

YANKEE TENDER



MODEL KIT



Here is a building tip for the cutting the planking:

When you cut out the side planking (as opposed to the bottom planking) you should be getting both garboard planks from 1 piece of $3/64$ " x 2" x 24" Basswood. Trace out the first garboard plank with the edge of the pattern as close to the edge of the wood as possible. Just flip the gar board pattern and nest it to the first when you are tracing the second plank.

You should also do the same with the sheer plank using the other $3/64$ " x 2" x 24" piece. The 4 pieces of the $3/64$ " x 1" x 24" would be for planks 1 and 2 of each side.

We now include 6 pieces of $3/64$ " x $3/4$ " x 24" for the bottom's cross planking (instead of 4 pieces, per the instructions) just to make it easier.

You may notice that the plans show the mold support blocks aft of some molds and the instructions show them forward of the molds. Does it matter? No. The important thing is to have the actual molds in the right place.

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YANKEE TENDER PLANK-ON-FRAME MODEL

1 1/2" = 1'

THE MODEL

This model kit is designed to help you learn the basic processes of boatbuilding. It reproduces as closely as possible in 1 1/2" = 1' scale what is involved in building a full-scale boat; it also makes a very attractive and unusual model to display. The parts that go into this model are identical to those in the full-sized Yankee Tender. We have not pre-cut the parts, but leave that to you to do, following the plans, patterns, and instructions.

A word about the plans. These aren't simple sketch plans like those that come with many models, but are actual scale plans, reduced to the scale of the model, from the designer's original plans drawn for the full-sized boat. Of course, those plans include additional sheets of drawings and details not needed for this model, and a "table of offsets" from which a boatbuilder would "loft" his boat (draw it out at full size on a loft floor) before starting actual construction. The plans in this model kit, being reduced to actual scale-model size, will be used as patterns by you to cut out the parts from the wood supplied, just as you would do in building many full-scale boats. You will use glue throughout to fasten your boat together, whereas a full-scale boat would be fastened with "mechanical" fasteners (screws, nails, bolts) in most places.

THE BACKGROUND

This kit contains the materials, instructions, and plans required to build a model of the Yankee Tender, a skiff modified by WoodenBoat from a flat-bottomed boat built by the late Asa Thomson and now in the collection of Mystic Seaport Museum.

Mr. Thomson, a New Bedford boatbuilder legendary for his exacting standards and fine workmanship, built a number of skiff-tenders. Designed for a specific purpose in a specific area, they were light with a flat bottom for easy beaching. A good freeboard provided protection against a Buzzards Bay chop, and the strong sheer keeps the ends buoyant.

Feeling that Mr. Thomson's design was just a bit stubby (probably because he was obliged to keep the overall length down to a minimum for easy stowage), WoodenBoat raked both the stem and stern, keeping the same bottom length, and raised her out of the water a bit forward so that she'd tow better and run farther up the beach.

The original skiff by Mr. Thomson had three planks on each side. While it was easy for Asa Thomson to find wide planking in the 1920s, it's a different story today; WoodenBoat felt obliged to use four planks on each side, and chose Maine cedar over the original white pine because of its lighter weight and durability.

MATERIALS AND TOOLS

When you receive your kit, check each piece of wood against the materials list to make sure everything is there. This will also make you familiar with the various dimensions of wood you will work with. Don't cut any piece

until you have checked and double-checked that you are cutting from the right piece of stock. We will begin each step in the instructions by listing what size wood you will be using in that step. When cutting out the parts from the sheet wood, lay out the patterns in such a way as to use the wood in the most economical manner. In a number of instances, you will need to get several parts out of one piece of wood, and will be making small pieces out of the leftover scrap. When cutting out parts, it is best to cut slightly outside of the line, then carefully trim exactly to the line with a file, fine rasp, or sandpaper.

As already indicated, the necessary patterns will be taken directly from the plans, but rather than actually cutting the shapes from the plan sheets themselves, we suggest that you use carbon paper to transfer the shapes either directly onto the wood, or onto another piece of paper or thin cardboard that you can carefully cut out as a pattern. It will be easier in the long run to keep your plans intact. Whatever method you use, *be precise*. An error of 1/16" can make a big difference.

MATERIALS SUPPLIED WITH THIS KIT

(all wood is basswood unless specified otherwise)

3/4"	2 3/8" x 21" base, pine, 1 piece	5/64"	5/16" x 24", 4 pieces
	stock, triangular shaped transom		3/16" x 5", 1 piece
	support blocks, pine, 2 pieces		3/8" x 18", 1 piece
1/2"	1/2" x 15" pine, 1 piece		1" x 6", 1 piece
1/8"	4" x 22", plywood, 1 piece	1/16"	1/8" x 24", 4 pieces
	5/16" x 18", 2 pieces		5/16" x 12", 2 pieces
	1" x 4", 1 piece		1/2" x 15", 1 piece
5/32"	2" x 5", 1 piece	3/64"	3/4" x 24", 4 pieces
1/8"	1/4" x 6", 1 piece		2" x 24", 2 pieces
	1 1/4" x 18", 2 pieces		1" x 24", 4 pieces
3/32"	3" x 5 1/2", 1 piece		1/4" x 24", 1 piece
5/64"	3/4" x 9", 1 piece		

In addition to the materials supplied with this kit you will require:

Carpenters' yellow glue, such as Titebond
 Cyanoacrylate adhesive (instant glue), such as gap-filling,
 Hot Stuff Super T
 Rubber cement or spray adhesive
 Fine sandpaper
 Paint

TOOLS

Ruler marked to 32nds of an inch
 Modeling knife, such as an X-Acto
 Single-edge razor blades
 Straightedge, 24" long
 Small square or drafting triangle
 Fine-toothed coping or jig saw
 Very fine-toothed Zona or other backsaw
 Fine-toothed file
 Metal or emery-grit fingernail file
 Sharp chisel, 1/4" to 1/2"
 Wooden spring clothespins (to use as clamps)
 Roll of masking tape, 1/2" or 3/4" wide
 Soft (2B) pencil
 Small brads (1/2" #2) and common pins

Now, before you do anything else, READ THE INSTRUCTIONS THROUGH CAREFULLY, STUDY THE PLANS, AND BECOME THOROUGHLY FAMILIAR WITH WHAT YOU WILL BE DOING.

IMPORTANT NOTE: “Top” and “bottom” in these instructions always refer to the boat in its right-side-up condition, even when it is upside-down on the building jig.

THE BUILDING JIG

MATERIALS

(All pine except as noted)

Base, $\frac{3}{4}$ " x $2\frac{3}{8}$ " x 21", 1 piece

Stem strongback support post “A,”

$\frac{1}{2}$ " x $\frac{1}{2}$ " x $3\frac{1}{2}$ ", 1 piece

Stern strongback support post “B,” $\frac{1}{2}$ " x $\frac{1}{2}$ " x 3", 1 piece

Mold supports, $\frac{1}{2}$ " x $\frac{1}{2}$ " x 2", 3 pieces

Transom support blocks, supplied cut to shape

Molds, $\frac{1}{8}$ " x 4" x 22" (plywood)

Mold strongback, $\frac{1}{16}$ " x $\frac{1}{2}$ " x 15", basswood

Mold braces, $\frac{1}{16}$ " x $\frac{3}{16}$ " x 12", 2 pieces, basswood

As in full-size boatbuilding, the first step is to construct an accurate building jig on which the model will be built. Work as carefully as you can, checking and rechecking measurements, and using your square or triangle frequently to keep everything square, as the final shape of the boat depends on the accuracy of the building jig. A mistake in the jig will adversely affect the shape of the model.

(1) Lay out a centerline longitudinally on the top face of the $\frac{3}{4}$ " x $2\frac{3}{8}$ " x 21" base. Label one end “F” for Forward, then draw a line square to the centerline $1\frac{1}{2}$ " in from that end and label it “FP” for Forward Perpendicular. Lay out and draw lines square to the centerline signifying the three mold stations, the aft perpendicular, and the intersection “X” of the transom slope line.

(2) Mount the transom support blocks as shown in the plans.

(3) Glue and nail the $\frac{1}{2}$ " x $\frac{1}{2}$ " mold support blocks to the base with one face directly on the station line as shown on the drawing. Continue the centerline up and over the support blocks.

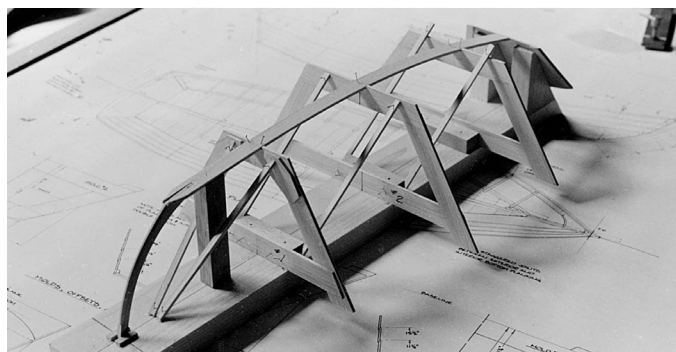
(4) Cut the mold patterns from the plans (or transfer them from the original plans with carbon paper as recommended previously) roughly outside the lines. Using

rubber cement or spray adhesive, glue the patterns to the $\frac{1}{8}$ " plywood, and carefully cut out the molds, this time trimming to the lines on the mold patterns.

(5) Erect each mold in its proper position on the base, with the centerlines of the molds aligned with the centerline of the base.

IMPORTANT: The face of each mold—the side with the paper pattern glued to it—must be on the mold station line, as shown in the plans. The molds must also be positioned so that the plywood thickness of Mold #1 is aft of the line, and the plywood thickness of Molds #2 and #3 is forward of the line.

(6) Fit and glue the mold braces for Molds #1 and #2.



(7) Fit the mold strongback in place in the notches cut in the bottoms of the molds. The outer face of the strongback should be flush with the bottom edge of the molds.

(8) At the “FP” on each side of the centerline, glue down two short pieces of $\frac{1}{16}$ " x $\frac{3}{16}$ " stock so they are exactly the width of the stem apart ($\frac{5}{32}$ ").

(9) Erect posts “A” and “B” that hold down the forward and aft ends of the strongback. Be sure the heights of both of these posts are correct, then glue and nail the ends of the strongback to the posts.

TRANSOM, STEM, CHINES, AND INNER BOTTOM

MATERIALS

Transom, 1 piece, $\frac{3}{32}$ " x 3" x $5\frac{1}{2}$ "

Transom cleats, 1 piece, $\frac{5}{64}$ " x $\frac{3}{16}$ " x 5"

Inner and outer stems, 1 piece, $\frac{5}{32}$ " x 2" x 5"

Inner and outer bottoms, 2 pieces, $\frac{3}{64}$ " x $\frac{3}{4}$ " x 24"

Chines, 2 pieces, $\frac{1}{8}$ " x $\frac{5}{16}$ " x 18"

IMPORTANT NOTE: From this point on in the construction sequence, be sure not to permanently fasten or glue any part of the boat to the building jig. If fastenings are used to temporarily hold a piece against the jig, be certain that they can be removed later; otherwise, you will be embarrassed to discover that the boat cannot be

removed from the jig. Any parts of the building jig that are apt to get glue on them—such as the end of the strongback in way of the stem and chines—should be rubbed with a parting compound, such as paraffin or a wax crayon.

(1) Cut out the transom, glue on the transom cleats, and bevel the assembly as shown on the plans. Cut the crown on the top edge, but leave it oversize where the top of the transom will meet the sides of the boat.

(2) Fasten the transom to the transom support blocks. Do not use glue, but use small brads or pins that are not driven all the way in, so they can be removed later.

(3) Cut out the inner and outer stems, leaving the inner stem long on the top so it will rest on the base between the stem supports. Set the outer stem aside for

use later on. Cut the planking bevels on the inner stem.

(4) Pin the stemhead in place (line it up with the "FP," as shown), then cut the slot for the stem in the forward end of the strongback, using the supplied template "C" to set the stem knuckle in its proper place. Taper the side edges of the strongback so they fair into the stem's plank bevels.

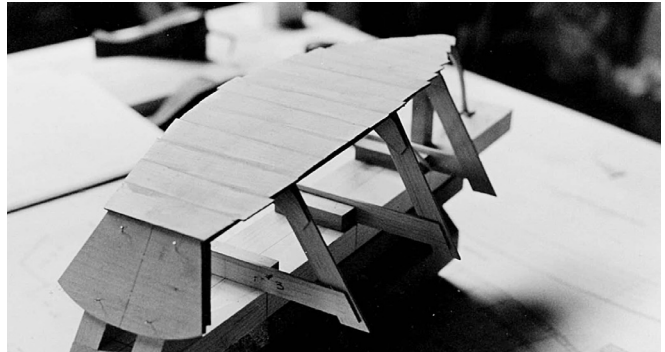
(5) Bevel the top edges of the chines and fit them into the mold notches. Scribe and cut the after ends of the chines to fit snugly against the transom cleats, tape or pin the chines in the mold notches, and spring their forward ends so they can be scribed and cut to fit against the stem. You may find the chines too stiff to bend easily. If so, steam or boil them for about 15 minutes, or pre-bend them over a hot pipe. When the chines fit properly, glue their after ends against the transom cleats and their forward ends against the stem.

(6) Plane (or shave with a chisel) a bevel on the bottom edge of the chines so they are even with the molds and so the bottom planking will land fair.

(7) The bottom planking is installed in two layers: the first layer now, the second after the sides have been

planked. Cut each bottom plank so it extends slightly beyond the chines. Start laying the planking at the stern and work forward, gluing the planks to the chines (but not to the strongback). Lay the first plank at the transom so its top aft corner lines up with the aft face of the transom as shown in the drawing.

(8) When the glue is thoroughly dry, trim the outside ends of the planks so they are flush with the chines and so the lower edges of the garboard planks will lie fairly against both them and the chines.



SIDE PLANKING, OUTER BOTTOM PLANKING, AND KEEL

MATERIALS

- Outer bottom, $\frac{3}{64}$ " thick
 - $\frac{3}{4}$ " x 24", 2 pieces
- Side planking, $\frac{3}{64}$ " thick
 - 2" x 24", 2 pieces
 - 1" x 24", 4 pieces
- Marking batten, $\frac{3}{64}$ " x $\frac{1}{4}$ " x 24", 1 piece
- Skeg and sternpost, $\frac{5}{64}$ " x 1" x 6", 1 piece
- Keel, $\frac{5}{64}$ " x $\frac{13}{32}$ " x 18", 1 piece

(1) Transfer the plank edge position marks for the garboard plank from the plans to the beveled edges of the stem and transom. Ensure that the marks for the top edge of the plank will produce a fair and sweet curve by pinning the batten temporarily in place and sighting along it. Do this on both sides of the boat.

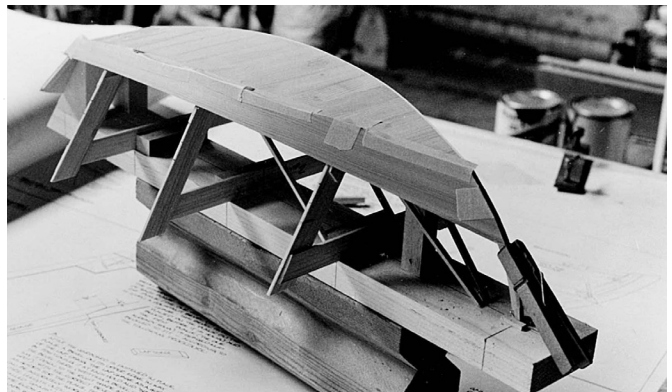
(2) Using the plank patterns as a guide, cut out the garboard planks and sand or plane their upper edges fair and to the line. Leave excess wood on both ends and on the lower edge.

(3) Pin one of the garboard planks in place, aligning the top edge according to the marks on the molds, stem, and transom, but allowing the excess wood at the ends and lower edge to overlap. Mark the plank for trimming at the stem and transom.

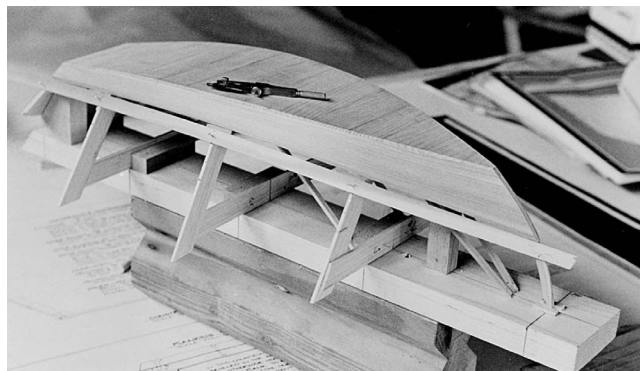
(4) Remove the garboard plank, trim it to length, and plane the lap bevels along the top edge and the gains at each end of the top edge. (See the plank "gains" on the plans to better understand this.)

(5) Reinstall a garboard plank and glue it in position along the bottom edge and at the stem and transom (do not glue it to the molds). Masking tape or pins can be used to hold the planking in place until the glue dries. Follow the same procedure for the garboard plank on the other side, then plane off the bottom edge of each garboard so it is flush with the inner bottom planking.

IMPORTANT NOTE: Before fastening any of the planks permanently, sight along their edges from both fore and aft



to make sure their edges lie in a fair curve. If you are positioning the second plank of a pair, be sure also that the edge heights at the stem, the transom, and each mold match the heights of the first plank of the pair.



(6) Cut and fit the rest of the planks in the same way, working with pairs at a time.

(7) Cut, fit, and glue the outer bottom planking. Align the planks so the seams of the second layer fall between those of the first. When the glue is thoroughly dry, plane off the plank ends so they are even with the garboards, and sand the planks flush with the stem face.

(8) Cut and fit the skeg, being sure the after edge

continues the line of the transom face. Glue it in place. Notch the extended bottom planking in way of the sternpost.

(9) Fashion the sternpost and glue it in place.

(10) Cut and fit the keel. Saw it in way of the skeg with a fine-toothed back saw, so the two outer pieces lie along the boat's bottom on both sides of the skeg and the center strip runs along the bottom of the skeg. Cut the forward end of the keel flush with the face of the inner stem; cut the after end even with the bottom planking.

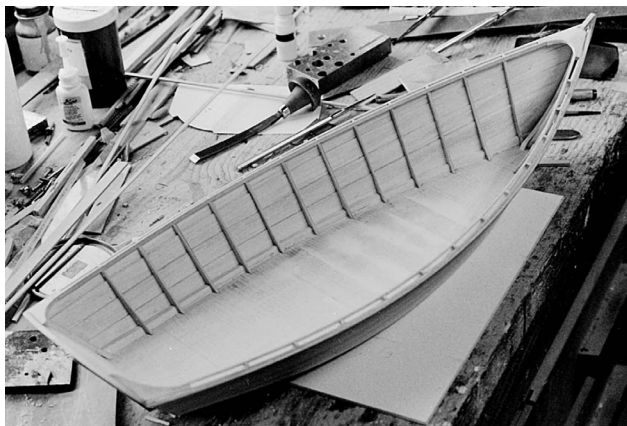
(11) Bevel, shape, and fit the outer stem, leaving it long, top and bottom. Nail (with pins) and/or glue it in place.

(12) Shape the forward end of the keel so it fairs into the stem. Cut off the bottom of the outer stem so it is flush with the keel.

(13) Remove any temporary fastenings you used to hold the boat to the building jig, and lift the boat off the jig. Check the beam at the sheer at each station, and fasten

temporary cross pieces with tape to hold the same beam as when on the building jig.

(14) Clean up the inside of the boat and give it a coat of sealer—shellac or thinned white BIN undercoater will do. After the sealer is dry, lightly sand the inside, taking care not to destroy the crisp lines of the laps.



INTERIOR WORK

MATERIALS

- Frames, $\frac{5}{64}$ " x $\frac{5}{16}$ " x 24", 4 pieces
- Breasthook, quarter knees, $\frac{1}{8}$ " x 1" x 4"
- Oarlock pads, 4 pieces, $\frac{1}{8}$ " x $\frac{1}{4}$ " x $1\frac{1}{4}$ "
- Inwales and guardrails, 4 pieces, $\frac{1}{16}$ " x $\frac{1}{8}$ " x 24"

(1) Lay out frame locations top and bottom inside. Scribe and fit each frame to the laps and chine; before gluing each in place, cut its inner face to the pattern shown in the plans. Allow the tops of the frames to extend above the sheer; they will be trimmed later. Glue them in place in pairs.

(2) Spring a batten along the top edge of the sheer plank and sight for fairness from all angles. When you are satisfied, draw the sheerline. Repeat for the opposite side, making sure both sides are close to the same height. Trim and sand the tops of the frames and the sheerstrakes to the final sheerline. Check the correct bevel on the plans.

(3) Cut and install the quarter knees and breasthook, beveling their edges to fit. You can leave the inside curved edges rough cut for now; they will be trimmed later.

(4) Spring a batten along the top inner frame edges to check that they are all the same molded width ($\frac{3}{64}$ " being the proper distance in from the plank) and are beveled correctly so the inwale will lie fair against them. Adjust them if necessary.

(5) Fit and install the inwales, and fair in the inner curves of the breasthook and transom knees. Note that the inwales are notched into the breasthook and knees with angled cuts as shown.

(6) Fit and install the guardrails. Their forward ends must be trimmed to fair into the sides of the outer stem; the after ends are cut flush with the transom face.

(7) Fit and install the oarlock pads.

(8) Mark locations for the thwart risers, cut them from leftover frame stock, bevel, and glue them in place.

(9) Trim the top edge of the transom to the correct angle. Sand it so it fairs nicely into the sheer. Cut and file the sculling notch. Trim the stemhead as shown on the plans.

(10) Clean up and prime everything you've installed on the inside of the boat so far.

FINAL FINISHING

MATERIALS

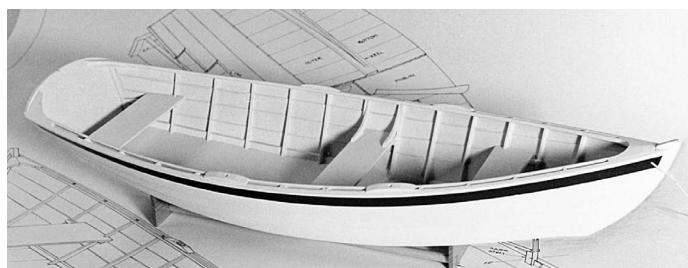
- Thwarts, $\frac{1}{8}$ " x $1\frac{1}{4}$ " x 18
- Knees, $\frac{5}{64}$ " x $\frac{3}{4}$ " x 9"

(1) Cut and fit the thwarts, taking care to bevel their fore and aft lower corners as shown in the plans. Do not install them yet.

(2) Slip the center thwart in place, but do not fasten it. Cut and fit the thwart knees, and mark them to identify their positions. Remove the center thwart and knees.

(3) Drill the painter holes in the bow. Use a needle file or fine sandpaper wrapped around a toothpick to soften their corners.

(4) Finish paint the inside of the boat. Install the thwarts and knees and paint them.



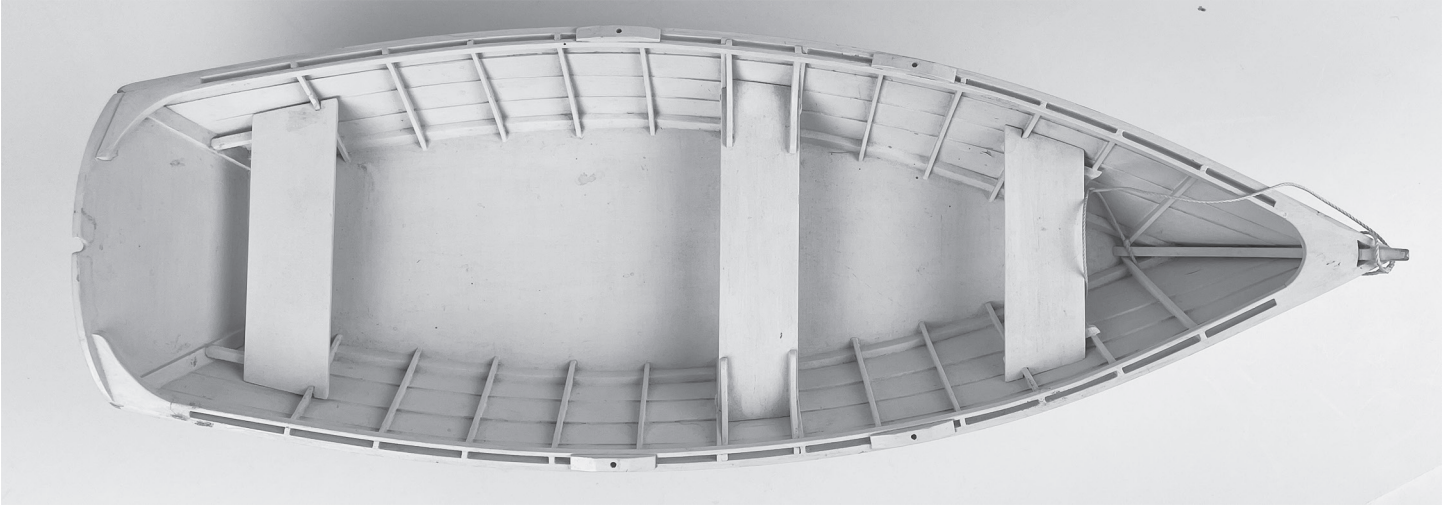
(5) Paint the outside of the boat. For contrast, the sheerstrake can be a darker color.

(6) Splice in a painter if you so desire. A piece of hard-twist linen fishline $\frac{3}{64}$ " in diameter is the proper scale. Any book on knots or seamanship will tell you how to splice.

GALLERY



GALLERY



Consider emailing photos (wbstore@woodenboat.com)
of your model, we'd love to post them on our website.
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