

MILLER 44 BJ Barnburner goes semi-scale:

OLYMPIC ONE METER

"MILLER 44"

The "MILLER 44" is a stand-off scale model of the big one. This design might be a good choice for a club sailer. The scale look is a delightful change of pace from the usual racing hull.

Have you ever planked a hull? There's no big mystery about it. Here's an easy method that will give you a light, strong hull with a minimum of effort.

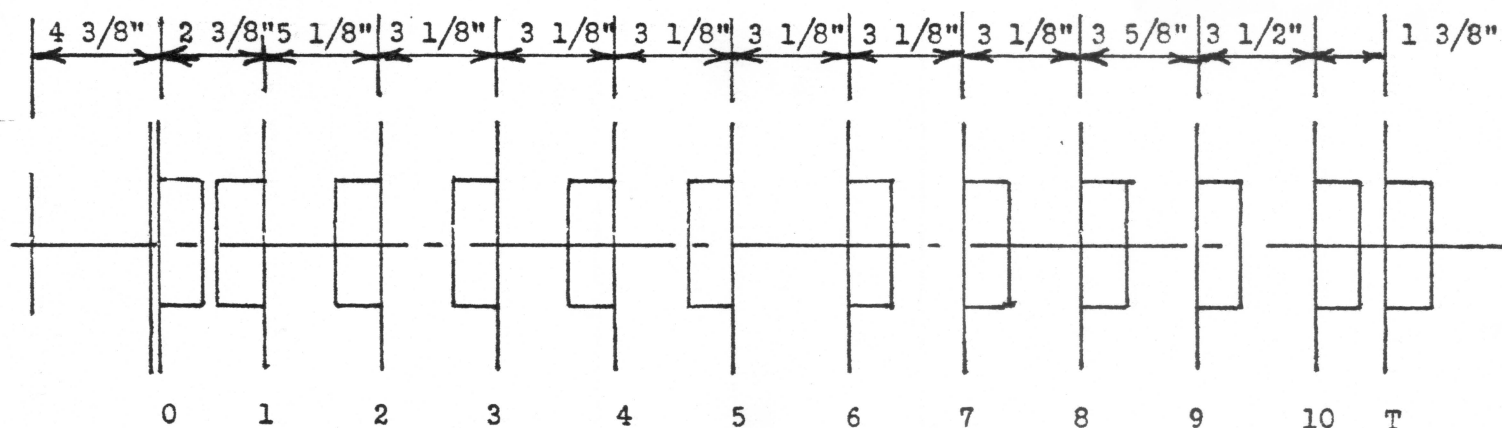
I use a "warp-free" piece of $5/8" \times 12" \times 48"$ particle board shelving for a building board. Maybe you have a better idea?

Cover the board with shelf paper or ?

Draw a centerline on board.

Draw station lines at right angles to centerline. See plan for spacing.

Lightly nail small blocks ($3/4" \times 3/4" \times ?$) of scrap to board at stations. Note which side of line blocks are positioned. Don't drive nails "home" as they will be removed later

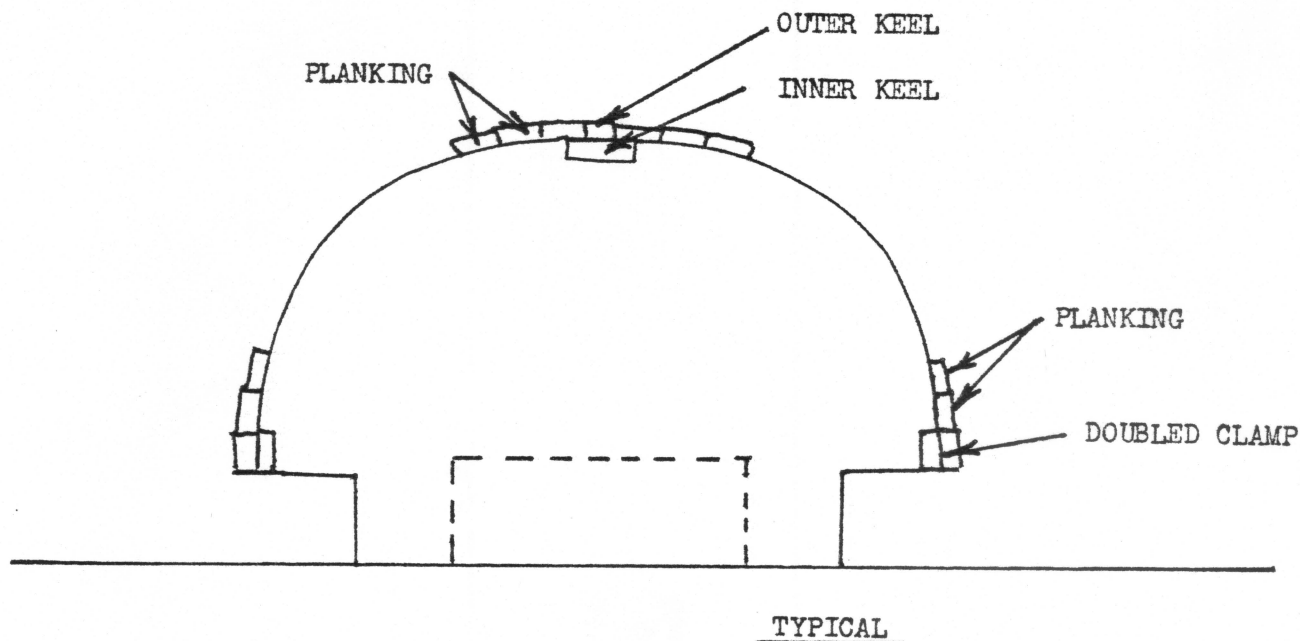


NOT TO SCALE

Trace frame patterns on $1/8"$ plywood or other thin scrap stock. I use mahogany "doorskin". It's relatively inexpensive. These frames (formers) will be discarded later. Be sure you have marked the centerline on each frame. Cut out frames. Glue (5 Minute Epoxy) frames to blocks on building board. Use a small gauge or square to make sure the frames are perpendicular to the board. The centerline on frame must line up with centerline on board. Glue the plywood stem piece in place. Fit and glue inner keel in place. Fit and glue outer keel in position. Trim and taper keel at bow.

Fit and glue inner sheer clamp in place. Work on both sides of hull at the same time. This insures a symmetrical hull. Pins and masking tape do the job of "holding" very well. Double the clamp and hold in place with clamp clothes pins until glue is dry.

The hull is planked with 1/8" X 5/16" (approx.) X 42" (or 48") balsawood strips. An inexpensive balsa stripper is a must. Use 1/8" balsa sheet which is cheaper than the ready cut strips. Use a good grade of carpenter's or white glue.



Apply a glue bead along one edge of a balsa strip. Apply a drop of glue to the stem piece and the transom. Place the strip on top of the clamp. Do not glue to the frames. Hold in place with pins (dressmaker or "T") driven through the plank and into the frames. These pins are removed when the glue is dry so you don't have to drive them very far into the frames. Repeat for the other side. Continue planking until strips will not follow the bend without breaking. You should be able to get to approximately the waterline. You will have to bevel the edges of the strips to prevent wide gaps from forming between the planks. Use a small block plane or sanding block. Now start laying planks from the keel. It's a good idea to lay a short strip of pine alongside the keel in the keel fin area. Do this on both sides of the keel. It reinforces this area and makes a sturdy mounting arrangement for the keel fin. Sooner or later you'll have the hull planked. Fill all holes and "dings" with a mixture of balsa dust and glue.... or your favorite method.

Remove hull from building board. A long handled screwdriver inserted under the blocks will pry them up easily (?).

Sand hull to finished shape. Apply a thickness of fiberglass cloth to hull using resin or epoxy. Trim excess cloth. Lightly sand. Apply a second coat of resin and sand.

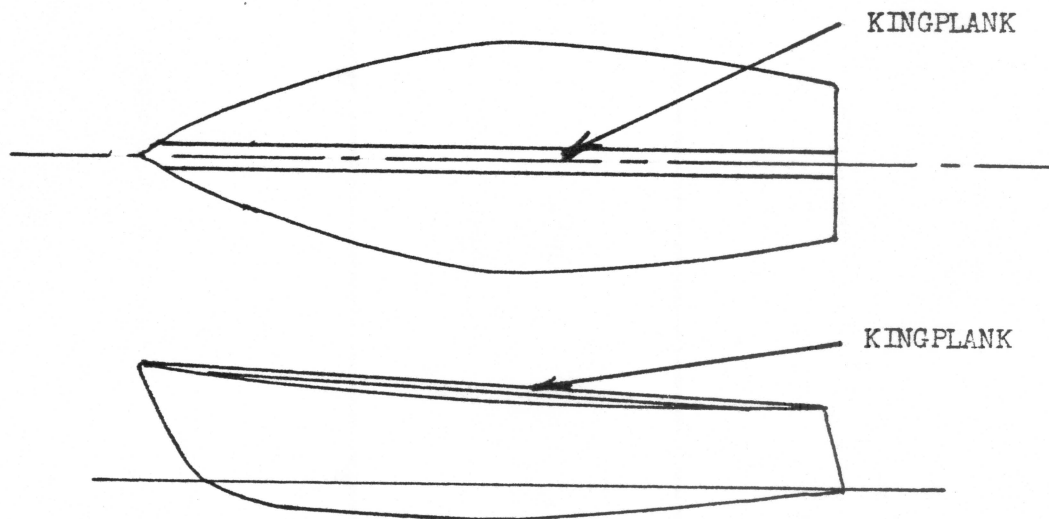
Remove frames (one at a time) and install deck beams.

THERE'S YOUR HULL!! BE SURE TO WATERPROOF THE INSIDE OF THE HULL! White glue is water soluble which could be rather embarrassing while sailing.

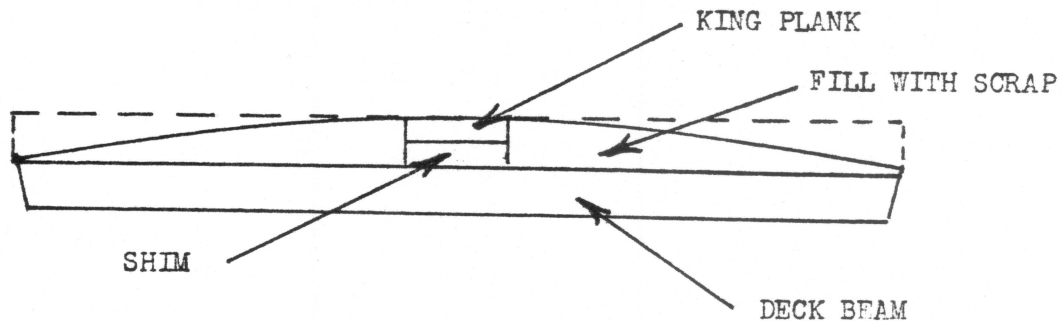
Now is the time when you have a decision to make. You can put a deck, etc. on the hull and finish it off, or you can go the "scale" route and build a cabin.

In either case, I would suggest you install a 1/4" deck beam at the mast location. This carries the weight (pressure) of the mast.

A 1/8"X 3/4"X ? pine "king plank" is fitted. This runs from the bow to the transom.



Make sure the king plank is straight when viewed both from the top and from the side. Shim between the deck beams and king plank. You may have to recess the plank into the beams at the bow and stern. Fill with scrap as shown in diagram. Carve and sand deck crown (rounding).



The deck is made from 1/32" plywood. Place hull on plywood sheet. Trace around deck. Cut out leaving about 1/4" extra all around. Glue deck in position using epoxy or a mixture of resin and thickening agent (Cab-o-sil or whatever). Be sure you glue to beams and king plank. Be sure you put deck on in same position that you traced it. No boat is perfectly symmetrical.

Hold deck in place with MANY short strips of masking tape. Make sure it's a perfect seal between hull and deck. Trim excess and sand.

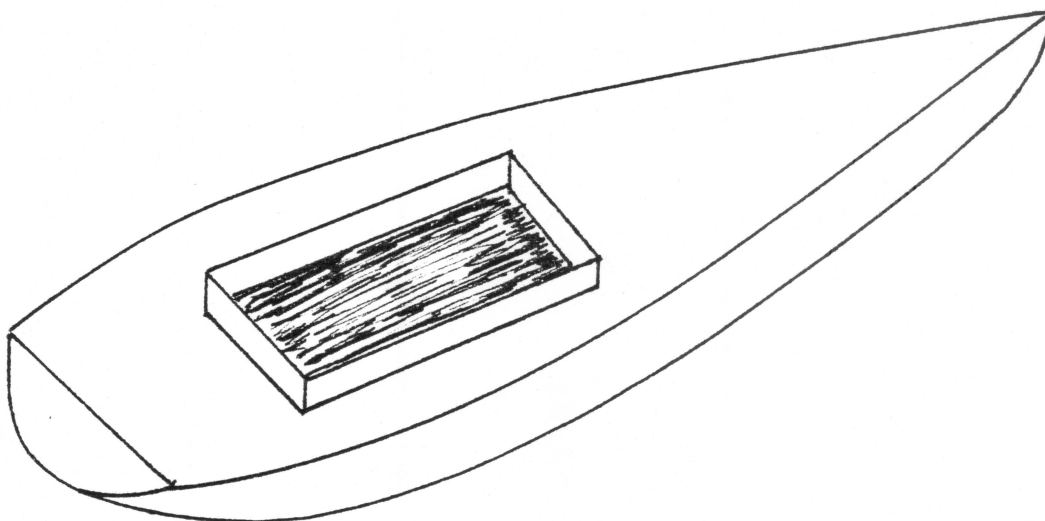
The cabin needs some explaining.

Glue sheets 6 and 7 together. These are the templates for the cabin. Make the cabin from a styrofoam block. Trace the templates onto the block. Shape the block with a jigsaw, band saw or coping saw. A kitchen bread knife also works great. A sanding block with coarse sandpaper makes quick work of the shaping. Fine sandpaper finishes the job.

Tape a full sheet of sandpaper to the deck in the cabin area. Use masking tape at deck edges. "Scrub" cabin on sandpaper. Use a forward and back motion. This will make a concave surface and should be a perfect fit.

The hatch opening in the deck can be a simple rectangle. Layout on deck and cut opening. Remove section of king plank.

Make hatch rim (coaming) from strips of plywood scrap.



The hatch cover is a simple box made of thin plywood. It has to be a snug fit over the hatch coaming. The idea is to keep water from getting into the boat.

The cabin block is cut into 2 sections. The hatch cover is recessed into the forward section. The rear edge must be flush with the rear edge of the cabin block. Carefully reut out foam from the underside of cabin making sure that cabin fits snug on deck. Glue hatch cover and cabin together using white glue or epoxy. Be sure the glue you are using does not "melt" the foam. Test on scrap material before you do any permanent gluing. The aft section of cabin is glued permanently to deck. The main sheet exit guide will be mounted through this cabin section.

The foam cabin must be waterproofed. Cover with light fiberglass cloth and epoxy. DO NOT USE POLYESTER RESIN!! Here's another method. White glue can be applied with a small paint brush. Sand when dry. A couple of coats of polyurethane varnish will make a hard finish. Test on scrap foam before applying to cabin. Waterproof all cabin surfaces.

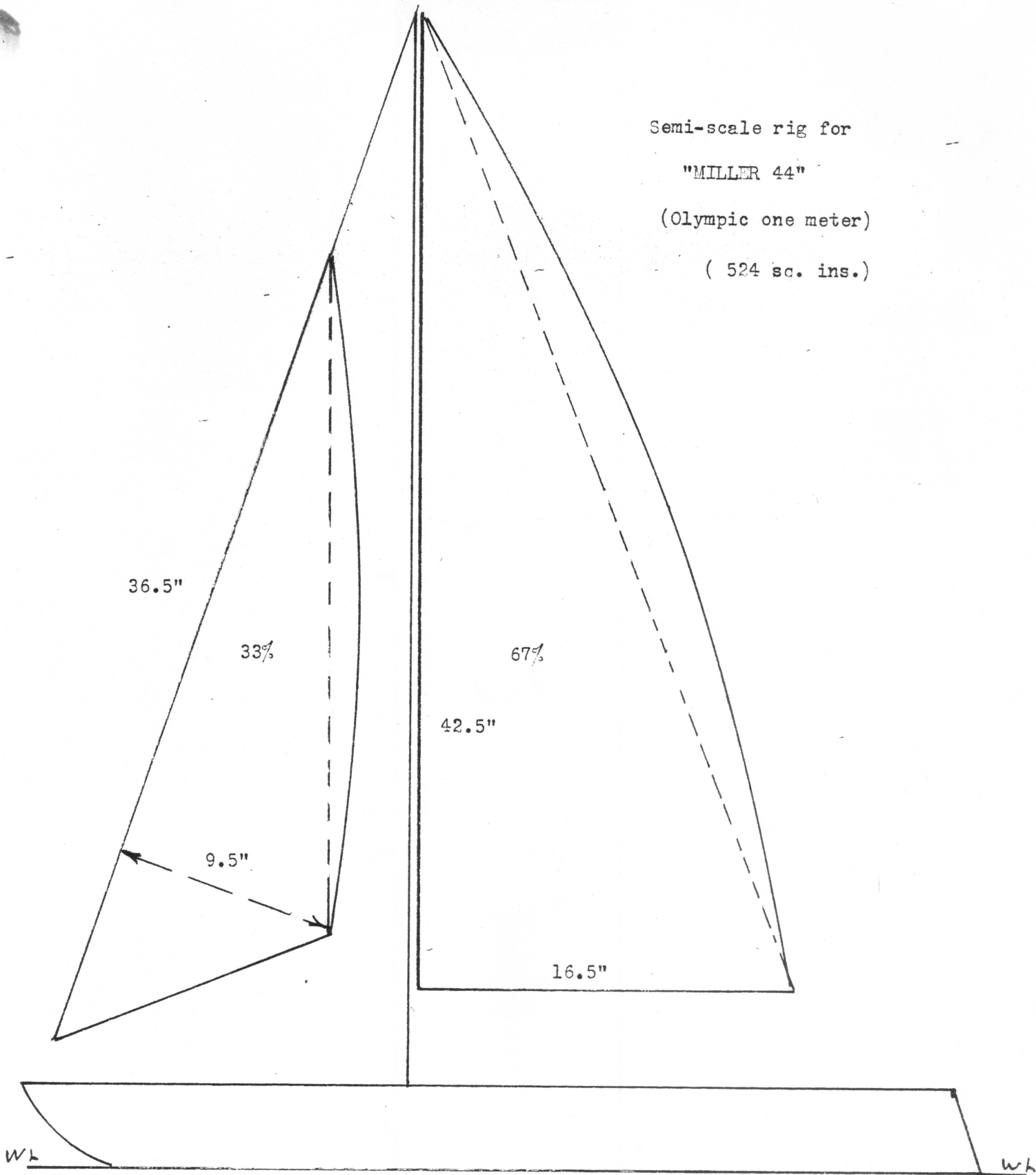
The interior arrangements (rudder, fin, radio and sail control unit) as well as rigging and sails are up to you.

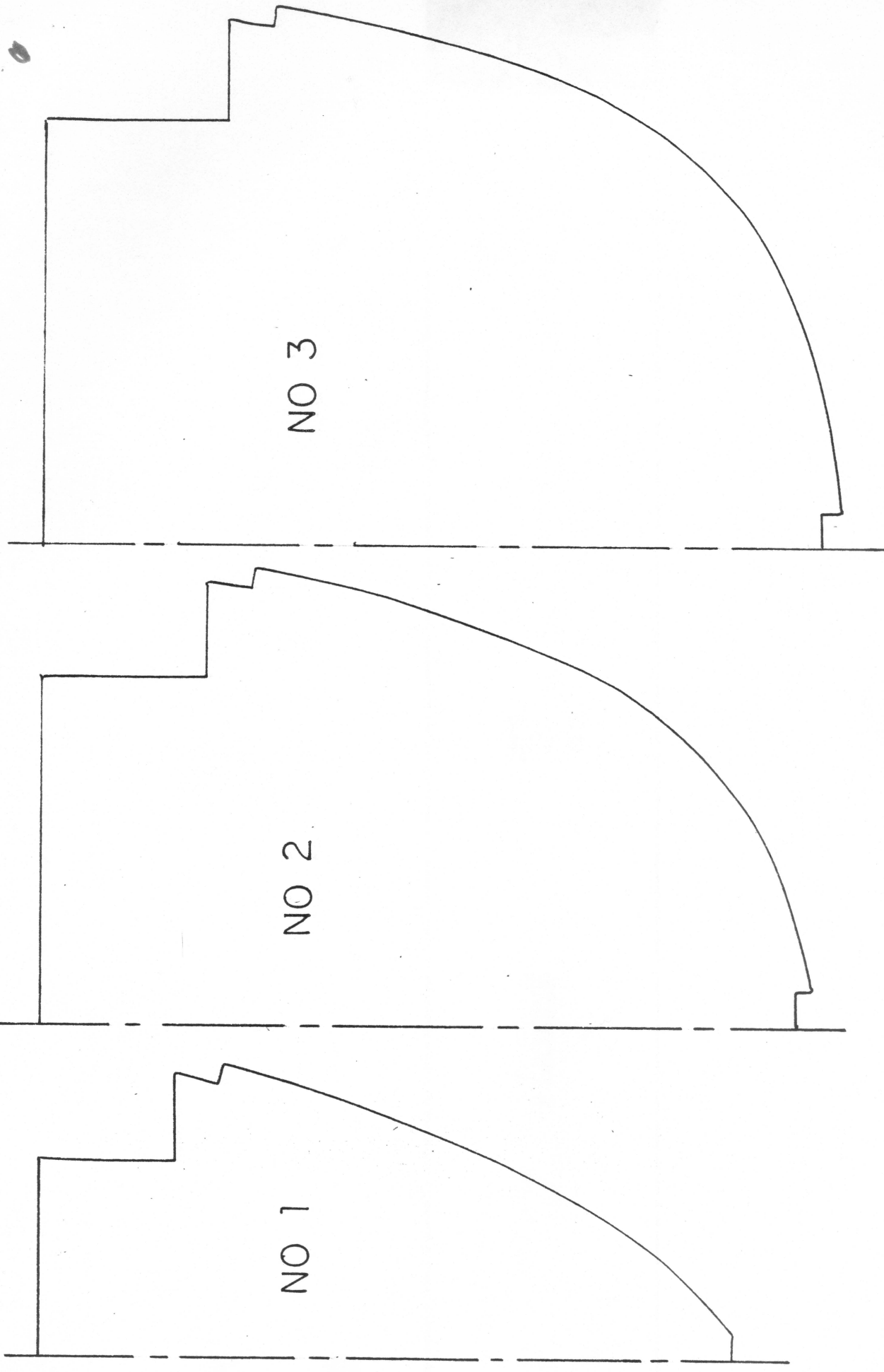
Semi-scale rig for

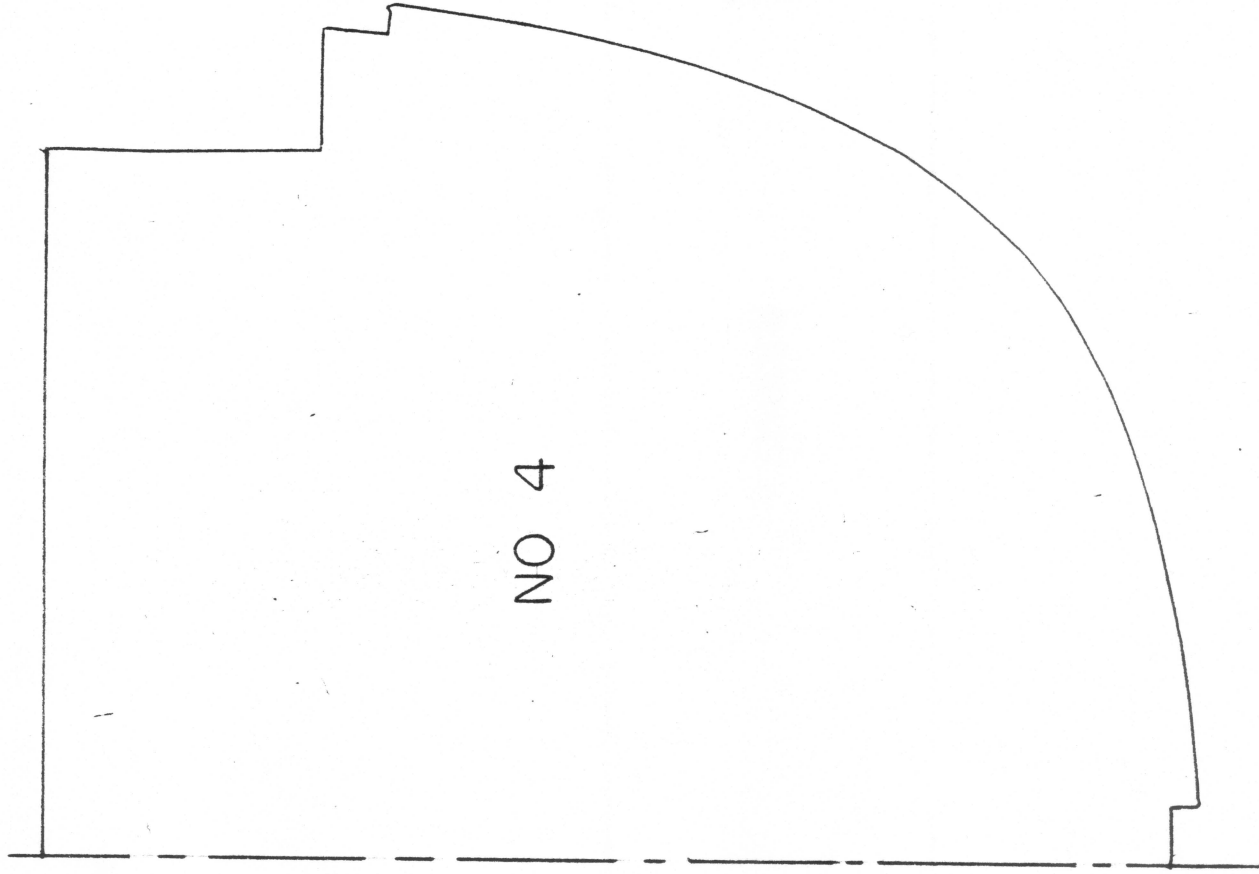
"MILLER 44"

(Olympic one meter)

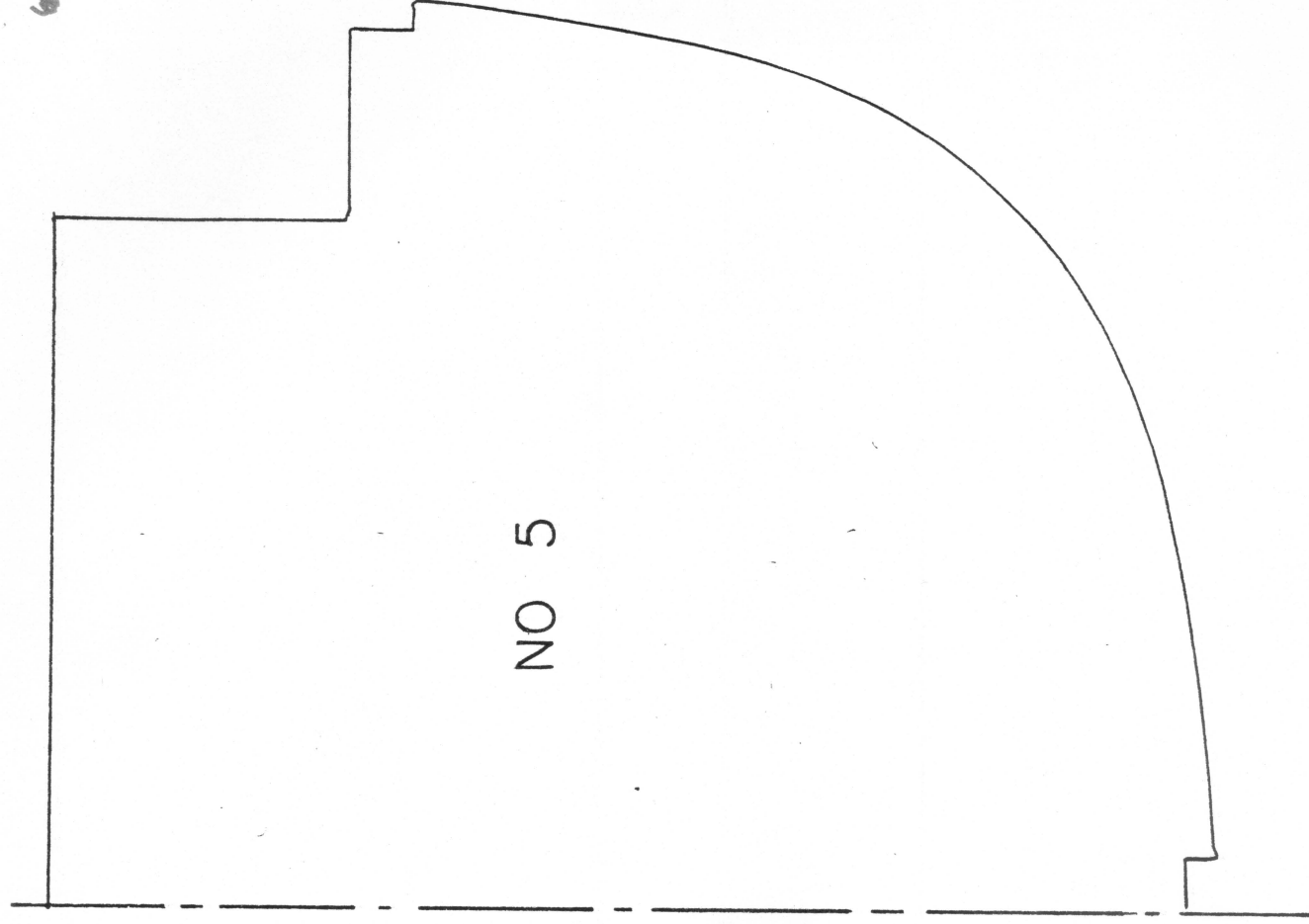
(524 sq. ins.)



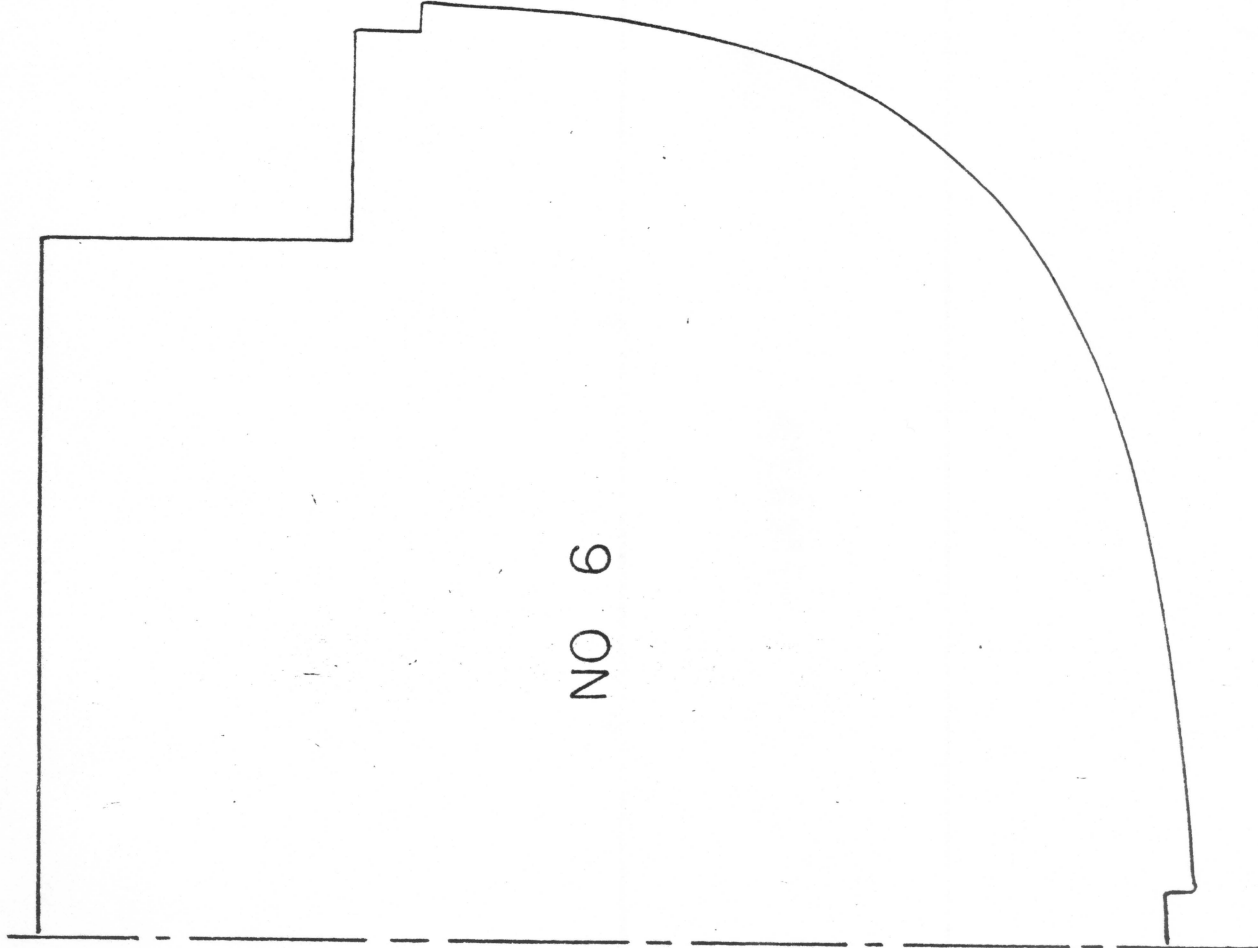




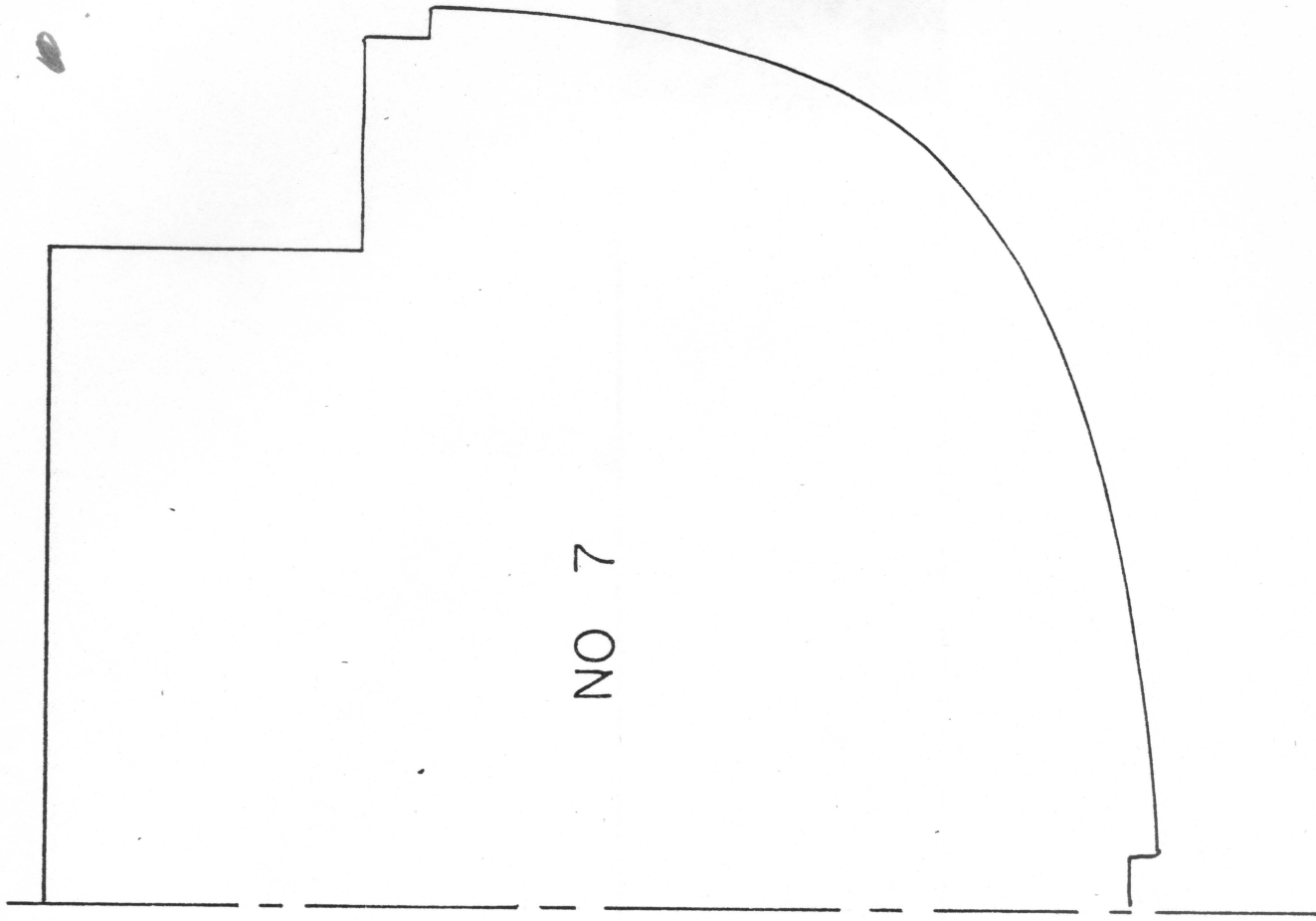
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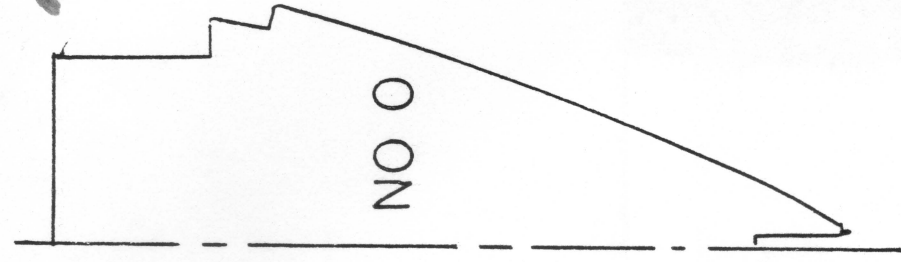
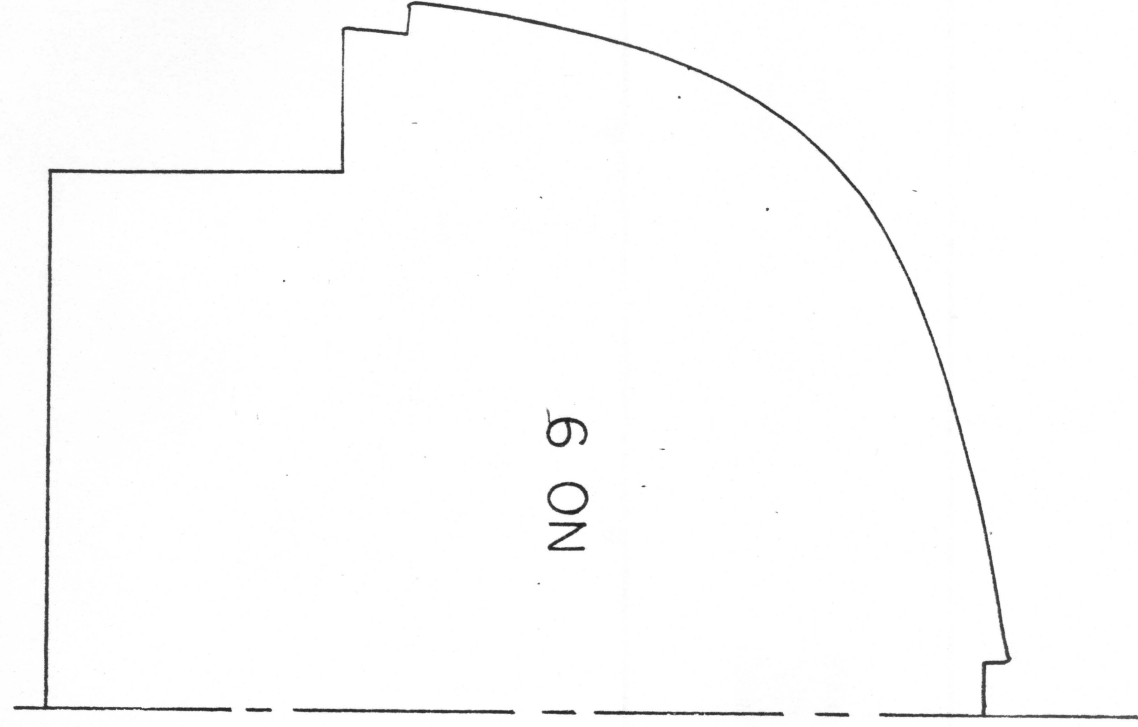
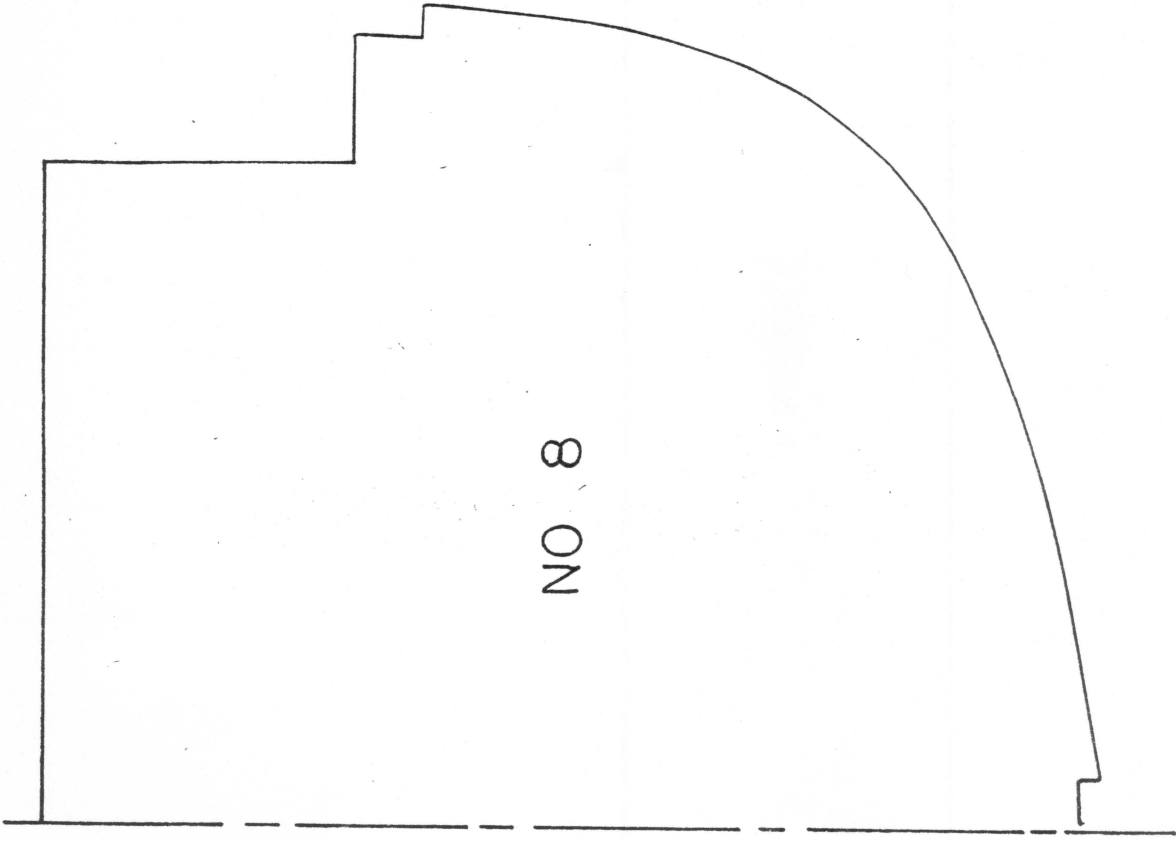
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NO 7

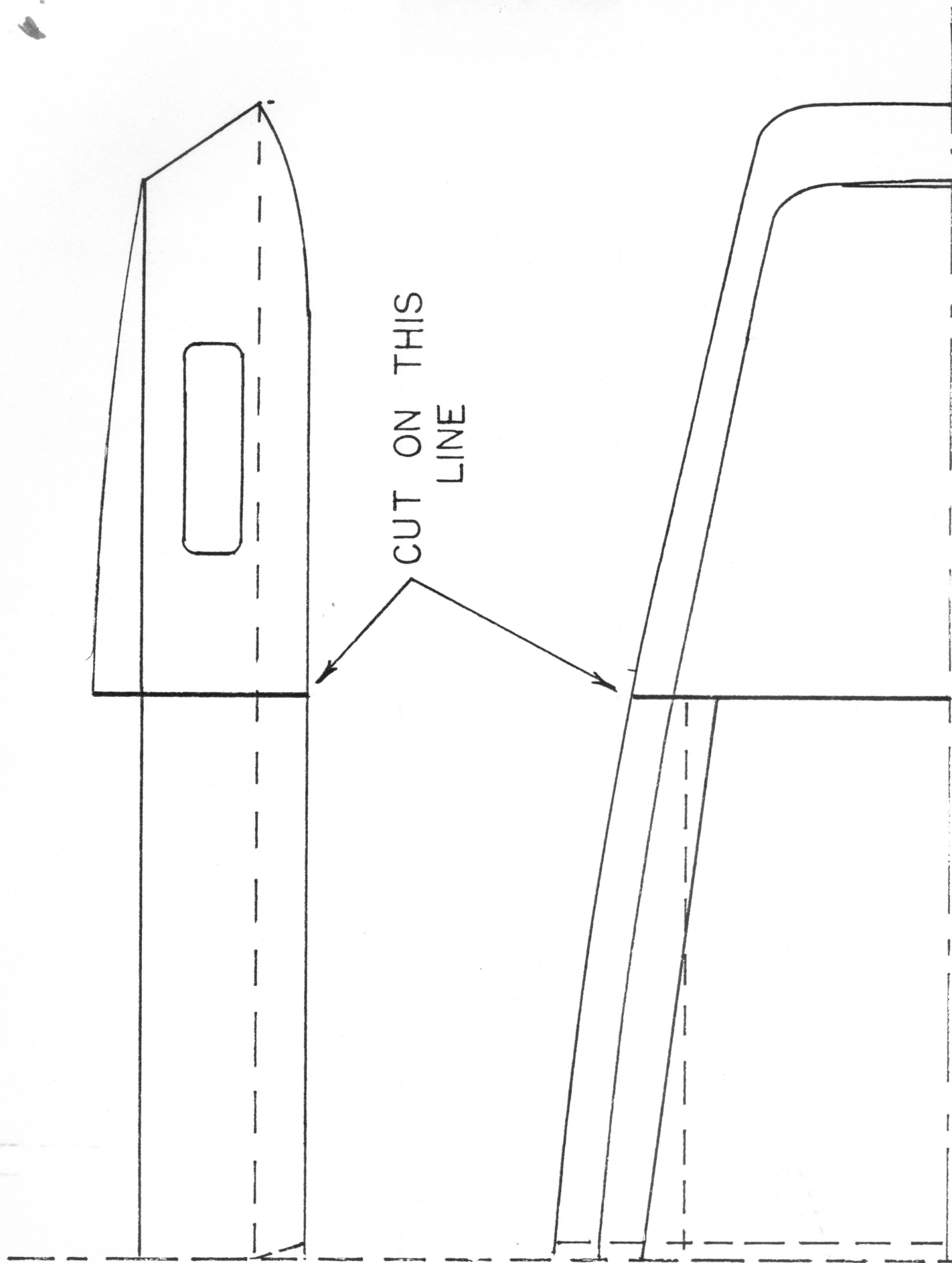




GLUE SHEET 7 HERE

CABIN IS MADE OF FOAM

HATCH OPENING



CUT ALONG DOTTED LINE, GLUE TO SHEET 6