

The following pages replace pages 7 thru 14 in the current printing of BUILDING THE PT ELEVEN. (As of December 2012.) This is a modified method for gluing puzzle joints that we believe is simpler than the pressure plate method originally used in our manuals.

## FLAT TABLE

The first step is not much of a challenge, but building this boat without a flat surface would be difficult.

The table can be as simple as a sheet of 3/4" particle board with straight 2 x 4's screwed on to support it, resting on tall sawhorses. PHOTO 1

Particle board for the table surface is ideal. It is very flat, it holds screws and nails well, and it's inexpensive.

Two sets of sawhorses, on tall and one of medium height would be most helpful.



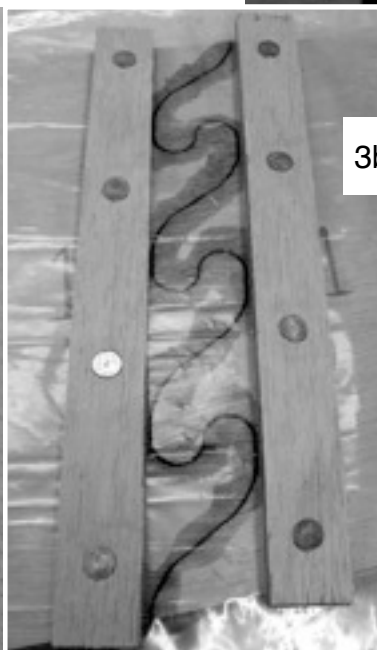
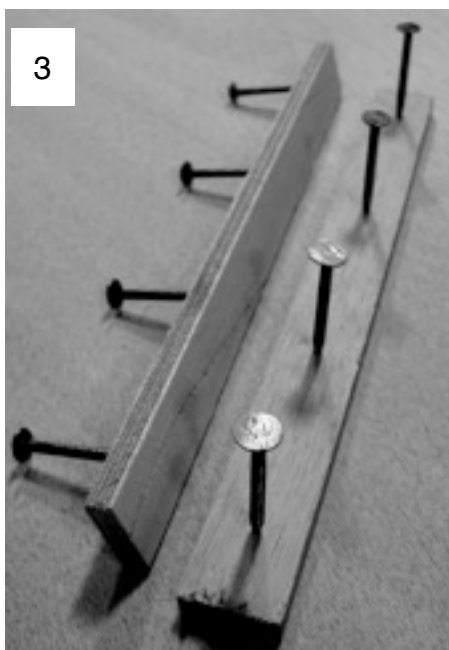
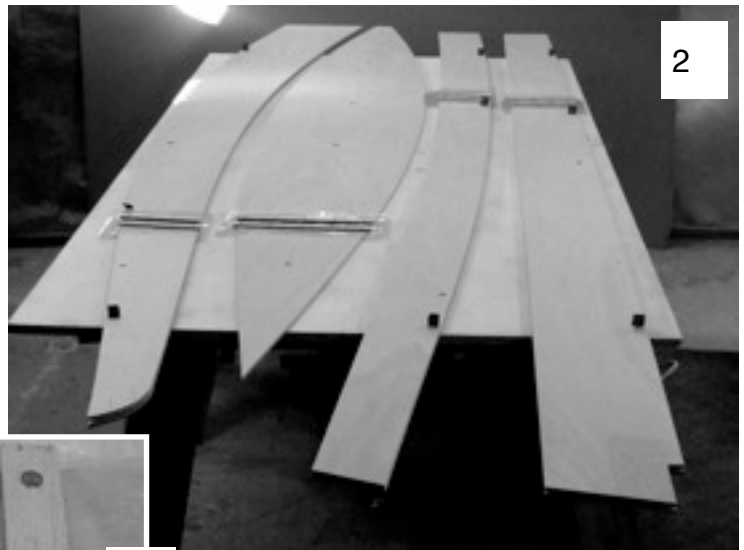
Working at a comfortable height is essential. Being able to change the height of the table and boat will make for cleaner work and a more fun project.

## ASSEMBLING AND GLUING HULL PANELS

In our experience with joining hull panels with puzzle joints, **holding the hull panels flat in the area of the glue joint** when gluing has been shown to be important.

Yes, there are other ways to do this than the way we describe, but to be certain of a nice flat glue joint and a hull free of kinks, we suggest this method.

**The method in brief** is to assemble the hull panels on the bench **two thick** (except the bottom panel). In other words, **the port and starboard hull panels are assembled one on top of the other.** PHOTO 2



3b

Pre-cut strips of plywood are placed either side of the puzzle joints. Nails are driven through into the bench to pull the joints flat when gluing. PHOTOS 3 & 3b

### 3

Scan the whole chapter first. There's quite a few steps, but it will go quite quickly and a good start on your boat will make for an easier build.

The finished profile shape of the hull panels depend on a snug fitting puzzle joint. Perfect puzzle joints are really difficult to achieve. Some kits will have loose puzzle joints and others will be snug. Here's what to do if they are snug:

**Remove loose chips and burrs** from the edges of the puzzle joints with a piece of abrasive pad to make the joints fit together easier. **Sand** the joints with fine paper if they are still too tight. Be careful disassembling joints. Slide a stick under the panel next to the joint. Wiggle and press down on the adjacent panel.

**The inboard faces of all the hull panels have scribe marks.** See illustration on page 6.

These marks are crucial for aligning panels, bulkheads, daggerboard trunk, mast partners, etc. We try to choose the best looking side of the sheet of plywood before machining the parts so that you are planning to bright finish the inside of your boat, the good side is facing inboard.

The two upper panels (right half of photo below) can be matched so that the short pieces (aft ends) have the best looking sides **facing inboard**.

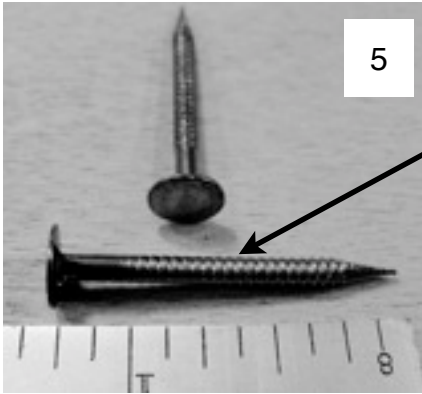
The forward ends of the hull panels (on the left) are hidden under the foredeck, so it doesn't matter how they are arranged.

**The hull bottom panel** must be arranged so that the scribe marks are **facing up on both pieces**.

**Lay the hull panels out as shown**, one on top of the other (except the bottom panel)

PHOTO 4





Cut from the scrap included in your kit **3/4" wide strips of 6 mm plywood.**

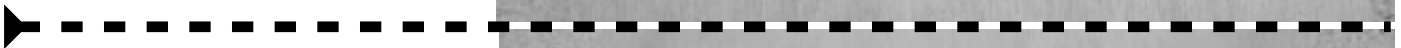
**Use 1 1/4" ring type (skip sheeting) nails. PHOTO 5**

**To show the length to cut the strips and nail spacing, we show a photo of each puzzle joint with the nails just lightly started into the strips.**

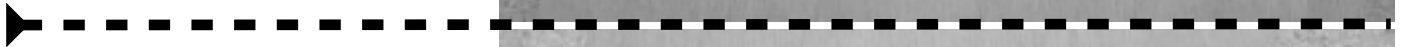
**Cut the strips of plywood to length as shown, **start** the nails in the strips, **mark** which strips go with which panels and put them aside.**

SEE PHOTOS ;

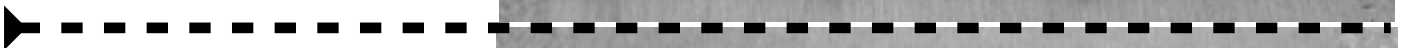
PANELS 1 >



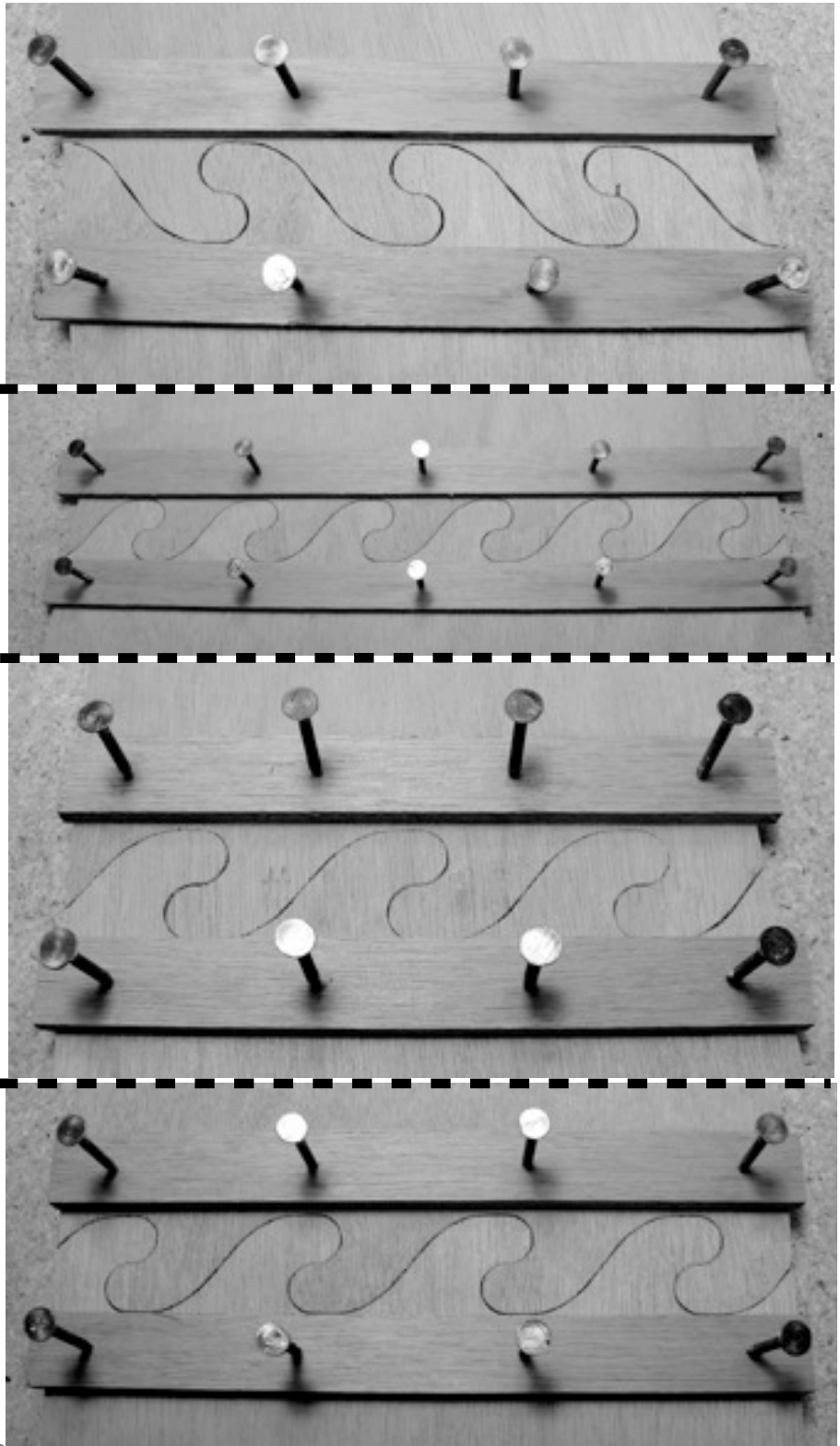
BOTTOM PANEL >



PANELS 2 >



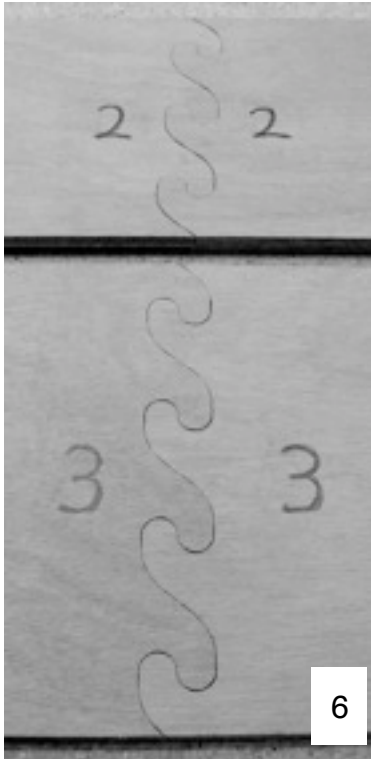
PANELS 3 >



# 5

The next step is to identify which panels go with which, mark them, and remove them from the bench. Start with panels 3 & 2 (on the right side of Photo 4 on page 8).

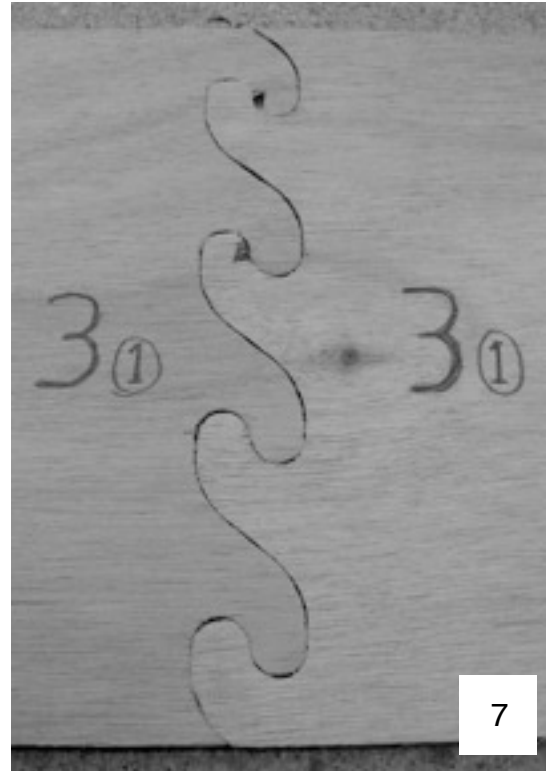
Mark the top layers as shown. PHOTO 6



Remove the top layer of # 3 and mark the bottom layer with a 1 as shown.

The 1 indicates that it is the first layer to go back on the bench when gluing.

PHOTO 7



Proceed with marking and removing all the hull panels and stack them in the order that they will be glued (# 1 panels are glued first).

Lightly block sand the bench to remove bumps and sweep clean.

**Cut pieces of plastic sheeting or waxed paper to place on either side of each puzzle joint.**

These can be approximately 6" x 10". You will need **nine** this size and **two** pieces 6"x 14" for the bottom panel.

The panels should be held on edge for applying epoxy to the joints. Place clamps close together on the right side of the bench and **set up the four pieces of panels 1 as shown**. Placing the lobes of the puzzle joints facing down will help minimize drips. PHOTO 8





## GLUING

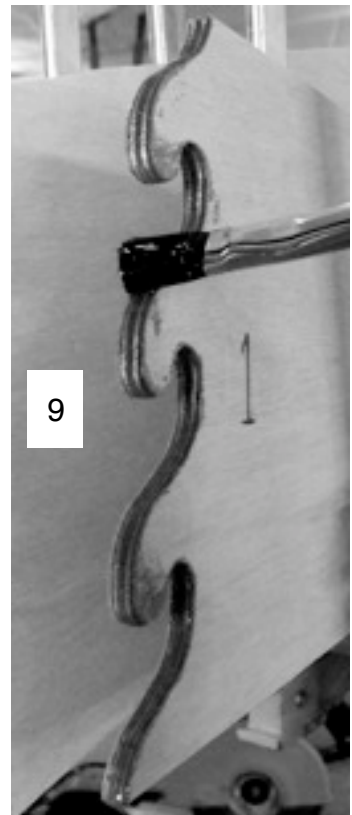
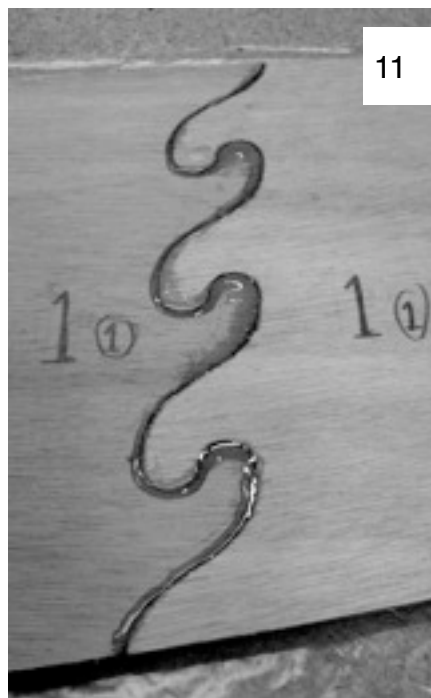
**Glue one set of panels at a time, starting with panels 1.**

Mix small batches (one pump) of epoxy for each set to keep the epoxy thin and easy to apply.

Using a glue brush, **brush a liberal coat of epoxy on the edges of the puzzle joints.**

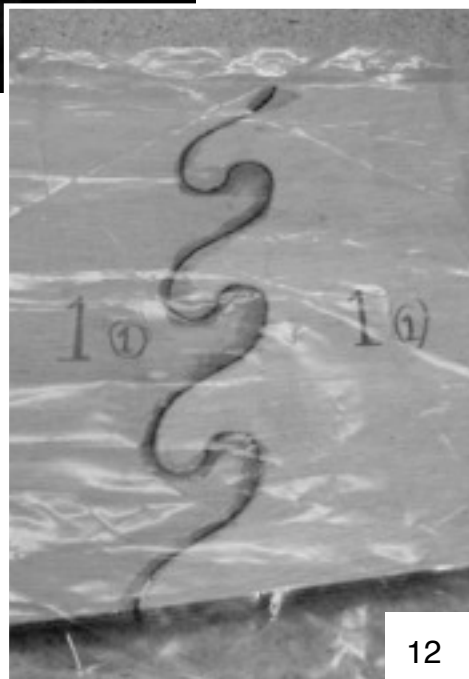
Epoxy will soak in to the end grain of the plywood, so **apply a second liberal coat** to the joint edges just before joining them. PHOTO 9

**Pull the first layer of panel 1 (just the aft, big piece) out of the gluing rack and place it on the bench with a piece of plastic under the joint, then fit the forward end.** PHOTO 10 & 11



**Place plastic over the joint before fitting the next layer of panel 1.**  
PHOTOS 12 & 13

**Check that there is plastic on both sides of each panel.**  
Missing this important step just once would ruin your day.



# 7

The next step is important to insure that the port and starboard panels are the same profile shape after gluing the puzzle joints:

Shift the top layer until it is directly over the bottom layer, in other words, the edges and ends are flush. Drive small nails (near the edges of the panel) in three places to hold the edges flush with each other. One nail near the puzzle joint, the other two near the ends of the bench. The nails have been flagged with tape to make them visible in photo 2 on page 7 & photo 18 on page 13.

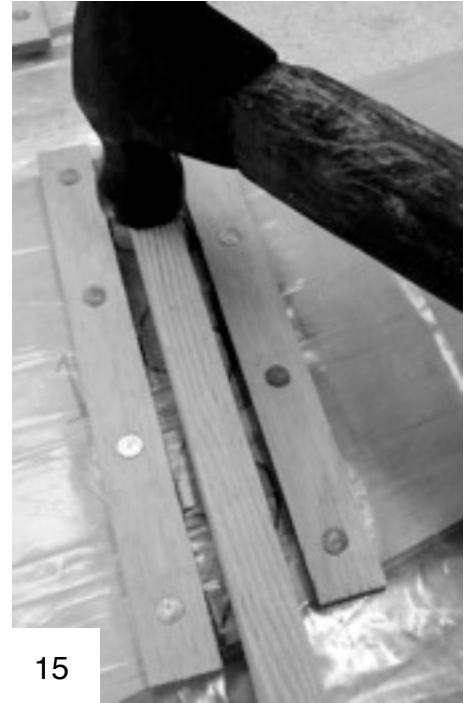
Finally, with plastic over the top of the joints, place the nailing strips (next to the edges of the joint as shown) and carefully pound in the nails.

PHOTO 14

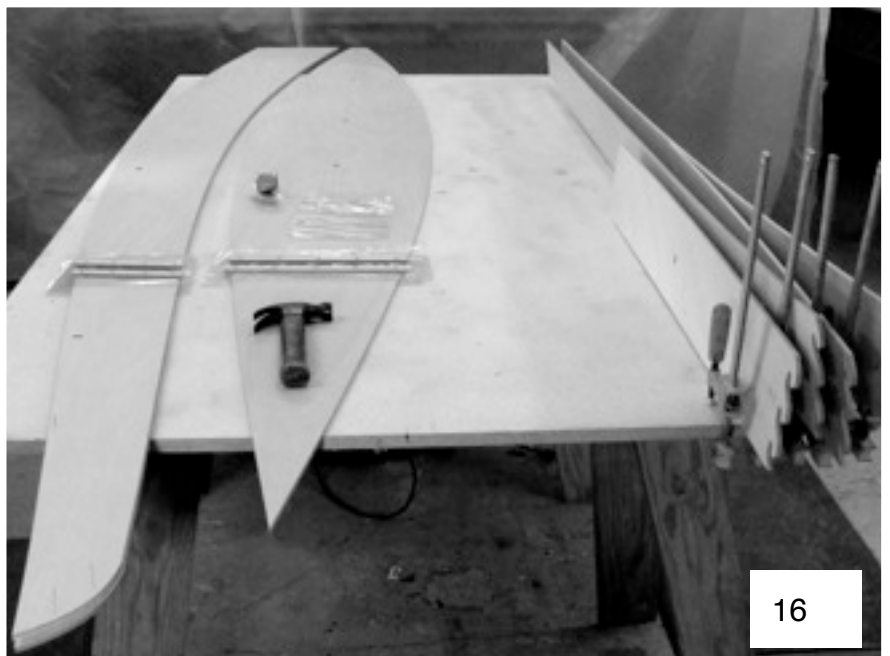


This type of nail takes some effort to pound in, but they really pull the nailing strips down tight. Pound on them hard after they are all the way in.

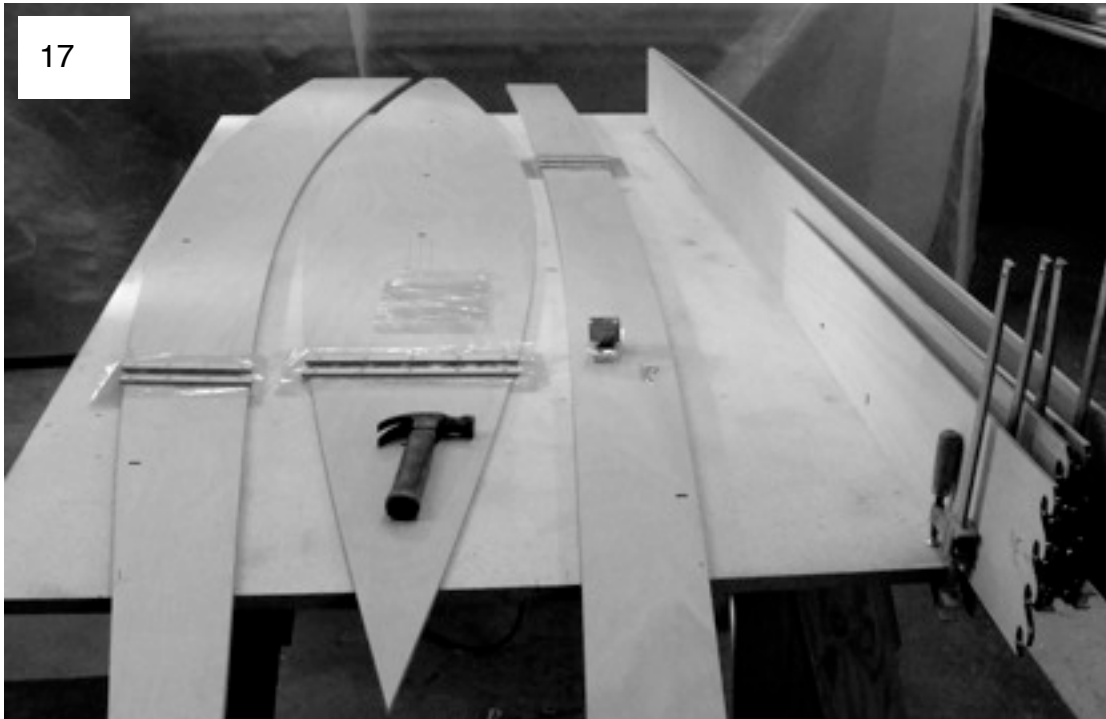
To insure that the joints are as flat as they can be, you can hammer on a stick held flat to the joint area. PHOTO 15



Proceed with the bottom panel. PHOTO 16

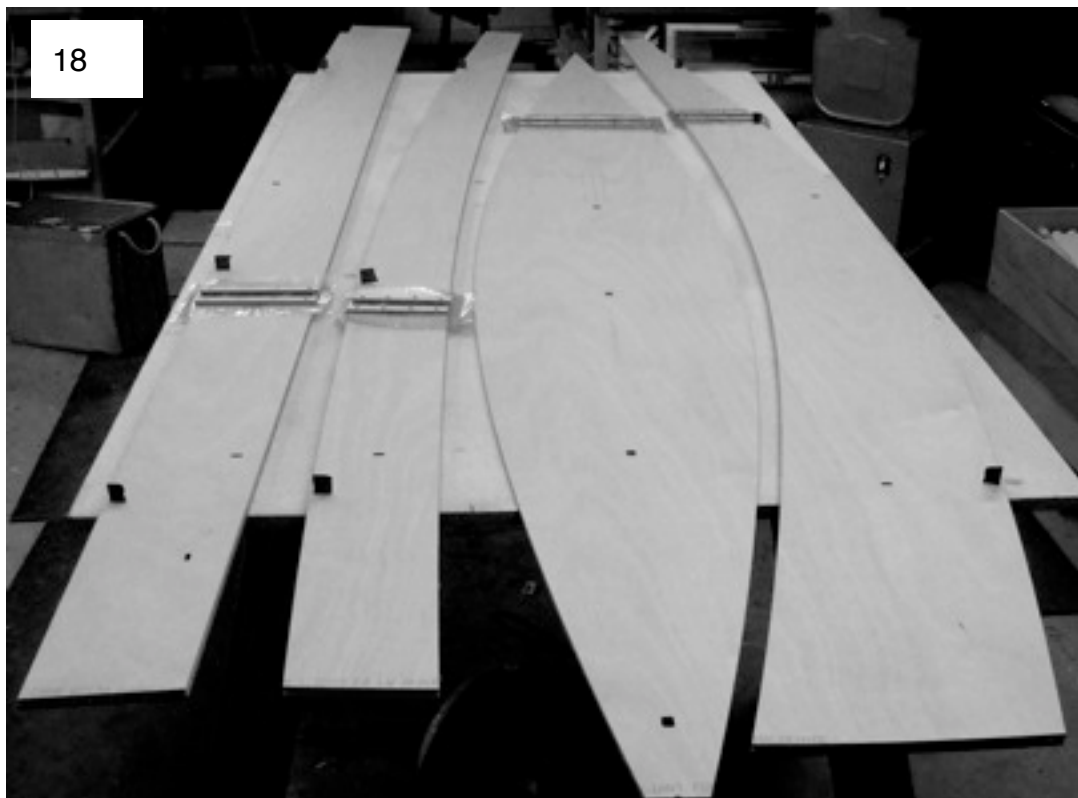


**Panels 2 next.** Don't forget all 3 layers of plastic and the nails that hold the edges flush.  
PHOTO 17



**Panels 3** will have to be placed elsewhere after applying epoxy to the joints so that the clamps can be removed from the bench to allow room for the panels on the bench.

Puzzle joints glued (from the aft end)  
PHOTO 18

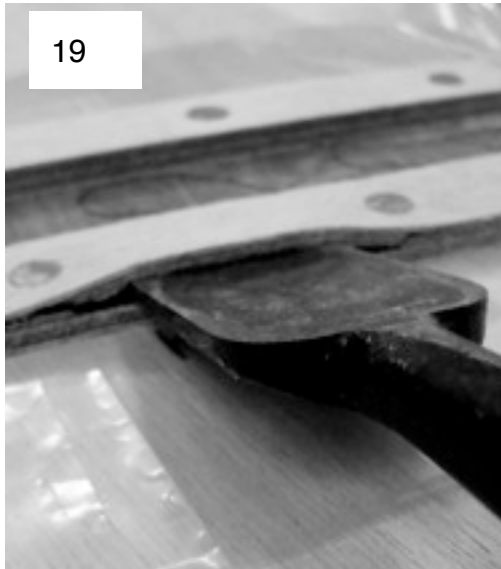




**Allow the epoxy to cure hard (overnight).**

Pulling the nails requires careful (to avoid denting the panels) destruction of the nailing strips. Use a hammer and chisel as shown to get access to the nail heads.

Split the strips in the middle and remove the upper half before using the chisel as a pry (with a pad underneath) to remove the rest. PHOTOS 19 & 20



Use a pad under the hammer when pulling the nails. If a nail head breaks off, use vice grips (pull straight up & twist) to pull the nail out. PHOTO 21

Block sand the puzzle joint areas flat with a plywood sanding block and 80 (or so) grit sandpaper. PHOTO 22

