

# ASSEMBLY INSTRUCTIONS FOR WATERTIGHT HATCHES

While these hatches are flush, good looking, and actually watertight, they are not as easy to install as a leaky plastic hatch. There are parts of the installation where care is needed and following the manual is a good idea.

There are only small differences in installation between the small and large hatches and on Scamp, there are locating considerations on the smaller cockpit hatches, so let's start with the cockpit hatches.

On Scamp, the cockpit hatches should be placed as far inboard as possible to make them easier to use. Start by making sure that your seat tops fit well and that **the inboard edges are flush with the faces of the longitudinals.**

**The lids of the hatches will be used as a template for marking the holes for the hatches. The coamings are larger than the hatch lid by 1 1/4" on all edges.** To this add the thickness of the longitudinal, so, **scribe a pencil line 1 5/8" from the inboard edge of the seat top.** PHOTO 1

Note that the hatch that goes next to the centerboard trunk will be farther outboard. For this one, add 1 1/4" to the total (outside) width of the trunk.



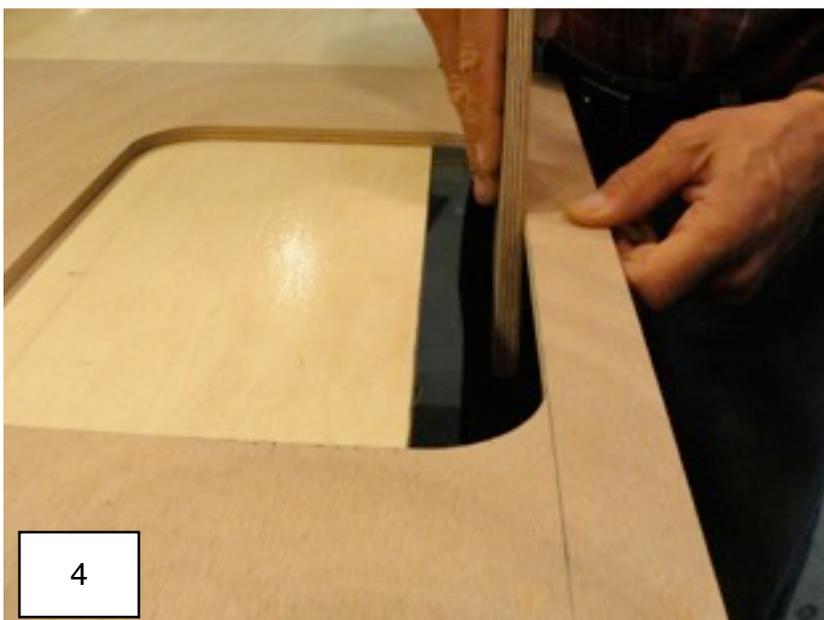
**Clamp the hatch lid to the seat top with one edge flush with the scribed pencil line** (fore & aft positioning is optional, just not too close to bulkheads). Trace around the hatch lid carefully with a ball point pen. Go around a couple of times for a clean, bold line. PHOTO 2

2

**Cutting the opening** should be done with a jigsaw with a sharp, fine tooth blade. A metal cutting blade would work well.

Drill a hole inside of the line to insert the jigsaw blade. **Try to cut away most of the line without veering outside the line.** Cut carefully and go slowly. Nothing looks worse than a wonky cutout. PHOTO 3

Use a plywood sanding block to straighten the edges of the cutout. PHOTO 4



Glue sandpaper to a pint can to sand the corners. Trial fit the lid. It needs only about **1/32"** gap around the edges. PHOTO 5

See note on page 5 about the slightly assymetrical hatch lids (first run of hatch kits).



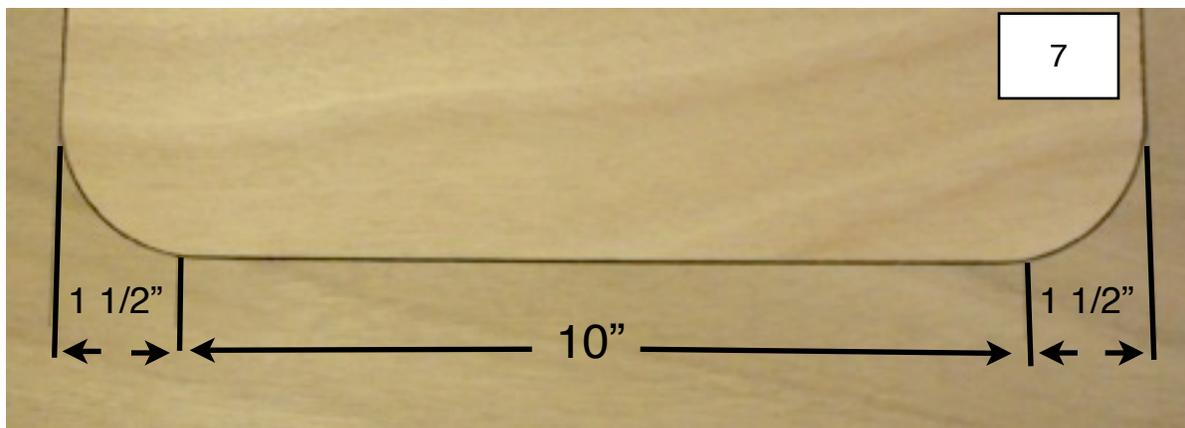
**Screws will be used to hold the coaming in place when gluing.** The screws allow the coaming to be carefully positioned before gluing. If only clamps were used, the coaming would slide around when gluing and the clamps would obstruct the cleanup of the squeezed-out glue.

**The four screw holes (for the small hatches) should be carefully positioned where the turn dog holes will be placed.**  
PHOTO 6

6

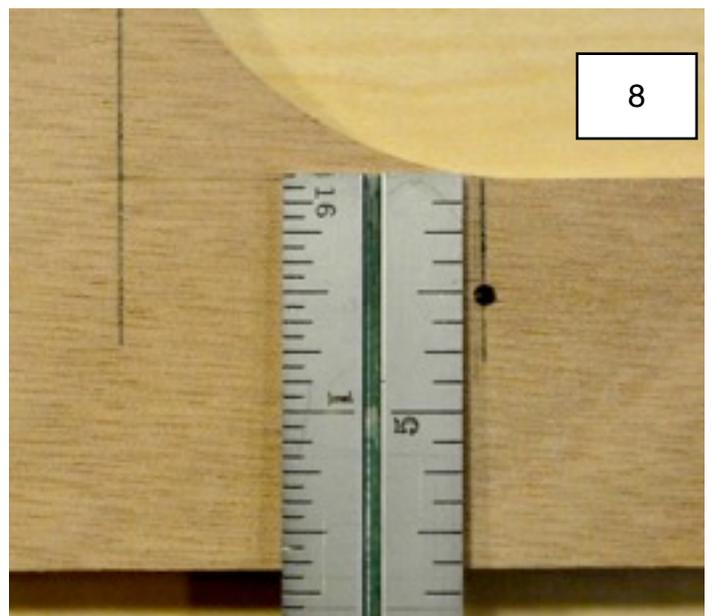


Use a straightedge to make pencil lines flush with the fore & aft (narrow) ends of the cutout. Mark lines parallel to, but 1 1/2" in from the first lines. PHOTO 7



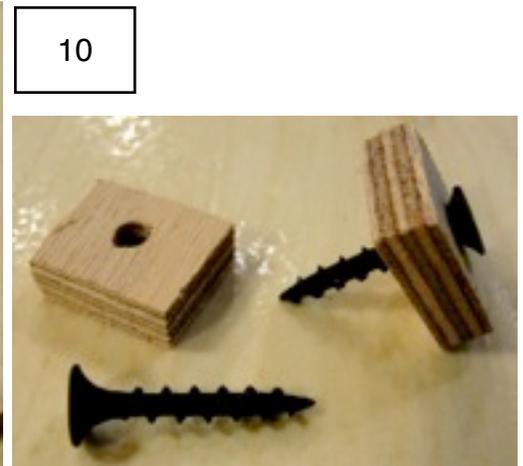
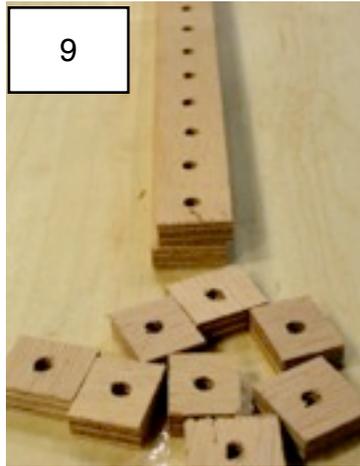
**Measure out 1/2" to make holes with an awl on the parallel lines as shown.**  
PHOTO 8

**Use 1" coarse thread drywall screws.** Holes for these screws should be drilled through the seat top (at the awl marks) with a **5/32" drill bit**. The screws should just be able to pass through the 5/32" holes, but not be loose.



4

Small 6mm (1/4") plywood pads will be needed. Cut a couple of strips of this plywood 3/4" wide. Make 3/16" holes through these strips every 3/4" and then cut between the holes. PHOTOS 9 & 10



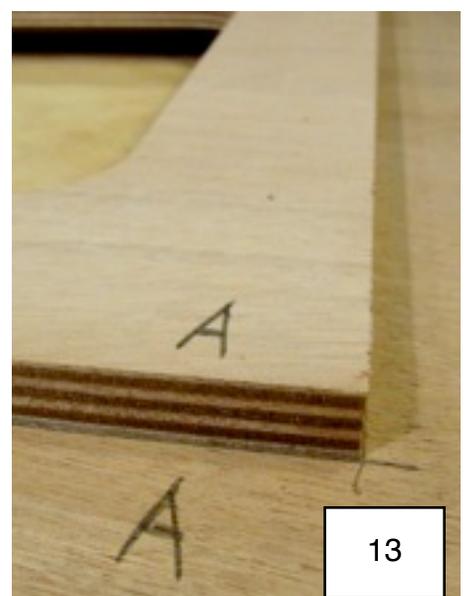
Position the coaming under the seat top. Measure carefully on all four edges to center the coaming and clamp firmly to the bench before installing the screws. Make sure the screws are square to the surface and drive gently by hand to avoid the possibility of stripping the threads. PHOTO 11



Make a light pencil mark for when applying glue as shown. PHOTO 12



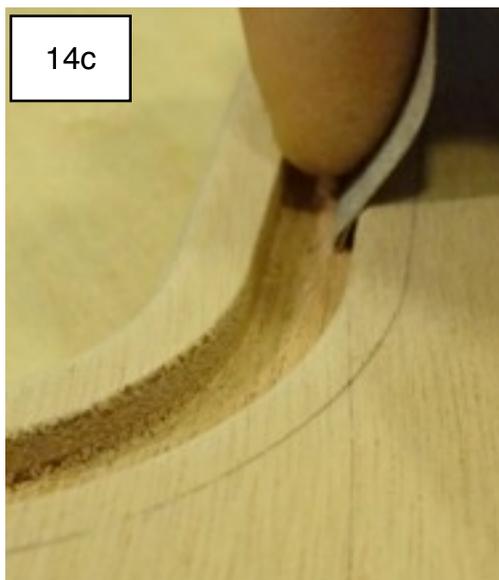
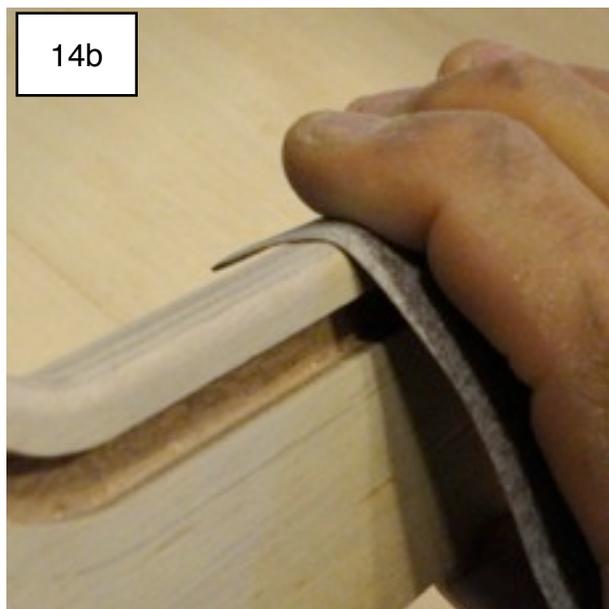
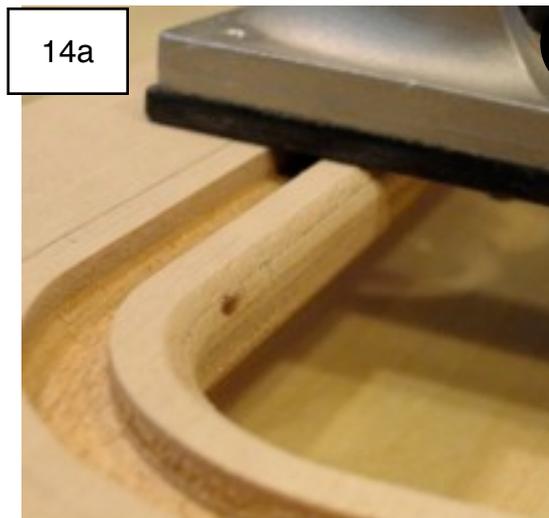
Turn the seat top over and mark around the coaming. Identify the orientation of the coaming, A-A, B-B, etc. PHOTO 13



Remove the coaming and **round both the upper and lower inside edges** of the coaming with a router and a 3/16" round over bit. PHOTO 14a

If you wish, you can also round the lower outside edges of the coaming, **except the inboard edge** (where it will butt against the longitudinal).

Hand sand the rounded edges with fine sandpaper. Lightly round the edges of the gasket notch and sand the inside of the gasket notch. PHOTOS 14b & 14c

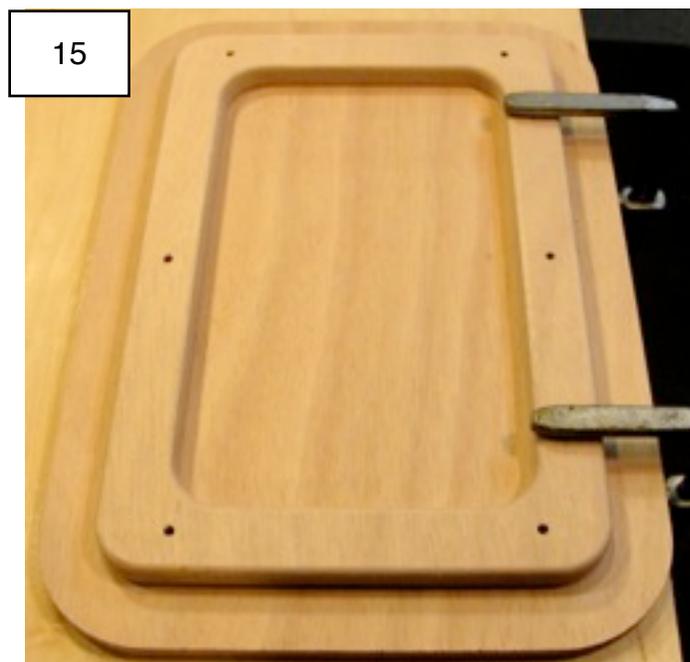


**The hatch lid stiffener** can be glued on the same way as the coaming, with the same screws and pads. Round the lower edge of the stiffener with the router and hand sand the stiffener.

*PLEASE NOTE THAT THE FIRST RUN OF HATCH KITS HAVE SLIGHTLY ASSYMETRICAL LIDS. The lid will fit either end forward if they are right side up, so put the lid in the cutout (with the seat top right side up) and if it fits, **mark UP on the lid.***

*Also mark which hatch the lid goes to, SA, SF, etc*

**Turn the lid over** and fit the stiffener (with 5/32" holes pre-drilled as shown). **Center the stiffener.** There should be 15/16" between the edge of the stiffener and the edge of the lid all the way around. Clamp firmly PHOTO 15



Use the 1" screws and pads, but tighten very gently as there is less length of screw biting into the hatch lid than there is on the coaming. Make a light pencil mark around the stiffener and identify the coaming to the lid as shown. PHOTO 16

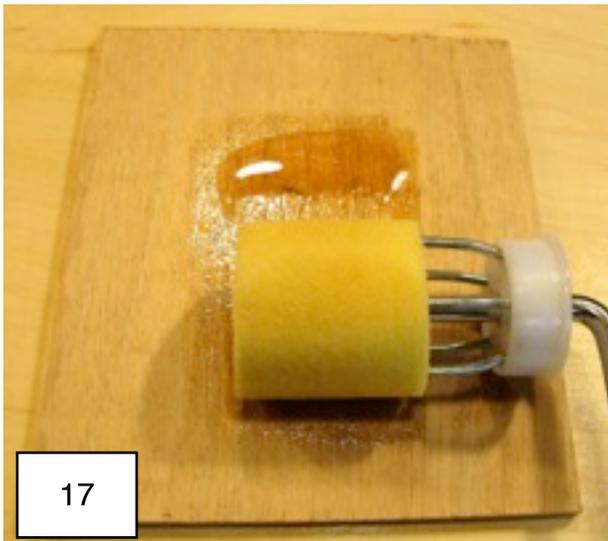
## GLUING

All your careful prep work will now pay off, but these parts need to be glued really well to survive being jumped on. This means a **thorough "priming"** with un-thickened epoxy and then the right fillers should be used for thickening the glue. Colloidal silica alone would be fine to thicken the epoxy, but a bit of fibers (cotton microfibers or high density) in the mix will make it even stronger.

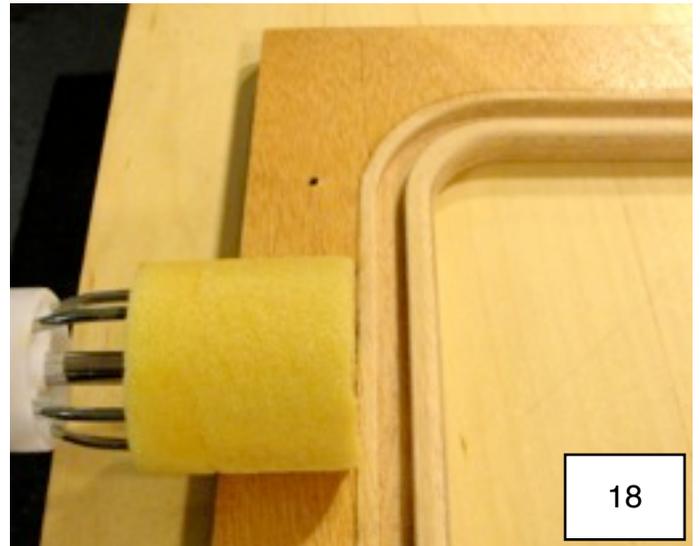
To make it possible to remove the screws after the glue has cured, separate the screws from the plywood pads, place the screws on a bit of rag and **spray with WD-40**. Fold the screws into a cleaner rag and blot off excess WD-40 before replacing the pads.



Use a short section of roller and a small piece of plywood as a pallet for priming. PHOTO 17

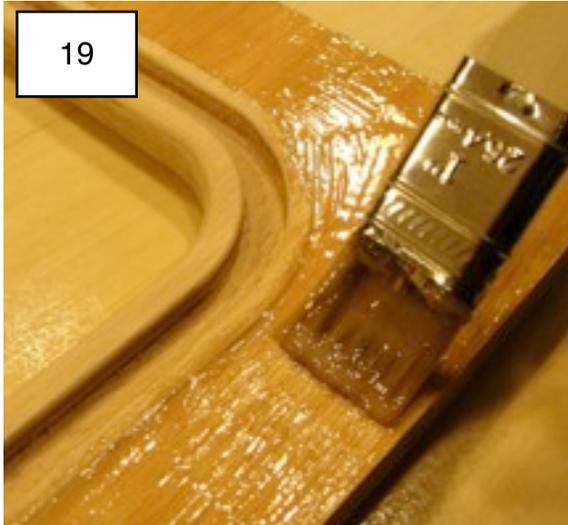


This makes it quick and easy to **apply a thin coat of epoxy to both surfaces to be glued**. PHOTO 18



**Mix filler into the epoxy to about the consistency of catsup** and brush a moderate amount (enough for glue to squeeze out all around) to one of the two surfaces.

PHOTO 19



**Place the coamings on the upside-down seat top** and fit the screws loosely from underneath before turning the seat top over. Tighten the screws by hand until snug. Block up the seat top to allow placing four clamps as shown. PHOTO 20



**The squeezed-out glue needs to be cleaned out completely or the lid will not fit.**

Cut the round ends off a tongue depressor and sharpen like a chisel on a sanding block with very fine sandpaper. Use as shown. Wipe clean every couple of inches. PHOTO 21

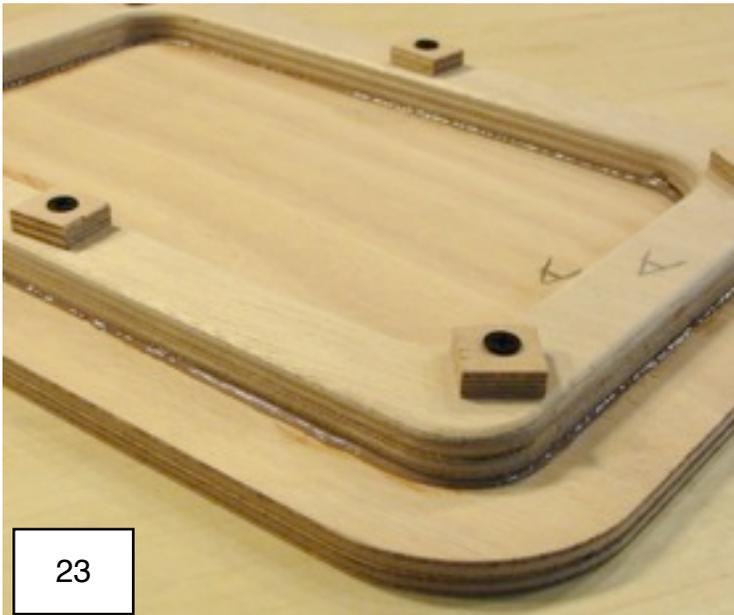


Push small bits of rag or paper towel on the end of a sharp stick to clean-up the last of the glue. PHOTO 22



8

The six screws should be enough clamping pressure for **the lid stiffener**. Clean up the squeezed-out epoxy with the chisel stick and the rag-on-a-stick-trick. PHOTO 23



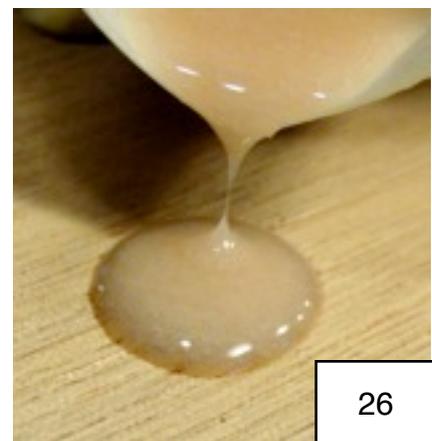
**Remove the screws as soon as the glue is hard.** The screw holes in the lid stiffener can be filled with a syringe and thickened epoxy. PHOTO 24



To make solid epoxy “plugs” for the turn dog fasteners, use the four screw holes (small hatch) to center larger holes. Use a **3/8”** (or so) drill bit marked with tape to drill holes to a depth of **3/4”**. PHOTO 25



Apply un-thickened epoxy to the walls of these holes with the butt end of a smaller drill bit (or similar) and then mix in a small amount of filler (fibers if you have them) to make a consistency that will pour into the holes. Leave a small mound of epoxy as shown. PHOTO 26



## FINISHING

**Block sand all the filled holes flat with the surfaces.** Use the sanding block to lightly bevel the edges of the lid (more on the lower edge) and then radius these edges with fine sandpaper. PHOTO 27



Radius the edges of the cutout with sandpaper. PHOTO 28



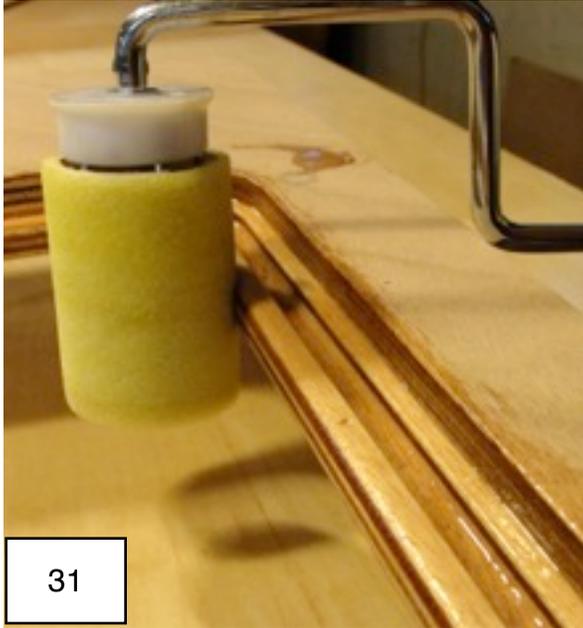
Both sides of the seat tops and hatch lids can be coated at once by driving long nails into the bench for the parts to rest on. This works best if the heads of the nails are sawn off before hammering them into the bench. PHOTO 29



When applying the first coat of epoxy, start by applying a **very liberal coat to the gasket notch and cutout edge** with a brush. *Liberal* to insure that all that end grain plywood gets thoroughly coated. Next, **repeatedly dry the brush** on a clean rag and run around the notch and edge to **pick up all the extra epoxy**. PHOTO 30



Use a roller wherever possible.  
PHOTO 31



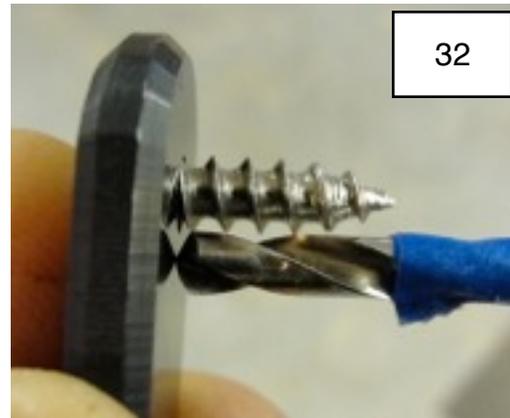
Sand all surfaces and edges (sand edges very lightly to avoid sanding through) before **a second coat of epoxy**. Make sure that the coaming and gasket notch are thoroughly coated, but remove excess epoxy.

### HARDWARE, GASKETS & LANYARD

Note: The turn dog holes should be drilled before the final installation of the seat tops.

**To install the turn dogs**, mark a 5/32" drill bit as shown to drill holes in the center of the larger, epoxy filled holes. Use an awl to **center the holes 1/2" from the cutout edge**.

PHOTO 32



Drill the holes square to the surface and use a countersink to lightly bevel the edges of the holes. PHOTO 33

Install all the screws and turn dogs, then remove them and **apply a tiny bit of epoxy** to the insides of the holes with a small nail. Re-install all screws and turn dogs.

**Tighten the screws and then back off on them until the dogs turn with a small amount of friction.**

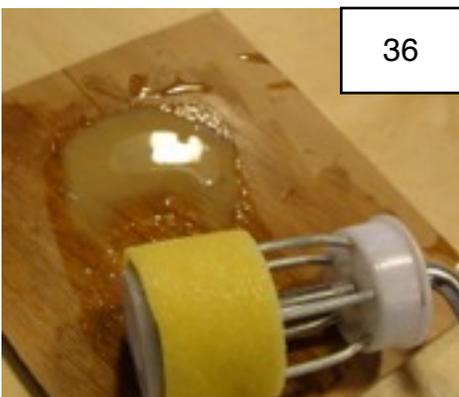


**The gaskets are glued in with contact cement** (the flammable and smelly kind). Contact cement should be stirred before use and should be allowed to dry for 1/4 to 1/2 hour before installing the gasket. Use the small piece of abrasive pad (included) to lightly abrade the gasket. Repeatedly pull the gasket through the folded pad. PHOTO 34



34

Wipe the gasket with a clean rag and **pin or nail both ends to the bench with the gasket stretched tight**. Use a palette and plenty of contact cement to soak a very short section of roller. **Apply a healthy coat to just the edge of the gasket that's facing up.** PHOTOS 36 & 37



36



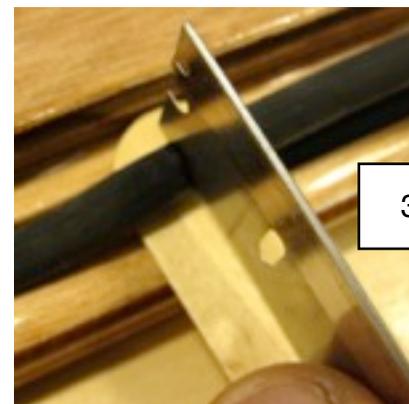
37

It's easy to make a mess applying contact cement, but the method we describe works well. Give a glue brush (the little one with black bristles and a metal handle) a haircut with scissors. Cut it to half (or less) its original width to **brush a coat of contact cement into the bottom of the gasket notch**. PHOTO 35



35

As soon as the contact cement has dried so that it's no longer liquid, pull out the tacks holding the gasket and **cut one end off square with a razor blade**. Start by placing that end of the gasket in the notch with the sticky side down. Rotate the gasket when placing it in the notch to keep the side with adhesive facing down. **Don't stretch the gasket.** When approaching the butt joint, leave the last inch or two out of the notch. Mark the gasket about 1/8" longer than needed. Cut as shown (just push down hard on the blade) using a thin stick to cut on. PHOTO 38



38

Apply contact cement to both ends of the gasket and push in place as shown to compress the gasket joint before pushing the rest of the the gasket into the notch. Push the gasket down firmly with your fingers all the way around. Put a piece of tape over the joint and install the hatch to press the gasket into the notch while the glue dries fully.

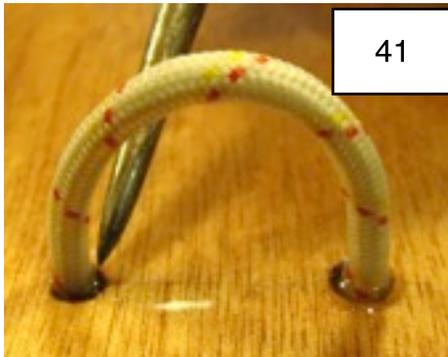
PHOTO 39



**The lanyard and and hatch pull loop** are made from the kevlar cord included with your hatch kit. The hatch pull loop should be centered at one end of the hatch and installed by drilling two **3/16"** holes an inch apart and **1 1/4"** from the edge of the hatch lid. Drill these holes **1/2"** deep and lightly bevel the edges of the holes with a countersink. PHOTO 40

Cut a piece of the kevlar cord 3" long, lightly burn the ends with a match and roll with your fingers to keep the ends from fraying.

Coat the walls of the holes with epoxy and a small nail. Drip epoxy into the holes until they are about half way full. Form a C shape with the piece of cord and push the ends into the holes. Epoxy will soak into the cord, so drip some epoxy around the holes later with the tip of an awl or nail. PHOTO 41



The lanyard can be attached to a hole drilled into the lid stiffener the same way. PHOTO 42

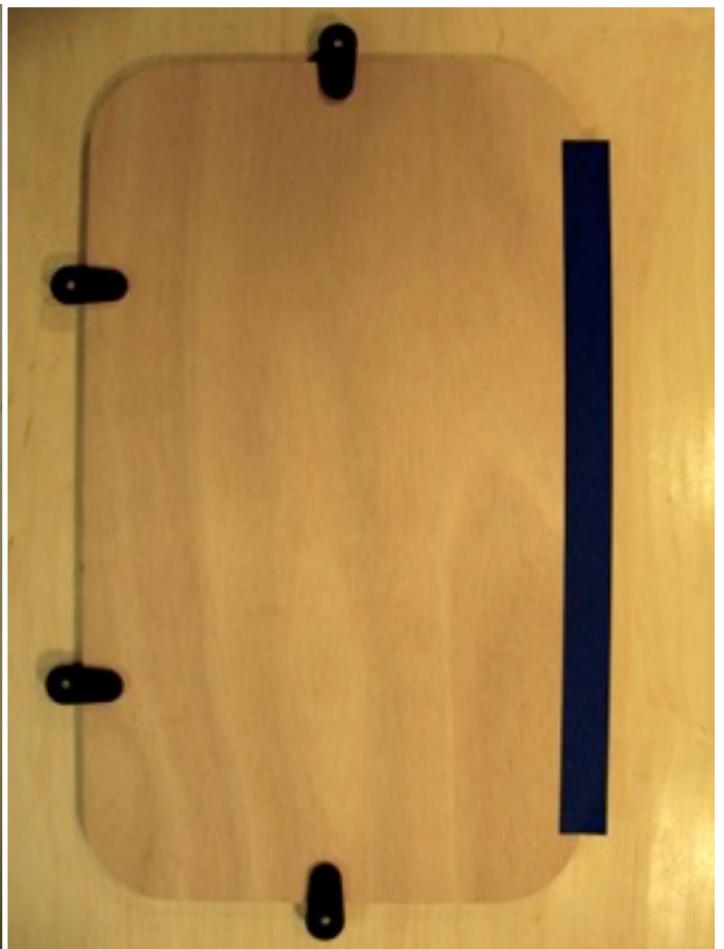
## LARGE HATCHES

Photos of installation of the large hatches are not available at this time, but the process would be similar. **Remember to fit the lids into the cutouts** before gluing on the lid stiffeners. We will do a trial installation of the large hatch with a hinged lid. We will also be sourcing and cutting piano hinge for those who would like a hinged hatch.

The following two photos show placement of turn dogs for the large hatch with and without a hinge. The hinge would be 14" long and is shown with blue tape. PHOTOS 43 & 44

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### KIT CONTENTS

- Pre-cut Plywood hatch coaming, stiffener and lid.
- Delrin Turn-dogs and fasteners (sm=4, lg=6)
- Gasket surgical tubing
- Kevlar tether line
- 3M scrubbie piece
- instructions