

A batten is pinned along the hull to establish the top of the wales. It ensures a smooth run for the planking from bow to stern.

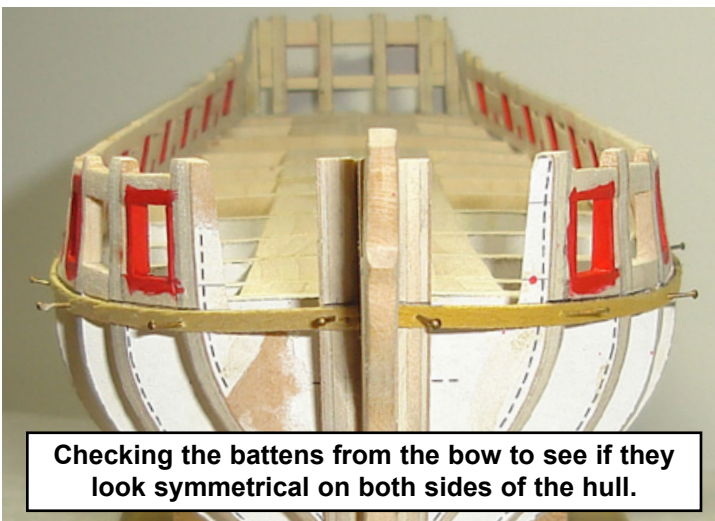
Chapter Five Hull Planking

This model of the Syren will be planked with a single layer of 1/16" thick planking. The Syren is not a project for the first time model builder and therefore it can be assumed that most of you have some planking experience. However experienced you may be there is a book available at www.modelexpo-online.com that discusses planking techniques in great detail. "PLANKING THE BUILT-UP SHIP MODEL" by Jim Roberts. It is a step-by-step procedural guide to the historically and technically correct methods of planking ship models. It is highly recommended. There have been many other books and articles written about how to properly plank a ship model. One of those methods is described here, however it is understood that most model builders have a preferred personal method for planking. Choose the technique that works best for you.

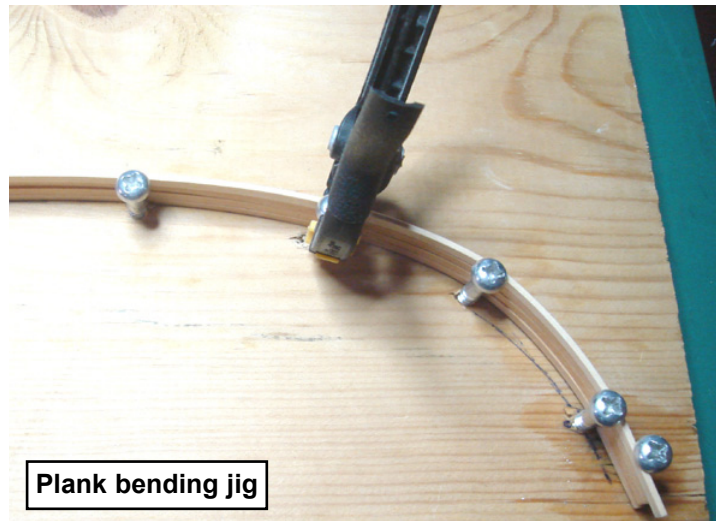
It will be easier to plank the hull if you break this task down into smaller incremental steps. Before you begin planking however, it would be a good idea to paint the inside of each gun port and sweep port. You may opt not to paint any of the model and simply leave it a natural wood finish. The choice is yours. Should you decide to paint the bulkheads and port openings, then red would be an appropriate choice. This was a typical color chosen during that time period. It shouldn't be a bright fire engine red. It should be a muted brownish red/maroon. The photos provided show the insides and outboard frames around the ports painted before the planking was started.

STEP ONE — As done earlier, use a batten to establish the proper, smooth run of your planking from bow to stern. Each bulkhead has a reference line on it that represents the top edge of the wales. Run your batten across the hull and pin it temporarily into position. The top edge of the batten should lie against the reference marks. View the batten from many angles to ensure it has no unsightly dips. When you are satisfied do the same on the other side of the hull. Placing the battens on both sides now will give you the opportunity to inspect them from the bow and the stern. The battens should have a symmetrical appearance and the sloping angle as they run down the hull should be consistent and smooth. See the photo provided. Once you are satisfied you can mark the outside edge of each bulkhead along the top of the batten. Remove the battens afterwards. You will notice that the run of the planking *DOES NOT* follow the run of the gun ports across the hull. This is not an error. The planking will not follow the run of the gun ports.

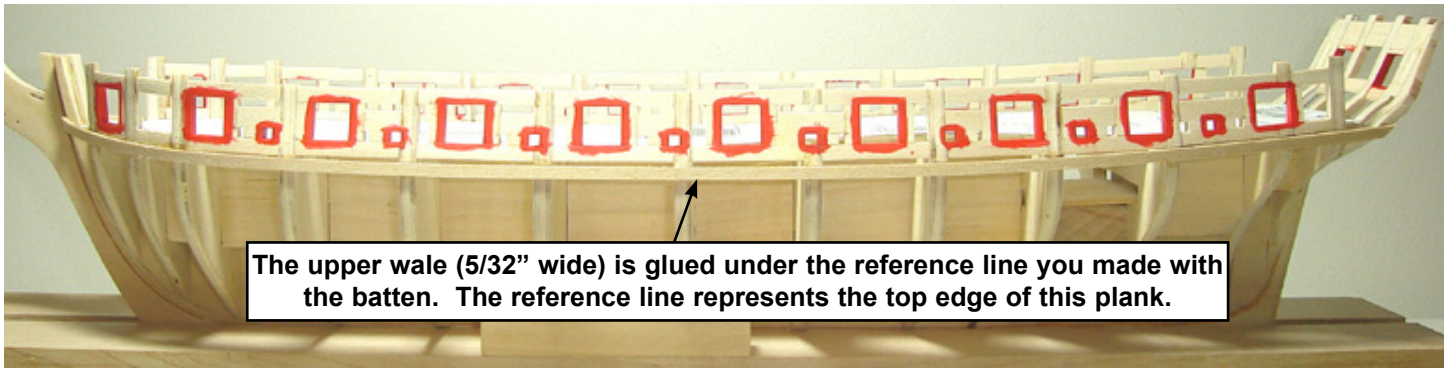
The first planking strip placed on the model will be the upper wale. The planking strips for the wales are wider than the other hull planking you will be using. They are 5/32" wide x 1/16" thick. The wales will consist of three rows of planks on each side of the hull but only the upper most row will be positioned in this step. These 3 rows will also end up being thicker than the other hull planking but once again this won't be done until later. You will eventual-



Checking the battens from the bow to see if they look symmetrical on both sides of the hull.



Plank bending jig



ly place another layer of planking over the top of the wales to make them thicker.

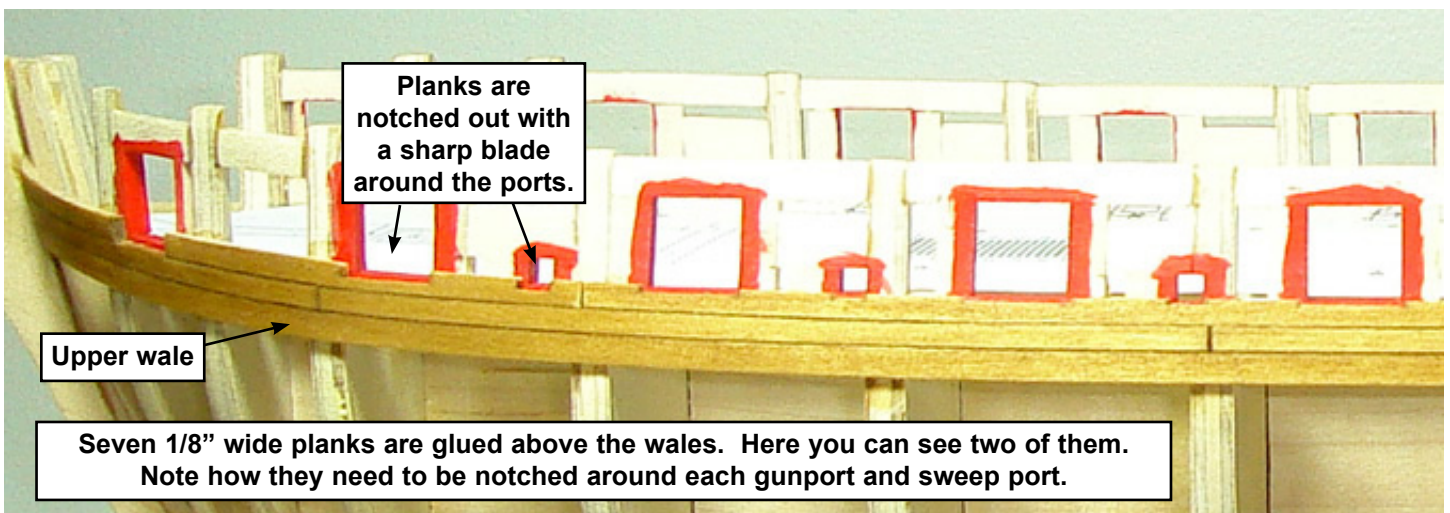
Take a strip of 5/32" wide planking and soak it in warm water. This will help soften the wood and allow you to bend it around the bow and into position. One widely used technique is to pre form your planks in a jig before you glue them onto the hull. Take a photo copy of the deck layout and glue it onto a scrap piece of wood. You only need to use the bow portion of the plan. This will give you a guide for the shape of the bow. Insert a few screws along the outside profile and you will have produced a simple jig to pre-form the planking strips. See the photo provided. Soak your planks in water and place them into the jig as shown. Once dry, they will retain their shape and it will be much easier to glue them into position. Glue the plank for the upper wale onto the hull. You should be able to insert the end of the plank into the rabbet at the stem. This will hold it firmly while you position the top edge of the plank along your reference lines.

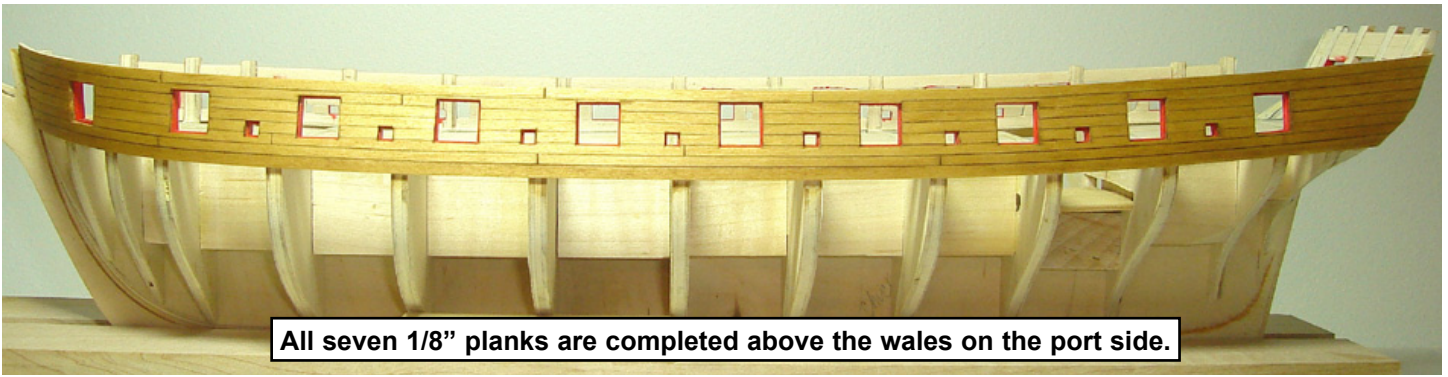
This first wale plank can be glued across all of the bulkhead edges in one length. Even though the planking on the actual ship would have been done in 20 to 25 foot lengths, this plank will eventually be covered with a second layer and therefore it is not necessary to use smaller segments. Using one length will help you keep the run of the plank smooth and consistent across the entire hull. This is much more important at this stage. The planking above this upper wale will be done in smaller lengths and the butts/joints between them will be staggered as shown on plan sheet one. Note however that the planks between

each port are fastened in one length since there was a short enough distance between them. There should be no plank joints visible between each gun and sweep port.

There will be seven 1/8" wide planks placed above the upper wale. Gluing these planks onto the model will complete 'step one' of the planking process. They should be pre-formed in the jig prior to gluing them. As mentioned earlier the two rows of planking immediately above the upper wale should be cut into smaller segments. They were cut to length on the prototype so each segment would span across four bulkhead edges. This will also be the case for the rows of planking above the gun ports. The top edge of the seventh plank above the wales will delineate the sheer/profile of the hull. This is why it is so important to take your time in establishing the proper run of that first 5/32" plank.

You will be planking from the wales upward. As you progress the strips should be notched out to fit around each gun port and sweep port. You can use a sharp #11 blade in your hobby knife to cut these notches. See the photo provided. You should not cut the planking so it is flush with the edges of each port. There should be a small lip or ledge remaining around each port. This forms a rabbet which helps the port lids form a water tight seal when closed. This lip should be less than 1/32' wide around each port. It would have been around 1 1/2' wide on the actual ship. This detail is often overstated on many ship models. Anything wider than 1/32" would be greatly over scale. A corresponding lip will be created on the inboard edges of each port lid so it fits snugly when closed. The





All seven 1/8" planks are completed above the wales on the port side.

planks along the top of each port should be notched as well. This can be a tricky process. Hold the planks in position and mark the locations to be notched out with a pencil. Treat each planking segment as a small project unto itself. There is no need to rush through this process. A poor planking job here can ruin the appearance of your model. If you aren't happy with how a plank segment fits after you finish cutting it to shape, then throw it away and make another one. As you finish a few of them you will see the results getting better and better.

On the real ship, the sides of the hull would have been painted dull yellow ochre above the wales. The prototype model will be stained with MinWax Golden Oak stain to simulate this color. However, you may opt to paint the hull instead. If you do decide to stain the hull planking, you can add many other details to your model. One of these details would be to emphasize the seams between each row of planking. The seams between them were caulked to make them water tight. Many techniques are used to simulate this caulking. A pencil was used to darken one edge of each plank before it was glued onto the prototype. This creates a more subdued seam but other materials can be used if you prefer a more prominent look. The planking was also fastened to the hull framing with wooden pegs called treenails. These will be simulated in a later planking step. This is another detail that can be added to your model should you decide to stain it rather than paint it above the wales.

The wales will eventually be painted black in addition to all of the planking down to the waterline. Below the water line the hull is copper plated so there is no need to simulate the caulking or add treenails there. There are many ways to finish your model and all of them produce a very different look and style. Trying different finishes and techniques on some planking mock-ups can help you find a result you can be happy with. Try planking several small swatches on some scrap wood so you can experiment a little. The techniques used on the prototype will be explained in more detail later as we progress through the planking process. See the photo provided showing all seven planks above the wale completed. Once you have done so on both sides of the hull you can move ahead to step two.

STEP 2 - Before any additional planking is completed on the sides of the hull, the counter at the stern should be planked over first. Seven planks will be needed to cover the upper and lower counter. However you should double check that the height of your two stern ports is correct before you start planking. This will be the last opportunity to ensure they are correctly positioned. Once the counter is planked and the transom is glued into position it will be very difficult to adjust them. The picture on the next page shows a photocopy of the long 12 pounder cannons taped to a 1/16" thick planking strip. The deck will be 1/16" thick and this plank will simulate the correct thickness. Position this cannon cutout on deck so the barrel of the long gun

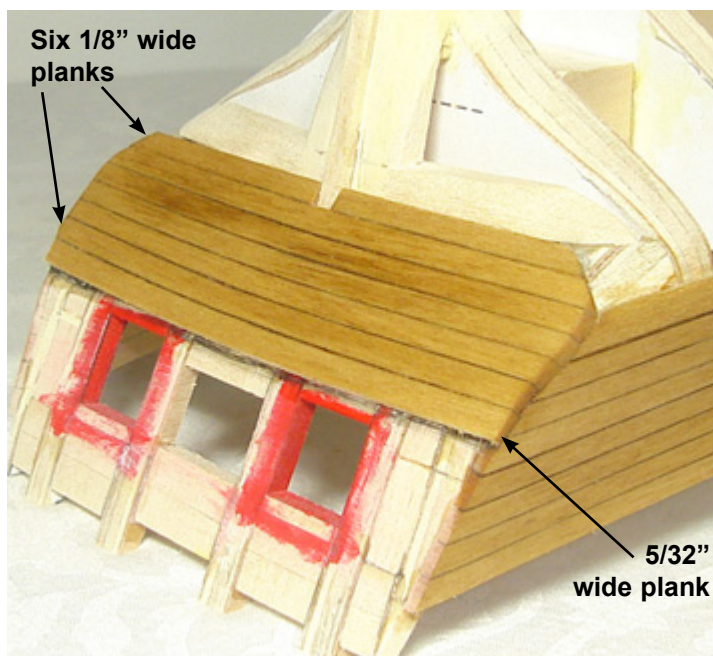
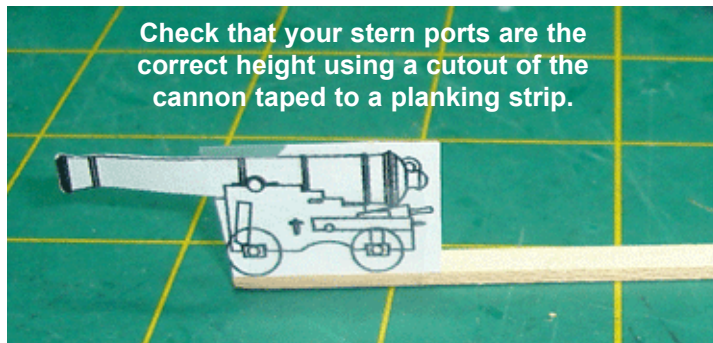


fits through each port opening. If the ports are too high you should remove the sills and lintels and reposition them so the cannon cutout fits. It shouldn't be too difficult to pop them out should you need to.

When you are satisfied with the port positions you can place the first planking strip along the upper counter. The first planking strip will be $\frac{5}{32}$ " wide and $\frac{1}{16}$ " thick. This is the first plank below the gun ports. The plank should be placed $\frac{1}{16}$ " below the top of the stern port sills. Below this, 6 additional planks ($\frac{1}{8}$ " wide) are glued into position. See the photo provided. Note how both sides of the planks were sanded flush to the shape of the counter. The counter on the prototype will eventually be painted black. If you decide not to paint your model then you can simulate the caulking between the planks as discussed earlier.

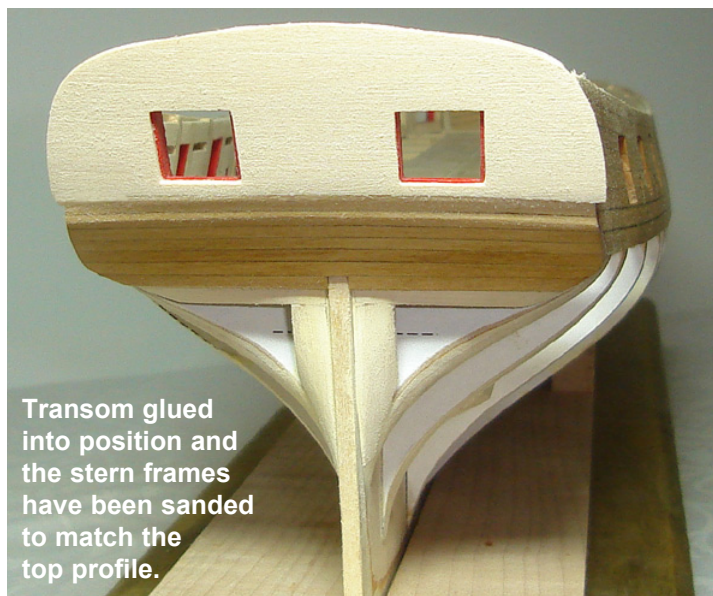
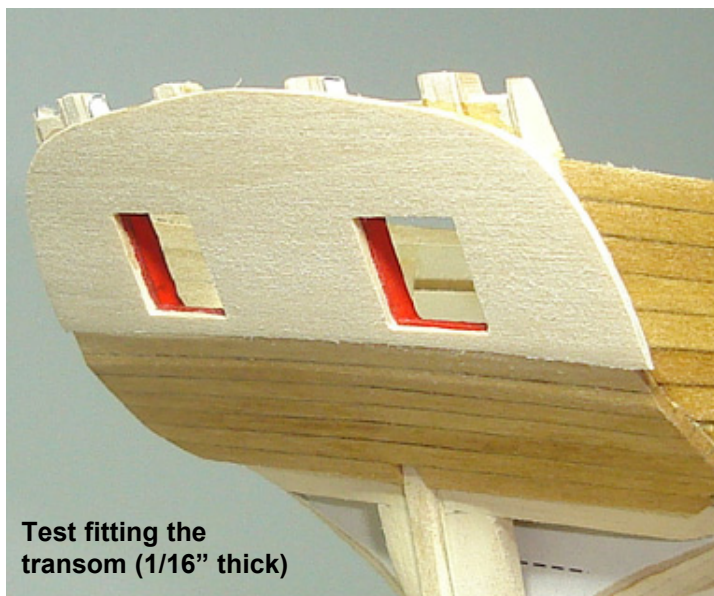
Remove the transom from the laser cut sheet. You will notice that the openings for the two stern ports have not been cut from the transom yet. Since every model will vary slightly, it is more accurate to take those measurements directly from your hull. To do this, simply tape your transom into position along the top edge of the counter. You may have to bevel the bottom edge of the transom so it rests properly along the top of that $\frac{5}{32}$ " wide plank. Be sure to center the transom properly. The sides of the transom will extend beyond the sides of the hull by about $\frac{1}{16}$ ". Once in position, trace the port positions onto the transom from the inboard side.

The transom is thin enough that you should be able to cut the ports out using a sharp #11 blade in your hobby knife. Remember to cut just outside of your reference lines so your port openings are slightly larger than drawn. You want to create the rabbet around each port so the lids will be water tight when closed. This exposed "lip/edge" should be the same size as you created them for the gun ports along the sides of the hull. Test the transom periodically to see if the ports line up and make any adjustments until you are satisfied. Then glue it into position. Finish step two of the planking process by sanding the stern



frames down to match the curved profile of the transom. See the photos provided.

STEP 3 - Work can now continue on planking both sides of the hull. In this step we will add three planks along the keel and three more planks just below the upper wales. These planks will define a large unplanked area between them. In step four you will measure, divide up and create a "planking-plan-of-attack" to complete this area.



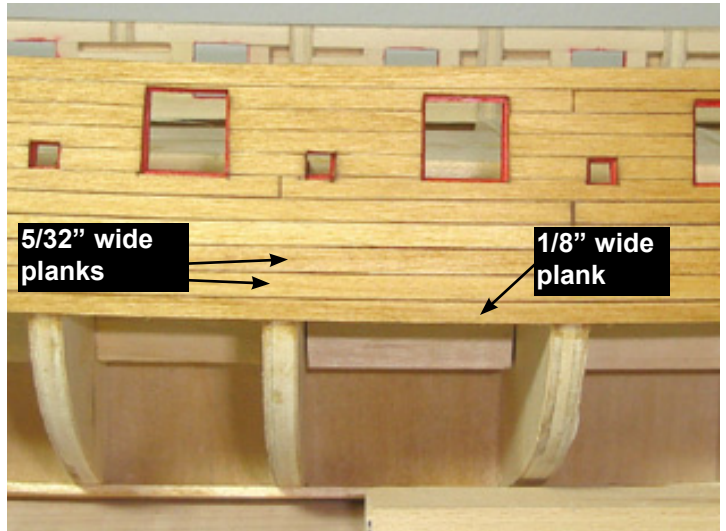
Three planks were added below the existing planking. The first two finish the initial layer for the wales. They are $\frac{5}{32}$ " wide. The last one is $\frac{1}{8}$ " wide.



The first three planks continued under the wales will consist of two $\frac{5}{32}$ " wide planking strips. These two strips will complete the initial layer of the wales which are wider than the remaining planking. When finished there should be three $\frac{5}{32}$ " wide planks on the hull that represent the wales. Under these, a final $\frac{1}{18}$ " wide strip is added. See the photo to the right.

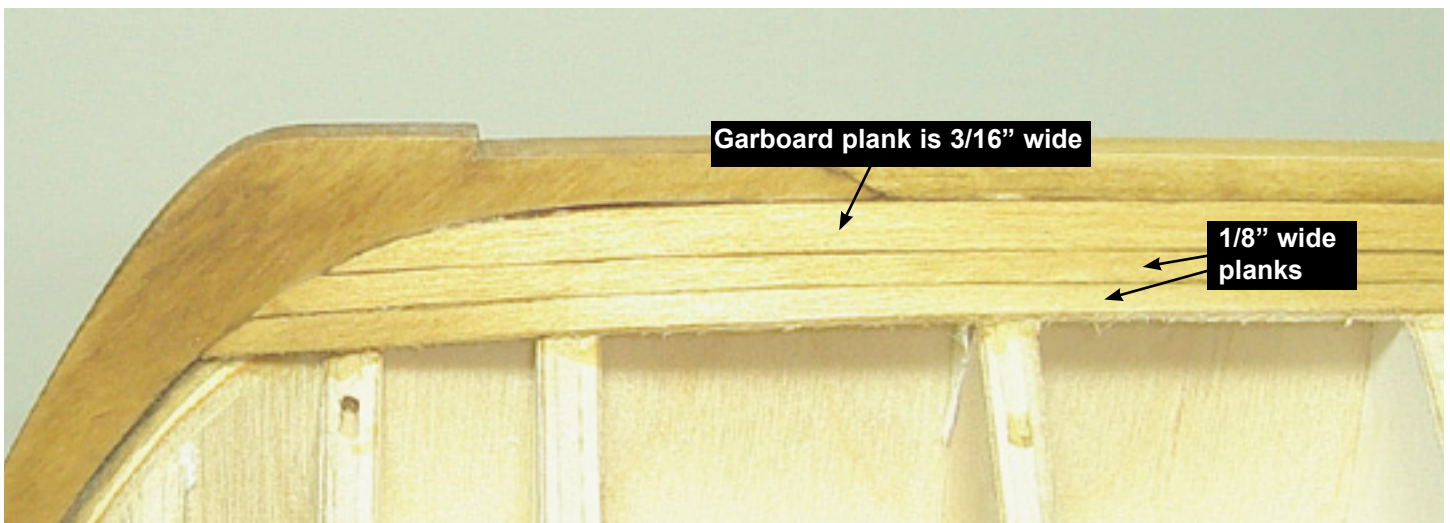
Three more planking strips will be added along the keel. The first is the "garboard plank". This plank will be $\frac{3}{16}$ " wide and $\frac{1}{16}$ " thick. See the photo below. Note how the forward edge of the garboard plank is shaped to fit into the rabbet at the bow. The tip of the garboard plank should not extend past bulkhead "N". You can see this clearly in the photo. Two more $\frac{1}{8}$ " wide planks are added as shown to complete step 3. If you are going to cover the bottom of the hull with copper plates or paint it, then there is no need to simulate the caulking between each plank. You can also run the planks from bow to stern in one length rather than cut them into segments and stagger the butt joints. All of that extra work will eventually be covered up any way. Cut the planks flush with the edge of the rabbet strip at the stern.

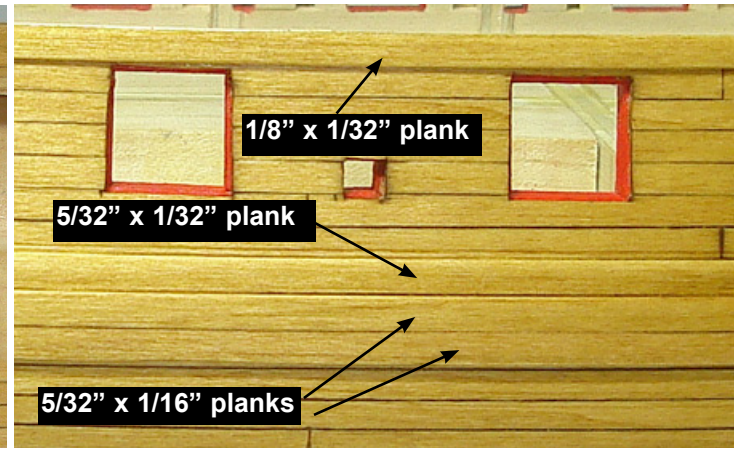
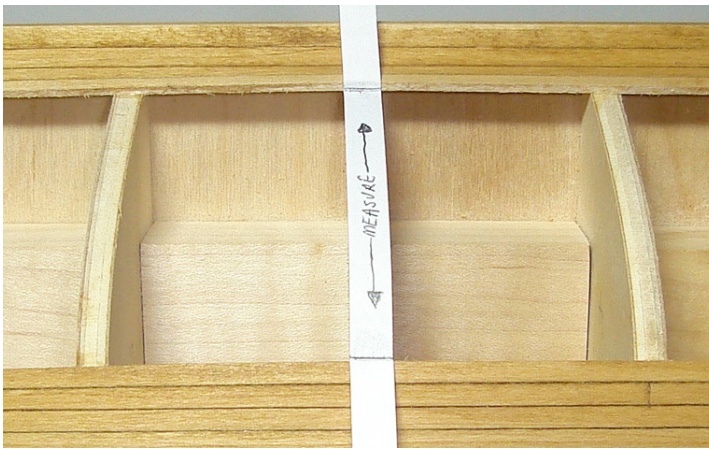
In order for these three planks to lay properly across each bulkhead without twisting, you may have to clamp them down or temporarily pin them to each bulkhead edge so they don't shift and twist before the glue dries. Soaking the planks first will help make them more pliable.



STEP 4 - Step four requires that you use a tick strip to measure the remaining gap in the planking. See the photo on the next page. Measure the size of the gap at the center bulkhead. Take that measurement and divide by $\frac{1}{8}$ ". Your answer will be the number of $\frac{1}{8}$ " wide planks needed to fill that space. You will see that it will require 22 or 23 planks. Every model will vary slightly but that should be the number you come up with.

Keep mind that you will experience what is called "creep". Creep occurs when the thickness of the glue between planks, along with not butting the planks tightly together





cause the 22 strips to take up more area than you originally thought. It will happen. Because of “creep” you may use fewer planks than anticipated. Even so, this will help you create a plan for planking the hull.

Then measure the size of the gap at bulkhead “N” and divide that by 22 or 23 strips. The answer you get will be the width those 22 strips need to be tapered to. The planks at the bow will be tapered to around 3/32” wide (give or take). Taper about 5” at the end of each plank. They should gradually taper from 1/8” wide to whatever measurement you came up with. Tapering all of your planks at the bow should prevent you from having to create any drop planks or plank inserts. See the illustration on the next page.

The stern is handled a little differently. Measure the distance along the stern post and under the counter. Divide that by 1/8”. You will come to realize that it will take many more planks than 22 to cover that area. Probably around 27 planks total. This means there will be 4 or 5 stealers needed in addition to the 22 planks used at mid ship. If you account for “creep” or use a few 3/16” wide planks fewer stealers will be needed.

By measuring and pre-planning it will make your planking go much easier. Some model builders also split the area to be planked into three bands (bow to stern). These planking belts can be defined by pinning temporary battens across the bulkheads. Then you can attack each planking belt one at a time. Once you have developed a planking

plan, you can complete step four by adding 3 or 4 more planks to each side of the hull. But don’t plank over the entire hull just yet.

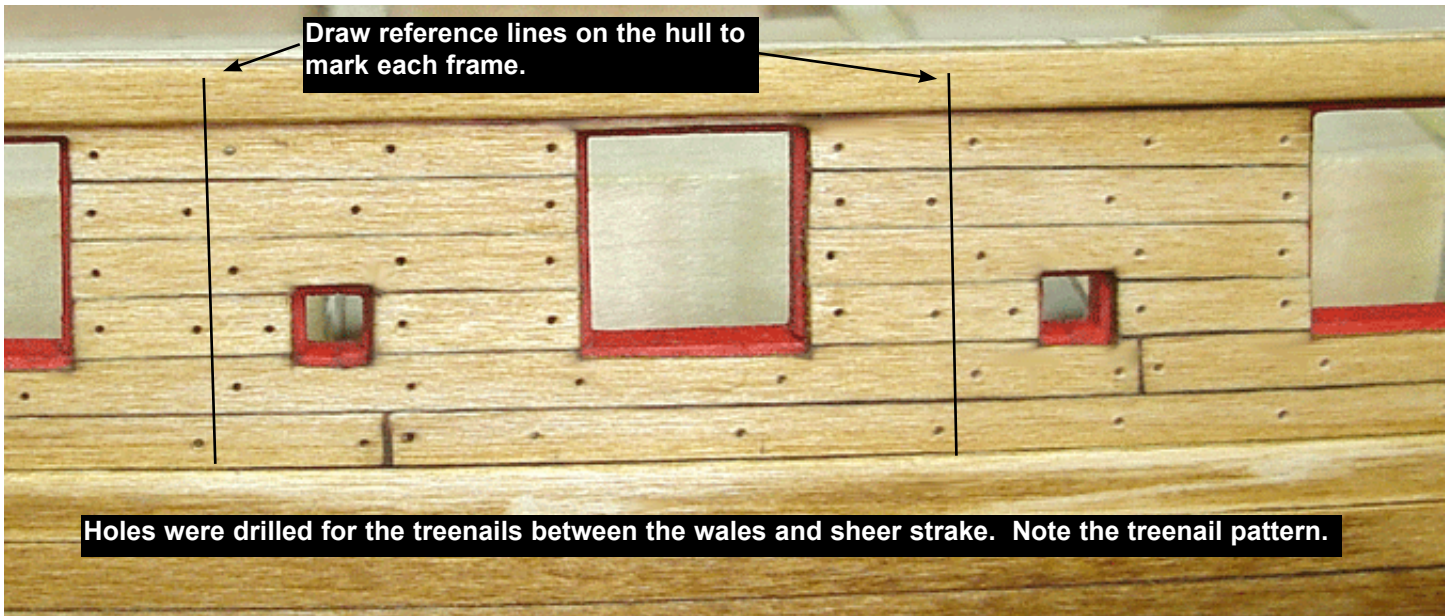
STEP 5 - Before completing all of the planking it would be a good idea to take advantage of the exposed bulkheads. If you are planning on treenailing the stained areas of the hull above the wales the bulkheads will help you keep the rows of treenails straight and parallel to each other. Treenails were wooden pegs that helped secure the planks to the ship’s frames. There were also wooden plugs that covered recessed bolt heads. Simulating this look will add some great texture and richness to your model..

Start by adding the second layer of the wales and sheer strake (the top-most plank that defines the sheer of the hull). The lower wales will be 5/32” x 1/16” thick. The top-most wale will be thinner at 1/32” thick. See the photo above. Finally the second layer of the sheer strake can be added which is 1/8” wide and 1/32” thick. Glue these directly on top of the first layer following their run from bow to stern. See the small diagram in the upper left hand corner of plan sheet one for more planking information.

For the treenails: Draw some vertical lines on the planks between the wales and sheer strake. These lines should follow the center of each bulkhead edge. Having the bulkheads exposed will help you keep them straight and uniform. Between each numbered and lettered bulkhead there would have been additional, evenly spaced frames on the real ship. These are the numbers and letters not

Second layer of the wales and the sheer strake have been added to the model.





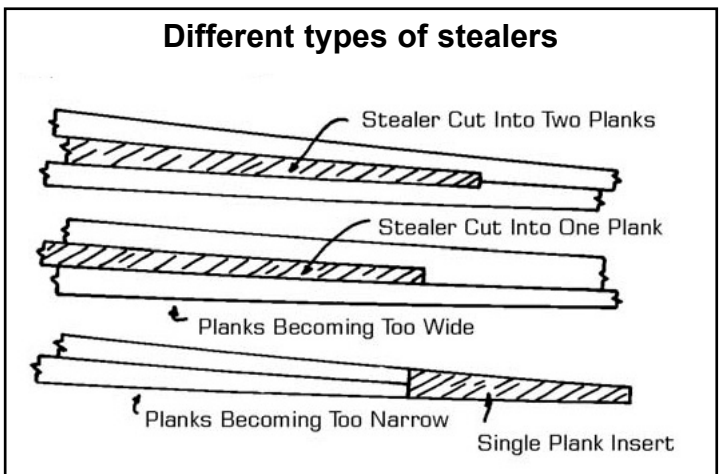
shown that would fall between those listed on plan sheet one. Draw vertical lines for these as well. Drill holes for the treenails in the pattern shown above. You should stagger the holes (one on each plank) on either side of the reference lines as you work your way down the hull. Additional holes should be placed on the ends of each plank where they butt against a port opening.

There are several ways to create the treenails that will fill these holes. One method would be to pull small strips of wood through a metal draw plate. The holes in the draw plate would get progressively smaller. You would pull the wood through many holes working your way to the smallest so the strips will fit into the tiny treenail holes. Place a small amount of watered down white glue onto the end of the small wooden treenail and insert it into each hole. Then snip it off close to the hull with a nail clippers. When all of the holes are filled, sand the treenails down flush with the hull. Stain the entire hull to finish it up. This method works well but can be very time consuming.

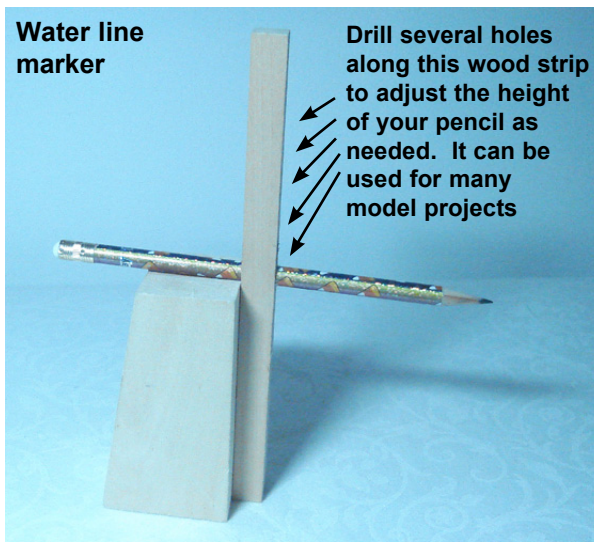
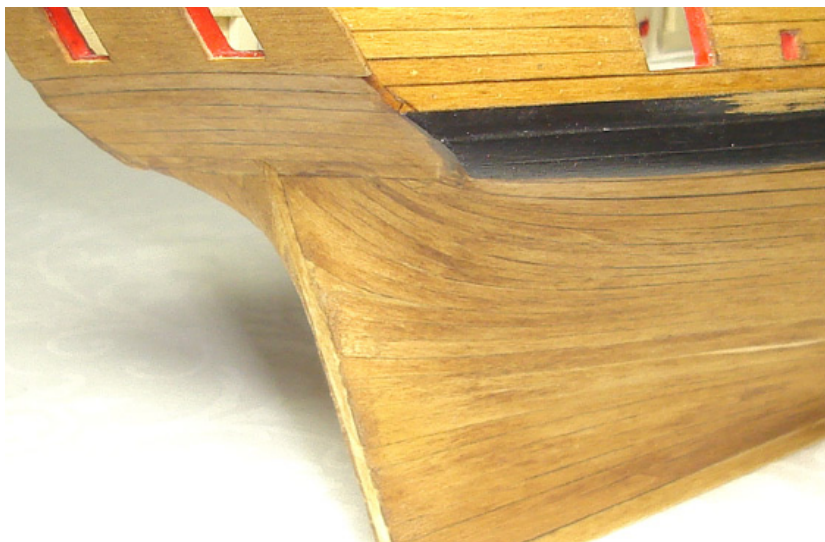
Another alternative (which was used on the prototype) would be to fill the holes with some water based wood filler. Then sand the hull down and stain. Elmers wood filler works well for this application. Be careful not to make the treenails too large or too dark. A 0.55 bit was used to drill the holes on the prototype.

STEP 6 - Complete the planking of the hull. See the photos provided. Soaking the planks and pre-forming them in a jig will help you bend them around the bow. This is also true with the extreme bend around the tuck of the stern. Once the planking is finished apply some wood filler below the wales to fill any cracks and sand the hull smooth.

Draw the waterline from bow to stern. Take the measurements from the plans. Measure the distance from the wales to the water line at the bow and the stern. Then use a water line marker to create a reference line across the length of the hull (port and starboard). You will have



Planking completed on the port side of the model.



to lift the bow a little bit to achieve the proper angle from bow to stern. The water line angles downward towards the bow. Place your water line marker at the stern so the pencil lines up with your reference mark for the waterline. Then lift the bow by placing some shims under your work cradle until the pencil in your water line marker is level with the reference mark there. Make sure your hull is sitting perfectly flat in its cradle before you begin marking the waterline. Otherwise the water line will be higher on one side of the hull than the other. A typical water line marker can be made with some scrap wood and slid across a flat

surface to create the water line from bow to stern. See the photo above for one such creation.

Add the laser cut stern post (3/16" thick basswood sheet). The template is provided for you on plan sheet 3. Glue it into position as shown on the plans. The keel can be cut to length afterwards but the false keel won't be permanently attached yet until after the hull is plated with copper. Paint the hull black below the wales to the water line. Sand between multiple coats for the best possible finish.

