

## Armed Virginia Sloop - Part 3 - Planking the Lower Hull and Deck

You'll find the process of planking the AVS very similar to the way an actual ship of this type would have been planked. Although good instructions are included in the kit (and I will augment those instructions) I recommend that you purchase a copy of *Planking The Built-up Ship Model* by Jim Roberts. This very affordable and excellent publication is available from Model Expo (Part Number MSB113) and is also included in the Ships in Scale CD set (1990 to 1999).

The first step is to lay out the locations of the planking butts. As the instructions mention (Page 13), planks on real ships were generally 20 to 30 feet in length. On this model, the bulkheads are close enough together that we can actually plank using scale plank lengths (not often possible on most plank-on-bulkhead models). Page 13 of the instructions gives the rules for staggering the planking butts. Since it was clear I'd need planking butts at the locations of the stealers in belts B and C, I decided to start laying out my butts from those points. Mark your proposed planking butts on the sheer plan (Plan Sheet 2) in pencil, then once you're satisfied with the layout, mark them with a red pen so they're easy to see. As you plank, mark the butt locations directly onto the bulkheads. I wound up using three planks for each strake.

Next, you need to divide the hull into planking belts. These are marked on the planking plan drawings on Plan Sheet 2. My preference is to lay out only one planking belt at a time, so I began with the A belt and transferred the marks from the plan to the hull. I used a piece of strip wood as a planking batten and attached it to the hull with small brass nails (no glue). Regardless of where the belt marks from the plan may lie, you want the planking batten to have a nice, fair run from fore to aft, so adjust it as needed until you're satisfied. Place the batten on the other side, keeping it as close as possible to the same locations as the opposite batten.

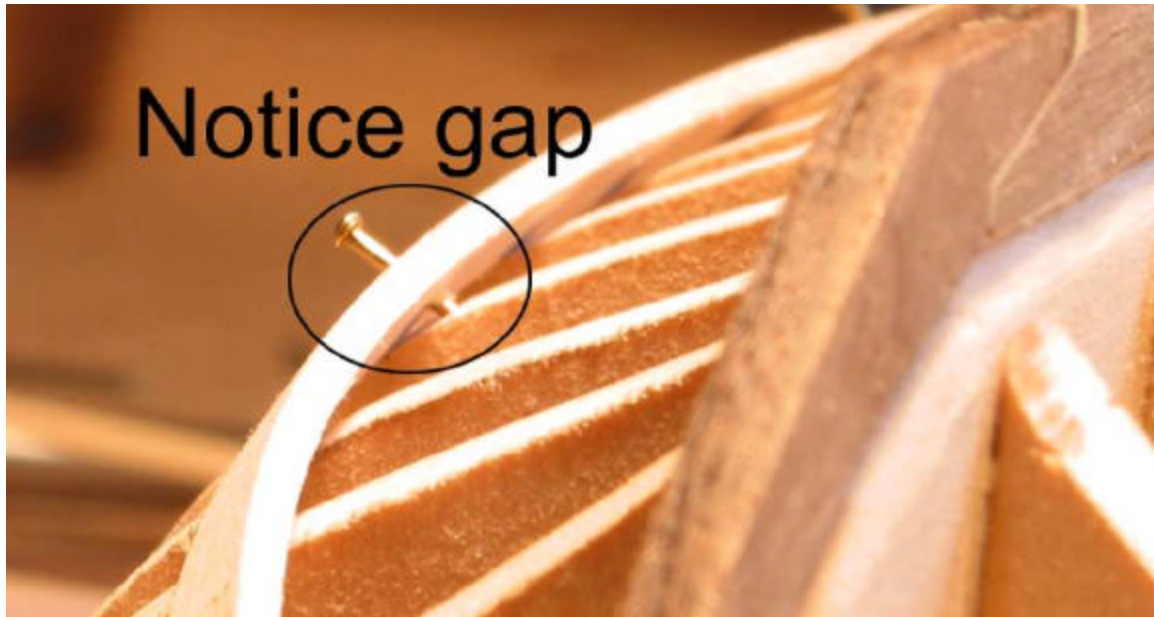


Photo 1: Planking battens for A belt. Note that batten does not lie down against the bulkheads. This illustrates the need for spiling.

As you place the battens, you'll find that they don't lie flat against every bulkhead (especially at the bow) if you follow the planking layout in the plans. In Photo 1, you can see a noticeable gap between the bottom of the planking batten and bulkheads, D, E, F, etc. If you try to force a straight plank to follow the curve of the batten, you'll get the same sort of gaps – an undesirable result. In order to make the planks lie flat against the bulkheads, you need to cut them to shape (part of the process of spiling). This is most needed at the bow.

The kit instructions mention spiling but don't cover the subject thoroughly. Once again, I strongly recommend that you get a copy of *Planking the Built-up Ship Model* for additional information. I'm including some photos here of the method I use to spile planks. It may work for you or you may develop your own method.

I begin by cutting a template from poster board that is shaped to fit into the rabbet at the bow and is slightly longer than the plank I intend to spile. I tape or pin the template in place so that it conforms to the curve of the bulkheads (thus lying flat on the bulkheads). It is important that the template lies flat on the bulkheads. Otherwise, the template won't be the right shape when you have marked it and your planks won't fit properly. You may find that you have to cut the template at a curve in some cases in order for it to fit in the available space.

Once the template is in place to my satisfaction, I use a compass to follow the curve of the plank above the template and mark that curve onto the template (Photo 2). Photo 3 shows the completed template. Notice that I have also marked the edges of each bulkhead on the template as well as the location of the end of the plank at the aft-most bulkhead. If your template does not fit accurately into the rabbet at the stem, you'll want to mark the angle of the stem as well.



Photo 2: Marking the poster-board spiling template.

Photo 3 shows the template lying over the planking material. You can see that I cut the template along the marked line with my hobby knife. I then transfer the line of the top of the plank to the planking material, along with the lines marking the edges of the bulkheads. These bulkhead marks allow me to put the plank into the right location. Photo 3 also shows a completed plank, but there's more work to do before we can get to that stage. We need first to determine the width of the plank at each bulkhead.

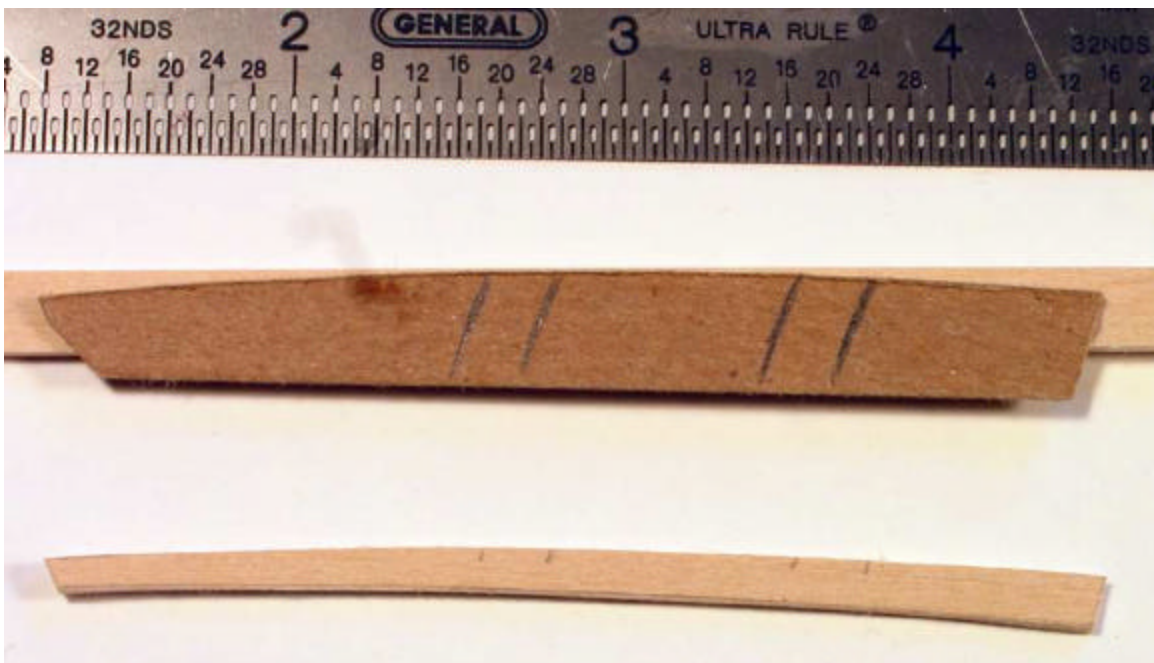


Photo 3: The template cut to shape (top edge) and the finished, tapered plank.

There are several methods of determining the width of the plank at each bulkhead. The low-tech, low-cost way involves using a “tic strip” -- simply a piece of paper or masking tape on which you mark the length of each bulkhead within the planking belt (to avoid confusion, I use a separate piece of paper for each bulkhead). Lay the paper along the outside of the bulkhead; make a pencil mark (tic) on the paper at the top of the bulkhead (the lower edge of the wale for this belt) and another mark at the top of the planking batten. This gives you the exact length of each bulkhead within that belt. Then, simply divide the space by the number of planks in the belt and you have your width for that plank at that bulkhead.

Dividing the space by the number of planks can be done mathematically, but there is an even easier way. On a piece of paper, draw a 2-inch horizontal line and a perpendicular 3-inch centerline (if you have a sheet of graph paper, it will make this much easier). Divide the horizontal line into 8 equal  $\frac{1}{4}$ -inch sections. Number the resulting marks 1 thru 9. From each mark along the horizontal line, draw a line to the top of the vertical line so that you end up with a triangular shaped object on your page as shown in Diagram 1. (Try to draw this accurately.)



Diagram 1: Triangle for equally dividing segments

Lay your tic strip over the triangle and move it up or down until the tic marks are aligned with two of the legs of the triangle. If you want to divide your tic strip into 5 segments, use legs 1 and 6. Be sure to keep the tic strip parallel to the horizontal base of the triangle. Once all is aligned, you can mark the divisions on your tic strip from the legs of the triangle.

Let's go through this whole process on bulkhead B. If this is the first plank below the wale, we'll need 6 planks to fill up the space (according to the planking diagram in the plans). Lay out your tic strip along the bulkhead and mark top and bottom (that is, from the lower side of the wale to the top of the planking batten). Lay the tic strip on your planking triangle with one mark on leg 1 and the other on leg 7. This will show you the 6 equal segments. Transfer the width of one segment to your plank (use dividers) where you marked bulkhead B and you have the required width of the plank at that bulkhead.

Repeat this procedure at each bulkhead and you'll see how your plank needs to be tapered. I repeat this process for every plank.

A similar, but slightly different approach that some modelers prefer is to mark the plank widths directly on the bulkheads, then transfer the measurements as needed to the planks. This certainly means less measuring with the tic strip, but you'll likely discover that your cutting won't be that perfect and error will creep in with every plank. It's more work to measure each plank, of course, but at least for me, it seems to provide better results in the long run. Try both methods and use whichever works best for you.

There is a more high-tech way of measuring plank widths, using a set of proportional dividers. These dividers are relatively expensive; however using them is faster and likely more accurate than dividing tic strips. But on curved bulkheads, you'll still need to get the exact overall length with a tic strip. It's probably best to just use the tic strip method for your first model. Then, if you are sure you're going to stick with the hobby, consider buying the dividers (Micro Mark is one good source). If you can borrow some from a fellow modeler, give them a try and see how they work for you. You'll find other uses for the dividers, so they can be a worthwhile investment.

In the center portion of the hull, you shouldn't need to spile planks (although, of course, you'll still have to determine their proper width at each bulkhead). The center planks can generally just be edge set. Photo 4 shows a straight plank positioned next to the plank above it. Note that there is a considerable gap in the center. On a real ship, this curve would likely be cut into the plank, but on a model it's acceptable and easier to edge set the plank. Once you've cut any required taper into the plank, simply push the plank tight up against the plank above it and glue in place. I use a small dot of medium CA at each bulkhead and yellow glue along the edge of the plank.



Photo 4: Edge setting a plank in the center of the boat.

The sharp bend in the planks at the stern (bulkhead R) gave me a considerable amount of trouble. I found it very difficult to bend the thick planks to such a sharp curve, even with

soaking and steaming. You might want to consider double planking in this area. The thin second-layer planks should bend around this curve quite easily and the first-layer planks can be shaped by sanding and/or carving.

Once Belt A has been planked, you'll need to decide if you want to plank Belt B or Belt C. If you plank straight down from the wale to the keel (Belts A, B, C in order), you'll likely find that you'll have a hard time fitting the garboard strake. I prefer to move to Belt C once A is planked, starting with the garboard strake, then finishing off the belt with the two broad strakes. Finally, I close in the boat with belt B, which tends to have the easiest-to-shape planks.

Marking the location of the planking batten for Belt C can be a little tricky. Photo 5 shows one approach. I clamped a piece of wood along the keel so the top edge of the wood was parallel with the edge of the rabbet. I used the extended base as a platform for my dividers. I know that, in Photo 5, the wood isn't exactly perpendicular to the keel but you'll notice that the slight angle compensates for the thickness of the pin on the dividers. As you can see, the point of the lower pin is, in fact, parallel to the edge of the rabbet. That's my story, anyway, and I'm sticking to it. I'm sure it has absolutely nothing to do with the fact that I wasn't paying attention when I clamped the wood onto the keel.



Photo 5: Marking Belt C.

At some point, you will finally finish the planking. It's a long job and one that requires a deal of care. I found that I would do well to get one complete strake on each side in one modeling session of 4 to 6 hours. In all, it took me more than a month to plank the hull.

With the outside of the hull planked, you can move on to planking the bulwarks. You should find that to be very easy indeed. Cutting the sweep port openings is less easy and I'll confess that mine are not the best. Drilling the hole is no problem, of course, but

shaping the slot where the blade of the sweep would have passed through is less easy. The basswood is soft and tends not to cut cleanly. I didn't have (and couldn't find) a file small enough or of the correct profile to shape the slots accurately. In the end, I cut them with a hobby knife. I'm not pleased with the results and it's at least one area of the boat where I wish I could have figured out a better approach that I could pass along to you. I'm afraid you're on your own here.

## Planking the Deck

Planking the deck seems like it should be easy after all the spiling we had to do on the hull planks. It is, however, a bit complicated and may well take longer than you might at first think. It took me several weeks to finish planking the deck.

The first thing to consider is the nibbing strake, which lies adjacent to the waterway. As you can see in Photo 6, this strake follows the curve of the waterway, so it must be cut to fit. On the real ship, this strake would, of course, not be cut from a single plank, due both to its length and amount of curvature. It would have been cut from at least three planks and the planks would be joined together using scarf joints. You cannot, however, throw these joints in just anywhere. You have to be aware of the deck planks that are cut into the nibbing strake. You don't want to make the mistake of putting a scarf joint right where a plank will have to be cut into the nibbing strake (and yes – it's the voice of experience speaking here). So, when you lay out the location of the scarf joints, keep them well away from the nibbing.

The scarf joints can be simple angled slashes or a more complex stopped shape such as the ones I used shown in Photo 6.



Photo 6: Scarf joints and nibbing

As you can see in Photo 6, I accentuated the joints between the planks to simulate the tar that would have been used as caulking on the real boat. There are several ways to achieve this look and the instructions list a couple. I used black construction paper. I first

cut and shaped the plank to its final dimensions. Then I applied a thin layer of yellow glue to one edge of the plank and set the glued plank edge down on a strip of black paper. When the glue had dried, I cut off the excess paper with a hobby knife. I added the paper only to one side of the plank and to one end. This is a very time consuming process but I happened to like the look of it. If you choose this method, take into account the added thickness of the paper when you calculate plank widths. I started at the centerline and planked my way outboard, making sure I had an equal number of planks on each side of the deck.

The kit instructions suggest planking around the hatch coamings and other deck openings. I think that's way more work than necessary. I planked the deck without regard to any openings then measured and cut the openings once the deck was planked. It looks the same to me and is much easier.

When you're laying out your butt-joint locations, pay attention to hatch coaming locations. Typically, there would not have been a butt joint in a strake immediately adjacent to a hatch. As you can see in Photo 7, I ran a plank across the front of the quarterdeck to hide the plank ends (not shown in the plans). This was common ship building practice because it protected the plank ends from exposure to water.



Photo 7: Quarterdeck

As you can also see from both Photo 6 and Photo 7, I added simulated plugs (that were used on real ships to cover the deck nails). This is somewhat controversial. On a real ship, the plugs are practically invisible from 10 feet away because they are typically the same material as the wood of the deck and the grain runs in the same direction. So it's arguable that they shouldn't be seen on a model (and there are many fine models in museums without visible plugs). Even if you use the same material for your plugs as your decking, they tend to come out darker because of the way the grain runs, making them a



prominent feature of the model. If you like the look, put them on. If not, leave them off – the choice is entirely yours.

I planked the cabin top with walnut, as the instructions suggest. It's more likely a real ship of this type would have had a painted canvas covering. But, I admit that I liked the look of the walnut decking. I finished my deck planking (both the basswood and the walnut) with a light brown stain (Minwax Puritan Pine) and a coat or two of Watco Natural Danish Oil.

In the next installment, we will build all the deck fittings. Additional pictures of my AVS are available on my web site at <http://modelboatyard.com>. Feel free to contact me by email at [jhearl@modelboatyard.com](mailto:jhearl@modelboatyard.com) if you have questions.