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This tutorial is the result of a collaborative effort to support a new model builder in successfully planking his model of the Virginia Pilot Boat *Swift*. After working with the builder to trouble shoot the issues, a solid half hull model was carved and the planking applied. The entire thread is an example of the value of this forum in assisting with resolving problems during a build!

Note that this is the first planking but is being done as an exercise for the final finishing one, done with thinner wood. The first is 1.5mm. thick, the finished one is 0.6mm.thick.

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Introduction

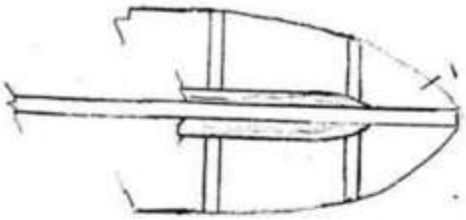
Many model ship wrights approach planking the hull with a great deal of fear and trepidation. It doesn't need to be that way! You CAN plank a complicated hull without losing your fingers, family, or sanity. It takes some time, and like so many other parts of building a model, some forward planning before putting saw to wood!

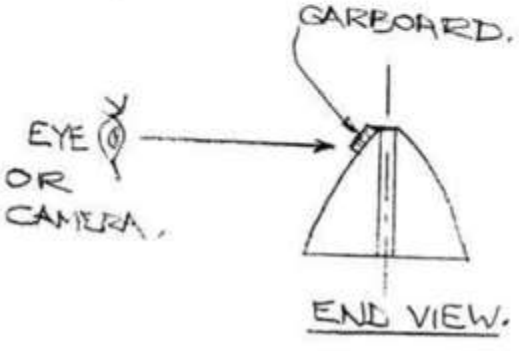
This tutorial is laid out in a sequential manner to guide you through the process. We start with some of the tools and then the terminology. Please note that what we are presenting is just one way of doing this – not the only way!

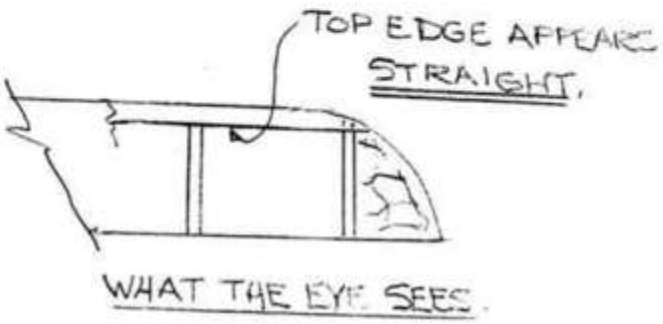
Tools and diagrams

The first photo shows my home made wooden plane for tapering, & the next one is what I consider to be the best tools for planking (plank bender not shown).

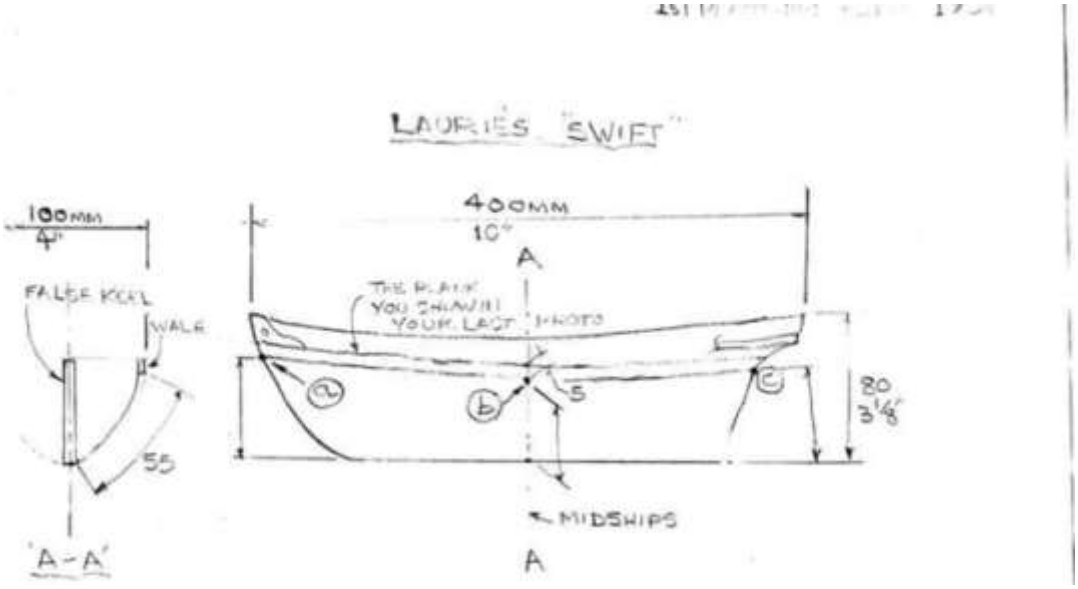
Views of the model hull used in this tutorial.







Key dimensions on the *Swift*



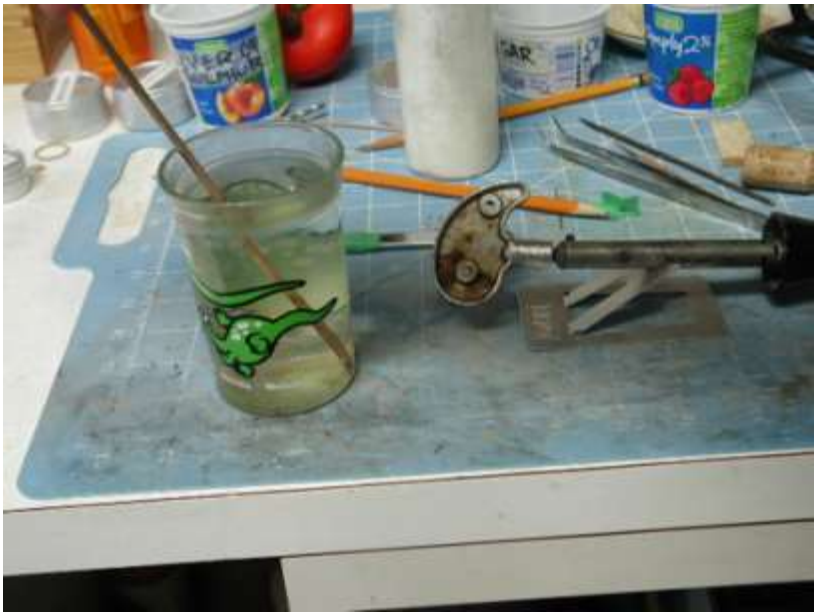
The Beginning

I made a half solid hull of the *Swift* in order to see close up what the hull looks like & I am going to plank along side of you. I thought I would install one or two planks & you can do the same. I have a slight advantage because it is solid hull (made from fir construction timber--we have lots in B.C.) & only the starboard side. For planks I am using some dimensioned pear, not a very good wood, but bends easily.

The Wale plank.

I used a 1.5 x5 mm strake. no taper. Just chamfered the end to match the stem. A long plank like this one CAN be bent laterally to conform to the deck sheer, although they tell you it should not be done.

Dip the plank in water for twenty seconds.



Apply heat with 50 watt plank bender

The Garboard Strake.

For the garboard I also used a 1.5 x 5mm. plank (at scale 1:50 that equals a 10" board). On the real ship they probably used a wider board, maybe 12", however we had better stay with kit material supplied. The garboard is almost parallel along its length but I planed a short length at the bow along the TOP edge & chamfered the bottom edge to match the stem. I do a lot by eye & keep offering up the plank to see if it fits. There is very little bending to be done on the garboard. It does twist almost to a vertical position at the stern. Again--- it's all by EYE. The next plank to this one is harder to do.

Lining Out the Hull.

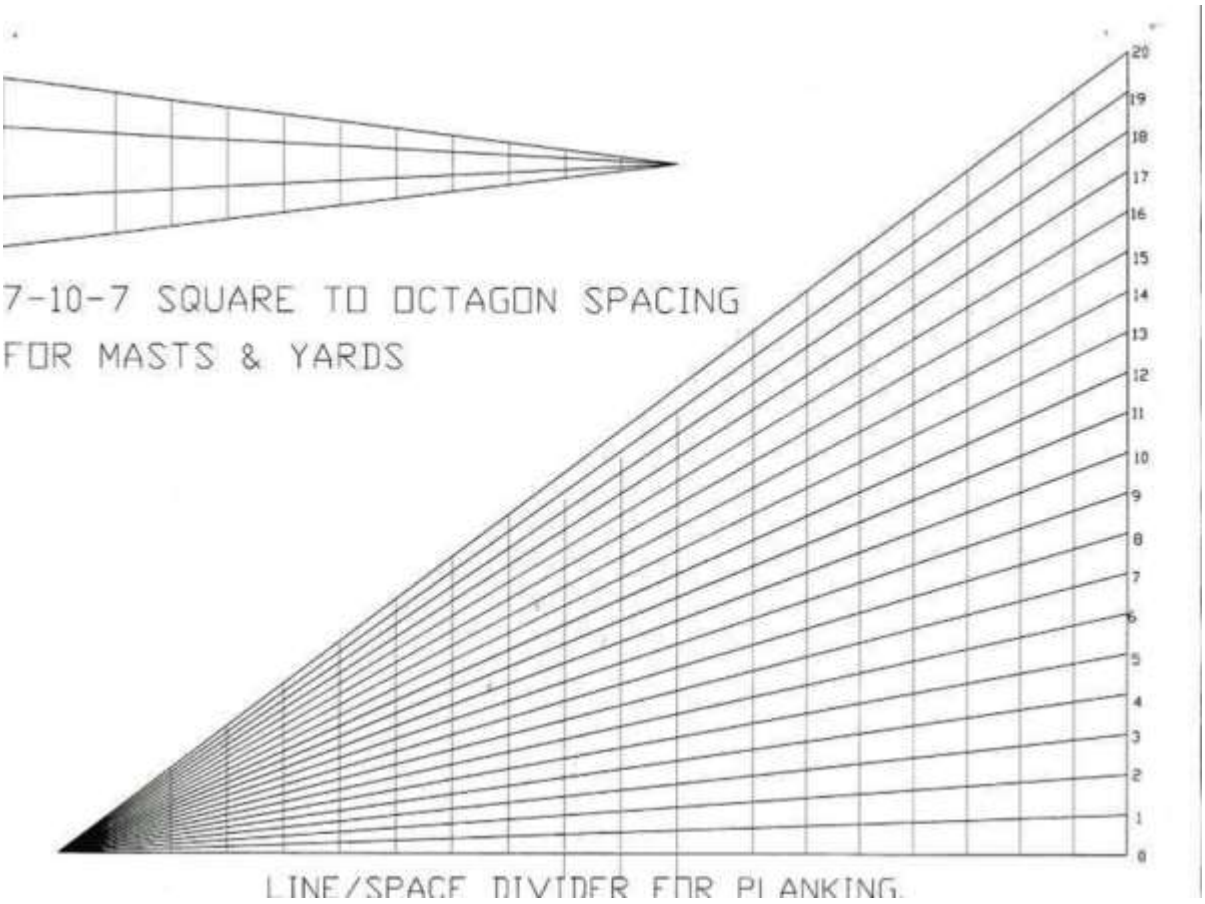
The next step should be lining out the hull. Cut as many 20mm. wide strips of card as there are bulkheads. Pin or hold one strip touching the bottom of the first plank & up against the midship bulkhead. Wrap it around the curve of the bulkhead & up to the top of the garboard. Bend the card well into the corner & make a mark with a pencil. Measure it. What is the measurement? Be as accurate as possible. Is it the same on the port side as the starboard?

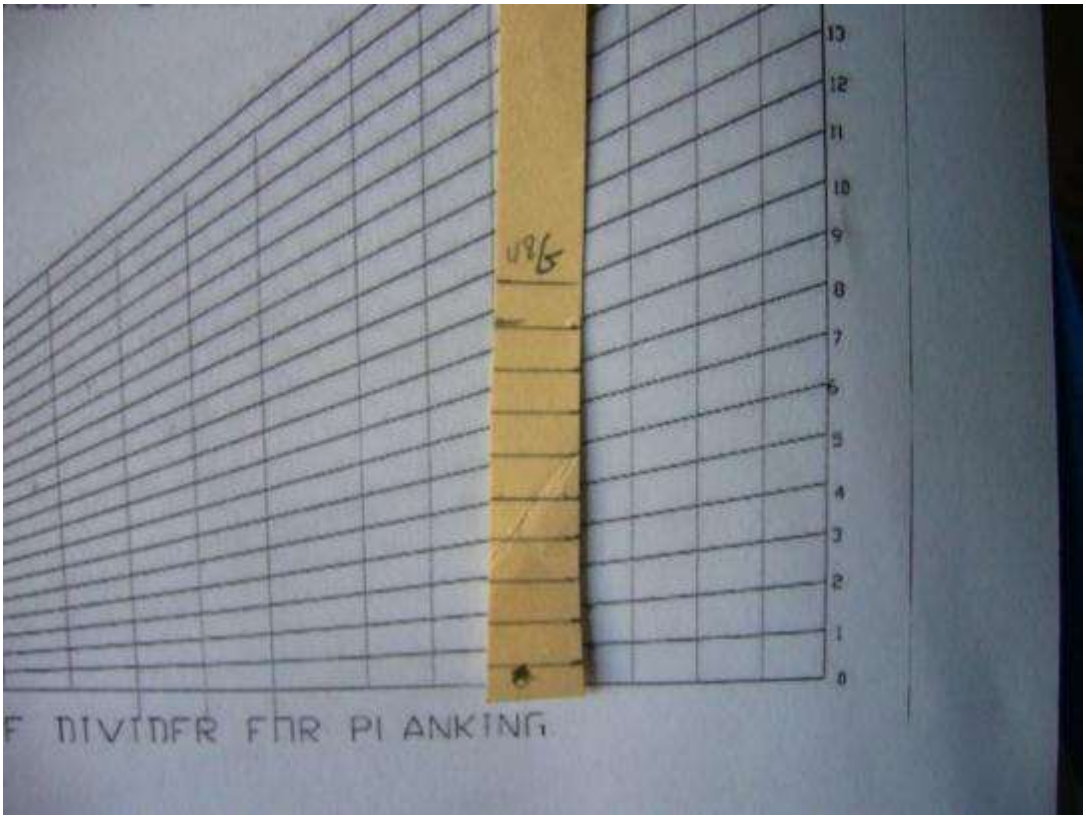
You need not measure them all, just the midship or closest to midship would suffice & that length on the *Swift* is 48mm. The planks are 5mm. wide. **Divide 48 by 5= 9.6**

Go to the next highest number = 10 planks at 4.8 mm. wide. Write down 10 on a piece of paper. It's the magic number.

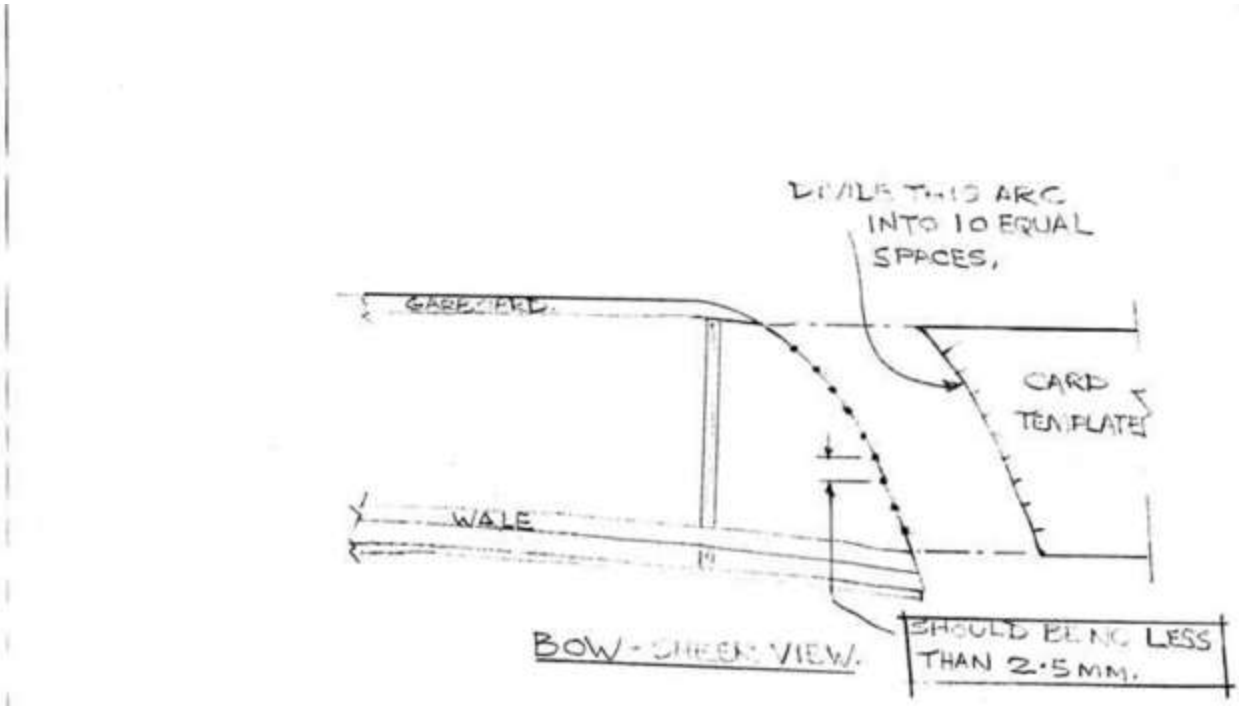
Next you have to divide this length by 10 with tick marks & the easiest way is with the attached print. Print it out. It is not to scale. Take your tick strip & place it on the "Line/space divider for planking" with the bottom along the base line. Move it horizontally, keeping it vertical along the base until the tick denoting the garboard position aligns with the NUMBER 10 line. Hold it there

& make ticks on the strip at all of the sloping lines, 1 to 10. You have divided the strip into 10 equal parts without measuring anything.





Lay the strip onto the bulkhead & transfer these marks onto the bulkhead itself.



Temporary Battens

Let's go onto the next bit: putting in temporary battens, although *Swift* is a fairly small boat/ship, I think it would be better to use black cotton thread instead of wood.

The idea behind this is to lay out the planking in belts of three or four strakes for easy measuring & to see if they follow a nice "sheer" bow to transom.

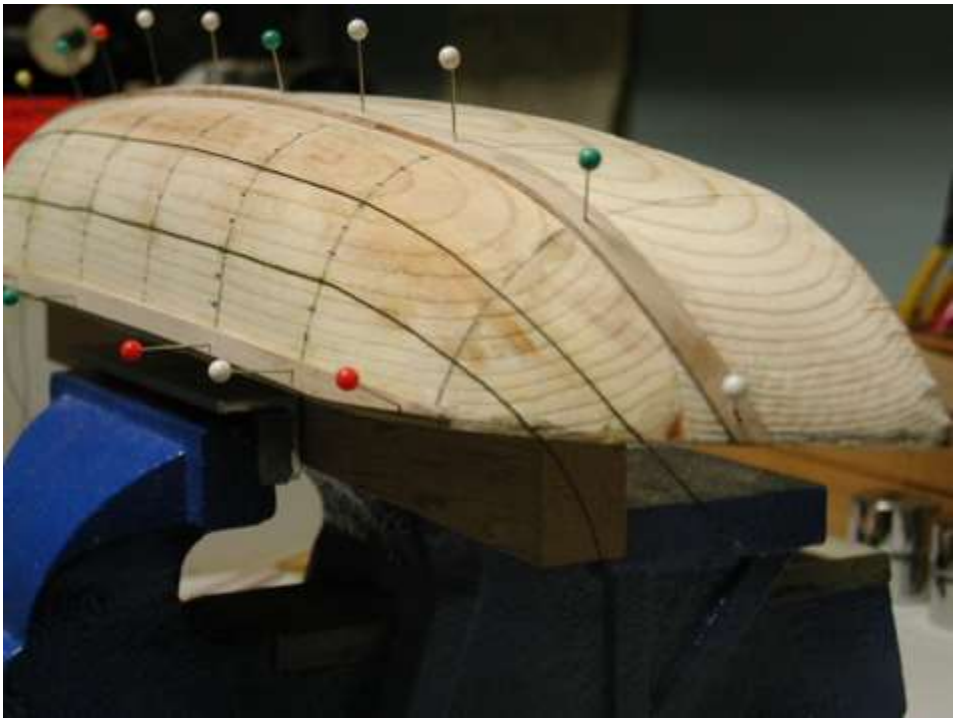
Swift is fairly small & I would think splitting the belts (from garboard to wale) into 3, 3 & 4 strakes might be best.

If you decide to use black cotton thread, buy some airplane cement (the stuff which airplane modelers use for gluing balsa) & add a drop at the SKEG & at the FOURTH (yes I said fourth, because the garboard was cut short) mark up from the garboard. Let it partially dry & hold one end of the thread in the glue. Wait again & the thread should hold. Take it to the next dot & glue, then the next & so on till you are at the STEM. Do both sides. Continue with the next belt, another three strakes up. That leaves you with a belt of four.

I did not like the thread idea at first, so if you reach a similar conclusion, you could go to very thin flexible battens. as Underhill shows. He tied his battens on to frames. You would have to pin or glue yours onto the bulkheads. You might have to pre- drill the battens for pins. Remember however these are temporary & as you lay the strakes, they will be removed. Before even laying the strakes you may have to adjust them here & there, so the whole exercise will rely on your eyes & your judgement.

Wale & garboard installed. Lining out done.

Notice the black thread curves sharply down following the dots at the STEM. Adjustments can be made to the thread & in the next photo I did just that. I undid them two bulkheads back & re-glued so that the curve is not so pronounced. They no longer are attached to their respective dots but it has not made too much difference to the spacing. A more natural curve is attained though. Please don't be afraid to do likewise on your ship. Sight along the threads at different angles.

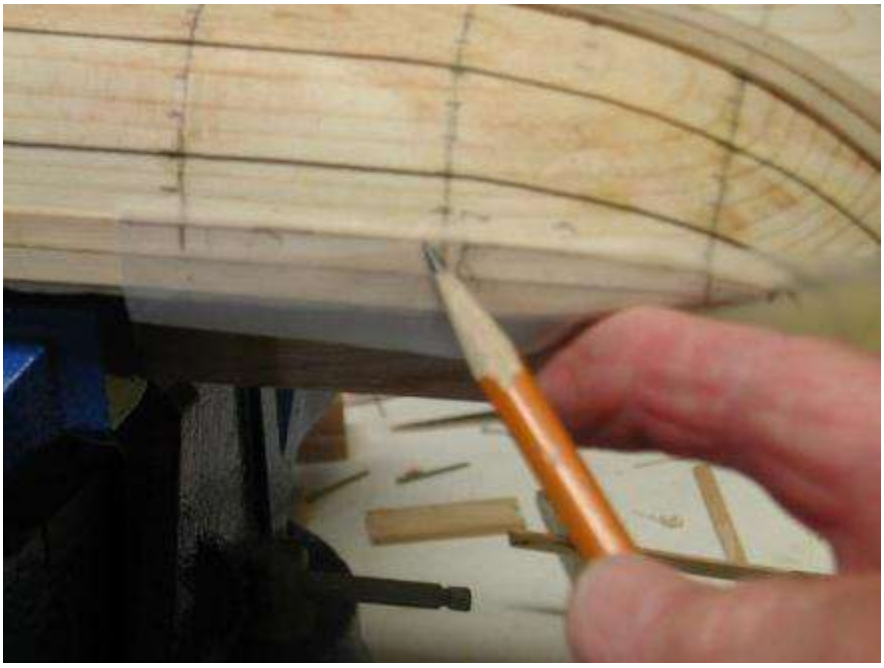


Measuring and Installing the planking

The following photo shows the next plank up from the garboard (I am ahead of you as you can see). This plank I cheated a bit by soaking the end no more than twenty seconds & applied heat laterally. Then more by eye than anything, planed a taper on the top edge. Kept offering it up to see if it matched the top edge of the garboard & pinned in place. As you can see it is more or less a copy of the garboard.

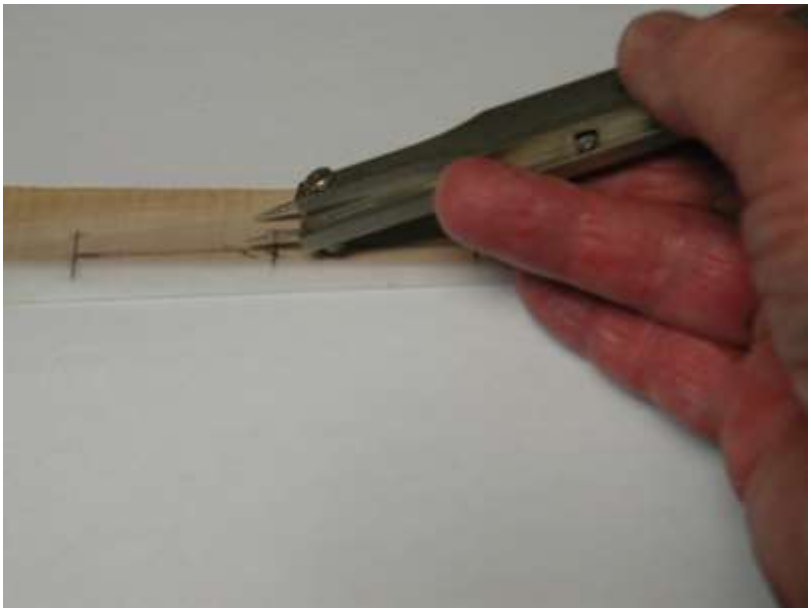
Disregard the plank above it. I am checking to see the amount of curvature at the end. It will require a wider plank to spile it.

I use my proportional dividers to measure the distance between the bottom of the wale plank to the black thread to get the new width of the plank. Now that you have adjusted the threads in the bow area, there may be **slight** differences in the spacing but this will be compensated for by adjusting the divider setting to the remaining number of planks to be inserted.



A strip of transparent 20mm.wide tape, going from bow to about the second bulkhead aft, is pressed down on the upper edge of the last plank & a pencil is rubbed along the edge. Ticks are added representing the centres of any bulkheads. Be careful to press the tape down from aft to forward so that the tape does not buckle. Buckling may produce the wrong curve!

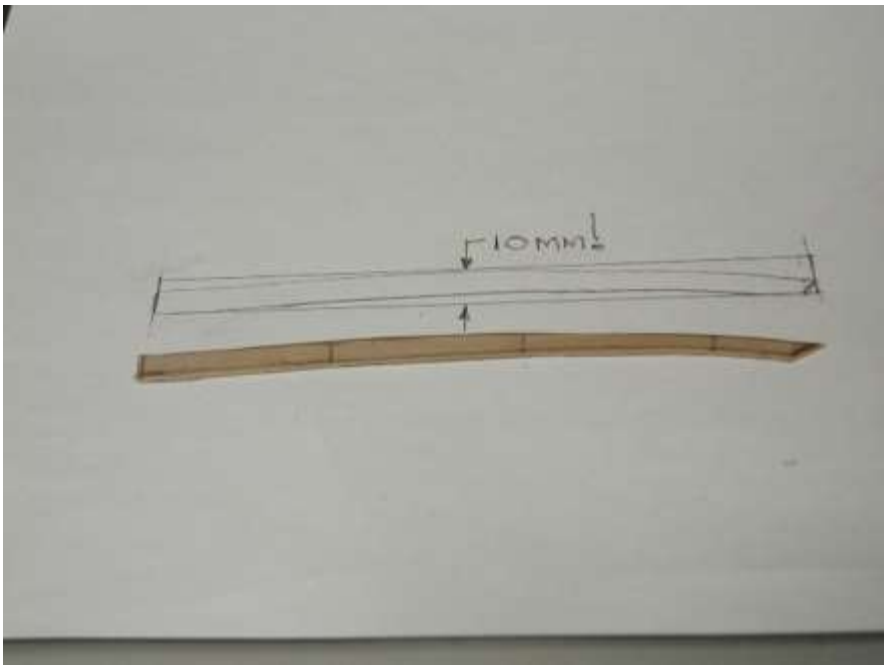
The tape is then transferred to a wider plank (10mm). You are reproducing the first curve onto the mating one above it.

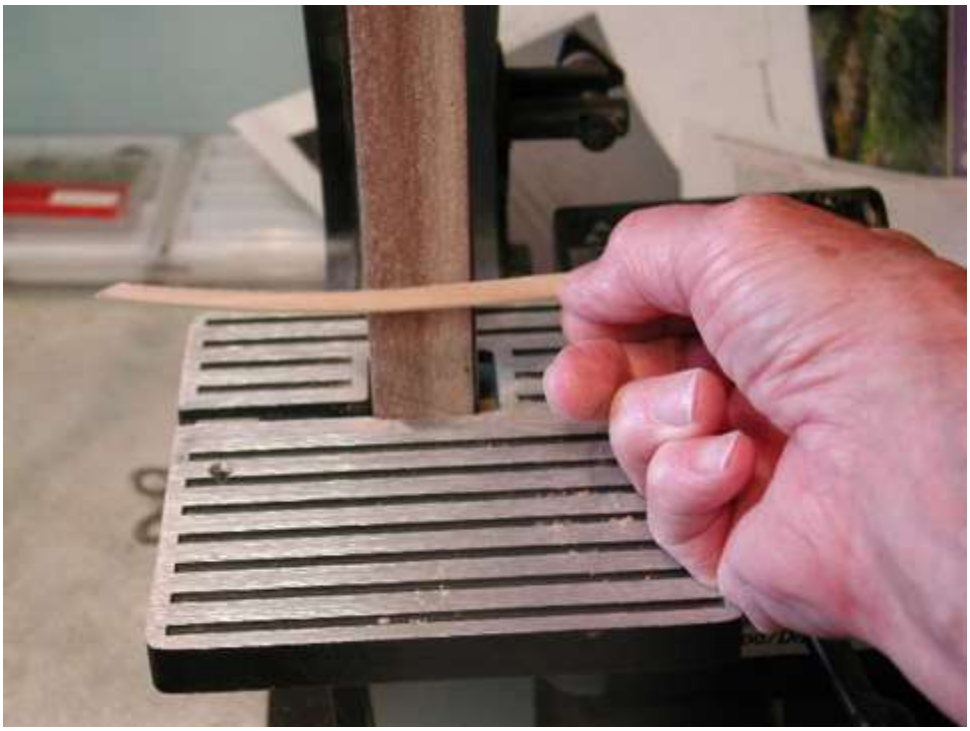


The above photo, dividers are used to gauge & transfer the widths at each bulkhead to its respective dot on the tape.

Above, join up the dots using a French curve or draftsman's snake.

The plank is cut out either with a scroll or jeweler's saw leaving about 0.3mm. of "meat"for final fitting. I find that one of the best power tools for this is a Delta 1" belt & 5" disc combination sander. I use the 1" belt to do the concave shape & the circular for the convex.



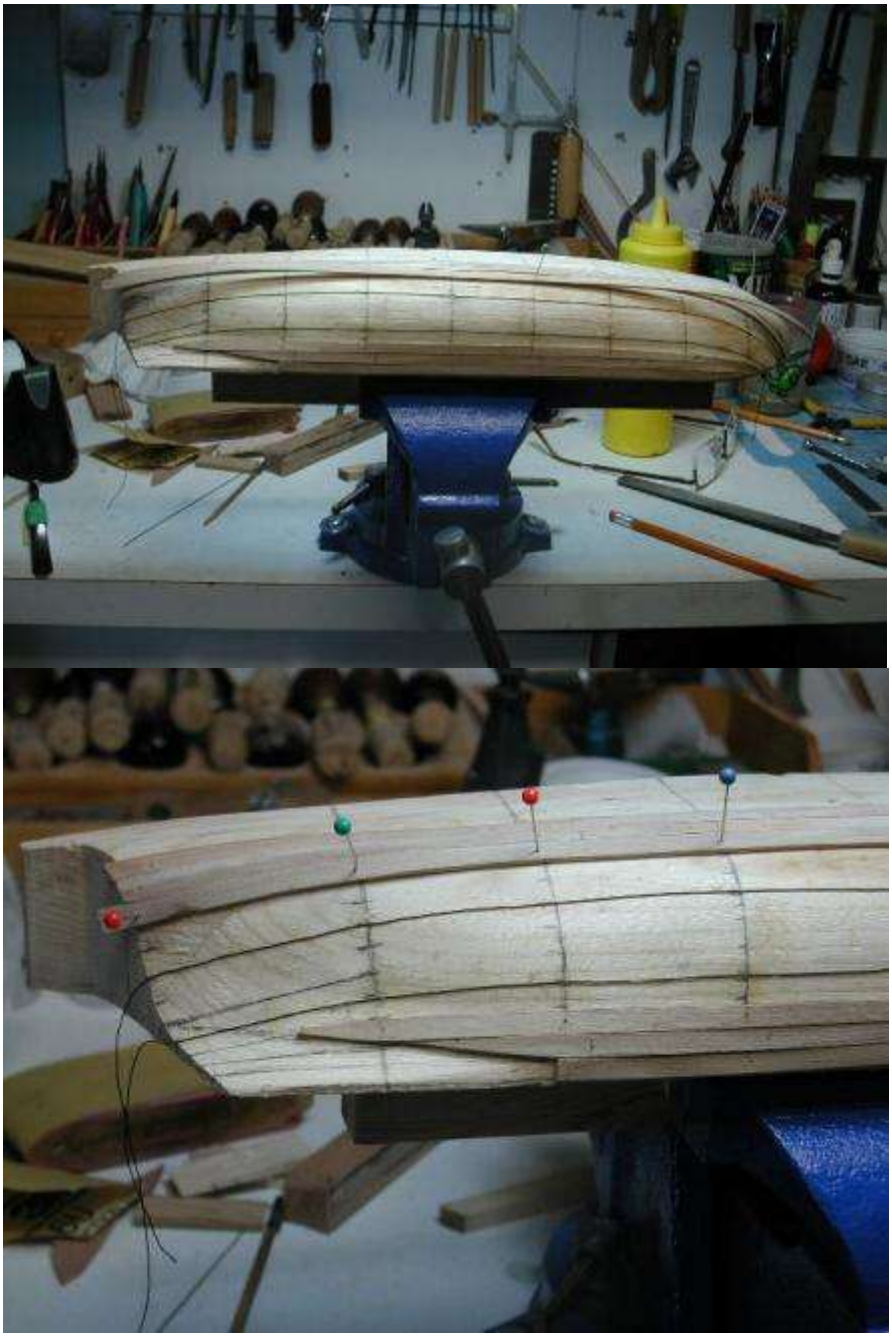


Above, roughing out a concave curve on the 1" belt/5" disc sander.

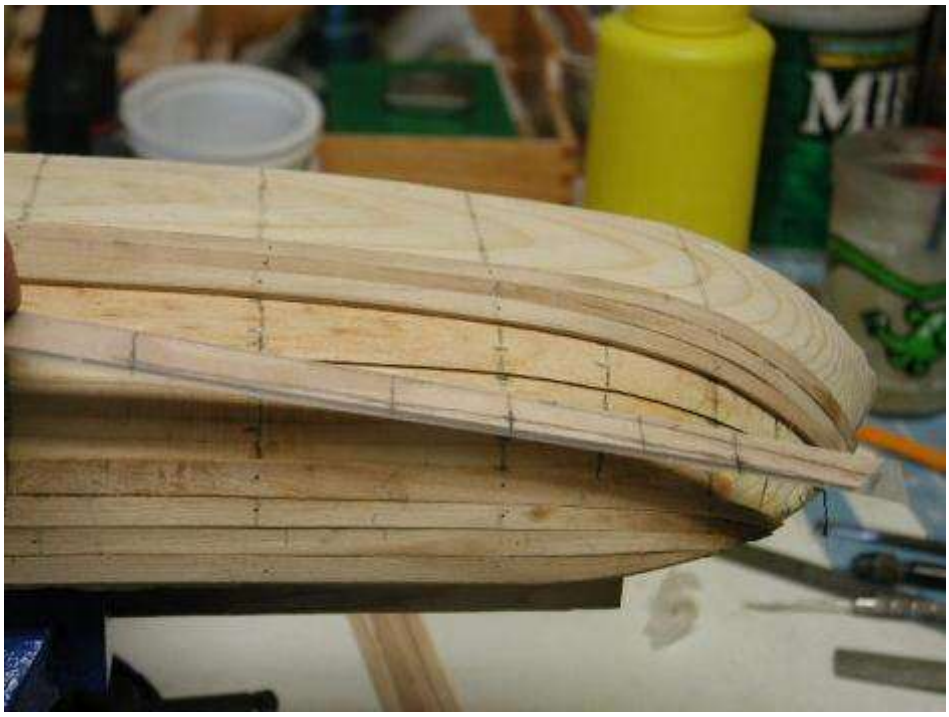
I have dipped the plank in water for twenty seconds & bent it with a 50watt electric plank bender (see previous photos) but a ladies hair curler will work. Even a 50 watt soldering iron with a homemade brass or copper head will work. The plank is then glued in place. It only needs downward pressure to meet the mating face previously installed! No lateral bending. This is spiling. The rest of this strake I put on, the end butting up to the spiled one. It is almost 5mm. wide & needs some planing to width. Again, offer the plank up to the hull & mark each bulkhead position, then transfer the width with dividers. The end of the plank aft is tapered to match the line drawn representing the "bearding " line.

Above, a tape is attached to what will be the mating face of the plank below the wale & a pencil drawn along the edge. This plank has very little curvature being mostly at the bow, so I did this in one plank. It is marked in a similar way to those previous, transferring the mating face to the plank, & is shown resting on the half hull.

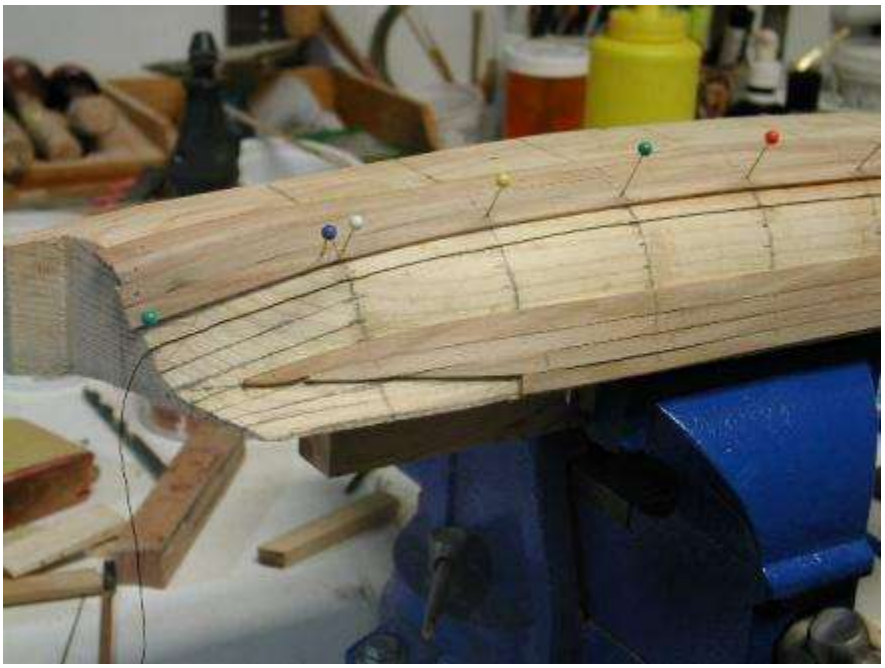
The photo to the left shows one of the secrets of close, tight planking. Yes, I am laughing because it's no longer a secret. It's this. Knock off the arris (the intersection of two edges) with a fine 6" (15 cms.) warding file or sanding block, on the INBOARD EDGES ONLY. It need only be a 0.25mm x 45 degree chamfer. It helps to get the plank up just that little bit closer to the mating one.



Above, the plank is bent to shape along its length. You will find that at the stern it also has to be TWISTED but it is not that tough to do.



The above photo shows the fourth strake up from the garboard. You will note that the **lower** black thread was removed from the hull & the third plank up from the garboard has been installed. It too should be spiled. I managed to use a 8mm. wide plank for both the third & fourth plank.



Above, the third plank down from the wale is added. Similar procedure:- copy the lower edge of the previous plank to the new strake, use dividers to measure the width at bulkheads. Cut out,

plane, spokeshave or file at bow & stern. The stern begins to twist quite drastically. Keep dipping in water & apply heat. It will go!!

I use a miniature spokeshave to refine concave curves after roughing out, but files or sandpaper will do.

The above photo shows a deviation in procedure. I am more used to laying planks in scale lengths & the advantage here, is you will not need such a wide plank. If you do this however on a POB model, it is best to land the butt end on half of the bulkhead & stagger any proceeding butts.

The above photo again shows that when a plank is spiled it only needs a downward press for it to mate perfectly with the preceding strake. No torturing of the wood with lateral bending. Well, just a little

Above, short plank ready for gluing.

Above, copying a longer plank's lower edge. We are now approaching the bilge (my Sailor's Word Book says " that part of the hull where floors meet the first futtocks---sometimes called the BULGE & is that part of the hull, when careened over will rest on the beach".)

Above, another short piece added.

Caulking the Joints

The following photo is slightly out of context. It shows how to simulate caulking. I did this on one strake only to show how it is done on the finished planking. You might want to try it. A 6B pencil is rubbed along both edges of a plank. Some modelers use black paper glued to the edges or a gouache of black glue. It's your choice. I like the pencil because it gives a subtle caulking effect. Paper might be better on a 1:32 model. It is only seen when you do the final sanding & oil/varnish/sanding sealer finish.

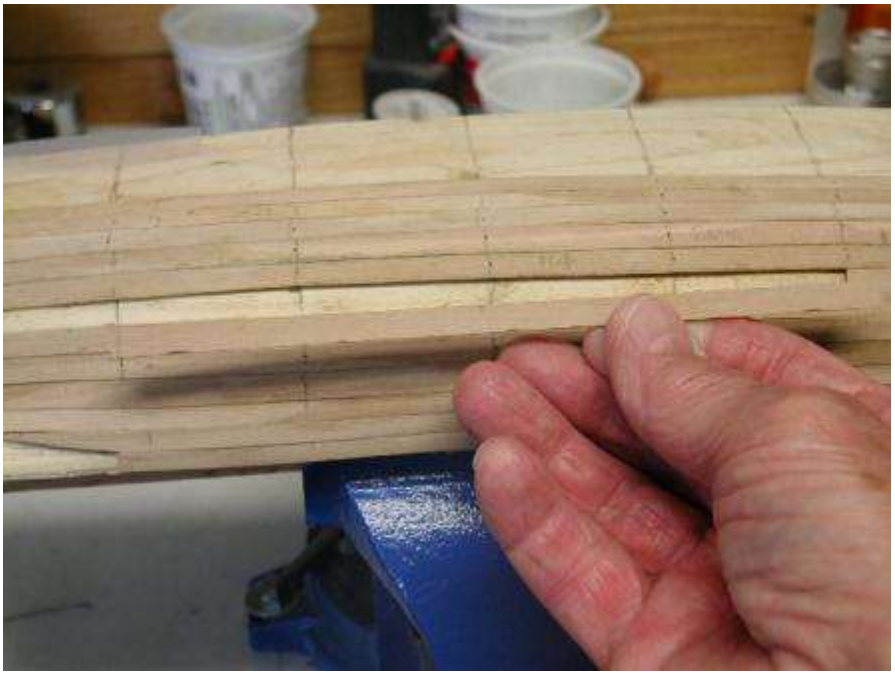
The Shutter Strake

The above photo shows the last strake (called the shutter strake or plank) being reproduced. A short piece of tape is smoothed over about three bulkheads, going right up to the stem & a pencil is rubbed along BOTH mating edges. The tape is transferred to an appropriate size plank & cut out & sanded to shape. It is here where you need to take a little more time in fitting. I find it best to offer it up to the lower edge first. See if it has followed the curve correctly, & then concentrate on the upper edge for a good fit. Sand or plane the upper edge near the stem & see if you have got the correct width, then work back slowly, a bit at a time towards the middle of the plank & so on to the end. It will test your skill but after a few tries you will get it & Bingo! You are a planker

The above shows the first shutter plank roughed out.

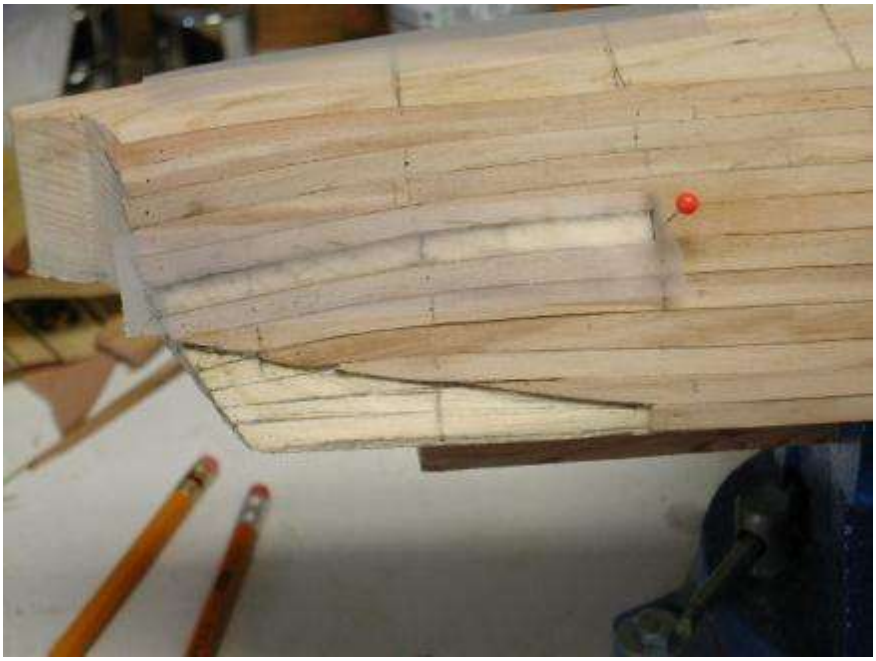
Above. Refining the concave edge with a sanding block.

Above. First plank at stem installed.



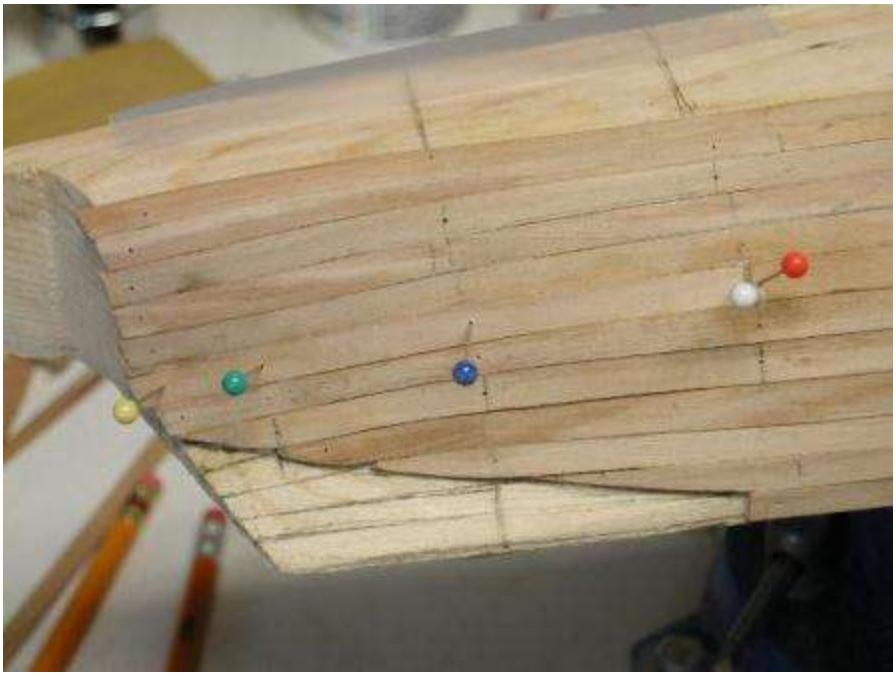
Above. Second midship plank ready for installing. Easy to do. It's almost parallel. Just go slowly. sand the lower edge, then the upper.

Above. Midship plank installed.



Above. Copying the shape of the stern plank.

Above the last plank has been shaped, ready for gluing.



AND--Installed.

Above. Looking at stern, fully planked.

Above. Looking at bow.

Feathering to the "Bearding Line"

Above. The last few planks at the stern are feathered down to the skeg with a slightly hollowed gouge.

Above, showing back of hollow gouge. I use Flexcut's SlipStrop for getting a razor sharp edge.

Above, smoothing down the gouge marks with a rounded sanding block. I find a strip of sanding belt (power sander) is best . Lasts for ages.

Above. Sanding blocks can be made from any soft wood board. I like to give them a handle because of Arthur Ritus

Above, cut the ends of the planks flush with the transom. HOWEVER, if the transom is planked on your kit, do that planking NEXT. When you come to the second, final planking, you will plank over the end grain of the transom planks.

Finishing the Hull

Above. I wet a cloth & sponged down the planking. This need only be done on the final planking. It raises the grain somewhat. When dry give the planking a rub down with 320 grit sandpaper & put on the finish of your choice.

The final photo shows the hull after a coat of 100% tung oil. I like it, others don't, it's a personal choice. I like a dull coat, not glossy. Tung oil, the 100% stuff sinks deep into the pores & hardly needs any care. If anything is scratched or damaged later, the finish is easily repaired & is compatible.

Over to you now - give it your best shot!