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At slightly over 60 mph Scat Cat is usually air borne.

Record-Busting Scat Cat

IF YOU'RE a power-boat racing enthusiast you know that most races are won by 3-point hydroplanes. With the possible exception of hydro-foil equipped boats (still in experimental stage) the 3-point design is the fastest one afloat.

Scat Cat, an outboard powered 3-pointer, will fulfill all requirements for A and B class racing hydroplanes according to the rules of the National Outboard Assoc. or American Power Boat Assoc. It may be entered in sanctioned racing or utilized for an afternoon's thrilling sport.

Scat Cat may be powered with any outboard motor from the so-called 7½ hp row-boat type for speeds of around 25 mph up to and including the class D four-cylinder motors with quickie lower units for speeds easily exceeding the mile-a-minute mark. Fig. 1 shows Scat Cat skimming across the water at a fraction over 60 mph with a Champion Blue Streak Model 6N-HR, 16½ hp, class B, racing outboard motor. Comparable speeds may be had with other motors.

Before starting actual construction, study the drawings and materials list. Note that all beveled parts are pre-beveled on a circular saw before assembling to reduce fairing to a minimum. For utmost strength and light weight all framing should be of clear, straight grain spruce.

Start construction by making full-size drawings of the three frames (Fig. 2) on heavy brown wrapping paper. Beginning with frame #3 or the transom, transfer the outlines of the backing to ⅜ in. plywood and the framing parts to ¾ in. lumber. Saw the parts to shape but do not cut notches for chines, clamp, keel or battens at this time. Fasten the plywood to the inside framing pieces with resin glue (Weldwood or Elmer's Waterproof) and #6 x 1 in. fh screws or #14 x 1 in. Stronghold nails spaced about 2 in. apart in staggered fashion. Do not fasten the transom outside framing until later.

Make up the #2 frame next using the paper pattern as an assembly guide. Fasten the ¼ in.

Outboard powered 3-point racing hydroplane—
Right up there with the fastest

By WILLIAM D. JACKSON

Naval Architect

STATEMENT OF USES

USES: Speedy three-point hydroplane for water speed thrills or sanctioned racing under American Power Boat Association or National Outboard Association rules.

LENGTH: 103 in.

MAXIMUM WIDTH: 57 in.

COCKPIT LENGTH: 42 in.

WIDTH COCKPIT AT DASH: 26 in.

TRANSOM COCKPIT WIDTH: 14 in.

COCKPIT DEPTH: 11 in.

WEIGHT without hardware: 105 lb.

WEIGHT with hardware: 112 lb.

SPEED: Up to 60 mph, depending on type of motor used.

CAPACITY: One passenger

CONSTRUCTION: New advanced hull design, monocoque construction, only two frames with sawn fore plate assembly, no steam bending or building forms required for assembling. May be built in a fraction of the time ordinarily required to build conventionally designed hull with less expense. An excellent mass production design for boat clubs and individuals.

TECHNICAL ASPECTS

WEIGHT DISTRIBUTION: 48-52%

STATIC SPONSON LOADING: 45 lbs.

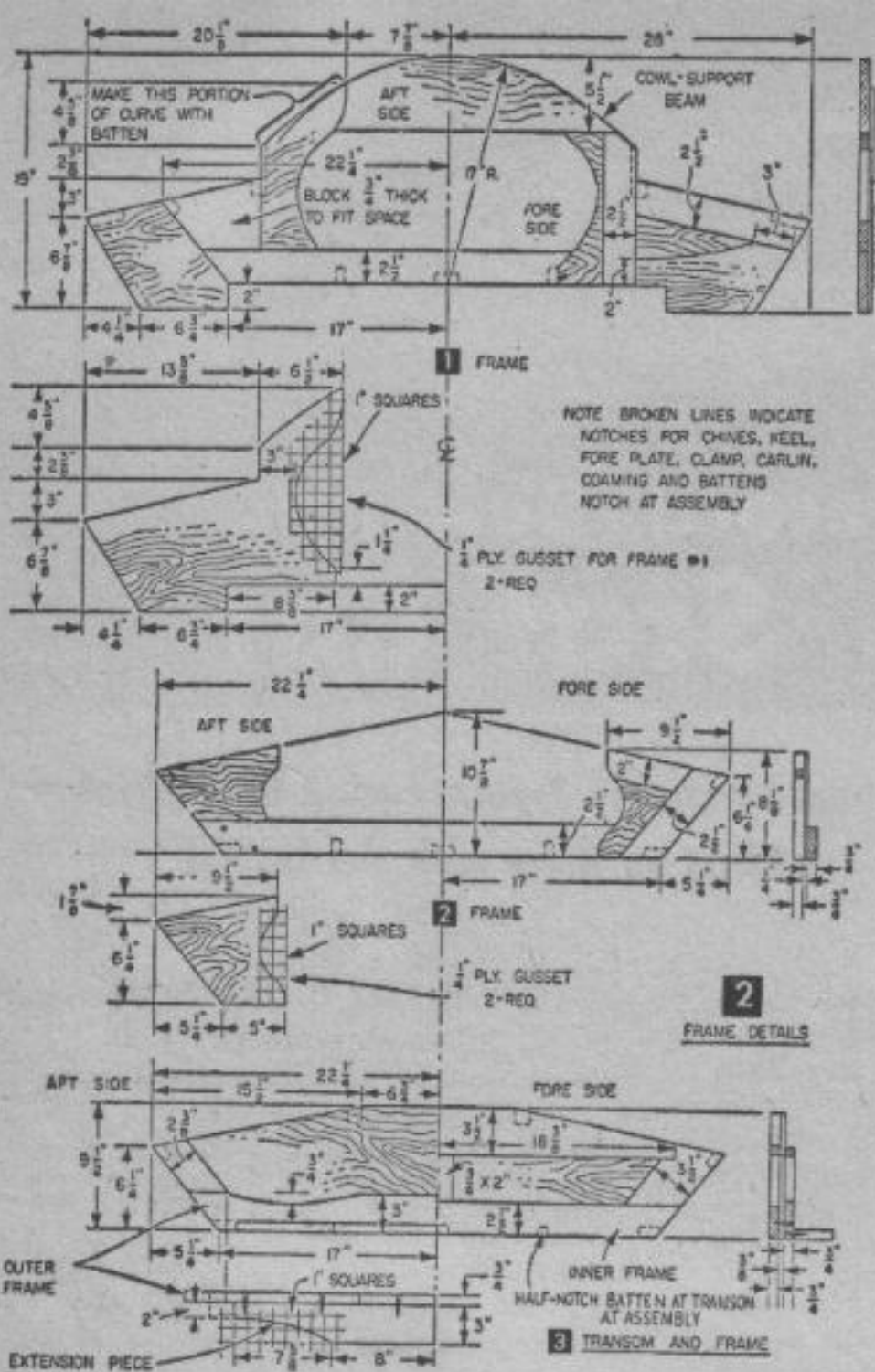
MONOCOQUE AIR-FRAME CONSTRUCTION

THREE PLY FIR OVER SPRUCE FRAME

MINIMUM TURBULENCE COWLING

COMFORTABLE COCKPIT

TWIN STIRRUP FLOOR



plywood gusset with #16 x 7/8 in. Stronghold nails and glue. When assembling the #1 or step frame, first place the 1/4-in. plywood brackets in position on the paper pattern and fasten the aft side bottom cross piece. Then cut, fit and fasten the two 3/4 in. blocks in place. Now, turn the #1 frame over and assemble all of the fore side framing to the 1/4 in. plywood brackets except the cowl-support beam (Fig. 2).

Next, lay out full-size paper patterns of the fore-end members (Fig. 3) and cut these pieces to shape. Assemble the plate pieces on the full-size paper pattern to maintain the correct shape and fasten to 1/4 in. plywood gussets with glue, clamps and nails driven inward from the outer edges. Leave the clamps in place until the glue dries to assure well-bonded joints. When the plate assembly is thoroughly dry, assemble the #1-A beam to the plate as in Fig. 3 by gluing contact areas and fastening with one #8 x 1 1/2 in. fh screw to each joint. Make up the fore-strut assembly (Fig. 3) and set aside for use later.

You now have the various components of the framework ready to assemble.

Lay out and cut the keel, battens, chines and clamps to the widths and bevels shown in Fig. 4. The chines must be beveled from transom to just forward of the step (Fig. 4). The chines forward of the step are rectangular in cross section. To shape these pieces, set your table saw to angle shown and cut a bevel the entire length of the chines. Then reset saw to 90° and resaw the forward part of the chines as in Fig. 4. Saw a slot in the forward end of the keel as in Fig. 3.

With all longitudinal members cut to shape, cut notches in all frames for keel, chines and battens. Make notches for chine in #1 frame slightly loose so that beveled part of chine may be slipped through notches into #1 frame.

Now, mark the frame locations on the keel from Fig. 4 and fasten the frames to the keel with glue and one #8 x 1 1/2 in. fh screw to each joint. Align the frames square with the keel and place the chines in position, slipping them through #1 frame to see that they fit properly. Then remove the chines, coat contact areas with glue and reassemble chines to frames fastening with one #8 x 1 1/2 fh screw to each joint. Assemble bottom battens with glue and #8 x 1 3/4 in. fh screws. Turn the framework right side up and, before fasten-

ing clamps in place, mark and cut notches on each side of the #1 frame for the fore plate assembly. Prop the plate assembly up at its proper level with respect to the rest of the framework and place the fore strut in position to see that everything fits well. Fasten the plate to the #1 frame with glue and one #8 x 1 1/2 in. fh screw to each joint. Then immediately place the clamps in position and fasten with glue and #8 x 1 1/2 in. fh screws. The fore end of the clamps are half notched into the #1-A beam (Fig. 11) and are fastened with one #8 x 1 1/2 in. fh screw to each joint. Remove the fore strut to coat all contacting areas with glue and reassemble to keel, plate and #1-A beam. Now, bend the fore end of the chines against the plate, mark, bevel and fasten to the plate with one #8 x 1 1/2 in. fh screw to each joint.

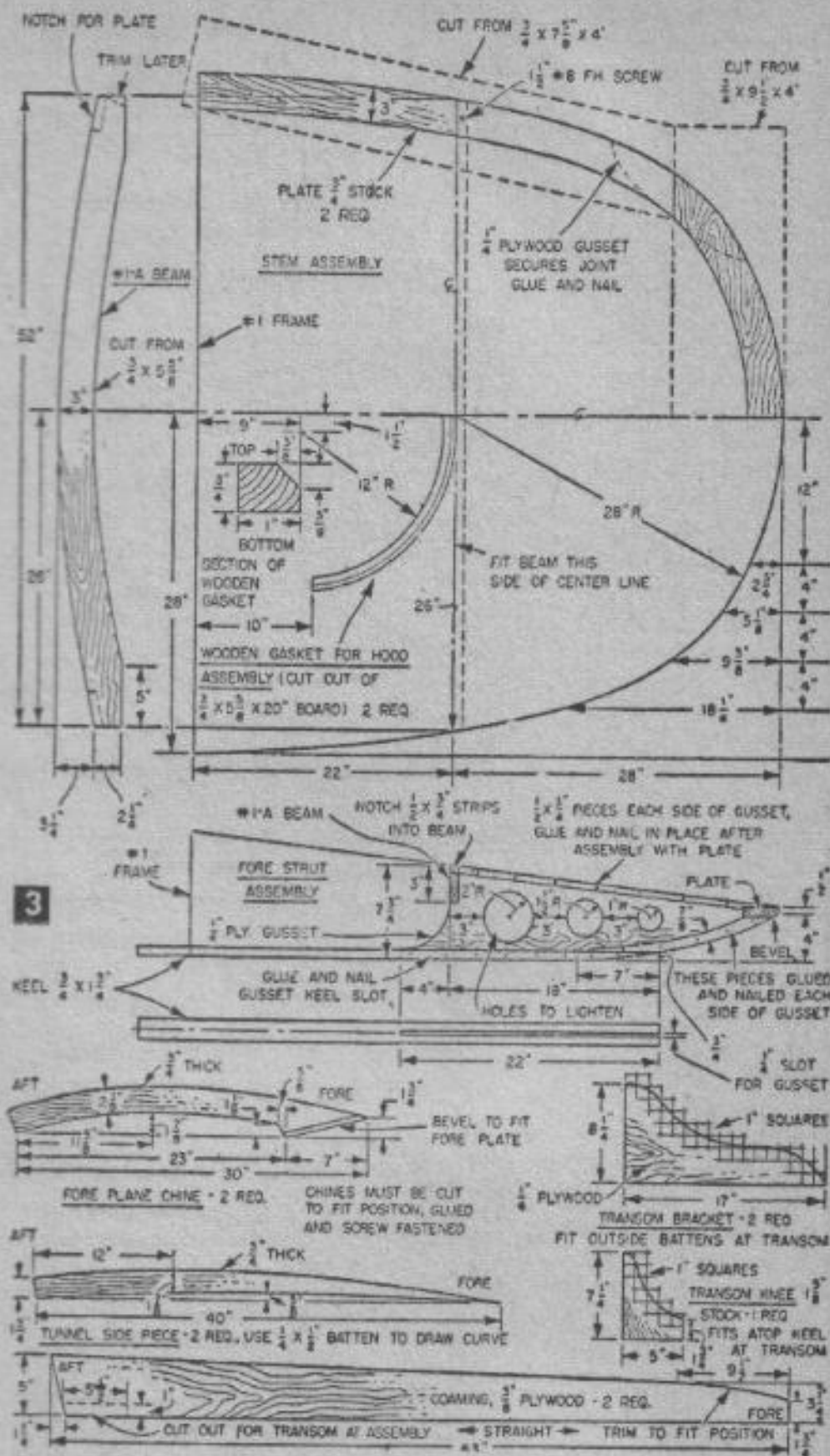
To strengthen the transom, make up the transom brackets and knee (Fig. 3). Fasten the brackets to the outsides of the battens (Figs. 4 and 7), and to the transom with 3/4 x 1 in. cleats

glued and nailed in place. Fasten the transom knee with glue and four #8 x 1 3/4 in. fh screws driven through from the outside of the keel and transom. Next, cut the 3/4 x 1 3/4 in. keel struts and fit between frames on top of the keel center (Fig. 4). Note that the fore keel strut is tapered. Fasten with glue and two #8 x 1 1/2 in. fh screws driven from the outside of the keel.

To hold the framework in position while further work progresses, install the 1/4 in. plywood side planking. Be sure to allow the side planking to extend 3 in. beyond the transom for trimming later. Fasten with glue and #16 x 7/8 in. Stronghold nails or #5 x 3/4 in. fh screws. When the glue is dry, trim the edges of the side planking flush along the chines and clamps. Also bevel the forward underside edge of the plate so that the bottom planking will have a flat contacting surface on which to be fastened.

For the bottom planking slit a 4 x 8 ft. sheet of 1/4 in. plywood as in Fig. 4 and clamp it in position on the bottom of the framework flush with the transom. Then crawl under the hull and mark the location of each side of all framing members on the bottom planking with a pencil. Remove the plywood and spot-drill between the lines at about 12 in. intervals. Connecting these holes with a pencil line on the other side of the plywood will enable you to locate the center of all framing members for fastening the plank to framework. Apply glue to all contacting surfaces, re-clamp the plywood in position and fasten with #16 x 7/8 in. Stronghold nails or #6 x 1 in. fh screws spaced about 2 in. apart. If the plywood fails to cover at the extreme fore end, simply glue a small additional piece of plywood in place and clamp until dry. You will also have to add a strip at the transom end later. If a 4 x 10 ft. sheet of 1/4 in. plywood is used for bottom planking, make it flush at the bow and cut it off 4 in. beyond the transom. Fill the slit in the plywood with a mixture of fine sawdust and glue. Sand when dry.

Lay out and cut the tunnel side pieces as in Fig. 3. It will be necessary to fit these pieces individually to be sure both sides are alike before fastening. When the fit meets with your approval, coat the contact areas with glue and clamp the pieces in position. Fasten with four #6 x 1 in.

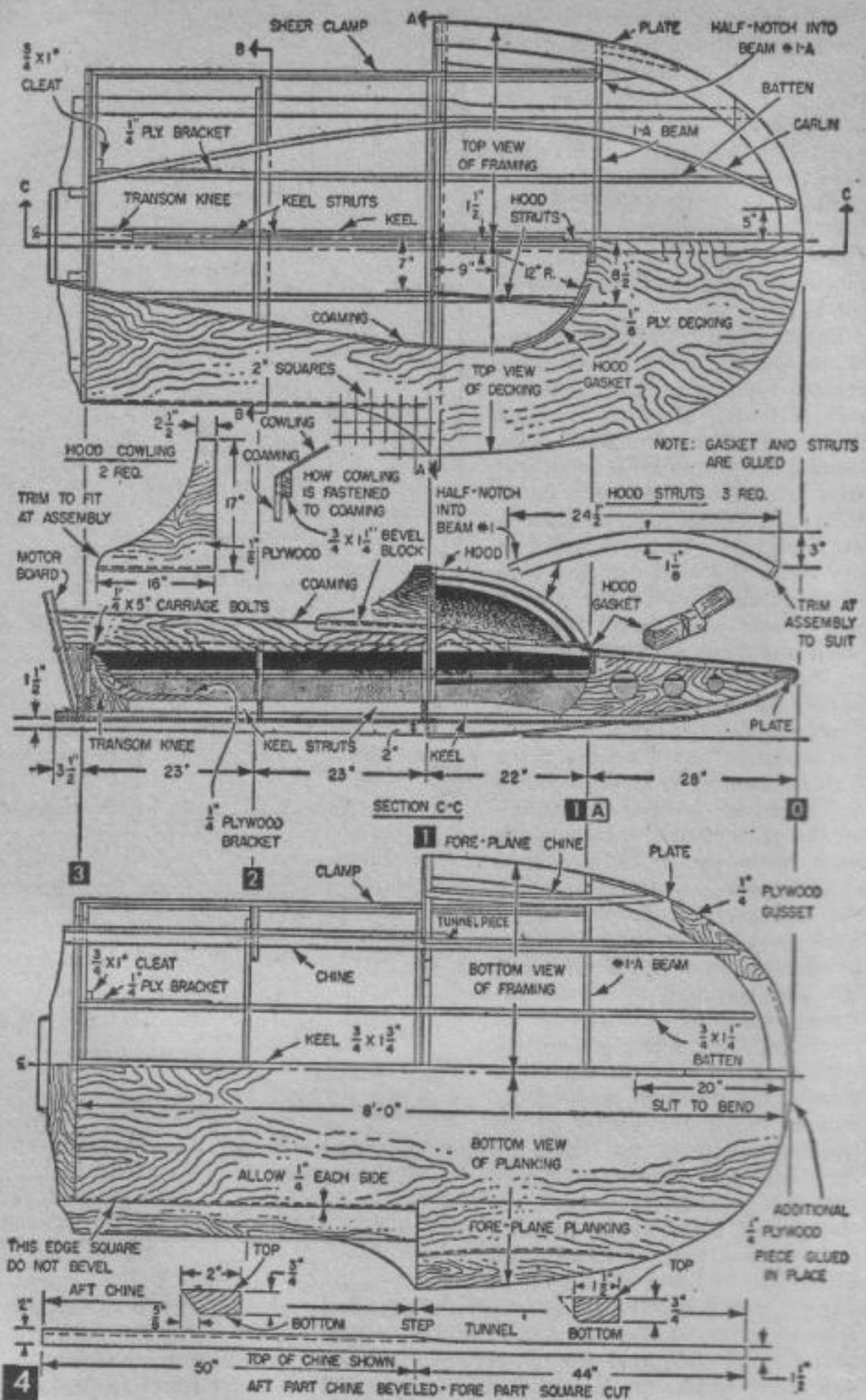


fh screws driven through the plywood planking from inside the hull. Now, continue and cut the two fore-plane chines to shape (Fig. 3). Notch the #1 frame for these chines and fit by beveling the fore ends of the chines as in Fig. 11. Fasten with glue and two #8 x 1 1/2 in. fh screws at each joint. Countersink the screws in the plate about 3/16 in. so that the plate can be beveled later. Additional fastening surface for planking at the fore end of these chines may be secured by tamping a glue and sawdust mixture to the inner sides of the fore ends of the chines. If any open joints exist simply tamp this mixture in place where the plywood planking fits against any frame member.

When all the glue joints are dry, carefully fair

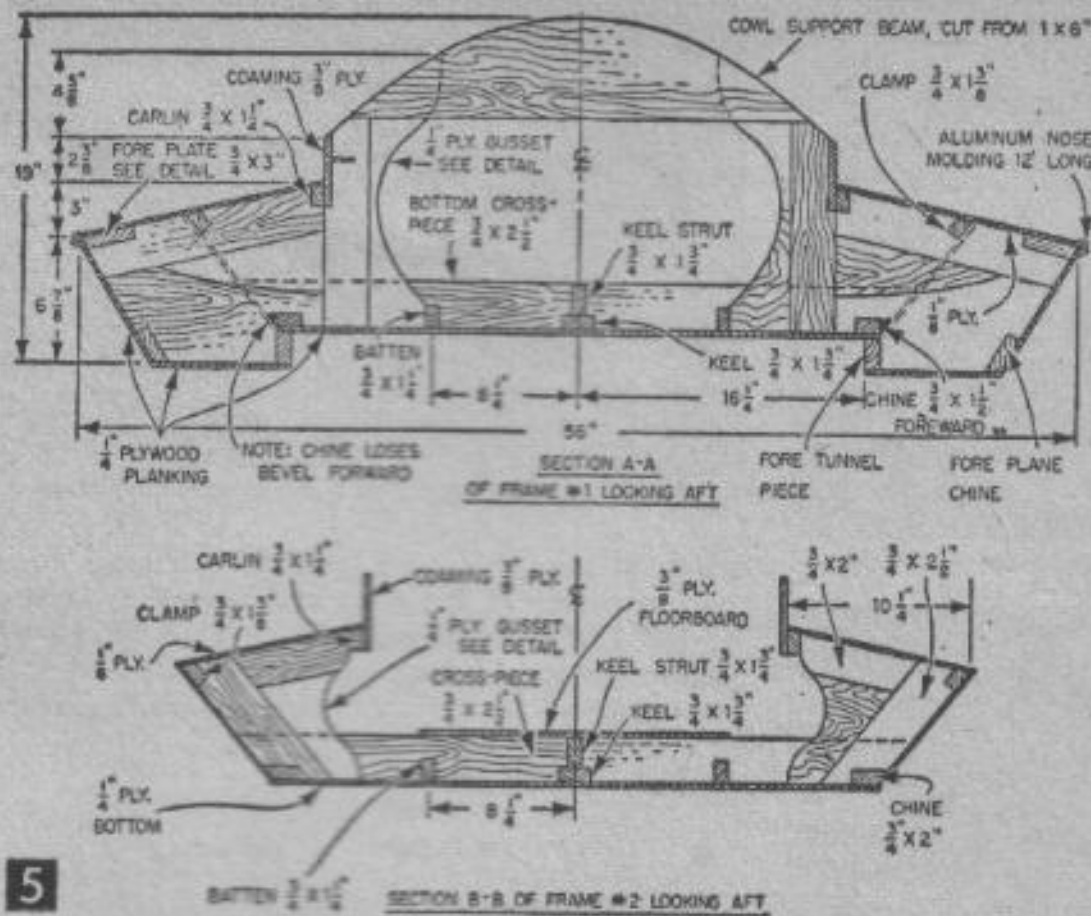
the tunnel pieces, chines and plate assembly. A strip of wood used as a straightedge and laid over the joints as in Fig. 8 will indicate necessary beveling. By constantly checking with the straight-edge as the pieces are planed, perfect contact surfaces will result.

Plank the sides of the two forward planing surfaces first, then the bottoms. Hold a piece of heavy brown wrapping paper over the side area and press around the edges with your fingers. Cut out this imprinted paper and transfer the shape to $\frac{1}{4}$ in. plywood. Cut two pieces of plywood to size, coat the contacting surfaces with glue and fasten with nails or screws as you did the bottom planking. After the glue has dried, fair the plywood edges flush. Continue by planking the forward planing surface. Follow by trimming the edges flush with the sides. A disc sander is the best tool to use for trimming because a plane bit will tend to snag on the fastenings. At the juncture point of the aft side planking and projection of #1 frame glue and nail in



reinforcing tri-cornered pieces as in Fig. 8. With the bottom and side planking completed, turn the hull over right side up and place on saw horses to work on the transom. Make up the laminated motor board and brackets (Fig. 6) and set aside for the glue to dry. The height of the motor board will depend on the type of motor used. For stock outboard motors make the top

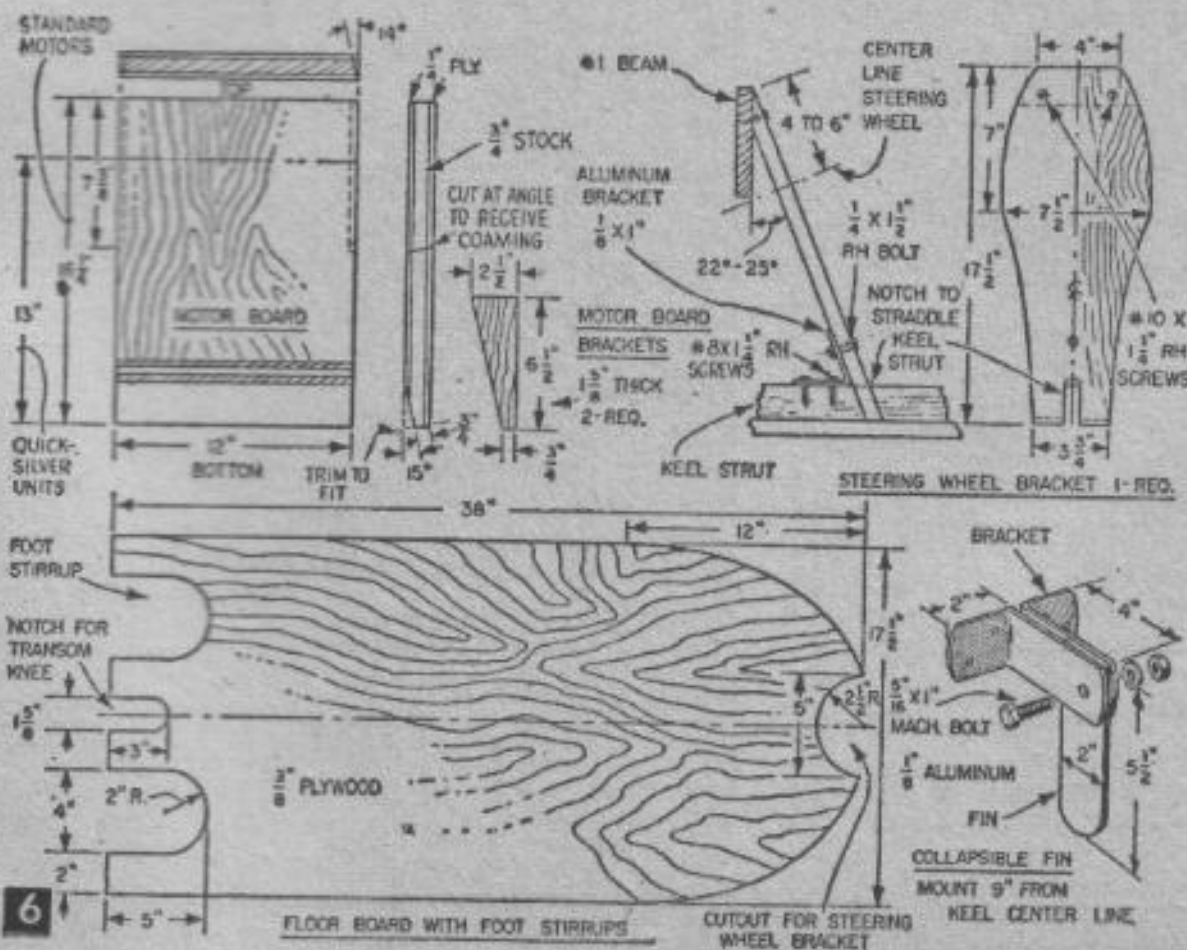
of the motor board $17\frac{1}{4}$ in. when measured from the bottom of the plywood planking. For motors having "quickie" lower units make the top of the board 14 in. from the bottom of the planking. For a Champion Pacemaker motor, make the board $13\frac{3}{4}$ in. Before fastening the motor board in place, take the previously made transom outside framing pieces and fasten the extension piece to the lower



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horizontal piece as in Fig. 2 with glue and six equally spaced #8 x 1½ in. fh screws. Then fasten this assembly to the lower edge of the transom between chine extensions with glue and #8 x 1½ in. fh screws. If 8-ft. long plywood was used to plank the bottom, add a strip of ¼ in. plywood on the bottom of the extension piece so that the bottom surface will be flush with the surface of the bottom planking. Then fasten the vertical transom outside pieces to cover the notches cut for the clamps. Center and fasten the motor board and brackets to the transom with four #9 x 2½ in. fh screws at the lower end and two

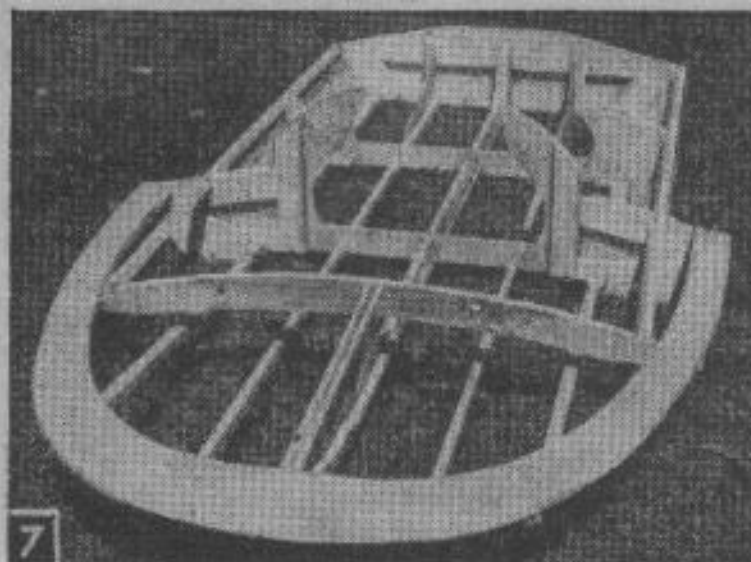
¼ x 6 in. bolts at the top of the transom (Fig. 4). Install the deck carlins (Fig. 4) into notches cut in the transom, #1 frame and #1-A beam. Bevel the fore ends of the carlins to fit against the fore plate and fasten with glue and one #8 x 1½ in. fh screw at each joint. Then fair all the frame members flush with one another and plane a slight bevel on the fore end of the plate to provide a fastening surface for the decking. Before installing the decking, finish the interior of the boat with four coats of clear Firzite and one coat of Dolfinite varnish. Two pieces of 3 x 8 ft. mahogany plywood ⅛ in. thick will be required for decking. Place one of the plywood sheets on the hull so that a 3 ft. edge is flush with the transom and an 8 ft. edge is against the edge of the cowl frame on #1 frame. Mark the plywood at cowl frame and cut a slot in the plywood so that the 8 ft. edge can be slid over to the centerline of the hull framework. Clamp the plywood to the framework and mark the underside along the sheer and carlin, and 1 in. aft of 1-A beam. Remove the plywood and lay out the curve at the sheer just aft of #1 frame and the curve at the forward end of the cockpit as in Fig. 4. Saw the plywood to shape and again place in position on the hull to see that everything fits as it should.



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Now, remove the sheet, turn it over and place it on the other side to see if it fits. If it does, use it as a pattern to mark and cut the plywood for the other side. If it does not fit well, follow the same procedure for marking and cutting the other side.

When the original *Scat Cat* was built we coated the contacting surfaces where the decking joins the plate, sheer clamp and transom with *Kuhl's Bedlast*, and the contacting surfaces with the other frame members with glue. However, if you intend to

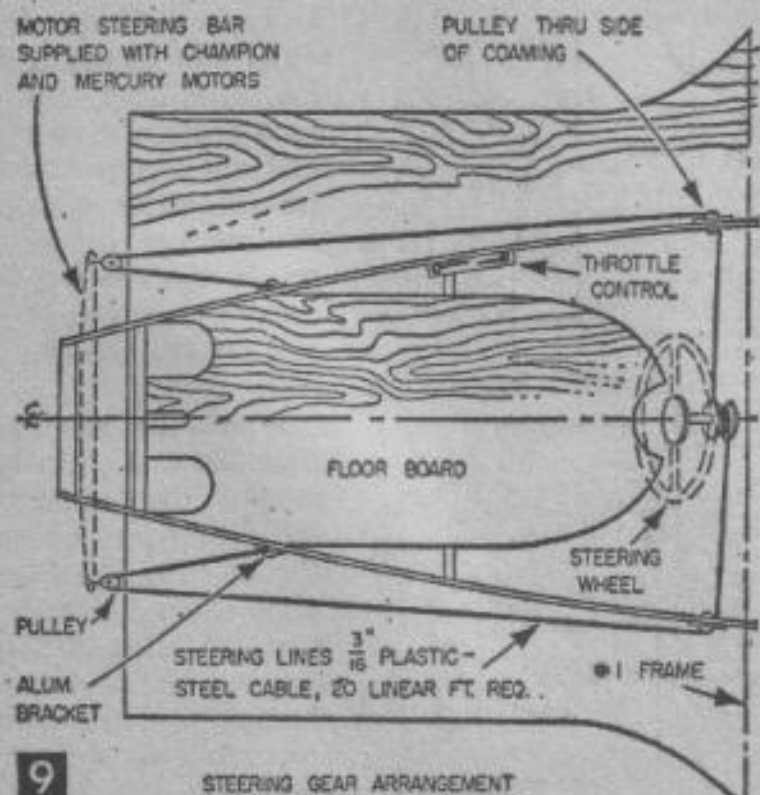


7 Completed hull framework ready for planking.

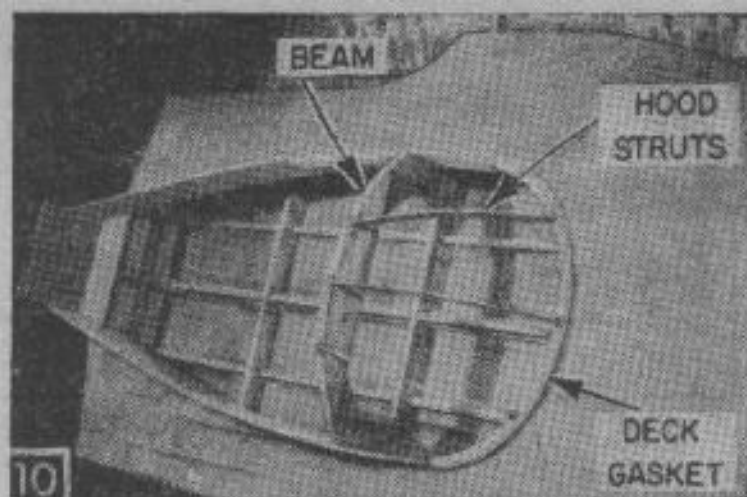


8 Aft end of fore plane bottoms must be in line and level, athwartships.

cover the edges of the deck with 4 in. fiber glass tape, use glue instead of *Bedlast* because fiber glass will not stick to caulking. Fasten the decking to all frame members with #16 x 7/8 in. *Stronghold* nails or #6 x 3/4 in. fh screws spaced 2 in. apart. Trim the edges of the decking flush along the carlins and cut the coaming pieces (Fig. 3) to shape. Bevel the motor board as in Fig. 6 and saw a



9 STEERING GEAR ARRANGEMENT

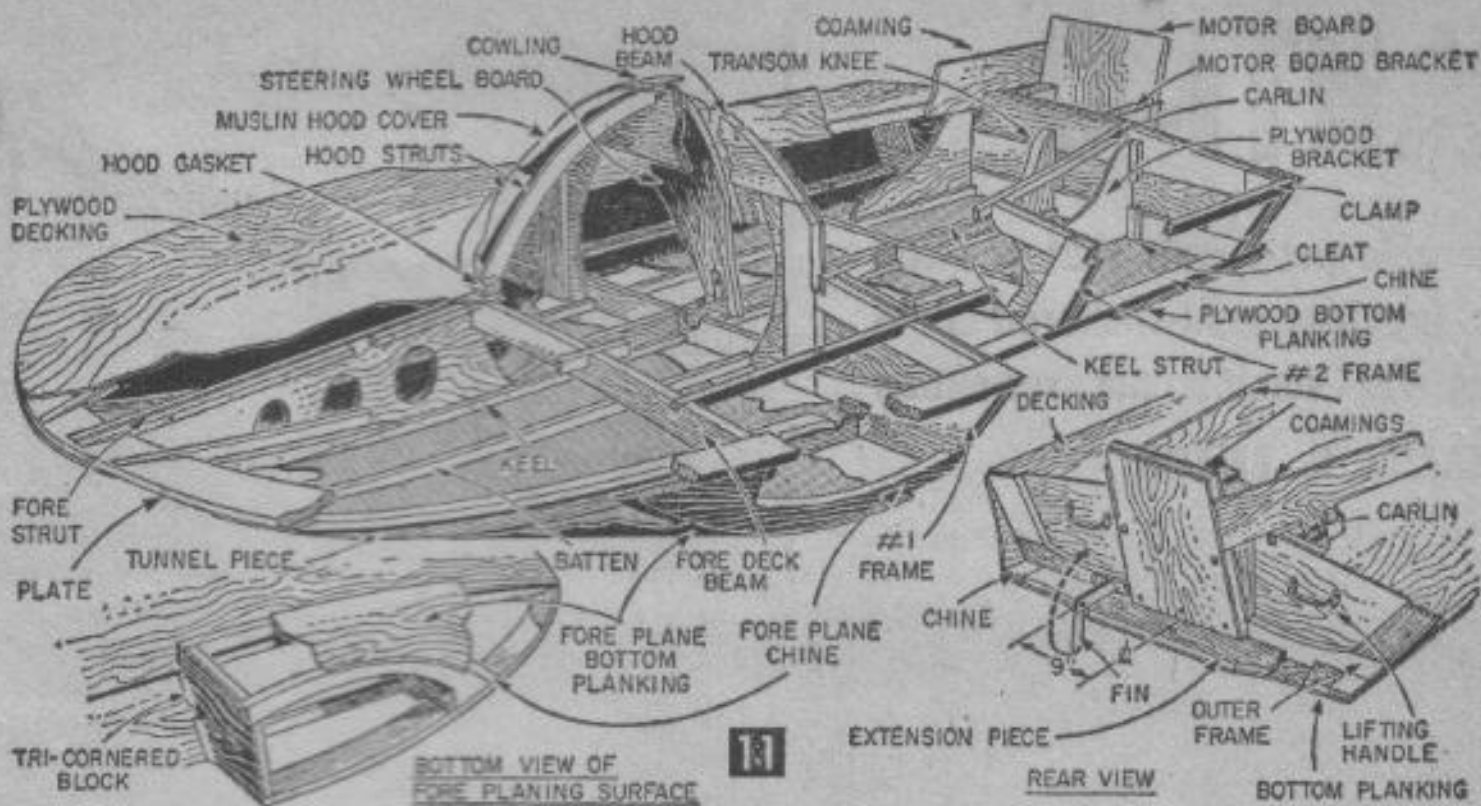


10 Assembled hood frame at forward end of cockpit.

notch in the #1 frame for the coamings. Then spring coamings in place and fasten to carlins with #16 x 7/8 in. *Stronghold* nails or #6 x 1 in. fh screws spaced 4 in. apart.

MATERIALS LIST—SCAT CAT

No.	Size and Description	Use
PLYWOOD REQUIRED		
1 pc	1/4" x 4 x 8' or 4 x 10' fir or mahogany	bottom planking, also makes motor board outside plates, all gussets, brackets, fore strut pc.
1 pc	1/4" x 4 x 8' mahogany	planking, fore plane and side planks
1 pc	3/8 x 30 x 48"	floor and transom
1 pc	3/8 x 10 x 64"	coaming
2 pcs	1/8 x 30" x 8' mahogany	decking also cowling
LUMBER REQUIRED		
2 pcs	3/4 x 2" x 8'	chines
2 pcs	3/4 x 1 3/4" x 6'	clamps
1 pc	3/4 x 1 3/4" x 8'	keelson
2 pcs	3/4 x 1 1/4" x 8'	bilge batts
2 pcs	3/4 x 1 1/4" x 8'	carlins
1 pc	3/4 x 7 1/2 x 34" (1 x 8)	motor board—inside
1 pc	1 x 8 x 8'	deck plate assembly
1 pc	1 x 10 x 4'	
1 pc	1 x 8 x 18"	steering wheel bracket
1 pc	3/4 x 1 3/4" x 6'	keelson uprights
1 pc	2 x 4 x 12"	wedge pcs. motor board
1 pc	2 x 6 x 12"	transom knee
1 pc	1 x 6 x 52"	deck beam 1-A
2 pcs	1/2 x 7/8 x 48"	molding—aft planes
1 pc	1 x 4 x 10'	transom framing—outside
1 pc	1 x 4 x 8' (waste used fore strut)	transom framing—inside
1 pc	3/4 x 2 1/2" x 6'	#2 frame framing
beam	1 x 6 x 28"	
	1 x 8 x 3'	
1 pc	3/4 x 2 1/2" x 10' cut to fit	#1 frame framing
1 pc	3/4 x 5 1/2" x 4'	deck hood curved pcs
1 pc	1 x 8 x 30"	
1 pc	1 x 6 x 40"	funnel pcs & fore chipes
1 lb	#16 x 7/8" Stronghold galv. nails or	
5 gross	1" #6 fh screws	
2 gross	#5 x 3/4 fh screws	
4 dozen	1 1/2" #8 fh screws	
2 dozen	1 3/4" #8 fh screws	
4	2 1/2" #10 or #12 fh screws	
8	3" #6 or #8 fh screws	
2	1/4 x 5" carriage bolts	
1 pc	1/8 x 2 x 18" aluminum (if two fins are wanted double quantity) fin	
	3/4" x 12' aluminum cabinet molding (sold in 12' lengths only)	fore plane molding
1 pc	1/8 x 3/8" x 8' aluminum molding for hood assembly (may be in 2 pcs)	
5 lb	Weldwood glue or 2 qts Elmer's waterproof glue	
1 pc	1/8 x 1 x 8" aluminum bracket and steering wheel	steering
2	boat lifting handles	
1	bow handle	
1	dead-man's throttle. (Quincy Welding Works; Quincy, Ill.)	



12 Carroll "Buzz" Johnson poses with Seat Cat just before making 60+ mph run shown in Fig. 1.

The low-turbulence hood assembly (Fig. 10) may appear difficult to make, but actually it is fairly simple. Don't rely on fastenings to secure the hood assembly. Instead, mix up a heavy glue mixture and clamp until dry. For hood struts, mix glue with sawdust and build up fillets of the mixture at ends of struts. First saw the curved deck pieces (Fig. 3) to shape and bevel the fore edges. Then glue and clamp the pieces to the decking. While glue is drying, make the 1/4-in. plywood struts (Fig. 4) and assemble.

To cover the hood, stretch heavy-weight muslin over the hood assembly, stretching first one way then the other to eliminate all wrinkles. Fasten muslin with copper tacks spaced about 3/4 in. apart (Fig. 11). Then apply four coats of airplane wing dope, allowing 30-minute intervals between coats for drying.

Next, sand the deck with medium and fine sandpaper and remove all dust with a vacuum cleaner. Then apply five coats of clear *Firzite*. Allow each coat to dry thoroughly and smooth down with steel wool. Make and fasten the bevel blocks (Fig. 4) to the coaming and cut the

shaped cowling pieces as in Fig. 4. Fasten with #6 x 3/4 in. *fh* screws. Finish the deck coamings and cowling pieces with one coat of *Boatlife* clear varnish. Trim the edges of the fore deck with a painted border and paint the hood. Cover exposed tack heads with a 3/8-in. strip of aluminum.

Now, turn the hull over and apply four coats of *Firzite* to the sides and bottom and follow with two coats of *Dolfinite* hard racing-finish enamel or, for natural wood finish, use clear *Boatlife*. When dry, again turn the hull right side up and make and install the wheel bracket and floor board (Fig. 6). Varnish these parts and fasten bracket to beam with #8 x 1 1/2 in. *fh* screws and to keel with an aluminum bracket.

To carry your boat, mount handles fore and aft as in Fig. 12. Mount a 15 in. dia. flush-type steering wheel to the wheel bracket and rig the steering cables as in Fig. 9. Be sure to use bolts instead of wood screws to fasten pulleys in place. A "deadman's" throttle must be used on a racing craft of this type in case the driver is accidentally thrown out of the boat. Also, tie the outboard engine down to the transom handles with shock cord to prevent disastrous tilt-up. Do not use an ordinary fin on the keel of the boat because it will create turbulence in the propeller slip stream. Instead, make an adjustable fin (Fig. 6) and fasten to outer transom frame, as in Fig. 11. This fin will add 1 to 3 mph to the top speed.

● Craft Print No. 267, in enlarged size for building Seat Cat is available at \$3.00. SPECIAL QUANTITY DISCOUNT! If you order two or more craft prints (this or any other print), you may deduct 25¢ from the regular price of each print. Hence, for two prints, deduct 50¢; three prints, deduct 75¢, etc. Order by print number. Remit by check or money order (no C.O.D.'s or stamps) to Craft Print Dept., SCIENCE AND MECHANICS, 229 Park Ave. South, New York, N.Y. 10003. See coupon on page 112. Now available, our new illustrated catalog of "Do It Yourself Plans," 25¢. Please allow three to four weeks for delivery.

Craft Print
Project No. 267

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At slightly over 60 mph Seat
Cat is usually air borne.

