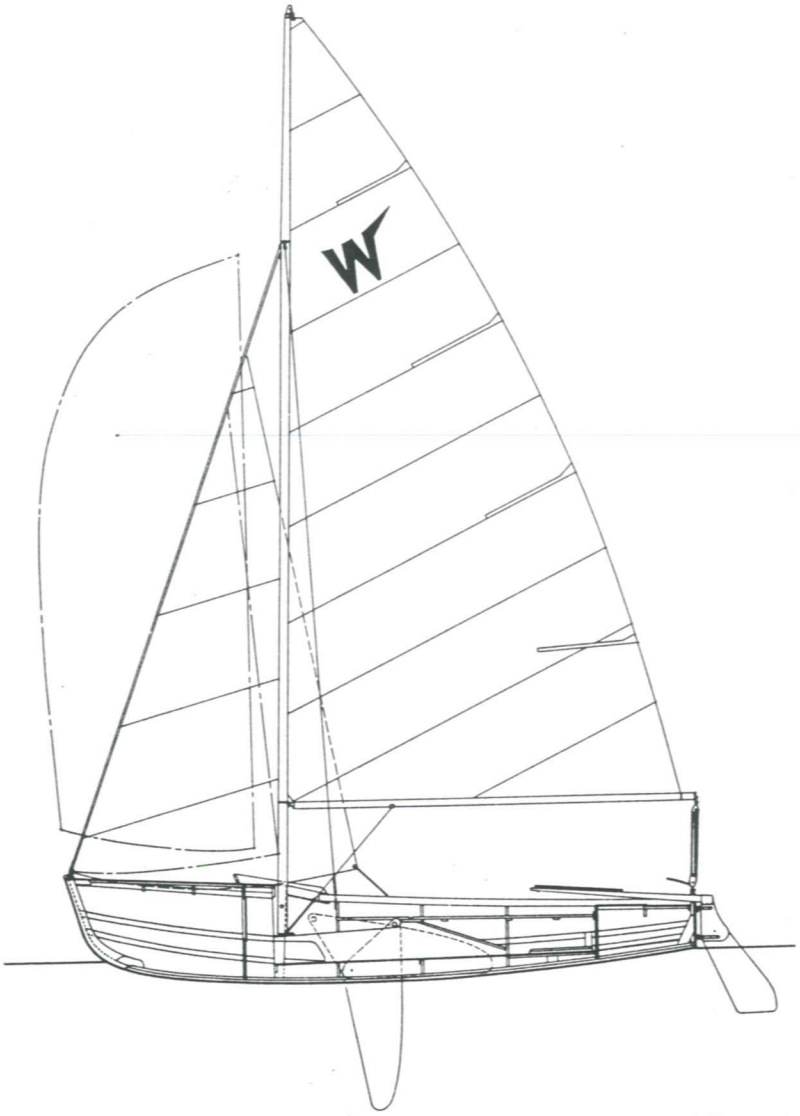
WAYFARER

KIT ASSEMBLY MANUAL

CONSTRUCTION MANUAL FOR THE

WAYFARER

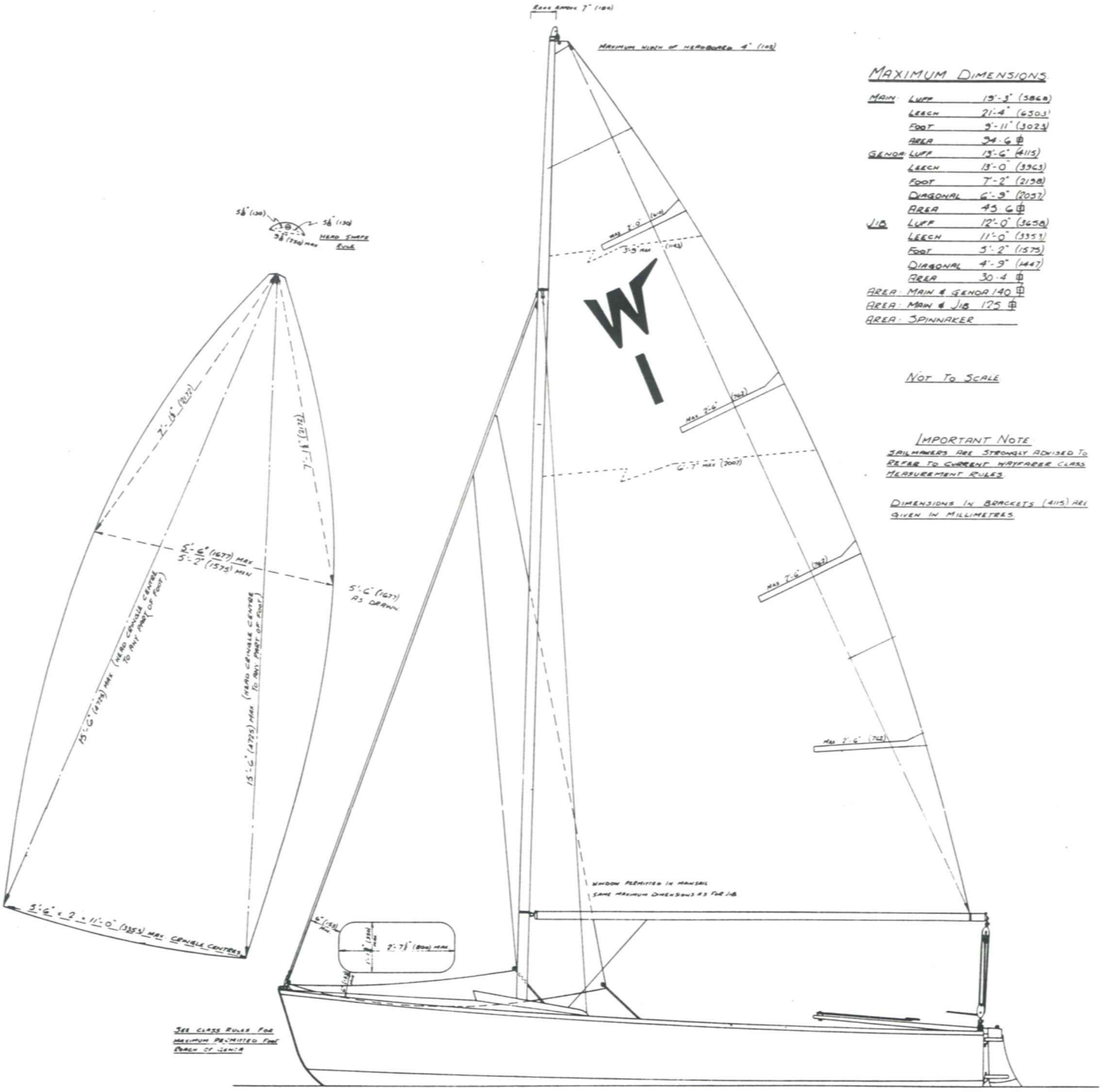
Designed by Ian Proctor RDI FSIA



SOUTHERN LAKES BOATBUILDING COMPANY

2756 Greenway Drive Maryville, TN 37801

PUBLISHED BY IAN PROCTOR R.D.I F.S.I.A.D.



MAXIMUM DIMENSIONS

MAIN	LUFF	13'-3" (5860)
	LEECH	21'-4" (6503)
	FOOT	9'-11" (3023)
	AREA	94·6 ⊕
GENOA	LUFF	13'-6" (4115)
	LEECH	13'-0" (3963)
	FOOT	7'-2" (2138)
	DIAGONAL	6'-9" (2057)
	AREA	45·6 ⊕
JIB	LUFF	12'-0" (3658)
	LEECH	11'-0" (3353)
	FOOT	5'-2" (1575)
	DIAGONAL	4'-9" (1447)
	AREA	30·4 ⊕

AREA: MAIN & GENOA 140 ⊕
AREA: MAIN & JIB 125 ⊕
AREA: SPINNAKER

NOT TO SCALE

IMPORTANT NOTE

SAILMAKERS ARE STRONGLY ADVISED TO REFER TO CURRENT WAYFARER CLASS MEASUREMENT RULES

DIMENSIONS IN BRACKETS (4115) ARE GIVEN IN MILLIMETRES

WAYFARER SAIL PLAN DESIGNED BY IAN PROCTOR R.D.I. F.S.I.A.D.

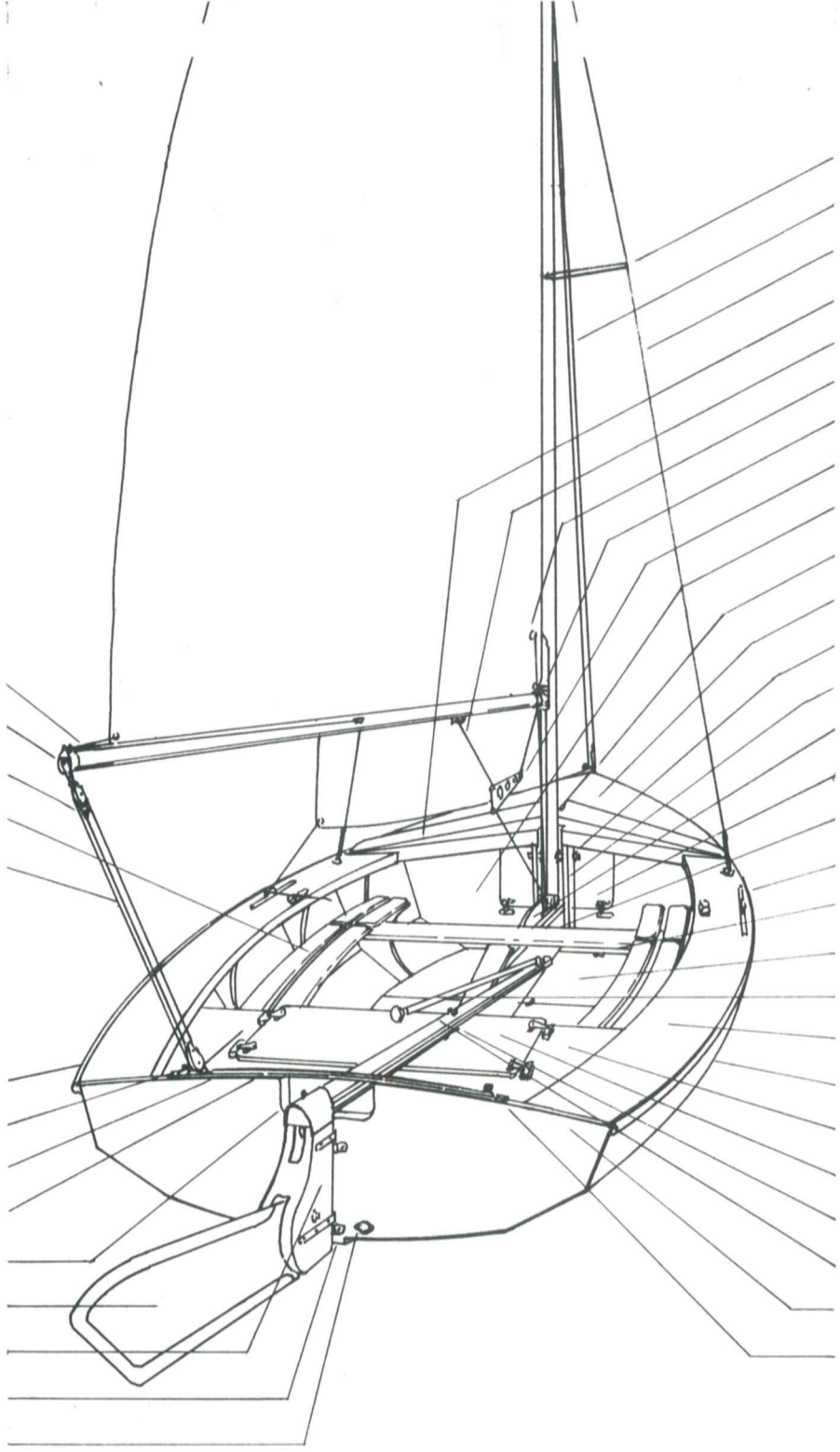
SHEET 2 OF 5 SHEETS.

Ian Proctor
Feb. 1978.

AMENDED FEB 1978

10 ft Wayfarer

designed by Ian Proctor



SPREADERS
FORESTAY
SHROUD
WASHBOARDS
BOOM-VANG
CUNNINGHAM HOLE & CONTROL
GOOSENECK
PROCTOR LEVER
FORWARD BULKHEAD
RIGGING SCREW & STEM FITTING
FOREDECK
MAST PIVOT TUBE
KING POSTS
CENTERBOARD
FORWARD HATCH COVER
CENTERBOARD CASE
ADJUSTABLE GENOA FAIRLEAD
THWART
REMOVABLE FLOORBOARDS
TILLER EXTENSION
SIDE DECK
CHINE
STERN DECK
AFT HATCH COVER
RUDDER DOWNHAUL
TILLER
TRANSOM
PLUNGER STOPS

CLEW OUTHAUL
BOOM
SINGLE BLOCK
REMOVABLE AFT SIDE BENCHES
MAIN SHEET

SHEER-BEAD / RUBBING STRAKE
SISTER BLOCK
SHEET HORSE
MAIN SHEET TRACK
TILLER HOOD
LIFTING RUDDER
RUDDER STOCK
KEEL · (BILGE KEELS NOT SHOWN)
DRAIN PLUG

CONTENTS:

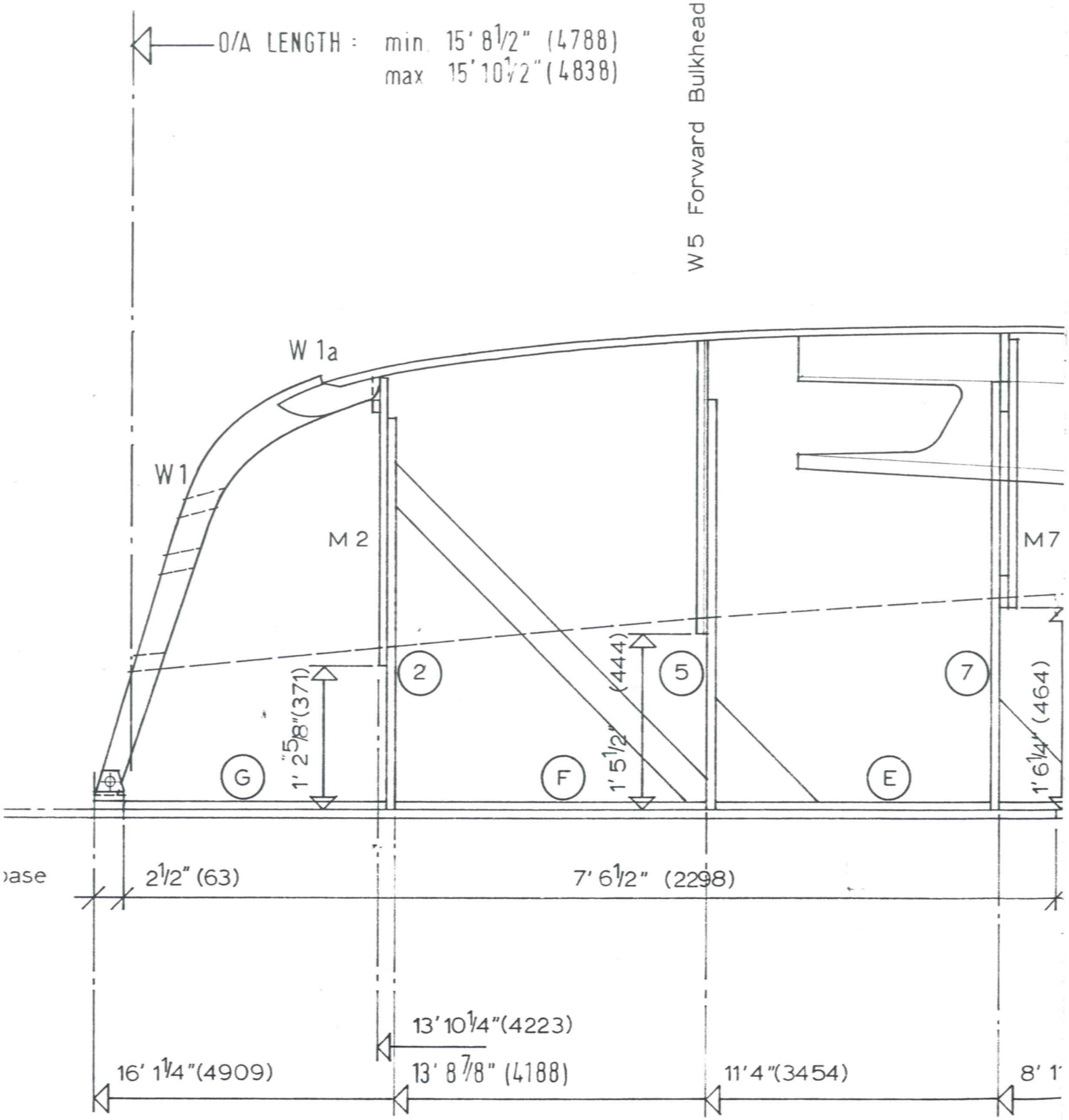
A Note About Dimensions

Recently there has been an almost universal move out of the venerable Imperial (feet/inches) System into the more logical, but perhaps less interesting, Metric System.

The Wayfarer was designed using the Imperial System - 16 feet sounding more meaningful and impressive than 4.8 metres - at a time when the standard plywood sheet size (which had some influence on the size of the boat) was 4' x 8'; not 1225 mm x 2500 mm.

All political and philosophical considerations aside, the newer system is in many ways easier to work with; and the advantages are easy to appreciate, for example, when adding up series of small or complex dimensions which become unwieldy using 64ths, 32nds, and 16ths.

We have therefore adopted the policy for our kit of quoting the original dimensions, exactly as Ian Proctor designed them: 1' 6 1/4", 1' 7 5/8",etc., but in each case follow them with a precise conversion in millimetres: (464, 498, etc.). When specifying more notional dimensions; for screw-spacing, for example, we talk about 4" centres and, not to be pedantic, follow it with a round number of millimetres; (100, rather than 102).


O/A LENGTH : min 15' 8 1/2" (4788)
max 15' 10 1/2" (4838)
W 5 Forward Bulkhead
W 1a
W 1
M 2
M 7
2
5
7
G
F
E
1' 2 5/8" (371)
1' 5 1/2" (444)
1' 6 1/4" (464)
base
2 1/2" (63)
7' 6 1/2" (2298)
13' 10 1/4" (4223)
16' 1 1/4" (4909)
13' 8 7/8" (4188)
11' 4" (3454)
8' 1

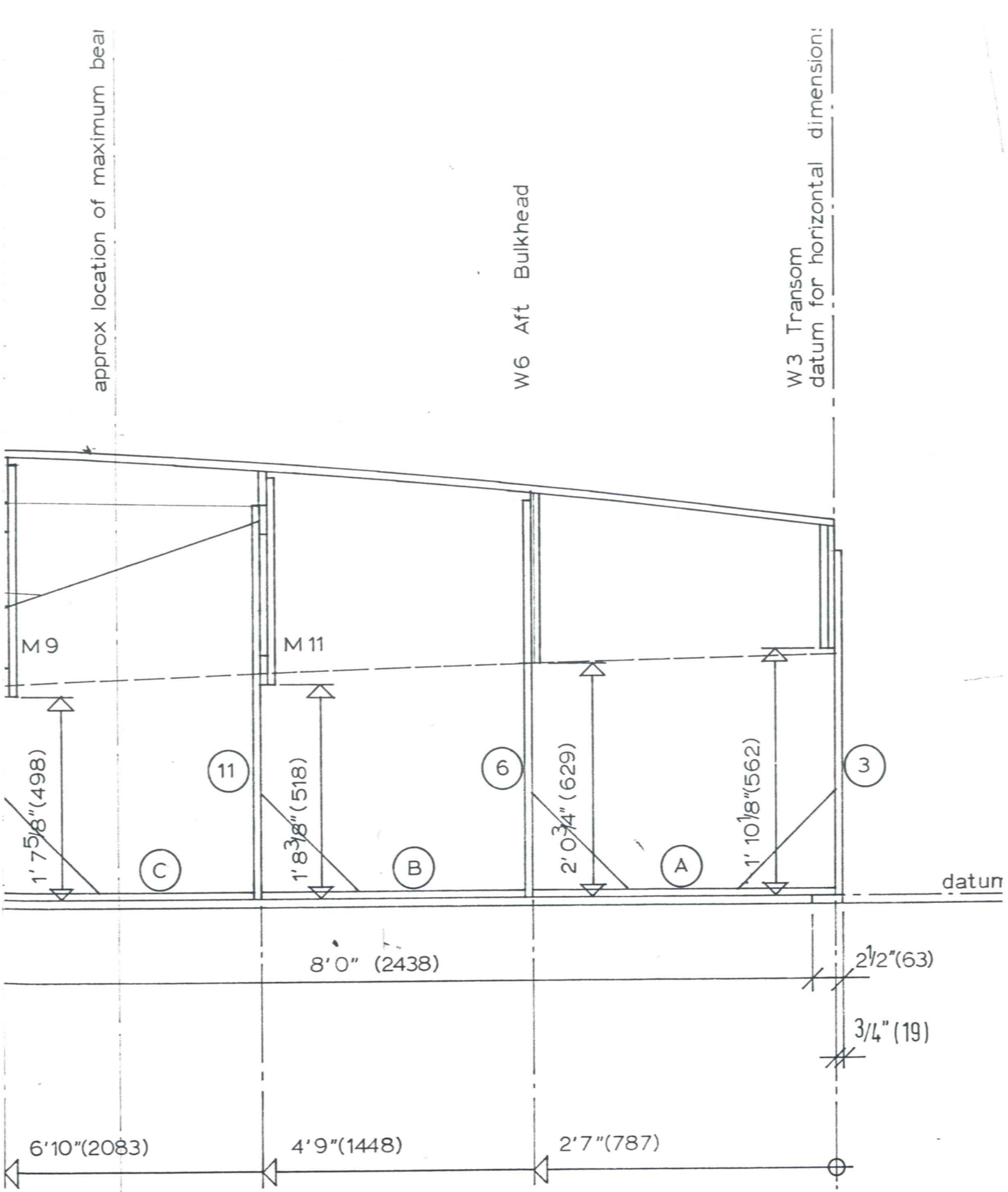
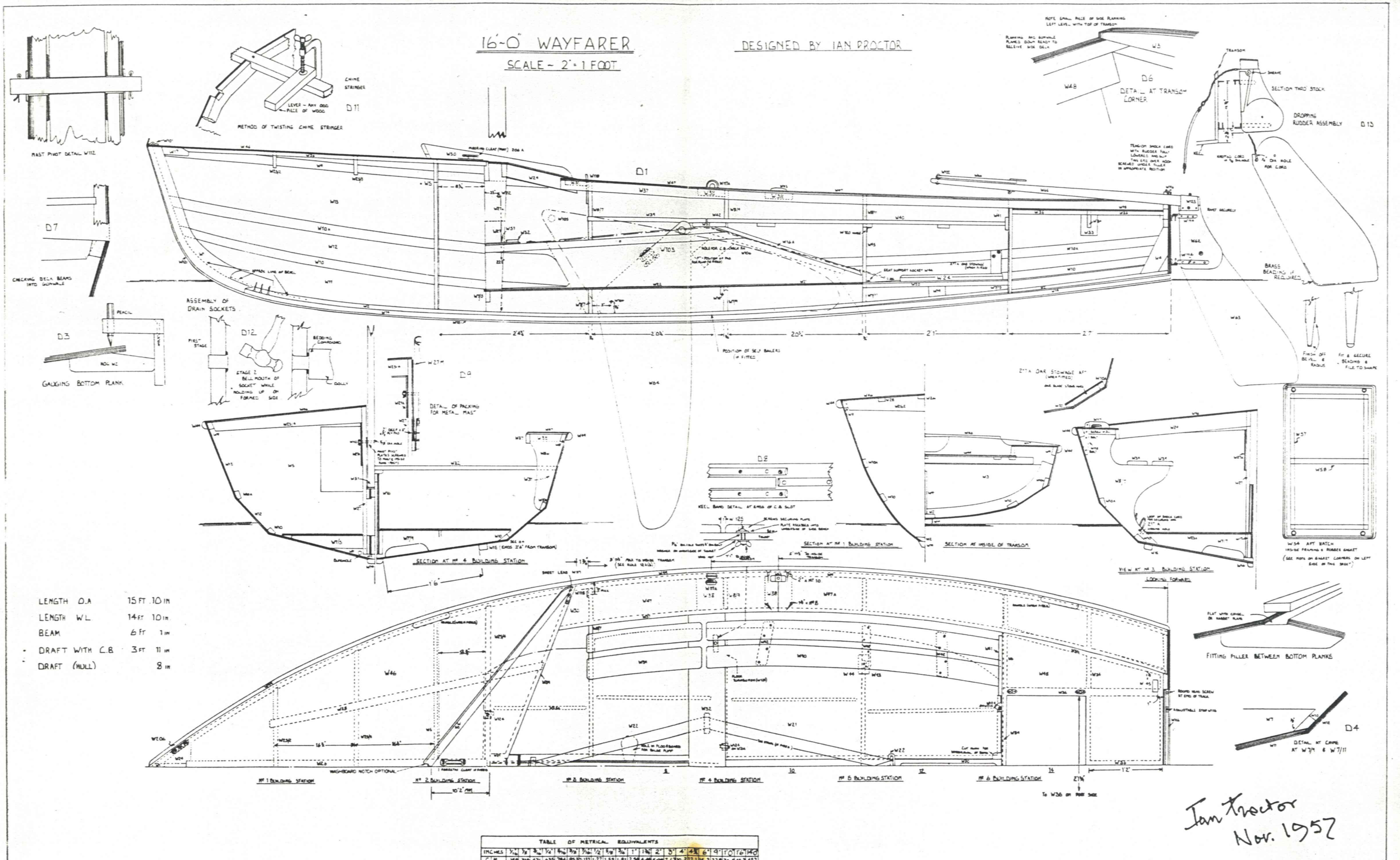


FIG.1 BUILDING JIG KEY DIAGRAM



LENGTH O.A	15 FT 10 IN
LENGTH W.L	14 FT 10 IN
BEAM	6 FT 1 IN
DRAFT WITH C.B	3 FT 11 IN
DRAFT (HULL)	8 IN

TABLE OF METRICAL EQUIVALENTS

INCHES	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1"	1¾	2"	3"	4"	4¾	6"	9"	1'0"	1'6"	14'0"
C/M.	·159	·318	·476	·635	·794	·953	1·111	1·27	1·59	1·91	2·54	4·44	5·08	7·62	10·2	12·1	15·2	22·9	30·5	45·7	427

Ian Proctor
Nov. 1957

A.W. FYFE

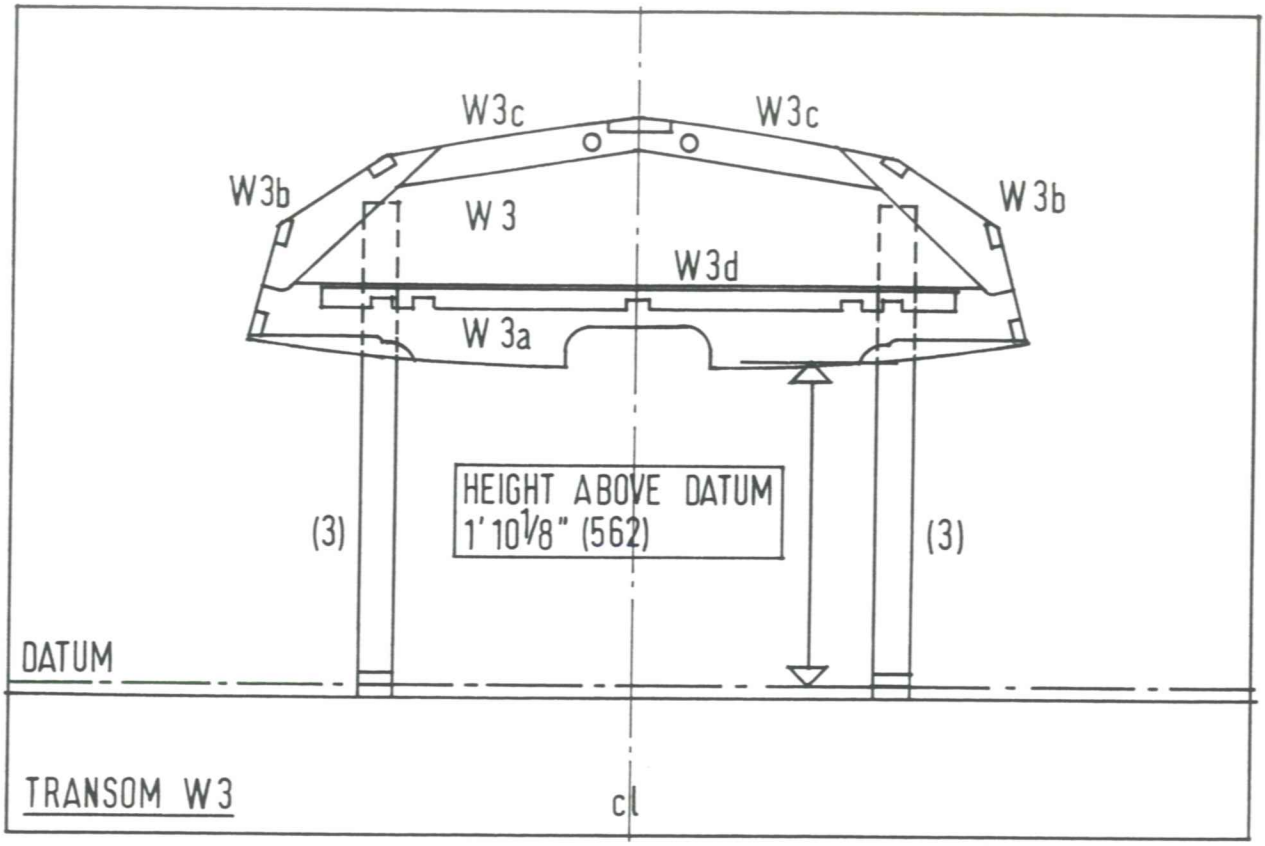

W3c
W3c
W3b
W3b
W 3
W3d
W 3a
HEIGHT ABOVE DATUM
1' 10 1/8" (562)
(3)
(3)
DATUM
TRANSOM W3
cl

Fig. 2

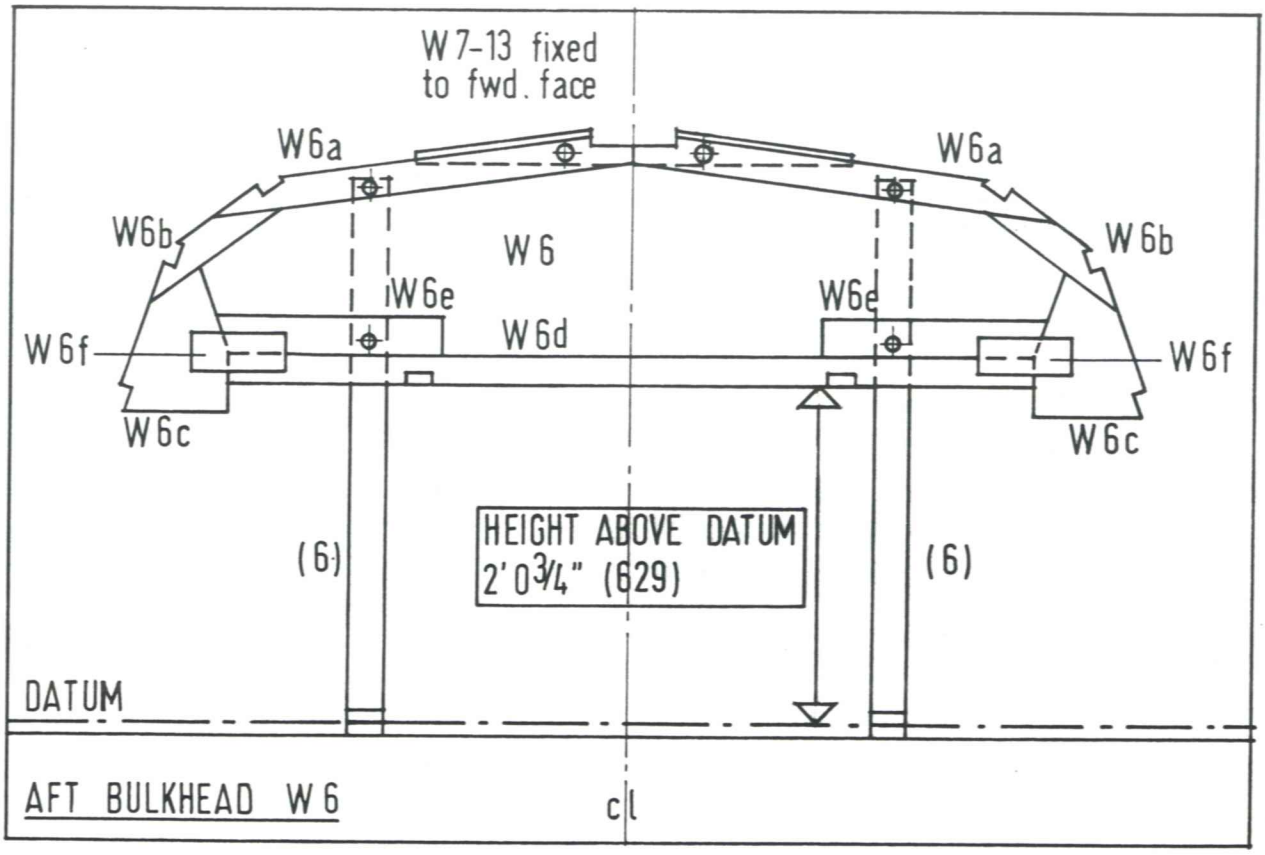

W7-13 fixed
to fwd. face
W6a
W6a
W6b
W6b
W 6
W6e
W6e
W6f
W6d
W6f
W6c
W6c
HEIGHT ABOVE DATUM
2' 0 3/4" (629)
(6)
(6)
DATUM
AFT BULKHEAD W 6
cl

Fig. 3

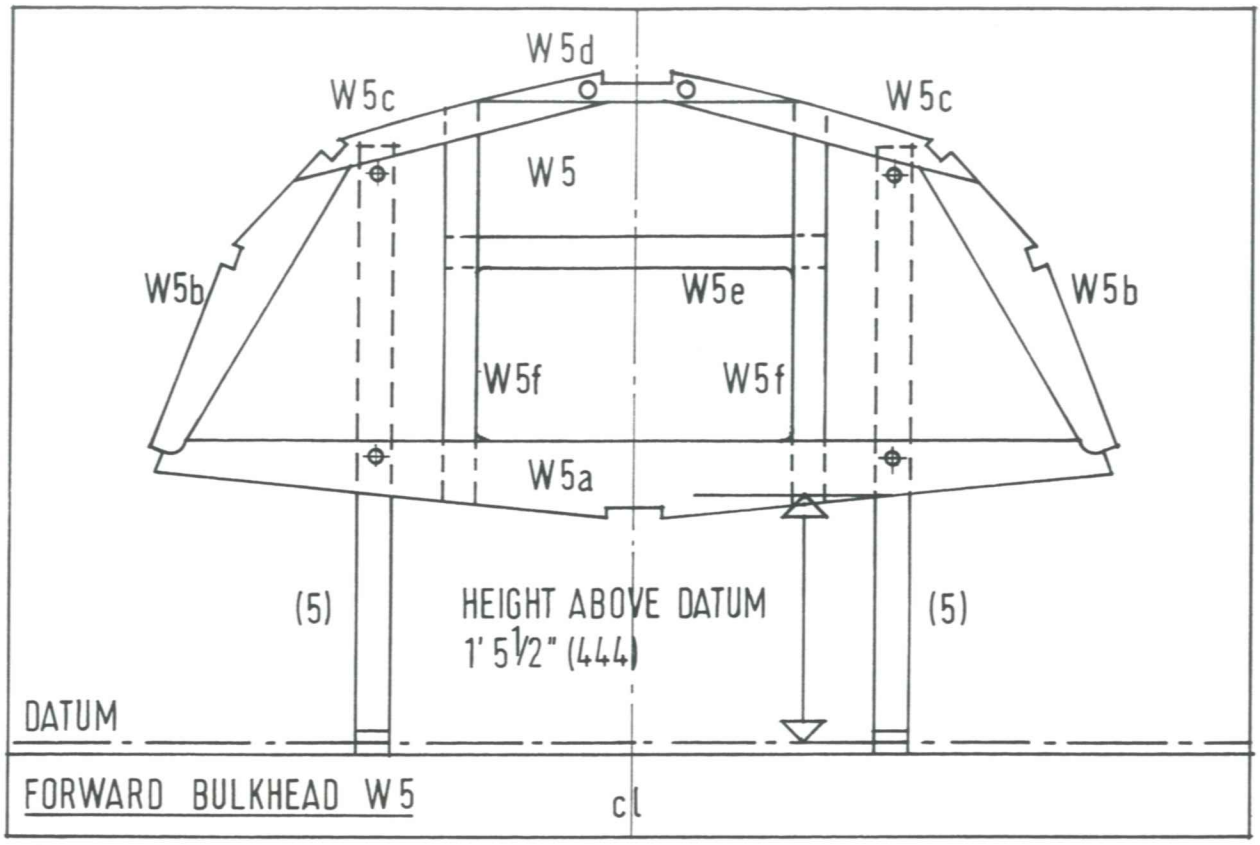

W5d
W5c
W5c
W5
W5b
W5b
W5e
W5f
W5f
W5a
(5)
HEIGHT ABOVE DATUM
1' 5½" (444)
(5)
DATUM
FORWARD BULKHEAD W5
cl

Fig. 4

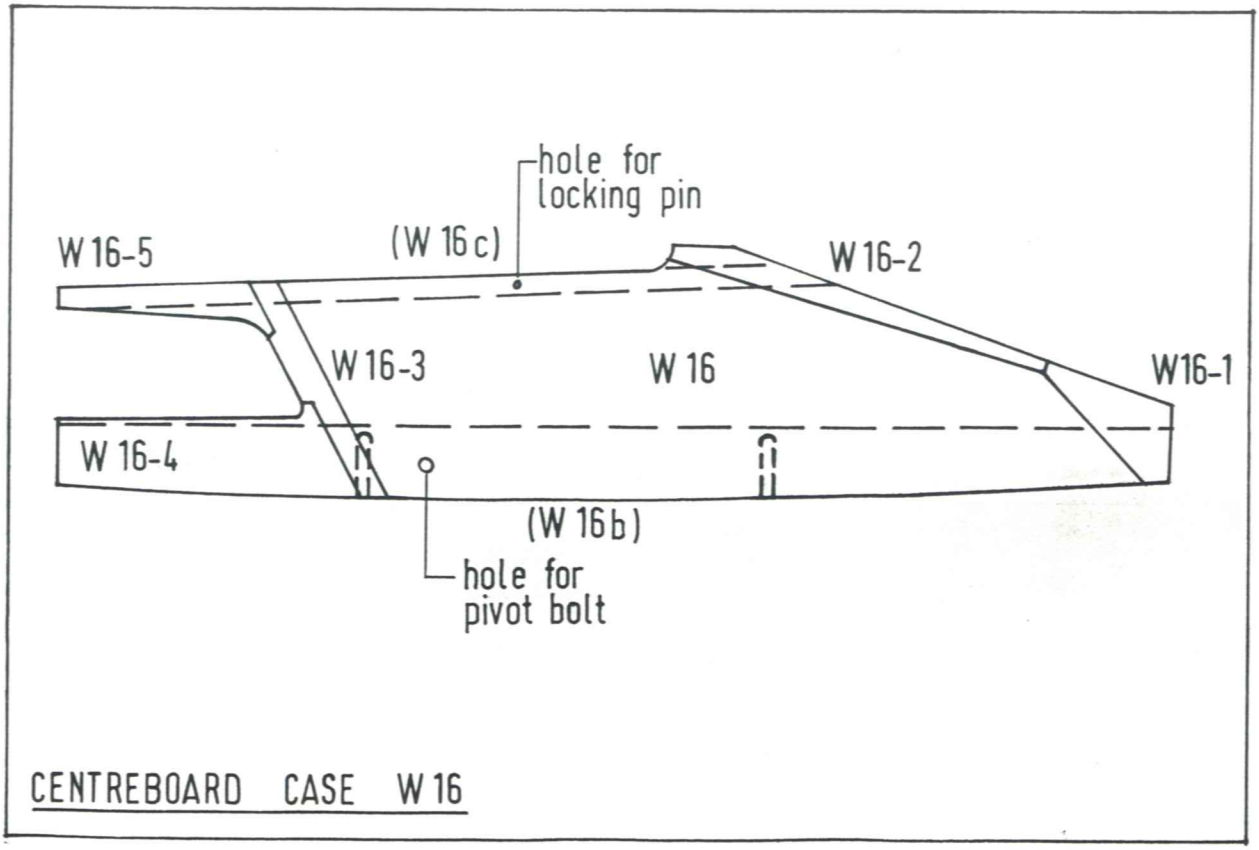

hole for
locking pin
W16-5
(W16c)
W16-2
W16-3
W16
W16-1
W16-4
(W16b)
hole for
pivot bolt
CENTREBOARD CASE W16

Fig. 5

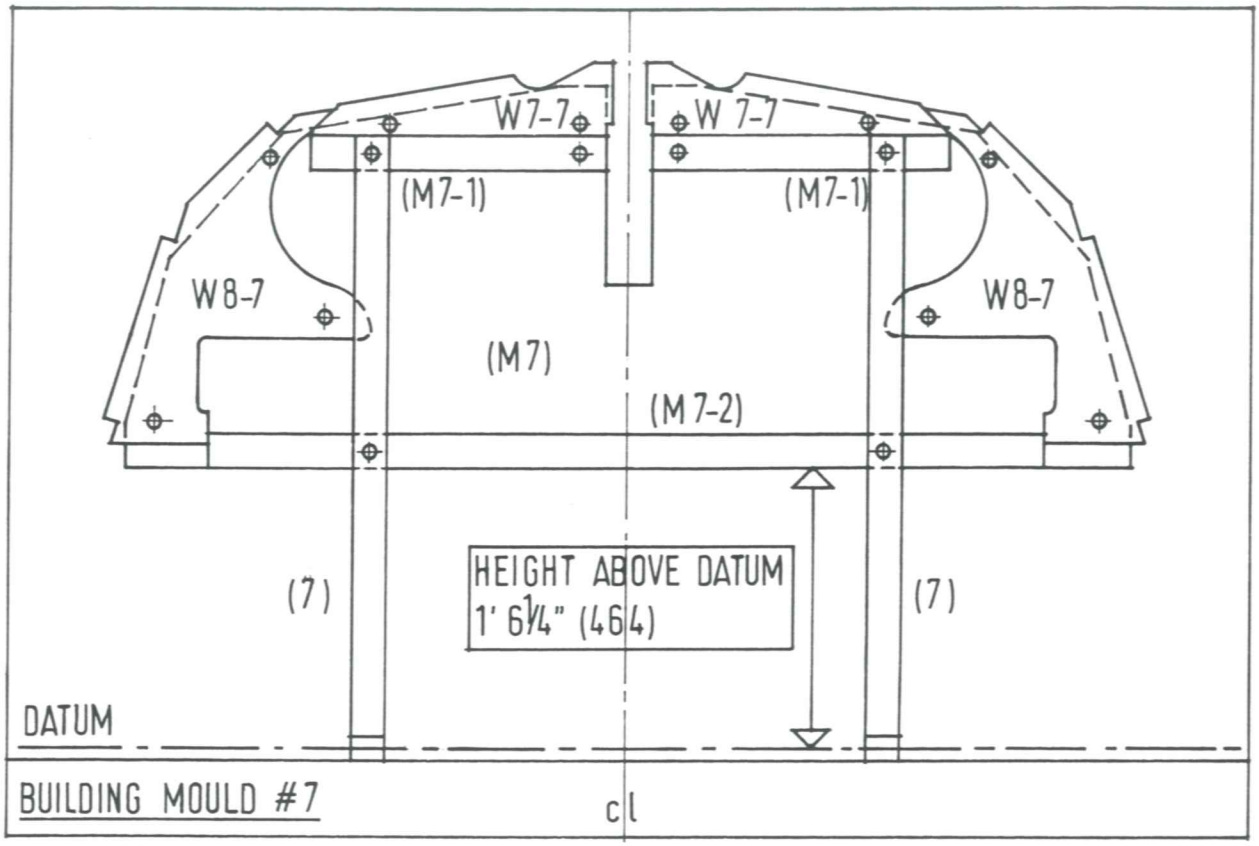

W7-7
W 7-7
(M7-1)
(M7-1)
W8-7
W8-7
(M7)
(M7-2)
HEIGHT ABOVE DATUM
1' 6¼" (464)
(7)
(7)
DATUM
BUILDING MOULD #7
cl

Fig. 6

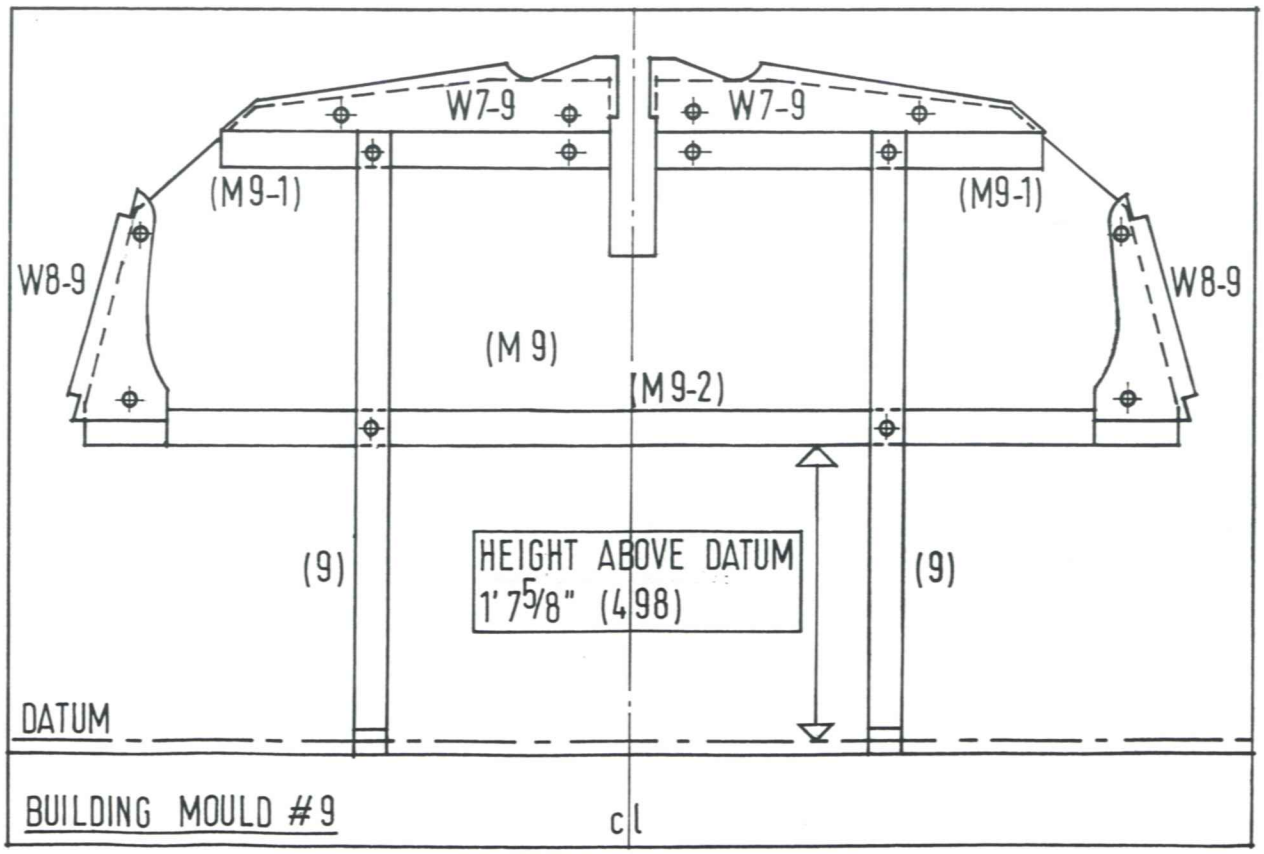

W7-9
W7-9
(M9-1)
(M9-1)
W8-9
W8-9
(M9)
(M9-2)
HEIGHT ABOVE DATUM
1' 7⅝" (498)
(9)
(9)
DATUM
BUILDING MOULD #9
cl

Fig. 7

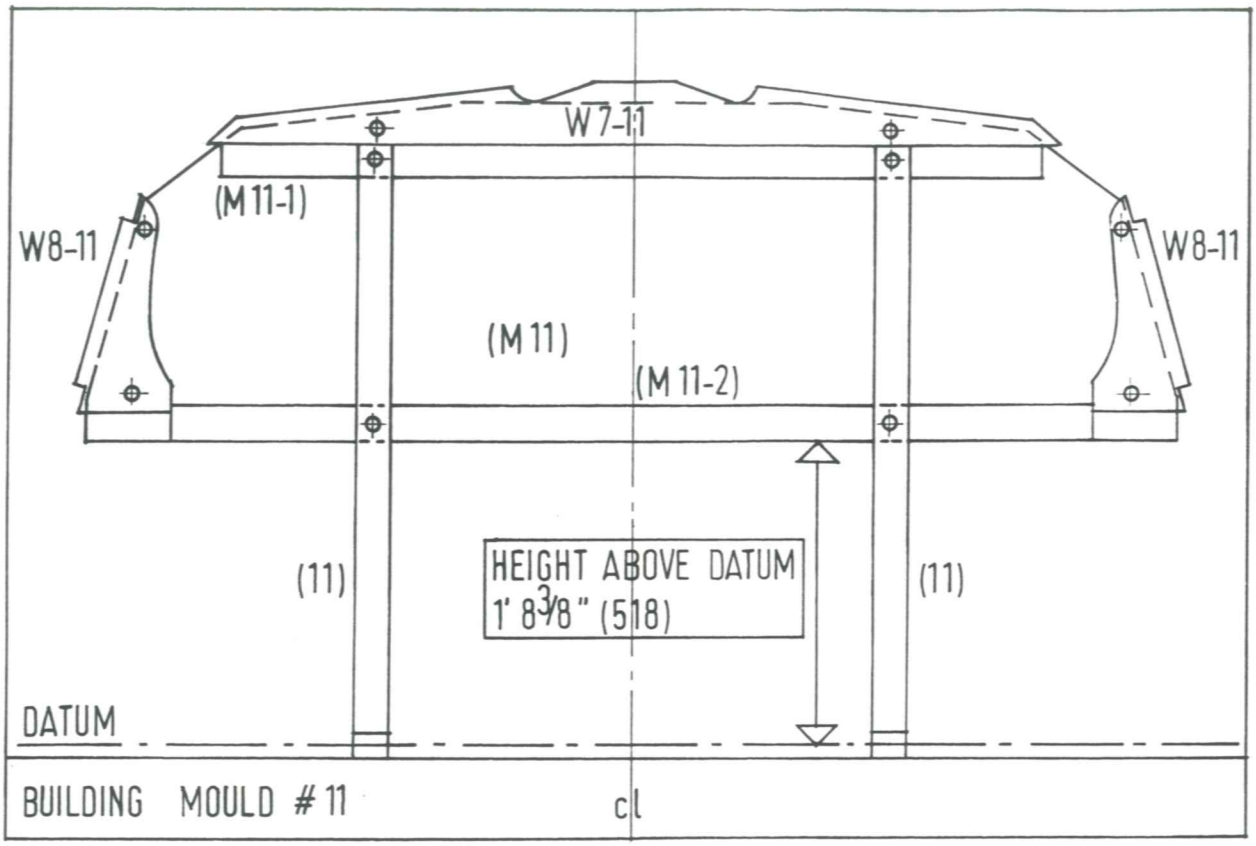


Fig. 8

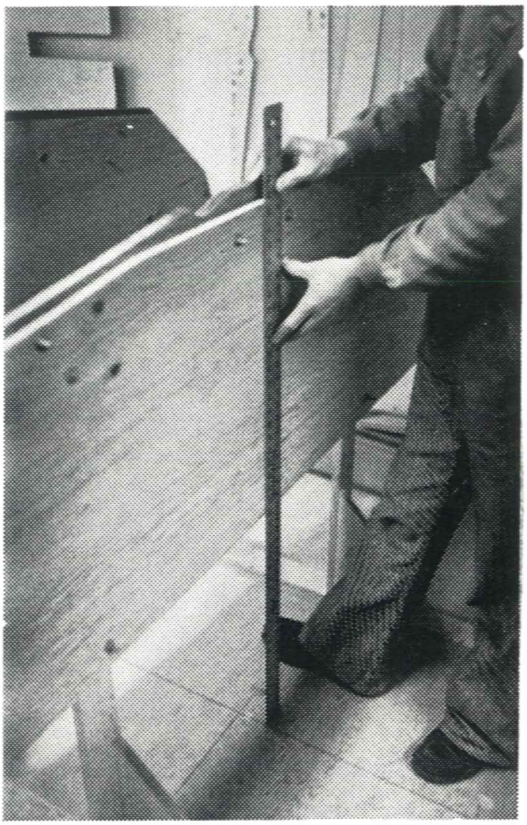
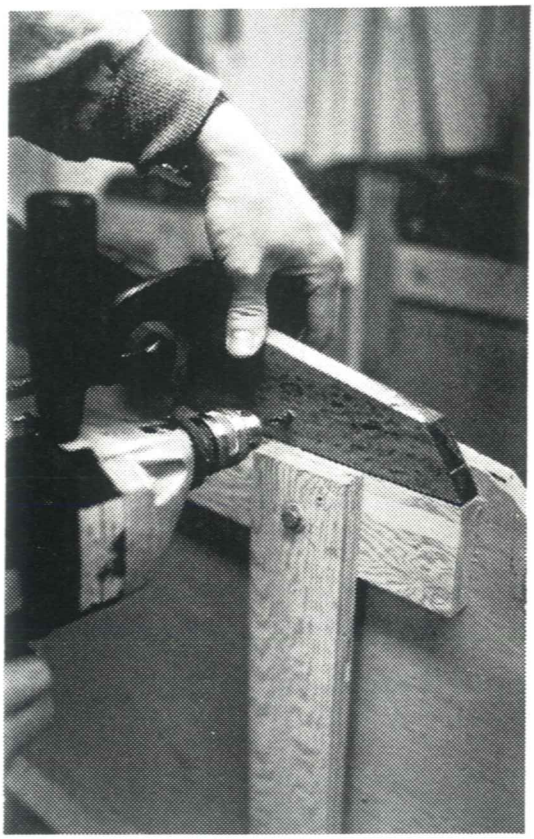


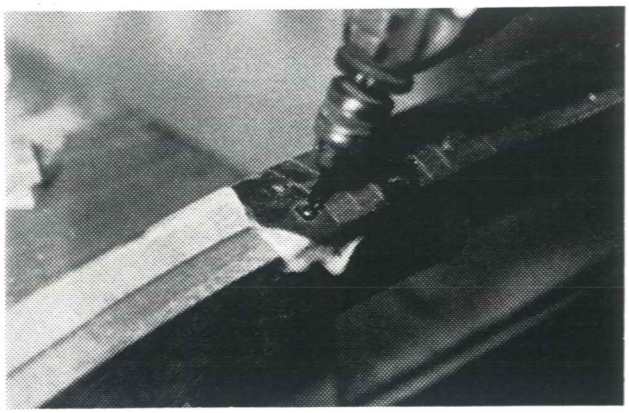
Fig. 9

Checking accuracy of alignment between centre-line on Building Mould and centre-line on floor.

Fig. 10

Floors and Knees are located on the Building Moulds by bolts. As a double check, saw-cerfs have been cut where the profiles of the components intersect with the edges of the Mould. Where bolt-holes do not align perfectly; the component is clamped in position, and the hole drilled out so that the hole in the component is not enlarged.





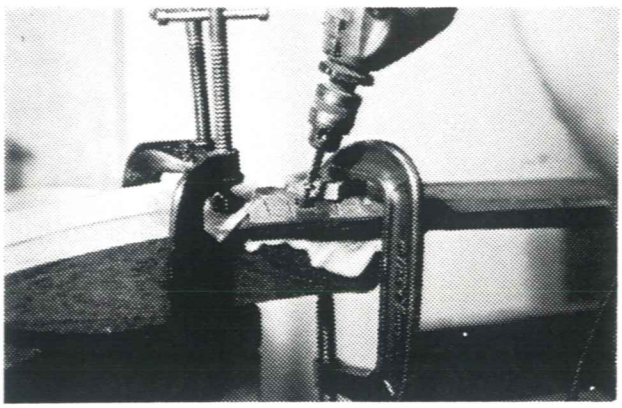


Fig. 11

Fig. 12

Fastening the Hog to the Forefoot. In Fig. 11, the first pair of screws are driven in to draw the bevelled forward end of the Hog tight against the Forefoot, while the aft end of the Hog is propped. In Fig. 12, the forward end of the Hog is secured by clamps, which will remain in place until the glue has cured, while the second pair of screws is driven in. Note that the Hog has been clamped aft of the screws while the aft end has been lowered. When the second pair of screws have been tightened, the clamp is shifted to the extreme aft end of the Forefoot, and a third pair of screws driven in. Note tapered bevel to underside of Hog; saw-cerfs, and glue consistency.

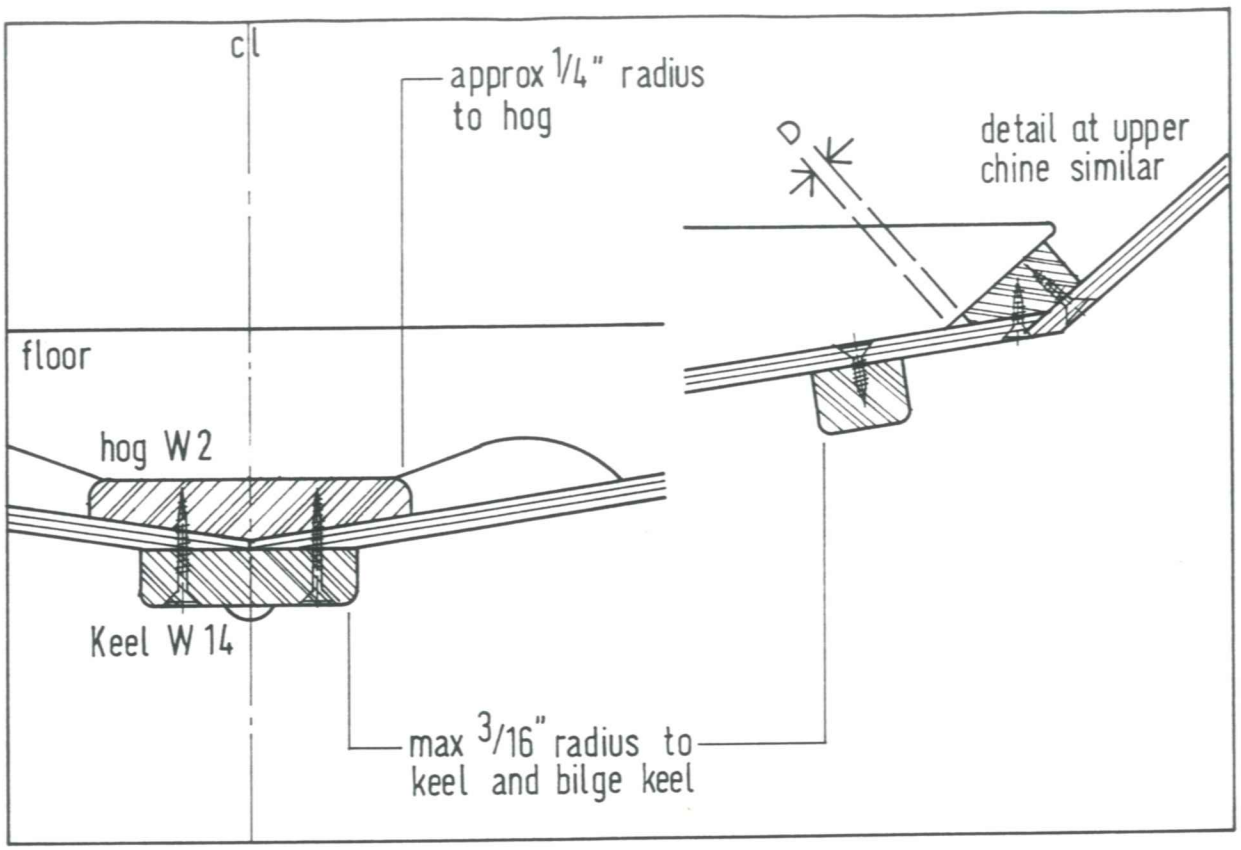


Fig. 13 TYPICAL SECTION THROUGH HOG, KEEL AND LOWER CHINE.

The bottom planks are fastened to the Hog and Lower Chine with glue and temporary screws, which are removed prior to planing the bevels to which the Keel and Bilge Planks are fastened. Note screw locations and angle at Chine. Distance 'D' at lower face of Chine from bottom face of Floor is approximately 1/8" (3) at Floor# 9, and 1/4" (6) at Floor# 11. Adjust to achieve fair curve to Chine.

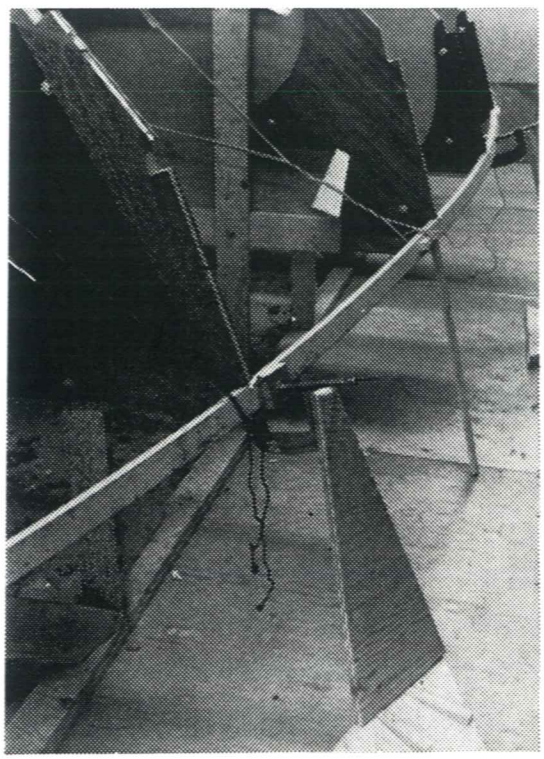


Fig. 14

To achieve fair curves; the Chines and Gunwhales are fastened without screws to notches pre-cut in the Bulkheads and Knees. Here the Gunwhale is propped and lashed in position while the glue cures. This technique allows minor adjustments to be made at each station until a satisfactory fair curve is achieved.

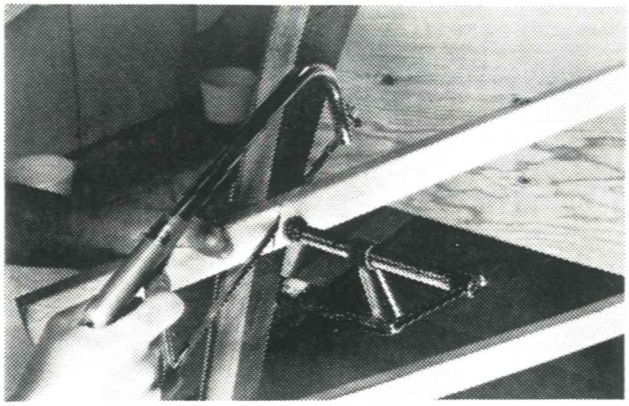


Fig. 15

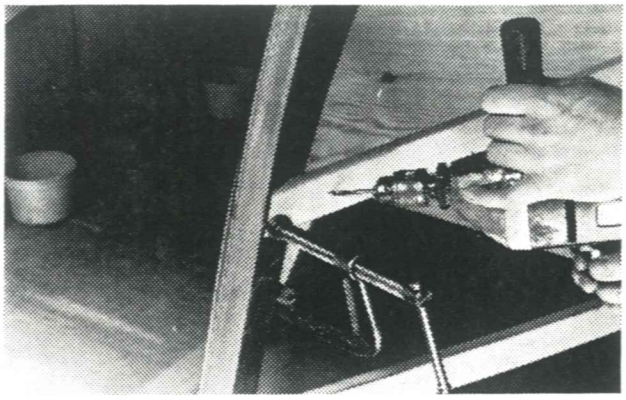


Fig. 16

Cutting the forward end of a Chine to the correct length and angle. A pencil-line has been drawn at a right-angle across the Chine projected out from a point approximately 1/8" (3) aft of the bevel on the Stem. A second line is drawn on the outer face of the Chine parallel to the rake of the Stem; and a third line on the top face converging slightly with the face of the Stem.

When the end has been correctly cut; it is clamped to the Stem, and a screw-hole drilled at a converging angle (2" screw). The screw head must be countersunk well below the face of the Chine.

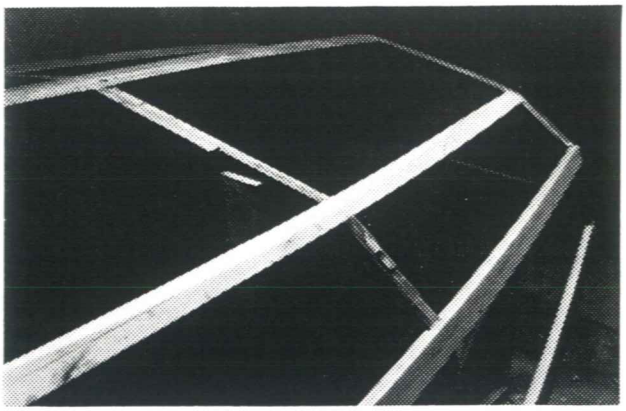


Fig. 17

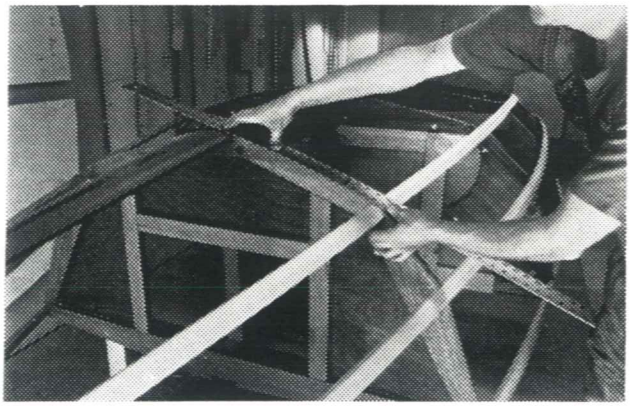


Fig. 18

The fairing-in process commenced at a typical frame/chine intersection. Flat bevels are planed on the Chines at each station until they are flush with the frame members. The frame members must also be bevelled. Finally, all the flat areas are joined to form a fair continuous area of contact for the planking.

Forward of the Forward Bulkhead, and aft of the Aft Bulkhead, the bottom planks are curved; so the bevels must be checked with a flexible rule or scrap of hardboard.

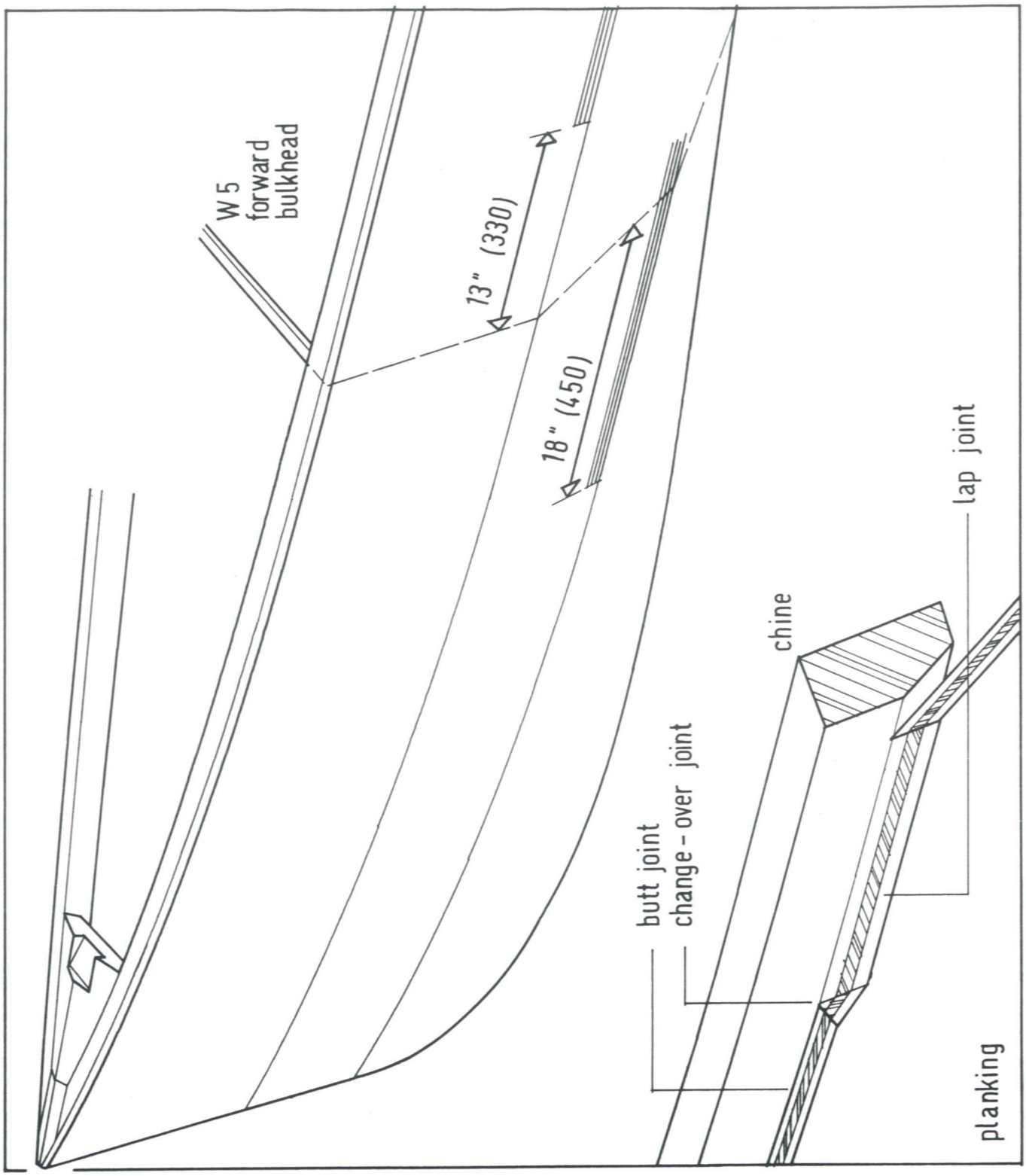


Fig. 19

Change-over joints occur at points 13" (330) aft of the Forward Bulkhead on the Upper Chine, and 18" (450) forward of the Forward Bulkhead on the Lower Chine. Sketch also shows the tapering socket cut in the Bow Chock W 17 for the end of the Kingplank.

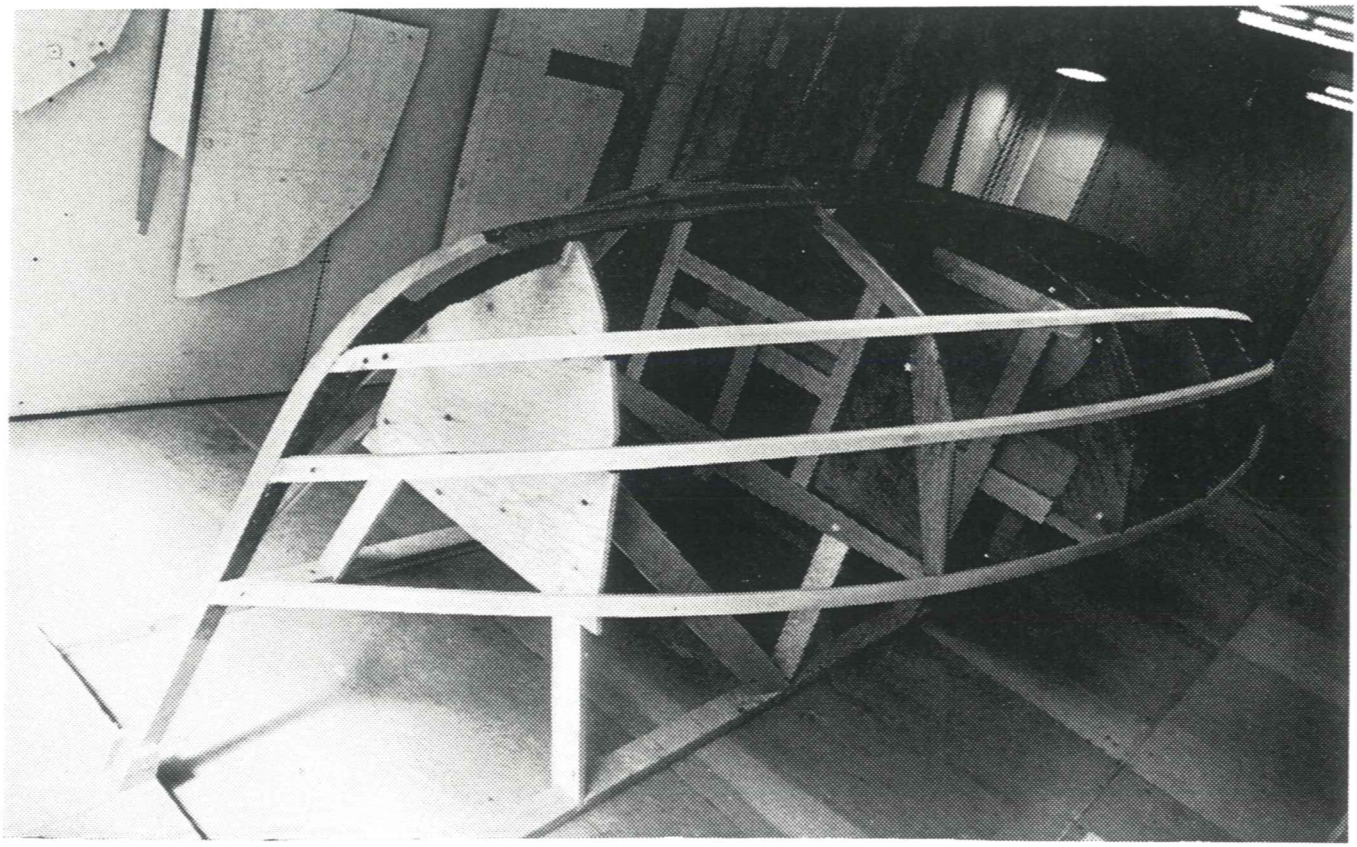


Fig. 20

Overall view of the frame complete and faired ready for planking. Note that the Stem bevels have been planed flush with the Gunwhales and Chines without touching the 1/8" (3) wide flat forward face of the Stem. Note also how the frame has been faired at the Forefoot area.

Fig. 21

View from aft of the frame complete and faired. Curvature of the bottom edge of the Transom must be maintained when planing bevels.

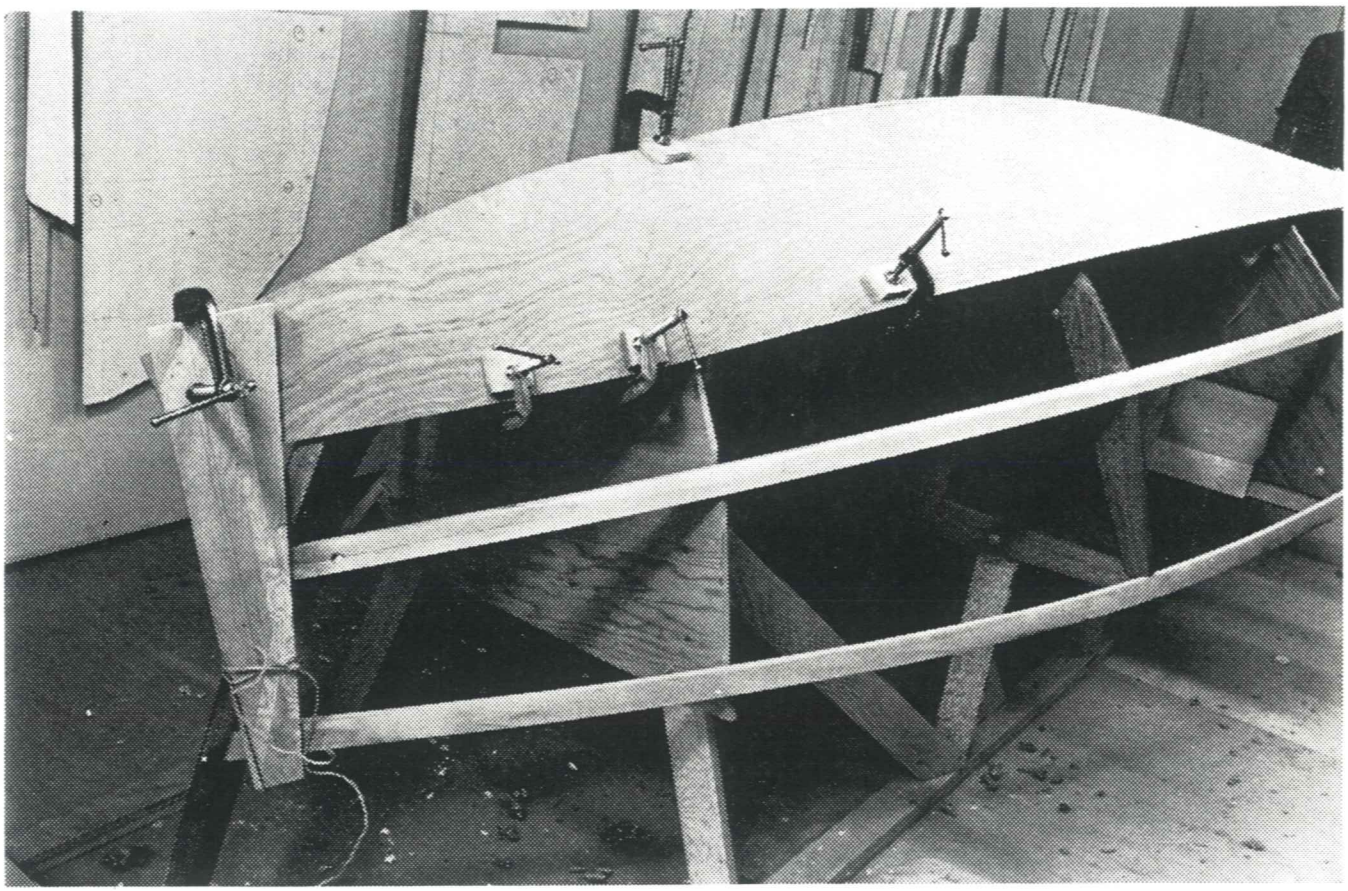


Fig. 22

The Bottom Plank has been scarfed-up; cut over-size, and is clamped to the frame for marking-out. To induce the necessary twist in the plank at the Forefoot, it is kept damp overnight and pulled into place using a clamped-on ply lever.

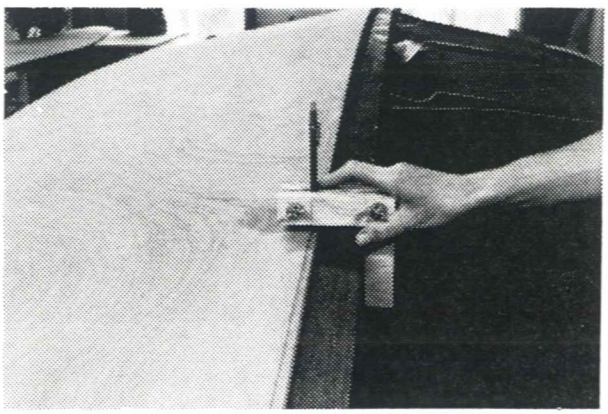


Fig. 23

A simple gadget, made from scrap plywood, used to accurately gauge the centre-line onto the Bottom Plank.

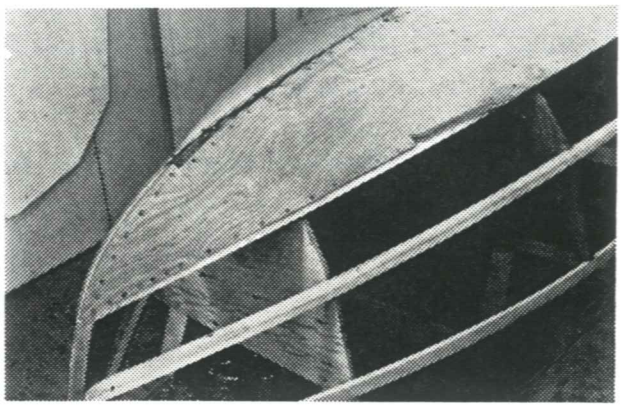


Fig. 24

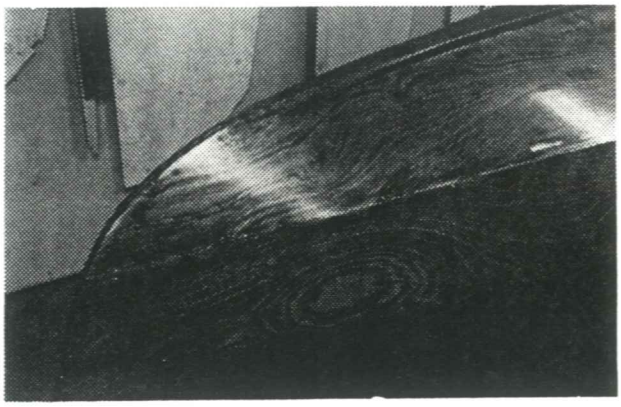


Fig. 25

The Bottom Plank at the Forefoot showing the 'step' cut out to accommodate the end of the Keel. The outline of the Keel is marked on the planks, and a flat landing planed. The panel edge forward of the change-over joint is planed using a rebate plane. Aft of the change-over joint, the bevel for the lap joint is commenced by pairing with a flat chisel.

Fig. 25 illustrates the same area after fairing and filling. Note how the end of the Keel is faired into the planking; also that the 1/8" (3) wide flat on the face of the Stem remains intact. Together with the edges of the planking, this forms a 3/4" (19) wide flat face which will later be protected by the brass keelband.

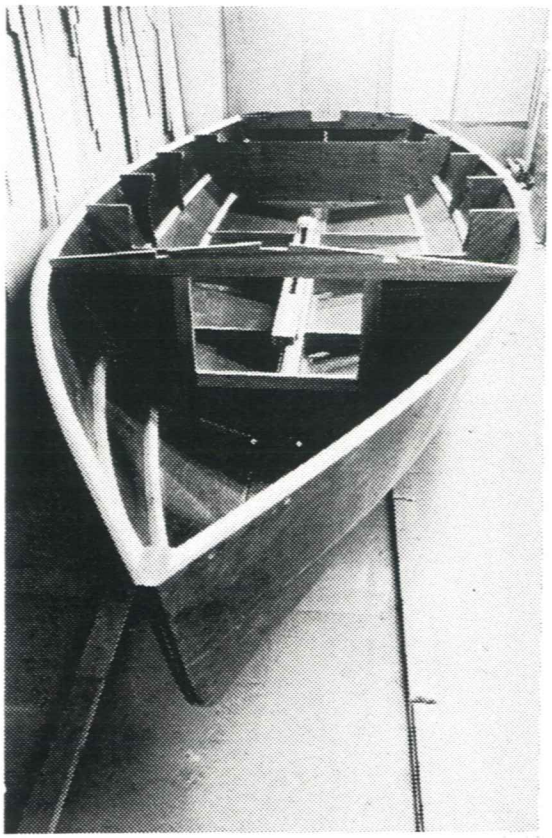
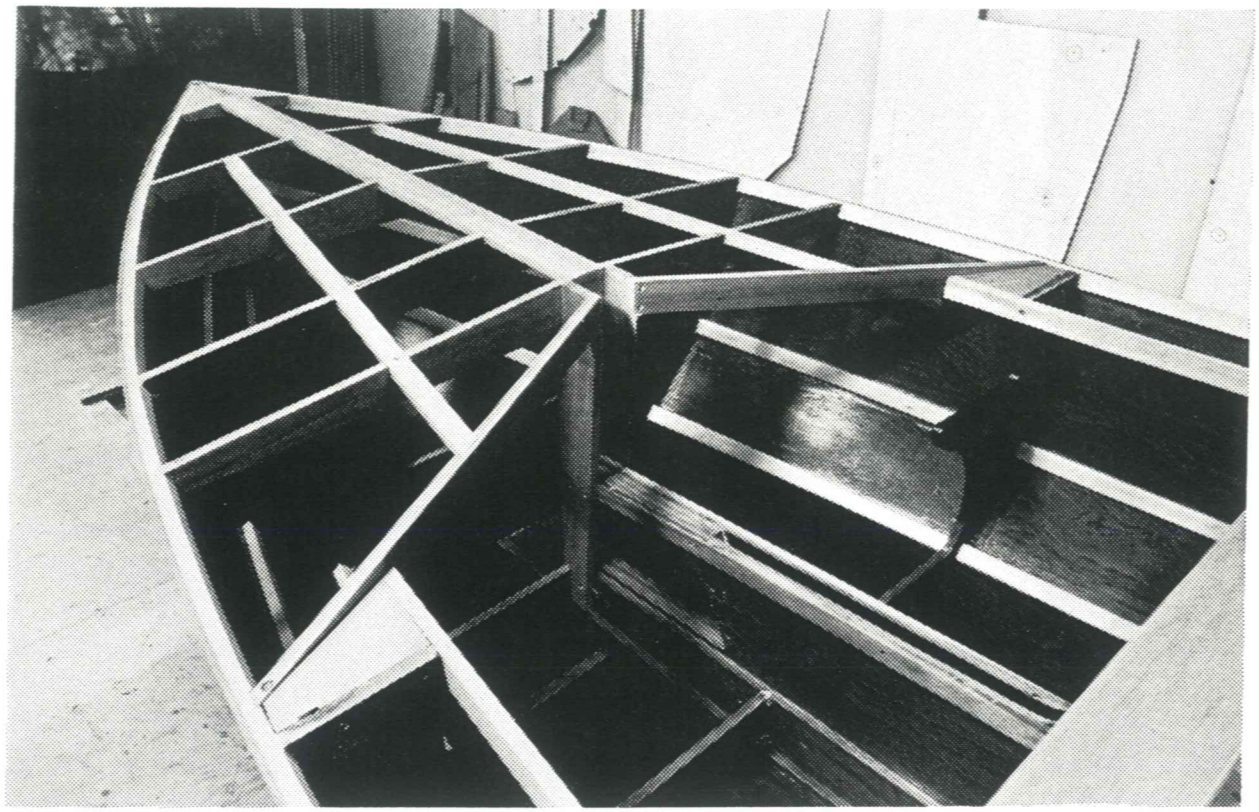


Fig. 26

With the planking complete and faired, the hull is turned right-side up and the jig dismantled. The Stem extension is sawn off, and excess planking planed flush with the Gunwhales.



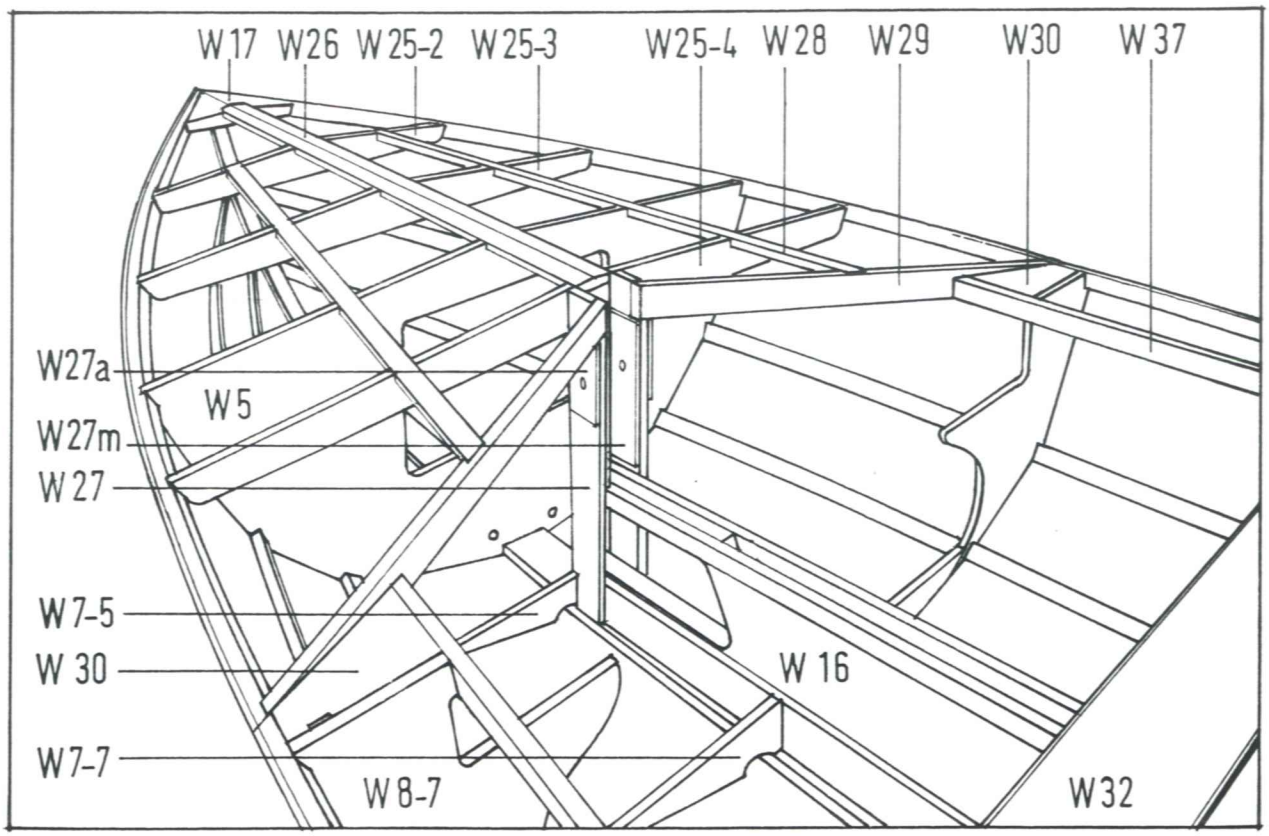


Fig. 27

Photograph and key sketch of Foredeck structure.

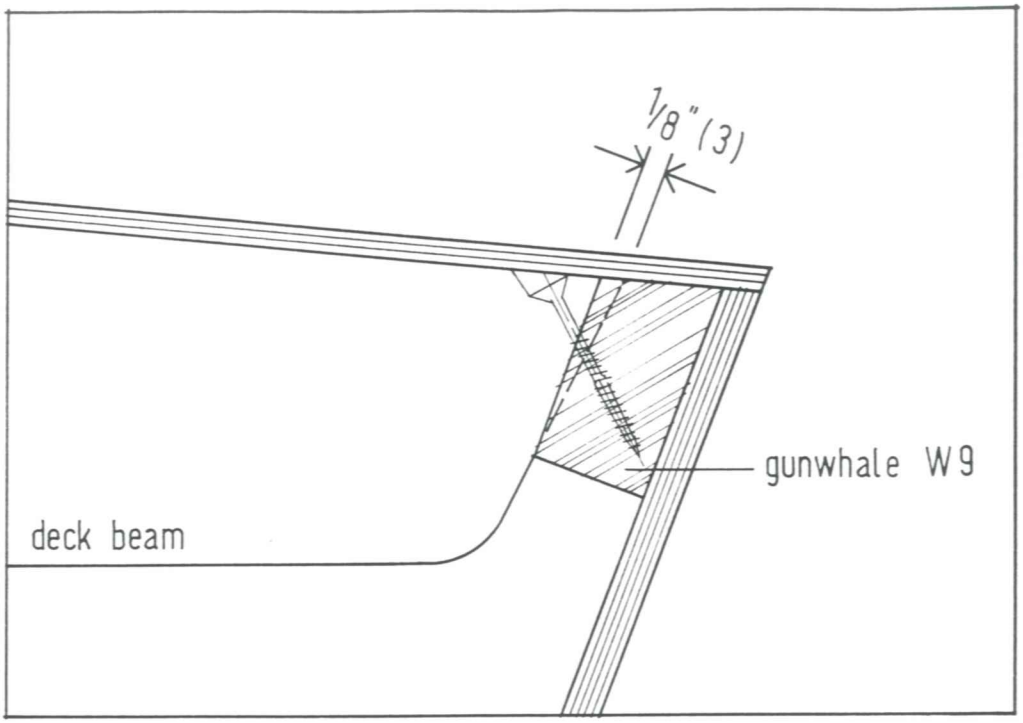


Fig. 28

Section of typical Foredeck Beam housing at Gunwhale. A shallow tapering socket is cut in the Gunwhale to give fore and aft location to the Deck Beam; which is glued and fastened with screws set at an angle.

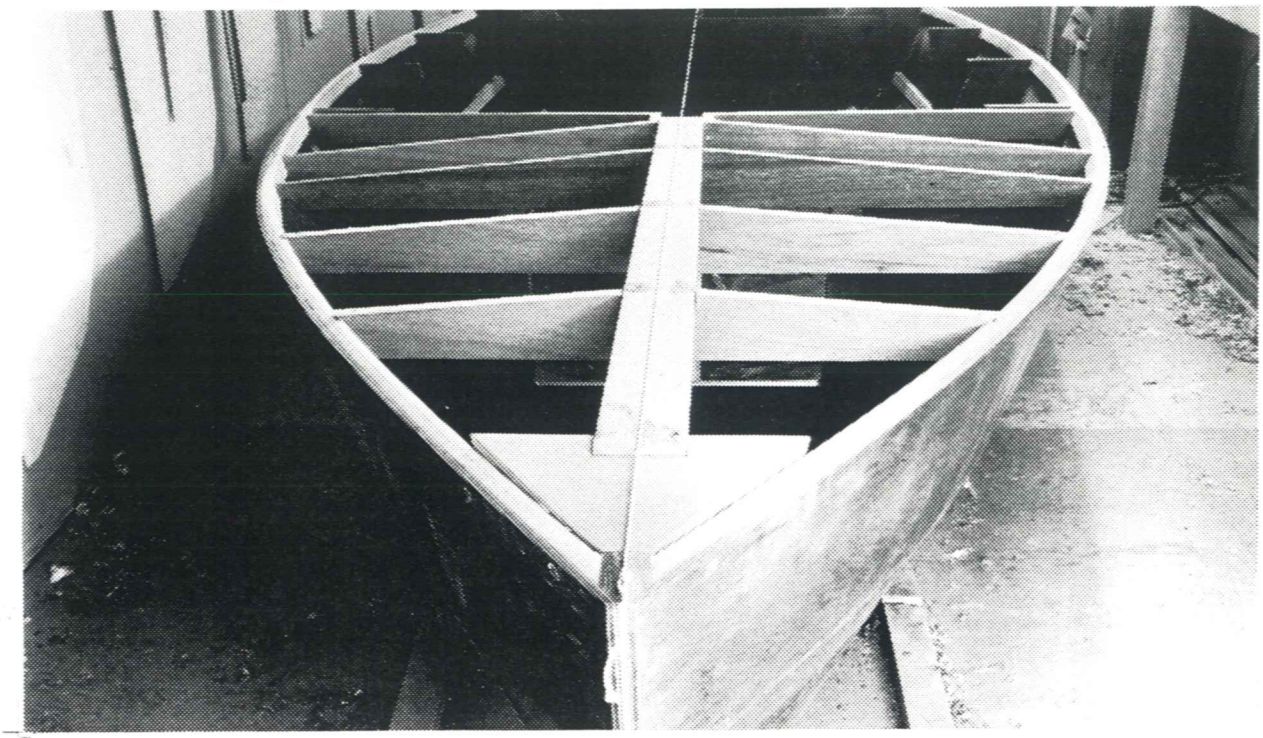


Fig. 29

The Foredeck structure prior to fairing. The 1½" (38) thick Bow Chock W 17 reinforces the bow, supports the Kingplank and absorbs stresses exerted by the Forestay. Note centre-line; location of Bow Chock and Deck Beams above Gunwhales, and Kingplank set above Bow Chock to allow for fairing.

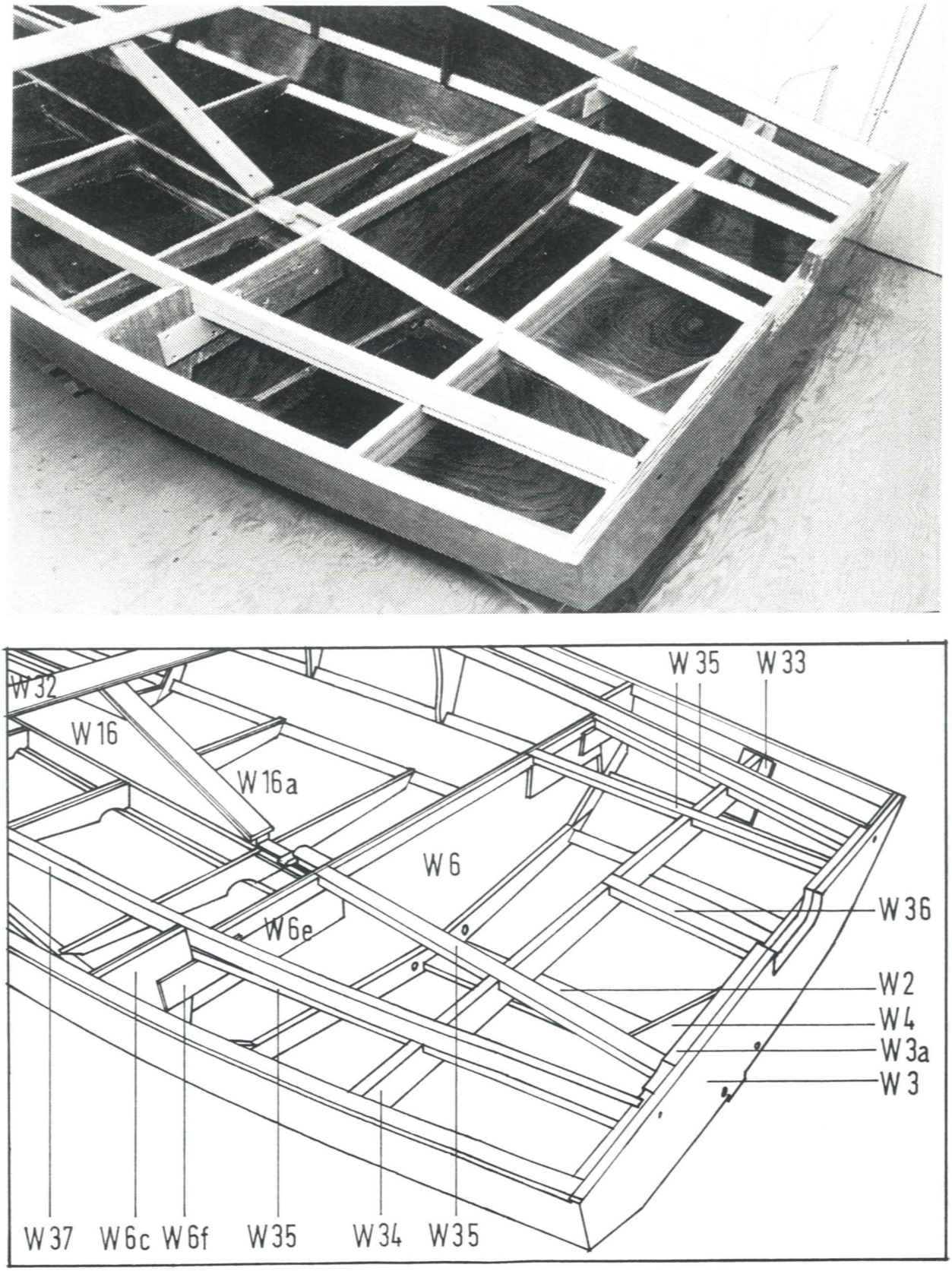


Fig. 31

Photograph and key sketch of the Stern Deck structure.

Fig. 30
The Foredeck structure complete, faired and ready for decking.

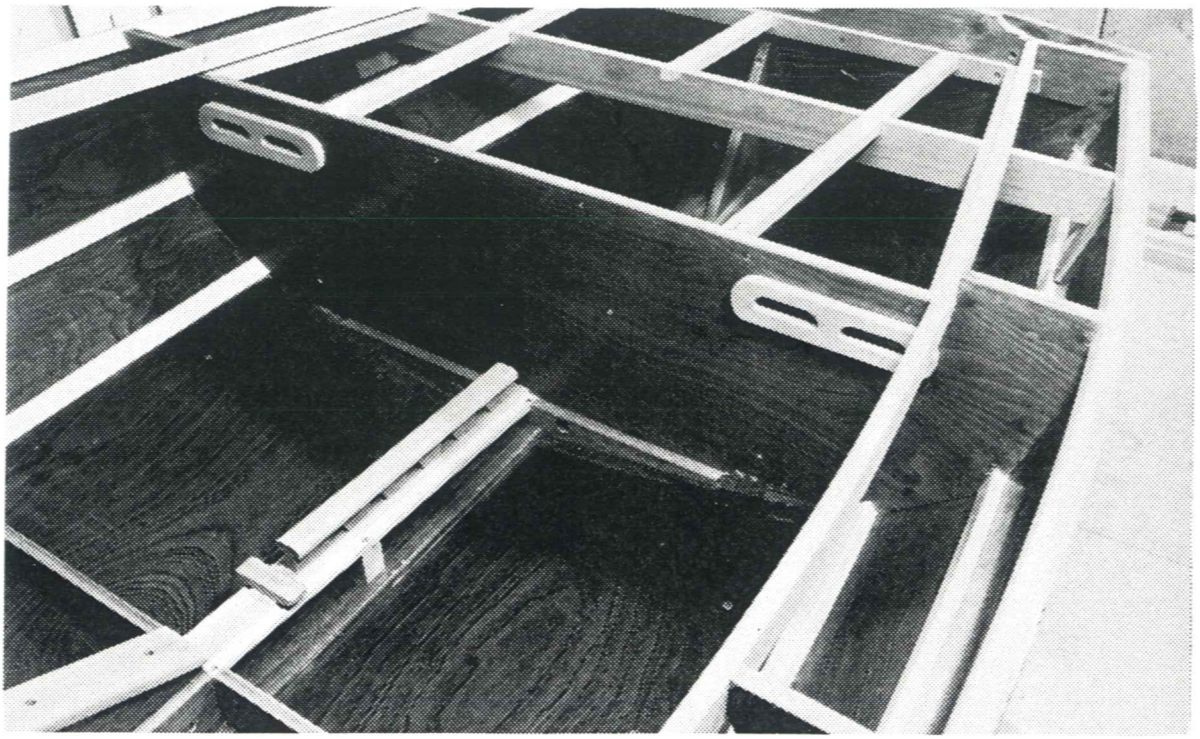


Fig. 32
View of Stern Deck structure from forward. Note Floor Kingplank/ Toerail assembly and Side Bench Sockets W 41.

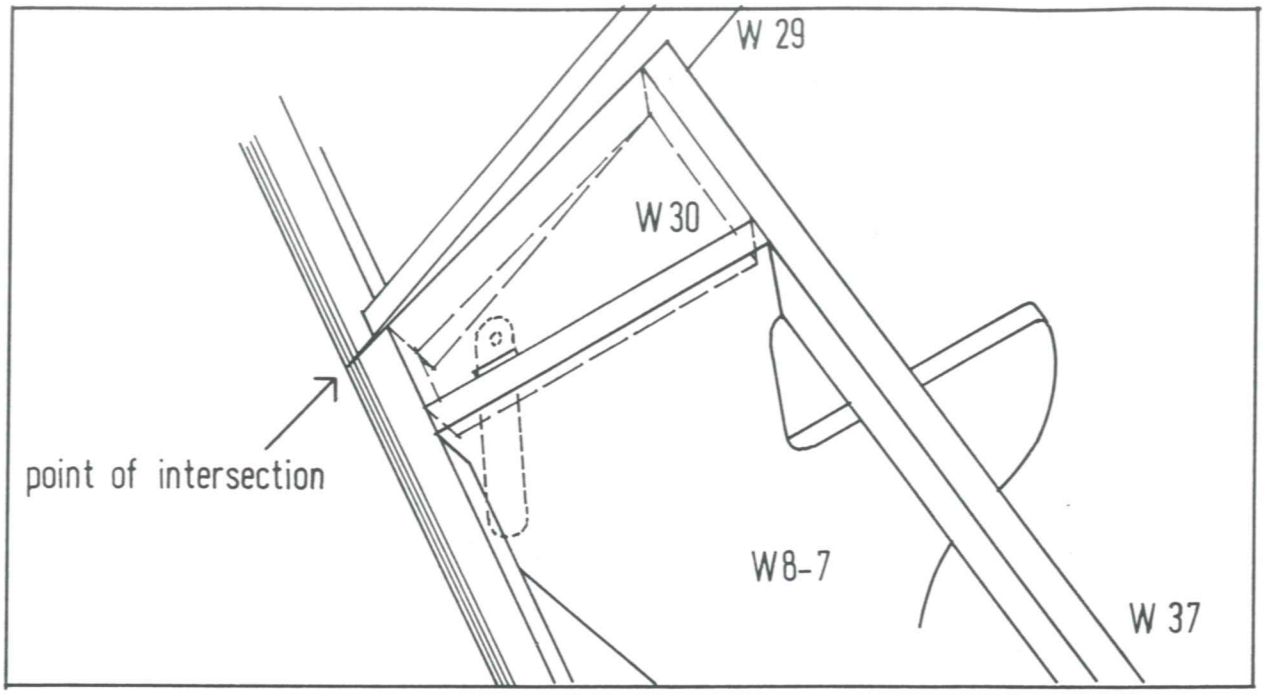


Fig. 33

Sketch of the Side Deck framing at the point of intersection, where the sloping Foredeck meets the horizontal Side Decks. The Shroud Plates are bolted to the forward face of the Deck and Seat Knees W 8-7 so that the top hole projects the minimum distance through the deck for the Shroud Adjuster to be fitted.

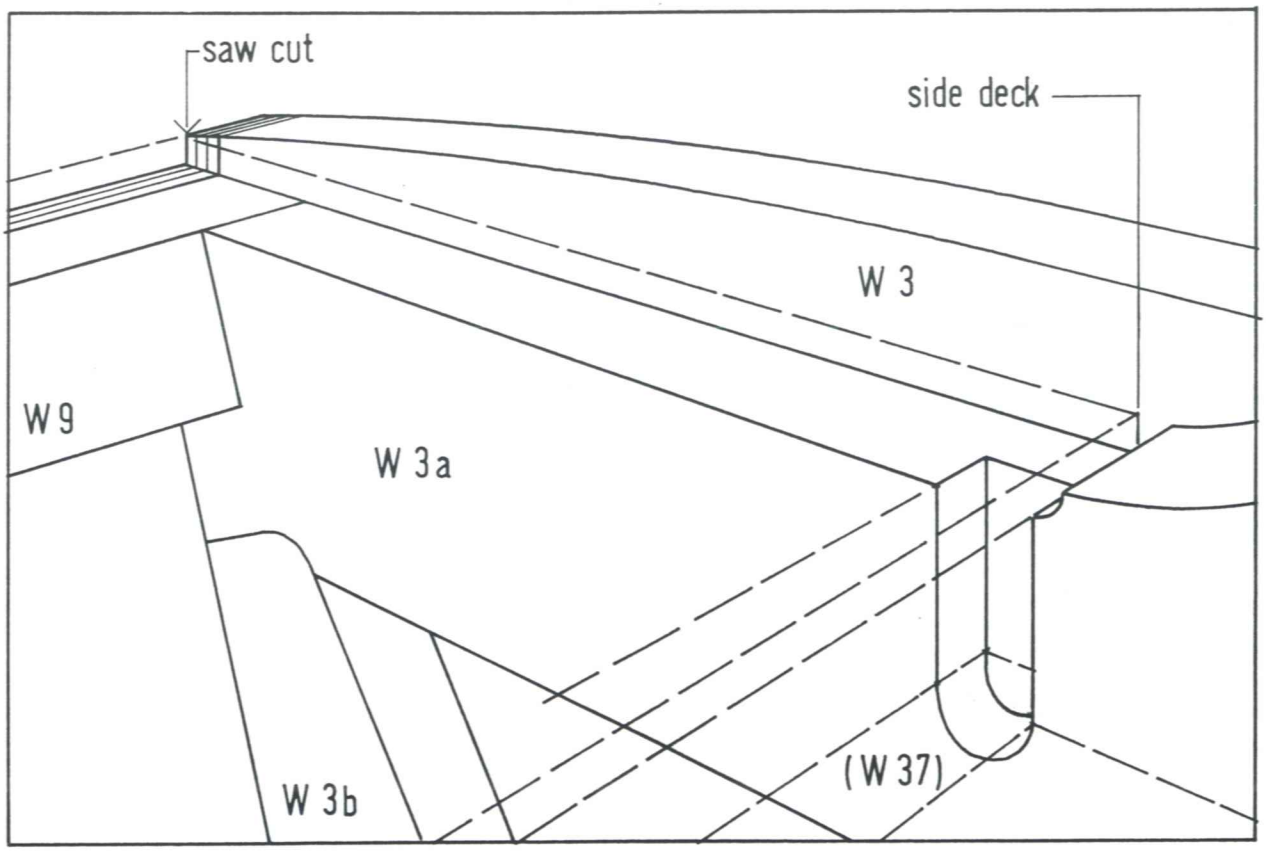


Fig. 34

Sketch of Side Deck framing at the Transom. Before planing the Gunwhale and planking to form a landing for the decks, a saw-cut is made flush with the forward face of the Transom; and a small section of planking left to stand level with the top edge of the Transom.

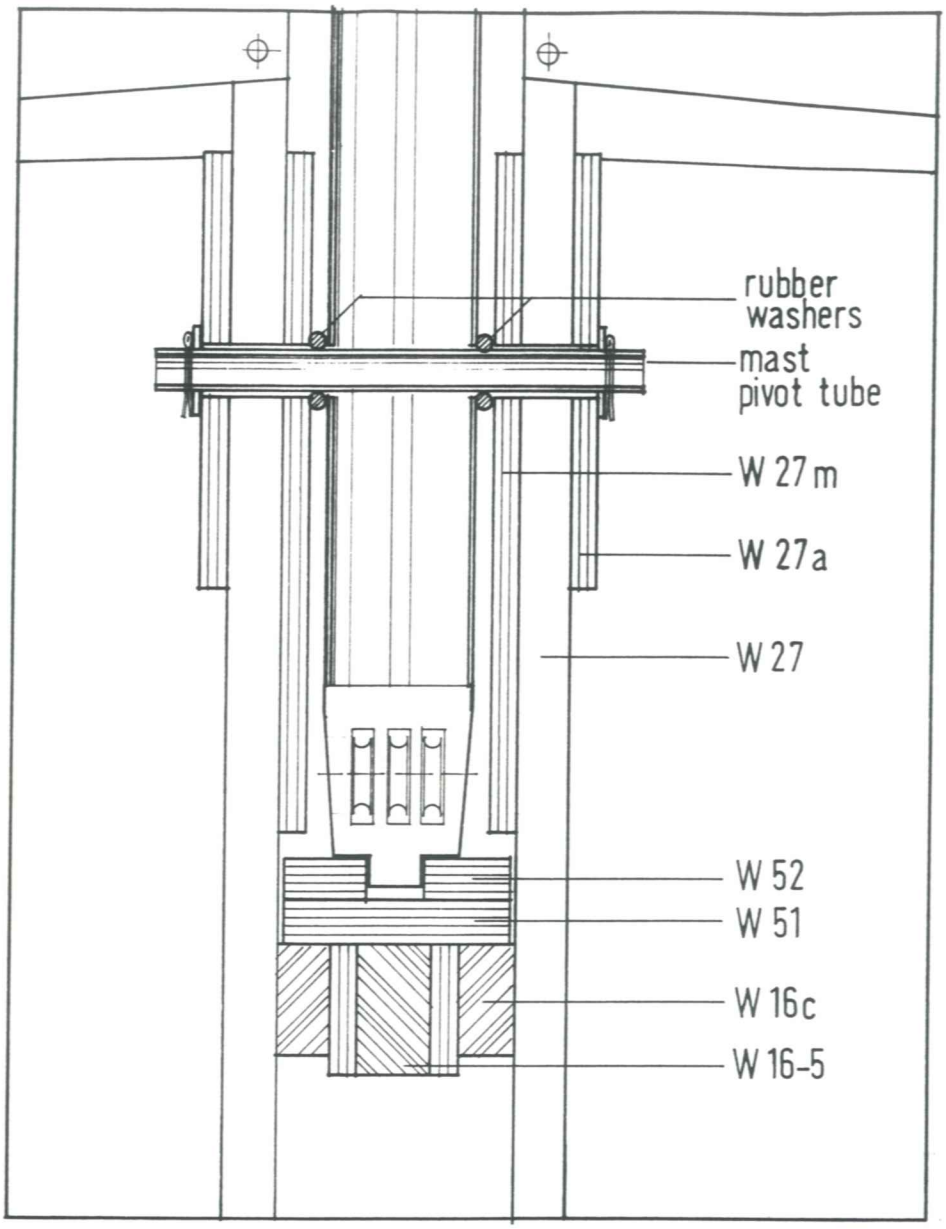


Fig. 35

Section through the King Post assembly with metal mast fitted. The full weight of the mast is supported by the W 51/52 assembly mounted on the Centreboard Case; and the ½" (13) dia. pivot tube is centred in the 5/8" (16) dia. holes in the King Posts.
When a spruce mast is fitted; stainless-steel pivot plates are screwed to the sides of the mast; W 52 is not slotted, and the extra thickness of the mast prevents it from rotating.
W 27m is a 3/8" (9) thick plywood packing fitted only with a metal mast.

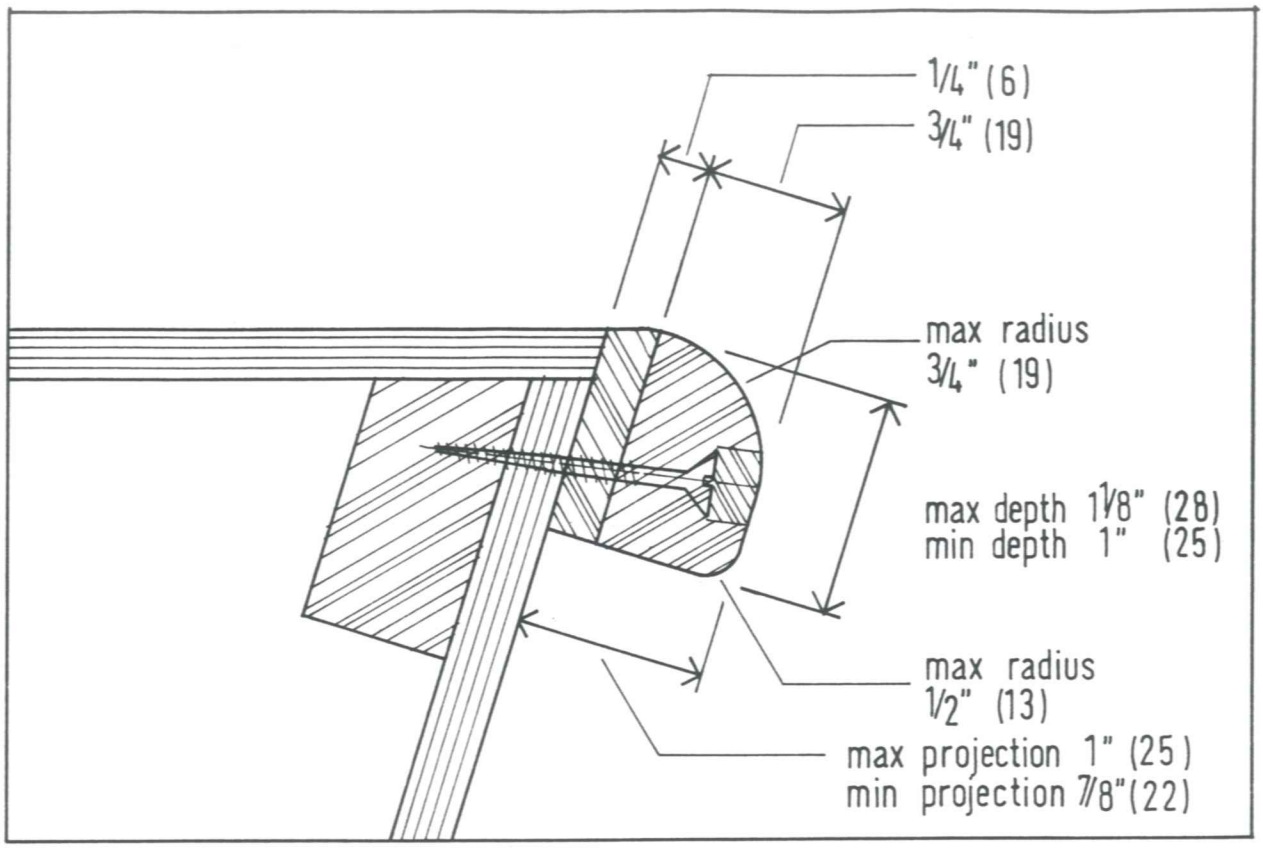


Fig. 36

Finish Profile of Laminated Sheerbead

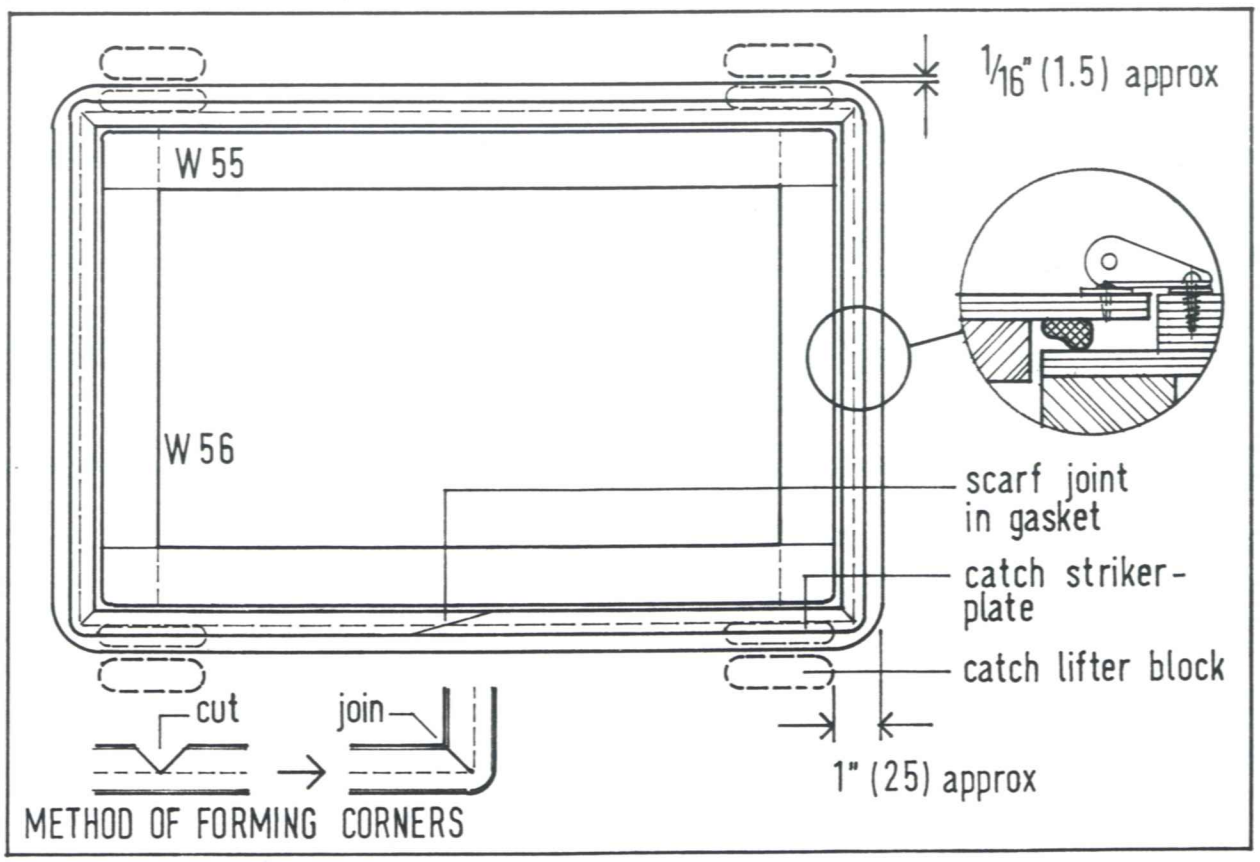


Fig. 37

Diagram of Forward Hatch Cover. Aft Hatch Cover is similar but catches are located at the sides.

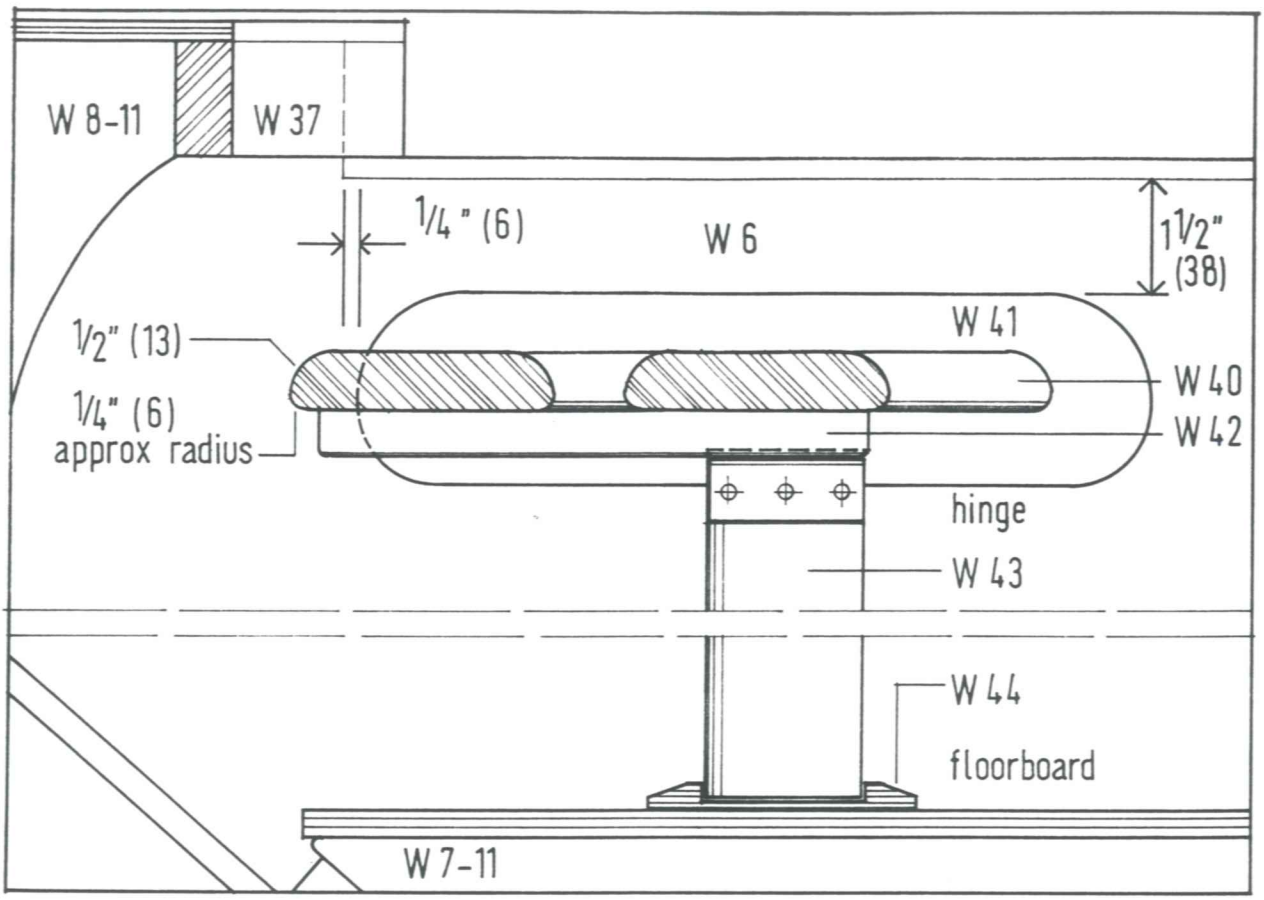


Fig. 38

Sketch showing location of Side Bench Sockets W 41; Side Bench finish profile and Supports W 43. Note bevel planed on Support Sockets W 44.

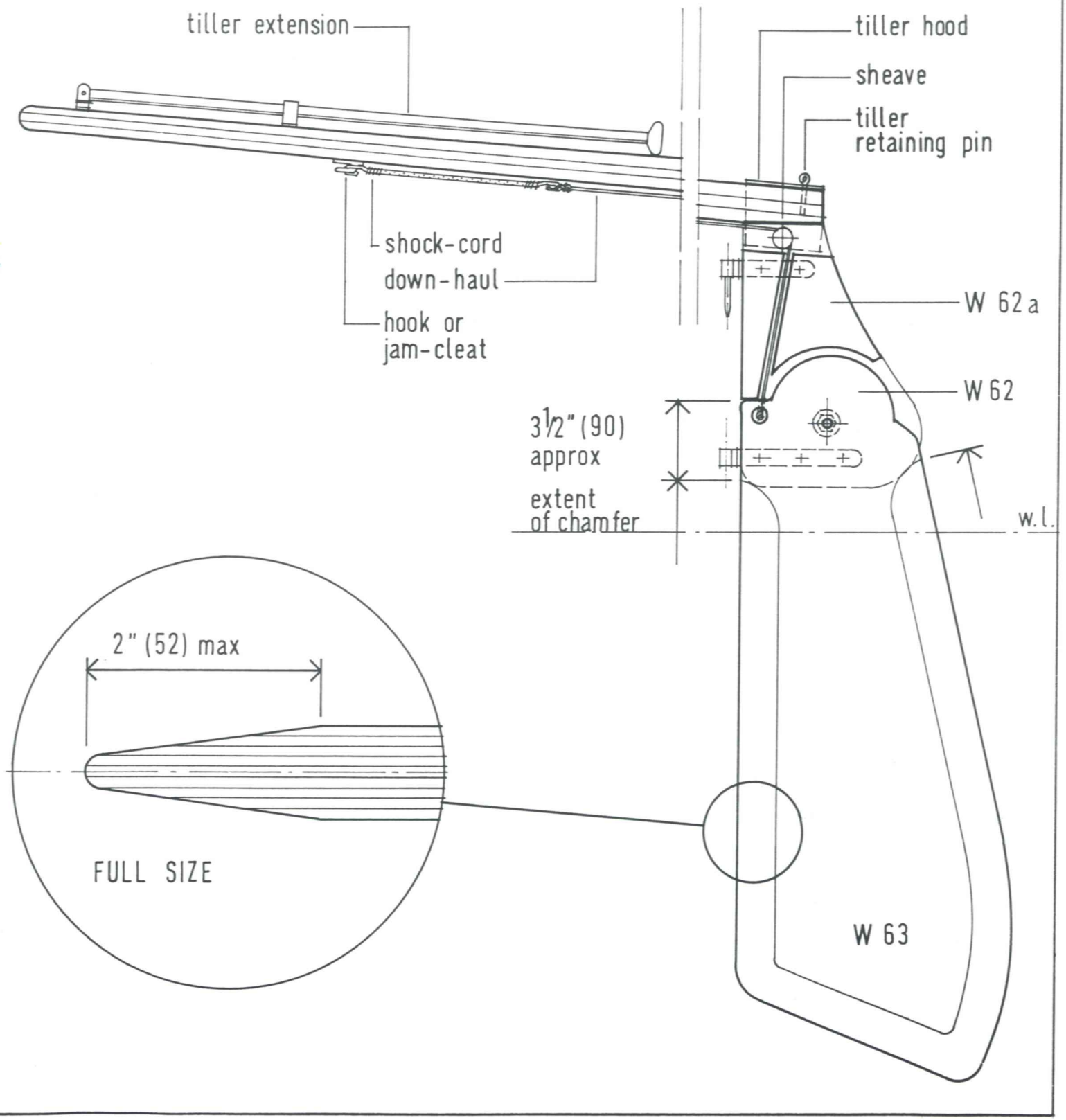


Fig. 39

Detail of Rudder Assembly showing down-haul arrangement. Class measurement rules limit the width of the planed chamfer to 2" (52); there is no restriction on the length of the chamfer. The vertical rudder configuration reduces stress on the blade and hangings, and has replaced the raked configuration shown on the General Arrangement Drawing.

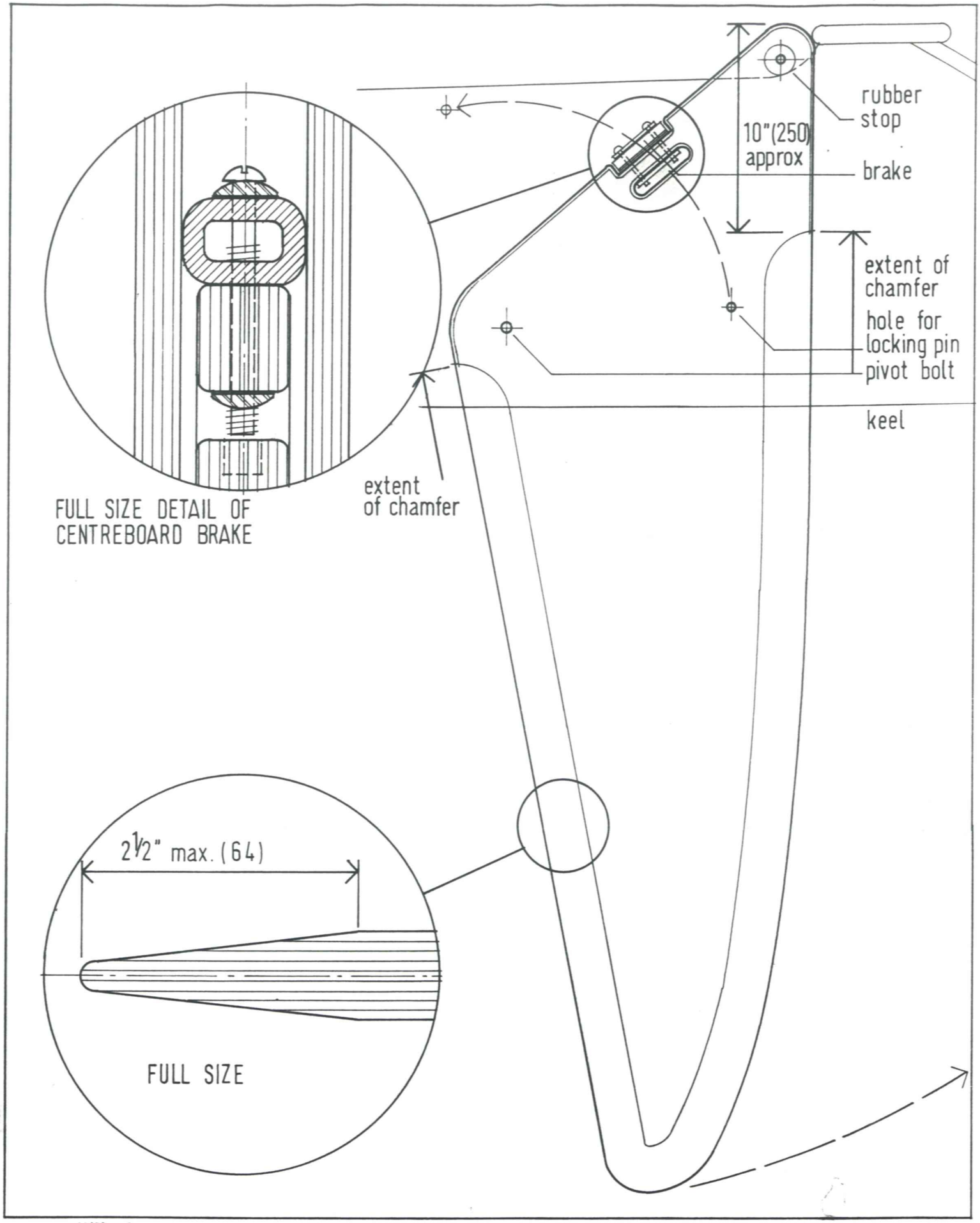


Fig. 40

Detail of Centreboard Assembly. Class measurement rules limit the width of the planed chamfer to 2½" (64).

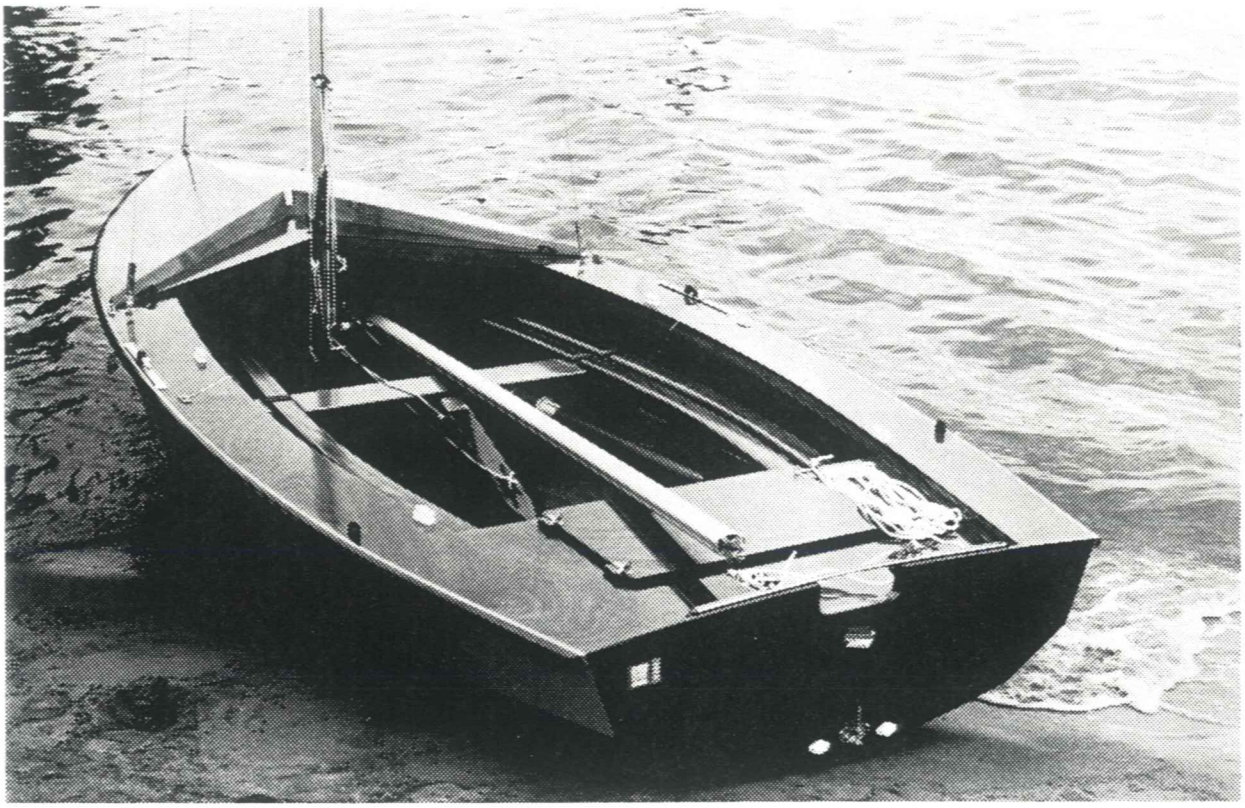


Fig. 41

Photograph of completed hull from aft. Note location of fittings and central cut-out in Washboards.

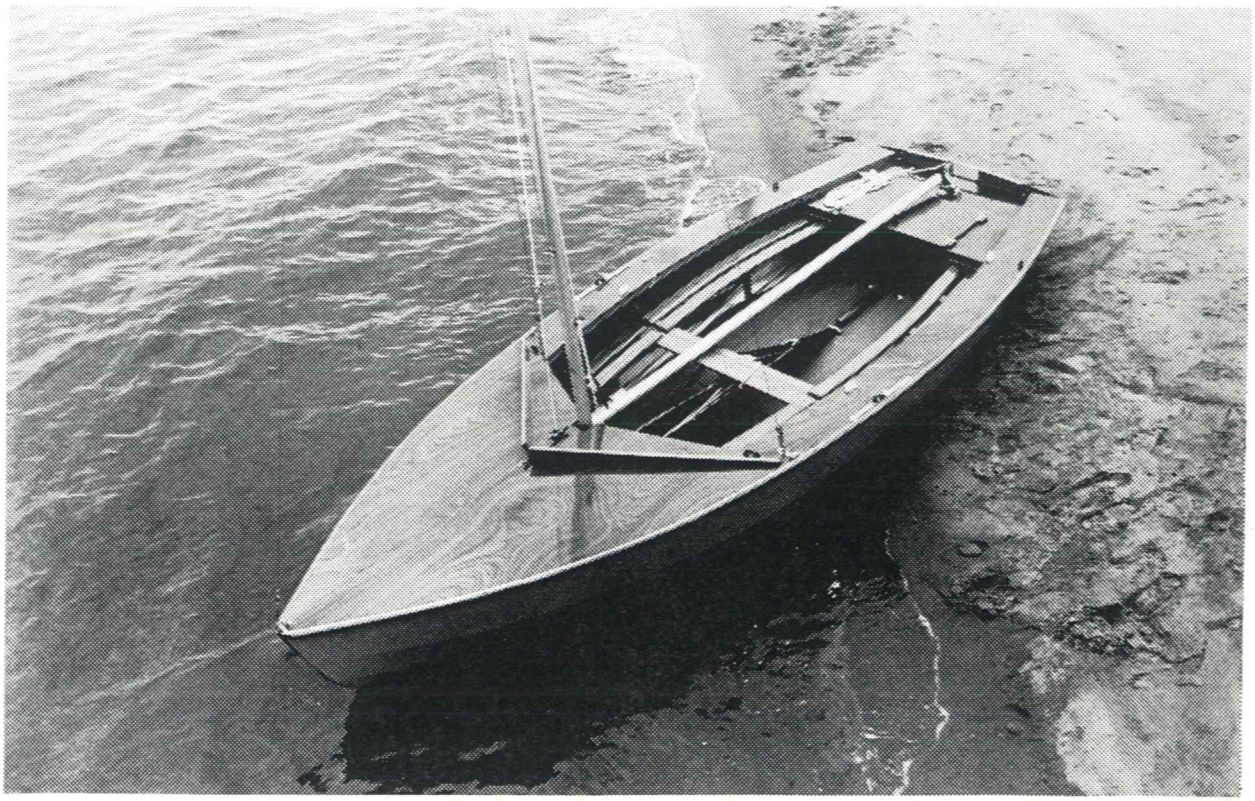


Fig. 42

Photograph of completed hull from above