

## **Bluenose II – Part 1**

This series of articles is designed to take you step-by-step through the building of Artesania Latina's (AL's) Bluenose II. Rather than building the kit "out of the box", we'll make a few simple modifications along the way to produce a model that more closely resembles the real vessel.

### **Setting Up Your Workspace**

You won't need a whole lot of space to build Bluenose II. A card table, a desk, or even the kitchen table will work. It's easier if you can leave your workspace set up for the duration of the project though and for some steps, you'll need a flat, smooth, hard surface. Also essential is good lighting. Better to have too much light than too little. Ship modeling can be hard on the eyes no matter what your age and having too little light just adds to the strain.

### **Recommended Hand Tools**

You will need several tools to complete your model (many of them shown in Photo 1):

#### **Cutting implements**

- Hobby knife and extra #11 blades
- Single-edged razor blades
- Cutting surface
- Small block plane or razor plane
- A razor saw (with miter box as an option)
- Small wire cutters
- Cuticle shears (for snipping rigging lines)

#### **Measuring devices**

- 6-inch ruler with both metric and inch scales
- Compass and dividers
- Small draftman's triangle
- Small machinist's square

#### **Shaping tools**

- Sandpaper in various grits from 80 to 400
- Sanding block
- Perma-Grit flat sanding bar (also useful as a straightedge)
- Needle files

#### **Drilling tools**

- Set of small numbered drills (#60 - #80)
- Pin vise to hold the drills
- Optional electric hobby drill such as Dremel Mini-mite cordless

#### **Holding Tools**

- Fine needle nose (smooth jaw) pliers
- Miniature round nose (smooth-jaw) pliers



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### Extra wood and metal

We're going to be making some minor modifications to the model as we go along, so you'll need a few extra supplies as follows:

- 1/16" thick basswood sheet – 3 (this comes in a 3" or 4" wide sheet, 24" long)
- 1/16" square basswood strip x 24" length – 12
- 1/16" x 3/32" basswood strip x 24" length – 5 or 6
- 3/16" birch dowels – 2
- 1/4", 5/16", 3/8" birch dowels – 1 each size
- .021", .028", .033" and .040" straight hard brass wire (not on a coil) – a few pieces each size
- 24 gauge black annealed wire – 1 coil (usually 100 ft.)

### Working With Scale

For those of you who slept through math class in school, the bad news is, you'll need to use some mathematics in building ship models. The good news is, it's pretty simple. Since models typically represent real ships, every part of the model has to be scaled down from real size to model size. Our Bluenose II kit uses a scale of 1:75. This is a simple ratio that means one unit of measure on the model is equivalent to 75 units of the same measure on the real ship. It makes no difference what unit of measure you choose. So, 1 mm on the model equals 75 mm on the real ship. 1 inch on the model equals 75 inches on the real ship. 75 feet on the real ship equals 1 foot on the model.

Scale can also be expressed in specific units of measure. For example, 3/16-inch = 1 foot is a scale commonly used for models from American kit manufacturers. If expressed as a ratio, this scale is equivalent to 1:64. The 1:75 scale of Bluenose II expressed in inches would be about 5/32-inch = 1 foot and as you may imagine, this could be a little difficult to work with. One great advantage to the metric system is that it's much easier for dividing and multiplying. If you know you need to cover a space 50 mm wide with 5 planks, it's easy to see that each plank needs to be 10 mm wide. If you need to cover a 2-inch space with 5 planks, it may take you a while to determine that each needs to be 13/32-inch wide. By the time you've finished building Bluenose II, you should be quite comfortable working with both measurement systems. Using a ruler that has both millimeter and inch markings on it will speed the learning process considerably.

### Additional Reference Material

There is very good documentation available for the real ship from the Bluenose II Preservation Trust in Lunenburg, Nova Scotia, which maintains Bluenose II for the Canadian government. One book that is an absolute must (we'll be referring to it throughout the series of articles) is called "Bluenose II Saga of the Great Fishing Schooners. Measured Drawings by L.B. Jenson". This book contains wonderful drawings of the real vessel that will allow us to compare the model to the real ship all through the building process. If it's in your budget, consider also buying the video of

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Bluenose II's 1997 cruise. It's great for determining colors as well as seeing the real boat in action. You can contact the Trust online at <http://www.bluenose2.ns.ca> or by phone at (902) 634-1963 or 1-800-763-1963.

### **Taking a Look at the Kit**

Let's take a look at the kit and see just what we've got. You'll see a bunch of sticks - some round - some flat - some slabs of plywood with shapes cut into them, and a couple plastic boxes full of little bits and pieces. Now, what I'm about to say will seem like blasphemy to many an experienced modeler, but I'm going to tell you to not worry about doing a complete inventory of the parts.

The way AL lists its parts seems designed to completely frustrate most of us. Rather than simply listing the exact contents of the kit, AL provides the finished cut lengths of various parts. For example, bulwark rails are listed as 1.5mm x 5mm x 300 mm. Every 1.5mm x 5mm stick in the box is 600mm long. You have to cut the two short pieces from the long one. This makes it really difficult to add up all the cut lengths to see if you have enough 600mm pieces. Worse, a piece of wood that is called Oregon Pine looks exactly like another piece called Ramin. Very confusing.

In some cases, you probably should go ahead and count parts that are unique enough that you couldn't easily reproduce them yourself, such as the turned brass parts, some of the cast metal parts, and the pre-cut wooden parts. But for brass strip and wire and even most of the strip wood, just verify that there's some in the box and let it go. You can find those things practically anywhere or order them online if needed. Don't obsess over any of it. We have much more interesting challenges ahead of us!

### **Look at the Plans and Instructions**

Although this series of articles will take you through every step of the construction, it can't hurt for you to read the instructions provided by AL. Sometimes, we'll even follow them. As well, take a look at all the plans. This provides a sort of visual roadmap of the steps that will get us to the end. Before we go any further though, let's talk about building an accurate model. The AL kit is rife with inaccuracies and we'll talk about these more as we go along. Some we'll correct, some we won't. Aside from that, however, we are going to have to make some compromises because of scale. Making shackles or real eye splices at this scale is pretty tough so we'll simulate things of this sort. Our ultimate goal is to create a model that looks as much like the real ship as possible given the limitations of scale and our abilities.

### **Let's Get Started!**

Our work place is set up, we've got our tools ready, the plans and instructions are close to hand. It's time to get building at last. Find the large plywood sheet that has the keel and the bulkheads cut into it. It's the largest and thickest of the big sheets. Before you start removing any of the bulkheads, let's label them (in pencil) so we know which is which. This is a good time to label the parts on the other large sheets as well - especially on

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sheet 20500-1, which has a lot of small pieces, many of which are identical. Don't remove any of the parts from the large sheets though until you actually need them. You'll find a piece of paper in your kit with drawings of each of the large cut sheets.

I like to label my bulkheads just above the keel slot so the numbers are always in a consistent location and all oriented in the same direction. If your plan sheet is as hard to read as mine, you may find it difficult to tell which is bulkhead 8 and which is bulkhead 6. Make sure you measure and mark them correctly.

Carefully remove each bulkhead and the keel from the plywood sheet. Lightly knock the fuzz off the edges with a bit of fine sand paper. Don't over do it – you don't want to change the shape of the part – just clean it up a bit. Lay the keel over your side view plan and mark the number of each bulkhead under its corresponding slot. Mark on both sides of the keel so that no matter which way you hold it, you can always make sure you're putting the right bulkhead in the right slot.

We should check at this point to assure that the bulkheads are symmetrical. It's a little bit of extra effort but it will pay off later. Lay each bulkhead face down (fuzzy side up) on a sheet of clean paper and carefully trace its outline. Write the word "FACE" on the paper so you can tell that the face of the bulkhead was against that side of the paper. Cut out the paper bulkhead as accurately as you can with a pair of scissors, including the keel slot. Now, fold the paper in half such that the top corners meet exactly and make a crease in the paper. This will give you the centerline of the bulkhead. Transfer this centerline to the bulkhead – both on the forward side and on the top edge.

You may find that the slot is slightly off center. The slot is also probably not wide enough to slide over the keel. Use a file to open up the slot a bit and center it up (the Perma-Grit sanding tool works well for this). If the slot is WAY off center, you may have to glue a sliver of wood to one side as you file away wood from the other. I didn't find this necessary when I built the kit. All the slots were too narrow to fit over the keel, but some had to be widened to the left, some to the right, and others to both sides. Try not to make the slot any wider than necessary. It should fit snugly over the keel – not so loose that it flops around and not so tight that you have to force it into place. You'll need a little wiggle space so you can align the bulkheads square to the keel later. Also, make sure that the top of the bulkhead is exactly even with the top of the keel. You may need to deepen the keel slot in some cases. **DON'T GLUE THIS BULKHEAD IN PLACE!** Test fit each bulkhead first before you glue anything. Repeat the above process for each bulkhead. You may need to open up the slots in the keel itself. Any or all may be too narrow for the bulkheads to slide in easily. I usually pick one side (such as the forward side) and file only on that side. Try to keep the sides of the slots parallel and square.

Once you've opened up the slots in the keel and tested all the bulkheads, remove the two false decks from the large sheet. Mark a centerline down the length of each false deck on both sides. Put bulkheads 8 and 8A into the keel temporarily (don't glue). Lay the rear false deck down on a table, then align the keel along the centerline of the false deck, making sure that the front edge of the false deck is even with the forward edge of

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bulkhead 8. Now, mark the slot locations on the centerline of the false deck with a pencil. Do the same with the forward false deck, butting the rear edge of the false deck tight against bulkhead 8 (lying on top of 8A). Note that the keel has a pronounced curve on the forward section. You may want to place a small piece of scrap wood under the middle part of the deck so you can get the deck tight to the keel for marking.

After the slots are marked on the false decks, use a small drafting triangle to extend the lines all the way to the edge. Transfer these lines around the edge and across the top of the false deck so you have each bulkhead position marked on both sides of the false decks. We'll use these marks later to help align the keel.

Finally, it's time to open up those glue bottles. We'll start with medium viscosity CA. Starting with bulkhead number 2 (the first bulkhead) dry fit the bulkhead and check to make sure you can square it up to the keel. Use a small machinist's square or triangle held tight against the keel and the bulkhead. File the slots a bit if you can't make the bulkhead square to the keel without forcing it. If you can square everything up, remove the bulkhead and put a drop of CA in the bottom of the keel slot (no need to be too stingy with the glue, but don't have it dripping all over either). Place the bulkhead back onto the keel and hold the square against the bulkhead to make sure everything is square. Also be sure you align the center mark on the top of your bulkhead to the center of the keel. The CA will set up in about 15 or 20 seconds and then you can remove the square.

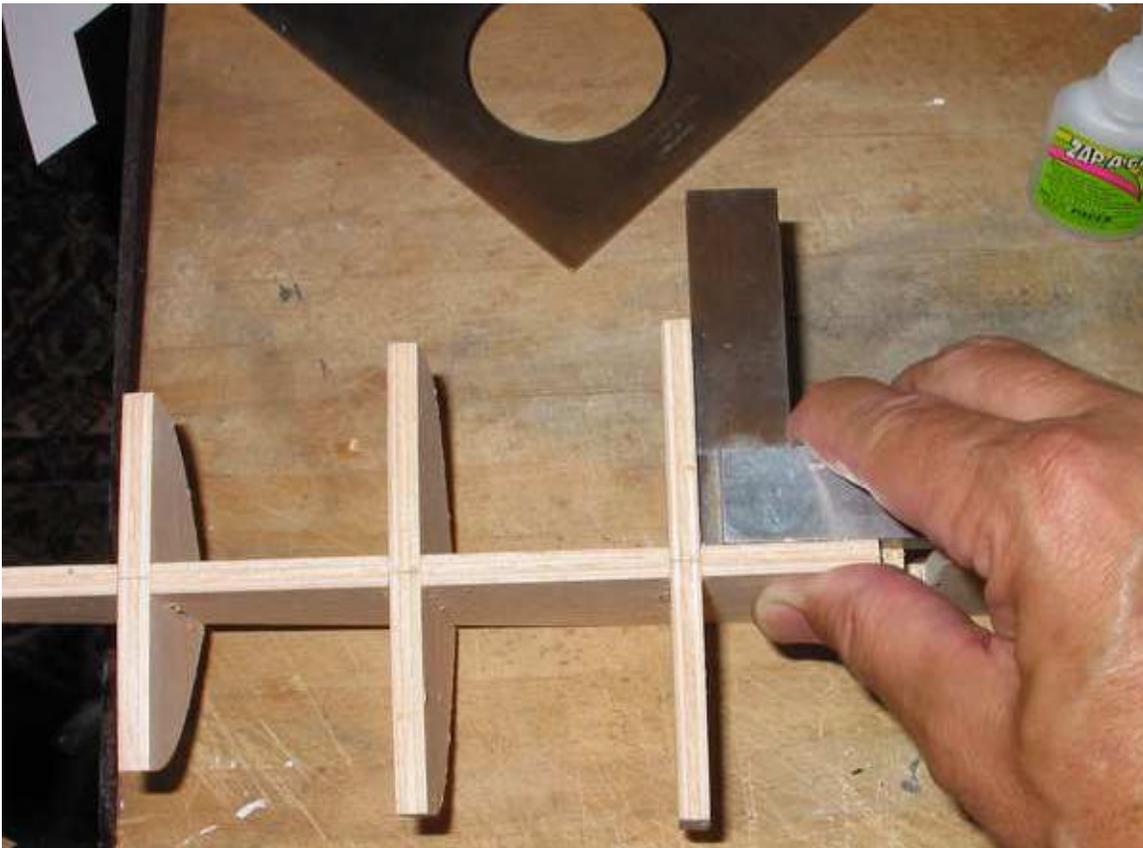


Photo 2: Aligning the bulkheads

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Repeat this for each bulkhead from 3 through 13. On some of the larger bulkheads, you may find it helpful to put a drop of CA on the forward edge of the keel slot as well as at the bottom. Our goal here is to make sure that each bulkhead is square to the keel at that particular point. Your keel may be slightly warped, but we can take care of that later as long as we have each frame correctly aligned. Bulkhead 14 will need to be chamfered on its lower edge so it fits flush against bulkhead 13. Make sure bulkhead 13 is well glued before you try to fit 14. Leave the top of bulkhead 14 alone for now – file it down later when the glue is dry.

Once all the bulkheads have been installed, turn the whole assembly upside down on a piece of waxed paper. Apply a good-sized blob of yellow (aliphatic resin) glue to the joints between the bulkheads and the keel and brush it out evenly. We're essentially creating a fillet of glue that will give a bit more strength to the whole assembly. Leave this all alone over night. This assembly **MUST** be thoroughly dry before going to the next step.

### **Fitting the False Decks**

Place the aft edge of the forward deck squarely against the forward side of bulkhead 8, making sure it's even side-to-side, and secure it with CA glue and nails. (We may be putting quite a bit of stress on these joints, so the nails are necessary. Move forward to bulkhead 7 and make sure that the bulkhead is aligned with the line you drew on top of the false deck as well as side-to-side. Again, secure with nails. Repeat for each bulkhead. It should be apparent now, that if the bulkheads were aligned perpendicular to the false keel and the bulkheads are then aligned to the deck, we will wind up with a perfectly square keel/bulkhead assembly, no matter if the keel was slightly warped.

Repeat this procedure with the aft false deck, starting with bulkhead 8 and moving aft. Of course, you will have to file down the top of bulkhead 14 before you can do this. Once you're sure that everything is aligned the way you want it, brush on a good amount of yellow glue at each joint between the keel/bulkhead assembly and the false deck. Allow to dry thoroughly.

Next time, we'll start the planking.