

Building Model Shipways' Armed Virginia Sloop – Part 1

Model Shipways' (MS) Armed Virginia Sloop kit includes instructions that are about as good as you'll find in any kit and far better than in most kits. However, the instructions aren't exhaustive and there are some things left to the ingenuity of the modeler. The entry-level modeler may have a bit of difficulty figuring out how to do some of the things required to build the kit. In fact, I would encourage the modeler who has never built a wooden ship model before, to start with a simpler kit just to learn some of the basics.

This mini-practicum should be viewed not as a step-by-step set of instructions but rather as an addendum to the kit-supplied instructions -- some hints and tips to get you around some of the more difficult spots. Also, you will do well to purchase Dr. Clay Feldman's work on building the Armed Virginia Sloop from scratch (available on the Progressive Scratch Building CD from Ships in Scale Magazine). In addition to great building advice, he provides valuable research information about this type of ship and it is his model on which the kit was based.

I suggest reading the instruction manual several times before you even start building. It helps to have a 10,000-foot view of the project before you become deeply involved in the individual steps. As you'll see, there's quite a bit of work ahead of you. It took me about 250 to 300 hours to complete this model. One of the biggest difficulties new modelers face is not the work itself but just having the tenacity to finish a long project. Try to treat each stage as its own project and you'll get through them all in the end.

Assembling the Center Keel and Bulkheads

There is quite a bit of work needed to prepare the hull for planking. I spent a good 30 or 40 hours on this stage. The work you do here is the foundation of the whole model, so you want to work carefully and make it right.

Start by removing the center keel and the frames from their sheets. Lay each part over the drawings on plan sheet 1 to verify that they are cut correctly. Although we are not dealing with space-program tolerances, everything should be reasonably close. When I checked my center keel, I discovered that it was more than 1/16-inch short, apparently due to a laser cutting error. MS sent me a new center keel that turned out to be longer than the plans showed it should be. But it's easier to shorten the keel than it is to lengthen it. In any case, it should be made to match the plans. If the center keel is the wrong length, it will affect the entire hull. If your center keel is too short, I'd suggest asking for a replacement part from MS.

You will almost certainly have to adjust the locations of the bulkhead slots on the center keel to match the plans. Add a shim (made from scrap) to one side of a slot and remove material from the other side as required. I needed to adjust more than half the slots. As you're adjusting the slots, check the fit of the bulkheads. You should be able to easily insert the bulkheads into the slots with a slight amount of friction, but they should not be so loose that they fall out. You need to be able to square the bulkheads to the keel when gluing them in place, so bit of play will help.

There are a couple of issues to be aware of with regards to laser cutting. First, the laser leaves a residue that must be removed. Few glues adhere well to this residue. You can use a single-edged razor blade as a scraper. A Perma-Grit sanding tool works very well in the slots for the bulkheads (and is useful for many other shaping and sanding tasks as well – I heartily recommend that you purchase one). Second, the laser does not make perfectly perpendicular cuts. This will be most noticeable on thicker pieces, such as the bulkhead slots in the center keel. Keep this in mind and square parts up as needed.

Once you've adjusted slot locations, check to make sure the center keel is not warped or twisted. If it is, try soaking it in water for a half hour or more, then leaving it to dry on a flat surface under heavy weights. If the center keel curves slightly from side to side, that can be corrected fairly easily when the bulkheads are squared up later. Twist, however, is much more difficult (perhaps impossible) to correct once you've attached bulkheads. If the center keel is twisted, the stem won't be parallel to the stern post.

Cutting the Rabbet

This operation intimidates many new ship modelers because the angle of the rabbet changes continuously from stem to stern. While getting this changing angle just right is pretty important in a real ship that needs to be water tight, it's not quite so critical in a model. The main thing is to make sure the rabbet is deep enough to receive the planking and, if the angle is a bit off or the rabbet is a bit too deep, it won't really matter once the planks are on. Don't do less than your best when cutting the rabbet, but don't worry so much that you fear you'll wreck the entire model if it's not perfect. Take your time, work carefully, and it should come out just fine.

Preparing the Bulkheads

Once you've checked the center keel and bulkheads for size, transfer the bevel lines for each bulkhead from the drawing to the bulkheads. The bevel is shown on the plan as a dotted line. I prefer to make a copy (or scan) of each bulkhead drawing so I don't have to cut up the plans. If you use a copier, make sure it copies at exactly 100%. Not all copiers are adjusted correctly, so it's worth checking.

Cut the bulkhead drawing along the dotted line at one edge and the solid line at the other. Hold the pattern in place over the bulkhead and mark the bevel area on one edge. Then, turn the pattern over and mark the bevel area on the other edge. Treat these merely as rough indicators of the amount of bevel to be cut. Do not go beyond the line when you are shaping before gluing the bulkheads in place! In fact, stay well shy of it. Final shaping will be done once the bulkheads are permanently installed.

The directions suggest using a hobby knife to cut the bevels. I prefer a sanding drum on a Dremel tool. Although I don't generally recommend that an absolute beginner buy much in the way of power tools, on this model, I think the Dremel will come in so handy, it's well worth the investment. My personal preference is the Model 750 Mini-Mite cordless. I find its smaller size easier to handle.

Note that for bulkheads A through E, the bevel is on the forward side of the bulkhead. For bulkheads J through R, the bevel is on the aft side. (The center bulkheads don't need to be beveled yet.) In order to keep myself organized, I like to orient all the bulkheads consistently. MS has made this easy for you by marking the letter of the bulkhead on the bulkhead itself. I keep every letter facing forward. This way, when I'm placing the bulkheads on the center keel, I'm always sure they are facing in the right direction. It's no fun to discover you've glued a beveled bulkhead on backwards!

While you're marking the bulkheads, extend the lines of the keel slot all the way to the top of the bulkhead on both sides. It will help you align the frames to the center keel later. I also marked the centerline of each bulkhead on the top and drew a line down the middle of the top of the center keel. This gives an alignment mark to make sure each bulkhead is centered from side to side. Other modelers mark the waterlines on both the center keel and bulkheads to aid in alignment. Use whatever method suits you best.

With all the bulkheads beveled, glue each separately to the center keel. Most of my bulkheads matched the plan drawings, but when glued onto the center keel, many of them didn't reach the bearding line. The tops of the bulkheads were even with the top of the center keel, but the bottoms were just too short. I had to add shims to the bottoms of eight or nine bulkheads (see Photo 1). It's important that the bottom of the bulkhead flow smoothly into the bearding line so the garboard plank will lay correctly. You'll find it easier to bend the shims if you cut the strips **across** the grain of a 4-inch wide sheet of basswood. That makes the grain of the shim run fore and aft (in relation to the hull) and it then easily bends to the curve of the bulkhead. I only ran the shims up to the turn of the bilge since the bulkheads were wide enough at that point. I found that one bulkhead needed shims above the turn of the bilge (that is, on the upper part of the bulkhead). I waited until I had installed the bow filler blocks and knightheads (Step 7 of Stage 1) before doing the final shaping of the bulkheads. As the instructions say, take your time and make it right before you plank.

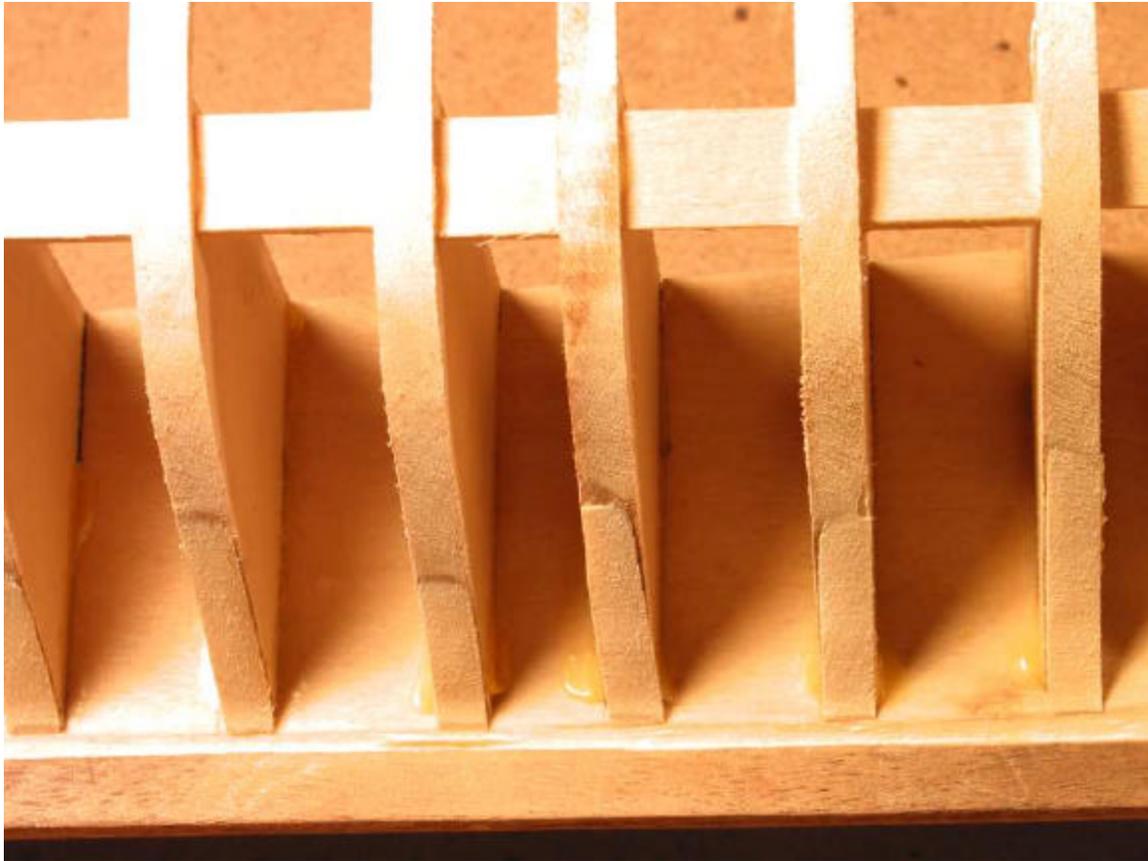


Photo 1. Shims added to bulkheads plus blocking between bulkheads.

You'll also notice in Photo 1 that I added blocking between each bulkhead. I glued these in BEFORE I started fairing the hull. The basswood bulkheads are rather flexible and benefit from the added support of the blocks, especially while you're fairing the hull. In addition, the blocking helps to ensure the bulkheads are parallel to the keel. Measure for each block on the hull itself by measuring the space between the bulkheads at the center keel. Cut two blocks exactly the same size and then you are assured that the outer ends of the bulkheads are the same distance apart as they are at the center keel. Step 5 of the instructions suggests using battens to align bulkheads but that permanent struts are better. I prefer the latter and feel that using the blocking eliminates the need to install temporary battens at all.

The Transom

I began building this area by shaping the curve in the wing transom. I cut the extra material off one edge then sanded the curve with a piece of 1-inch dowel wrapped with sand paper. Next, I added the stern frames, starting with the one closest to the center keel. I beveled the outboard side of that frame to match the angle of the window. It was useful to hold one of the laser-cut windows in place as I was sanding the bevel to ensure the angle was correct. I also used the windows to ensure that the remaining stern frames were placed at the correct angles and distances from the first one. The windows were not

precisely identical, one to another, so I labeled each window individually and made sure that while I was positioning the stern frames, I used each window in its eventual location.

The laser-cut windows also enabled me to place the headers and sills in the right positions. If you think ahead to when you will plank the transom, you'll find that it is nice to have one full plank below each window and two full planks above each (see Detail 3-P on Plan Sheet 3). You'll want a total of 6 planks on the transom, so if you work this out in advance as you place your sills and headers, it will improve the appearance of the planked transom.

Although the windows are installed much later (Step 16 of Stage 5), I was concerned that when I shoved the frames into place, they would have a tendency to fall right back into the cavity behind them. I put a small piece of strip wood on each side of the frame, far enough back from the edge so that the window would sit flush with the surface of the planks (taking into account the added thickness of the plastic I intended to put behind the window frames to give the appearance of glass). See Photo 2.

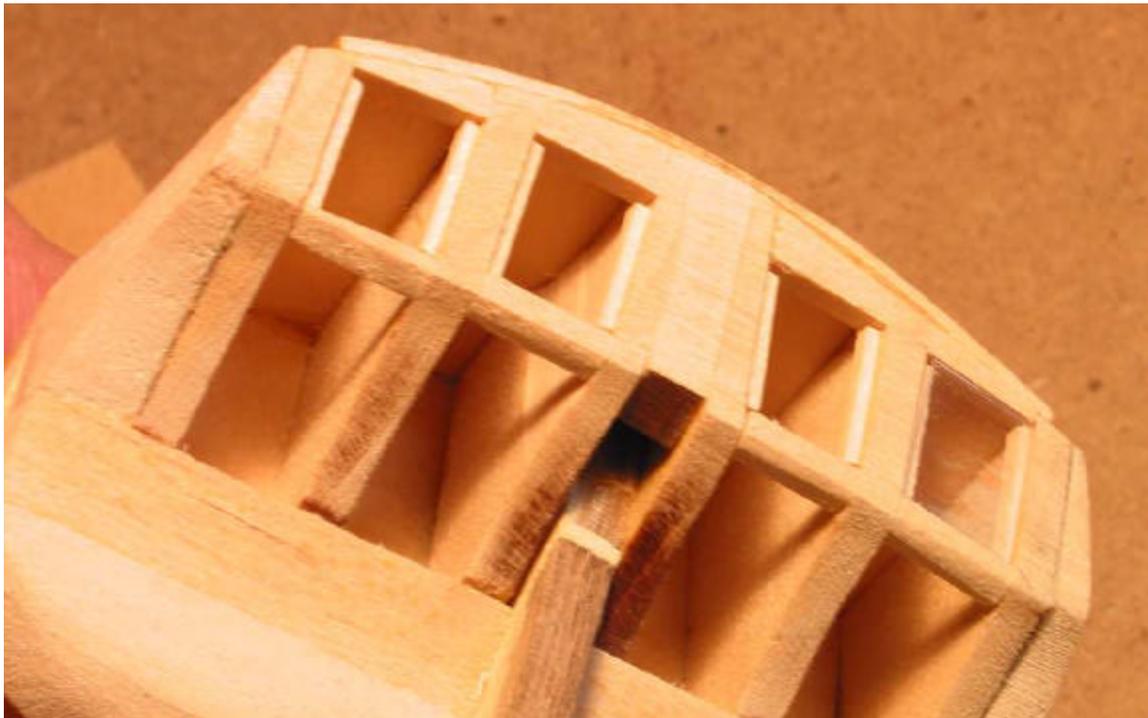


Photo 2. Stern frames with stripwood stops for windows

Shaping the Bow Filler Blocks

Rough cut these pieces using a bandsaw or coping saw. I made copies of the two side templates and glued them onto the block with rubber cement (a glue stick also works) in order to rough-cut the shape. Note that the top of the block rises toward the bow, so you'll want to make individual left (port) and right (starboard) blocks. Don't go overboard with pre-shaping the filler blocks – save most of the final shaping for after they are glued in place. You may find it easier to shape the front edge of the block along the stem rabbet before gluing though. As the instructions suggest, be sure you make

templates of the curve of the filler blocks. I made copies of the templates on the plans and rubber cemented them to card stock. You can carve and sand the blocks to their final shape just before you begin fairing the hull.

You will need to make and install the timberheads and knightheads on the filler blocks (Step 7 of Stage 1). I waited until I'd finished shaping the filler blocks before doing this. I seemed to have a hard time translating the 2D drawings to real 3D parts, so instead, I used the template for the upper portion of bulkhead A to shape the pieces from scrap wood. After cutting the notches, I used epoxy to hold these pieces into the filler blocks (Photo 3). Note: Although not apparent in Photo 3, the knightheads are taller than the stem. Refer to the plans for size.

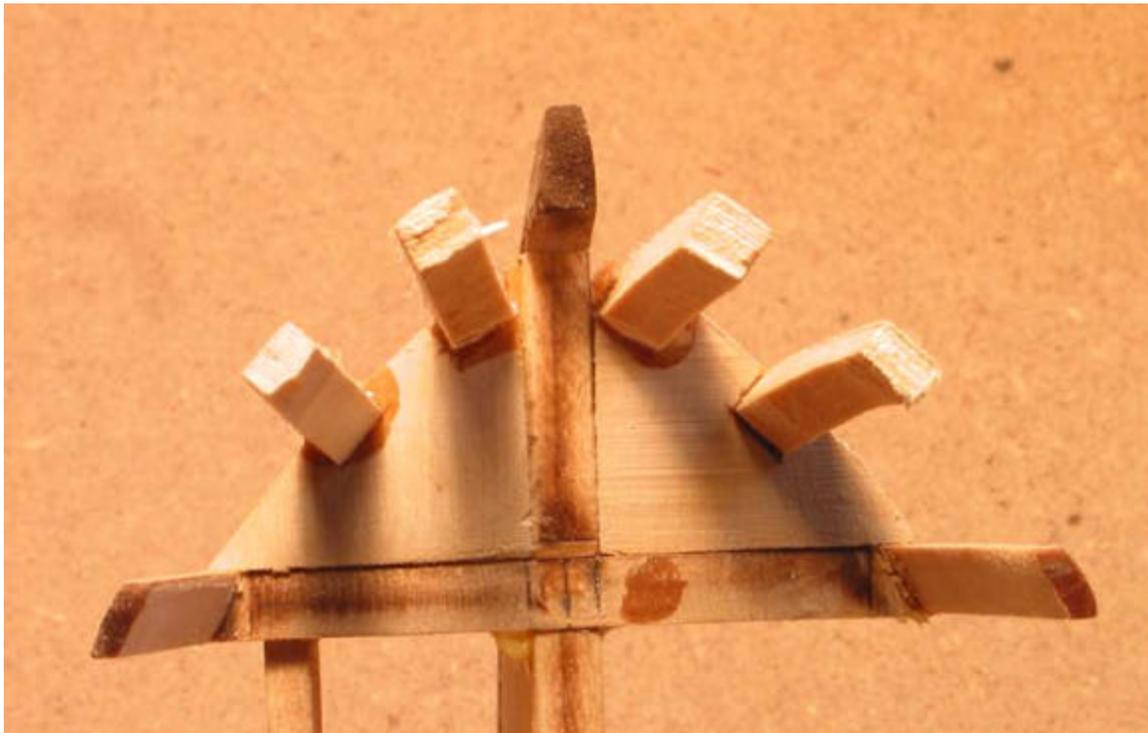


Photo 3: Timberheads and knightheads installed on filler blocks.

Once I had these pieces in place I realized that when it came time to plank the bulwarks, there would be nothing above the stem to glue the planks to. Although some of that area would eventually be cut out for the bowsprit, the bowsprit hole is round and I wanted a solid base for the planking around the hole. I filled up the space completely from the false timberhead (forward of bulkhead A) all the way to the bow with scrap wood (see Photo 4)



Photo 4. Bow filler material

Gunport and Sweep Port Framing

This step gave me a lot of difficulty. The bulkhead extensions are very fragile. As the instructions suggest, it may be wise to wait to shape the inside bevels of these until you've got the bulwark planking on the outboard side (Step 5, Stage 1). I didn't and paid for it by breaking off several extensions – some more than once. In addition, there was very little gluing surface for the gunport frames and sweep port blocking and they kept getting knocked off also. On the other hand, you're instructed to install the false deck and waterways in Step 10, while the bulwark ceiling planks don't go on until Stage 2. The insides of the extensions need to be beveled in order to install the waterways.

You might consider installing full-height blocking between each and every frame to create a good, solid planking surface. You can cut the gunport openings later and shape the insides of the bulwarks and blocking after the outsides are planked. (A sanding drum on a Dremel tool is very effective in shaping the insides of the bulwarks.) You can install the false decks in Step 10 or later, as you like. Once you've shaped the insides of the timberheads and blocking, you can install the waterways.

Setting the Quarterdeck Beams

In Step 10, you're told to install three deck beams, two of which are for the quarterdeck. The beam forward of bulkhead N is easy to locate because the beam has the same camber

as the bulkhead. The beam that is to be glued to bulkhead O, however, has a different camber from that of bulkhead O. You want to make sure the beam is level. First, mark the center of the beam. Then, clamp the beam to bulkhead O such that the tops of the outer ends of the beams are even with the tops of the outer ends of bulkhead O (see Photo 5). Make a mark on bulkhead O at the center of the beam. Then, set the beam into its slot on the center keel and measure the distance from the mark you made on bulkhead O to the top of the beam (mine was about 20mm but yours may be slightly different). Use that same measurement to place marks at the outer ends of bulkhead O (20mm down from the point where you originally set the top of the beam). That will show you where you need to locate the ends of the beam so the beam is level.

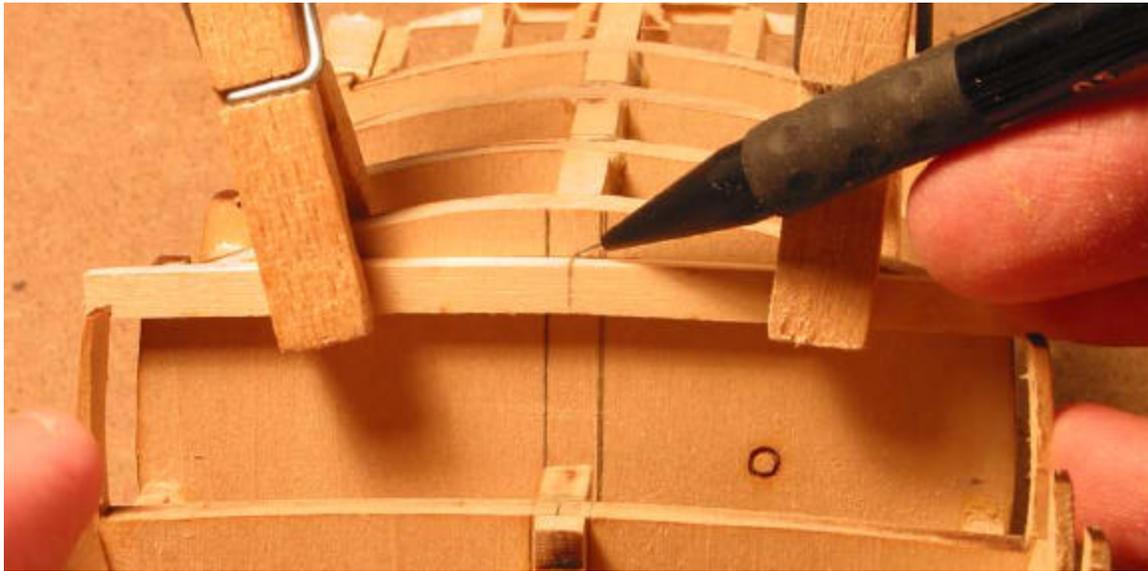


Photo 5. Marking the quarterdeck beam location

In the next article, we'll begin planking the hull. 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 if you have questions.