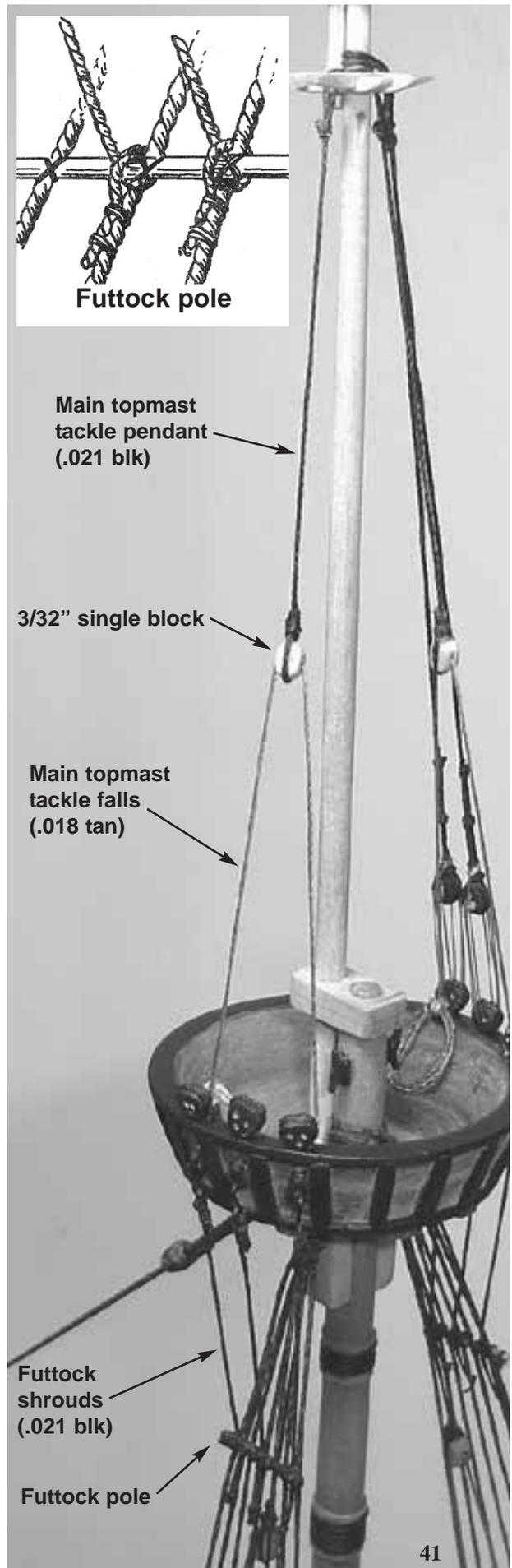
The fore topmast tackles are rigged just like those on the main topmast. Only this time the belaying points for the runners are reversed. Place a rope coil on the aft-most futtock plate.

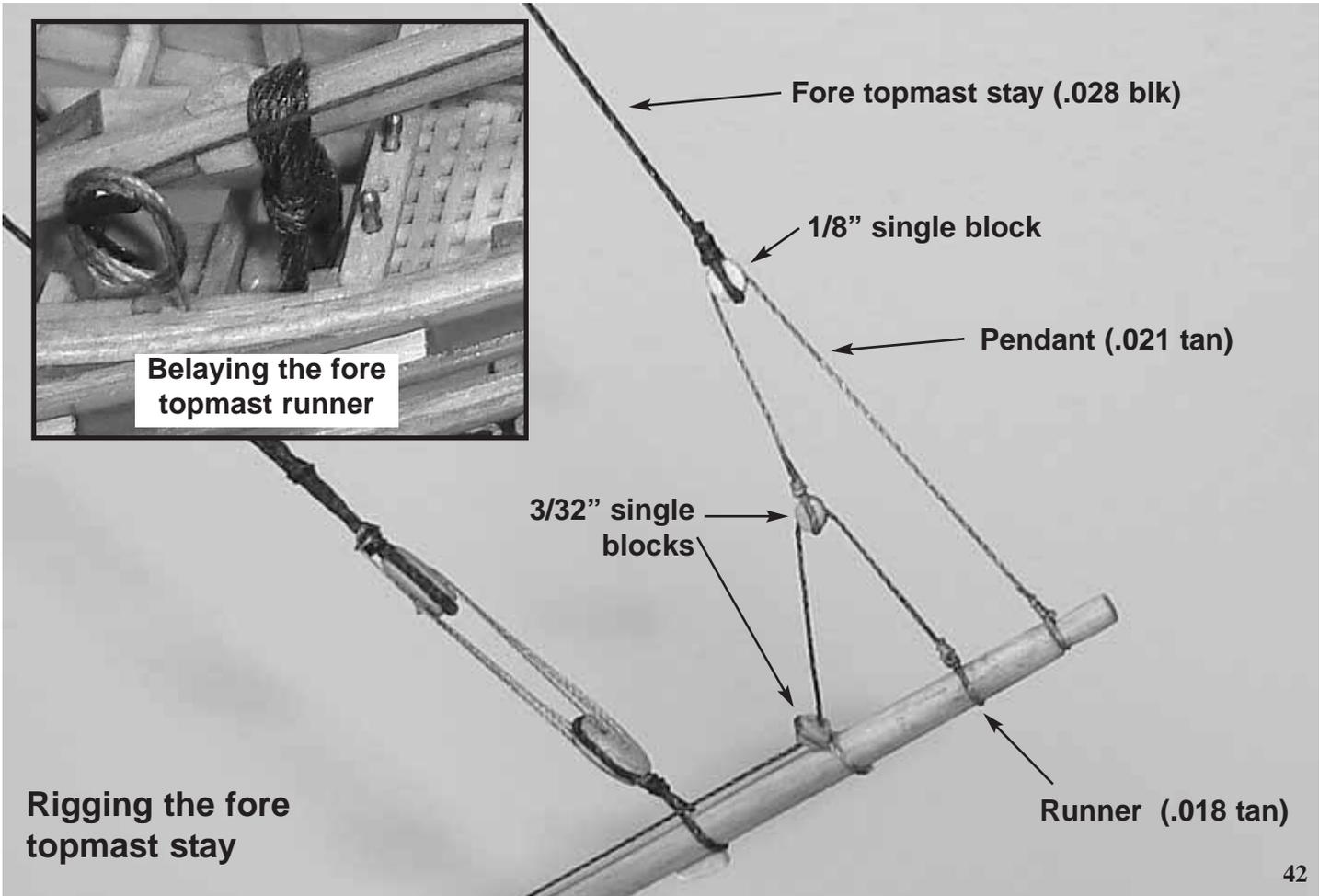
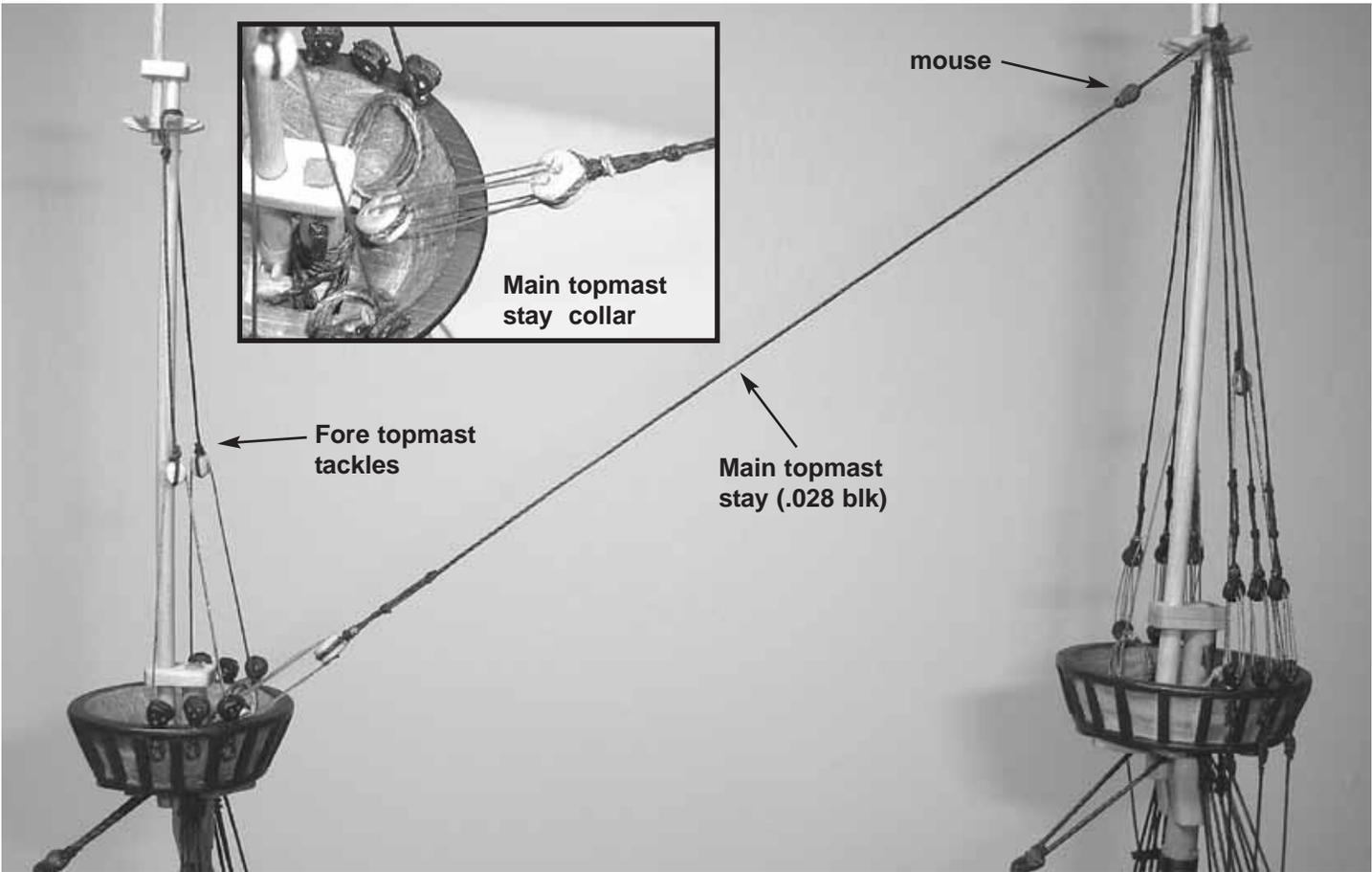
### Fore Topmast Shrouds...

Same as the main topmast shrouds.

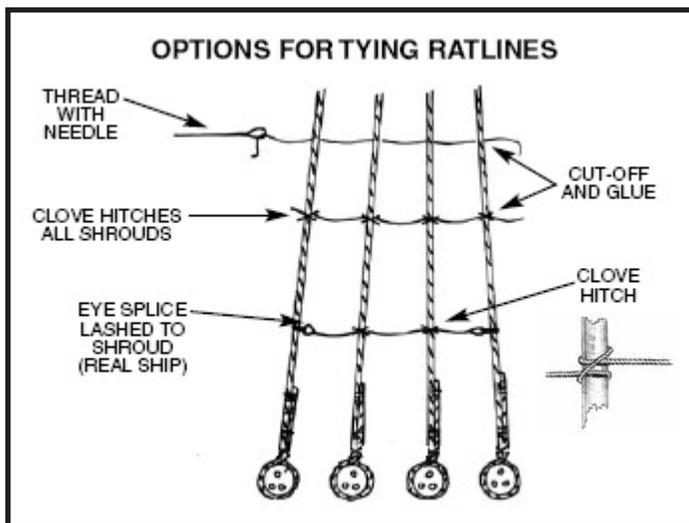
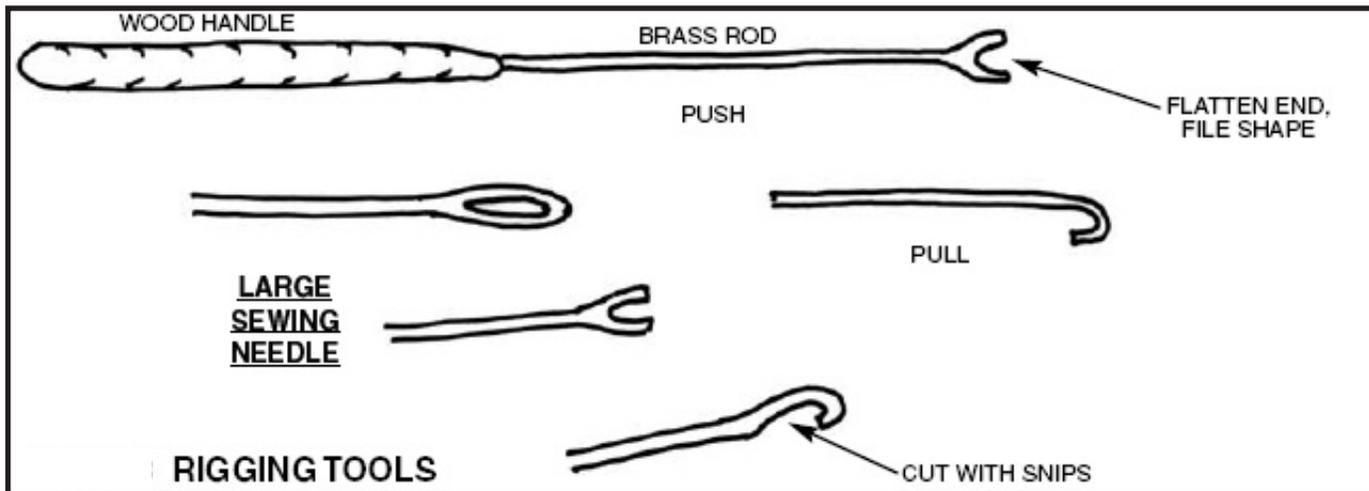
### Fore Topmast Stay...

The fore topmast stay (.028 black) is also rigged with a mouse around the masthead. However no stay collar is used to secure it to the bowsprit. Instead, a pendant and runner are used. A 1/8" single block is seized to the end of the stay. Check the plans for details. The pendant (.021 tan) is seized to the tip of the bowsprit and run through the single block of the stay. This pendant has a 3/32" single block seized to its end. A runner is seized to the bowsprit just aft of where the pendant was seized. Reeve the runner through the pendant block and through another lead block (3/32" single) which has been seized to the bowsprit itself. It is belayed to the cleat on the starboard side of the bowsprit just behind the gammoning. Finish it off with a rope coil. See the photos provided on the next page.





**Rigging the fore topmast stay**

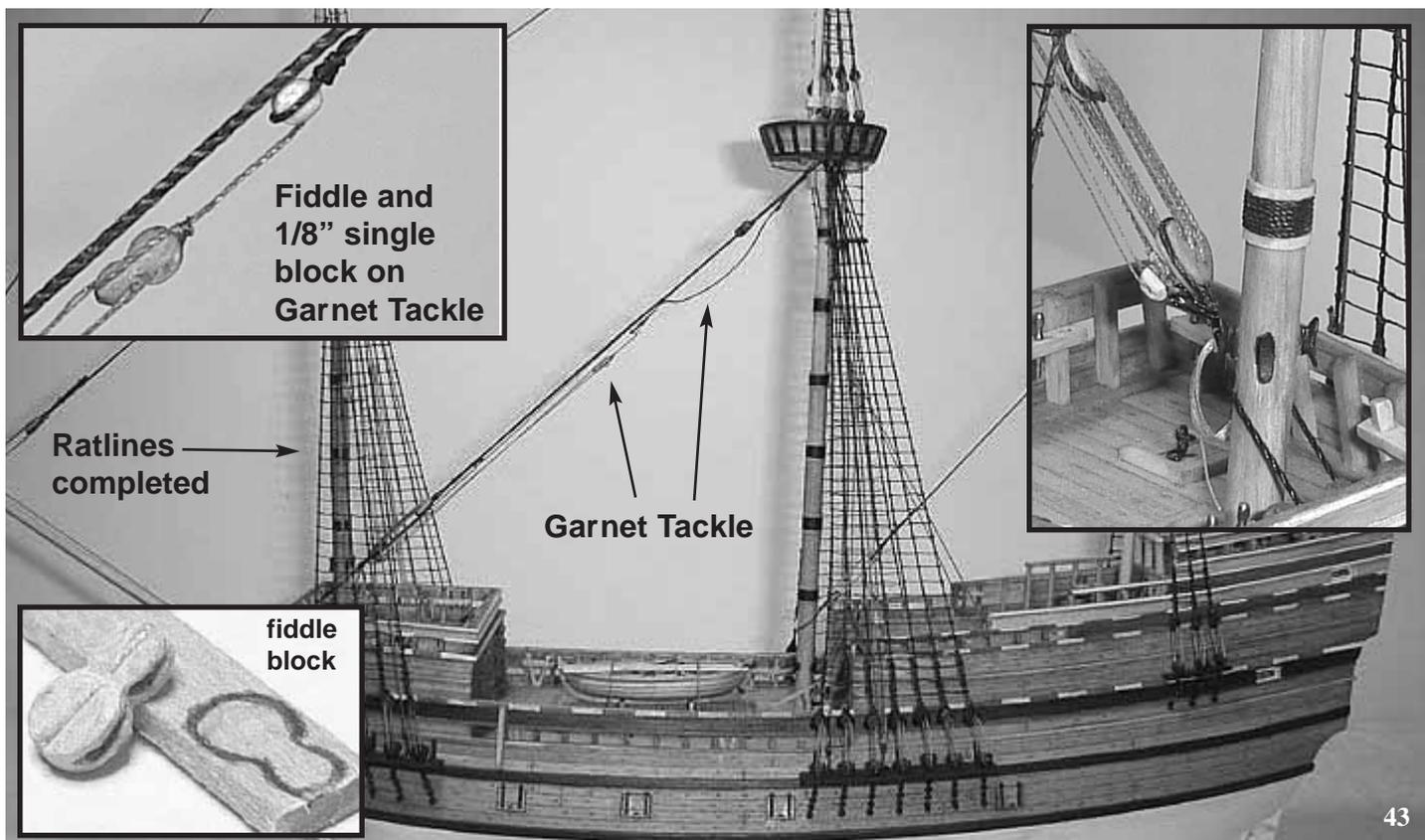


### Ratlines...

Rig the ratlines on all of the shrouds as shown in the drawing to the left. Check the plans for the appropriate distance between them (approx. 3/16")(.008 BLK).

### Garnet Tackle...

The Garnet tackle consists of a *pendant*, a *runner* and the *falls*. The pendant (.021 BLK) is hitched around the main masthead above the shrouds and taken through the main stay loop. It is seized to the main stay over the main hatch with a 1/8" single block at its end. The runner (.018 Tan) has a hook seized to its end which is hooked forward of the 5-hole deadeye on the stay collar (see the photo below). Reeve it through the pendant block



and seize a fiddle block to its end as shown on the plans and in the photo provided on the previous page. Note that the fiddle block can be made from scratch or you can substitute a 1/8" double block.

The falls (.008 Tan) have a 1/8" single block w/ hook seized to one end. It is also hooked below the dead eye on the main stay collar. The fall runs through the fiddle block and is secured to the stay collar. Finish it off with a rope coil.

### Topmast Backstays...

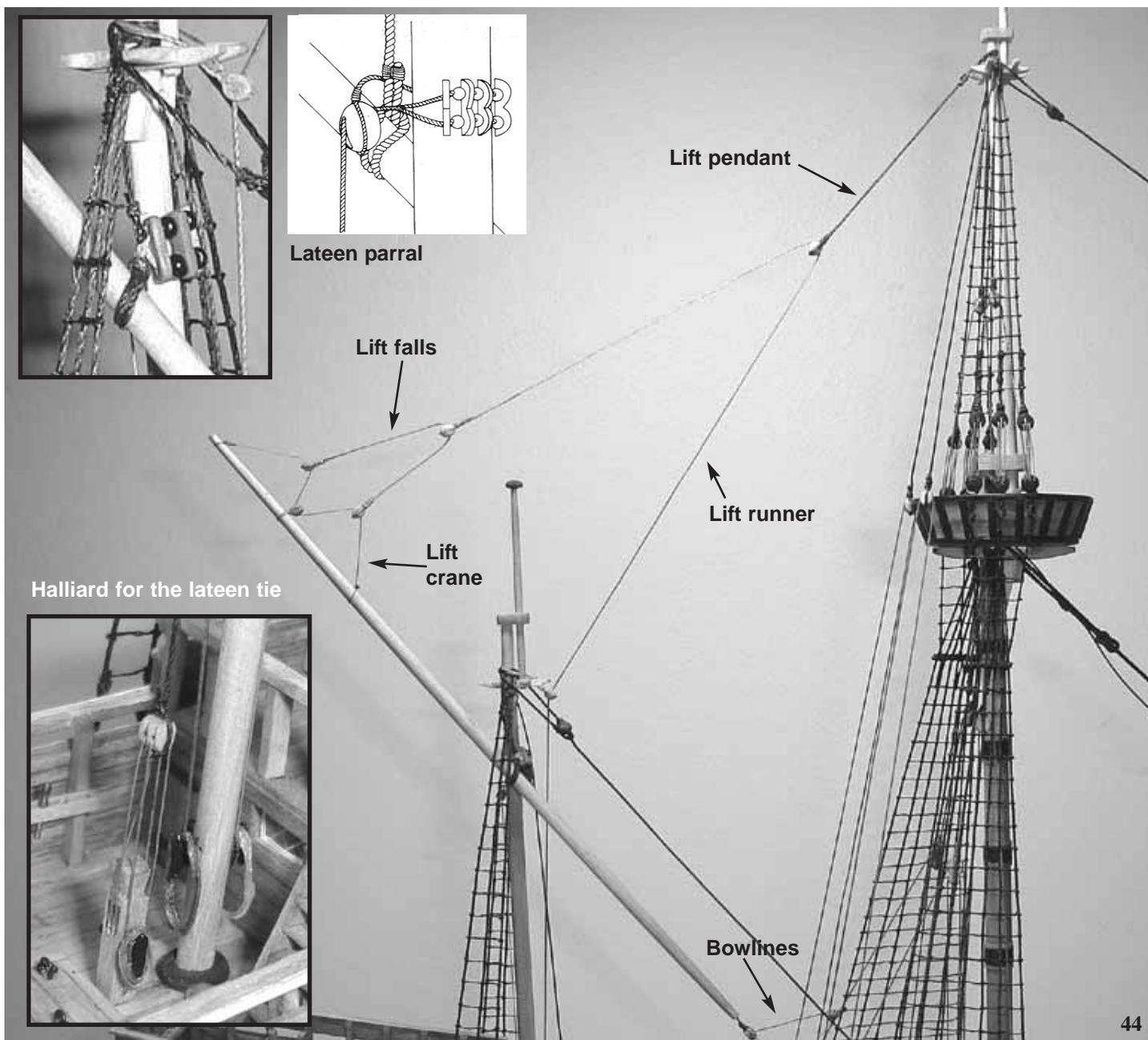
There are a pair of backstays (port and starboard) which can now be rigged on the model. The fore and main topmasts will both have a pair of backstays and they will be rigged identically. Each backstay consists of a pendant (.021 BLK) and a fall (.021 Tan). The pendant is seized around the topmast cross trees and has a 1/8" single block seized to its other end. These blocks are

positioned just below the tops and can be seen on the standing rigging plan.

The fall is secured to an eyebolt on deck. Take the fall and run it through the pendant block and bring it back down to the deck. The loose end is wrapped twice around the bulwark stanchion shown on the belaying plan (secure with some super glue) and finish it off with a rope coil on deck. It is easier to seize the end of the fall to the eyebolt before you glue it into a pre-drilled hole on deck.

### Mizzen Yard (Lateen)...

Use the appropriate sized dowel for the lateen yard. Taper it after cutting it to the length shown on the plans. One end of the yard has an eyebolt glued into a pre-drilled hole. Seize two 3/32" single blocks to this eyebolt. The lateen yard can now be rigged onto the model. The first rigging line that should be completed is the "Tie".



The **tie** (.021 BLK) is used to raise and lower the yard to the deck. Secure the tie around the yard as shown on the rigging plan. The tie should be run through the hole drilled beneath the cross tree of the mizzen mast. A 1/8" double block should be seized to the loose end of the tie. See the photo on the previous page. The double block is located about 1/2" above the knight. A halliard (.008 Tan) is seized to the eyebolt on the side of the knight and run through the doble block. After you reeve it through the last hole of the double block, belay the running end of the halliard to the cleat on the opposite side of the knight. Finish it off with a rope coil.

Once the tie is completed and the lateen yard is held loosely in position, the parral can be rigged. The **parral** for the lateen yard is shown on the plans. It consists of four ribs separated by tiny beads (trucks). The parral doesn't wrap around the lateen yard. Instead it goes around the tie and mizzen mast. It holds the tie snug against the mast to control the raising and lowering of the lateen yard. See the illustration on the previous page. The running end is reeved through the single block of the parral and belayed to the cleat on the aft side of the mizzen mast. Finish it off with a rope coil.

The **bowlines** are used to adjust the angle of the lateen yard. There are two bowlines (port and starboard). Seize the end of a generous length of (.008 Tan) rigging line to the aft-most main shroud. See the rigging plans for the exact location. Run this line through one of the single blocks seized on the end of the lateen yard. Take the loose end back through another 3/32" single block secured to the shroud just below the standing end. From here the bowline is belayed to a pin rail along the bulwarks. Finish it off with a rope coil. Repeat this process for the other bowline on the opposite side of the model.

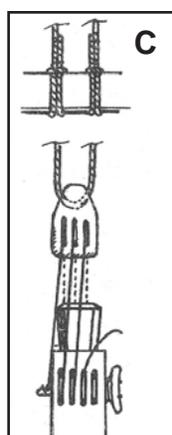
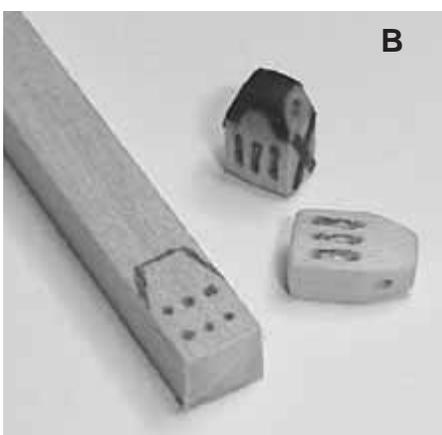
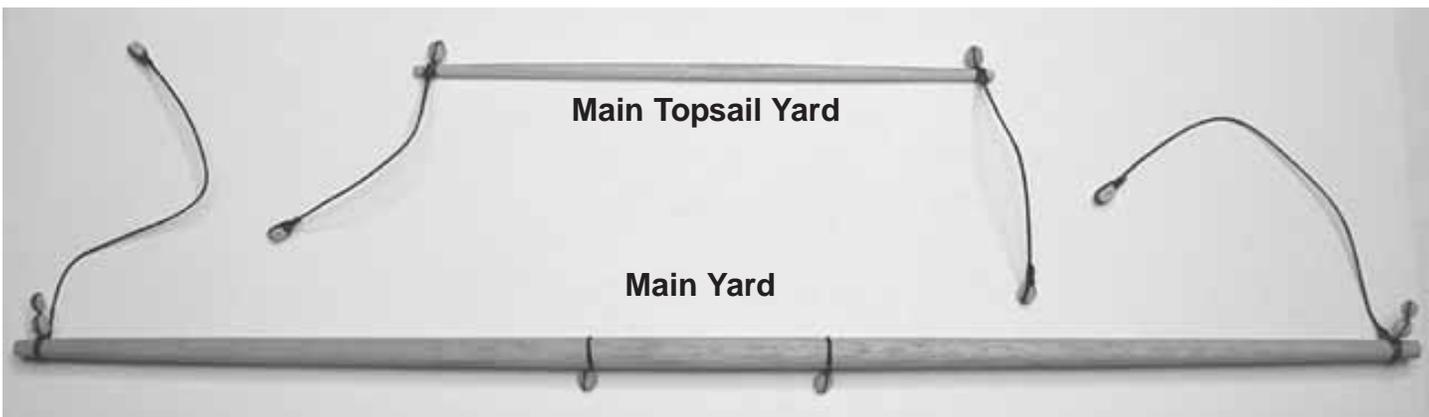
The **lifts** are the last lines rigged on the lateen yard. They consist of the pendant (.028 BLK), the runner (.021 Tan), the falls (.018 Tan) and the crane lines (.018 Tan). They were rigged in that order on the prototype. The pendant is seized around the main topmast cross trees. A 1/8" single block is seized to the other end. The runner is created by seizing a 1/8" single block on one end of the line. The runner is *run* through the pendant block and brought down through another 3/32" single block seized to the mizzen cross trees. The loose end of the runner is then belayed to the cleat on the fore side of the mizzen mast. Finish it off with a rope coil.

The **falls** are created by seizing one 3/32" single block on the end of the rigging line. The other end is run through the single block of the runner and another 3/32" single block is seized to the other end.

Finally, the **crane line** was seized to the tip of the lateen yard. The loose end is run through the first single block of the falls. From there it is run through a single block seized to the lateen yard and taken back through the second block of the falls. The loose end was seized to the yard to complete the rigging of the lateen lifts.

### Main Yard ...

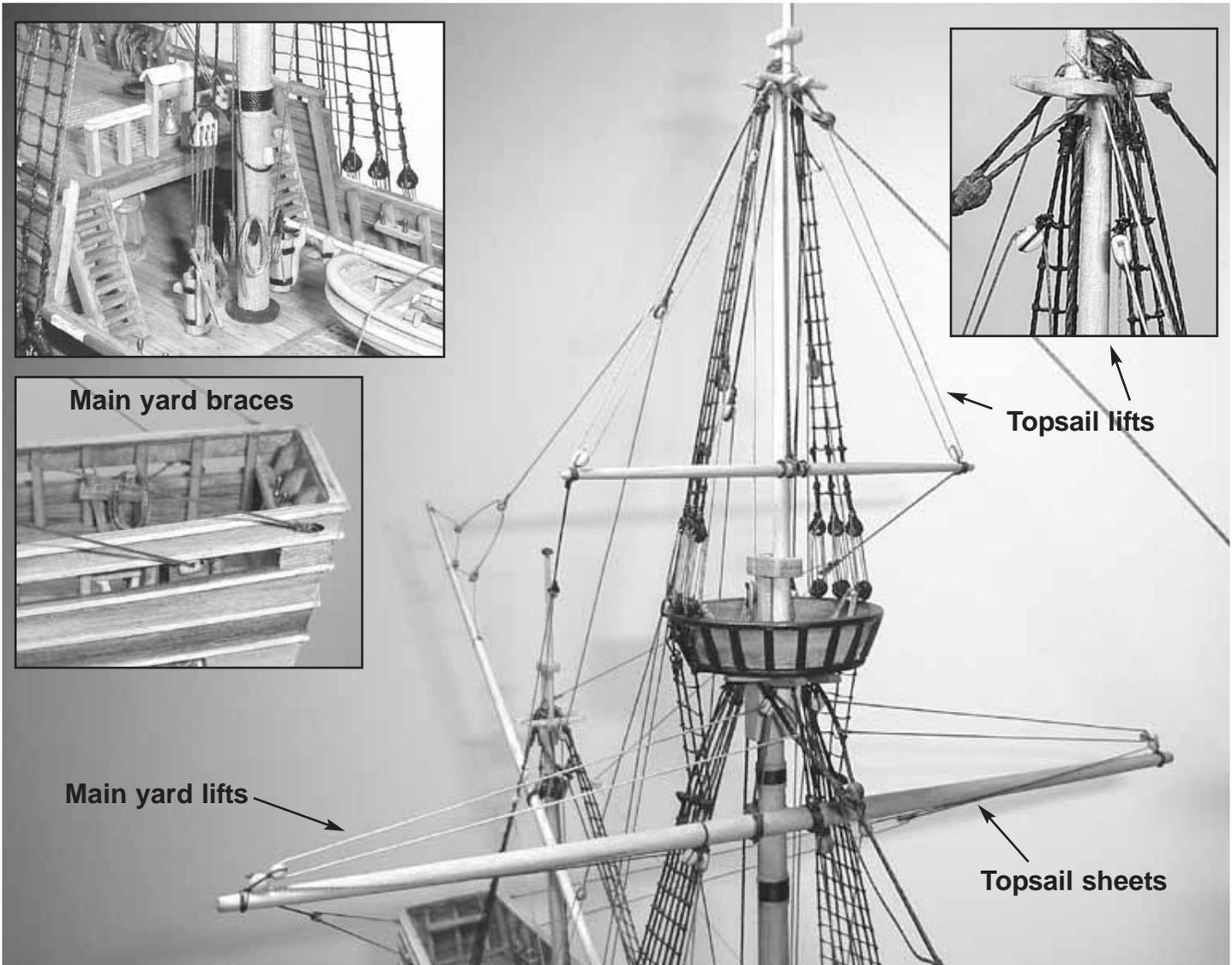
The main yard and the main topsail yard can be tapered from the appropriate sized dowels. It will be easier to seize any blocks to the yards before you rig them on the model. The plans clearly show all of the blocks for the lifts, sheets and brace pendants. You can see the completed yards in the photo below. Stain the yards prior to rigging the blocks to them.



**A.** Ramhead block on the full scale Mayflower replica. Plymouth MA

**B.** Making a ramhead block from scratch using a strip of wood. Metal reinforcing bands simulated using paper.

**C.** How the tie was rigged on ships during this time period.



The main yard was raised and lowered using *ties* similar to the lateen yard. This time they are doubled and have a ramshead block used for the halyard. The ramshead block is supplied as a metal casting. This block should be painted to look like wood. See the photos on the previous page. The *ramshead* block was quite large and was reinforced with iron straps. These straps can be painted onto the block with black paint. Another alternative would be to create the ramshead block from scratch using a strip of wood. You only need two of these blocks for your model and creating them from wood will make your model look that much better.

Begin by securing one end of the tie (.028 BLK) to the yard as shown on the plans. Run the other end through the hole on the mast just below the top. Place the ramshead block onto the rigging line and then take the line back up through the hole

on the opposite side of the mast (hounds). From here the loose end of the tie is secured to the yard just as you did when starting this procedure. A drop of glue can be applied to the tie (where it passes through the hounds) to secure the yard at its proper position below the main top. Note that the ramshead block should also be about 1/2" from the knight. You will be rigging the halyard between them in the next step. See the detailed photos above.

The *halyard* is seized to the eyebolt on the side of the knight. From here you can reeve it through the sheaves of the ramshead block. Secure the line to the cleat on the opposite side of the knight and finish it off with a rope coil.

The *parral* for the main yard is shown on the plans. It has 5 ribs separated by trucks. The parral can be rigged to the yard at this time which will hold it firmly against the main mast.

The model is going to be finished without sails. Even so, the *topsail sheets* should still be rigged. To do this, tie a double knot on the end of some .018 tan rigging line. Reeve this line through the larger block seized to the end of the yard arm. The knot will act as a stopper. From here, run the loose end through the block secured under the main yard. Belay this to the appropriate cleat on the mast (check the belaying plan for details). Finish it off with a rope coil. Once completed, the sheets will hold the main yard in position so you can focus on the lifts.

The *lifts* (.018 Tan) are seized to the loop of the main stay. From here, the loose end is run through the remaining block on the end of the main yard. It is taken through the 3/32" single block hanging below the top. This block is seized to an eyebolt glued into a pre-drilled hole under the top. Finally it is brought down to the appropriate mast cleat and finished off with a rope coil. 46

The **braces** (.018 Tan) for the main yard are seized to an eyebolt on the outside of the hull. See the detailed photo on the previous page. They are run through the single block of the brace pendant and taken back through another single block seized to a bulwark stanchion. From here the brace is taken inboard and belayed to the kevel on the poop deck bulwarks. Finish it off with a rope coil.

### Main Topsail Yard...

The topsail yards were also raised and lowered using a **tie**. The tie was rigged with a series of runners and halyards. First, the tie (.028 BLK) is seized to the center of the yard as shown on the plans. Then it is taken through the hole made below the cross tree of the topmast. A 1/8" single block is seized to the loose end of the tie. Note: Because the model will be rigged without sails the topsail yards should be rigged in their lowered position. This would be approximately a 1/2" above the cap. See the photos on the previous page.

The **runner** for the tie (.018 Tan) is seized to an eyebolt on the half deck (port side). From here it is taken up through the single block of the tie. Now you can seize another 1/8" single block to the other end of the runner. It is easier to seize the runner to the eyebolt before you glue that eyebolt into the deck. Check the belaying plan for its exact location.

Finally, the **halyard** (.008 Tan) is seized to an eyebolt on the opposite side of the half deck. It is located on the starboard side along the bulwarks. The halyard is run through the single block of the runner and belayed to the pin rail. Finish it off with a rope coil. Again, it is probably easier to seize the halyard to the eyebolt before you glue it into a pre-drilled hole along the bulwarks.

A parral with ribs and trucks *will not* be used for the topsail yards. Instead a simple **sling** will be created as shown on the plans. Rig the sling now so the topsail yard will be held securely against the topmast. This will make it easier to rig the braces and lifts.

The **braces** (.008 Tan) for the main topsail yard are first seized to the mizzen mast head. From there they are taken through

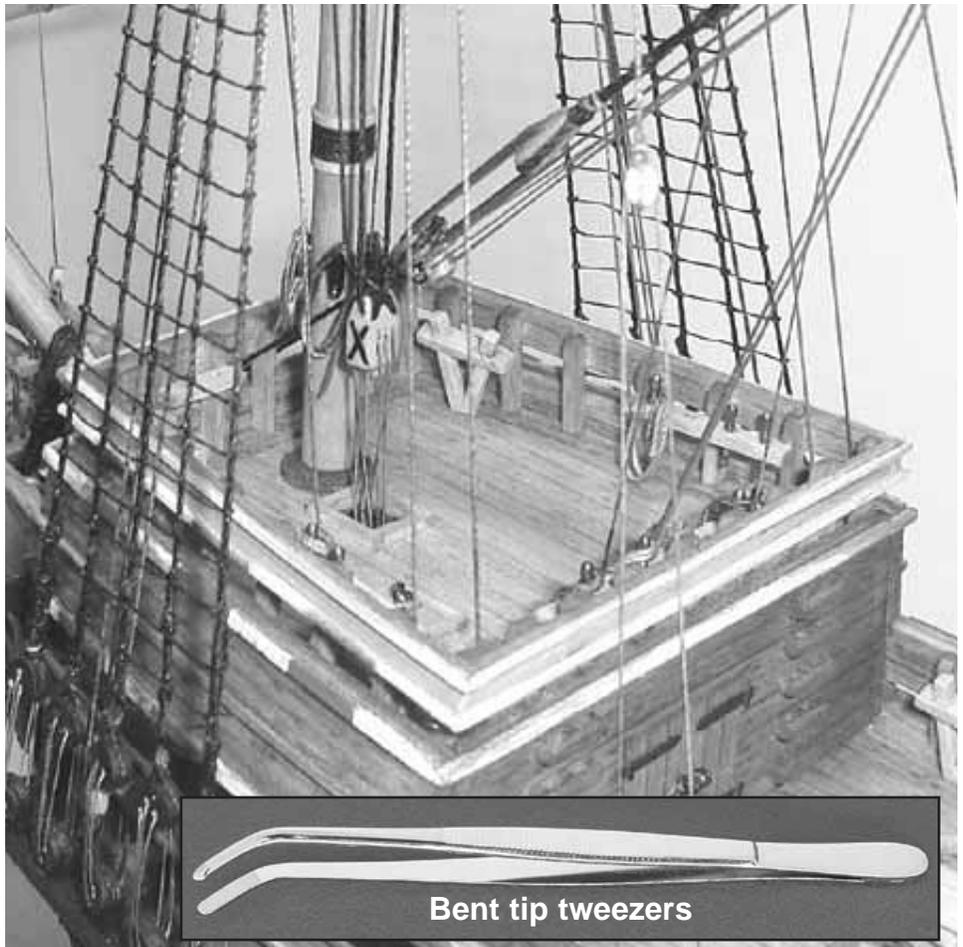
the single blocks of the brace pendants. The loose end is taken back through a single block seized to the fore-most mizzen shrouds. Then it is led through another single block seized to the after-most main shrouds (check the rigging plan for their exact locations). The running end of the brace is then belayed to a pin rail along the half deck bulwarks. Finish it off with a rope coil.

The **lifts** (.008 Tan) for the main topsail yard are seized to the topmast above the crosstrees. From here they are led through the single blocks on the yard and back up to another 3/32" single block seized to the topmast shrouds. The loose end can be belayed to the cleat inside the main top. Finish it off with a rope coil.

### Fore Yard...

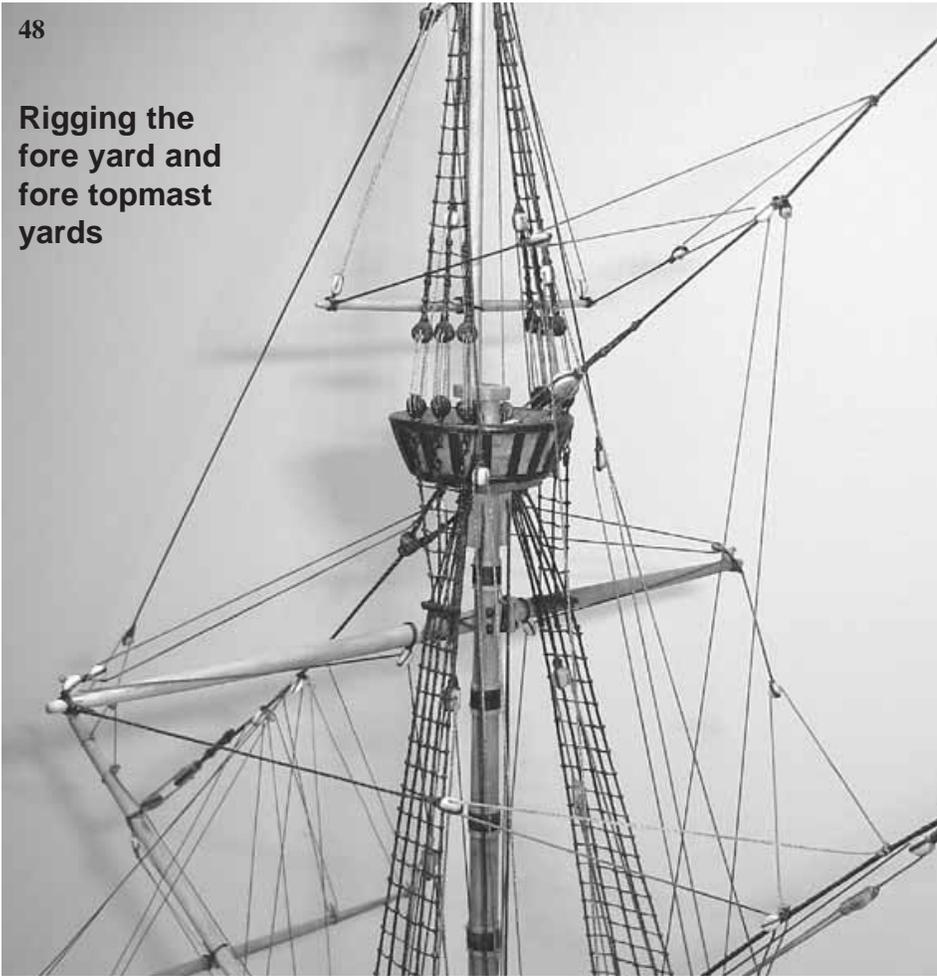
The fore yard and fore topsail yard can be tapered as you did for the main yards. Attach all of the blocks to the yards including the brace pendants. These yards are rigged to model very much like those on the main mast. There are only a few differences.

Secure the tie (.028 BLK) and ramshead block to the fore yard as you did with the main yard. Place the yard in the correct position below the top and secure it with a drop of super glue at the hounds (the holes you drilled through them). The ramshead block should be about 1/2" above the deck as well. This time you wont be rigging the halyard between the ramshead block and a knight. The knight was located below the forecastle deck. You will be simulating this rigging by hooking a double block onto the eye bolt glued on the bottom of the hatch. See the plans for a detailed drawing of this. The easiest way to accomplish this task would be to create and glue a hook into the bottom of a 1/8" double block. You can paint the block black so it is less visible in the hatch. Seize some .008 tan rigging line to the double block. Set up the halyard by reeving it through the ramshead block before you attempt to hook it to the eye bolt. The halyard will actually be a working tackle. Now you can hook it to the eye bolt on the bottom of the hatch. This is a little tricky but can be done by using a set of tweezers (those with a bent tip, see the photo on the previous page). Once you hook the block, pull the running end of the halyard to



Bent tip tweezers

## Rigging the fore yard and fore topmast yards



tighten it up. The tightened halyard can be made permanent by placing a drop of super glue on the sheaves of the ramshead block. The running end of the halyard can be trimmed to the proper length and pushed into the hatch to hide it. The photo on the previous page shows the ramshead block in position.

The *parral* with ribs and trucks is set up the same way as it was for the main yard.

The *topsail sheets* (.018 Tan) are rigged just like those for the main yard. Belay them to the appropriate mast cleats and finish them off with a rope coil.

The *braces* (.018 Tan) are seized to the main stay and run through the brace pendant blocks. From here they are taken back up through 3/32" single blocks on the main stay and belayed to the pin rack on the forecastle rail. Finish them off with a rope coil.

The *lifts* (.018 Tan) are rigged just like those for main yard. Belay them to the appropriate mast cleats and finish them off with a rope coil.

### Fore Topsail Yard...

The *tie* is rigged just like it was for the main topsail yard. It will also have a runner and a halyard. The fore topsail yard should also be placed in its lowered position. The only difference here is the runner and halyard are belayed on the opposite sides of the ship than those for the main topsail yard. Check the belaying plan for details.

The *sling* (.018 Black) can be created just like the one used on the main topsail yard.

The *braces* (.008 Tan) are rigged just like those on the fore yard. They are secured to the main topmast stay this time and are belayed to the same pin rack on forecastle deck rail. Finish them off with a rope coil.

The *lifts* (.008 Tan) are rigged just like those on the main topsail yard. They are belayed to cleats in the fore top. Finish them off with a rope coil.

### The Spritsail Yard...

Taper the appropriate sized dowel to make the spritsail yard. Seize all of the blocks

to yard as called for on the plans. The yard can then be secured to the bowsprit with a simple *sling*. Create the same simple sling that you made for the topsail yards. The spritsail yard should also be placed in the lowered position as it has no sails set.

The *halyard* is rigged by seizing some .008 tan rigging line to a 3/32" single block. This block is rigged to the bowsprit (where the forestay collar is located). See the photo above. Then take the loose end and run it through the single block seized to the center of the spritsail yard. From here it is brought back through that single block on the bowsprit and belayed to the pin rail in the beakhead. Finish it off with a rope coil.

Rig the *lifts* (.008 Tan) for the spritsail yard by seizing a generous length of line to the tip of the bowsprit. Run the other end through the 3/32" single block on the forward side of the yard arms. Take it back up through another 3/32" single block seized to the bowsprit and belay it to the pin rail on the forecastle. See the photo on the next page and the plans for the exact locations.

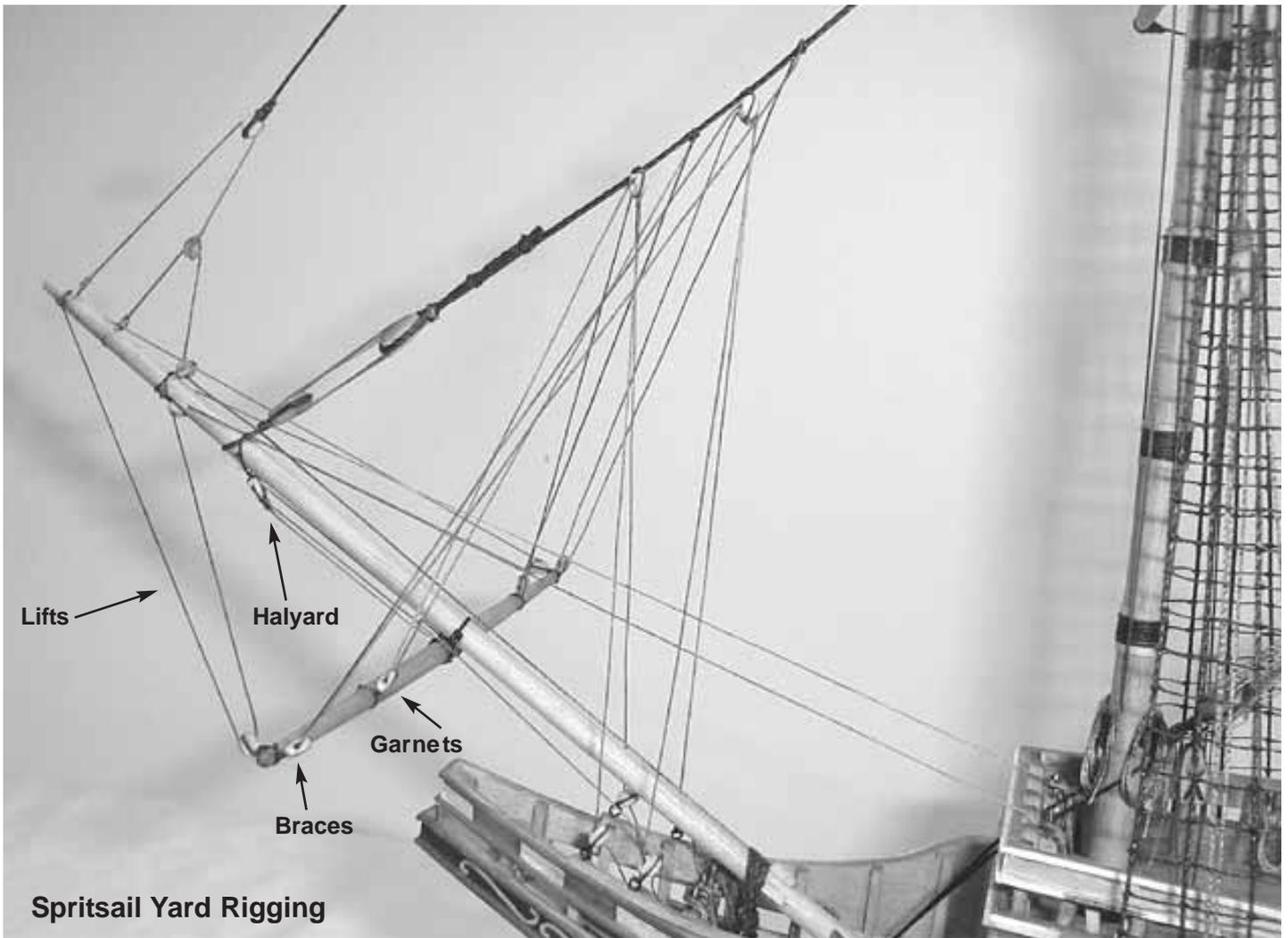
The *braces* (.008 Tan) are hitched to the forestay. Run the loose end through the brace pendant blocks. From here they are taken back up to the forestay where they are run through another single block seized about 1/4" below the standing end. Lastly, they are reeved through another single block on the beakhead bulwarks. These 3/32" blocks are seized to an eye bolt that is glued into the top of the bulwarks. Belay the braces to the pin rail in the beak head. Finish them off with a rope coil.

The *garnets* (.008 Tan) are rigged just like the braces.

### Boomkin/Outrigger...

The last yard that you should place on the model is the boomkin. It is positioned outboard at the stern. The boomkin was used to rig the sheet for the lateen sail. The model was built without sails but this yard should be rigged none the less.

Cut the appropriate wooden dowel to length and taper it as shown on the plans. You may have to cut a notch in the molding that runs across the stern. The yard



**Spritsail Yard Rigging**

can be glued into position as shown in the photo below. To help secure this yard on the model a short length of wire can be inserted into the end of the yard. Keep a small piece of that wire sticking out as a peg which you will insert into a hole drilled into the planking. This will help keep the boomkin from being knocked off

the model accidentally.

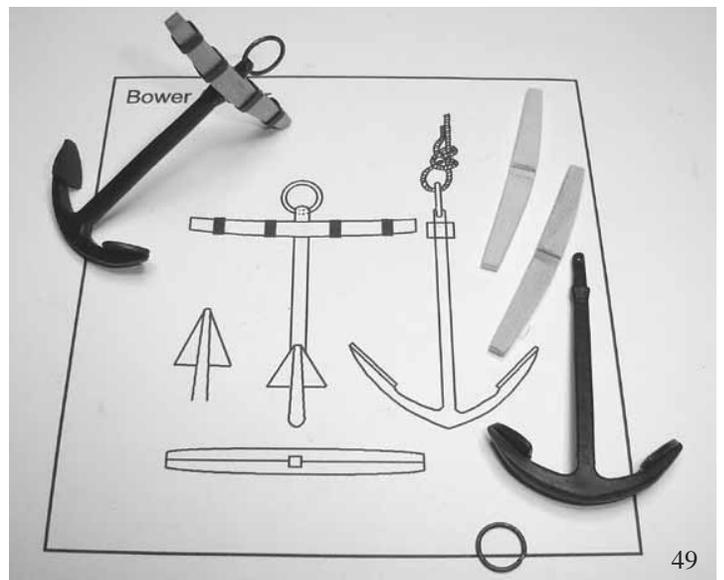
**The Anchors...**

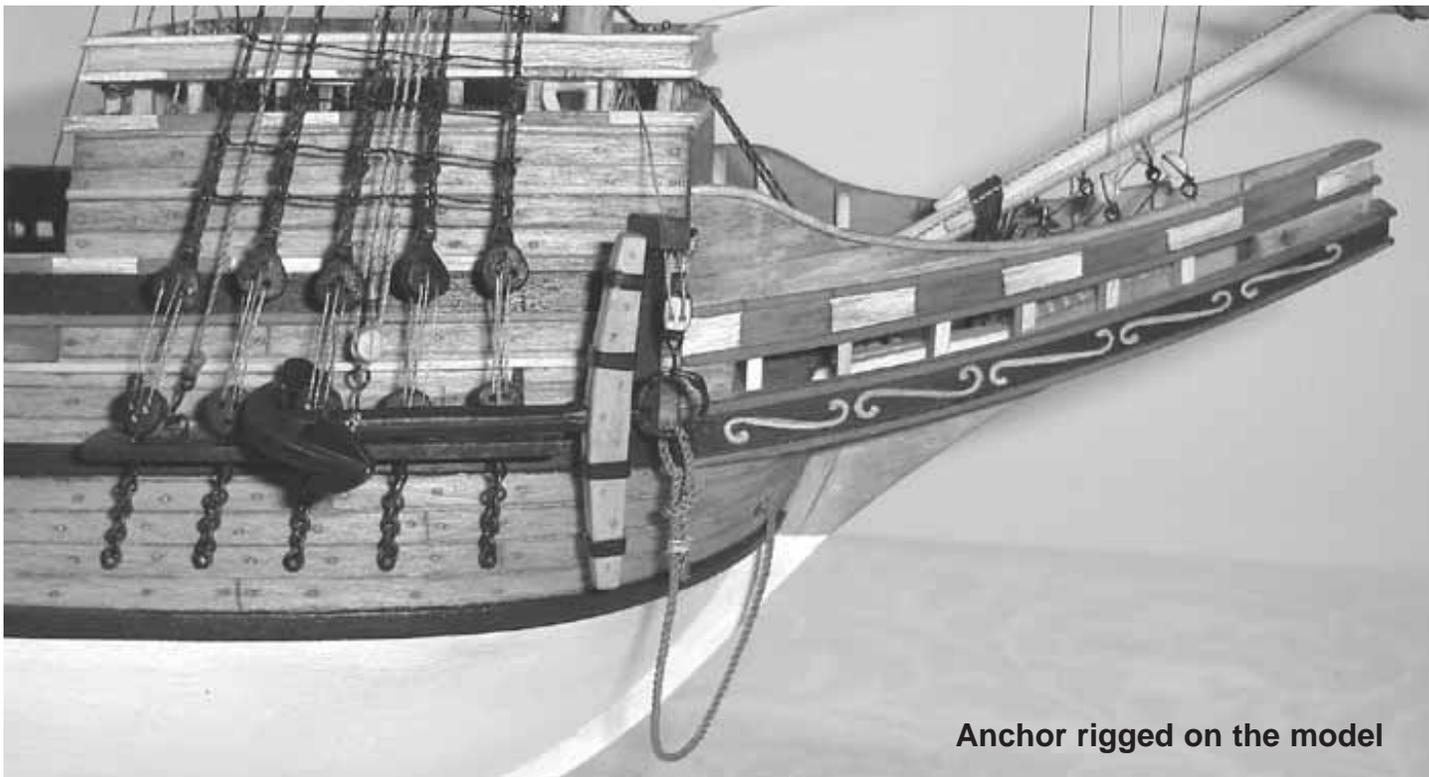
The anchors and anchor stock are provided as castings in the kit. Simply clean them up and paint them. The anchors are black and the anchor stock should be painted to

look like wood. The Anchor stock has several iron straps which should be painted black as well. As mentioned before the stock would look much better if you made it from scratch. The photo below shows how the anchor stock was fashioned from basswood strips 1/16" thick. Black tape was cut into thin strips and used to simu-



**Outrigger/  
Boomkin**





**Anchor rigged on the model**

late the iron bands. The wood stocks can be treenailed as shown in the photo above for even greater detail. Create a ring from black wire and use it for the anchor ring. Wrap the wire around a drill bit that is the diameter you need. Cut off the excess with some wire snips and place it on the anchor. Take some .040 Tan rigging line and use it for the anchor cable. Secure it on the anchor ring as shown on the plans. Leave a generous length of this anchor cable hanging free so you can insert it into the hawse holes later.

The anchors are lashed on the channels to a deadeye. If you do this first the anchor will be held in position so it is easier complete the rigging. With the anchors in position you should be able to glue the end of the anchor cables into the hawse holes. Try to shape them with a natural swag as shown in the photo above.

Take a 1/8" double block and seize a hook to it. See the same photo. Then seize some .018 tan rigging line to the eyebolt on the side of the cathead. Reeve it through the double block and the sheaves of the cathead creating a tackle. Pull this tackle tight as you are hooking the block onto the anchor ring. With everything in position, apply a drop of glue to the sheave of the double block to keep it tensioned. Take the loose end of the tackle inboard and belay it to the kevel on the

forecastle deck. Finish it off with a rope coil.

The last step in building your model of the Mayflower is to rig the flags. Place a tiny hole on the inside corners of the flag. These will be used to tie the flags to the flag halyard. The flag halyard is simply tied around the top of the mast just under the ball truck. Normally they would be run through small sheaves in the ball truck itself. Our little model is too small to create these sheaves at scale so gluing the halyard as shown in the photo is appropriate. Belay the loose ends of the halyard anywhere on deck which appears feasible.

Any pin rail along the bulwark will suffice as long as the lines dont interfere with any of the rigging already in place. The flags are placed on the main and fore masts. With the halyards rigged and finished off with some rope coils you can now tie your flags to the halyards. Try to shape your flags by wrapping them around a drill bit while they are wet. They should appear like they are waving gracefully in the wind.

**CONGRATULATIONS!!!**

Your model is now completed.



The plans for this Mayflower model are based on the latest research available and the work by noted Naval Architect William A. Baker. Mr. Baker designed the replica in 1956 which now resides as a tourist attraction in Plymouth. Information about the Mayflower is scarce and no plans exist showing her actual appearance. The research by William Baker is the most comprehensive work ever compiled on the subject. It can be found in his book published in 1983 called "The Mayflower and Other Colonial Vessels".

The Mayflower sailed for the new world on its historical voyage in September 1620. The Pilgrims came to America seeking religious freedom during the reign of King James I. It was winter when they arrived at Plymouth Massachusetts and they struggled to establish a permanent colony. They were successful and celebrated the first Thanksgiving which has grown to become a national American holiday. It is perhaps the story of these brave men, women and children that has made the Mayflower such an important ship. It has always been a popular subject for modeling enthusiasts.

