

Flight

[Continued from page 111]

for the chine batten, which is screwed into the recesses of the frames with countersunk flathead screws. The transom clamp is mortised to take the after end of the bilge clamps flush. The fore ends of these clamps are tapered to fair with the rabbet line of the stem, and are screwed to the stem. Later, plane off chine batten and keelson to follow angle of frames.

The sheer line is marked on the stem and frames, the latter mortised, and the $\frac{3}{4}$ "x $1\frac{3}{4}$ " oak sheer battens fastened into their places in the same manner as the chines. Bend in battens as indicated.

Each side takes one 5'x10' sheet of $\frac{3}{8}$ " marine plywood, cut in two lengthwise with a fine-tooth saw. The side planking will bend fairly easily over the curve. Fasten the plywood with $1\frac{1}{4}$ " No. 6 screws around the edges. Secure the sides to the battens with copper clout nails $1\frac{1}{4}$ " long. Clinch the ends by holding an iron inside, while hammering. Each side of the bottom takes one sheet of $\frac{3}{8}$ " fir plywood, 6'x10', cut in two lengthwise. The inside edges of the forward pieces are cut to fit the curve of the keel. Just before the bottom is fastened to the keel, lay a strip of canton flannel in marine glue in the recess of each side of the keel.

Deck beams forward are $\frac{3}{4}$ "x $2\frac{1}{2}$ " oak cut from 5" boards, with 2" crowns. Beams are bolted or riveted to the upper ends of the frames, with the top surfaces of the beam flush with the sheer line.

In order to install the short beams alongside the forthcoming cabin and cockpit, a $\frac{3}{4}$ "x2" oak deck clamp is bent in on each side between the No. 1 and No. 9 deck beams. Short deck beams are mortised into the deck clamp and the sheer batten and secured with screws.

The foredeck may be laid in one piece of $\frac{3}{8}$ " plywood. However, for attractive appearance, curved sheer planks of lauan faced plywood can be used, as shown in photos and drawings. Now or later the opening may be cut for the forward hatch.

The cabin posts and frames are of $1\frac{1}{4}$ "x $1\frac{1}{4}$ " pine or cypress. The forward posts are securely screwed to the intersection of the deck clamps and deck beam, 3" off perpendicular, raking aft. The after cabin uprights are full-length, screwed to the floor beam as well as the stringers.

The cabin top stringers are notched so that the top beams fit flush. Beam ends are screwed into the notches. The beams are $1\frac{1}{8}$ "x $1\frac{1}{8}$ " cut with a 2" crown from boards.

The cabin sides are of $\frac{1}{4}$ " lauan (mahogany) plywood. The panels are screwed to the framework with $\frac{5}{8}$ " oval head brass screws. Window openings are frames with $\frac{1}{4}$ "x2" strip fastened with flathead screws. The cabin top of $\frac{1}{4}$ " fir plywood is screwed to the cabin top beam with $\frac{3}{4}$ " flathead screws. Covering the plywood top is a sheet of canvas laid in wet paint with the edges secured by small copper tacks.

An auto junk yard is a good place to get a '37 Chevrolet steering wheel and post and dashboard bracket. Cut the post down to 15" and carriage bolt the bracket to the after side of the cabin on the port side. A $3\frac{1}{2}$ " dia. wooden cylinder 6" long is fitted to the inner end of the post. A flange,

locked with a nut, is screwed to the end of the drum to seize it. Wind the center of the steering rope around the drum three times and lead the rope through eyescrews under the cockpit coaming.

Edges of the windshield and the forward hatch cover are trimmed with 1" wide brass, which overlap the cracks. Paint and varnish the boat to suit.

Bill of Materials, FLIGHT

LUMBER

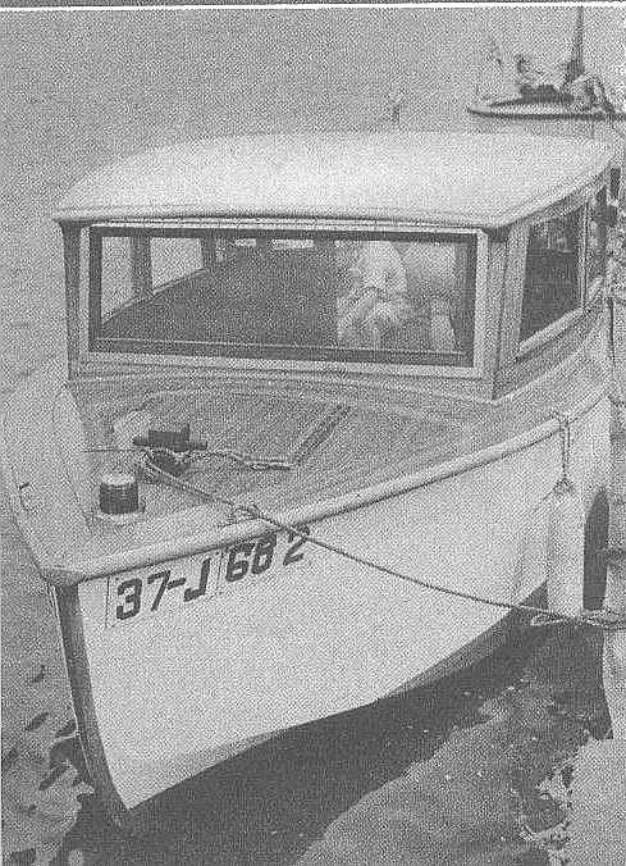
- Stem**—1 piece white oak, 2"x7"x33"; 1 piece white oak, 2"x8"x30½".
- Keel**—1 piece white oak, ½"x4"x17'6"; 1 piece white oak, 1"x5"x17'6".
- Keel Form**—3"x6"x20' old lumber.
- Transom**—2 pieces oak, 1"x12"x48", or 3 pieces oak, 1"x8"x48".
- Transom Clamp**—8 feet of white oak, ¾"x2½".
- Transom Knee**—1 piece white oak, 1¼"x8"x11".
- Chine Battens**—2 pieces white oak, ¾"x1¾"x20'.
- Sheer Battens**—2 pieces white oak, ¾"x1¾"x20'.
- Frames**—36 feet of white oak, 7/8"x4", and 24 feet of white oak 7/8"x6".
- Battens**—16 pieces cypress, 3/8"x1¼".
- Planking**—2 sheets of 3/8" marine plywood (super-har-bord), 5"x10', and 2 sheets of 3/8" plywood, 6"x10'.
- Butts**—2 pieces white oak, 1"x6"x24", and 2 pieces white oak, 1"x6"x32".
- Deck Beams**—17 feet of white oak, ¾"x5".
- Timberhead**—1 piece oak, 3"x3"x28".
- Deck Clamps**—2 pieces white oak, ¾"x2"x12'6".
- Decking**—1 sheet of mahogany veneer plywood, 3/8"x6'x10', to include cockpit coaming, sheer pieces, etc.
- Deck Strake**—2 pieces oak, 2" half-round, 20 feet long.
- Side Strake**—2 pieces oak, 1½" half-round, 8 feet long.
- Cabin Frames**—100 feet of pine or cypress, 1½"x1¼".
- Cabin Top Beams**—44 feet of pine, 1½"x3".
- Cabin Top**—1 piece ¼" plywood, 56"x74".
- Window Frames**—40 feet of mahogany, ¼"x2".
- Top Canvas**—Light duck to cover 60"x76" spread.
- Hand Rails**—2 pieces mahogany or oak, ¾"x2"x60".
- Flooring**—80 feet of pine, ¾"x8".
- Cabin Moulding**—28 feet of 1" quarter-round, includes coaming moulding.

FASTENINGS

- 60—2½" galvanized stove bolts for frames.
- 5—3/8"x6" carriage bolts for stem.
- 4—5/8"x5" galvanized bolts for transom knee.
- 3 dozen 2½" No. 8 flathead screws.
- 3 dozen 4" No. 8 flathead screws.
- 1 gross 1¼" No. 6 flathead galvanized screws for planking.
- 1 gross 1¼" copper clout clinch nails.
- 1 gross 1¼" No. 6 oval brass screws for deck.
- 1 gross 5/8" No. 6 oval brass screws for cabin panels.
- ½ gross ¾" flathead galvanized screws for cabin top.
- 5/8" wire brads.

Hardware may be selected from Wilcox Crittenden catalog.

Plywood construction makes this boat light enough to be easily transported by trailer, and gives it added speed on the water. Any outboard motor of from 7 to 35 h.p. can be used.

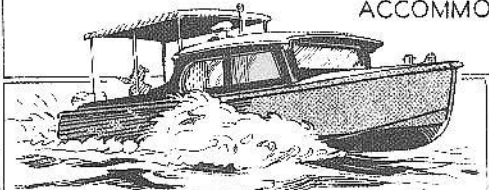
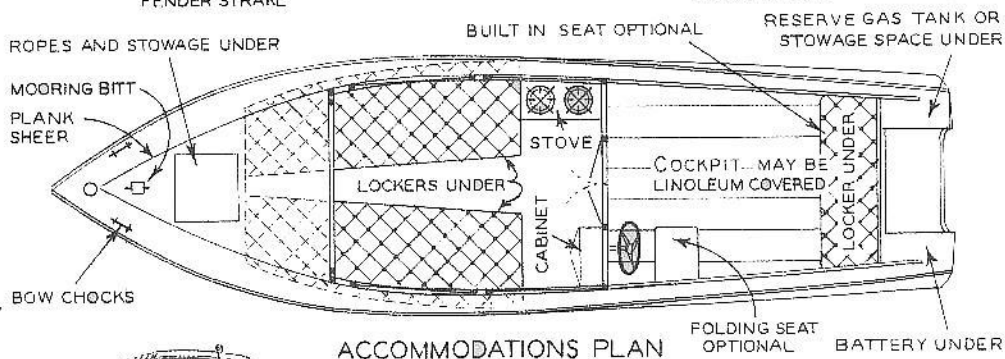
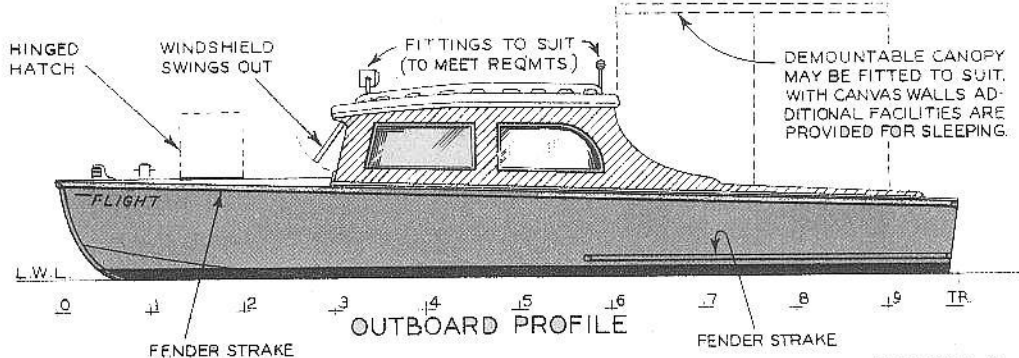


FLIGHT is a speedy outboard runabout cruiser whose construction is brought within the scope of the amateur builder by the simple application of marine plywood planking. The benefits of plywood make this cruiser sturdy and useful for rugged cruising, fishing, inland commuting or as a workboat.

Flight is 19' 6" long, with a 66" beam and very slight hull draft. The cockpit aft is amply large and roomy for fishing activities as well as for several folding-type deck chairs. Additional room inboard is the result of having the motor outboard. A four-cylinder Elto Quad will drive *Flight* at a cruising speed of 25-30 miles an hour. A less expensive two-cylinder outboard is perfectly adaptable to *Flight* to acquire 15-20 miles an hour speeds.

Space for the reserve supply gas tank and for the storage battery (for lighting purposes) is under the after deck, just behind the

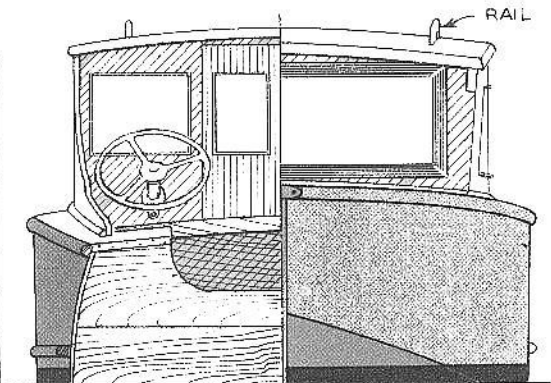
FLIGHT



SPECIFICATIONS FOR FLIGHT

19 FT. 6 IN. RUNABOUT CRUISER

LENGTH OVERALL	19'-6"
LENGTH AT WATER LINE	18'-1"
GREATEST BEAM	5'-6"
APPROX. DRAFT, WITH MOTOR UP	0'-6"
ENGINE - OUTBOARD TYPE	7-35 H.P.
MAXIMUM CRUISING SPEED*	25-30 M.P.H.
	*WITH 35 H.P. ELTO QUAD
PLANKING	SUPER HARBORD PLYWOOD
DECKING	MAHOGANY VENEER PLYWOOD

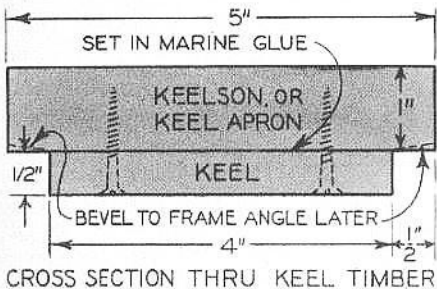


Comfortable cruising accommodations for two persons and an exceptionally roomy cockpit, achieved by having the motor outside, are featured in *Flight*.

cockpit. The steering wheel on the aft side of the cabin turns the motor as a rudder, by means of a rope circuit.

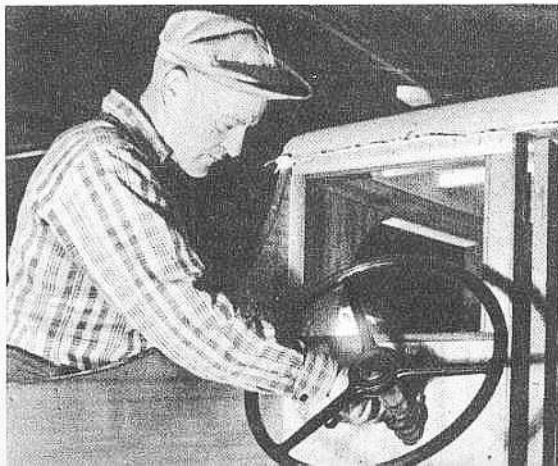
In the cabin are two berths for over-night trips. Forward of the bunks there is storage space for general cruising necessities. The forepeak, accessible through the forward

deck hatch, contains ample space for anchors, mooring lines, etc. Just inside the companionway, there is room for a portable stove. On the opposite side, the cabinet, which houses the steering-rope drum, has ample space for dishes, food and other supplies.

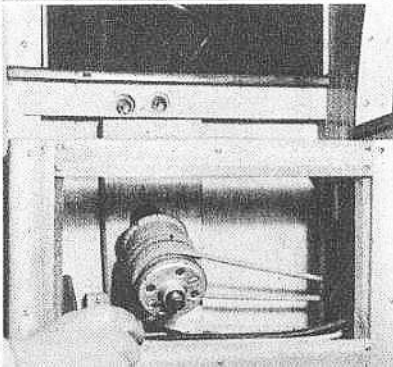


In starting construction, transfer frame measurements from the accompanying drawings and lay them out full size on heavy wrapping or building paper. Mark the 1" inserts for the keel on all frame patterns, except No. 1, which has a deeper insert, as shown. Cut the patterns to shape.

Frames are made of $\frac{7}{8}$ " oak, 4" and 6" wide. Carefully mark and saw out all frames, following the given offsets. Note



A Chevrolet steering wheel and post, with wood drum attached, are connected to the outboard motor by cable or rope.

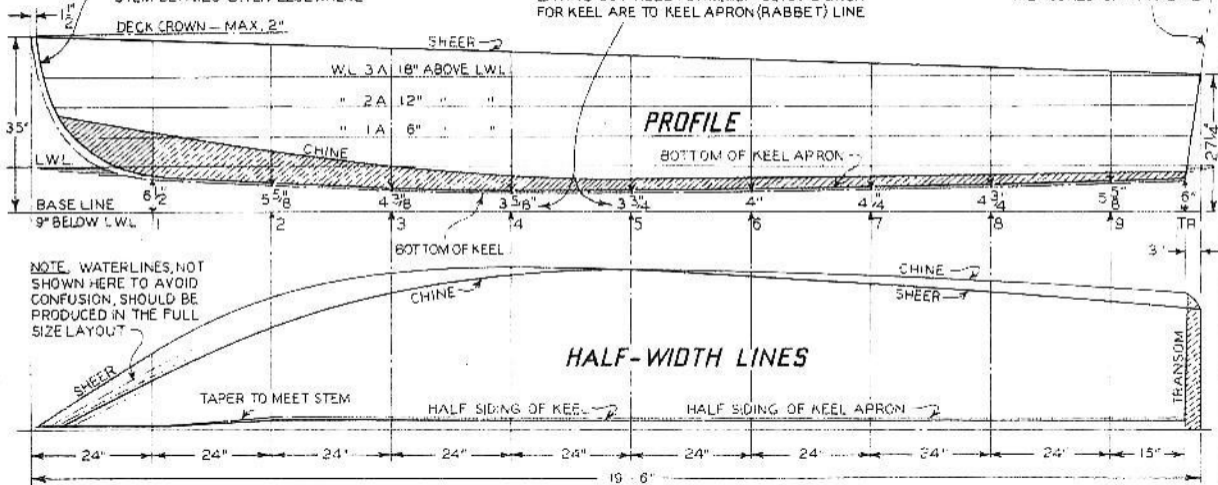


STEM RABBIT — DIMENSIONED
STEM DETAILS GIVEN ELSEWHERE

DECK CROWN — MAX. 2"

NOTE: — THESE DIMENSIONS TO BE USED IN
LAYING OUT KEEL FORM... OFFSETS AS GIVEN
FOR KEEL ARE TO KEEL APRON (RABBIT) LINE

NOTE: — TRANSOM HEIGHT'S
MEASURED ON THIS LINE



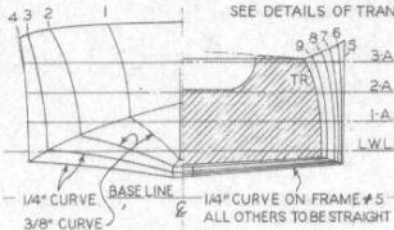
HALF WIDTHS

STA.	CHINE	WL-1A	WL-2A	WL-3A	SHEER
1	0-0-6		0-11-1	1-0-2	1-3-0
2	1-8-3	1-8-5	1-9-4	1-11-3	2-2-3
3	2-3-1	2-3-3	2-4-1	2-5-4	2-7-1
4	2-7-0	2-7-1	2-7-3	2-7-7	2-8-5
5	2-8-0	← STRAIGHT →			2-8-1
6	2-7-4	2-7-4	2-7-4	2-7-1	2-6-6
7	2-7-0	2-7-0	2-6-6	2-5-7	2-5-1
8	2-5-7	2-5-7	2-5-4	2-4-2	2-3-5
9	2-4-3	2-4-3	2-3-6	2-2-1	2-1-6
TR.	2-3-3	2-3-3	2-2-4	2-0-2	2-0-0

~ OFFSETS ~

HEIGHTS

KEEL	CHINE	SHEER
0-7-2	1-4-0	2-10-3
0-6-1	1-0-4	2-9-5
0-4-7	0-9-3	2-8-6
0-4-1	0-7-2	2-8-0
0-4-2	0-6-5	2-7-2
0-4-4	0-6-6	2-6-3
0-4-6	0-6-7	2-5-5
0-5-2	0-7-1	2-4-7
0-6-1	0-7-6	2-3-7
0-6-4	0-8-2	2-3-5

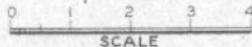


BODY PLAN

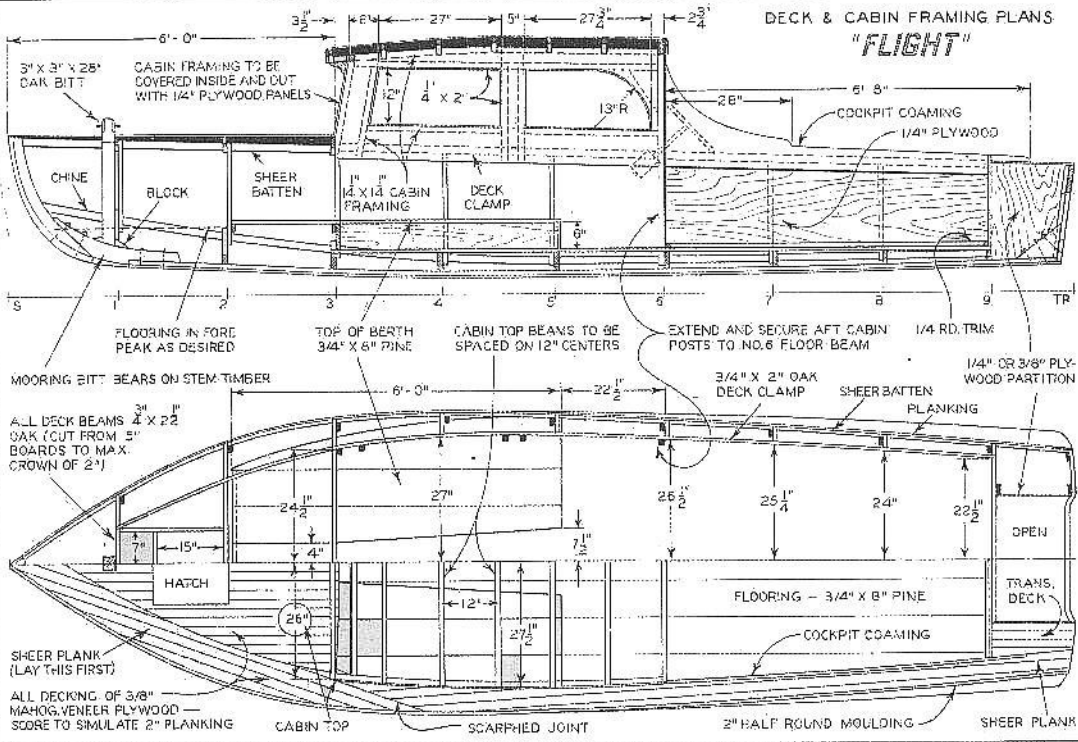
LINES & OFFSETS

~ FLIGHT ~

GEN. NOTE:— OFFSETS ARE GIVEN IN FEET INCHES AND EIGHTHS TO INSIDE OF PLANKING.— LINES TO BE LAID DOWN FULL SIZE ON SMOOTH FLOOR AND ALL MEASUREMENTS VERIFIED TO PRODUCE FAIR LINES BEFORE LAYING OUT AND MAKING FRAME PATTERNS



DECK & CABIN FRAMING PLANS "FLIGHT"

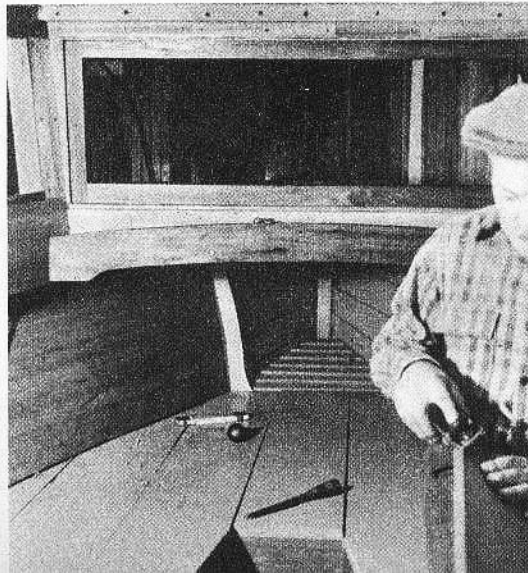


drawing showing frame construction. Assemble the frames accordingly using $2\frac{1}{2}$ " stove bolts or rivets to secure the joints. Across the tops, temporarily nail crosspieces to maintain the proper widths.

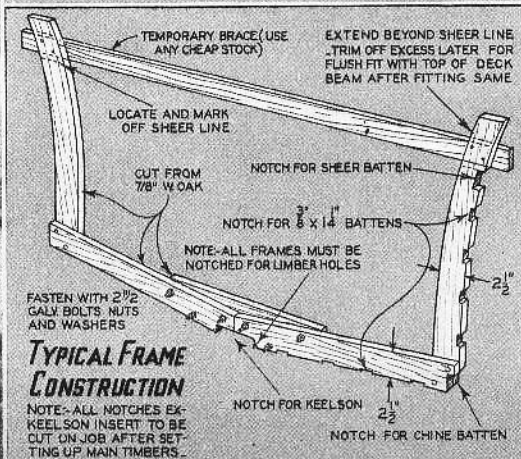
Mortise each frame according to the pattern for the keel. In addition, mortise the corners of each frame to take the $\frac{3}{4}$ "x $1\frac{3}{4}$ " oak chine. Notches for chine, sheer battens and side and bottom battens are best put in on the job after

assembling the frames on the keel timber. All frames should be notched to provide limber holes.

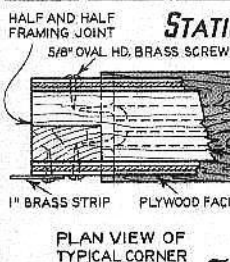
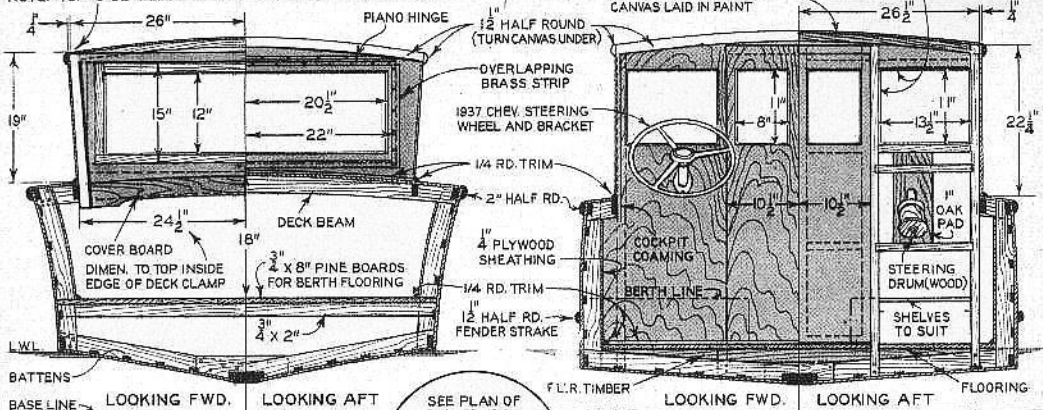
Make the stem pieces next of 2" white oak, after laying out the accompanying stem details full size on heavy pattern paper. Mark the rabbet line roughly as given and cut carefully with a chisel. Unevenness of the rabbet cut is smoothed with a small hand plane, to give an even bearing for the plywood



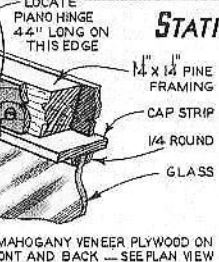
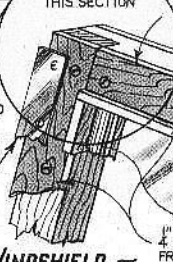
Left: Interior view of the half-completed cabin, showing windshield frame in place and berths in foreground. Below: Detail of frame. Notches for side and bottom battens are cut after frames have been set up.



NOTE:-TOP IS 3/2 ABAFT AT STN. 3 ON ACCT. OF RAKED POST



STATION No. 3

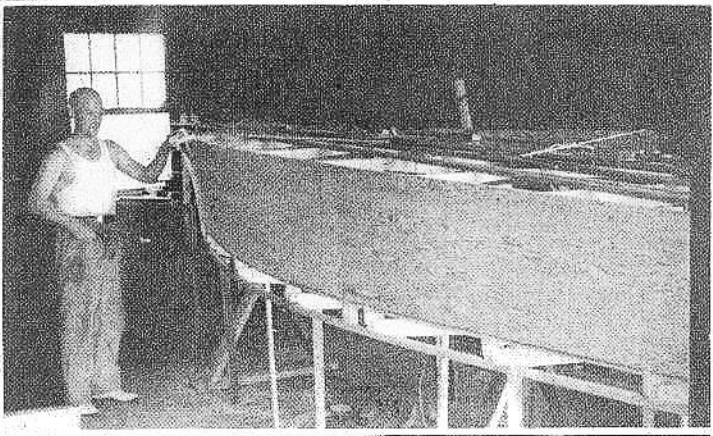


STATION No. 6

SECTIONS & MISC. DETAIL

NOTE:- CABIN DOORS AND DOOR WINDOWS MAY BE BUILT IN EXACTLY THE SAME MANNER AS THE WINDSHIELD — OR BOTH MAY BE CONSTRUCTED TO SUIT

Headroom in the cabin is 44 inches, which means ample room to sit upright on the berths.



planking. Properly grafted, the stem sections are fastened with 3/8" galvanized bolts; then the inside is bolted to the forthcoming keel.

The keel is made of two pieces of white oak, 17' 6" long; one narrower than the other so that a ledge is formed on each side for fastening the bottom planking. The centerline of the 1/2"x4" piece is marine glued and screwed along that of the 1"x5". Taper the keel forward as shown.

To get the necessary bend in the keel, use a 3"x6" timber (old) as a form. Mark and cut out the curve given in the keel offsets.

In assembling the job, first fasten the keel form securely to sawhorses, which should support it. Then place the keel on the form and bend it to shape by tightening C-clamps at the center. Bolt the stem into

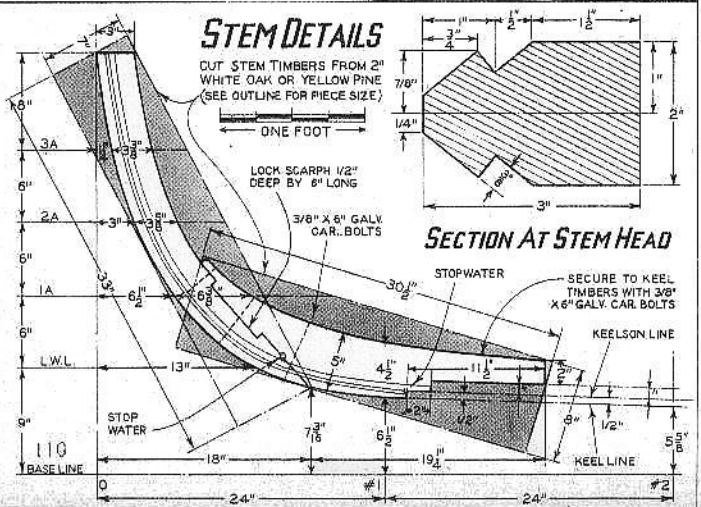
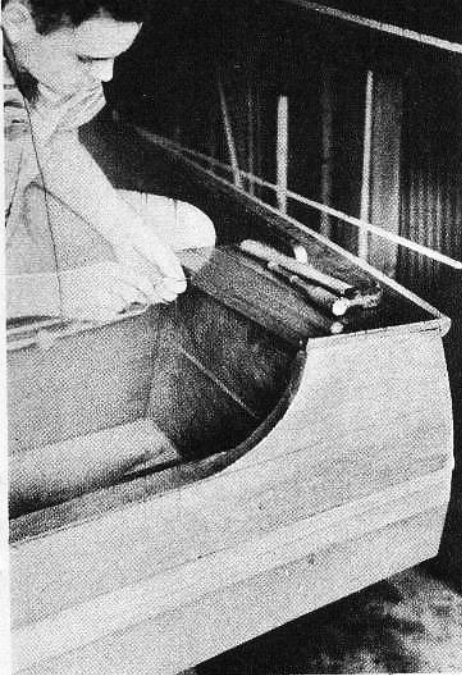
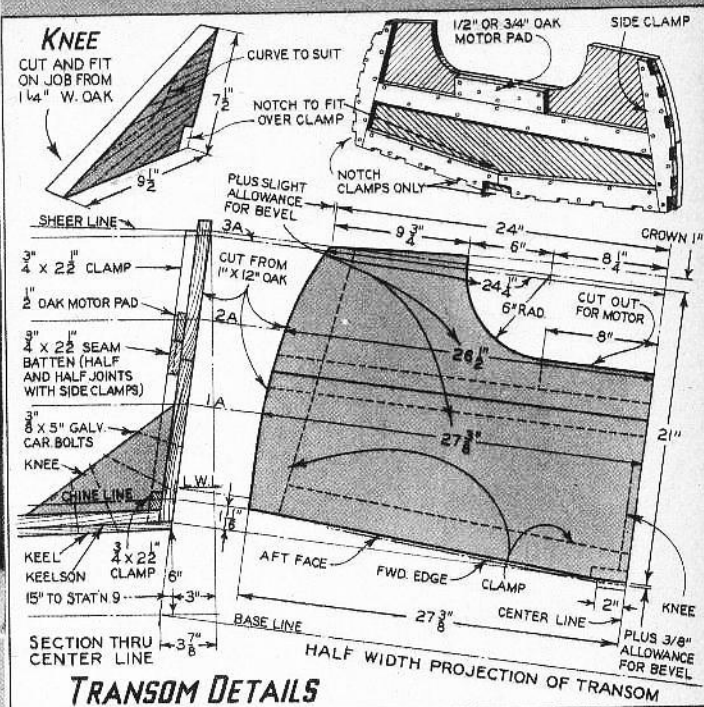


Photo shows frame with one side planked. Bottom has not yet been covered.



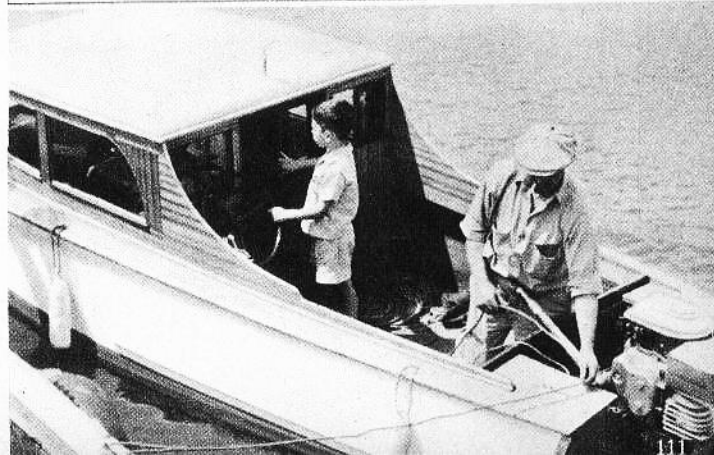
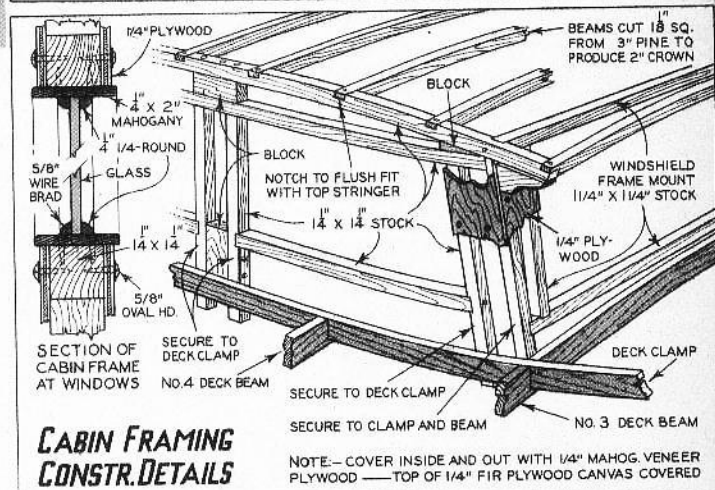
Above: Fastening trim to side of motor box. Right: Transom is heavily reinforced to bear strain of engine.



position, using $\frac{3}{8}$ "x6" galvanized bolts and countersinking the heads. Then install the 1" oak transom, made as shown, bracing it with a 1 1/4" oak knee. Note that the $\frac{3}{4}$ "x2 1/2" transom clamp of oak is cut and planed flush with the transom edges.

Mark the given frame stations on the keel every 24" from the bow. Set up the previously made frames, whose inserts should fit snugly on the keel. Fasten the frames with 4" F.H. screws through the frames into the keel. It is absolutely essential that all frames be at perfect right angles to the keel and exactly perpendicular to insure a properly moulded hull. To keep the frames accurately in position, use battens temporarily nailed to the outer edges of the frames.

Next, the frames are notched
[Continued on page 142]



Trim appearance of *Flight* shows well in this aft view. She will do up to 30 m.p.h., depending on motor used. Note tumble-home, or inward sweep of sheer, at the stern



37-J 682