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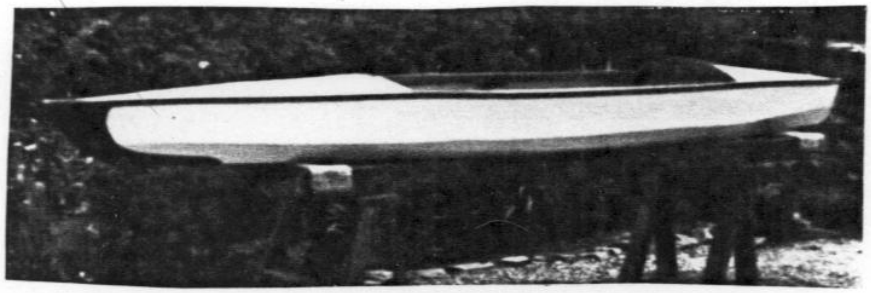


SEATS & SEAT-BACKS NOT INSTALLED YET.

Li'l Beauty

This kayak, which I named *Li'l Beauty,* was created by two desires. The first was the desire to replace my trusty old Fol-Bot® kayak which I **gave** to one of my sons. It had provided me with over 12 years of memorable pleasures. However, I wanted a kayak much lighter than the Fol-Bot®, which weighed 87 pounds. My age was beginning to tell in getting it on and off the cartop rack!

The second desire arose from my sending for current brochures and price lists of not only Fol-Bots®, but of about 15 other companies that make kayaks. To my surprise, I found that the Fol-Bot® I'd had for over 12 years now cost over $1,000! (I had paid only $350 for mine around 1980). Other kayak firms charged even more ... up to over $2,000 for ones similar to Fol-Bot®. In short, I had simply been priced out of the market!

So, taking the basic, established kayak design, I set about building one of my own, with length and weight (about 38 pounds) more suited to my needs. The result was *Li'l Beauty*, a 12 foot kayak, capable of seating a heavy adult with ample room for camping and fishing gear. At only 38 pounds, it is a breeze to cartop. Also, the plans could be easily upgraded to a 14 foot length, which would allow two adults with gear.

Like my Fol-Bot® model, I prefer an open cockpit (with both ends covered and each end containing lots of foam flotation). The cockpit has a small "deck" running the length of each side. "People-space" is very roomy and for those who like to fish, this has an advantage that ordinary kayaks don't have. It has a full amount of capability in choppy lakes and in swift running rivers ... but not foaming white-water such as the Chatooga River in Georgia, which cascades through all sorts of rocks and boulders. For those dare-devils, I leave them to their $2,000 white-water expedition models!

Li'l Beauty has performed so well in the two medium-size lakes and "regular-type" rivers in my local area, that it catches the attention of any other boaters. Those who come close enough for conversation invariably want to know where I got such a boat!

Li'l Beauty can be built with only $75 to $85 in materials. I've simplified and fine-tuned the construction method so that I can now build one with about 14 to 18 hours work-time. It can be built with a minimum of ordinary shop tools, such as a hammer, screwdrivers, electric drill, C-clamps, and a hand-held saber saw. Of course, an electric circular saw and a table saw cuts way down on the time required. (You can probably get a shop friend or even get a cabinet shop to rip the 8 or 9 stringers needed for less than $10, if you don't have these power saws).

My booklet lists all of the materials (which can be purchased from local builder's supply stores) and contains photos of each building step.

Whether you want an excellent kayak for your own pleasure, at a small fraction of the cost of a store-bought one, or whether you want one for that plus an opportunity for expanding it into a home-based supplemental income, I am sure you'll find my booklet an excellent value. I sell the 4 or 5 I build in winter months for about $350 each in the spring!
In the words of the late George Herter, who was the owner of the excellent Herter's Hudson Bay outdoors equipment company in Minnesota in the 50's through the mid-80's: "Why don't you 'order-out' one today?" I did a lot of ordering from him.

The price of the KAYAK BOOKLET is ~~$19~~ $16.00 postpaid. You may send cash, check, or money order. I attend to each order personally and promptly. My wife and I have been here in Vilas for over 14 years ... everyone knows us and where we live.

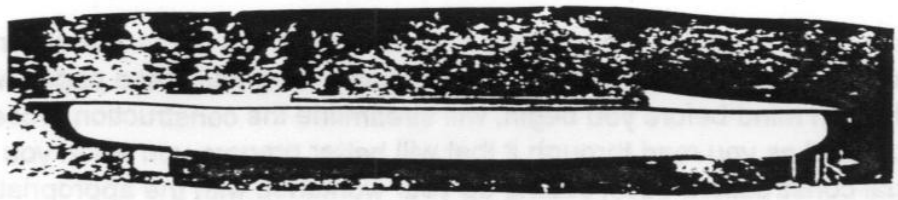
If you send a check, make it out to HOBBYCRAFTS. Our address is on the first page letterhead.

Sincerely,

Walter Head

Walter Head, President.

I'm reducing the regular price of $19 to $16 for a limited time.



Building *Li'l Beauty*

12 Foot Lake and River-Running Kayak

Introduction

Please read through this booklet in a leisurely manner before you begin actual construction of the kayak. There is so much information and many tips throughout these pages which, if you already have them in mind before you begin, will streamline the construction process. Things will stick in your mind as you read through it that will better prepare you when you reread each step in the actual construction. Also, setting up your workshop with the appropriate tools and construction aids is half the battle; it's easier to have everything you need at hand in advance than to have to run off looking for something at a critical time.

Especially take note of the section where I describe the kind of fabric that I now always use (the Heat Shrink Dacron). You'll see that you can have it on hand by the time you are ready for it in the construction stages.

I realize that many people who have ordered this booklet might have little or no experience building things of wood, much less a boat. That's why I have spent over a year simplifying the construction of this particular kayak so that even an inexperienced person can build it -- and discover the unique pride and pleasure that comes especially from a boat you've built. The *Li'l Beauty* kayak that this booklet describes is a forgiving little boat, even with some mistakes made. I used my *Li'l Beauty* as the example in the booklet because it is my favorite of all the kayaks I've built. But further, the plans I developed for *Li'l Beauty*, being largely symmetrical in shape at both bow and stern (except for the actual bow and stern pieces) make it very easy to increase the length of the boat to, say, 14 feet or even 16 feet simply by adding an extra station at each end of the 3 main stations. You can also change the open cockpit design of *Li'l Beauty* by using more deck area and leaving only a circular or oval "body hugging" cockpit type preferred by kayackers in choppy water. As I mentioned in the booklet, however, *Li'l Beauty* is an all-purpose kayak more suitable in calmer waters.

The booklet is written in easily understood terms and it is laid out in the logical order allowing step-by-step construction of a kayak similar to my *Li'l Beauty* from start to finish. If you follow the steps carefully, you should have no trouble building your own kayak -- and you will find it to be a relaxing and enjoyable pasttime as well! You'll have several hours of fun building your boat and then you'll have many years of enjoyment using it when it is finished.

MATERIALS LIST

1 4x8 foot sheet lauan plywood, ¼" thick.
1 spruce or fir board, ¾"x 6" or 8" wide x 14 feet long (select this board carefully to be free of knots, or nearly so).
1 regular shelving board, 11½" wide x ¾" thick x 8 feet long (select this board to be nearly clear or with only very small knots).
1 quart can of Weldwood® powdered resin glue (widely available). Water is mixed into small amounts of this powder to make a thick syrup-like glue.
1 8 oz. squeeze bottle Titebond II® wood glue, weatherproof formula (economical and widely available).
1 quart can of Weldwood® (DAP®) contact cement, new fast-dry formula (widely available).
1 quart can of Bondo® (or other similar brand) fiberglass-reinforced body filler. Available in auto parts stores (get the premium high-strength formula, which usually has a dark green tint in color).
Economy utility screws (usually black in color) and widely available at builder's supply stores, sold by the pound or in small boxes. Try to get them by the pound (cheaper) and get ¼ pound each of sizes ¾", 1⅛", and 1½" (these are standard stocked sizes). You might get a dozen of the 2" size too.
1 quart can of good clear-gloss urethane "varnish" (I like Zip-Guard® brand best).

As to the fabric covering, I'll tell you about this later in this booklet.

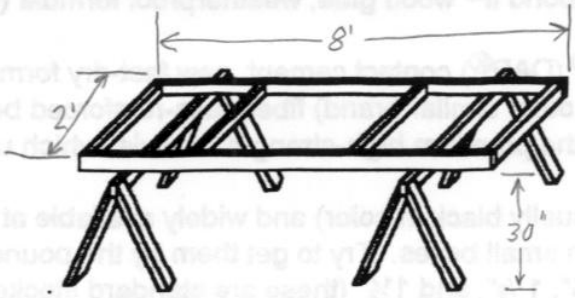
The only other significant material item is a color (white, or other) urethane gloss paint (Sherwin-Williams® or other paint stores) in as small a can as possible (you'll need only about a pint!)

Tip: A paint store can add a white or other color pigment to about a cupful of your clear gloss urethane varnish and you won't have to buy a separate can of color paint! You won't need but about ½ to ⅔ of your quart of clear gloss for its purposes.

Note on materials cost:
Up to recently, I've built my *Li'l Beauty* 12 foot model for about $75 - $85 total materials cost. But I've noticed that inflation has increased this to about $90 - $95 now. Still, this is very cheap for the kayak value of this boat.

The tools required to build you boat are fairly standard to any decent woodworking shop. In all phases, I have tried to avoid needing "exotic" tools in the construction. I haven't explicitly made a list of tools you have to have, but I mention several throughout the text of the booklet which are handy. As you read through the booklet the first time, you might want to jot down notes on tools to have available (you might have to borrow some things from a friend -- like extra C-clamps for example). That way you can have everything at hand when you begin construction and your work will be much less stressful and much more enjoyable!

It is important to build a platform before any construction is begun. I like to work from two saw-horses about 30" (* see note below) from the floor or ground. Set the "horses" on as level a place as possible, about 6 or 7 feet apart. For the platform you need two 2x4's (8 foot studs are fine). Also, have enough other 2x4 lumber to make about 4 pieces two feet long. With the two 8 foot pieces set on edge, nail or screw one 2 foot piece between them at each end, forming a box or rectangle. Then space the other two pieces in the middle to form a ladder-like platform. Position this platform on the horses with the overhang at the ends about even. Toe-nail or screw the platform to the horse tops where the platform bottom rests on these so as to "lock" the horses and platform together to form a steady "table".



You will use this platform to support the boat through all phases of assembly. Spend a little time now to make this platform sturdy -- you'll want to be able to fasten the partially assembled boat down securely at various points in the construction process.

* Note: I have used the double quote symbol (") here, and following numbers throughout the text to denote inches. Occasionally you might catch me using the single quote symbol (') to denote feet.

Materials Preparation

Saw cuts to be made to your lumber:

The ripping, or length-of-board cuts that are mentioned below almost have to be done on a table saw or a radial saw to be done properly. Many people have a friend with one of these saws in home shops, but even a cabinet shop will usually do these rip cuts for about $10 for the few minutes it takes to do them. There aren't many of these cuts and they are of a simple nature. So, where I use the word "rip", this means just a straight cut the length of a board, and shows where the above type of saw is needed. It is a very good idea to do the main cuttings of the lumber before you begin actual construction, as it will save a lot of time and construction "flow" will go easier.

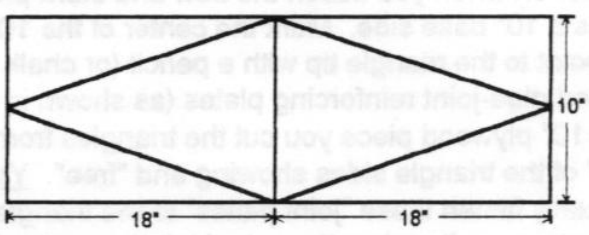
1. Take your plywood sheet and rip a 22" piece off one edge down the 8 foot length. (note: this is one rip that can be done with a regular electric hand "Skill-saw" or even a saber saw. This cut doesn't have to be an absolutely straight precision rip line.) Then rip in the same manner (next to where the 22" strip was ripped) another piece 10" wide. (Save the remaining approximately 16" width of the sheet for miscellaneous further uses).

2. Rip (with table or radial saw) nine stringers from the ¾ inch thick spruce or fir 14 foot board. Set the saw to rip exactly ½ inch wide pieces. The stringers will therefore measure ½" x ¾" by 14 feet long. Bundle and tie these together and set them aside so they'll stay straight.

3. Take your 11½" shelving board (8 feet long) and rip one 1½" piece off of one edge of it. This one length will be enough to make all of the three station cross-bars. Save the rest of the shelving board for stations and bow and stern pieces.

4. On the remaining shelving board (now only about 9½" wide by 8 feet long) take the station template and the bow and stern pieces templates I provided and trace these with a pencil onto the shelving board. Note: interlock these on the board so as to use less wood, but be sure to let the wood grain run as lengthwise to the template as possible (as indicated by my lines drawn on the templates). This permits the greatest strength.

5. Take the 10" wide piece of plywood you've ripped and draw two triangular pieces at one end of it, using the measurements I give in the following figure below. Simply measure off two 18" long rectangles across the plywood and draw 4 triangle sides to the 5" center-point marked at the opposite ends of the rectangles. The base of the triangles will be the straight line across the plywood "board". Save the remainder of the plywood for later uses. Cut out these two triangles so as to have them ready for construction. You can do these triangles with a hand-held saber saw if you wish.

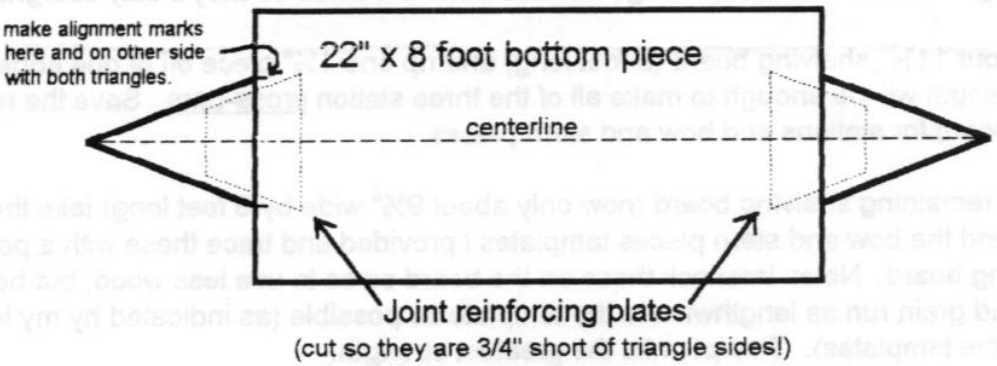


Beginning Construction

Assembling the boat bottom:

Having made the cutting operations 1 through 5 you can now proceed with some construction. The first thing needed is to fasten the two triangular plywood pieces to the ends of the 22" by 8 foot main bottom plywood piece. These are needed in order to extend the length of the plywood bottom to about 11 feet in length. Take about a tablespoonful of your powdered resin glue and in a saucer or on a small flat palette (cut from a scrap of plywood or plastic or linoleum to a 5" or 6" square), add a few drops of water at a time to the powder with a small flat stick (or use one of those plastic disposable knives the fast-food places furnish free). Mix the water into the powder to a thick, syrupy paste (it takes a surprisingly small amount of water to do this and you want this resin glue to be as thick as possible in order to still be spread). Add a pinch or two more powder if you get it too thin. It will still stay workable for over a half-hour after mixing. It works best if you let it stand for about 5 minutes after mixing.

In gluing these triangle extensions to the main bottom plywood piece, it is good to have a couple of corrugated cardboard box pieces about 24" by 24" square so that you can lay them over each end of the platform to form a surface on the platform for setting the triangle you are working with on when gluing it to the main bottom piece (I actually use a scrap piece of ¼" plywood). The figure below shows how these triangles fit onto the bottom piece ends.



Set the 22" by 8 foot plywood bottom piece on the platform so that the end you are working on rests about half way onto the cardboard or plywood "table" laid over one end of the platform. (You might have to C-clamp the bottom piece to the platform if it overbalances at the other end.) Before setting one of the triangle extensions in place, it is a good time to mark a centerline down the length of the 8 foot bottom piece. Just mark off 11" at each end of the 22" wide bottom piece and draw a straight line between these points with a straight-edge and pencil (or faint chalk line). You should also mark a centerline on each of the triangle pieces to help you with alignment later on when you attach the bow and stern pieces. Recall that each triangle is 18" long and has a 10" base side. Mark the center of the 10" base (measure in 5 ") and draw a line from this point to the triangle tip with a pencil (or chalk line). You will also need to cut two little plywood glue-joint reinforcing plates (as shown in the dotted lines on the figure) from the rest of the 10" plywood piece you cut the triangles from. Cut these so their side edges leave about ¾" of the triangle sides showing and "free". You'll need this space to sit a stringer on later. I usually fasten these "joint plates" to the triangle pieces before fastening the triangles to the bottom piece, as it makes the actual joining easier. However, since the joint plate is going to cover part of your centerline on the triangle, you need to first lay the triangle in place against the bottom piece, aligning the center line of the triangle with the

centerline of the bottom piece and make a mark on the bottom piece where each end of the base comes to (refer back to figure on previous page). You'll use these marks to align the triangle when you actually fasten it to the bottom piece. Now, "butter" the half of the joint plate that will fasten to the triangle with resin glue (just a thin coat) and press it in place on the triangle. After pressing the pieces together turn them over with the triangle surface up and the plate down and drive 4 or 5 spaced ¾" wire nails through the triangle into the plate (being careful not to let the joint plate slip out of place), then turn it over and bend the nail points over and brad down firmly. This holds the glue surfaces together tightly. Complete both triangle pieces this way and you can now proceed with fastening the triangles to each end of the bottom piece. "Butter" the other glue surface of the plate as well as the edge of the triangle base (where it will meet the edge of the bottom piece). Press it in place, using the two marks made earlier on the bottom piece to align it and set a weight, such as a can of paint, on top of the glued plate, or you can C-clamp it at its corners if you prefer. (If you C-clamp it, you can proceed directly to gluing on the triangle at the other end. Otherwise you'll have to wait for the glue to set on the first triangle before proceeding to the second one.) Attach the second triangle to the other end in the same manner as you did the first. You should also turn the bottom over and drive 4 or 5 spaced ¾" wire nails through the bottom surface into the glued plate (the same way you did when attaching the joint plates to the triangle pieces earlier). Turn the bottom over again and bend the nail points that project through the plate.

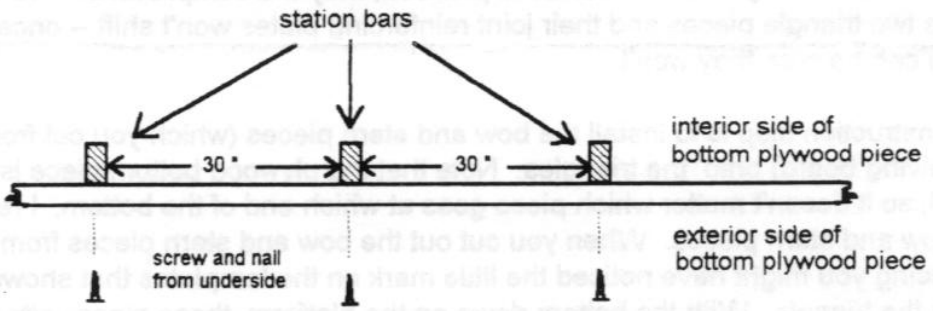
It's probably best for most readers to let these glue joints set up overnight before proceeding. Although there are ways you can continue to proceed, they are complicated. You want to be sure that the two triangle pieces and their joint reinforcing plates won't shift -- once the glue sets up, you can be sure they won't.

The next construction step is to install the bow and stern pieces (which you cut from the large piece of shelving board) onto the triangles. Note that the plywood bottom piece is symmetrical, so it doesn't matter which piece goes at which end of the bottom. I refer to the pieces as bow and stern pieces. When you cut out the bow and stern pieces from the template-tracing you might have noticed the little mark on the templates that shows where the base sits on the triangle. With the bottom down on the platform, these pieces attach to the top surface of the triangles with the little mark (which you should mark on the pieces) sitting on the tip end of the triangle. The base of the piece is glued to the triangle (and later also screwed with two 1⅛" screws through the bottom into the piece. "Butter" the base of the piece with resin glue and press it onto the triangle, aligning it centered on the centerline with the guide mark right at the triangle tip. The piece, you'll notice, extends out several inches beyond the plywood tip. This is as it should be. This projection of the pieces beyond the plywood at each end brings the boat length to its 12 foot length (or even a little more). The way I keep the piece in its precise place after gluing is to drive a small finish nail through the rear edge of the base at a "toe-nail" angle through the bottom plywood. Don't worry about this small nail sticking down through the plywood, as you'll remove the nail later when the glue has set up. After driving this "holding nail", carefully align the piece so that it is aligned straight ahead on the centerline and also is sticking straight up rather than slanting (check with a square and tack-nail with a small brace on each side if necessary).

You're probably wondering why the bottom hasn't been cut to a "boat shape" as yet. This is because I use a "stringer method" of getting the line on each side where the cut will be made. (The only alternative to this would be to send you a full-sized template of the bottom -- which would cost more than this booklet!) I used this stringer method for my first *Li'l Beauty*.

Getting the bottom curvature lines: (the "stringer method")

Take the 1½" by 8 foot piece you have previously ripped from the shelving board (for the station cross-bars) and cut a piece of this 19" long. Then cut two pieces 14" long. Measure the center point in these "bars" and mark with a pencil line. (These points will be at 9½" on the 19" bar and at 7" on the 14" bars.) Now on the interior of the boat bottom, lines must be drawn where these stations will be glued and fastened. Begin by measuring the mid-point between the bow and stern. Mark this point on the centerline you've already drawn down the boat length. Take a square and make a cross line across the bottom at this point, using the centerline as your square reference. Mark another point 30" toward the bow side of the mid-point and another 30" toward the stern side. Use the square to draw cross lines across the bottom, just like you did at the mid-line. So the 3 stations will be installed on these 3 lines: the 19" station will sit on the mid cross-line and the two 14" stations will sit on the other cross-lines 30" on each side of the mid cross-line. Now these 1½" bars can be glued and fastened in place. Remember, you have marked the mid-point of these 3 bars. This point will be aligned directly over the centerline on the bottom piece. These bars won't extend to the edges of the plywood bottom piece; they aren't supposed to. My method of fastening the bars to the bottom is as follows: On the other (exterior) side of the bottom piece, draw pencil lines directly over the station lines you've already drawn on the interior side of the bottom piece. You want to be able to place screws and nails along this line and have them go through the plywood and hit the glued edge of the station bar directly in the center (see figure below).



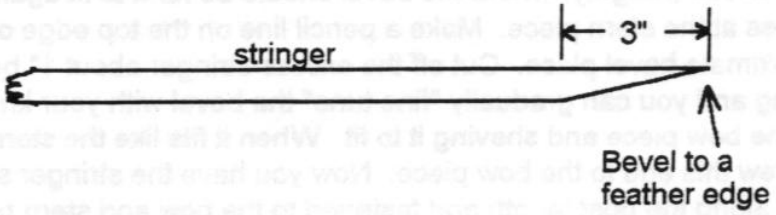
Cutaway of Bottom Piece, Side View

Start about 3 ¾" wire nails into this line (on the exterior side) so you can nail them in quickly. Spread resin glue along one edge of the station bar (use plenty of glue on this, about 1/16" thick all along the bar edge). Set the bar exactly in place on its line on the interior side of the bottom piece and drive one of the small nails you started through into the bar (I hold the bottom piece up on edge to do this; it's not heavy at all). You might want to have someone else hold the station bar in place on the other side, but I do it alone quite easily. After driving the first nail, carefully check the alignment of the station bar with its line, then drive the rest of the nails. The nails are just used to quickly secure the bar reasonably well and keep it from pulling apart from the glue. Do the other two remaining station bars the same way. Now you can turn the bottom over and the bars won't fall off because of the small nails. Move the bottom piece so that one of the station bars rests upon a platform cross-piece for solid support. Then drive 3 evenly-spaced 1 1/8" screws through the bottom into the station bars on the same line you've driven the small nails (as shown in the figure on the previous page). Set these screws so that their heads "sink" flush with the bottom surface. Make them good and tight, but don't let them go way down into the plywood. By the way, I have a little screw pilot bit that goes in my electric

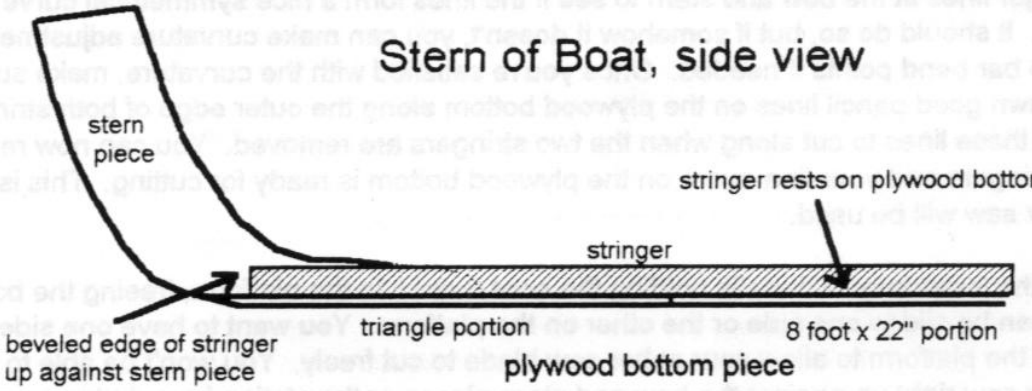
drill and I pilot all my screw holes with it. The bit also has a countersink feature which dishes out a small place for the screw head so it fits flush with the surface. It's good to get one of these for the size screws you are using. When the screws are all in (3 screws into each of the 3 station bars) you can turn the bottom back over, with bow and stern pieces pointing up. You're now ready to get your "curvature lines" using a stringer.

At this point it is much better if you temporarily fasten your "boat" to the platform so that it won't slide around on it. I just C-clamp it in a couple of places, but you could also tack-nail it with several partially-driven nails that can be easily removed.

To find your "curvature lines" which will form the curved boat shape on the large bottom piece you follow this procedure. Take one of the stringers which you ripped from the spruce or fir board and, using a pocket knife, shave one end of the stringer (on its wider, ¾" side) to a rough bevel. It's easy to do this since the stringer is small and the wood is soft. Bevel it about 3" back from the end so the slant is about 3" long.



Place this beveled stringer end against the stern piece with the stringer edge resting on the plywood bottom piece. Thus, the stringer fits into the corner formed between the stern piece and the plywood bottom piece, with the bevel up against the stern piece. (see figure below)



Pilot a screw hole through the bevel surface about 1" back from the stringer end so that a screw will go into a good solid place in the stern piece side. Drive a 1⅛" screw through the stringer into the stern piece, but don't set the screw good yet. Just let it pull the stringer against the stern piece. Now take the stringer and carefully bend it so that it touches the end of the first station bar. The bottom edge of the stringer sits down against the plywood bottom. I take one C-clamp and clamp the stringer to the plywood of the triangle extension about a foot from where I screwed it to the stern piece to hold it firmly to the plywood. The ends of the 3 station bars are to serve as "stops" for the stringer as you continue bending it along the boat length. At the first station bar, pilot a screw hole in the stringer at the point where the screw will go through the stringer and into the end of the station bar when holding the stringer down firmly to the plywood bottom. (Don't pilot the hole into the station bar end but only through the stringer itself. The station bar wood is quite soft and a screw will drive easily and be stronger without a pilot hole). Drive a 1½" screw through the stringer and into the station bar end, just barely setting the screw until it pulls the stringer against the station bar. Continue this to the next and last station bars. Finally, bend the stringer so that it touches the bow piece and sight down the top edge to see (roughly) where the bevel should be for it to fit against the bow piece the same way it does at the stern piece. Make a pencil line on the top edge of the stringer showing this approximate bevel place. Cut off the excess stringer about 1" beyond your line so that it will be long and you can gradually "fine tune" the bevel with your knife by repeatedly placing it against the bow piece and shaving it to fit. When it fits like the stern end, pilot a screw hole and screw this end to the bow piece. Now you have the stringer sitting right on the plywood bottom all along the boat length and fastened to the bow and stern pieces, and to the station bars. You can now draw a good heavy pencil line on the plywood bottom along the outer edge of the stringer as a guide. This stringer will later be fastened in place permanently and glued down to the plywood surface. For now, do a second stringer in the same manner on the other side of the boat, leaving the first stringer in place while doing so. Now sight down your stringer lines at the bow and stern to see if the lines form a nice symmetrical curve on each side. It should do so, but if somehow it doesn't, you can make curvature adjustments at the station bar bend points if needed. Once you're satisfied with the curvature, make sure you've drawn good pencil lines on the plywood bottom along the outer edge of both stringers. You'll use these lines to cut along when the two stringers are removed. You can now remove the two stringers and your line-curve on the plywood bottom is ready for cutting. This is where your saber saw will be used.

Unfasten the temporary tack-nails holding the boat bottom to the platform, freeing the bottom so that it can be slid to one side or the other on the platform. You want to have one side stick out free of the platform to allow your saber saw blade to cut freely. You won't be able to get your saber saw right up against the bow and stern pieces or the station bars, but you can cut along the curved lines as far as you can. After you do this, you can turn the bottom over and sight-draw a pencil line on that side connecting these short uncut areas. You will be able to saber saw through these short spaces accurately enough. Now the two stringers can be permanently secured. Set the assembly upright as before (and it is also best to peg-nail it again to the platform so it will remain steady as you bend the stringers into place and glue and screw them down. Mix up some resin glue (about 4 tablespoons full) and have a screwdriver and 1⅛" screws handy. Smear a good bed of resin glue from bow to stern on the plywood edge where the stringer will sit, as well as on the station bar ends it will butt against. Put some glue on the bevel surfaces on the stringer too. Place the stringer to the stern piece and put a 1⅛" screw into the previously made hole and screw it down to the bow piece securely, keeping the stringer pressed into the glue bead on the plywood bottom. Bend the stringer to the next station bar end and fasten the stringer to it with a 1½" screw. While bending the

stringer along the way, it is good to C-clamp it to the plywood bottom at least once between each station or screw point. Leave the clamps on for at least 2 hours. Continue on to the bow, fastening it the same way as at the stern with a 1⅛" screw. Do the other stringer on the other side the same way.

TIP: Any dabs of resin glue you might have left after a "run" of gluing is fine for using up by going over any joints that need a gap filled in. By the time I'm through with a boat, I've filled all gaps and strengthened all joints so that they are very strong. Also, keep adding excess glue to the glue seams along the station bars and the bottom. Don't worry about unsightly "glue blobs" at these seams, because the floor boards will cover all of these later.

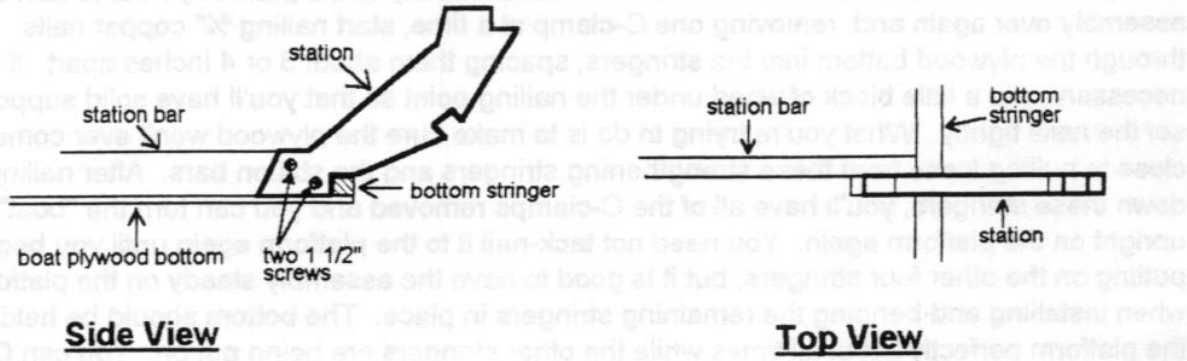
When these two bottom-strengthening stringers have had about 2 hours (or more) glue setting time (remove the tack nails that secure the bottom assembly to the platform) I like to turn the assembly over again and, removing one C-clamp at a time, start nailing ¾" copper nails through the plywood bottom into the stringers, spacing them about 3 or 4 inches apart. If necessary, slip a little block of wood under the nailing point so that you'll have solid support to set the nails tightly. What you're trying to do is to make sure the plywood won't ever come close to pulling loose from these strengthening stringers and the station bars. After nailing down these stringers, you'll have all of the C-clamps removed and you can turn the "boat" upright on the platform again. You need not tack-nail it to the platform again until you begin putting on the other four stringers, but it is good to have the assembly steady on the platform when installing and bending the remaining stringers in place. The bottom should be held to the platform perfectly flat at all times while the other stringers are being put on. You can C-clamp the bottom to the platform instead of tack-nailing so as to allow easy removal (which is what I do) -- just 1 or 2 clamps at each end is enough).

Now, you're ready to fasten in the station side pieces (6 of them) to the station bars. They are all the same size (one of my simplicity features). These pieces are all cut from the shelving board that the bow and stern pieces were cut from. Again, use your saber saw. (If you have, or can use someone else's band saw, you could cut out at least 3 at a time, saving a lot of cutting and time!) Always cut with the grain of the wood running the length of these station side pieces as nearly as you can for greatest strength. On my full-size pattern templates I sent to you, I made the stringer notches in the station side pieces a bit on the large side to make it easy to fit the stringers into. Where a notch is fairly large, just position the stringer near the middle and you can mix up a small amount of resin glue at any odd time later to fill the excess gap. Just make the glue almost thick paste-like so that you can putty it into these gaps without it running and you'll have a good tight and strong joint.

TIP: You can add a little fine <u>sawdust</u> to the glue <u>after</u> it is mixed to a perfect consistency, for "puttying". I always collect any fine sawdust that I accumulate in the shop and put it in a jar just for thickening any glue I'm using when wanted. You'll be amazed how well this works, especially when a glue keeps running out of a joint. Some say a little sawdust makes almost any glue stronger.

Placing the Stations:

These stations have a bottom edge that sits directly on the bottom plywood with a notch that fits over the stringers you've just installed at floor level. (This notch is made large, but you can putty in with thickened resin glue later. Wait until you get all of the stations installed so you can fill all of the gaps at the same time). I place each station on the bow side of each station bar. They could go on either side, but the bow-side placement allows a little better finishing of the cockpit later. To put a station in, "butter" the bottom edge of it and the area on its side where it goes against the station bar with resin glue. C-clamp these together (the station to the station bar) tightly. Later, after the glue sets up (several hours or more), you'll drive two 1½" screws through the station bar side into the station. Space the screws about 2" apart in the middle of the glue surface. (see figure below).



Side View **Top View**

Now she's starting to take on the "boat shape"! The two remaining stringers on each side (the topmost one is called the "gunwale stringer") are put on essentially the same way as the two bottom stringers were, except that they won't have to be glued and nailed to a bottom surface as the first two were. They are placed against the bow and stern pieces in the positions shown in the figure below with the beveled edges ending about 1" - 1½" behind the front edges of bow and stern pieces.

Make the bevels sort of "feather in" to a thin edge where the stringer ends at the stern and bow piece. You'll later "putty in" a little in this area with the fiberglass putty body filler to be nice and smooth, and the putty greatly strengthens the bond of the stringers to the bow and stern pieces.

Note: Remember to have your boat bottom securely fastened down to the platform before installing the last 4 stringers. You don't want to have any chance of your boat being warped as you bend these stringers into place. Once the glue sets on these stringers, the framework becomes quite rigid and you'd have a heck of a time trying to true up a warped boat at this point!

You will need to, either before installing them or afterward, do some light sanding on the outer edges of the stringers. The inside edges need not be sanded, but the outer edges should be sanded to a rounded smooth surface. This rounding keeps the fabric from chafing on any sharp edges, so be sure to do this sanding. (Sandpaper contact-cemented on a small block of wood does a great job on this). When installing these other stringers, "butter" the notches in the stations with a thick mix of resin glue. Seat the stringers into the notch and drive one 1 1/8" screw through the stringer into the station notch. Note: I pilot screw holes for the station notches in the stringers while I am fitting them before gluing. That way, they are fast and easy to do when you actually install them with the glue. No need to pilot holes in the stations. Set the screws flush or just slightly below the surface of the stringer so that the screw heads won't chafe the fabric later. (One of the little screw pilot bits that drills the pilot hole and also flares out a little screw head pocket is very nice to have for your electric drill! It counter-sinks the screw head about 1/16 of an inch when the screw is driven. Also, a phillips head screw-driving bit for the drill makes screw driving much easier and faster.)

Now that all of the stringers are installed, you have the kayak hull essentially complete, except for the fabric. Before doing the fabric, now is the time for giving everything you've done a coat of polyurethane varnish (two coats are better). You can get the varnish to everything easily at this stage. Coat the plywood bottom inside and out (two coats is definitely recommended for the plywood!) Use polyurethane clear gloss. One quart is enough to do this and all other work.

Preparing the boat for the fabric:

A little sanding is in order before the fabric is applied. Turn the boat upside down, bottom up, on the platform. Rub the palms of your hands over the entire bottom to detect any small "pips" or grit, etc. Lightly sand off any bumps you find with medium to fine sandpaper. I almost forgot one thing! At this point, with the boat bottom up, I do a little "fairing-up" at the bow and stern with the fiberglass filler putty. This putty is paste-like in the can and comes with a ketone liquid hardener (known as MEK) in a separate little tube. The putty has to have MEK mixed with it to get hard. Follow the can instructions, but briefly I'll give my method. This putty begins setting up very fast! After the MEK is added, you only have about 5-8 minutes to use or spread it before it suddenly turns thick and rubbery and you can't spread it any longer. In warm weather it sets up faster! So when you begin working with this putty, you should have several things all ready first. A 4" x 4" scrap tile, plastic, or linoleum piece works fine as a mixing palette. An old steak knife with the point ground off to a rounded tip about ¼ " wide is an excellent application and mixing tool. Otherwise, a small flat length of wood stick about ½ " wide by 3" or 4" long with the application end shaved or sanded to about 1/16" thick, feathered at the tip works well also. Lacquer thinner or acetone will clean the tools after use and also your hands and fingers. Clean them before it sets up hard! Since the putty sets so fast, giving you so little time to work with it, you should mix only a small amount at a time -- from a mere marble-sized blob up to a maximum of a golf ball sized blob (you have to work fast to use up a golf ball size -- and you've got to know where to put it within about 5 minutes!) A good marble-sized blob of putty takes about 5 drops of the MEK. A golf ball sized blob takes about 12 drops (don't use more MEK than is called for -- it will make the putty set even faster!). Mix it into the paste fast, but thoroughly. The first batch you mix -- which will likely catch you off guard (unless you're familiar with it) will probably give you the hang of it! (Make this one a small batch). And it's a good idea to use it in several joints that have gaps you'd like to fill and it won't show. This putty makes an excellent joint strengthener, and it is very easy to sand, cut, drill, finish, etc.

TIP: Any of this putty that starts setting up on you and getting too hard to spread, just slap it quickly on a glued joint that you want to make stronger. Keep some of these places in mind -- to be ready.

Alright, now back to the bow and stern areas that usually need fairing up, which I spoke of earlier. The stringers, (2 on each side of bow and stern pieces) probably don't feather in cleanly at the ends. After you've practiced with small batches of putty elsewhere, you'll do a better job in these "high-visibility" areas. When it gets hard, this filler can be easily sanded very smooth, so don't worry about applying it with little bumps or ridges showing. You won't have time to be really fussy since it sets up so quickly, so leave these rough edges for the sanding. What you want to do at the bow and stern is to have the stringer ends "fade into" the pieces, looking like they just disappear into the wood (when you see the faint outlines through the fabric later). So, I go back to about where the stringers begin the slant-cut (about 2" back) and smear as smoothly as possible some filler putty between the stringer ends, feathering it into the piece edge. (a putty knife with a 1" to 1½" flat end works best for this.) Work fast with a golf-ball sized batch on each side and this should do it. After the filler sets up <u>hard</u> (about 20 to 30 minutes) sand it by hand (block of wood with sandpaper contact cemented to it) with medium grit sand paper. You might need to touch up several small depressions with another application of filler.

TIP: While the bottom is turned up, I make up a batch of filler and quickly spread a 1/16" thick band over the two bottom extension seams (where the triangle pieces mate with the larger bottom piece). Make this band about 3 inches wide. It is best to use a putty knife with a 1" or 2" wide straight tip -- or even a stiff piece of plastic with a 2" or 3" straight-edge. Sand the band a little bit to feather the edges when the filler is hard. Also, you can fill and sand any small irregularities you might find on the bottom (the screw and nail heads, etc).

<u>Choosing the fabric covering:</u>

There are several kinds of fabrics I have used in the building of kayaks over the years. Some of the primary ones are cotton canvas, fiberglass cloth, cloth-backed leatherette, and even reinforced tarp plastic. The <u>only</u> fabric I now use in kayak building is what is known as **HEAT SHRINK DACRON**. After my very first time using this wonderful fabric. I knew I would never use any other kind! It simply has too many advantages going for it. Here are some of them.

First, let me state some disadvantages of the other fabrics.

1. <u>Cotton canvas</u> is very heavy. Its courser weave requires three or four coats of varnish or paint just to <u>seal</u> it for final finish painting. It is subject to rot after 3 or 4 years. The price of canvas, moreover, has gone far above that of heat shrink Dacron.

2. <u>Fiberglass "boat cloth"</u>. This is also much heavier than the Dacron, plus it requires the added weight and messy work of using fiberglass resin. As with canvas, it is also difficult to control wrinkles.

3. <u>Leatherette and plastic fabrics</u> are even more difficult to work with because of extreme wrinkles and their strength is not very good.

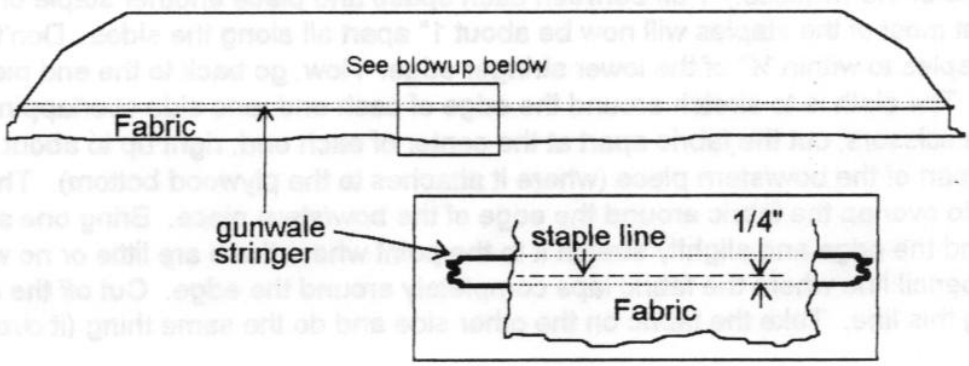
Heat Shrink Dacron, and its advantages:

This Dacron fabric is much lighter in weight than any of the others, and it is very strong. It costs less than the others. It applies with less wrinkling than any other fabric -- and any that do remain can be almost entirely eliminated after it is installed! Finally, it can be paint finished the easiest of all -- just two coats of easily applied clear urethane varnish and a color finish coat. (Note: The wrinkle removing heat shrink process is described in detail in the fabric application section of this booklet.)

See my easy instructions for ordering Heat Shrink Dacron fabric at the end of the booklet. If you place your order for the fabric before beginning the frame construction, you should have it by the time you need it.

Putting on the fabric:

Place the fabric lengthwise over the bottom centering it or, if it is wide enough, leave a little more hanging down on one side, making sure you have at least 2 inches overhanging the gunwale stringer on the other side at the mid-station. I do this, if possible, so as to have two larger scrap triangular pieces from one of the sides (that will be left after trimming) and these will usually cover the deck over the bow and stern areas. The remaining scrap pieces will usually be enough to cover the side deck surfaces. When you have the fabric placed in this manner, go to one end (make sure you have the fabric overhang each end, bow and stern, by the same amount) and then push 2 thumb tacks about 2 inches apart at that end into one tip of the plywood bottom. Go to the other end of the boat and pull the fabric toward you, stretching it along the bottom until a long, shallow wrinkle just slightly becomes apparent running from end to end. Then push 2 thumb tacks firmly into this other end. Check to make sure you have enough fabric on the "short side" to wrap over the gunwale stringer on that side. You should have about 20 inches to spare on the longer side for making end decks later. Now, I use some fabric attaching methods which might be frowned upon by some of the professional boat builders, but in over ten years of boat building, I've never had a bit of trouble with my method. I use a staple gun with ¼" staples, and contact cement. (The staples won't rust, as some fear they might, in using this method. The conventional way to attach fabric has been to use ⅜" tacks. This is awkward since it is hard to pull the fabric taut while driving tacks at the same time. Stapling is much easier and gives a better finished result. The staple line you'll be using is a row of staples approximately 3" apart into the gunwale stringer (no staples into any of the other stringers!). When the boat is situated bottom up with the fabric hanging down on each side, the gunwale stringer is the low one nearest the floor. Your row of staples should be placed with the staples being only about ¼" up from the downside edge of the stringer (see figure below).



You want to keep the staples this close to the down edge so that a gunwale molding that will be installed later will cover the staples with its ½" of overlap. (You can fudge up to almost ½" therefore, and the molding will hide the staples.)

Now, with the staple gun handy (or tacks, if you must) take the fabric at mid-station and pull it just taut straight down, not angle-wise. Don't pull so hard that it slides the fabric across the bottom and pulls up the other side. Then put 2 or 3 staples through the fabric into the gunwale stringer, no closer than about 3 inches apart, holding the fabric taut with the other hand. Go to the other side of the boat and do the same thing on that side. Do the same thing again toward either fore or aft, next to the pull you've just made, pulling one side tight and stapling, then going to the other side and pulling this tight and stapling. Always observe the cloth after each pull, before stapling. The tightness of pull that leaves the cloth with the least wrinkles is the proper pull. (Don't worry about small wrinkles for now). Now, when you have about 3 pulls with staples on each side of the mid-section of the boat, you should go to one end of the boat and grasp the fabric in both hands and stretch the fabric (fairly strongly) toward you. Look along each side to your staple line and see where this pull takes out the most wrinkles. (Sometimes you can accomplish this better if you stretch on just one side at a time; try it and see which works best for you.) When you achieve the pull that leaves the least wrinkling, put 2 staples close together in the edge of the stern or bow piece and also into the gunwale stringer, close to the end of the boat. You'll probably remove these particular staples a little later, so don't "set" them as firmly (by not pressing the staple gun so firmly against the surface). Repeat this end tacking on both sides of both ends of the boat. Go back to your mid-stapling and continue making straight down pulls as before. Always alternate to the other side after each pull or two. This keeps a balanced stretch on the fabric. When you get near the ends and close to your tack staples which you put in earlier, it is usually best to remove these by carefully lifting them out with a small thin screwdriver. Their removal often gives you a good chance to eliminate several stubborn wrinkles nearby.

By the way, when you've made several pulls on each side of the mid-station, the fabric will be stabilized sufficiently on the overall boat to allow you to trim off the excess fabric which accumulates toward the ends. This trimming off of excess makes the later pulling easier to handle. Take scissors and carefully trim fabric off the end areas, leaving at least 2" hanging below the gunwale stringer. Start this trimming at the mid-station and work toward the bow and stern ends. When you get within 6" or so of an end, make sure that the fabric will wrap around the edge of the bow or stern with about an inch to spare. The fabric will end up covering the entire edge of the end piece. Now you can go back over your staple lines (remember, I advised you to put the staples about 3" apart, and this was because the 3" spaces will allow you to make additional little "fine tune" pulls in these spaces to possibly remove more of the wrinkles.) Pull between each space and place another staple or two in them so that most of the staples will now be about 1" apart all along the sides. Don't forget to keep the staples to within ½" of the lower stringer edge. Now, go back to the end pieces (bow and stern). The cloth is to stretch around the edge of each end, one side overlapping the other. With scissors, cut the fabric apart at the center of each end, right up to about 1" below the bottom part of the bow/stern piece (where it attaches to the plywood bottom). This cut allows you to overlap the fabric around the edge of the bow/stern piece. Bring one side of the fabric around the edge and slightly stretch it to the point where there are little or no wrinkles, marking a pencil line where the fabric laps completely around the edge. Cut off the excess fabric along this line. Take the fabric on the other side and do the same thing (it overlaps the

other fabric and is cut off where it also wraps around to the opposite edge of the stern). Don't staple the fabric to the bow/stern edge for now, leave it free.)

You will now begin using your contact cement. This cement is best applied with one of those little metal tube handled utility brushes (with bristles about ½" wide), often called plumber's utility brushes. They cost only 15¢ to 25¢ each. Get 2 or 3 of these (at a hardware store or builder's supply). You can clean the glue from the bristles (or from your hands) with gasoline, kerosene, or lacquer thinner. Keep a small cough-syrup type bottle with one of these thinners in it to stick your brush into when not in use. Also, since contact cement shouldn't be subjected to much evaporation exposure by leaving the quart can open for minutes at a time, I pour out about 4 ounces into a similar small-necked bottle. I even go a step further (since I use contact cement around the shop for many things) and, using a dab of filler putty like you've been using, I cement one of these utility brushes into a hole drilled into the cap of a 4 ounce cough syrup bottle and keep the brush in the contact cement in it, always ready for use! You might want to do this, as it saves a lot of time.

Alright -- you should have been admiring your much more finished kayak for awhile, so now you can turn her right side up. You have this approximately 2" of cloth free and sticking up along the gunwales, and also the unfastened fabric at each end on the bow/stern pieces. Fold the fabric over the top surface of the gunwale stringers and make a crease along the inside edge of the stringer with your finger so that you'll have a "line" to trim off the excess by. When you trim, leave about ½" extra "to the good side" of this crease so you can also wrap the cloth over the inside edge of the stringer. Straighten the cloth back up and just swipe a very thin smear of contact cement about an inch wide on the underside surface of the fabric. Leave this to dry while also painting a thin layer of cement on the top side of the gunwale stringer and also down about ½" of the inside surface of the stringer (to secure the extra bit you left for folding over). Let the cement set up on all surfaces for about 10 minutes, then you can just smoothly "roll" the fabric down to and around the stringer -- and it's really stuck. If you haven't used contact cement much or at all, you'll see that you must be careful in bringing cemented surfaces together, for once they touch, they're going to stay wherever they've touched! Bearing this in mind, you can now go to the ends with some confidence as to what to expect. You've already trimmed the end fabric so that each side just overlaps the wood edge completely to the other side. Lift one of the fabric flaps and apply a ¾" band of cement just at the edge on the underside of the fabric. Fold it back away from the edge of the bow/stern piece and paint cement down the edge. If you find it difficult to cement all the way down to the bottom of the bow/stern piece, you can later turn the boat over so that this area can be more easily reached. Do the other flap the same way, but only paint the flap. You'll paint the edge later after you've stuck down the first flap. Stick down the first flap when the cement has dried to the touch. Carefully align the fabric just as you want it before "touch-sticking" it an inch or two at a time with a finger. When this first flap is cemented down, paint a thin smear of cement over the edge flap you've just stuck down so that you can stick down the other flap on top of the first in overlap fashion. Let this cement set about 10 minutes, then stick it down, overlapping the first flap. Go to the other end of the boat and repeat the same process.

<u>The miracle of heat-shrink Dacron:</u>

I'm sure you are probably fretting over 10 or 15 or more wrinkles that you've been studying minutely over the boat. Don't! You are about to make them disappear either completely, or nearly so! But, before you start, I want you to do a <u>practice</u> run on a scrap of fabric you've trimmed off in covering the boat. Make a little frame of wood about 6" wide by a foot long from

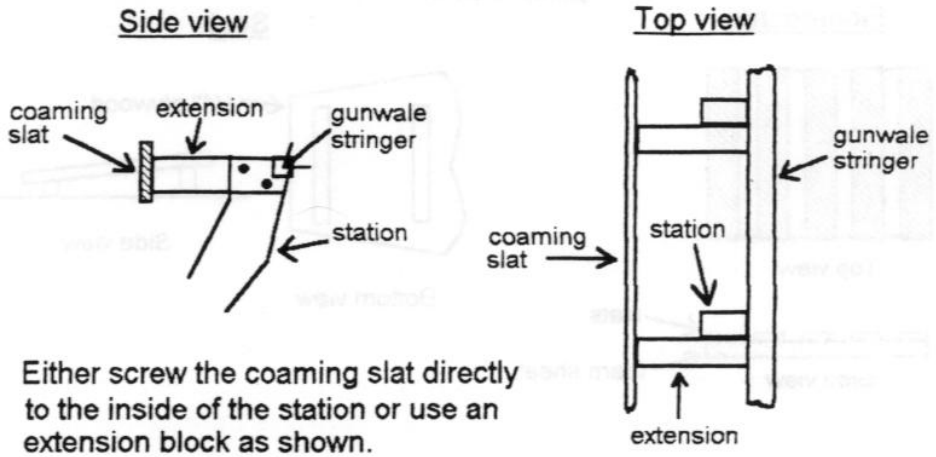
some scrap stringer wood (the pieces cut off the 14 foot lengths for instance). Just throw it together by nailing two cross bars on top of two vertical pieces about a foot long. Take a scrap of fabric (from one of your smallest scraps) that will cover this frame. Staple it to the top and bottom cross bars, leaving it rather loose. You might even crease it a little to make it look real bad! The tool you'll perform the miracle with is an ordinary household iron. You want the iron set on very low heat. Heat it to your lowest setting (no steam) and place it very lightly against the framed, loose fabric. Move the iron slowly back and forth just barely touching the fabric. If you don't see a shrinking of the fabric within a minute or two, just inch the heat control up in small degrees, taking a minute between these settings to continue passing the iron over the fabric surface. Just as soon as you notice a slight shrinking of the fabric, stop moving the control higher. The shrinking should become visible and faster as you continue passing the iron over it. I've never burned or melted this fabric, but I should make a test to see at what point it would. I've simply noted on my iron the point where the fabric shrinks noticeably within 20 to 30 seconds of passing the iron over it. Then I always just put my iron on this setting and let it heat up and leave it there. Aren't you surprised at how this framed fabric gets almost drum-tight? Now you can begin, with the same caution, on the boat. Don't try to rush the shrinking by moving the heat up too high. Even at a slow rate you'll probably do the entire boat within 30 minutes or so. If a few loose places occur after shrinkage, you can tighten them up again with the iron later. You can even tighten up places after a coat of varnish has been applied and dried! I've done this on several occasions and they never loosen again.

After you've shrunk the fabric on the boat to your satisfaction, it is good to apply the first sealing coat of clear gloss polyurethane varnish to all of the fabric on the boat (my preference is Zip-Guard ® clear gloss urethane). After this coat has dried at least overnight, a second coat will completely seal the Dacron to a waterproof condition. Since it takes so very little varnish after the first coat, I put a third coat on to further toughen the fabric and add body. A coat (or two) of good oil paint of the color you want (in gloss finish) after the varnishing has you set for over two years.

Finishing up the kayak:

When varnishing the fabric, keep adding a coat to the plywood sub-floor inside. Since it is not marine grade, it needs all the protection you can give it. You'll install a light weight slat floor over this, which I explain later. For now, let's turn to the cockpit. The 3 stations have a slightly outward slanting flat surface on the inside. This surface will take up to a 2½" cockpit coaming "board". But to keep weight to a minimum, you can use a stock flat slat, ¼" thick by 1½" wide, available in builder's supply stores. It works perfectly well and looks good. A 12 foot piece of this will do both cockpit sides with some to spare. As you can see from one of the photos of my kayak, I didn't use slat stock for the ends of the cockpit. I saber sawed nice little arched pieces from some of the leftover shelving board (you should have enough left to do the same). They are simple to make and look very nice. I installed these first, before putting in the side slats. The side slats for the cockpit were cut about 4" long (5' 4") so that the ends can extend under the arched ends and into the storage area. This gives a nice finished look from the outside and entails no joining work at the cockpit corners. Now in my kayak, I attached little extension blocks of wood to the stations and then fastened the coaming slats to these to make a wider deck. Then I glued extra wood block extensions between the gunwale stringers and the coaming slats to strengthen these areas when they are used to pick up the kayak from the sides. If you want a narrower deck, you can just screw your coaming slats directly to the inside of the stations on the 2¼" flat surface above the bend. If you want a side deck 6" or more in

width simply screw in the extender pieces to the sides of the stations and fasten the coaming to the ends of these extensions.



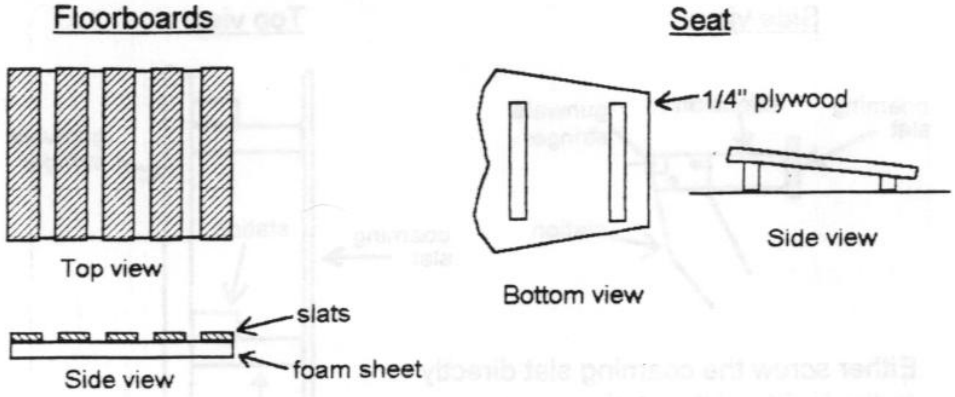
Either screw the coaming slat directly to the inside of the station or use an extension block as shown.

Note that the coaming slats project up a half inch above where the deck fabric will be so as to keep any water spray from dripping over into the cockpit. Also, if you would like your side decks to be really solid, you can lay pieces of plywood over this area (you'll have more than enough plywood left from the approximately 16" piece remaining from your sheet to do this and make a seat.) This plywood can be covered with fabric and painted -- or even left natural and varnished! (I'm thinking of doing just this on a future kayak).

Floorboards and miscellaneous finish work:

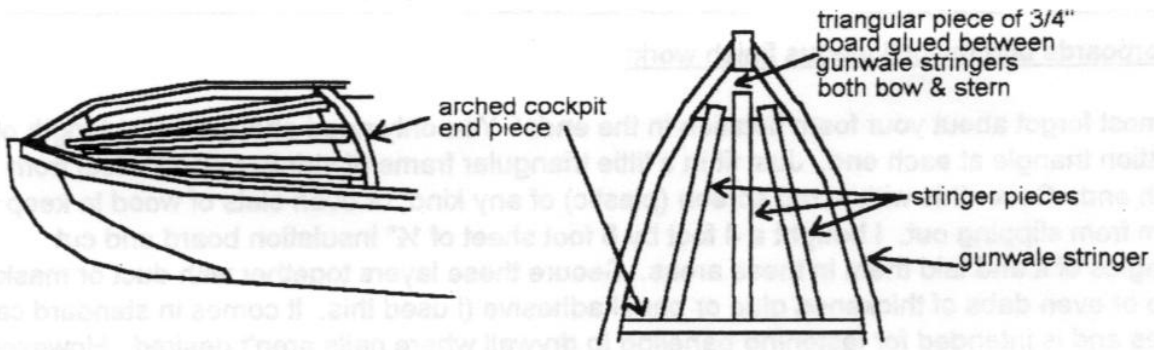
I almost forgot about your foam flotation in the ends! You only need about a 1 foot length of a flotation triangle at each end. Just fit in a little triangular frame of stringer wood a foot from each end. Cover this with scrap screen (plastic) of any kind, or even slats of wood to keep the foam from slipping out. I bought a 4 foot by 8 foot sheet of ½" insulation board and cut triangles of it and laid them in these areas. Secure these layers together with duct or masking tape or even dabs of thickened glue or panel adhesive (I used this. It comes in standard caulk tubes and is intended for fastening paneling to drywall where nails aren't desired. However, this adhesive is extremely versatile and very strong and can be used in many ways around the shop). Or, you can just fit chunks of scrap packing styrofoam in these areas. However, be careful in all cases to keep any foam edges from pushing against the fabric sides and causing "bumps". This is why I use fitted triangular flat pieces, cut to come no closer than 1" from the sides. If you buy a sheet of the ½" insulation foam, you can use it for this purpose, and then use the remainder in another way. From the rest of the sheet of foam, I cut and fitted pieces that laid over the plywood floor between the 2 stations of the cockpit! This distributes the weight on the plywood and also serves as extra flotation. I didn't glue these down to the plywood since I wanted to be able to remove them. I screwed small holding blocks to the station bars at each corner of the foam piece. Then another great idea hit me! I bought an extra piece of the1½" x ¼" slat like I used for the coaming and cut lengths that would run the length of the foam "floor pads". I simply panel adhesived these slats onto the foam, spaced ½" apart. First I painted the foam surface with dark brown latex paint that I already had and let that dry thoroughly. Then I put the slats on and varnished these (letting the varnish also go on the brown latex covered foam showing between the slats. These are beautiful little floors -- and extremely light weight -- and removable!

My seat design is the same as the ones my former Fol-Bot® had. They are very simple but comfortable (especially with a thin foam cushion).



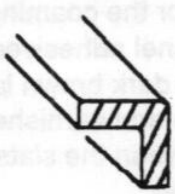
Miscellaneous details of construction:

The triangular bow and stern decks are formed by gluing a triangular piece of ¾" board to the underside of the ends of the gunwale stringers where they meet at the bow and stern pieces. Then stringer pieces are fastened between these triangle end blocks and the arched cockpit end pieces.



Over these triangle bow and stern stringers I stapled a layer of tough plastic tarp material. I get all I want free from builder's supply stores. It is used to cover loads of lumber on the trucks which deliver the lumber to the stores and the stores simply throw it away! Then over this plastic layer, I install Dacron fabric, stapling it to the gunwale stringers. Then I heat shrink the fabric and varnish and paint it.

Regular ¾" outside corner wood molding is installed over the outside corner of the gunwale stringers (paint or stain it first!) and fastened in place with ¾" copper nails. This adds worlds of appearance to the boat, serves as a tough rub-rail, and of course, it covers your staple line.



3/4" outside corner molding
(get the unfinished wood kind)

Dark brown fabric-backed glossy leatherette was used (contact cement glued on) to the bow and stern (see photo of my kayak) after all painting was done. This sort of detailing makes a very "dressy" finishing touch.

I know that some of you are wondering whether you can build this little kayak. I kept this fully in mind through the months of fine-tuning every construction step as to the simplest way it can be done. Just follow each step as I describe it and I am sure you won't have any trouble. I know one thing for sure. When you're only about half through and see the shape become more beautiful with each step that you finish, you'll feel a special kind of pride that you've hardly felt before! And, when you finally put it into the water, and get in it, and take your first dip of the paddle -- and feel it surge forward in an effortless smooth glide like you've never felt in a boat before -- WOW! -- you'll truly say "it just don't get any better than this!" ... and I actually created it myself!

Before you take it out on the water among other boaters, get two little 2" thick foam pillows (easily made) and place one on your "paddling seat" and stand one (with a thin plywood back to it) slanting back against the arched end piece at the rear of the cockpit. Settle back against it and strike an "easy chair" pose out on the lake or river that will make the eyeballs pop in any canoeist that might be in the area. Talk about satisfaction!

ORDERING HEAT SHRINK DACRON

I have made arrangements with the supplier of this cloth to buy it for my customers through my Hobbycrafts account at their lowest wholesale price. I have also arranged for one-kayak units of this cloth to be made up, ready to ship. The wholesale price of one of these units, SHIPPING COST INCLUDED, is only $35. To get this wholesale price, your order has to go through Hobbycrafts' wholesale account (the retail cost for this unit of fabric would be a little over $45). I usually purchase over a dozen units at a time to get the $35 price.

Therefore, send your order directly to me, with a check or money order made out to HOBBYCRAFTS for the amount of $35 (this includes shipping and packaging). Fill out the coupon below, indicating the address to where you would like your fabric shipped. Order it before you begin constructing your kayak and you should have it by the time you'll need it!

Name: _____

Street or P.O. Box: _____

City: _____ State: _____ Zipcode: _____

Don't forget to include your check or money order for $35, made payable to

Hobbycrafts

Rt. 1, Box 158-E
Vilas, NC 28692

INSTRUCTIONS FOR A 14 FT. BOAT

I believe I will advise you to use a bottom-curvature method like I used in building my very first Li'l Beauty. Instead of leaving the bottom plywood uncut until attaching the bow and stern pieces, then using a stringer to get the length-of-boat curvature, I made a full-size template of the bottom.

I got (free) a piece of this black on one side and white on the other lumber-covering plastic that all builders supply stores just throw away after selling the stack of lumber it covered. Each load of lumber they get from the factory comes covered in this plastic, so they just discard it all the time. I find it is the easiest way to get a piece of material large enough to make this kind of template. Of course, any material like heavy paper would do also. Get a piece of this plastic at least 14 ft. long and about 3 feet wide or more.

Use the white side to draw the template on. A black marker with felt tip works O.K (use one of the finer lines one if possible), but the big tip ones will also do.

I laid my plastic, white side up on a floor. I drew a straight center line down its length. Put a dot at one end and measure off about 31½ feet at the other end. Don't lay off 14 feet, as your bow and stern pieces each stick out about 3 inches further than the bottom points of the plywood, by the nature of their outward-sweeping curvatures. Don't worry about building a perfectly exact 14 foot finished boat, for an inch shorter or longer won't matter a bit, nor be noticed.

When this center line is drawn, end-to-end being 13½ feet, mark off your station points or lines on exact right angles to the center line. On your 14 ft. boat they will be located this way: Mark a dot on the center line exactly mid-way from each end. (13½ feet is 162 inches. Half this is 81 inches, so, from one end dot, put a dot 81 inches from it. It will also be 81 inches from the other end dot). Now refer to page 7 in manual. The mid-station across-bottom bar is 19 inches. You'll have two of these in your 14 ft. boat (instead of just one for a 12 ft. boat). So, make a dot 12 inches from the dead-center dot, toward the bow end, and another dot 12 inches from the stern end. Draw a line across the center line at these dots, exactly perpendicular to the center line. Your 19 inch station bars will center on these lines. Since 19 inches halved is 9½ inches, make a light dot this distance out from centerline on each of these station lines. The bottom plywood is to be 3/4 inch wider than this 19 inches, so make a heavy dot 3/4 inch out from the light dots and erase the light dots. Your other two stations will be 14 inches bar lengths (see page 7) and these will be placed 30 inches out from your mid stations (see fig. page 7) Mark these 14 inch lines the same way as the mid-stations lines, and also, as you did with these, mark dots 3/4 inch longer on each side. Make a heavy dot at these points. Now, you've established your stringer-bending curvature points. Take a long stringer piece (at least 14 ft. long) and tack one end to one end-point dot. Drive a little nail into all the other dots down each side, leaving the nails sticking up most of the way, forming little "pegs". Put a nail into the end dot, too. Now bend the stringer down along the outside of these nail pegs, placing holding nails on the outside of the stringer (not through the stringer).

SEE OVER

(14 FT. BOAT)

continued from over

Now, when you have the stringer curved around the nail pegs all along one side, and pegged against the end nail peg, you will have the exact full-length curvature of that side! Just mark a heavy line down the outer side edge of the stringer onto the template. Now, you can repeat this for the other side, with another stringer (which is probably best), or remove the stringer and simply fold the plastic along the centerline and trace this line made by the first stringer onto the plactic template (like we used to do to make little paper "hearts!). The plastic might slip a little, however in tracing it, so that's why I said it might be best to just lay out a second stringer on the other side, like the first. Then you can cut the template out on both sides.

Trace this template out on your actual plywood after placing extending pieces at each end in order to get enough length. (or you can mark a line on the template where the plywood ends on an 8 foot sheet, and then trace the resulting template triangles onto other plywood. Then attach the trianles as per manual instructions.

You can then cut out your plywood bottom with a jig-saw and it will be all done.

Then attach your bow and stern end pieces to the bottom plywood and let these set up strongly with glue and screws (as per manual).

Tack or clamp the bottom to your platform, so it won't move around. Have the end pieces sticking upward. Then proceed putting the side stringers on as per manual instructions.

ORDERING DACRON CLOTH

I've recently saved my kayak builder's time by not drop-shipping this Dacron cloth myself, but letting them order it directly from the factory (also saving you about 15%). Order as per below:

Dacron fabric #605 3.7 OZ. X 66" wide (heat-shrink). Order five yards for both 12 or 14 ft. boat. Order from:
AIRCRAFT SPRUCE & SPECIALTY CO. P.O. Box 424 201 West Truslow Ave.
Fullerton, CA 92632 (714) 870-7551
NOTE! Tell them to ship it folded in a box. Shipping is about $5 less this way! Price last year, including shipping, Approx. $35.

92832

P.S. You might want to consider my Lil-Blanty II (14 ft) kit when it should be ready in about 2 months (maybe sooner). I'd deduct the $16 for this manual if you decide to do this. Walter

(14 FT. BOAT)

continued from over

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92832

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SEE OVER

I took this kayak out to a big lake today and it paddles + handles beautifully. Holds 2 full size adults.

I'm working on the prototype of a newly-designed 14 foot touring kayak similar to my 12 foot L'il Beauty. I'm using a new, very lightweight rigid plastic material that I've just discovered. (This 14 ft. shouldn't weigh any more than the 39 lb. Li'l Beauty!) It's success depends on very strong glues, and the rigid plastic eliminates nearly all the lengthwise stringers of a fabric-covered boat. However, I think I would be afraid to offer it in a do-it-yourself (from scratch) manual, for the strong adhesives and even this plastic can't be obtained locally. So, I'm thinking in terms of a kit, with the hull panels and the cross-stations pre-cut, and with the adhesives furnished. These, with full instructions for assembly, of course. It's really simpler to build than the stringer-fabric method. I've also eliminated the stitching in the "stitch-&-glue" method! I think I've hit upon an innovation in this particular process! I've got the hull finished and the lines are looking excellent.

It should be even stabler than the 12 ft. Li'l Beauty. I'm using my preferred long, spacious open cockpit, so that it can serve many purposes, such as camping, fishing and just fun touring and exploring. Of course, the cockpit could just as easily be made like the usual kayak, for those who prefer this kind. This boat should carry at least 450 or 500 pounds safely, thus enabling two full-size adults with fishing or camping gear to use it.

I've been figuring every-which-way to keep a kit price as low as possible. At present, it looks like the minimum price would have to be about $295. (However, I paid $350 for a Fol-Bot kayak kit that I bought 20 years ago!). I think this boat will equal any $600 kayak I've seen on the market and in catalogs. Even the kits I've come across in ads and catalogs are priced from $350 to as much as $695!

If you don't start building Li'l Beauty right away and might be interested in a kit of this boat when I get it all worked out (I figure in about 2 or 3 months), I'll send you first photos of the prototype I'm building. I would deduct the $16 manual price for Li'l Beauty from a kit price.

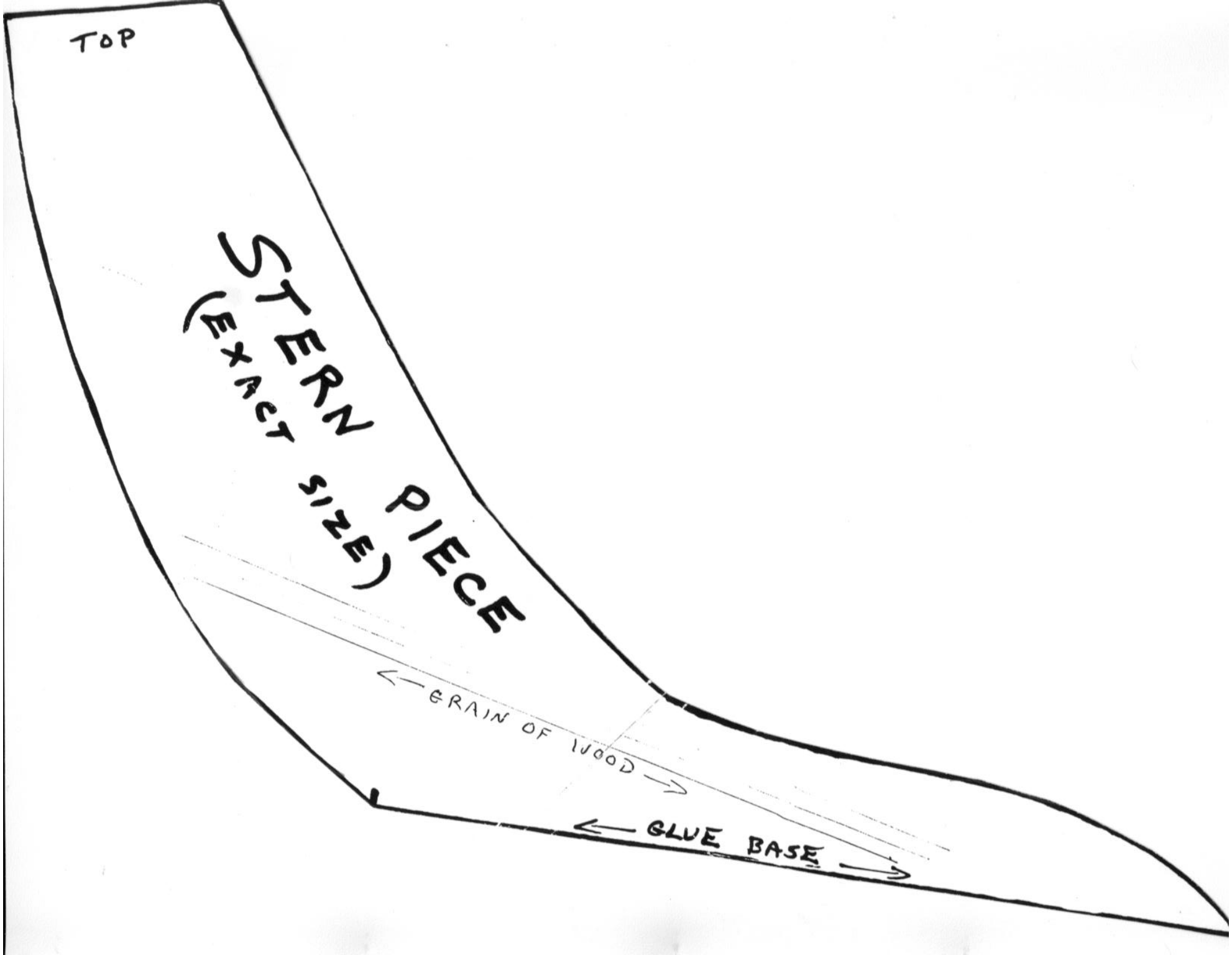
Sincerely,

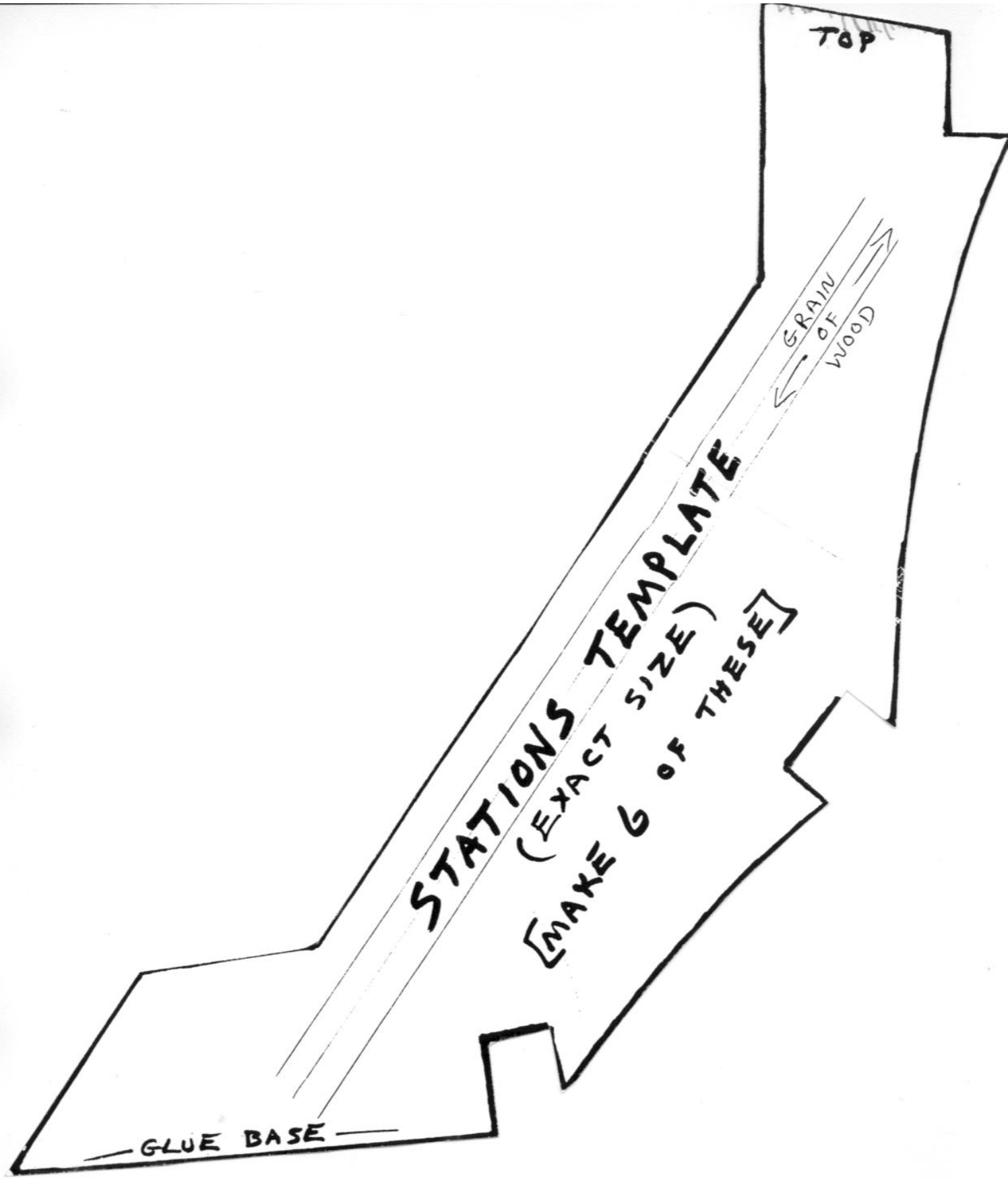
Walter Head

Walter Head

P.S. I'm getting too old to do much more than to offer a kit for this new boat. But, I know that there are a lot of people who are concerned about their ability to even assemble a kit. I'd love to have such people have the satisfaction of experiencing a long-held dream I feel they have. To these, I would like to hold out a possibility that might be within my capacity. This is to offer a personally-built boat of this newer Li'lBeauty II kayak on a custom-order basis. I think I could do just a few of these per year at a price of about $575 (plus what shipping would cost). I'd like to hear from people who would be interested in this. Please let me know!

Notice the great amount of room for both seating spaces. LOTS OF STORAGE AT EACH END.


TOP
STERN PIECE
(EXACT SIZE)
GRAIN OF WOOD
GLUE BASE

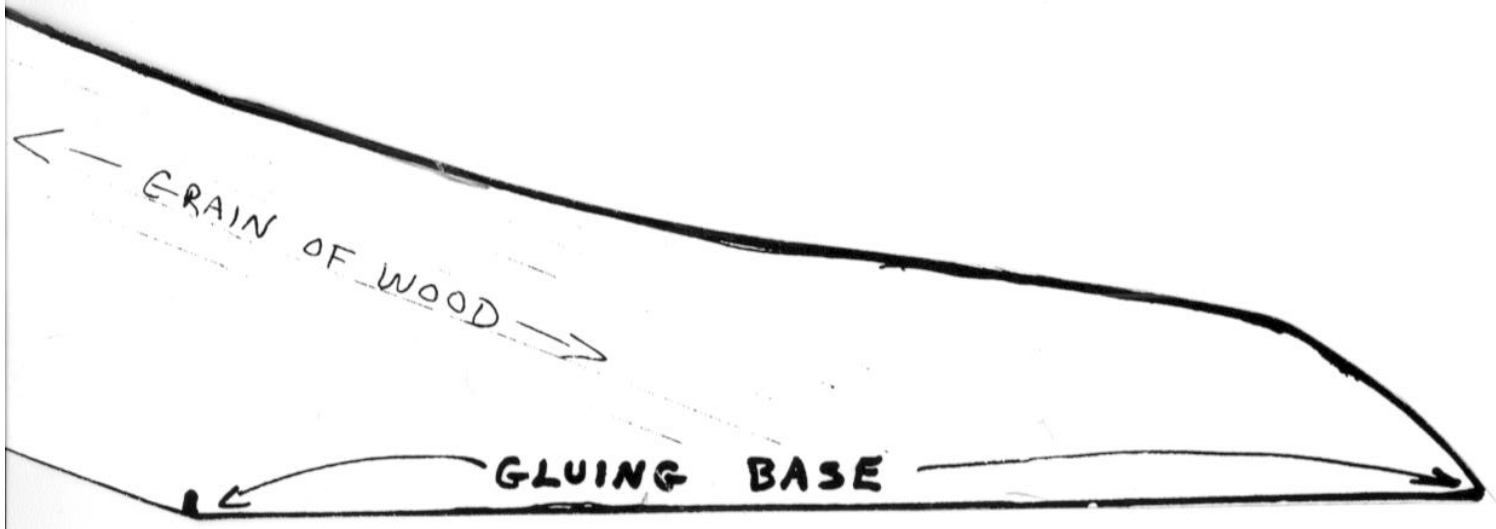

TOP
GRAIN OF WOOD
STATIONS TEMPLATE
(EXACT SIZE)
[MAKE 6 OF THESE]
GLUE BASE

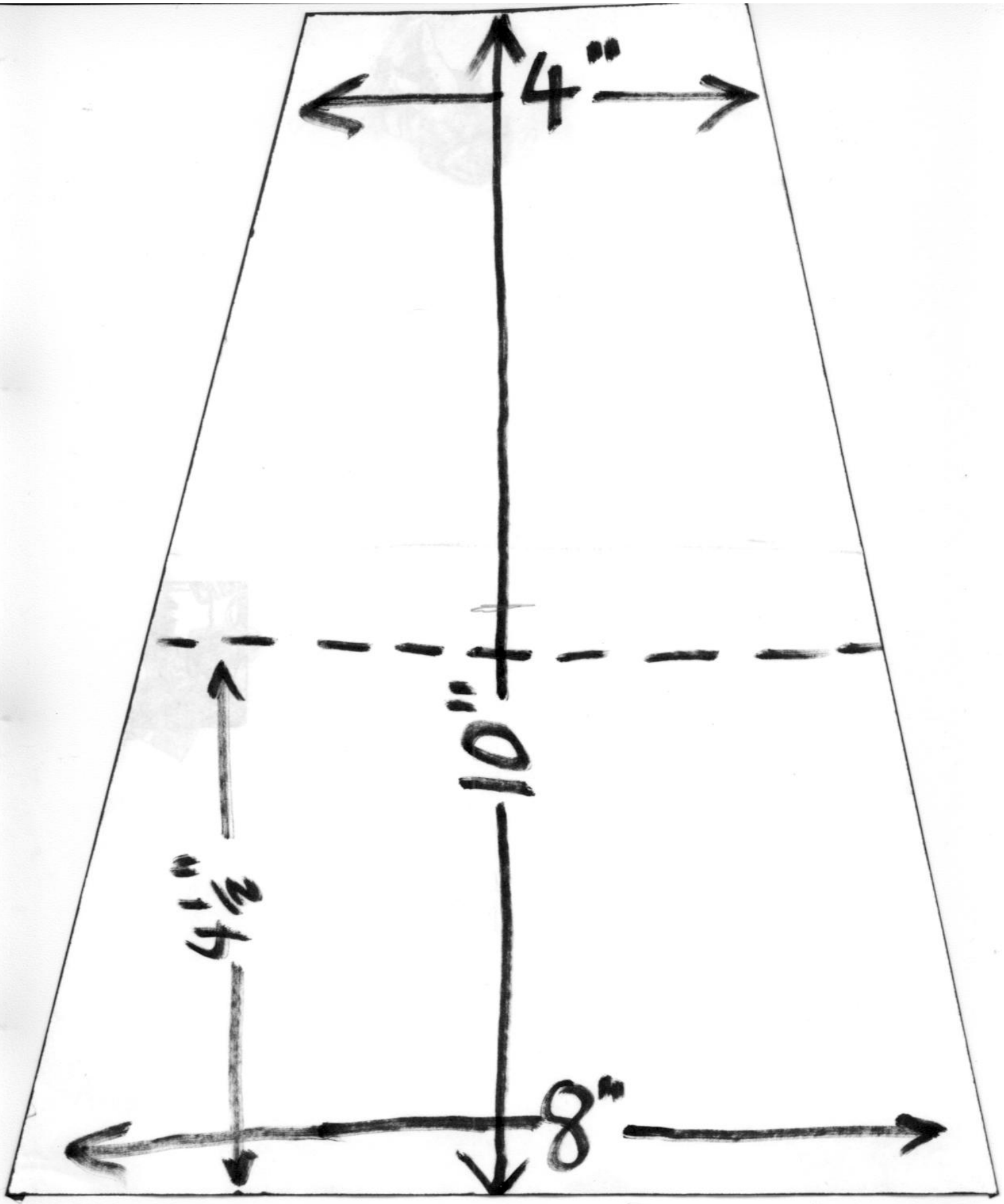
BOW PIECE

(EXACT SIZE TEMPLATE)

TOP

GRAIN OF WOOD


GRAIN OF WOOD
GLUING BASE


4"
10"
3½"
8"