

## BILL OF MATERIALS \* IDEAL FOR THE 25 SS CLASS

BRONZE, MONEL, or EVERDURE FASTENINGS 1 gross of %" no. 8 flathead wood screws 1 gross of 1¼" no. 8 flathead wood screws 4 dozen of 1½" no. 8 flathead wood screws

6450 Olympic Bremerton, Wa zip 98310

1 lb. of Wood Dough or similar surface filler

PAINT PRODUCTS

1 gal. of Spar varnish

HARDWARE

1 Steering wheel

1 Safety throttle

2 Cable clamps

1 Racing fin for class B

1 Aluminum bow handle

2 Aluminum stern handles

½ gal. of clear Nitrate Dope

1 Piece of steering rope 24' long

1 Bowden throttle cable 5' long

2 Steering rope anchor straps

2 Rear snap pulleys, with snap swivel

2 Forward steering coaming pulleys

2 12' lengths of 1/2" half round aluminum

½ pint of boat Enamel (color to suit)

50" by 60" Muslin or Aircraft wing fabric

5 lbs. of Weldwood glue

Bottom, non-trip chines, sponsons, girders, gussets rib No. 1 transom and flooring 3 sheets of 5 ply waterproof plywood 1/4" x 4' x 8', or 2 sheets 4" x 4' x 12' Transom 5 ply waterproof 2 lbs. of 3/4" no. 16 Anchorfast nails 950 to lb. 34" x 14" x 14". For all racing hardware, sponson fin, safety throttle etc. Write, WILLIAMS MANUFACTURING CO.;

PLYWOOD

SITKA SPRUCE         Sheers       1 piece ¾" x 1" x 10"         Bow piece       3 pieces ¼" x ¾" x 12         Chine       2 pieces ¾" x 1" x 10         Battens       4 pieces ½" x 1" x 10         Bottom stringers       2 pieces ½" x 15%" x 3         Bottom stringers       2 pieces ½" x 15%" x 3         Deck battens       4 pieces ¾" x ¾" x 4'         Deck battens       7 pieces ¾" x ¾" x 4'         Deck coaming battens       2 pieces ½" x ½" x 7" x 6'         Frame No. 2       1 piece ¾" x 6" x 6'         Frame No. 3       1 piece ½" x 44 x 5'         Frame No. 5 and No. 6       1 piece ¾" x 15%" x 8         Transom       1 piece ¾" x 9" x 4'         Sponson main beam       2 pieces ¾" x 1" x 4'         HONDURAS MAHOGANY         Frame No. 4       1 piece ½" x 7" x 60         Sponson afterplane       1 piece ½" x 7" x 5'         Fin brace dash and dash beam       1 piece ½" x 7" x 5'         Coaming strip       ¼" x ¾" x 6'		
Bow piece       3 pieces ¼" x ¾" x 12         Chine       2 pieces ¾" x 1" x 10         Battens       4 pieces ½" x 15%" x 15         Bottom stringers       2 pieces ½" x 15%" x 15%" x 15         Bottom stringers       2 pieces ½" x 15%" x 15%" x 15         Deck battens       4 pieces ¾" x ¾" x 16         Deck battens       7 pieces ¾" x ¾" x 4'         Deck coaming battens       2 pieces ½" x 5%" x 7'         Deck beams glue blocks, etc.       1 piece ¾" x 6" x 6'         Frame No. 2       1 piece ¾" x 2" x 4'         Frame No. 5 and No. 6       1 piece ¾" x 1½" x 8         Transom       1 piece ¾" x 9" x 4'         Sponson main beam       2 pieces ¾" x 3" x 5'         Sponson chine       2 pieces ¾" x 1" x 4'         HONDURAS MAHOGANY         Frame No. 4       1 piece ¾" x 7" x 60         Sponson afterplane       1 piece ¾" x 8" x 12         Fin brace dash and dash beam       1 piece ½" x 7" x 5'	SITKA SPRUCE	
Frame No. 3	Sheers Bow piece Chine Battens Bottom stringers Bottom stringers Deck battens Deck battens Deck braces Deck coaming battens Deck beams glue blocks, etc.	3 pieces ¼" x ¾" x 1½ 2 pieces ¾" x 1" x 10 4 pieces ½" x 1" x 10 2 pieces ½" x 15%" x 5 2 pieces ½" x 15%" x 5 4 pieces ¾" x ¾" x 16 7 pieces ¾" x ¾" x 4' 1 pieces ¾" x ¾" x 4' 2 pieces ½" x 5%" x 7' 1 piece ¾" x 6" x 6'
Frame No. 4	Frame No. 3	1 piece %" x 4¼ x 5' 1 piece ¾" x 15%" x 8 1 piece ¾" x 9" x 4' 2 pieces ¾" x 3" x 5'
	Frame No. 4	1 piece ¾" x 8" x 12" 1 piece ½" x 7" x 5"

Decking 1 sheet of 3 ply waterproof plywood 1/8" x 4' x 7'.

WETBACK AS A

All Sitka Spruce and Mahogany may be obtained from J. H.

Monteath Co., 2500-08 Park Ave., New York, N. Y.

'C' HYDRO

building

WETBACK is primarily designed for stock outboard racing motors, for both class 'B' and Class 'C'. This is not an off-the-drawing-board plan. WETBACK was designed, built and raced, and is a proven trophy winner, a truly tested plan. She is a fast, sife, rough water Hydro. On ideal racing water she runs like a bomb, with her sponsors barely tapping the water. On rough water she really comes into her own; on a two-foot chop she can really cook. Highly maneuverable, she can turn on a dime. For the fellow who wants to get the most speed out of his pleasure motor, WETBACK is a good bet. The transom height must be increased to about 16" for a motor with a standard lower unit. WETBACK will weigh under 115 lbs. with hardware if built with the materials listed First, I would suggest spending a few hours studying the plans and the photographs of her in construction. Total cost of materials will vary. Depending on where you live and the grade of plywood you use, she could cost anywhere from 75 dollars to 135 dollars. After accumulating the stock listed in the bill of materials, you are ready to start on the ribs. Due to space limitations only half of each rib is shown, but since the ribs are symmetrical, each side being the same shape, this will offer no problem. Cut out all of your rib components and place them on the full size rib drawings

slightly from details in the photos. Stringers were not found necessary on the chines, and all the afterplane on the transom was removed. Stick to the plans for placement of all lightening holes. Rib No. 1 is made from 4" thick plywood. Cut the 4" wide slits in it where indicated on the plan. These engage the main girders. The small blocks that the battens, etc., are attached to, are glued and fastened to the rib with two \%" No. 16 Anchorfast nails (this same size Anchorfast nail is used throughout the boat). Rib No. 2 is cut from 5%" thick Sitka Spruce, 1/4" plywood gussets are glued and fastened in place with Anchorfast nails in the position indicated on the plan. The holes are cut into the plywood with a circle or fly cutter before attaching to the frame. The fly cutter is almost a must in building this boat what with the great number of different sized holes being cut in the ribs and girders. It is best used in a drill press but can be handled quite nicely in a 1/4" electric drill. The middle plywood deck support that is attached to Rib No. 2 is put in place when the Hydro is turned over to finish

using 4" No. 16 Anchorfast nails to secure the 4" plywood to the frames. A piece

of this wax paper or cellophane under the ribs will keep the glue off your plans.

Weldwood glue is used throughout. Some changes were made in the plans that differ

the topside.

Rib No. 3 is assembled similar to rib No. 2. The Sitka Spruce is also %" thick.

No. 3 is assembled similar to rib No. 2. The Sitka Spruce can replace Rib N. 4 is made of 1/2" thick Honduras Mahogany (3/4" thick Sitka Spruce can replace this). The whole rib is backed with ¼" plywood. Note that four holes are cut in the Mahogany, and two in the plywood. This plywood forms the back of the sponson, and is glued and fastened with Anchorfast nails. Rib No. 5 and No. 6 are identical except where they meet the main girder which also forms the cockpit coning. 3/4" thick Sitka Spruce is used as the deck beam with 1/4" plywood gussets glued and nailed to support them.

The transom is made up of two individual pieces which are attached separately to the girders. The transom framing is 3/4" thick Sitka Spruce, with five holes cut into it. It must be carefully notched to receive the battens and chines. The ¼" thick plywood is cut a bit oversize. Glued and nailed to the transom frame, this plywood unit is carefully trimmed to size as indicated on the plan. Note side view as to the proper angle on the bottom. This transom should be ten degrees off vertical. The other part of the transom, the motor mount, is made up of 1 piece of 3/" thick plywood with 1/4" plywood pieces glued to each side. Cut this to the size indicated in the plan. Remember to cut the slight angle necessary where the transom mount engages the main girders for a good snug fit.

Main girders: this is the heart of your boat and everything sprouts off of it like the branches of a tree. Both girders must be the same and so are cut together with all necessary holes cut into them. Check profile drawing of the girder for correct placement of lightening holes, etc. Mark where you will notch the girders for all the ribs. Cut the notches for rib No. 1 only, and slip rib No. 1 into the girders. The motor mount part of the transom is temporarily fastened at the proper angle. Take two 2 x 3's; stand on edge on a suitable base (see photo No. 1) at the same angle the girders are running; slip the girders over the 2 x 3's so that they straddle them. This unit is carefully trued up. Then level and square the girders and 2 x 3's in relation to each other. Fasten the 2 x 3's to the base and clamp the girders to them. Take rib No. 1 and motor mount off the girders. Glue and permanently fasten them to the girders, rib No. 1 with glue blocks and 1" wire brads. Fasten the motor mount with glue and Anchorfast nails spaced about 1" apart.

Carefully cut the notches in the girders and fit the rest of the ribs in place,

checking the rib plan for proper depth, and girder profile for placement. All ribs are fastened with glue blocks, 1" wire brads and glue to the girders. Small details can be well clarified by a careful study of the step by step photos of WETBACK in construction. The transom is carefully fitted, glued and screwed with 1½" No. 8 screws to the motor mount. The back of the girders are glued and nailed to the transon at the motor well. After the ribs and coning braces are in place the battens are glued and screwed in place with 11/4" No. 8 screws, leaving them a little longer than necessary at the bow.

The chines are next. The bottom angle on the chines can be cut on the table saw so that no fairing will be necessary. These are glued and screwed in place to the ribs. The bow is made up of three 1/4" by 3/4" strips of spruce. Cut the battens and chines to the proper angle and length, using one of the bow strips as a guide. All three srips are coated with glue on both sides, except the outside strip. They are

grouped together while the glue is wet, bent and nailed in place at the battens, chines, and ribs. The bow is clamped together every few inches with 'C' clamps (see The stringers are glued to the ribs and held in place with glue blocks. Screw the battens to the stringers with 1¼" No. 8 screws. The sheers are also cut on a table saw to the proper angle of the chine and deck so that no fairing is necessary at this point. The inside of the sponsons are next. Study plan views and rib drawings for shape and position. The other sponson chine is next, running from rib No. 4 to bow. The

fin brace is glued and screwed to rib No. 4 and No. 5 with 14" No. 8 screws.

Most of the fairing necessary will be around the sponson and a little at the bow. This takes more patience than skill and has to be carefully faired so that the plywood planking will seat on all bearings evenly. Frequent checking with an accurate straight edge will be a big help. On any curved surface, be sure that the curve is smooth. Check the bottom for hooks or rockers especially the last two feet. Make sure that it is flat and straight. The bottom, starting from rib No. 4 towards the front, has a hollow or tunnel built right into it. The 1/4" thick plywood non-trip chines are fitted next. They run from rib No. 4 to the transom. Glue and nail in place with Anchorfast nails. Then the non-trip is carefully faired at the chine. The afterplane of the sponson is next. This is 34" thick Mahogany. Fasten to the sponsons with glue and 14" No. 8 screws. Note that the afterplane is set in 1/2" from the inside of the sponson so that the small air traps may

be screwed to them with 1¼" No. 8 screws. The bottom is carefully cut to the correct width to fit between the sponsons and temporarily fastened in place. The bow shape is marked off on the bottom. Also mark off all the battens, etc., so you will know just where to put the glue on the bottom. Take the bottom off. Trim the excess from the bow, and coat the battens, chines, bow, and transom with glue. Coat the bottom where it will come in contact with the above. The bottom is fastened in place with Anchorfast nails about every two inches at all battens, chines, bow, and transom. Countersink the nails and cover with wood dough.

The 1/4" plywood planking covering the bottom and sides of the sponsons are carefully fitted. The bottom planking extends over the sides except up towards the front where they butt. After the sides are carefully fitted the planking is glued and nailed in place with Anchorfast nails. Study the photos carefully for clarification.

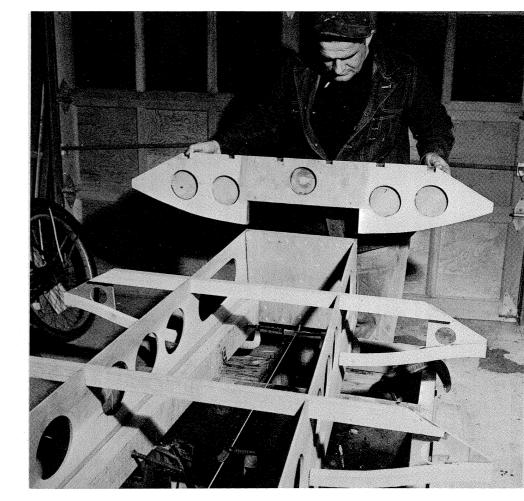
Before removing the hull from the jig, carefully sand down and give the bottom and sponsons two coats of varnish for now. Place the hull rightside up on level supports. Once again the hull is leveled and secured so it won't get out of shape. Fasten the middle deck braces in place with glue blocks. All deck battens are glued and nailed with Anchorfast nails to ribs and deck supports. The inside of the boat is given 3 coats of varnish. This is a time-consuming project. The %" plywood decking is glued and nailed in place with Anchorfast nails from rib No. 3 to Transom, but not to the middle deck battens. The dashboard and floorboard are screwed in place, using glue on the dashboard. The coning strip,  $\rlap{4}''$ 

x 3/4" Mahogany, is glued in place with 'C' clamps. The fabric deck is next, and is a lot easier then it looks. It takes me 45 min. to put it on and give it one coat of dope. I use light airplane fabric, but a good grade of muslin could be used. You start tacking in place with a small copper carpet tack, at the top center. At the opposite point at the bow, you stretch tight and put another tack. The next tack is in the middle of one side halfway between the first two tacks, and then another in the middle of the opposite side. Stretch and tack. At this point you have four tacks in place forming a cross. The next four tacks go between the ends of the cross. Each time stretch and tack. Repeat the process until you have the tacks about 1" apart. Trim off the excess cloth and apply about seven coats of dope. Do this in a well ventilated room. Give the last coat a good day to dry. Then paint with two coats of a good boat enamel. The whole boat gets seven coats of varnish. After you have wet sanded the bottom well, you are ready for the last coat. Hang the boat from over head and varnish the last coat from underneath; this will give you a real dust free bottom. Hardware and fin are next. The fin is off center to the left 4" and the back of

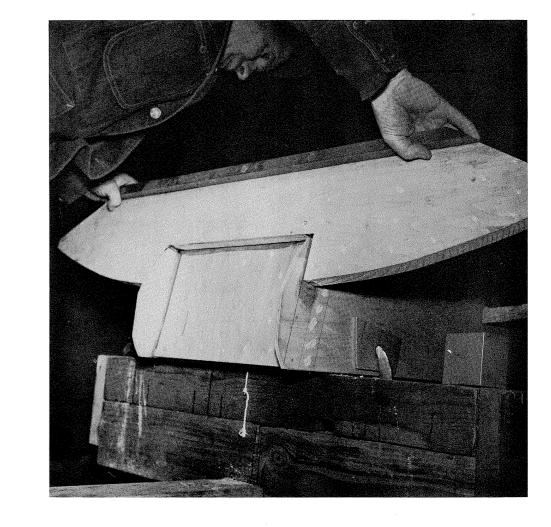
the fin is 28" from the transom. Check the finished art views for placement of pulleys, etc. Note that the right hand pulley is back about two inches further then the left-To get your racing number join the American Power Boat Association, 700 Canton Ave., Detroit, Michigan. Enclose in the letter a description of your boat and motor; the A.P.B.A. will want to know the make, model and serial number of the

Motor angle and height are very important for racing and a motor 1/8" too high or low has lost many a race. A Merc. motor should run best on the second notch with this boat. The correct motor angle is given in the plan drawing to double check on. Transom height, depending on prop, is around 14". The transom height on WET-BACK is 13½" high. You use shim sticks to jack the motor up or down. A marine speedometer is handy to have while making these adjustments. At present I find the stainless steel Kaminc prop is the best. Your best speed is only determined through methodical testing. In order to tell what results you obtain from your changes, make only one alteration at a time. I always run my motor with a full butterfly. In case of a flip it's much safer for you and the other drivers, and will save you from a blown motor. See you at the races.

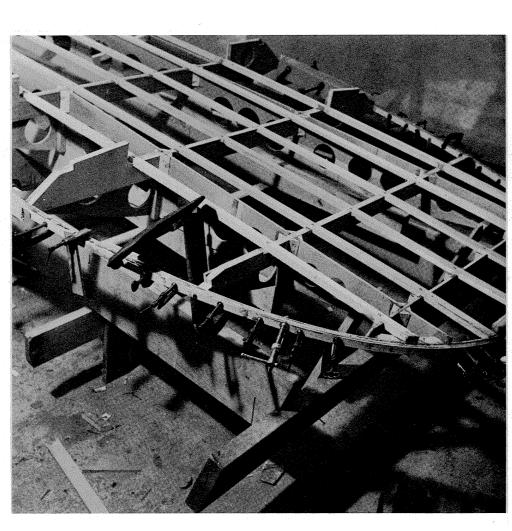
WETBACK AS A 'D' HYDRO For those who wish to make WETBACK into a 'D' Hydro, I have included scales for ribs, plan drawings and girder detail. This will make her 20 per cent larger. The framing should be 25 per cent heavier, but the decking and planking is the same thickness as the 'B', 'C'. All the construction remains the same. Keep the motor mount on the transom 131/2" high.



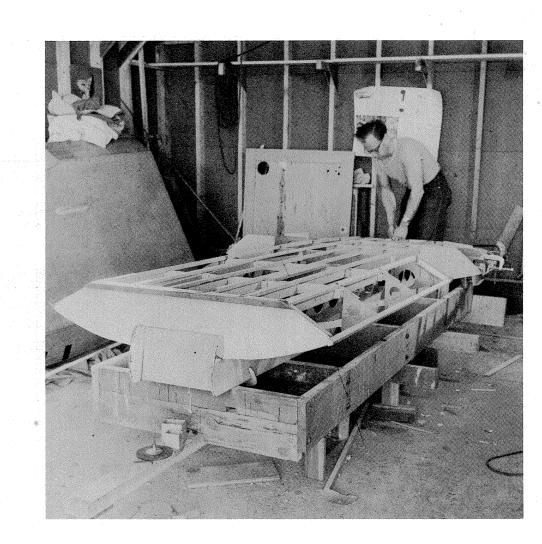
1. The girder beams are all set up on the jig, with ribs temporarily in place. Motor mount is glued and nailed in place, and the transom is about to be glued and screwed



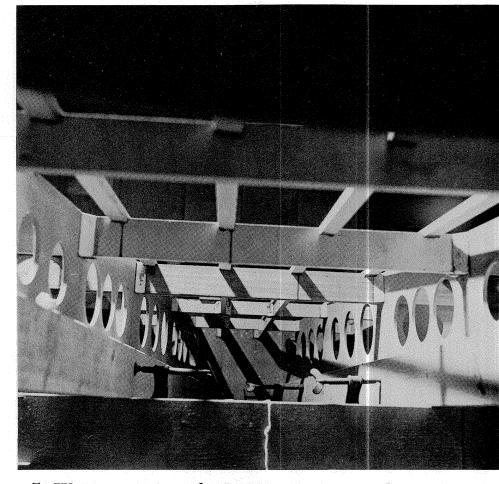
2. Note how the transom fits over the girders, while the motor mount is fastened between them. The afterplane on the transom was not found necessary and was later completely removed.



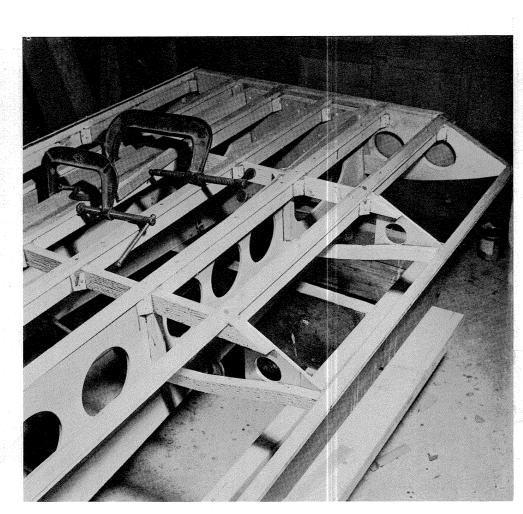
3. The glued up bow piece all clamped in place. Note that these ribs were notched for the battens to form the tunnel in the bottom. The ribs in the plans have the tunnel shape already designed in them and will need no notching.



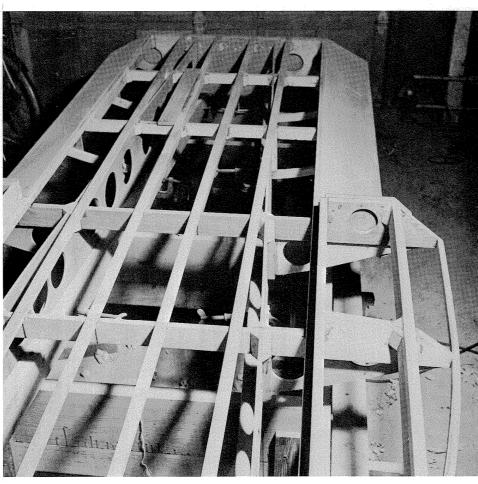
4. All the ribs, battens and stringers are in place. The sponson battens will come next. The base for my jig is my runabout jig turned up-side-down, to bring WETBACK to a suitable working height.



5. Worms eye view of WETBACK set up on the jig. Battens and stringers are in place. Note the glue blocks used to hold the ribs and stringers in position.



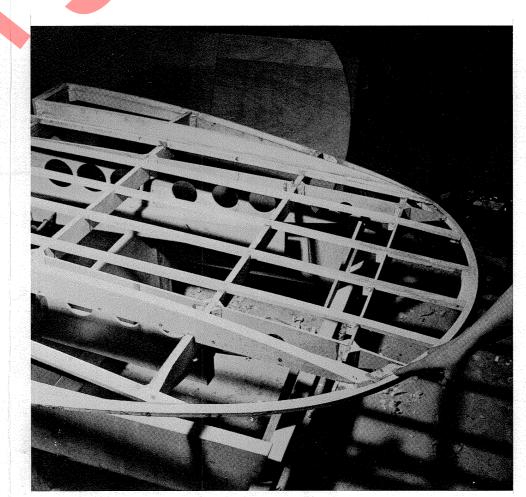
6. A close up of the construction of after section of WET-BACK. Clamps are holding the fin brace in place until glue is dry. Fin brace is also screwed to rib #5 and #6.



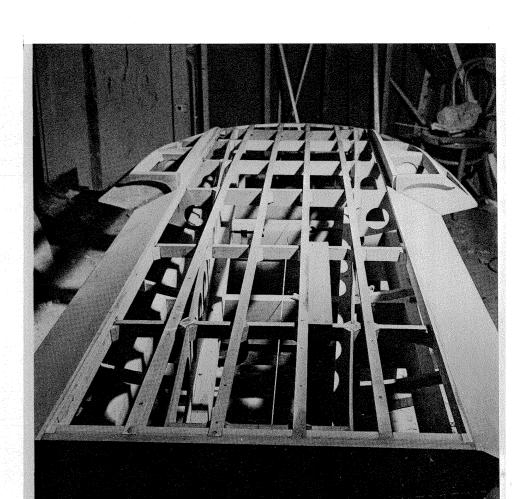
7. Another over all picture of the construction of the bottom. The non-trip chines are in place and are put on before the afterplane of the sponsons are attached.



8. The sponson battens are being faired prior to planking. Note that the built up stem must also be carefully faired. This is a painstaking job as both sponsons must match.



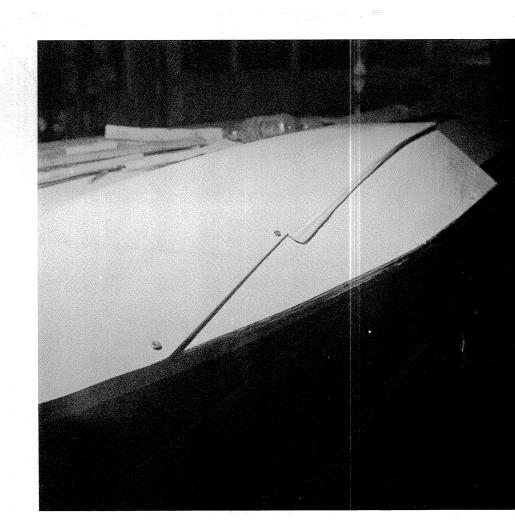
9. Front part of the bottom is all faired to receive the plywood planking. Finger is pointing to small block of spruce used to attach front of girder to stem piece.



10. Entire bottom faired ready for planking. Note sponsons' afterplane is set ½" in from inside of sponson so that small airtraps may be attached. These airtraps are removable.



11. Planking on the side of sponson is in place and bottom has been carefully fitted. Most of the bottom planking lies over the side, but up front it butts.



12. Bottom of sponson temporarily in place, purposely not screwed in all the way so you might easily see just how they fit together. There's no lip on the sponson up front where the side meets the bottom.



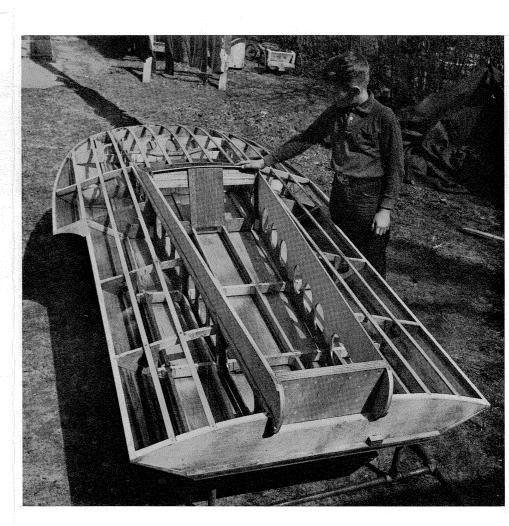
13. Close up of the construction around the cockpit. The deck battens are notched and fitted at rib #3. This is where the plywood decking ends, and the fabric decking begins.



14. Construction view prior to any decking. Position of dashboard was later changed; it was moved about 8" towards the transom, as in the plans. The edges of the deck battens were rounded a bit where fabric would lay, for a smoother fit. Better placement of the lightening holes were made in the plans for rib #2.

FOR MOTORS THAT NEED MORE TRANSOM HEIGHT

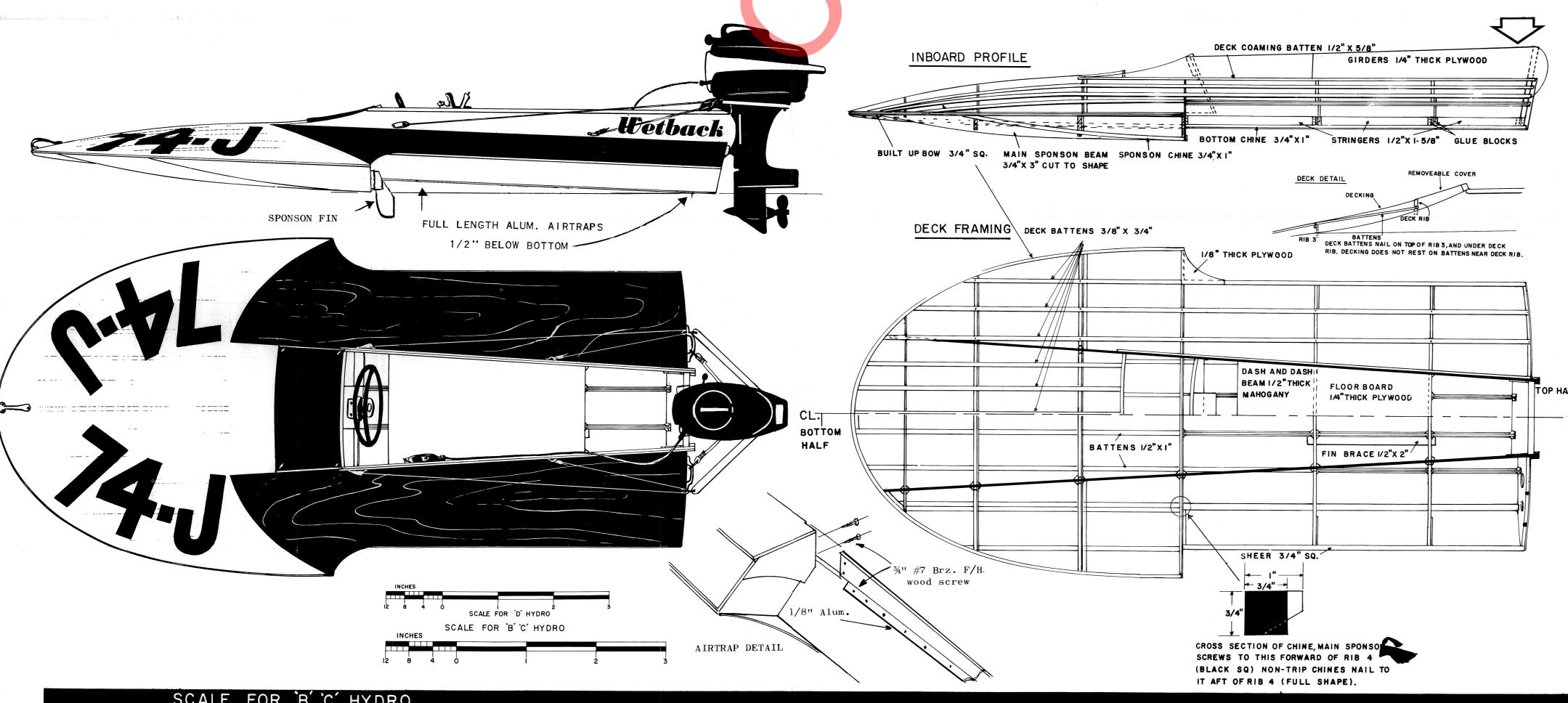
JUST MAKE COAMING AND TRANSOM HIGHER.

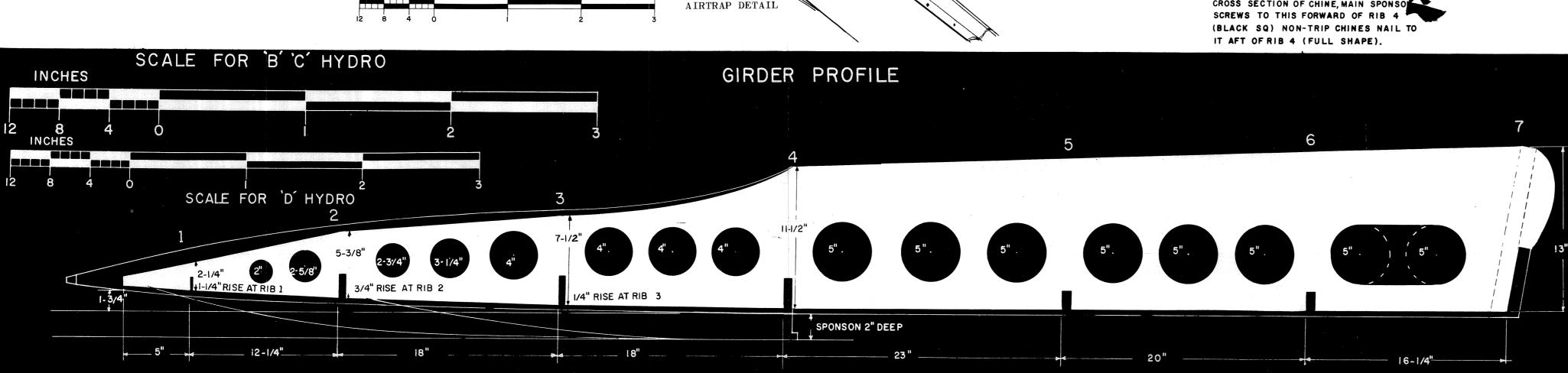


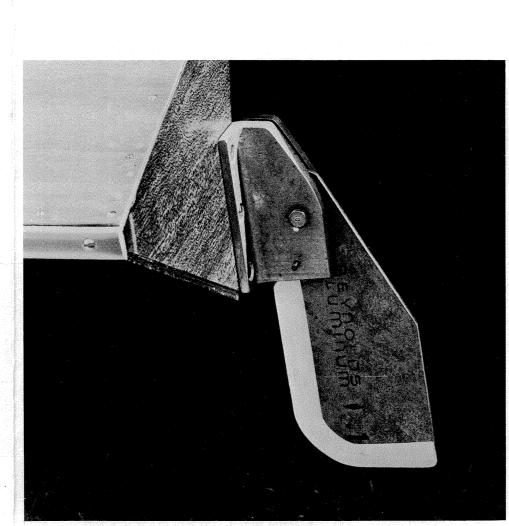
15. Stern view of the topside construction. Study the transom construction and remember no afterplane is necessary. I had just finished the third coat of varnish on the inside; no five minute job, I might add.



16. Fabric decking almost all tacked in position. Excess is later cut off. Remember to give this at least 6 good coats of dope, prior to painting.



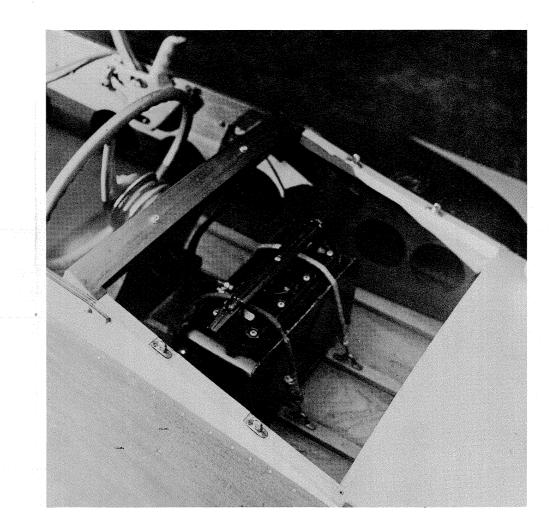




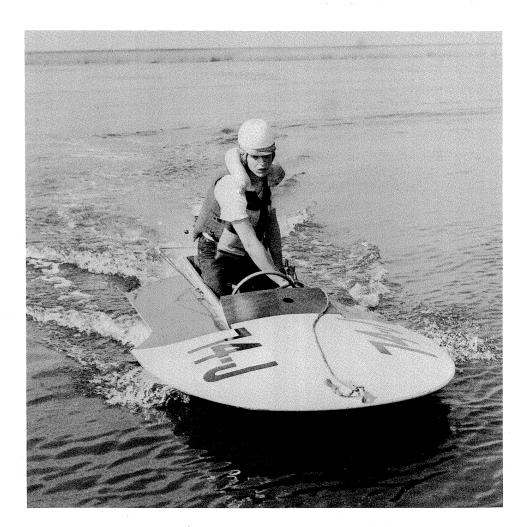
Sponson fin on back of left sponson, for racing



18. Front view of the finished sponson; the correct angle of the sponsons and workmanship at this point will mean a lot in the handling of WETBACK.



19. Small gas tank held in position with shock cord. '%" thick plywood is used as a hatch cover and is held in place simply with twist catches.



20. WETBACK all set up to go, being idled out for her first test run. My racing numbers although large enough are not in their correct position. The numbers on the deck of the drawing are correct.