



Chapter Sixteen

Building the Headrails

Before you start work on the headrails, the roundhouses and other details on the beakhead should be completed first. The two remaining doors on the beakhead can also be added. These are built using the three laser cut layers just like you built the other two doors earlier. Glue them into position when you are done.

Building the Two Roundhouses...

The roundhouses are built by planking around



two laser cut guides. The two guides are used on the top and bottom of each roundhouse. They are 1/16" thick. See the picture below that shows the vertical planking being added to create the initial roundhouse structure. Each plank will require some degree of edge beveling so they fit flush against each other's edges. The seams are darkened with a pencil to simulate caulking between the planks. You should use 3/32" x 1/16" strips for the vertical planking. Sand and stain the outside surface when you are done.

Then glue the laser cut roof into position which is 1/32" thick. It has been cut slightly larger than you will need so you can sand a consistent overhang all around the top of the round house. The back of the roof should be flush however so it sits flush against the beakhead bulkhead. To add some extra detailing to the roundhouse, a length of 28 gauge black wire was glued just under the overhang of the roof. A small ventilation scuttle was drilled through the front of each roundhouse as well. This was also detailed by making a ring of 28 gauge black wire to fit around it. The roundhouses are glued into position so the bottom hangs over the edge of the beakhead. See the photo provided on the next page. The last double beaded molding strip was then glued above the roundhouses across the beakhead bulkhead. This detail can also be seen in that same photo.

Filing and Enlarging the Hole through the Beakhead for the Bowsprit....

You can build the stump bowsprit now in order to temporarily place it in position as you work on other various aspects of the head. It will be good to have it in position to reference certain areas in relation to it as you work. Only a portion of the full bowsprit is being used on this admiralty model for Confederacy. All of the measurements and details can be taken from the inboard plan sheet to complete it. Start with a dowel that is 7/16" in diameter. The bowsprit will taper inboard and outboard. Take your time to get the initial tapering on both ends of the bowsprit correct. This is especially true for the inboard end. The taper is what will allow you to slip that end of the bowsprit through the hole in the beakhead bulkhead. Once the tapering is completed you can create the tenon on the aft end of the bowsprit so it seats into the bowsprit bitts properly.

Don't add the details to the bowsprit just yet. The hole through the beakhead needs to be filed larger and the angle should be adjusted so the bowsprit seats in the bitts properly. Only after you are satisfied with how the bowsprit fits, should you add the gammoning cleats, iron bands and fairlead (laser cut with several holes). You should also temporarily position the figurehead to ensure that the bowsprit clears the warriors head when it is positioned. Make any adjustments needed to ensure the bowsprit angle is correct. The iron band on the inboard section of the bowsprit can be made with heavy card stock painted black. Each band is 1/6" wide. Once completed, set the bowsprit aside while work is being done on the other areas of the head. It shouldn't be glued in position now as it will just get in the way and make working on the headrails more difficult.

The Figurehead...

The figurehead is cast for you in three pieces. Glue the arms onto the warrior's body and fill any gaps before painting it. You can paint the figurehead to look like wood as shown in the pictures



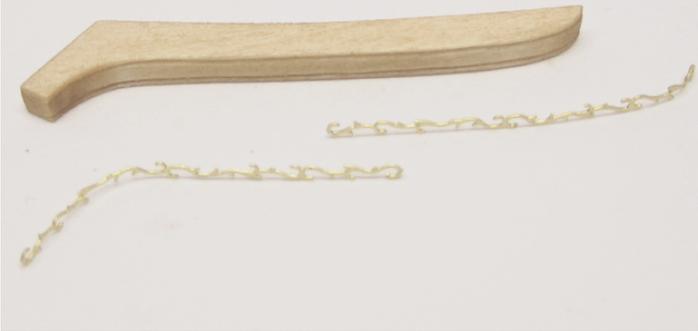
throughout this chapter. Don't glue the figurehead into position yet. You will need to temporarily place it on the stem from time to time while working on the headrails. Only after the headrails are completed should you glue it into place permanently.

The lower Cheeks...

The cheeks are the first elements of the head to be constructed. There are two of them on each side of the stem. They are the upper cheek and the lower cheek. The hawse holes and trailboard will be placed between them. The lower cheek will be added first. It is made up of two laser cut pieces (1/8" thick). The first piece sits against the bow of the model and determines the placement for all of the other elements of the head. It should be carefully positioned against the black strake and literally sit on top of the edge of the main wales. See the photo provided on the next page.

You will notice in that photo (and on the plans) that the outboard side of the cheeks have a molded edge on them. This molded profile runs along the top and bottom of entire cheek. It extends up to the scroll on the forward edge of the stem. This edge profile is created in a similar way to how the molding strips for other parts of the hull were made. Only this time you will not be using a scraper tool. That has a tendency to tear the wood when the grain runs against the scraper and the results are quite poor. The technique used to make this molding edge takes a little practice. We recommend that you try the

The lower cheeks have been shaped and the photo etched decoration is ready to be painted and glued on.



The lower cheek completed



technique on some scrap pieces of wood of the same thickness before attempting it on the actual laser cut cheeks. This is an optional detail and you may even consider omitting it if you are hesitant. Follow these steps to create the molded profile along the edges of your cheeks and headrails.

STEP ONE: Sand all of the surfaces of each cheek piece to remove the laser char. Then take a new/sharp #11 blade and score a shallow cut down the edge of the cheeks where the groove should be located. The groove that creates the molded profile should be very close to the edge (about 1/64" if you can!!). This light score does not have to be very deep at all. In fact you only need the shallowest of cuts. Just barely break the surface of the wood as you run the point of the blade across the wood. It is more important to go slow and make your cut a consistent distance away from the edge. The purpose of this cut is to create a path through the wood grain so your tool won't tear through the grain or accidentally follow it and wander as you finalize it in the next step. You want to avoid a wavy groove if at all possible.

STEP TWO: Instead of using a photo etched scraper, use an awl with a slightly blunt point. Run the awl several times down the shallow cut you made in step one. Again, the purpose of that cut was to prevent the awl from wandering while you run it across the edge of the cheeks. Use a very light touch initially but the goal is to gradually increase depth and width of the groove. It should still remain shallow however

and resist the urge to make it too deep. When you are satisfied, you can switch to a round toothpick. The point is soft and even blunter. This will create a softer edge to your groove. Finally, to clean it up, you can cut some fine sandpaper into little squares. Run the freshly cut edge of the sandpaper down the groove to even it out and remove any tears that may have developed. You can even sand the inner edge of the groove so it is rounded off slightly. This is only one technique that you can try to create the molded profile. Stain the cheeks when you are done.

NOTE: The forward half of the lower cheek should taper towards the figurehead. They wouldn't have been 1/8" thick and should be thinned down gradually to 1/16" as they near the scroll on each forward end. This should be done prior to creating the molded edges described above. The forward halves of the lower cheeks were also laser cut longer than you will need them. Before you start creating the grooves and adding the photo etched details, hold them against the stem and cut them to fit your model. It's a good idea to complete the half of the lower cheek that is placed against the bow first. Glue it into position and then begin work on the forward half. Hold it against the other half and determine its proper length. Cut it to fit and then proceed to shape the molded profile and add the photo-etched detailing.

Carefully try and match the molded profiles on the two halves of each cheek. When they are butted together the seam should be as invisible

as possible.

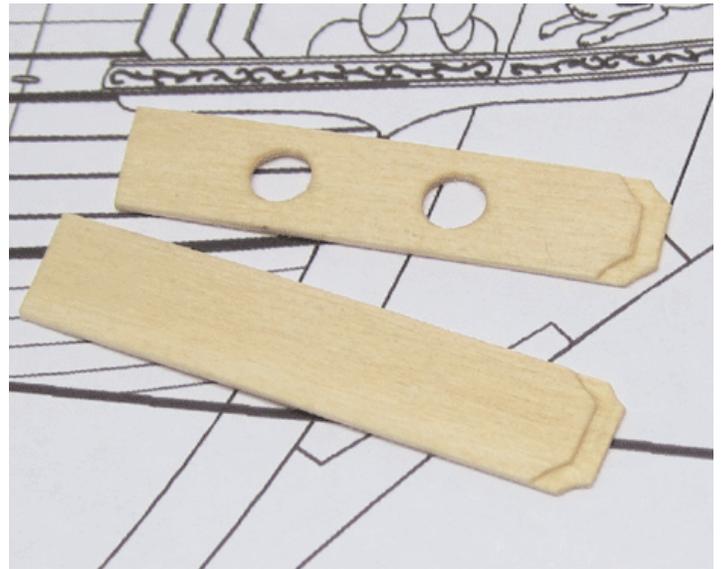
Adding the Photo etched carved details to the cheeks...

The carved surface of the cheeks you see on the plans and in the photographs are supplied as photo etched detailing. The portion of the lower cheek that rests against the bow can be applied in two sections. Paint the photo etched carving strips to look like wood before gluing them to the cheeks. Try and match the color of your stained cheeks as close as possible. Bend them to match the profile and glue them in-between the grooved edges you created. You can then give the entire surface another coat of stain to help match the coloring even further. See the photo provided that shows the photo etched sections before they were painted and added to the cheek.

Repeat this process on the forward half of the cheek and glue them onto the model. Place the section of the lower cheek on top of the wales first to establish the correct placement. Then glue the forward half into position while trying to create a neat and disguised seam between both halves. The figurehead should be temporarily placed in position to help you line up the scrollwork with the heel of the figure.

Hawse holes and Trailboards...

Before the upper cheeks are added, the hawse holes and trailboards will be completed. They will establish the height for the upper cheeks in the next step. The hawse pieces are laser cut for you. There are two layers cut from 1/32" thick basswood. Hold one layer against the bow, don't worry about bending it. You are just checking the height of the hawse pieces against the height of the trailboard. Then temporarily place the cast trailboard along the stem. Sit it on top of the lower cheek. You may have to adjust the curvature on the lower edge of the trailboard in order to get it to sit flush on top of the cheek. The goal here to make sure that the trail board and the hawse pieces are the same height after you shape the bottom of the trailboard as men-



tioned. Make any adjustment to the two hawse piece layers.

Each layer of the hawse pieces need to have a carved detail filed into to outer edge. Basically, you need to repeat the shape of that edge to make each 1/32" layer look like it's actually 2 1/64" thick layers. A photo is provided that show both layers with their ends already filed. The outer layer already has the hawse holes laser cut so their size and position is standardized. Glue the first (inner) layer onto the hull. Sit it on top of the lower cheek. You might need to pre-bend this layer so it conforms to the shape of the bow. If the black strake prevents you from positioning the 1st layer flat against the hull, you should cut away the top of the black strake so it does. Then glue the second layer on top of it.



Drill the hawse holes through the hull. Be careful not to mar the laser cut holes in the second layer. Drill smaller holes and then carefully enlarge them with a round needle file. The bolster is then added as the last layer. This is the small piece that sits under the hawse holes.

The top edge is rounded off so the anchor cables don't get chaffed as they rub against the lower cheeks. Use a piece of 1/8" x 1/16" basswood cut to length. File round off the top and sides. Then create the half circular notches to match the hawse hole positions. Glue it into position. See the photo provided that shows the hawse pieces and bolster completed. The first half of the upper cheek is also shown in that photo. The interior surfaces of the hawse holes were colored with a graphite pencil to simulate the lead lining typically used at this time period.

Paint the trailboards. The background should be black while the wolf and filigree is painted to look like wood. Glue it into position. Then paint the forward area of the stem black just behind where the figurehead will be placed. See the photo provided that shows the painted trailboards and upper cheeks completed. Note that the figurehead is not glued into position yet. The upper cheeks can be completed just like the lower ones. The forward half of the upper cheeks is laser cut slightly longer than needed. Once the first half of the upper cheek is glued into position on top of the hawse holes, you can cut the forward section to its proper length. The scroll at the end should match up with the shape



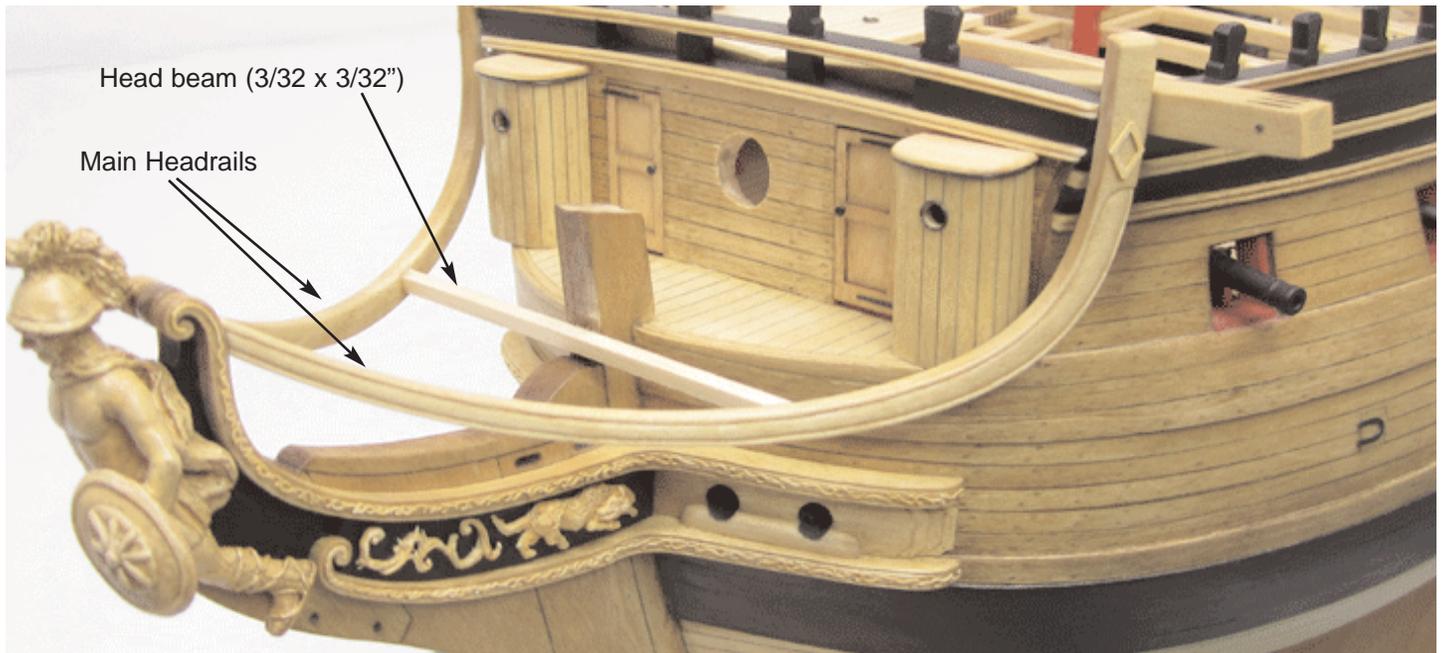
of the stem. This forward half of the upper cheek is also known as the "hair bracket". It has this name because the scroll on the end lines up with the hair of the figurehead. The hair bracket should gradually taper to 1/16" thick as it nears the scrollwork. The upper cheeks are made and detailed just like the lower cheeks. Once they are glued on the model, the figurehead can be permanently glued on as well. Take your time completing the cheeks and trailboards on BOTH the port and starboard sides. Make sure they are the same height and angled properly. It will be that much harder to complete the headrails if they are not consistent port-to-starboard.

The Main Headrails...

Constructing the headrails for any ship model can be a challenge. There are many ways to approach the headrail construction. What follows is one method which was used to create them on the prototype.

The main headrail is the upper-most rail. They have been laser cut for you and are 1/8" thick. Sand the laser "char" from each piece. The main headrail has been laser cut slightly longer than you will need. Test fit the rail against your model to determine how much should be trimmed off the fore side. The aft side of the headrail should sit against the front side of the cathead. It can be positioned so that it touches the cathead OR place it so it is about 1/16" away from it. This would be the correct range. It will sit flush against the hull.

While testing it in position, be very conscious of the relationship of the rail to the front of the beakhead's deck. Remember that the head grating will need to be flush with the beakhead deck and the sides of the headrails. After cutting the rails to length you can start detailing them. These rails will taper in thickness from 1/8" at the aft end to 1/16" thick by the figurehead. It's a very gradual taper that starts in the middle of the headrail. Create the molded profile as described earlier. You can also add the photo etched "diamond" shape to the head rail. This detail is shown on the plans and in the photo provided.



The diamond shape should be painted to look like wood. Try and match the color to the headrails as closely as possible.

You can glue them into position when you are done. A small length of the hull molding will need to be removed so the main rail sits flush against the hull. You may also sand this area of the hull flatter so you will have more surface area to glue the beams directly to the hull. In that same photo you will notice another beam that stretches across the gap between both main headrails. This beam is called the "head beam". It is made using a 3/32" x 3/32" strip. The head beam is glued to the front of the stem. It should be positioned so the top of the beam is flush with the top of the beakhead deck. The top of this beam (on each end) should also be flush (or almost flush) with the top of each main headrail. It will help strengthen the head rails so they don't flex while you work on the remaining head parts. It will also help you align both rails so they are at the correct height. It will ensure that the head grating is angled correctly as it originates from the beakhead and joins with this beam and the head rails on each side.

The Head Timbers...

The head timbers are probably the most difficult and fiddly parts of the head structure. Take your time with these. There are six head timbers

on each side. Five full timbers and one half timber. The five full timbers will be made first. Initially they will be made without the notch for the middle head rail. This will allow you to concentrate on their lengths and overall angles.

Pictures are provided that show the five full head timbers from the side and the top views. They are made using 1/8" x 1/4" basswood strips. Examine the plans which contain a template for each head timber. Transfer the shape to a basswood strip and cut it out. You will absolutely need to tweak these timbers to fit. There are some complex angles involved but once you have completed a few of them, the process gets easier. The (bottom) inboard and outboard faces of each timber will be flat against the stem. However, the (top) inboard and outboard faces will be beveled to match the angle of the main headrail. You will find yourself periodically testing and tweaking each head timber until it fits properly. The top of each head timber is notched so it can be positioned both UNDER the main headrail and AGAINST the inboard side as well. Space them evenly along the head using the plans as a guide. A picture is also provided that shows the five full head timbers temporarily tacked into position. DO NOT glue them into position yet.

Tack or pin them temporarily in position. You can use any means possible to do this. By tem-



Head timbers side view



Head timbers top view

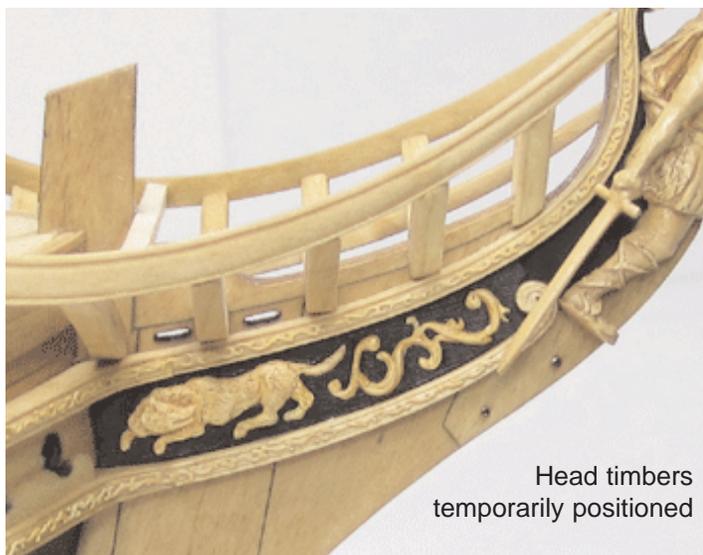
temporarily securing the head timbers to the stem and main headrail you will be able to ensure they are positioned consistently on the port and starboard sides. More important though, you will now be able to hold the "middle rail" against them and mark the locations for the notches on each head timber. Leave the head timbers temporarily tacked in position and start working on the middle rail.

The Middle Headrail...

The middle headrail is also laser cut slightly longer than needed. Hold it against the head timbers to approximate it proper length. The aft end should sit against the bow and probably land on the bottom of the channel wales. Cut it to suit. The middle rail also tapers to 1/16" thick as it nears the figurehead. Add the molded profiles along the edges of the middle rail. Then hold it against the head timbers again so you can mark locations for the notches. The notches in each head timber should be shaped like a "V" (more or

less). A photo is provided that shows the five head timbers after the notches for the middle rail have been cut into each of them.

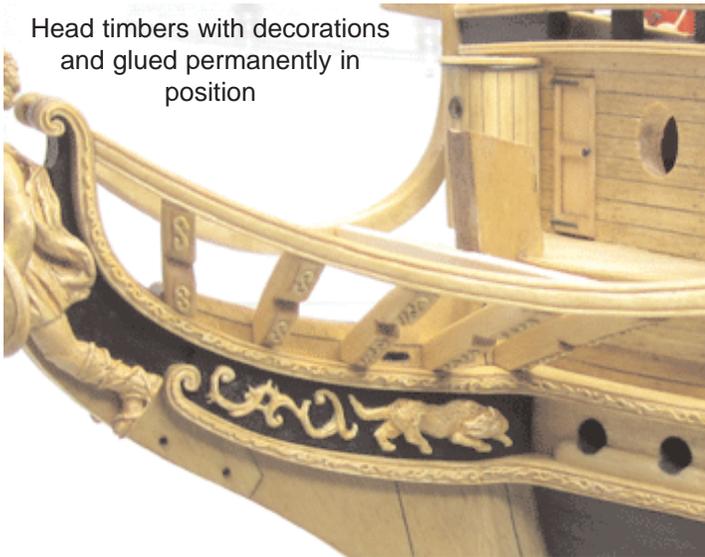
Once the notches are completed, you should tack the head timbers in position temporarily once again. Then check to see that the middle rail fits properly. Make any adjustments needed. Then remove the head timbers so they can be detailed. The head timbers should be detailed with a molded profile down the edges of each outboard face. Then add the photo etched carving details. There are several "S" shaped photo etched decorations. They are supplied in different sizes. Depending on the space remaining between each headrail, you should place one, two, three or even four "S" shaped details on each segment of the head timbers as needed. Place them above and below each notch you made for the middle rail. They should also be painted to look like wood. Once completed, you can finally glue the five head timbers into position permanently. Then



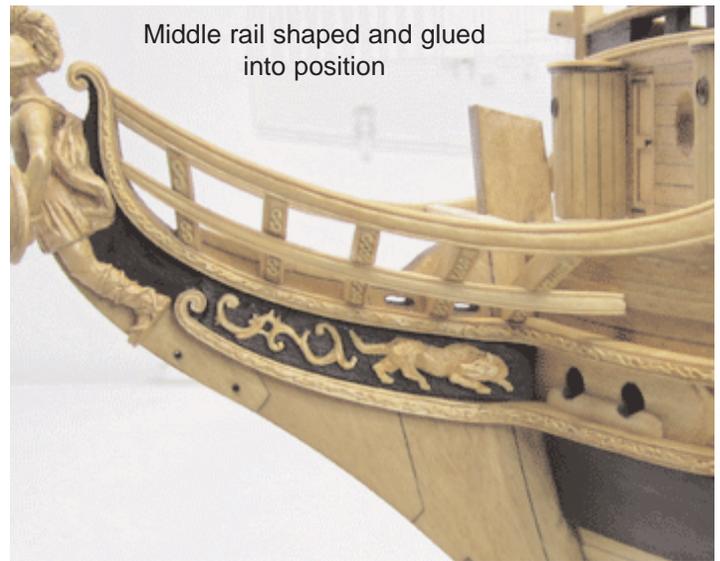
Head timbers temporarily positioned



Head timbers notched for the middle rail



Head timbers with decorations and glued permanently in position



Middle rail shaped and glued into position

glue the middle rail permanently into each notch. Make sure they are symmetrical port and starboard. See the photos provides that show the completed head timbers glued into position and then the middle rail completed as well.

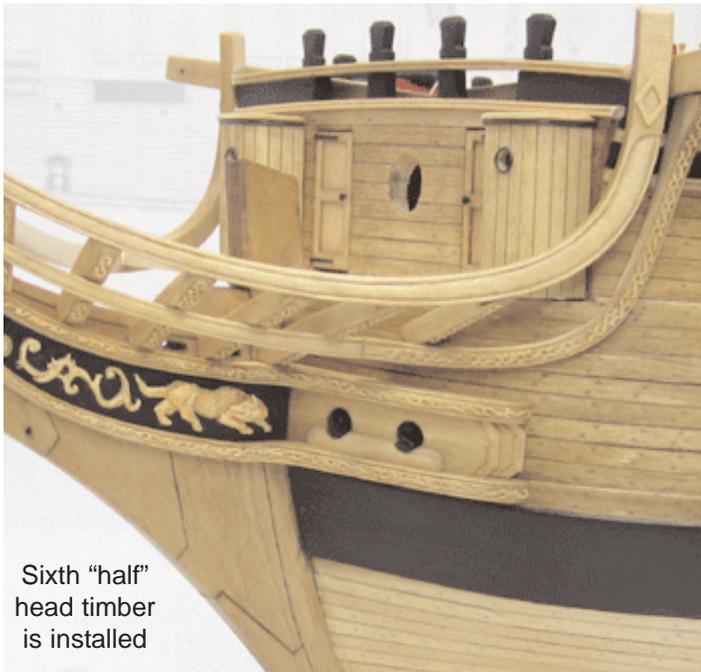
The Cathead support knee...

A support knee was placed under each cathead. For decorative purposes, the support knee was curved forward and continued against the bow until it attached to the middle rail. On our model this will be accomplished by shaping two laser cut segments. The first segment will be the support knee itself. It has been laser cut for you and is 1/4" thick. The actual support knee needs to be sanded much thinner. But it is also curved. A photo provided shows the cathead support after

it has been shaped. To the left of it, the unshaped laser cut knee is shown. You will need to shape this piece so it fits flush against the hull and also curve elegantly forward. You will have to remove small portions of the hull molding so it will sit flush against the hull. Examine the plans as they show the approximate shape for these pieces. You may want to draw some reference lines with a pencil to approximate the shape before you begin sanding them.

Don't glue them into position permanently yet. Just temporarily pin it or glue it under each cathead. You may need to tweak its shape once you've started shaping the remaining segment that will join the knee with the middle rail. Your ultimate goal is to have both segments form a





completed, you can finally add the last remaining head timber. This "half" head timber is the aft-most head timber and can be seen on the clearly on the plans. A template is also provided for them. These are made using the same 1/4" x 1/8" strips. Shape them to fit as the templates will only give you the approximate overall shape without bevels. Each piece should be beveled to sit against the hull and on top of the middle rail as shown in the photo provided. Add the photo etched decoration and paint it to look like the other head timbers.

slender graceful curve and then terminate into the middle rail. Examine the photos provided that show these pieces completed on the prototype. The "connecting" segment is also laser cut. It is longer and thicker than needed as well. It should be sanded to shape so it fits flush against the hull. The connection with the cat-head support knee should be smooth and continuous. As done with the prototype, both segments will need to be continually tweaked, tested and tweaked again until they fit well. When you are satisfied, create the molded profile along both edges as you have done before.

Photo etched decorations are provided and will run along both segments. The middle rail doesn't receive any decorative photo etching. It will only be added to the support knee and middle segment.

This photo etched detailing can be added BEFORE or AFTER you glue them into position permanently. It doesn't really matter and you should choose the method you are most comfortable with. The photo etched decoration should be painted to look like wood and match the color of the support knee as much as possible.

The Sixth Half Head Timber...

Now that the cathead support and middle rail is