Thank you for choosing a kit from PT Watercraft.

A 30 year fascination with the challenges of nesting boat design, and many prototypes have led to the PT Eleven and now the PT Spear, a one-piece sister-dinghy.
Nesting dinghies from PT Watercraft are, we believe, the strongest, lightest and most highly developed boats of this type available.

We ask a bit more attention of the builder than the average boat kit does, but if the manual is followed, the result will be a very strong, light and long lasting boat that works as intended.

The PT 11 and the Spear look clean and relatively simple, but there are many steps involved in building a boat like this.
A large part of the work involved is related to strength and longevity (in a very lightweight boat) and is necessary for a boat intended for use as a cruising tender.
While our focus on strength and longevity makes for a superior boat, it does add to the build time.

The PT 11 and Spear are covered with fiberglass cloth on all exterior surfaces and different weights of cloth are used in different areas. Pre-glassing parts of the boat (before assembly) is a technique used wherever possible.

This boat doesn't rely on both sides of the hull skin being fiberglassed for hull strength and if a builder wanted to streamline the building process and was planning on light use, many of the glassing procedures could be skipped.
The chines and the outside of the hull must be glassed, but much of the edge detail glassing and inside hull panel glassing could be omitted and replaced with a few thorough coats of epoxy. One could glass only the high wear areas, such as the inside bottom area of the aft hull half, and high load areas, such as the tips of the main bulkhead

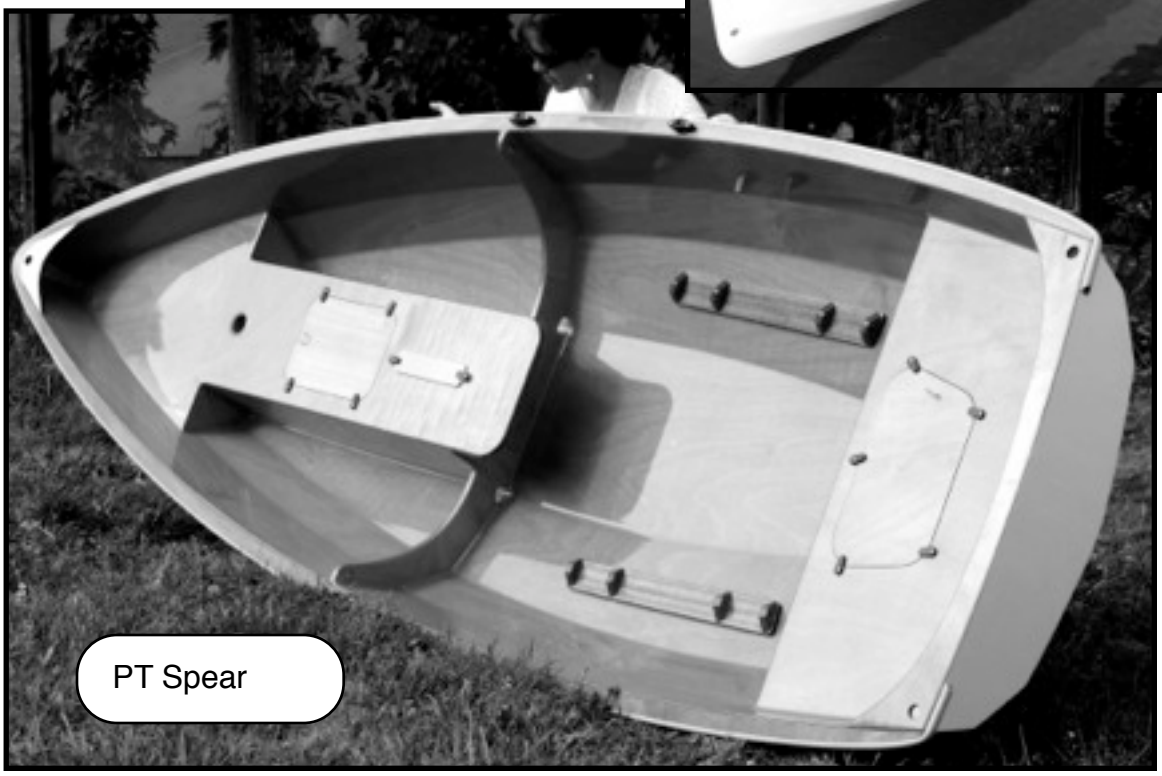
We have built many prototypes of this boat. With every one we work on streamlining construction details for updating the building manual.

In this manual, we try to keep the text as short as possible and let the pictures tell most of the story. If something is not clear, scan ahead and look at photos or scan even farther ahead to look at photos of an area finished.

We encourage you to scan the manual all the way through before starting to build.
We also encourage you to take the most care in the beginning of the project.
If you are wanting to cut corners, the best time to do that would be after the hull is assembled. It's like building a house, in that if the frame is not built straight and square, the rest of the project will be a struggle.
Techniques described in the manual are initially very detailed. Repeated processes are later described in less detail. By then you will be well acquainted with things like preparation before gluing or filleting, taping, clean up, etc.. so keep in mind what you learn early on or refer back to earlier descriptions. Waiting for epoxy to cure before moving to the next step is assumed and not always specified.

PT 11 Nesting Dinghy

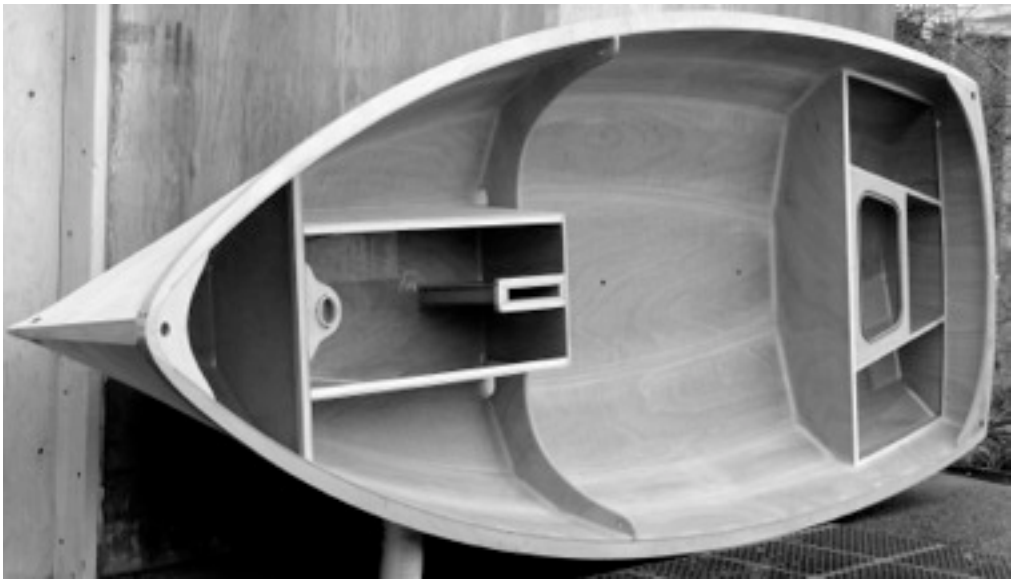
THE SPEAR is identical in hull shape to the PT 11, but the interior geometry and construction are quite different and deserve explanation.

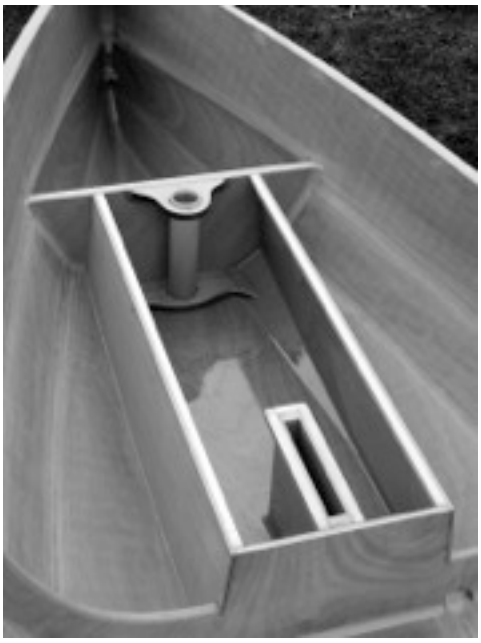


PT Spear

The PT 11 has a full width foredeck so that water drains into the aft compartment, otherwise there would be three areas that would need bailing of rain and spray. The Spear can have scuppers through the main bulkhead (the nesting PT 11 can't) and therefore can have what I call a "trunk" seat.
When rowing with three, the trunk seat allows more comfortable seating for the person sitting in the bow and the areas to the sides of the seat are good for holding oars and other things in the boat. The trunk seat also keeps the hull from twisting under sailing loads. It's like a torsion box.

Two of the watertight hatch kits that we offer as options fit really well in the Spear, making the boat versatile for carrying (and keeping dry) groceries, camping gear, cameras, safety gear, etc.
The aft hatch is easier to access when sailing and is great for things like cameras, jackets, and food, but because of the baffles under the back seat (more on that next), the volume of area under the forward hatch is much greater.
While the hatches are work to install, the cost of the kits is very small compared to the utility and safety they offer. They also provide access and visibility to the daggerboard trunk, mast socket, and rudder hardware, not to mention a good place to hide valuables left in the dinghy.



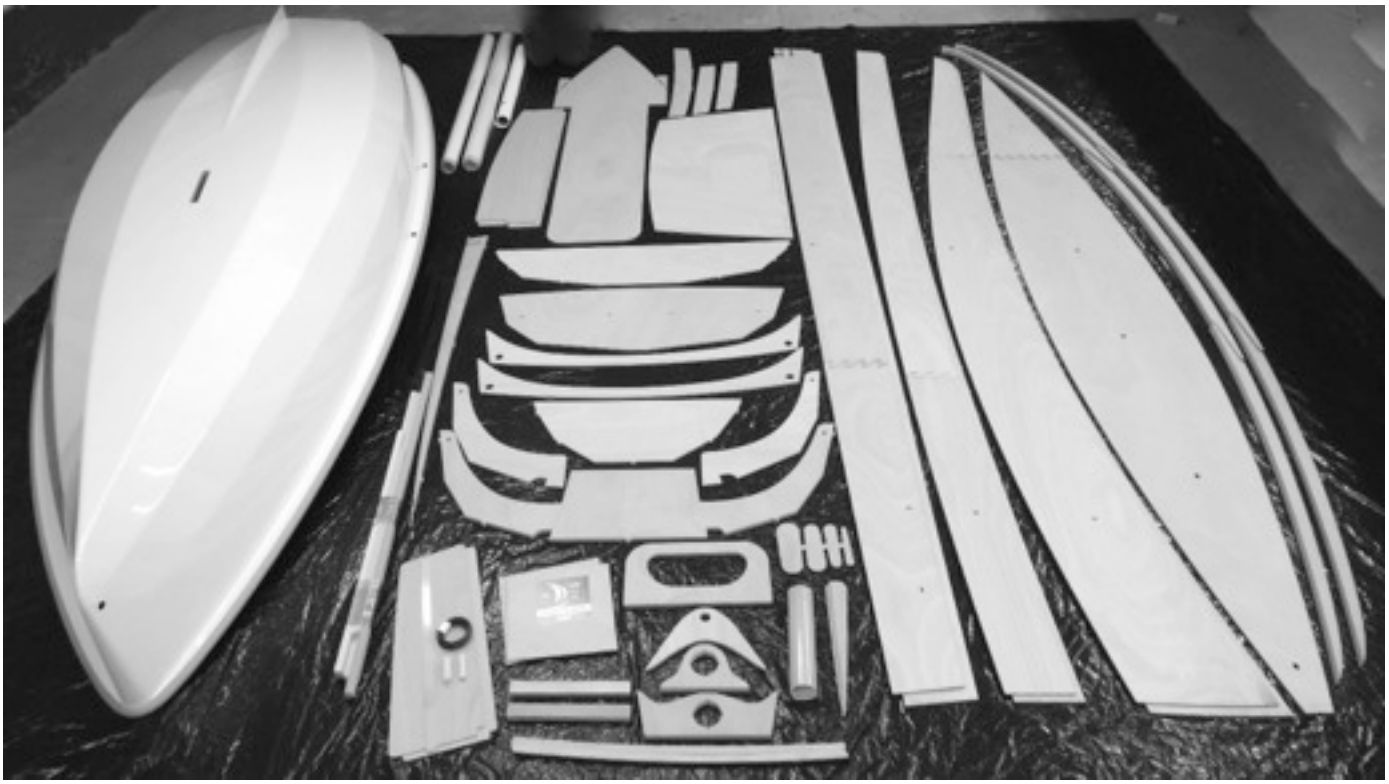


Coast Guard regulations play a large role in the interior geometry of the PT 11 and the Spear. This may sound like big brother getting in the way of art, but it's quite the opposite. The regulations are to protect us, the kit provider and especially you, the end user.

Buoyancy built into the right parts of the boat is necessary for safety. Sealed air voids (compartments) have the same value as flotation foam, but access ports or hatches are not allowed in sealed air voids.
The bow area (forward of the mast step bulkhead) is a sealed air void in the PT 11 and the Spear

The PT 11 has built in buoyancy tanks in the back of the boat on either side (outboard) that are equal to the volume in the bow. This is what the Coast Guard wants, and it makes sense.
The Spear has a large back seat area, but because it has a hatch, we have to install baffles to form sealed air voids outboard of the hatch where they would do the most good in an emergency.

Though the baffles under the back seat decrease the usable volume for storage, they make us legal and make you safer, and they make for a well supported back seat.



FIBERGLASS
4 oz cloth is used for all of the interior surfaces. The PT Spear kit comes with 21 feet of 50” wide cloth.

6 oz is used for glassing the outside of the hull and taping the chines. The kit comes with 27 feet of 50” wide cloth.

Peel ply is used for smoothing the chine tapes and other glass taping. The kit comes with 60” of peel ply.

All fiberglass cloth (including scraps) should be kept on a roll and treated carefully for ease of use.

FILLERS
There are four fillers (for thickening epoxy) used in the building of the PT 11/SPEAR.
These fillers are usually used in combination with other fillers to achieve desired properties as described in the epoxy section of the manual.
The fillers needed are:
406 Colloidal Silica, 407 Low-Density Filler, 404 High-Density Filler, and 410 Microlight® (the numbers are WEST SYSTEM® reference numbers)

The PT Spear requires: One large (5.5 oz) tub of 406-7 Colloidal Silica.
One large tub (12 oz) of 407-15 Low-Density Filler.
One small tub (15.2 oz) of 404 High-Density Filler
One small tub (2 oz) of 410-2 Microlight® filler.

Other epoxy supplies are talked about in the epoxy section of the manual.

A list of hardware store tools and materials needed for building the PT Spear follows.

Tools:
-A small router is necessary.
A laminate trimmer router is
the most appropriate and most economical.
-Three router bits are required: One bottom bearing flush cutting bit, one 1/4" round over bit, and one 3/16 round over bit.

-A random orbit sander is required.
One that connects to a vacuum would be best.

-A jigsaw is used occasionally.

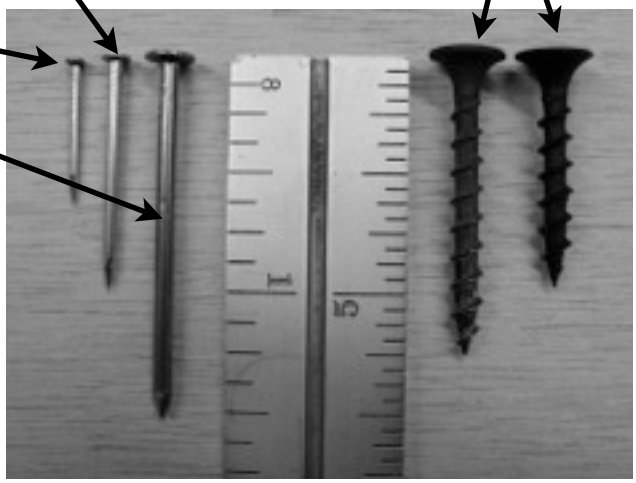
-A hot melt glue gun is needed.
These are cheap and most useful.
-A heat gun or Hair dryer.

-A block plane and sharpening stone will be very helpful.
-A combination square (seen throughout the manual) is used for scribing pencil lines.
- 10, 2" C-clamps are needed and can be seen in the manual.
-A small drill bit set (in 64ths of an inch) is needed.
-Wire cutters, vise grips, and needle nosed pliers are needed for wiring the panel edges
-Sharp scissors, a snap-off blade knife, and an
Exacto knife are needed.

 # 6 coarse thread drywall type screws of two lengths are needed. 1" long & **1 1/4"** long.

Wire nails of 2 sizes are needed. 5/8" long #19 nails and 1" long # 17 nails.

4 penny nails 1 1/2" long are needed.



-A small roll of 4 mil clear plastic sheeting and
a roll of 2" wide clear plastic packing tape.

-One sheet of 3/4" particle board and a few 8' 2x4's
will be needed for a table.

-Sheet sandpaper. 80, 150 & 220 grit

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