

## 290 in your manual

### FOOT BRACES, OARLOCKS, AND LEATHER PADS

Foot braces are essential for efficient rowing.

This boat has two rowing positions, one for rowing with one or three people and one for rowing with two. Having two rowing positions is also essential for efficient rowing.

Unfortunately, the placement of foot braces depends on the height of the rower.

With two rowing positions, it takes four foot braces for one person of a given height.

If you wish to accommodate rowers of very different heights, it takes 8 foot braces. Many other systems have been explored, but we still prefer the type shown for multiple reasons.



**Our personal boats have been set up for a 6' rower and a 5' 2" rower.** The template that we provide for placing foot braces is based on these heights. The 5'2" rower is using the aft oarlock sockets in the photo below.

**Please note that the oarlock socket locations should not be changed. They are based on weight placement, efficient rowing, nesting, and seating.**

Foot braces can be very small. The foot braces that we provide are  $\frac{3}{4}$ " x  $\frac{3}{4}$ " x  $5\frac{1}{2}$ " with the ends beveled and the edges rounded. This is on the small side for barefoot rowing, but larger foot braces are uncomfortable to sit on when sailing.

**We pre-finished our foot braces** with epoxy before installing them, but it may be easier to apply the final coat after installation by taping the hull around the foot braces, coating, and pulling the tape while the epoxy is wet.

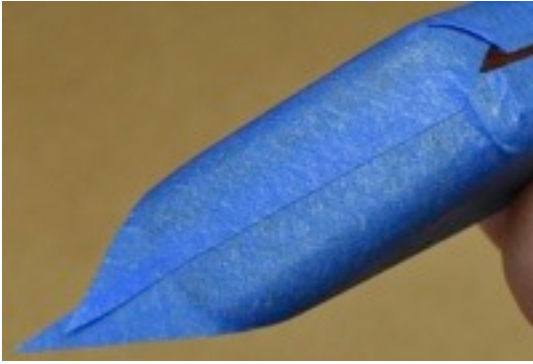


Sanding the flat faces of the braces is necessary. Because of the angle that the braces are placed on the curved hull panels it's a good idea to clamp the  $\frac{1}{4}$ " thick sanding block over a strip or two of rag *as shown* to **sand a reverse curve on the undersides of the braces.** Use 80 or 100 grit and push firmly with short strokes (arrows).



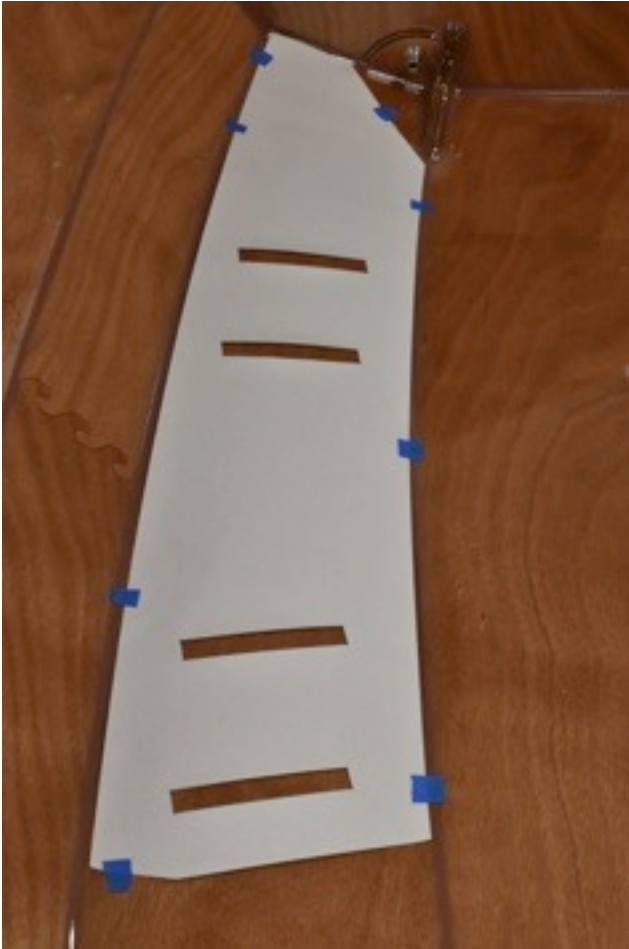
**If you will apply the final coat after installation, sand for coating first.**

**If gluing in finished braces,** tape the braces as shown, applying tape near the lower edge and trim the ends with scissors (see next page).



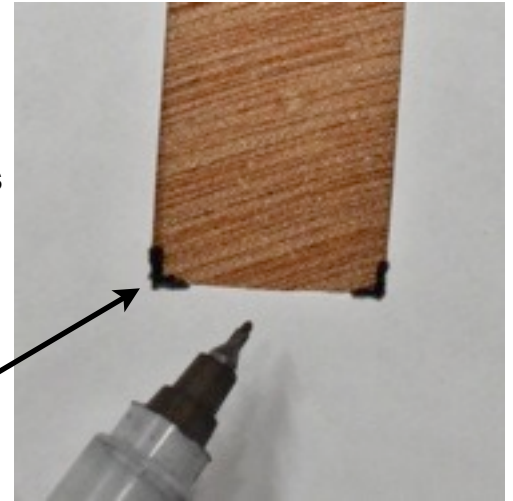
Press the tape over the curved end (firmly near the tip) and repeat on the opposite side. Trimming the tape at the ends is tricky.

Use a new razor blade or Exacto knife at the angle shown and push the blade towards yourself while trimming. Avoid nicking the coating but leave no tape overhanging.



**Tape the template in the hull** as shown with the forward edge touching the bulkhead and centered between chine fillets.

**Make small marks on the hull** with a felt tip pen near the ends of the foot brace cut-outs. Marks can be removed later with alcohol or acetone.



The foot braces can be glued in the hull without clamping pressure. Locating them when gluing is a process, but the method we show works well and comes out looking clean.

With the lower edge of the template taped firmly, un-tape the upper edge and fold back as shown on right.

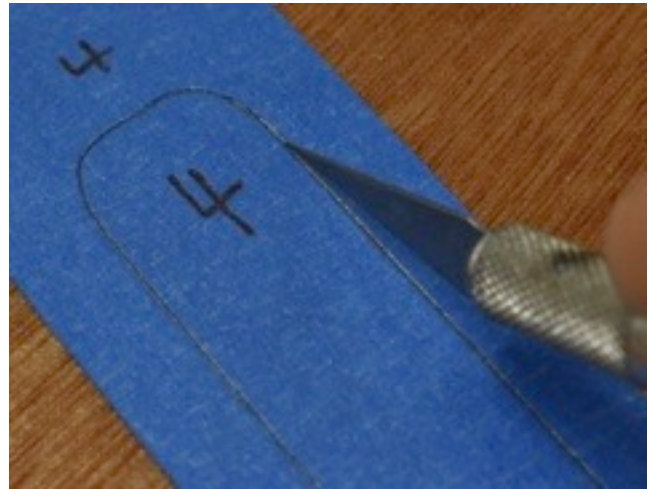
**Place two layers of 1 1/2" or 2" wide tape centered roughly over the marks in the hull.** Pull back either end of the tape to make sure it is roughly centered before adding second layer of tape and rub tape down firmly.

**Replace the template** and tape down.

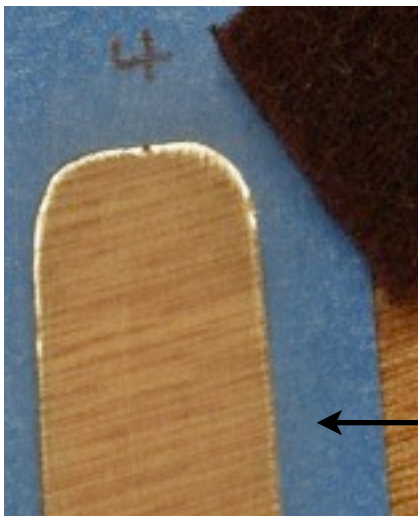




**Hold each foot brace down firmly, centered inside the template cut-outs** and mark around the foot brace with a sharp pencil (photo on left). **Number as shown. Cut to the line** with a sharp X-Acto® knife, light pressure, and a steady hand. Keeping knuckles or a finger pressed to the hull can help in following the line.



Remove the tape by lifting an edge with the tip of a knife. The thickness of the tape will help locate the foot brace when gluing.

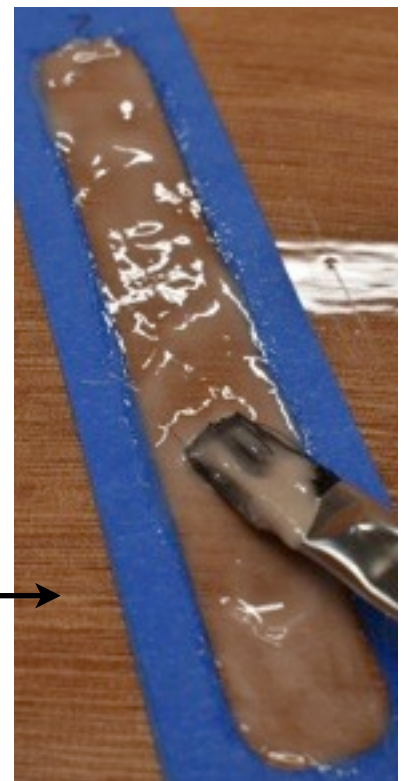


The areas inside the tape can be prepared for gluing with small pieces of fresh 3-M scrubie, (it dulls quickly), working away from or parallel to the edges (don't bugger up the tape). Vacuum and wipe well with a clean rag.

**Prime the undersides of the cleats** with a short roller and wipe away excess epoxy.

**Brush a thin layer of gluing mix** (about mayonnaise thick) to the taped off areas in the hull. →

Locate all foot braces and press down until glue squeezes out. Remove some of the squeeze-out (next page) and shift the cleat to its place inside the tape edges and then press down more firmly.





Clean-up is best done with a plastic straw with the tip snipped off at 45 degrees. **Clean up enough to see that the cleat is centered inside the tape, press down more firmly and clean again.** Pull the straw through a folded rag to remove goo.

**If your cleats are not taped off**, gently clean epoxy off of the cleats with a sharp chisel stick.

**Pull the hull tape up** as shown an hour or two later (when the epoxy is still soft). Wait until the glue is firm (or gently warm the next day) to remove tape from the cleats.

**If you plan to do the final coat after installation**, tape off the hull around the cleats, sand away goobers, 3-M scrub, and coat, but wait a bit and remove the tape after the coating has gone tacky.



## OARLOCKS

Because the height of the foredeck and the gunwale are what they are (and don't want to be changed), riser blocks are needed for the oarlock sockets to keep the oars out of your lap. The riser blocks don't affect the height of the nested package.

We show the installation of riser blocks for the Gaco oarlock sockets, but the same method and placement should be used for any oarlock sockets.

The riser blocks can be glued to the gunwale without clamping. Locating when gluing can be done with thick tape cut with an X-Acto® knife, the same as the foot braces.

We pre-finished the riser blocks with three coats of epoxy before installing.

**The centers for the socket holes are at 2" and 22" aft of the forward end of the aft half.** Place two layers of 2 " wide tape in these areas (see next page).

**Measure and make marks as shown in this photo** looking at the gunwale from above.

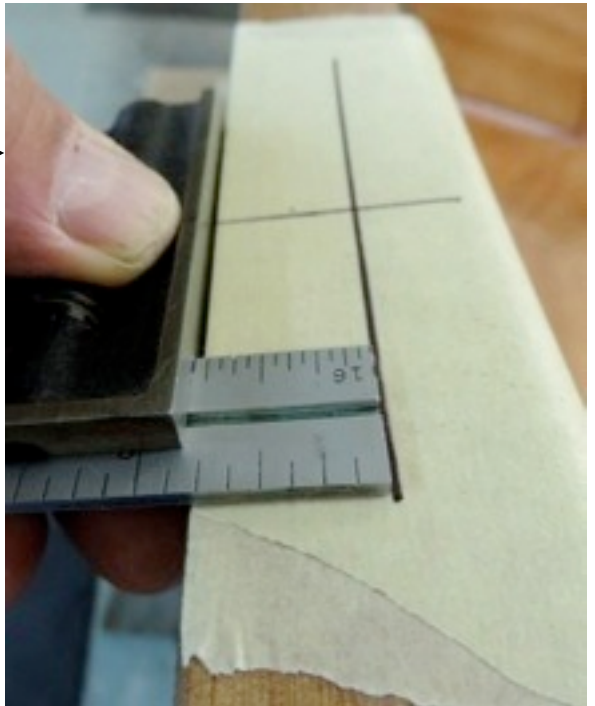




Set the combination square at to  $13/16"$  ( $3/4"$  plus  $1/16"$ ) and make marks parallel the the outer edge.  
**Note:** the tape doesn't wrap over the outboard edges.

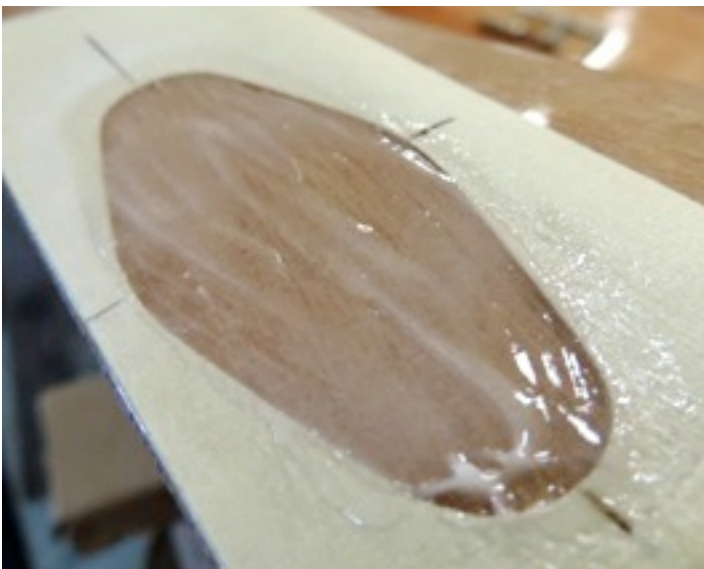
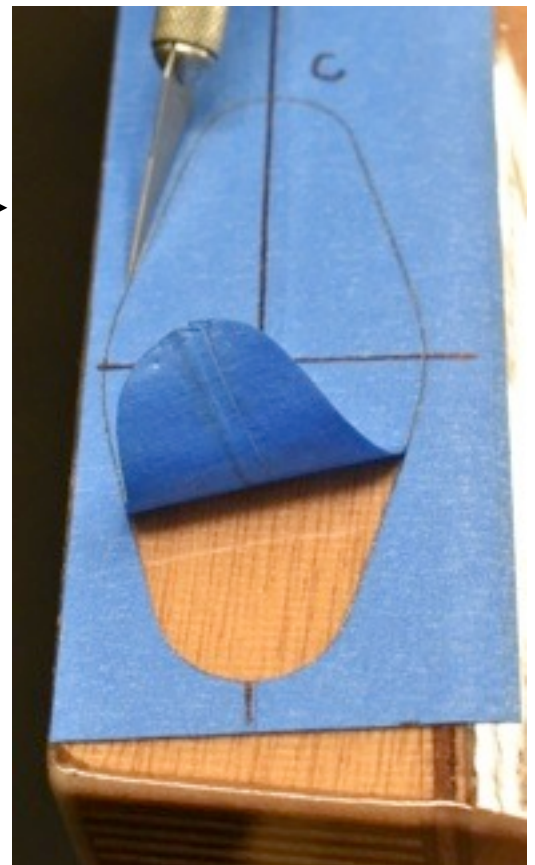
Clamp the riser blocks over the tape using the marks to align fore & aft and parallel to the outer edge of the gunwale as shown below.

**Note:** Both old and new style riser blocks shown in following photos.



While the block is clamped, **pencil mark around the block** and **identify as shown** on right and next page.  
 Carefully cut to pencil marks and remove tape.

Prep the taped off areas where the riser blocks will glue as well as possible with pieces of 3-M scruddie. Scrub parallel to straight edges and away from corners to keep the tape intact. **Wipe clean.**



Prime the bottoms of the riser blocks and apply thickened epoxy (gluing mix, mayo thick) to the taped off areas.  
 Place the blocks and push down lightly (next page)...

## 6

Clean around the riser blocks with a straw or chisel stick. Push down more firmly and clean again.

Don't bump until cured, but if you can, pull the tape on gunwales when the epoxy is rubbery (not gooey). The tape will come off cleaner if pulled before the epoxy is hard, but don't pull tape from the riser blocks until the glue is firm enough to avoid shifting the riser blocks.

**The hole through the gunwale should be drilled with a 5/8" hole saw for the Gaco™ sockets.**

The holes in the riser blocks that we sell are 5/8" diameter and square to the surface and can be a guide for drilling square through the gunwale.

**Remove the pilot bit from the hole saw.**

Push the hole saw tip through the riser block with drill stopped and then try to keep the hole saw barrel centered in the hole while drilling.

**First**, clamp a block of wood under the gunwale (just outside the fillet) to avoid a blowout from the hole saw as it comes out the bottom.



Cut a small square of 100 grit paper and adhere it to the barrel of the hole saw to open up the holes.

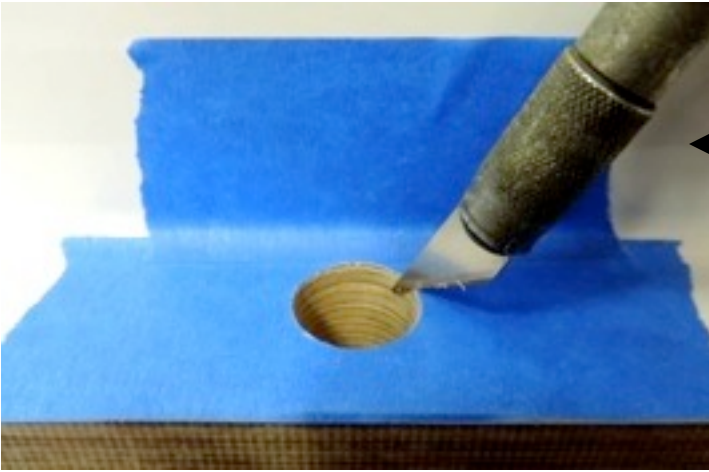
Check that the flange of the socket can lay flat without the socket itself pushing sideways on the hole.

The holes can be opened up one way or another with the sandpaper-glued-to-the-hole-saw-trick.

**With the flange held flat (or screwed in place) there should be a plenty of room all the way around the socket at the bottom end for syringing epoxy into the void.**







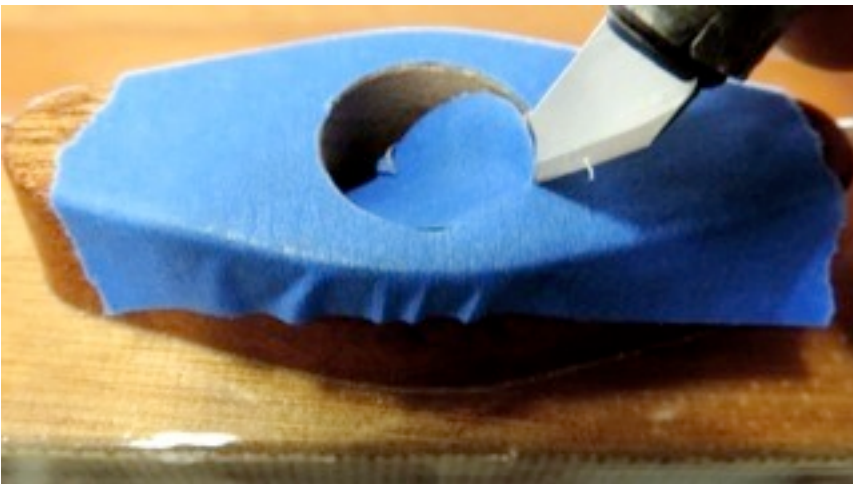
Tape over the bottom ends of the holes and knife out with an X-Acto® knife. Add tape to the hull for dripping epoxy.

**The holes through the gunwales need to be very well sealed** to avoid water intrusion into the plywood gunwale. There's no guarantee of a complete seal when syringing, so we coated these holes twice with epoxy before installing the sockets.

Tape off and knife out the top of the riser blocks (photo below).

**Coat the insides of the holes very thoroughly and liberally with a glue brush.** Let the excess epoxy drip out the bottom and **blot the drips from the underside of the gunwale with a folded paper towel** (do this multiple times).

If you don't get bubbles and have a nice glossy seal all the way to the bottom of the hole, then one coat is probably enough, but if you apply a second coat, remember to blot away the drips.



Mount the sockets dry with the 5/8" #10 screws. Remove and fill the screw holes with **un-thickened epoxy** with the tip of a small nail or something similar.

**Spread thickened epoxy on the undersides of the socket flanges** (especially near the socket) and install all oarlocks. Clean up squeeze-out with a chisel stick and multiple small bits of paper towel (rubbing hard). **Don't use thinners on the plastic sockets.**

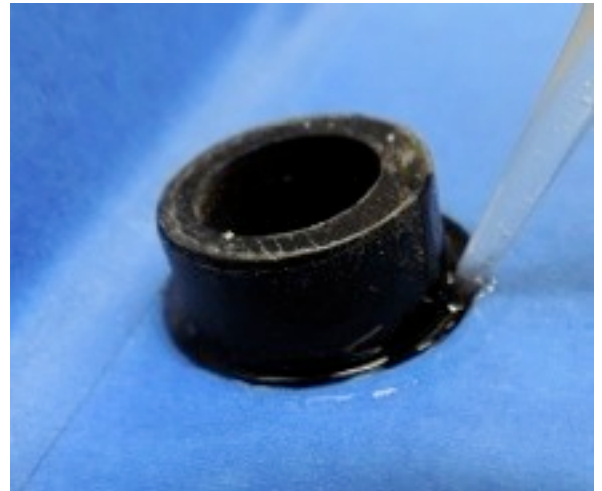
*Riser blocks, as of January 2017, have a slightly different look than what is pictured below.*



Turn the hull over and inject the holes around the sockets with a fresh batch of un-thickened epoxy in a syringe.

When they are as full as they are going to get, wipe away puddles around (or behind) the socket and pull up the tape. Later, or the following day, carefully inject a bit of thickened epoxy in the remaining gap.

**Try for a visible seal all the way around the socket.**



## BACK SEAT CLEATS AND HIN NUMBERS

**Stand the aft hull half on end** against a wall sitting on a tall sawhorse to get easy access to the area as shown below (see clamped block).

The back seat cleats are held in place with screws while the glue cures. The method described below works well.

The cleats should extend past both ends of the back seat (as shown below) with the upper edge of the seat at the level shown.

Tape the seat in place and place the cleats to see their location fore & aft.



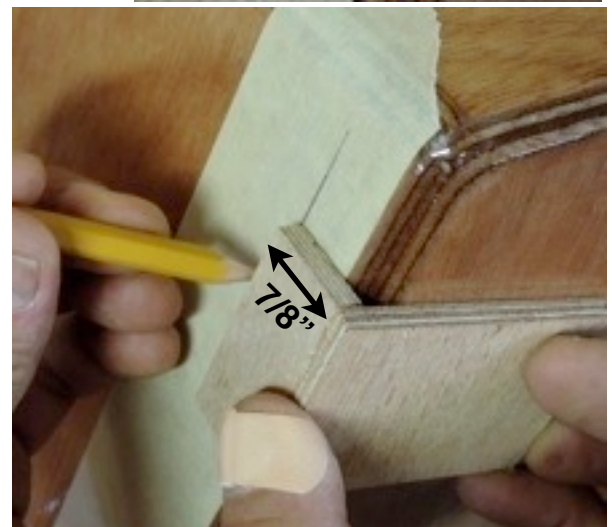
On our boats, The forward tips of the cleats were placed  $\frac{3}{4}$ " aft of the beginning of the radius (arrows).



The combination square won't work so well with the edges rounded, so I made a scribe with plywood and hot-glue to measure down  $\frac{7}{8}$ " from the upper face.

The height is not critical, but having both cleats on the same plane is important.

**Use wide tape to cover the area where the cleats will glue and mark the tape for the length of the cleats with pencil as shown.**





Sand the pre-coated cleats with fine sandpaper.

Drill 5/32" holes about 2" from the ends of the cleats for 1 1/4" screws.

Hold the cleats firmly in place with the upper edges flush with the pencil lines and drive the screws into the plywood tank walls.

Use a sharp X-Acto® knife to cut through the tape around the cleats. **Identify as shown.**

Remove the cleats. Sand and 3-M scrub the tank walls where the cleats will glue (below left) and wipe clean. We taped the cleats for easy clean-up (shown).

Prime both surfaces and apply thickened epoxy to the walls (below right), screw the cleats in place, clean up well with a chisel stick (bottom left) before pulling the tape.

***The screws should be removed the same day or sprayed with lubricant first. (see page 55 in your manual)***



Squirt thickened epoxy all the way through the screw holes with a syringe. Use a bit of 407 filler to color match and leave a small mound of epoxy over the holes.

If you are lucky, temperature changes won't suck the thickened epoxy through the screw holes.

Try to remove the mounds over the filled holes without sanding through the coating on the cleats before taping around the cleats and giving them a finish coat of epoxy.

**With the hull half on end, install the HIN number.** We are slightly stretching the Coast Guard rules by placing this number on **the inside face of the transom under the inwale**, but we follow all the important rules and this is the only sensible place for the number on this boat.

We taped off an area just larger than our trimmed HIN number, 3-M scrubbed the area, brushed on a liberal layer of un-thickened epoxy, set the number into the wet epoxy and pushed the paper into the epoxy with a gloved fingertip. Pull the tape when happy. *See USCG guidelines in your HIN packet.*



Both HIN numbers are for your protection, but the **'secret' HIN number** is especially so. →

We tipped the forward hull half on edge, reached through the hatch opening, scrubbed an area on **the underside of the foredeck** and installed the number same as above, but without taping.

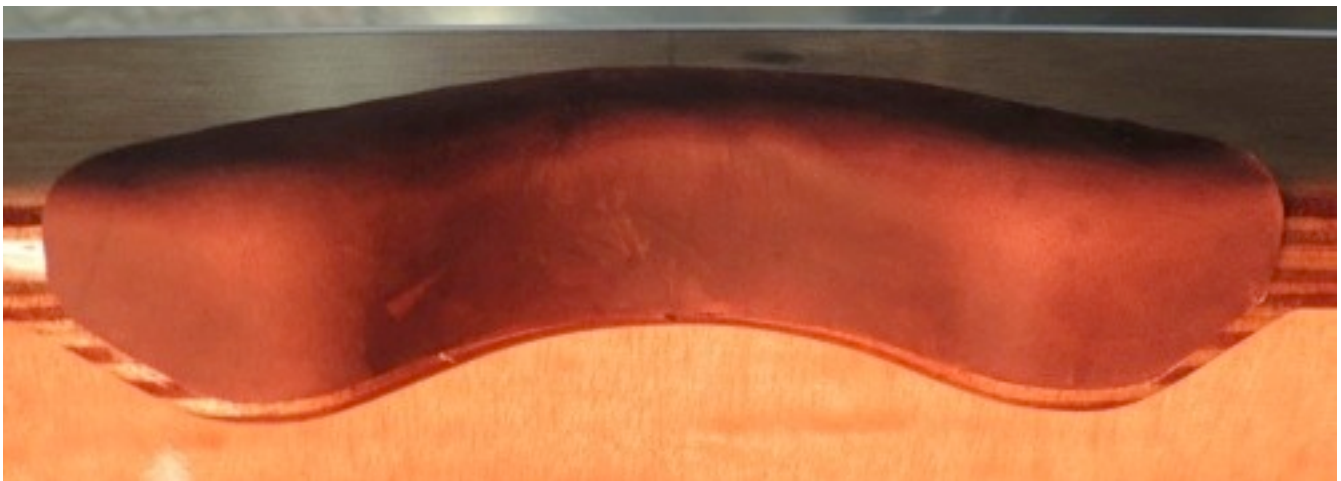
## LEATHER PADS

When nested, the forward half touches the after half in four places, some of which are sharp edges against sharp edges.

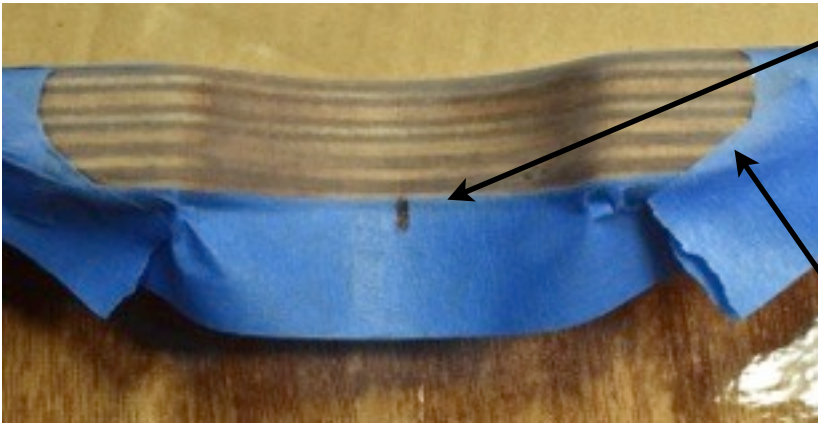
Leather pads glued on with contact cement nicely protect these edges.

The leather pads included in your kit are laser cut and have centerline marks to help position the pads.

**The pad covering the inwale notch** is the most challenging to install, but it's a nice detail and quite necessary. The first steps of installing this pad are best done with the aft hull half on end as in the photo two pages previously. Level the hull for the last step.







Tape off about 1/8" up from the lower edge of the doubler (see photo on previous page too).  
 Trial fit the leather as shown below left.  
*With the leather centered, make a centerline mark on the tape aligned with the mark on the lower edge of the leather.*  
*Tape the outboard edges as shown.*

Tape the upper face of the inwale and roughly knife away around the notch as shown in the **3rd photo**, but tape farther aft than shown to avoid gluing the tape (bottom photo).

Prepare the surface for gluing with small pieces of 3-M scrubbie. Use lots of pressure and scrub away from or parallel to the tape edges. Wipe clean.

**See gluing instructions at the end of this chapter. (pg-297)** (Page 14 here)

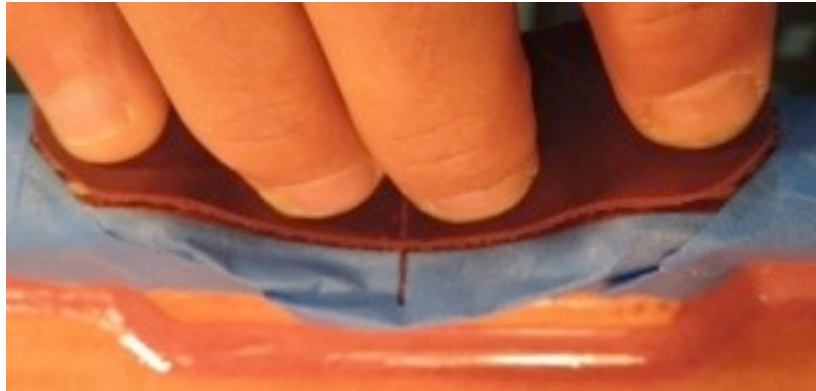
With 2 coats of contact cement applied to the whole pad, make a C shape with the leather so that it can touch in the center of the notch first (with the marks aligned).

Place carefully (looking at the lower edge) as you only get one chance with contact glues. Work slowly out to the edges. Rub down firmly from tip to tip.

Fold the leather onto the inwale one side at a time and mark around the edge of the leather as shown below.

Knife away the tape, prep for gluing, and apply one heavy coat of cement to the inwale surface and a lighter coat to the exposed leather.  
 Brush out any puddling in the crack between the two.

When dry, fold the leather onto the upper surface starting in the middle and working towards the edges. Pull the tape.



It may be necessary to tape the outboard corners down tightly until the contact cement cures.





The pads that cover the gusset tips are easier to install.

Start by taping off an area larger than the pads as shown and make marks 3 3/4" aft of the bulkhead face.



Place the pad over the taped off area with the forward (fat) end touching the 3 3/4" mark and the **centerline marks lined up with the inboard edge of the hull and the inboard edge of the gusset as shown.**



Trace around the upper (flat) part of the pad with a pencil and then without shifting the pad, fold it over onto the gusset and trace around it. (how can 10 fingers not be enough?)

Use an X-Acto® knife to cut at the pencil line and remove the tape from the center.

Check the fits before 3-M scrubbing the areas and gluing. (Instructions on next page).

Place these pads carefully on the flat upper surface first, and then wrap them over the edge.

Rub down hard and pull the tape.





## GLUING WITH CONTACT CEMENT

Prepare for gluing inside the taped areas with 3M® scrubbie. Lay the pads upside down on the table. Use the smelly and flammable type of contact cement to glue on the pads. Use a glue brush to apply the contact cement and an awl to hold the pads while brushing. Brush from the middle out towards the edges of the pads while applying a liberal amount and working fast (this stuff dries quickly).

Apply to the taped off areas, wait 20 or 30 minutes (must be dry to the touch) and apply another coat of contact cement to both surfaces. When dry to the touch (about another 20 minutes in warm, dry weather), apply the pads. You only get one chance, so place them carefully. **Rub the pads firmly with the round end of a screwdriver handle to improve adhesion, especially at the edges.** See page 23 for positioning the fourth leather pad.

**If parts of your leather pads ever start to lift**, flush with fresh water, dry, tape off and re-glue. Brush out puddles of glue in inside corners and wait for the glue to dry before pressing.

## DAGGER BOARD TRUNK CAP

Capping the upper end of the trunk in a waterproof way is necessary to keep your butt dry and keep the boat from flooding when being towed and when the boat is loaded past the level of the foredeck.

We have tried different ways of doing this, including a flush cap that was very complicated. In practice, the cap does not need to be flush as one is either sitting aft of the cap, or forward of it. The cap kit that we offer is by far the best we have used and not at all hard to put together.

The mahogany stiffener keeps the plate from flexing, but it also locates the plate over the trunk, so make sure the stiffener fits easily in the trunk before gluing it to the plate.

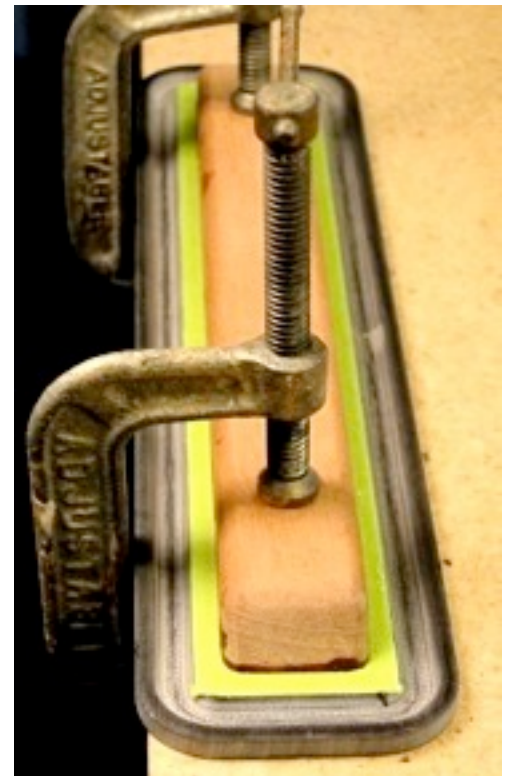


Your cap is machined from opaque fiberglass plate and has a machined notch for the stiffener to glue into.

Tape over the face of the plate with wide tape and **knife** around the notch and remove the tape over the notch.

Prime the underside of the stiffener and apply thickened glue to the notch. Clamp to a straight section of bench as shown.

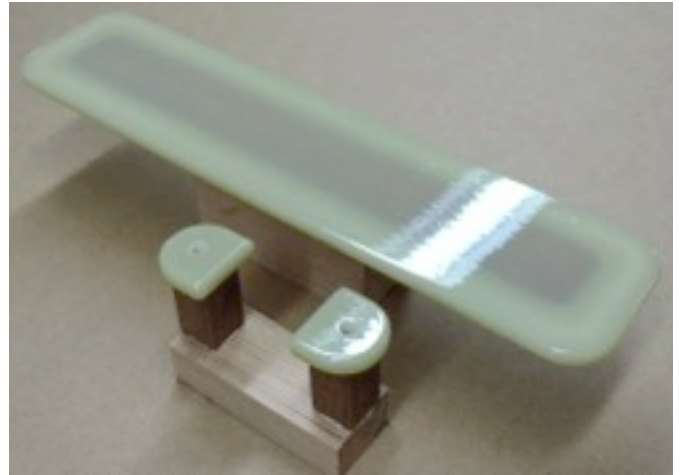
Clean up the squeeze-out with a chisel stick and paper towel.



The stiffener should receive one coat of epoxy and then a coat of epoxy on the whole cap and the two little riser pads after sanding the edges and upper faces.



Attach parts to wood blocks for coating with double sided tape or tiny blobs of hot glue.



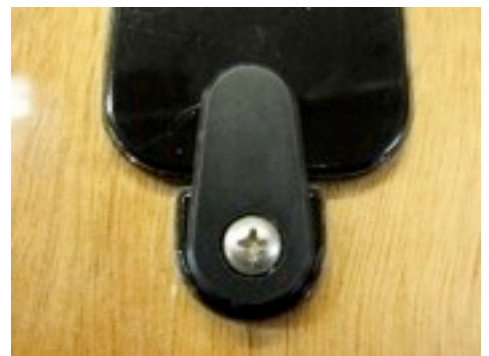
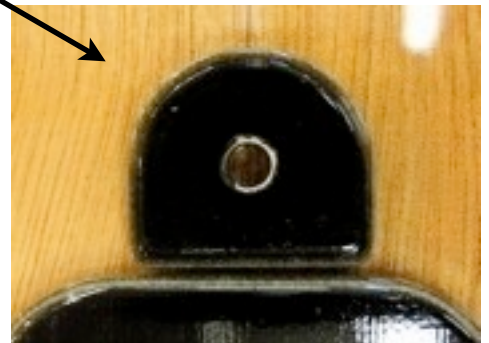
The cap should slide fore & aft a bit when placed over the trunk. Tape it down near the **forward end** of its range (the aft turn dog screw hole is a bit close to the bulkhead edge).



Photo shows an earlier version in black.

The two little riser pads can be glued on without sanding the foredeck. Acetone wipe the foredeck and sand the undersides of the pads. **Apply a thin film of un-thickened epoxy** to the undersides of the pads and push into place with a small gap between the cap and pad. Center the pads using the joint in the foredeck panels as a centerline. Note: insert the butt end of a 3/16" drill bit into these tiny parts for applying the film of glue and twist the bit out while holding them in place.

The riser pads have a 3/16" hole in them for the turn dog screws. **When cured**, drill through these holes into the wood to a depth of 3/4" with a 3/16" bit.



Fill these hole with un-thickened epoxy and pop any bubbles that appear.

When fully cured, drill a 5/32" hole to a depth of just under 3/4". Start with the 3/16" bit to center the holes and drill the smaller holes square to the surface of the foredeck.

Install the turn dogs with the 3/4" #10 screws. Use the thin plastic washers (included) under these two turn dogs. **See page 302.**

Back the screws out and apply a tiny amount of epoxy to the inside of the holes with the tip of a nail or drill bit. Install and tighten the screws. Back off on the screws until the dogs turn with a small amount of friction and allow the epoxy to cure.



## FOREDECK HATCH TURN DOGS

Use an awl to mark a center in the epoxy filled holes. These marks should be about 1/2" from the edge of the hatch cut-out.



Drill the holes for the screws as square as possible to the surface of the foredeck and use a countersink to lightly bevel the edges of the holes.

Install all the screws & turn dogs. Make sure the screws are square to the surface when starting them. Remove the screws and apply a tiny bit of epoxy to the insides of the holes with a nail or the butt end of a tiny drill bit.

Install the screws and turn dogs. Tighten the screws and then loosen until the dogs turn with friction. They will loosen up a bit with use and it's best if they turn with a bit of friction after some use.

Mark your 5/32" drill bit to the correct depth for the 5/8" #10 screws.



## GASKETS

The PT 11 has 3 gaskets. All of them quite important to the safe operation of the boat. The hull gasket keeps the hull from leaking, the hatch gasket keeps the storage area watertight, and the trunk cap gasket keeps the trunk from gushing water when towing and getting your butt wet when rowing.

We have tried many different gasket materials and only one, latex surgical tubing, has provided the performance needed. Why? Because it has perfect memory: It can be squashed flat and it still pops back to its original shape. What's wrong with surgical tubing? It's challenging to adhere to, and causing issues with gaskets coming loose in some PT 11's. After trying many different adhesives, were back to using contact cement (used for gluing the leathers too), but now we're using a different method and getting much better adhesion. Another issue we have had is that the gaskets can break down and adhere to the opposite surface when left pressed too long, especially true with the trunk cap, where the gasket pressure is highest. If the cap is left dogged down for a long period, removing the cap can pull the gasket out of the notch. This is why we now show prepping only one face of the gasket.

**Gluing in the gaskets is a tricky and fiddly job.** You'll need a fresh 3-M scrubbie, a new syringe, a white-out pen, and new single-edge razor blades.

**All 3 gasket *notches* should be prepped for gluing with multiple narrow strips of scrubbie.** Cut the strips with a sharp knife and straightedge. **Push the scrubbie around with the end of a stick as shown to remove gloss from the bottom faces of the notches (upper left photos).** Thoroughly wipe all the dust from the notches with clean cotton rags.

**The gaskets should be prepped on one side only with a scrubbie pad (photo on right).**

Nail one end of the gaskets to a clean bench as shown and stretch them out tightly without twisting them and nail the opposite ends to the bench.

**Press the gaskets to the bench with one hand to keep them from rolling while scrubbing with the other hand as shown.** Scrub right up to the nails at either end.



**Prepping one side only will allow the cement to bond, leaving the upper faces of the gaskets scratch-free for longevity.**

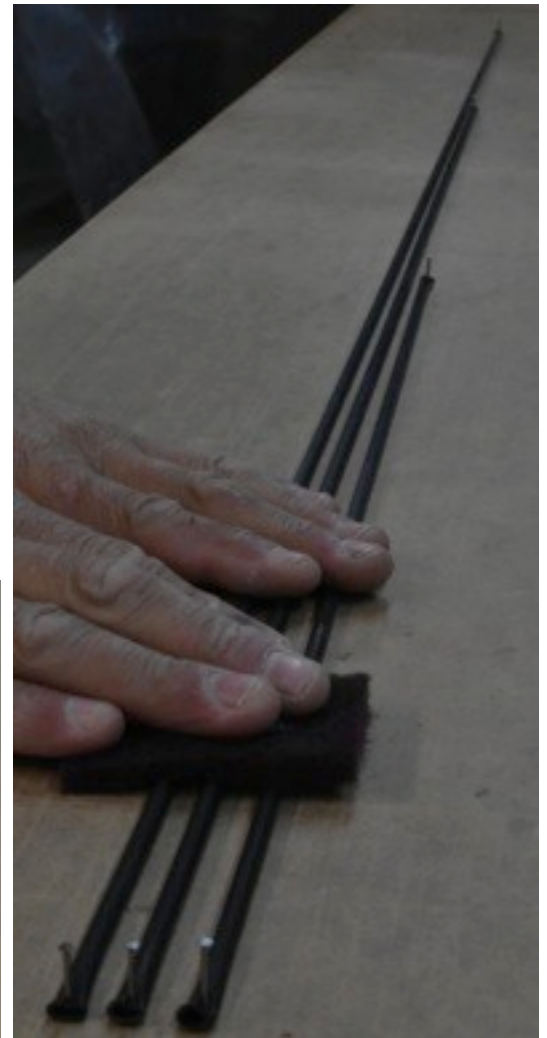
Use the white-out pen to make little dots of white on the prepped surfaces.

Shake the pen hard, press and squeeze on a scrap of plywood frequently to help the pen make dots every couple of inches.

**Pull the nails and cut about 1/2" from both ends of each gasket (photo on right).**

**The gasket ends should be cut square.** Hold the blade square to the gasket and square to the surface and just push down hard. See note. →

**Wipe the gaskets** with clean cotton and place on a clean surface



**Use a fingertip either side of the blade to hold the gasket.**





The foredeck hatch gasket is the hardest one, so let's start there. Wipe the foredeck and notch clean. Tape one end of the 45" long gasket on center as shown with the prepped face down. **Without stretching the gasket, slowly work around the opening. Keep the white dots facing down and the gasket centered in the notch.**

The tape should be kept inside foredeck edges as shown as the hatch lid will be used for pressure.



**Mark the gasket for cutting about 1/16" over length.**



**Cut the end off square** using a thin scrap of wood to cut on and following inst. on previous page.



**Rub the tape down firmly to the gasket as it will stay attached and help keep the upper face facing up when gluing.**

**Carefully lift the aft edge**, picking up the tape edges with a chisel stick when needed. **Pinch the gasket and tape as shown below to keep the tape attached to the upper face of the gasket**



Expose more than half of the gasket notch as shown below.

**This area should be glued and allowed to cure before gluing the forward part.**





Stir the contact cement and suck up about half a syringe full with a new syringe. Stand the syringe on its tail to push out air bubbles.

The photo on the right shows about how much contact cement is needed. The application can and will be lumpy and messy looking, but no one will ever see it. **Note** how syringe

is leaned over so that the edge of the notch is centering the bead.

Because the cement will start to “skin over” (dry), fast, it’s best to quickly apply cement to about half of the exposed notch and place the gasket to that area. **Don’t stretch the gasket and try to center the gasket in the notch.**

Apply cement to the remaining exposed notch and place the gasket. Use more tabs of tape to center the gasket (pull and replace tape where needed). **As soon as possible, put the lid in place and dog it down to hold the gasket down.**



The remaining end of the gasket can either be stretched or compressed to make the butt joint fit with just a bit of compression.



Apply cement to the remaining notch, tape down most of the gasket and then syringe just a bit of cement to the tip of one end as shown.

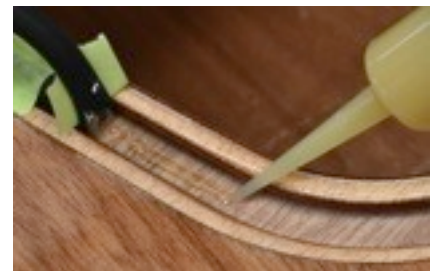
**Align the butt flush, place tape over the butt and dog the lid down again.**



**Tightly tape over the tip of the syringe** and push the air out to make it last.

**The remaining gasket can be glued much later the same day, or the following day.**

**Expose one end of the remaining notch and apply cement up to glued area (both photos below). Apply that end of the gasket and tape down.**





The trunk cap gasket is much easier. Tape the gasket in place with the white dots facing down. Carefully cut the butt joint about 1/16" over length and compress into place.

Carefully pull up the side of the gasket without the butt joint.



Apply cement to the exposed notch, **tape the gasket back in place (as above)**, and **dog it down over the trunk**.



Each end can be lifted, glued, and taped back down. Remember to place a piece of tape over the glued butt joint before dogging the cap back down.



When the contact cement has cured and tape removed, the tight corners (trunk cap) can have a bit more cement syringed in under the gasket if it seems necessary, but dog the cap down while the cement is curing.

**The hull gasket can be done the same day, but the bow section will need to be standing on it's nose.**

We tied it to the edge of the bench with the rope running through the alignment holes (see photos next page).

The stern section will be needed for clamping pressure. Assembly can be done by one person on the table with the aid of some blocks.



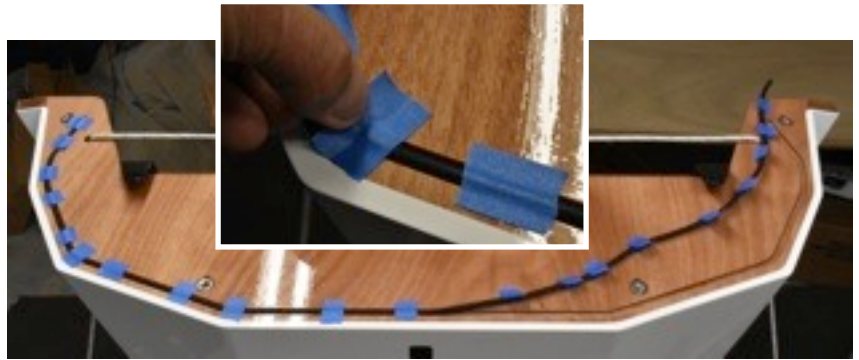
There's no butt joint in the hull gasket, but it sure is long!

The ends of the gasket should stop about 1/4" from the end of the notch.

**Tape the whole gasket in place** (you know the drill), but this time lift one end, apply cement, and then lift the other end and repeat.

Pinch the tape when pulling up the gasket (inset) and **apply cement to only about half of the exposed notch before applying the gasket.**

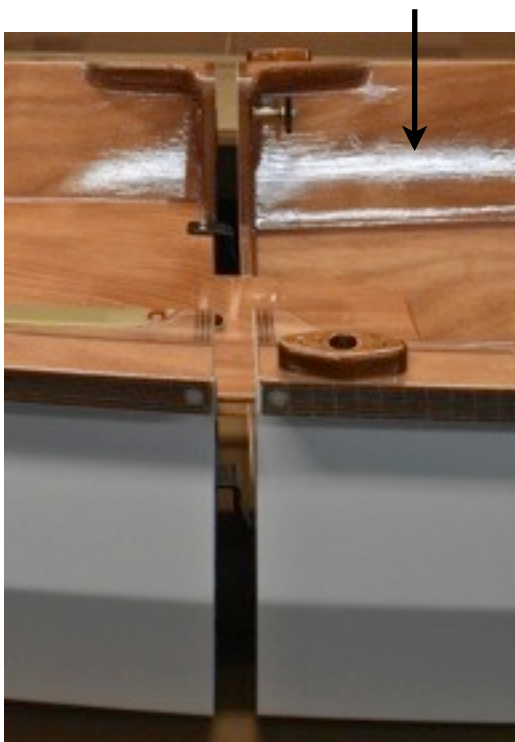
We rubbed the gasket down with fingertips to squish it into the cement and then centered it in the notch with tape.



**When assembling the hull, the gasket can "roll" out of the notch in the lower corners because one surface is sliding against the other and the gasket is grabby.** We used a little extra cement in the lower corners and taped the hell out of it so it wouldn't move when → assembling the hull for clamping pressure, which should be done right away.



With both hull-halves close, prop up both ends with roughly 1" thick blocks, so there's a bigger gap at the bottom than the top before lifting the seat tongue and assembling the hull tightly.



## GASKET MAINTENANCE

It appears that waxing the mating face (not the gasket) is effective in keeping the gasket from bonding to the opposite surface when left under pressure for a long time. It should also help with the hull gasket being "grabby". Any paste wax should work to wax just the needed area.

**If a gasket starts to lift, fix it!** Flush with water, dry thoroughly, inject a little cement, and clamp the lid down.

**Replacing gaskets:** To get the glue residue out, level the area and pour acetone into the notch. Pinch a paper cut to apply acetone into the notch only. Soak and scrub with tiny bits of rag pushed around with a stick. Don't get acetone on the turn-dogs.

You can buy the surgical tubing from McMaster Carr, part number 5234K963 5/32 ID 1/4" OD

Please give us your feedback and ideas about gaskets, gluing the gaskets, and gasket maintenance.



## GLUED ON BUMPER

Bumpers on dinghies have always been a challenge. For us, the canvas covered screw on type is not an option. Why? Because it takes about 200 screws to attach such a bumper (not kidding). Allowing water into the gunwales will cause serious problems and 200 screws would be a good way to let in water. The canvas covered bumper is also heavy (especially when wet) and expensive.

We have tried many different types of alternative bumpers on our prototypes, all of them glued on.

On the PT 11 we made the thickness of the gunwale 1" and did not round the outside edges so that there is a 1" wide flat surface to glue a rubber bumper on to.

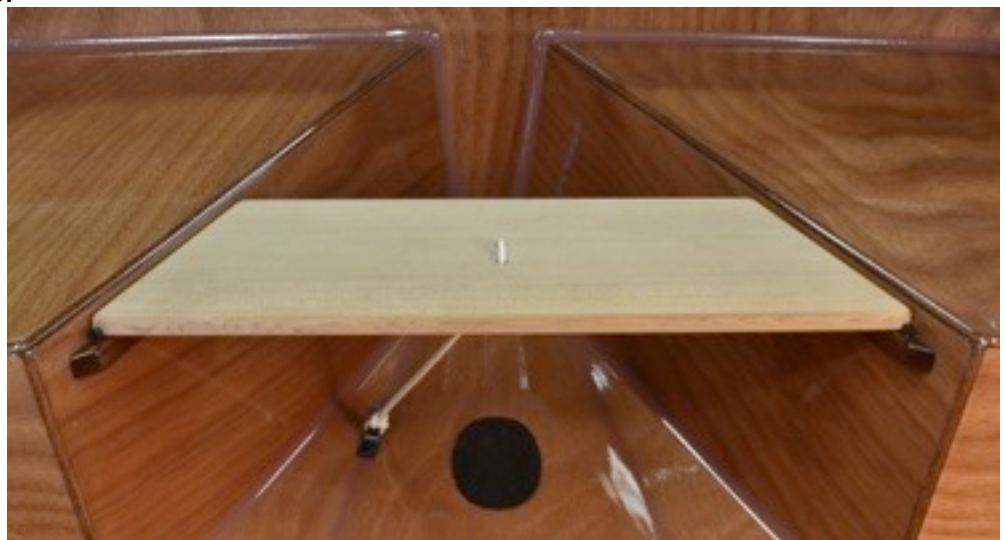
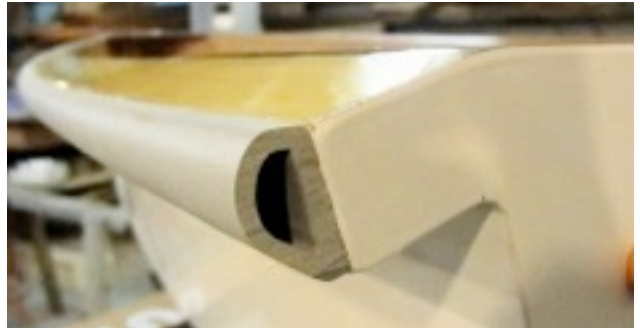
We have developed a custom extruded section for this boat (shown) that glues on, is non-marking, and long lasting.

**Instructions for attaching the bumper are included with the bumper kit.**

## BACK SEAT

The 7" wide removable back seat can be made from plywood or lumber. We think the best material for the seat is red cedar. It's very light and needs only oil for a coating and it's soft enough not to ding the boat when nesting. 1/2" is thick enough for either plywood or lumber.

The seat is held in place with shock cord fixed to an eye strap that is placed on the chine line as shown so that it does not interfere with nesting. "Stops" (photo on left) are installed on the cleats to keep the seat from sliding forward. Note that the forward tips of the seat have been squared-off to meet the stops.



## 22

This photo shows both the location of the glue-on eye strap and the 4th leather pad.

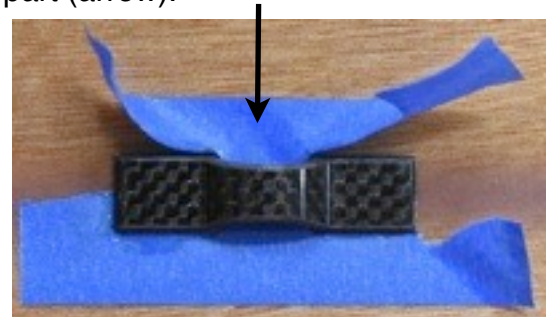
The center of the leather pad is about 12" from the transom (**on the center line**) and the eye-strap is positioned over the chine and about 11" from the transom.

**To glue on the carbon eye strap**, tape as shown and trace around the eye strap. Use an Exacto knife to cut to the traced lines, lift out bond area and cut tape as shown for later tape removal.



Scrub bond area thoroughly with 3-M scubbie. Sand the bottom face of eye strap on a sanding block. Wipe clean. Glue with gluing fillers after a thin finger-tip prime (or use G-flex epoxy). Press the eye strap in place and clean epoxy from eye strap (onto tape) with a chisel stick.

Pull the tape after the glue has started to gel (to avoid shifting the eye strap). Tear tape to separate halves and pull up one side as shown before pulling out hidden part (arrow).



The back seat can slide between the eye strap and the seat cleat and wedge snug enough to stay out of your way when nesting. You may need to trim your seat very slightly narrower for this to work.

The 3/16" shock chord is tied through two 1/4" holes in the center of the seat (see previous page) and be tied to the eye strap with enough slack to easily place the seat, but tight enough to hold it in place.





The back seat needs “stops” to keep it from sliding forward. We now make these from 1/4” black fiberglass rod. The stops are tiny, but the ends can be easily rounded by chucking one end up in a drill and sanding the ends while spinning.

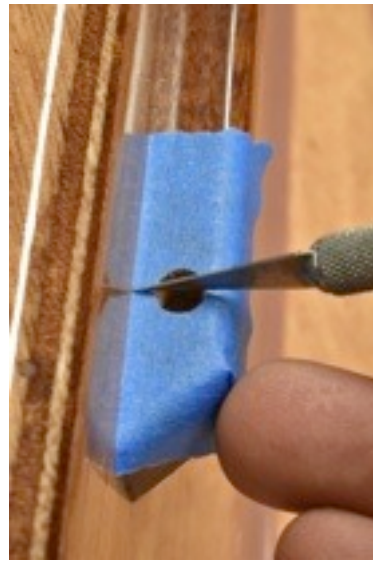
Rounding both ends helps when installing.

We pre-coated the tips (about 1/4”) by taping off, hot-gluing the stops to a stick, and coating. Clamp the stick upside down while curing to make the excess run toward the upper tips.

We drilled 1/4” holes to a depth of 3/8” for the 5/8” long stops to glue into, using the seat as a guide, centering the hole in the cleat.

After fitting the stops, tape over the holes and knife open. Lightly knife cut the tape where shown. Tape seat wall as shown in photo on right.

With cooling temperature, fill the holes up about half way with un-thickened epoxy, coating the walls of the holes. Wait a bit and insert stops. Leave the squeeze-out to soak into the hole for about 1/2 hour.

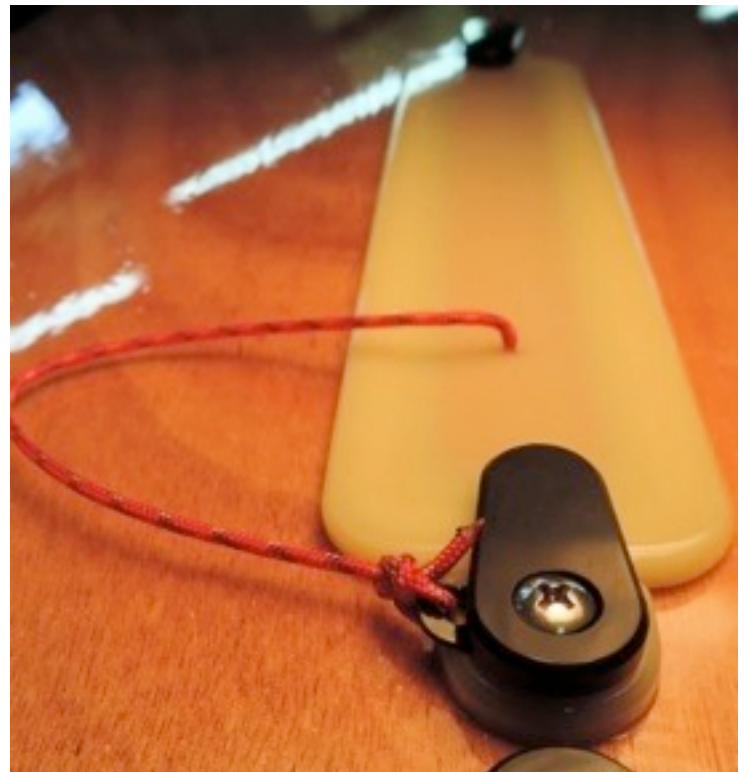


**Just don't forget to carefully wipe up the excess and pull the tape.** The slit in the tape will allow pulling the tape without wiggling the stops.

### **TRUNK CAP TETHER,**

A leash can be added to the trunk cap by drilling an 1/8” hole and gluing in the piece of the line included.

The line ties to the special (and freaking strong) washer that is installed under the forward turn dog. **Rotate the washer aft to tie the line on.**



## HATCH LID TIE POINTS

The hatch lid needs attachment points on both sides. One as a tether, to keep it from being lost, and one to open the lid. Being an airtight hatch, sometimes it takes a strong pull to open the hatch.

The hatch pull loop should be centered at one edge of the hatch (see arrow below) and installed by drilling two  $\frac{5}{32}$ " holes an inch apart and  $1 \frac{1}{4}$ " from the edge of the hatch lid. Drill these holes  $\frac{1}{2}$ " deep and lightly bevel the edges of the holes with a countersink.

Cut a piece of the included cord  $3$ " long, with a sharp knife. 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 un-thickened epoxy and let the epoxy soak in for a bit.

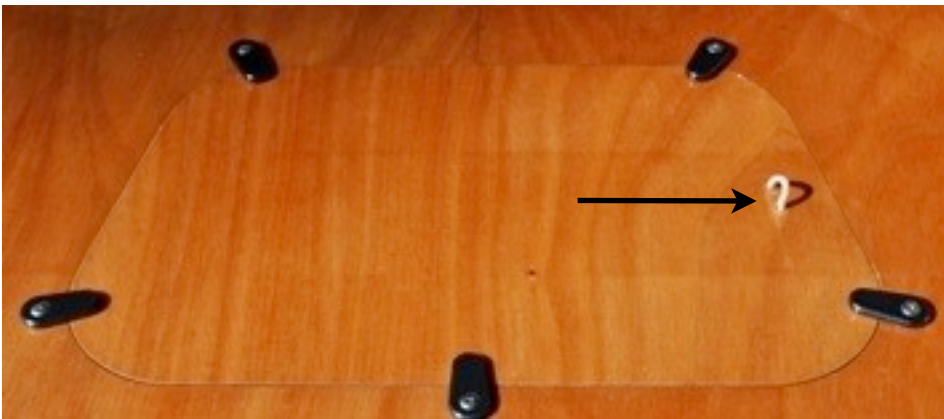
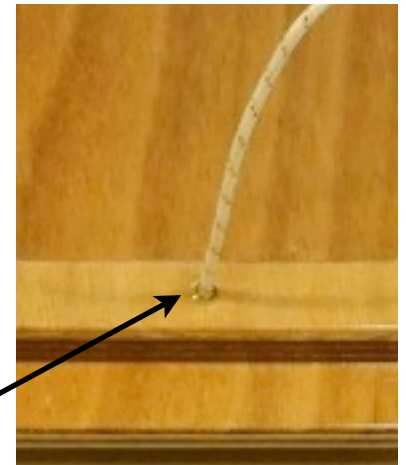
Drip epoxy into the holes until they are about half way full. Form a C shape with the piece of cord and push the ends into the holes. Epoxy will soak into the cord, so drip some epoxy around the holes later with the tip of an awl or nail.

**Taping over and knifing out the holes with an EXacto knife will make for a cleaner finished job.**



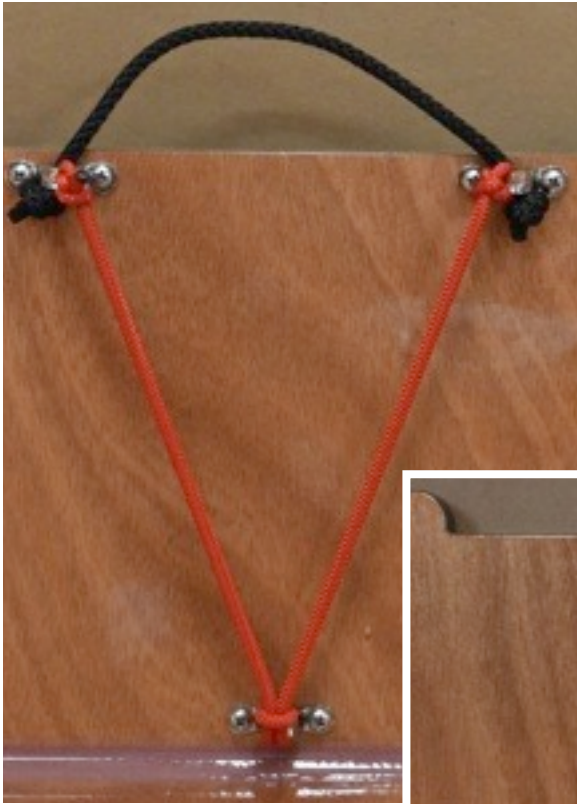
The lanyard can be attached to a hole drilled into the lid stiffener the same way.

The lanyard should be about  $2 \frac{1}{2}$  feet long. One end can tie around the mast tube. The other can be glued into the lid stiffener on the under side of the hatch, on the forward edge, on centerline, in the same way we describe above.



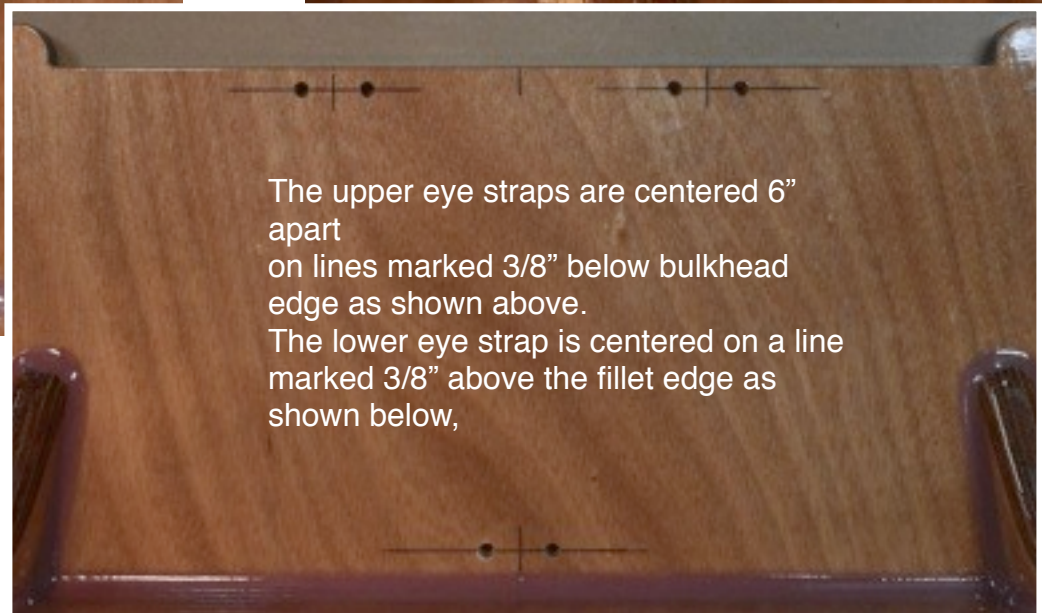
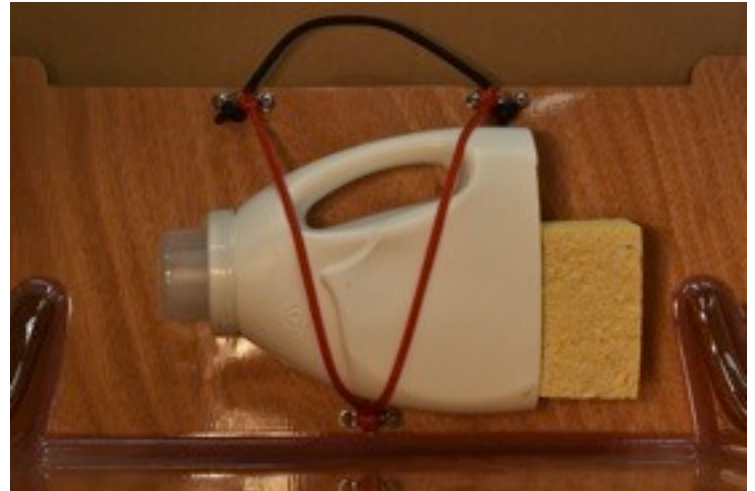


**On our most recent boat we incorporated a lifting handle (for the after hull-half) with the bailer bungee tie points, using only 3 eye straps.** The eye straps we used are low-profile **Harken # 281**. The bulkhead is less than 1/2" thick, so we had to use tiny **3/8" # 8 screws** (these fit the eye straps). To make the installation strong and completely watertight, we drilled oversized holes, filled them with epoxy, and let the epoxy fully cure before drilling for the screws and installing the eye straps. **Stand the aft hull half on end** on the table (bulkhead down) and mark as shown in 3rd photo. **A centerline can be marked** (fine tip marker) by measuring between bulkhead edges and using the centerline scribe mark on bottom panel.



**The eye straps can be centered on the lines and holes marked with an awl as shown below.**

**A 1/4" brad point bit** can be used to start the holes (shown below and on right). This bit will center on the awl hole and cut cleanly.



**The holes can then be drilled to a depth of 3/8" with a normal 1/4" bit.**

**Mark the bit as shown and be very careful to avoid drilling deeper than the depth shown.**





The holes can be filled in cooling temperatures or by gently warming the bulkhead first. Use a bit of 404 filler, coat the walls of the holes with the tip of a big nail and then fill the holes (pinch the cup and pour). Let sit and then pop bubbles and add more with the nail until a slight mound of epoxy is above the bulkhead surface on each hole. The mounds can be removed the following day (photo below left) by gently warming and slicing them off a bit at a time with a wide sharp chisel. Hold the chisel flat and push sideways with thumb. Nicks in the chisel will cause scratches.



**Mark a 1/8" drill bit at 3/8'** as shown and drill all holes to that depth square to the surface. Using a fresh driver bit (or screwdriver) will insure that the screws are started square to the surface. Trial fit all screws and eye straps.



Re-mark the lines, make center marks, and use the awl to poke holes for the drill bit to follow.



Fill the holes with un-thickened epoxy and install screws and eye straps. Drive screws slowly to allow epoxy to spiral up around the threads to avoid hydraulic pressure damage. Clean-up with bits of paper towel and finish with paper towel & acetone.



We used 3/16" line for the handle, held with stopper knots (photo on right) and 3/16" shock chord (both photos) for the bailer holder.

Refer to previous page for bailer size suggestion (must fit with boat nested).

Bailer tether not shown. About 4' of 1/8" shock chord would work well.





## ALTERNATIVE BLOCKING FOR MOTOR MOUNTING.

We wish we had as much enthusiasm for this part as we have for all the other details, but we don't. Why? Because the PT 11 is designed to get away from the motor. A good rowing and sailing dinghy will never make a great motor boat and vice versa.

If you plan to go down the dark motor path, try to find something really small and light. 2 horsepower is really more than the boat needs.

Another thing that makes us grumble is that they all have different mounting bracket geometry.

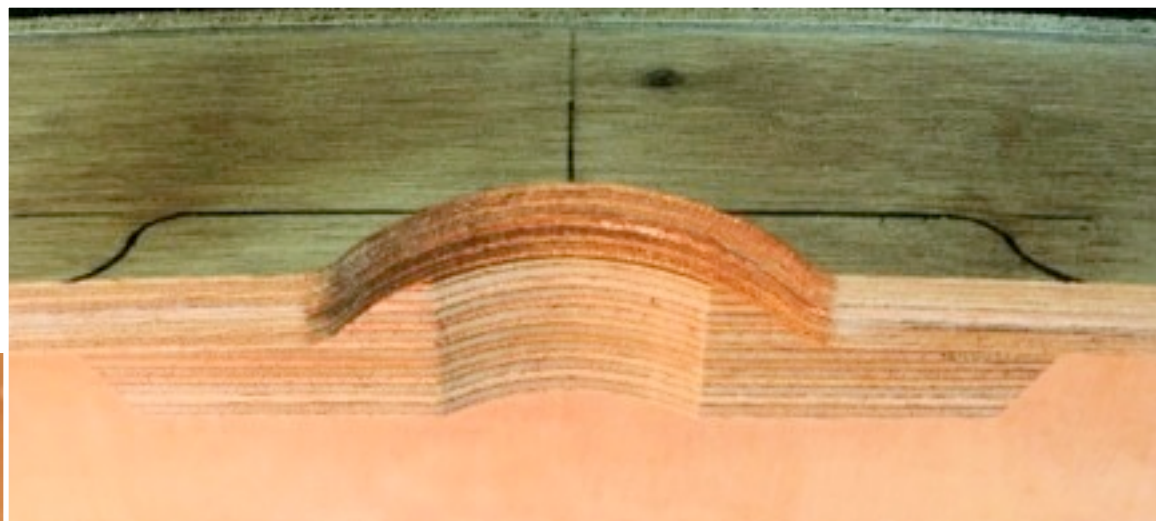
We can ship a 1" thick machined inwale doubler which would allow you to cut away enough of the inwale (**see pencil lines drawn below**) for the mounting bracket to reach over the inwale.

Please figure out what your chosen motor needs first as far as width (to the outside edges of the turn-screw washers) and depth (from the part of the bracket that touches the transom to the washers).

Mark the inwale (as we have below) before fitting and gluing in the doubler.

The turn-screw washers will likely hang below the doubler a bit, which is probably fine, but adding a spacer to lift the motor up (above the inwale) is a good idea. The spacer could stay attached to the motor bracket with cable ties.

Note: The EP carry electric outboard can fit this boat with only simple padding applied.



Because the transom is curved, **thin spacers** will be needed under the outboard edges of the motor bracket.

These could be made from teak or mahogany and glued to the transom or to the motor bracket with a bit of 5200.

Most motor brackets will clear the upper rudder gudgeon as shown.

## PT 11 USER GUIDELINES

### ASSEMBLY AND DISASSEMBLY

This process is fairly intuitive, but please read about how to avoid the possibility of serious damage when disassembling in the water. Also see alignment and hardware maintenance on page 2.

### ASSEMBLY ON LAND

When assembling on land, tighten the upper knobs first, then the lower knobs. Threading is easier if someone lifts the bow gently so that the bulkheads meet.

### ASSEMBLY IN THE WATER

Kneel well aft of the bulkhead and bring the forward half into position. Hook the alignment clips over the bulkhead and push the forward half down (slowly to avoid water squirting up) with both hands. One hand should be forward on the foredeck to force the bow down. With the other hand, push down on the seat tongue until the alignment clips are seated.

Keep pushing down on the foredeck while tightening the two lower knobs first, then tighten the upper knobs.

### DISASSEMBLY IN THE WATER

Kneel well aft of the bulkhead. **Loosen the upper knobs and fully retract. Failure to fully retract the upper fasteners when disassembling in the water could cause serious damage.** Push down on the foredeck while loosening and retracting the lower pins and allow the forward half to float up and free.

### CHECK THAT ALL KNOBS ARE TIGHT BEFORE EACH USE.

If you have any problems with the connective hardware, please contact us.

### LOADING THE PT 11 FOR ROWING (TRIM)

Slight changes in fore & aft trim will make big changes in how easy (or hard) it is to row.

**When rowing solo, sit as far aft on the seat tongue as possible.** You will then fit the oarlock placement and the boat will be in level trim, not bow down.

**When rowing with two**, the rower is using the forward oarlock sockets and foot braces.

If the passenger is heavier than the rower and the boat feels sluggish, have the passenger sit on the floor just forward of the back seat.

**When rowing with three**, the rower uses the aft sockets as when rowing solo, someone sits near the mast step facing aft, and the third on the back seat.

**Four** is the same as three, except two would sit side by side on the back seat and the person sitting in the bow would sit as far forward as possible.

### STABILITY

The PT 11 develops most of its stability from the after end of the hull. **Avoid climbing in or out of the front end of the boat.** When carrying more than two people, load the forward end of the boat last, and unload it first.

### TOWING

Make sure the trunk cap is in place and the knobs are tight before towing your PT 11.

If there's a chance of getting caught in rough weather while towing, tie both ends of a piece of heavy rope (something like a dock line for the mother ship) to the holes in the after corners of the dinghy. This rope can be left in the dinghy. If it gets rough it can be let trail behind as a drogue to make the dinghy behave.

### MAINTENANCE

Keeping water out of the wood is the way to make the boat last a long time.

Fix dings that penetrate the fiberglass as soon as possible, even if it's a temporary fix, such as a dab of 5200 or 5 minute epoxy.



## ALIGNMENT

If the pins don't want to thread in easily, it could mean that the alignment clips are out of adjustment as happened with two of our prototypes.

File down the epoxy shim (that the alignment clip rides on) with a sanding block on the side that is causing trouble. Do this carefully with fine sandpaper on a sanding block until the pins thread easily.

## HARDWARE MAINTENANCE

**The threaded sockets and pins must be kept both clean and greased.** This is a tall order if you are anywhere near sand, but it's necessary.

**The threaded sockets can be cleaned** by folding a piece of rag and wrapping it over the tip of a flat-head screwdriver. Wind it into the socket until it stops, and wind it back out. When clean, apply a small amount of grease in the threaded socket.

The threaded tips of the pins can be cleaned by wrapping a rag over the threads and turning the knob.

**Removing the pins** should rarely be necessary, but here's how: Use two 9/16" wrenches to separate the nuts either side of the knob, remove nuts, knob, and washer and push the pin forward and out. Clean the grease out of the socket and from the pin.

**Apply grease to the shaft of the pins before re-installing.**

## SAILING

The PT 11 rig is designed to be light and easy to use, **not to be bullet proof.**

Hiking (sitting on the rail and leaning out) is okay for one person to do, but not two.

Sailing with two and having one person hiking and the other sitting inside is okay too, just not two sitting on the rail.

A better guide for sailing is coming soon. Watch the videos for set up tips.

(Youtube channel: ptwatercraft)

**There are a few things in the user guidelines that are pretty important for anyone using the boat to know. We now include an abbreviated user guidelines decal** (with some safety information) sized to fit inside the hatch lid (you will have to trim the edges as shown for it to fit).

Practice fitting before peeling off the backing. Place as shown and work air from the center outwards.

