

CHAPTER TWO - The Bulkheads and Bulkhead Fillers

Remove the thirteen bulkheads and sand their edges to smooth out any rough spots and burn marks from the laser. You will notice that some of the bulkheads have a dashed line scribed onto them. They represent the bevel that should be created on the outside edge of each of them. Only those bulkheads that will have the most severe bevels have dashed lines on them for reference. This doesn't mean that the others won't be beveled. All of the bulkheads will have some degree of beveling. It will however be only slight and easier to achieve after all of the bulkheads are *temporarily* in position.

Slide each bulkhead into their corresponding slots and make sure they are squared to the bulkhead former. Line up the dashed line on the bulkhead former with the dashed line scribed on each bulkhead. This line is used to make sure the bulkheads are leveled properly in their respective slots.

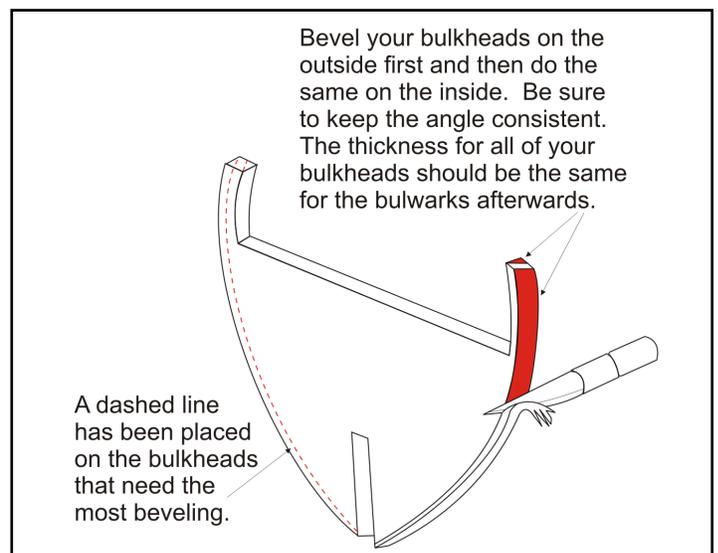
The bulwark frames are somewhat thin. This is the area that will create the sides of the hull above the deck level. They are actually a little thicker than they will ultimately end up being. After you establish the bevels (as indicated by the dashed lines) the bulwarks should end up being 1/8" thick at the cap rail level. They can be 5/32" thick at deck level (it gradually gets wider as you approach the deck level). The inside of the hull along the bulwarks will eventually be thinned down even further. This won't be done until after the hull is completely framed and planked. The top of the bulwarks will eventually be thinned down to 3/32" thick. At the deck level each bulwark frame will be 1/8" thick. They are quite delicate so be careful not to break them.

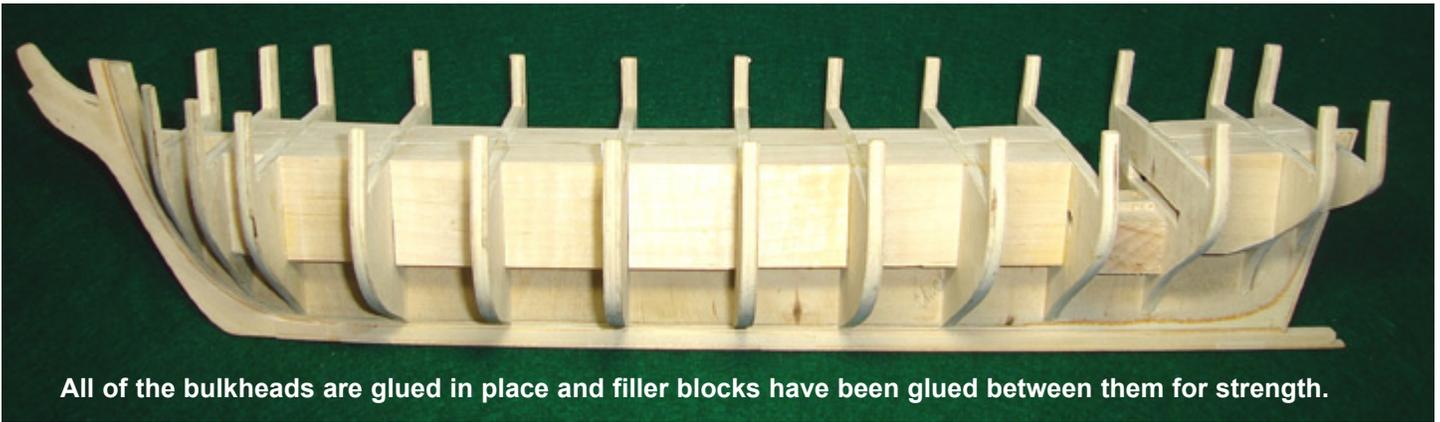
NOTE: The scribed sides of each bulkhead should face towards the bow for all lettered bulkheads. They should face towards the stern for all of the numbered bulkheads.

Bevel all of your bulkheads before you place them into their slots of the bulkhead former. The drawing below

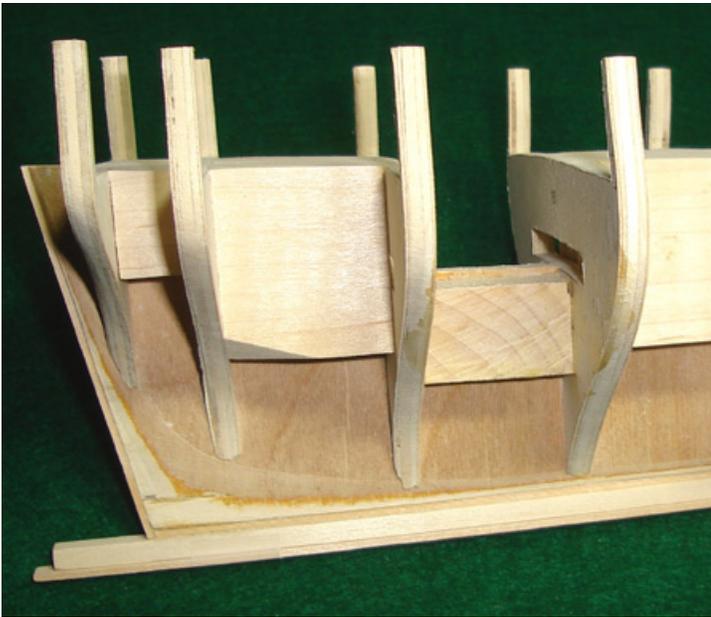
shows you how to bevel the outboard edge first. The dashed line is there only as a guide. **DO NOT** initially bevel your bulkhead edge to these reference lines. Shape the edge just short of each bevel line (leave about 1/64"). Once all of the bulkheads are temporarily in position you will *fair* the hull. This term refers to the process of preparing the outside shape of the hull so the hull planking will lay flat along the edges of each bulkhead. Use a folded sheet of sandpaper that is long enough to span across three bulkhead edges. Sand the outside edges of the bulkheads two or three at a time. This will finish the beveling process and fair the hull for planking. A good tip is to imagine the hull as a solid block of wood as you sand it into shape.

Use a planking strip (1/8" x 1/16") to check your work. As you lay it across the hull from bow to stern, the planking should lay flat against the edges of the bulkheads. Continue to make adjustments until you are satisfied. When the outside of hull is completed you should do the same for the inside. The inside edge of the bulwarks should be faired as well. Keep all of your bulkheads a





All of the bulkheads are glued in place and filler blocks have been glued between them for strength.



Close up of the filler blocks at the stern. Note how the filler block between bulkheads 16 and 20 is positioned. Place it below the slots of both bulkheads.



The planking between bulkheads 16 and 20 is completed. It creates a platform to simulate the lower deck which will be visible through the open companionway.

consistent thickness as you do so. Don't make them too thin yet. Remember... it is better to keep them a little thicker and stronger at this point. It would be best to do the final sanding after the outside of the hull is planked. Only remove what is necessary at this time to consistently shape the inside of the bulwarks. Once you are satisfied, the bulkheads can be permanently glued into the bulkhead former.

You will notice a slot cut into bulkheads 16 and 20. These slots will be used to plank a simulated lower deck platform. If you intend to have the companionway doors open this deck will be visible (barely). It will serve as a platform for the ladder to rest on. But before you create this platform a series of filler blocks should be placed between each bulkhead.

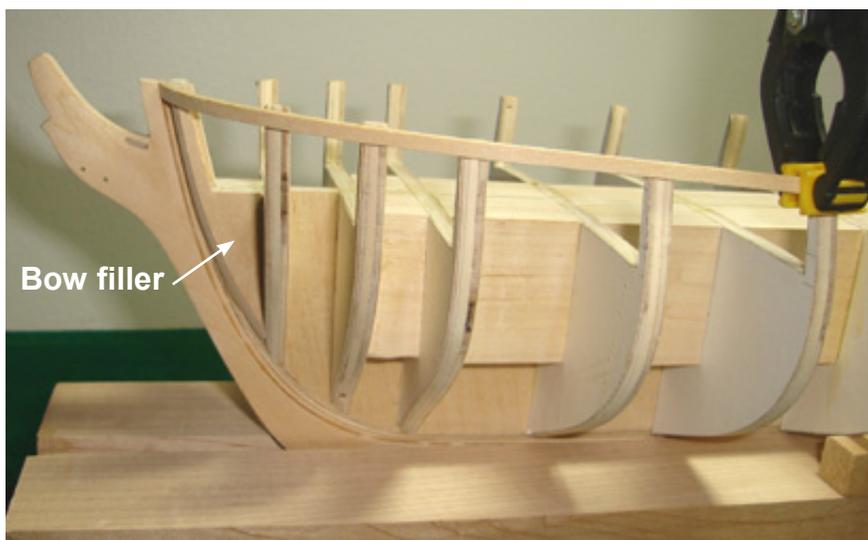
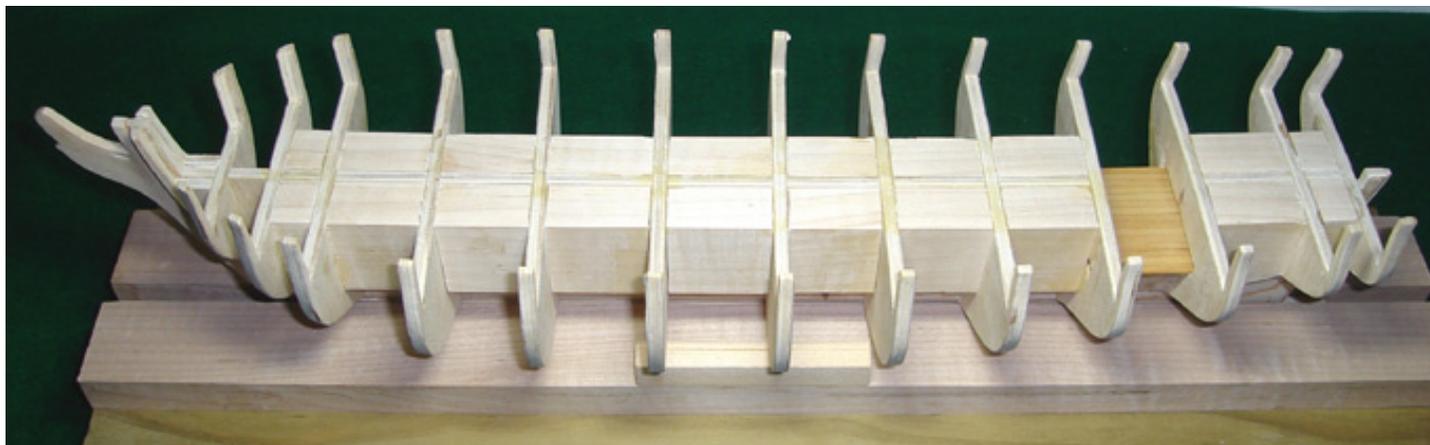
The filler blocks can be made from any scrap lumber you have. A good size to use would be a 1" x 2" strip. Cut each filler block so fits snug between each bulkhead. Don't make them so tight that it forces your bulkheads to spread apart. This is very important. The filler blocks will strengthen the entire skeleton and prevent it from twisting or warping. If your bulkhead former is slightly warped it can usually be straightened out by using filler blocks. Simply create a jig or clamp your bulkhead assembly so it is straight and not twisted. Then glue your filler blocks into position on both sides of the bulkhead former. When you release it, the warp or twist should be gone. The jig can be created with a 1" x 6" board. Two wood strips are glued down the center. The space between each wood strip should be 3/16". This is just enough space for the keel to fit down into it. See the photo on the next page. The keel should fit tightly into this slot.

With the filler blocks completed you can plank the platform between bulkheads 16 and 20. Use 1/16" x 1/8" basswood strips. Run a pencil across the edge of each plank to simulate the caulking that was normally placed between them. There are other methods for doing this but a pencil creates a more subtle appearance for the caulking. There really is no need to treenail this platform since it will barely be visible. You may opt to treenail the deck and hull, but on this platform all of your efforts would hardly be seen. Techniques for treenailing will be discussed later in the project. Treenails were wooden pegs that were forced

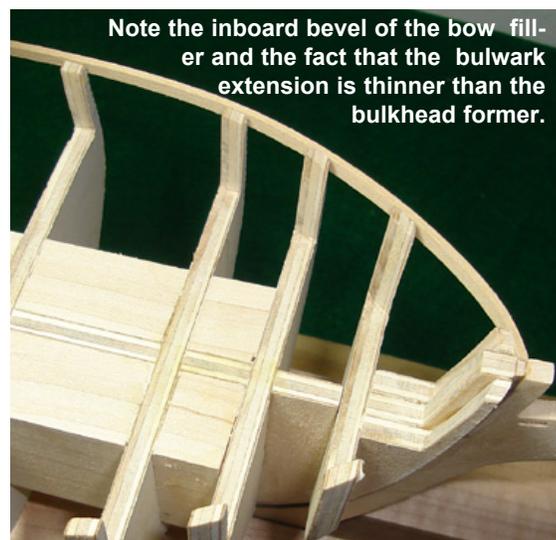
through holes drilled into the planking. They passed through the planking into the ship's frames and fastened them securely into place. Treenails can add a lot of detail and interest to a ship model but depending on your skill level you might decide to omit them.

The platform was stained with MinWax Golden Oak wood stain. It produces a warm golden tone when used on basswood. The deck would have been a grey color and lighter than the planking on the outside of the hull. You might decide however, to keep them consistent. The prototype model will be stained exclusively with the golden oak color and all of the unpainted portions of the model will have a consistent look through out.

To complete chapter two, remove the two laser cut bow fillers and glue them into position. One for the port side and the other for the starboard. You will notice a dashed reference line was added as a guide to show the bevels required. These filler pieces should be beveled inboard and outboard before you glue them onto the bulkhead former. Again, it is probably better to bevel them only part-way until after they are glued to the bulkhead former. Then you can sand them further as the hull shape dictates. These bow fillers will give you more surface area to glue the hull planking onto. See the illustration on page 5 which shows the bow fillers in position. Note the proper bevel angles inboard and outboard in relation to the BF.



Bow filler



Note the inboard bevel of the bow filler and the fact that the bulkhead extension is thinner than the bulkhead former.

It can not be emphasized enough how important it is to fair the hull properly. Check that a planking strip will lay flat across all bulkhead edges inboard and outboard. You can see in the photos above how a planking strip was inserted into the rabbet at the bow and left to bend naturally along the outside of the hull. That's when you are ready to move ahead to chapter three.

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