

# The National 125 Association of Australia

## BUILDING INSTRUCTIONS - 1986

Dear ..... your sail number is .....

Welcome to the 125 Association. We are a group of people sharing a common interest, sailing, with a particular interest in our 125 Class dinghy. We span a wide age range and include both the keenest hot-shot racer and the purely social family sailor as well as all those who lie somewhere in between. We hope you will take an active part in our programme and that your association with us is a long and enjoyable one. If you feel the Association is not catering for your interest then let us know. Perhaps there are others who would like to share your interest and new activities can be introduced to our calendar.

If you are building your own boat we trust that your progress may be rapid and that you will soon be finished and sailing. If you encounter any structural problems or have any queries on measurement which you cannot resolve with other 125 owners in your area, please contact the measurer. Alternatively, any member of the Committee listed in your division's newsletter would be pleased to answer your queries.

It is advisable to read your Rules of Construction and Measurement Sheet while building your 125 as it is in your best interest that your boat measures, both for competitive sailing and resale value.

To ensure that your boat meets all measurement requirements, you are advised that if in the Rules of Construction, it doesn't say you can't do a thing, then it doesn't mean you can go ahead and do it. You are advised to approach your State Measurer if you intend doing something out of the ordinary as it would be a shame to construct a boat only to find that it doesn't measure.

The 125 Class Yacht is now raced competitively in all states and at many clubs both coastal and inland. Many owners also enjoy social sailing and cruising.

The Association also prints a regular newsletter and your name has been added to the mailing list. Swaging tool and pop rivetter are also available for loan to members and to further spread our message, tee shirts, wind-cheaters and bumper stickers are also usually available.

Please do not feel hesitant about contacting other members and making yourself known, or attending meetings and other social events. You are welcome to all that the Class makes available to its members.

Good building and sailing,

125 Association members in your area :

Sail No.	Owner	Address	Telephone
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

# TIMBER REQUIRED

NOTE: These lengths include oversize; do not add more.  
All sizes in mm.

Timber Item No.			
18	6 off	10 x 32 x 2300	Floor battens
	2 off	12 x 120 x 152	Chainplate packing (from ply)
	2 off	12 x 180 x 300	Rudder cheeks (or from ply or aluminium)
19	1 off	16 x 16 x 380	Foredeck beam strut
19	3 off	16 x 16 x 1220	Bulkhead edge battens
11	2 off	16 x 16 x 4300	Battening, foredeck, stringer and seats
10	2 off	16 x 16 x 2440	Battening, seat sides top support
19	6 off	16 x 16 x 450	Mast understep edge battens
10	30 off	16 x 16 x 50	Glue blocks
19	2 off	16 x 25 x 450	Mast understep top battens
17	4 off	16 x 38 x 4200	Gunwale inners and outers
	2 off	19 x 19 x 900	Tiller (or alternatives)
4	2 off	19 x 22 x 1320	Case bottom supports
21	1 off	19 x 30 x 910	Foredeck cross beam
22	1 off	19 x 30 x 1300	Foredeck longitudinal beam
19	2 off	19 x 30 x 100	Thwart risers
8	1 off	19 x 30 x 430	Bow cover king plank
15	2 off	19 x 30 x 2290	Inner coaming
16	2 off	19 x 30 x 4200	Outer coaming
7 and 19	2 off	19 x 38 x 230	Seat side to transom support
1	2 off	19 x 38 x 1400	Centrecase top edging (select timber with straight grain, i.e. Quandong, Phillipine Mahogany)
8	1 off	19 x 64 x 590	Bow cover lateral support
	1 off	19 x 140 x 330	Rudder box packing
	1 off	19 x 230 x 810	Rudder blade, quarter-sawn (not ply)
	1 off	21 x 350 x 1300	Centrecase, quarter-sawn (not ply)
2	1 off	22 x 25 x 1040	Centrecase top packing and rear
23	2 off	22 x 25 x 300	Centrecase pivot support
20	1 off	19 x 75 x 910	Thwart
9	1 off	19 x 75 x 150	Transom stern post
9	1 off	22 x 73 x 3050	Keel
6	1 off	19 x 150 x 1070	Transom stiffener
3	1 off	22 x 180 x 280	Centrecase front spacer
14	1 off	35 x 35 x 450	Stem post (cut diagonally)
	5 sheets	2440 x 1220 x 4 or 5	Marine or exterior plywood
	<u>OR</u>	2400 x 1200 x 4 or 5	(Ref. Panels Page 5 )

LIST OF PATTERNS	3
BUILDING INSTRUCTIONS	4
Copyright	4
Materials	4
Measurement	4
Assembly	5
Panels	5
Layout for Plywood Panels	6
Panels (Cont.)	7
Butt Straps	7
Butt Straps (Cont.)	8
The 'Floppy' Hull	9
Keel	9
Main Bulkhead Assembly	10
Fitting Keel and Main Bulkhead	10
Transom	11
Alignment	11
Understep	12
Forward Bulkhead	12
Centrecase	12
Centrecase (Cont.)	14
Stem Post	14
Centrecase Fit	15
Centrecase Stiffener	15
Baffles	16
Seat Sides	16
Stringers	16
Foredeck Supports	16
Bottom Supports	17
Thwart	17
Gunwales	17
Tubes for Control Lines	18
Floor Battens	18
Floor Battens (Cont.)	19
Fibreglassing	19
Preparation for Decking	19
Preparation for Decking (Cont.)	20
Decking the Hull	20
Completing the Hull	20
Completing the Hull (Cont.)	21
Fibreglassing Outer Seams	21
Centreboard	23
Rudder	23
Metric Size Sheets in Plywood	23
BOAT PLAN, ELEVATION AND SECTIONS	25 - 28
Painting	29
Fitting-out and Rigging	29
Hull Fitting	29 & 31
Boom Fitting	31
Mast Fitting	31 - 32
Standing Rigging	32
Running Rigging	32
Spinnaker	32
Control Lines	32 & 34
125 RULES OF CONSTRUCTION AND MEASUREMENT	Pages (i) to (x)
MEASUREMENT AND CHECK SHEETS	Pages (a) to (e)

# LIST OF PATTERNS

The following patterns are cut from a standard set of master patterns and are supplied with these instructions in a separate roll. When you receive your planset, check the patterns against this list. Do not hesitate to contact the Divisional Measurer or Registrar if there are any discrepancies.

Pattern No.	Panel Name	Number Required
1 3 ✓	Bottom Aft	Cut 2 from marine ply 4 to 5 mm
2 3 ✓	Bottom Front	Cut 2 from marine ply 4 to 5 mm
3 3 ✓	Side Aft	Cut 2 from marine ply 4 to 5 mm
4 3 ✓	Side Front	Cut 2 from marine ply 4 to 5 mm
5 ✓	Transom	Cut 1 from marine ply 4 to 5 mm (If a straight top is preferred draw a line across the top of the pattern)
6 ✓	Main Bulkhead	Cut 1 from marine ply 4 to 5 mm
7 ✓	Mast Understep	Cut 1 from marine ply 4 to 5 mm
8 ✓	Forward Bulkhead	Cut 1 from marine ply 4 to 5 mm
9 ✓	Case Side	Cut 2 from marine ply 4 to 5 mm
10	Case Front Spacer	Cut 1 (see timber list)
11 ✓	Centreboard	Cut 1 (see timber list)
12	Centrecase Front Stiffener	Cut 1 from marine ply 4 to 5 mm
13 ✓	Baffle	Cut 2 from marine ply 4 to 5 mm
14 ✓	Seat Side	Cut 2 from marine ply 4 to 5 mm
15 ✓	Seat Top	Cut 2 from marine ply 4 to 5 mm
16 ✓	Fore Deck	Cut 2 from marine ply 4 to 5 mm
17	Bow Cover Lateral Support	Cut 1 (see timber list)
18 ✓	Bow Cover	Cut 1 from marine ply 4 to 5 mm
19	Mast Step	Cut 1 from marine ply 10 to 12 mm or make up by glueing 4 mm or 5 mm sheets together
20	Rudder Cheeks	Cut 2 from marine ply 10 to 12 mm or make up by glueing 4 mm or 5 mm sheets together
21	Rudder Box Packing	Cut 1 (see timber list)
22	Rudder Blade	Cut 1 (see timber list)

**READ THIS BOOKLET CAREFULLY!**  
**MISTAKES WASTE YOUR TIME AND MATERIALS!**  
**SEEK EXPERIENCED HELP IF IN DOUBT!**

## **COPYRIGHT**

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## **MATERIALS**

Before starting to build your 125, some rationalisation of its intended use is desirable. The minimum weight for the hull is 50 kg., but a degree of carpentry skill and ultra-lightweight materials are needed to achieve it. Such materials are more expensive and should only be used by an experienced woodworker and yachtsman, who has the ability to tune and sail such a hull for maximum performance. Red Cedar and Gaboon plywood weighing less than 6.4 kg. per sheet and Western Red Cedar for your timber list, are required to build a 50 kg. hull.

For economy, a hull from plywoods weighing 7.2 and 7.8 kg. (e.g. Marine Pine, Hoop Pine or Klinkii) and Meranti for your timber list, will enable you to build a hull weighing approximately 57 kg. Many such 125s are quite competitive.

Avoid using excessively heavy plywood (e.g. Coachwood and Rotary Maple).

**NOTE:** The new metric plywood sheets are slightly smaller than the Imperial sheets they replace. Some difficulty will be experienced fitting the patterns. Refer to figure 15.

For the rudder blade and centreboard use a stable close-grained quarter-sawn timber. Straight grained Oregon is often used.

Use a good marine glue (e.g. Epiglu, B.U.F., Selleys 308, Davis Fuller Epoxy or Resorcinol). Approximately 1 litre is sufficient. If you can find the extra dollars, epoxy glues are recommended, as they have gap-filling properties and do not produce hard-to-remove brown stains on the timber.

Other materials required are:-

- \* 8 metres of copper wire to 'sew' the hull together
- \* 100 gram of 35 mm long silicon bronze or monel nails
- \* 125 gram of 12 mm long silicon bronze or monel nails
- \* 125 gram of 18 mm long copper flat-head nails for butt straps
- \* 16 wood screws 50 mm long - centrecase to keel
- \* 65 metres of 50 mm (or 38 mm) fibreglass tape
- \* 2 litres of polyester or epoxy resin and hardener
- \* A suitable filler (e.g. Plastibond) to disguise mistakes

## **MEASUREMENT**

To qualify as a 125, your boat must comply with all the Measurement Rules (see pages at the end of this booklet). To assist you in building, we will remind you when to check (meas.....). These measurements allow generous tolerances to enable even the worst handyman to assemble a 125 to specifications.

## ASSEMBLY

First, look over the drawings, examine a 125, read these instructions thoroughly and try to visualise how the various panels and timber pieces fit together. No jigs or formers are used. The hull is built inside its own five outer panels which must be cut accurately to match the paper patterns. The panels are wired together to form the 'floppy' hull. The remaining panels and timber pieces are fitted into this outer hull to strengthen and complete it.

The box girder section design offers tremendous strength which has been adequately proven by 125s sailing under the worst possible conditions.

During building the hull is supported on two simple cradles (see Figure 1) You can get the correct shape for these by using the paper patterns for the main bulkhead and the transom.

Cut angle to match the curve of transom or bulkhead, as shown on the paper patterns

- \* One fits under transom
- \* One fits under main bulkhead

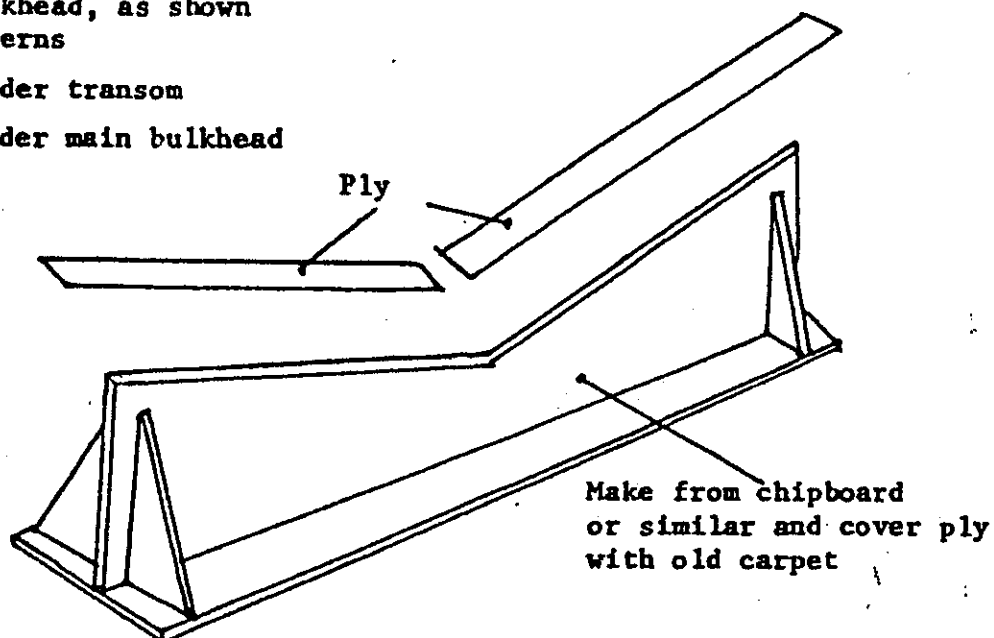


FIGURE 1 : BUILDING CRADLES

## PANELS

The standard method of cutting the panels out of five sheets of plywood is shown in Figure 2. However, most sheets of ply now sold are in metric sizes (2400 mm by 1200 mm) as opposed to the old imperial sizes (2440 mm by 1220 mm) that the 125 was originally designed for. Using metric sheets provides some problems in sheets 3 and 4 and the way to handle this is shown in Figure 15. Also, before you lay out and cut your panels, give thought to:

- \* Use of unequal-core ply or cross-grain floor panels aft of the main bulkhead. This gives greater stiffness and strength in the cockpit area. But if you want to use cross-grain, you will need to work out a new cutting pattern, possibly using extra sheets of ply and scarf-joints.
- \* Use of a longitudinal web between the stem and the mast understep.

NOTE: If you intend to race your 125 in very choppy waters (e.g. Port Phillip Bay), a longitudinal web between the stem and the mast understep will stiffen the hull. This may be hollowed out similar to the baffles, but leave some pieces in for strength. Sheet 5 shows approximate shape and size of support as no pattern is provided.

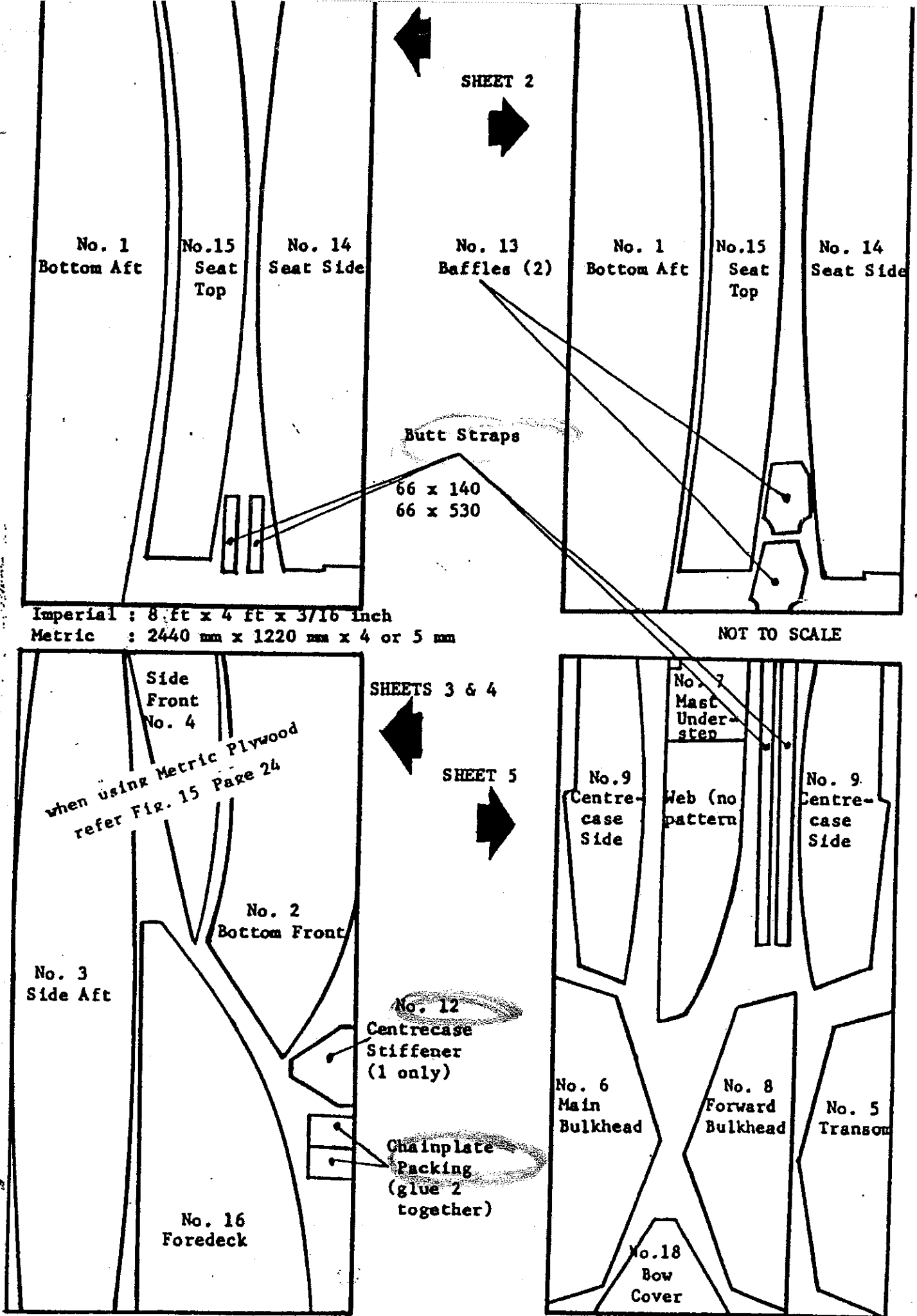


FIGURE 2 : LAYOUT FOR PLYWOOD PANELS

If your patterns for the bottom aft panels (sheets 1 and 2) have a recess in the 'straight' edge for the centrecase cut-out, it is advisable to ignore this and leave the edges fair to pattern. It is best to cut out the centrecase slot after the keel is glued in. Don't forget to mark (say) with a saw cut, the leading and trailing edges of the centrecase for later reference.

Choose the best grained side of the ply and cut these sheets so that the best grain will show in your hull. That is, mark out sheet No. 1 with the best grain facing upwards but sheet No. 2 with the best side facing downwards as the panels are turned over for the other side of the hull. Similarly with sheets No. 3 and 4 although only the foredeck matters here as the other panels are hidden under the decks or are painted outside.

When you are confident that pattern pieces fit, draw around them with a pencil and cut the sheets using a jigsaw or panel saw.

NOTE: It has been found desirable to cut the baffles oversize and shape them to fit the boat after all interior panels are fitted.

Lightly plane the panel edges to remove any bumps, taking care not to remove too much. Bevel edges to get a better fit around the bow.

### BUTT STRAPS

Join the bottom panels and the side panels with a butt strap (butt straps - 66 mm by 530 mm long and 66 mm by 140 mm long) (see figure 4). Make sure you have a port and starboard panel with the butt straps on the inside. Use lots of glue and the copper nails. Position the butt straps so that they are centred over the join of the panels and nail right through. Clench the ends of the nails over on the inside. Lay the panel on a suitable flat surface to do this. The edge of the butt strap must be 33 mm from the join.

An alternative method is to pre-bend the bottom floor panels when affixing the butt straps. By doing this, one is not later faced with the task, when inserting the main bulkhead, of forcing a curve into the very area which has been laminated in a straight line.

To obtain the right curve, it is a simple matter of putting a straight edge across the bottom of the main bulkhead and measuring the depth of the curve. Two lengths of batten timber about 1220 mm long are then planed to this measurement and placed along the gunwale edge and keel edge of the bottom panels. It is then just a matter of putting a heavy weight in the middle of the butt strap to force both it and the panels into the curve before nailing the bottom panels and butt straps together. But note, it is wise to nail over some wax paper (to stop the excess glue adhering to the material underneath). (see figure 3).

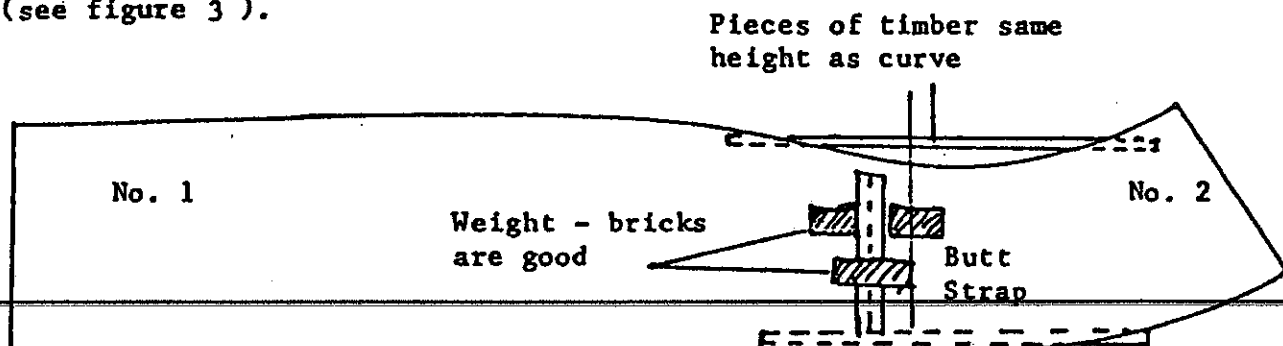
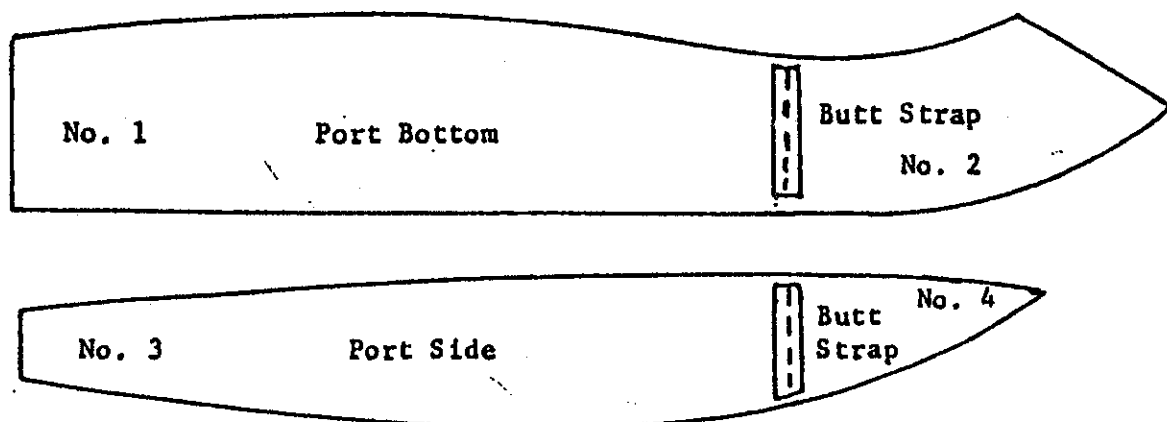


FIGURE 3 : ALTERNATIVE METHOD FOR BUTT STRAPS



**NOTE:** End the butt straps 38 mm away from the keel edge of the bottom panel, 30 mm from the gunwale (top) edge of the side panels and 10 mm at the chine edges. A special wooden clamp and panel pins with the heads cut off to hold the pieces in position, can eliminate the copper nails. Some builders may wish to scarf join. If using an epoxy glue, clean the excess off with a paint scraper. If allowed to completely harden it is impossible to remove. Selseys 308 and Resorcinol glues should be cleaned off with a damp rag whilst glueing.



**FIGURE 4 : FITTING BUTT STRAPS**

### **THE 'FLOPPY' HULL**

Mark a few points 40 mm in from the join of the bottom panels. These will assist in alignment of the keel.

Lay both panels, insides together, on your building cradle and drill small holes 5 to 10 mm in from the bottom join. These will be 300 mm apart towards the transom (back) and 50 to 100 mm apart where the bow (front) curves up. Then cut the copper wire into 75 mm lengths. Insert the copper wires through these holes and loosely twist the wires. Open the panels up like a book, the bow will pop up into place. Hold open by placing a suitable weight across the butt strap area.

Wire the transom into place with two wires into each bottom panel (these will be removed later).

Align the sides and bottom panels at the aft edge of the butt straps. Scribe a line 6 mm from the bottom edge and drill holes. This will prevent sides from slipping in and causing trouble with measurements. Starting from the butt strap, wire together towards the transom. Then wire towards the bow. Try to get the sides to sit on the bottom panels, as shown on the inset of figure 6. This takes the strain off the fibreglass tape that will later be applied to these seams. Note that forward of the butt strap, the sides and bottom panel will gradually cross until they butt together to form the disappearing chine.

Tighten the wires to draw the hull together. Some additional wires may be required in difficult areas. Do not overtighten, otherwise the wires will break or the plywood will tear out.

**NOTE:** It is an advantage not to cut out the centre case slot, and to wire panels together in this area.

Trial fit the main bulkhead at the aft edge of the butt straps. It can be held in position by clamping a piece of wood onto the side panels. Do not trim the bulkhead in width or depth as it forms the shape of the boat. (meas. 9, 42 and 43).

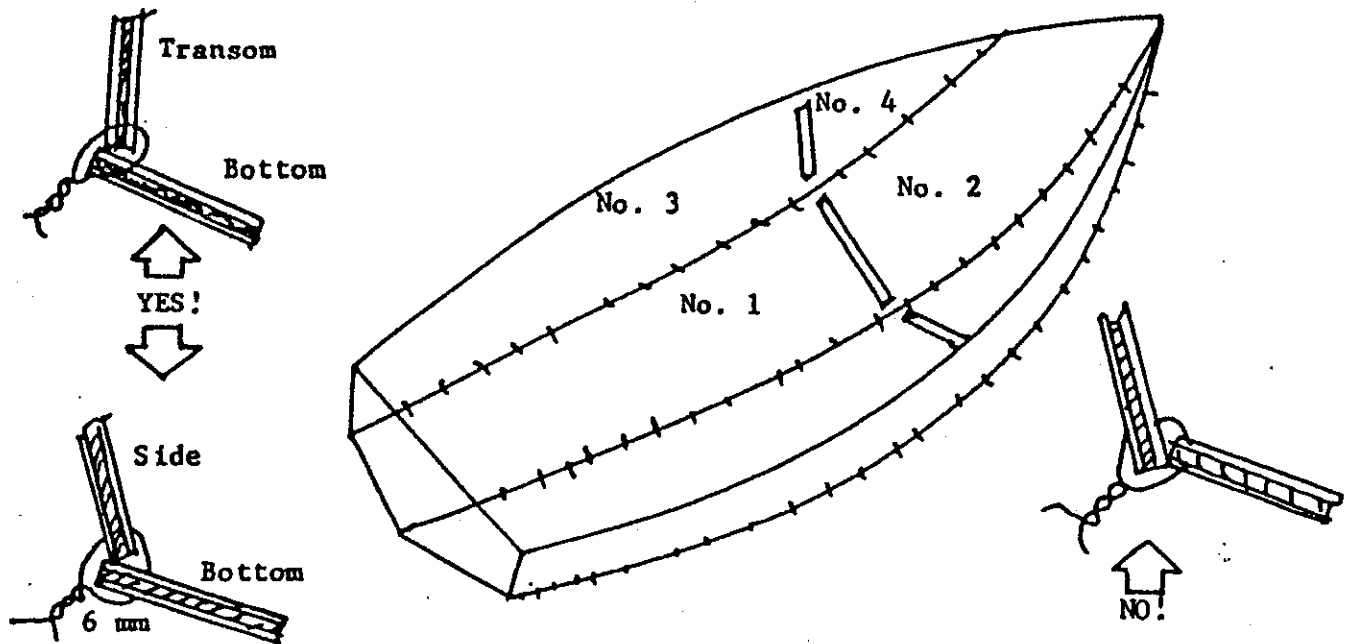


FIGURE 5 : STITCHING HULL

#### KEEL

Tighten the wires under the keel and push the loops down into the ply. Fit the keel into the bottom of the hull by planing a shallow V along its underside. (see figure 6 ). Make this V as accurate as possible by cutting pieces of cardboard to fit down into the V of the bottom at intervals, cutting other pieces of card to match the reverse of these V's and checking these against the V you have planed under the keel by holding them against the keel. The specified glue is an excellent filler but you can ensure watertight properties by being as accurate as possible. The keel is fitted hard against the transom, passes through the cutout in the butt straps and ends about 600 mm forward of the aft face of the butt straps. Keel width is 73 mm (meas. 54). Now nail and glue two glueblocks on each side of the keel on the butt straps, lengthwise across the boat and aligned with the aft edges of the butt straps and spaced out evenly towards the chines. Nail and glue a glueblock on the butt straps up each side, 50 mm above the chines, again aligned with the aft edge of the butt straps.

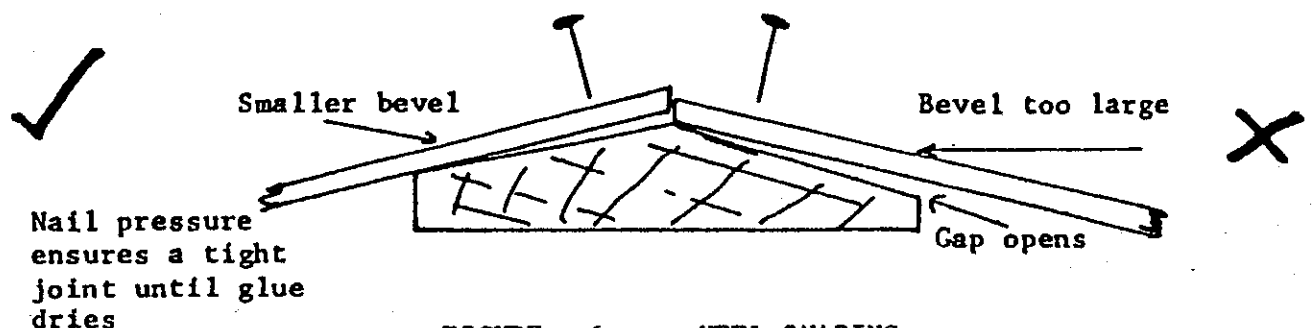


FIGURE 6 : KEEL SHAPING

Note figure 8 carefully. It shows in detail how pieces of batten timber are monel-nailed and glued to the three panels which make up the bulkheads. This battening provides strength and glue faces and support for the decking and seats. Take two pieces of batten each 210 mm long and nail and glue these along the top, from each side of the main bulkhead. Nail them on the best grain side. The drawing shows a tiny cutout at the top corners and this is for the stringer to pass through.

Next draw a line down at right-angles from the top edge of the bulkhead and 210 mm in from each corner. Where it reaches the bottom, mark then measure along the bottom towards the keel 40 mm and mark. Now draw a pencil line between the 210 mm mark at the top and the new mark at the bottom. Nail and glue a batten down this pencil line as shown in figures 7 and 8. This batten forms an 'off perpendicular' front for the seat sides which forces water out of the cockpit after capsizing thus eliminating bailing.

#### FITTING KEEL AND MAIN BULKHEAD

When the glue on the glueblocks and the bulkhead is dry lay the keel in place and ram the main bulkhead down onto it with the forward edge of the bulkhead up against the aft edges of the butt straps and the glueblocks. If the cut-out in the bulkhead that fits over the keel needs enlarging, do this next. Now check that the bulkhead rams down in place and makes a reasonable fit with the bottom. If your cradle is directly under the butt straps, it will fit if rammed hard enough. You may have a gap at the chines. Ignore this. Now take the bulkhead and the keel out and glue under the keel and on the bottom where the keel is to go. Glue liberally. Place the keel hard against the transom, have someone hold a dolly on the keel above where you are nailing (a couple of housebricks will do) and nail with 12 mm monel nails from underneath at 100 mm intervals both sides of the join between the bottoms. Periodically check that you are nailing the keel in place, that it is not creeping up one side or the other out of the V as you work along its length. Glue will be forced out inside the hull and should be cleaned off. Glue the faces of the glueblocks, the aft faces of the butt straps, the bottom edge of the main bulkhead and where the bulkhead will come up against the glueblocks. Ram the bulkhead down onto the keel and up against the glueblocks and the aft edges of the butt straps. Place planks along the top of the transom to the top of the main bulkhead and put housebricks, buckets of water or other weights on the planks above the main bulkhead to hold it in place. To assist in holding the bulkhead down into the hull, wires may be used between the glueblocks, 50 mm apart and 10 mm up from the bottom edge of the bulkhead down through the hull, these holes to be in line and at right angles to the bottom and sides of the hull. Wires must be tight. This should be done prior to nailing into glueblocks. Now nail with 12 mm monel nails from the aft face of the bulkhead into the glueblocks. (meas. 43) Leave overnight to dry.

It is necessary to do all the above in one hit to ensure that the keel, when glued in place does not distort the V under the main bulkhead. If the wires under the keel are firmly finger-tightened first, the act of pushing the loops inside the hull down into the ply will force the two halves of the bottom together and also allow the keel to sit snugly down into the V.

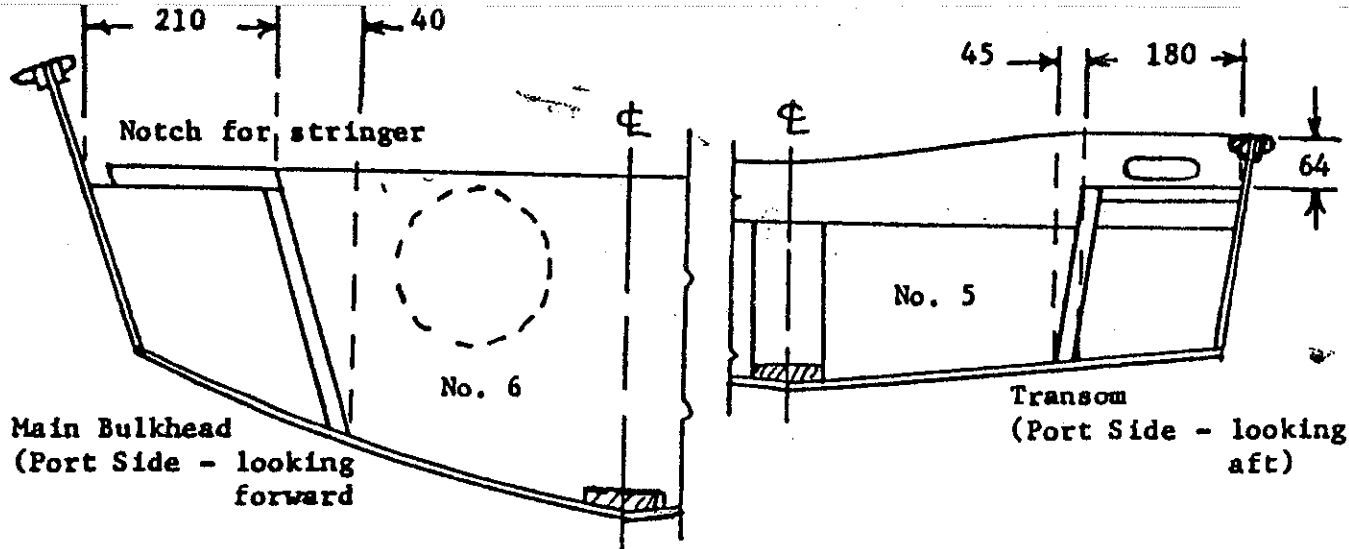


FIGURE 7 : SEAT SIDE BATTENS

#### TRANSOM

The Timber List shows a Transom Inner Support. This is a large piece of timber designed to strengthen the transom and provide for an outboard motor. This must be fitted across the transom as shown on figure 7. The ends must be bevelled to fit flush against the sides and if you have decided to curve your transom the curve must be cut in the support also. A curved transom offers advantages; it saves about 1 kg. in weight (the rudder box is also reduced), enhances the appearance of your hull and removes the commercial mass-produced appearance. (meas. 32, 33 and 34.)

The transom support is glued in place. If you intend to paint the back of the transom use monel nails to hold the support in place. If you decide on a clear finish for the back of the transom, use clamps and timber to hold the support until the glue dries. Remember to press down any wire loops and glue both faces including the sides of the hull facing the sides of the hull facing the bevelled ends of the support. Fit battens for seat sides and seat tops.

The transom sternpost is fitted between the keel and the underside of the transom support, (see figure 7). When it is fitting snugly, remember the bottom must be slightly bevelled to sit down on the keel, (meas. 35), glue and nail it in place by driving a couple of small monel nails in from the centreline of the transom. The heads of these two nails will be hidden by the rudder when in place. (meas. 6, 8, 9, 10, 30 and 41).

#### ALIGNMENT

Run a plumb line from the transom to the bows by pressing a drawing pin or small nail into the forward side of the transom support exactly on the centreline and 64 mm down from a line drawn between the top edges of the transom. (If you have not curved your transom it is 64 mm down from the centre of the top of the transom.) Attach a light cord and pull this tight across the top of the main bulkhead and attach it to the centre of the bows. The cord must just touch the top of the main bulkhead. This cord remains in place until the foredecks are fitted and is used to align the understep and forward bulkhead.

Hold the mast understep in place on the keel and hard against the forward side of the main bulkhead. It need not sit firmly on the keel but its top must be level under the plumblineline. Plane the top edge of the understep until it does. Remove and glue and nail pieces of batten on each side of the edges of the mast understep but not on the bottom edge. Fit a vertical batten for mast support, 150 mm from the aft edge. This batten is also used for fixing control line tubes, if used. (see meas. and construction rule 3.21)

Note here, that the understep is either sitting on the keel or is only a mm or two above it. If you have a gap of about 20 mm above the keel, you have the understep fitted incorrectly. Turn it over diagonally until the longest edge from the cutout is vertically against the bulkhead. (see figure 8 )

Glue the understep to the forward edge of the main bulkhead vertically under the plumblineline ensuring that the top edge of the understep just touches the plumblineline along its length. Monel nail in place from the aft face of the main bulkhead.

#### FORWARD BULKHEAD

Glue and nail a piece of batten right across the top edge of the forward bulkhead. This side is now the forward side of this bulkhead. Measure along the keel from the forward face of the main bulkhead to the forward edge of the understep. Transfer this measurement to the chines, forward of the main bulkhead and mark the bottom of the hull and up the sides. Ensure that you measure at right angles to the main bulkhead. Join up the pencil marks to obtain a line across the hull and parallel to the main bulkhead. 5 mm forward of this line glue and nail 3 glueblock on each side of the keel, two spaced out to the chine, the third, 30 mm up the side from the chine. (This is a repetition of the glueblocks you put in previously to hold the main bulkhead in place.)

Force the forward bulkhead down in front of the understep and up to the glueblocks. Ignore any gaps at the chines, but it must sit down hard on the bottom of the hull and the keel fit into the cutout. The sides will be forced out. This takes considerable force to get the bulkhead right down. Check that the top of the bulkhead is horizontally parallel to the top of the main bulkhead. If the forward bulkhead is too high, plane the top until it is just touching the plumblineline. DO NOT alter the bottom. When you have a correct fit, take it out, brush along the bottom edge, the sides edge, the glueblocks and the forward face of the bulkhead where it is to mate with the glueblocks. Ram it into place, hold it down with weights and nail into the glueblocks.

#### CENTRECASE

Assemble as in sketch p. 14, two centre case sides - one right hand and one left hand, making sure that the runners protrude over the front edge by 177 mm. When the glue is dry place one of the centre case sides on the keel with the protruding runner against the main bulkhead. Check the fit between the keel and the bottom of the centre case side by shining a torch from the other side. Mark the bumps and gently plane these out until you have a fairly good fit. Match the other side to it. The timber list shows two case bottom supports, scribe the curve to them and plane to match. Examine the drawings (figure 9 ) very carefully and glue and nail the outer timber parts to each side. Glue and nail the case front spacer and the case packing top and rear to one of the sides. Use a long 35 mm monel nail to drive through the aft of the top edging into the packing.

Use home made 'T' square for checking  
bottom edge of assembled Centreboard Case

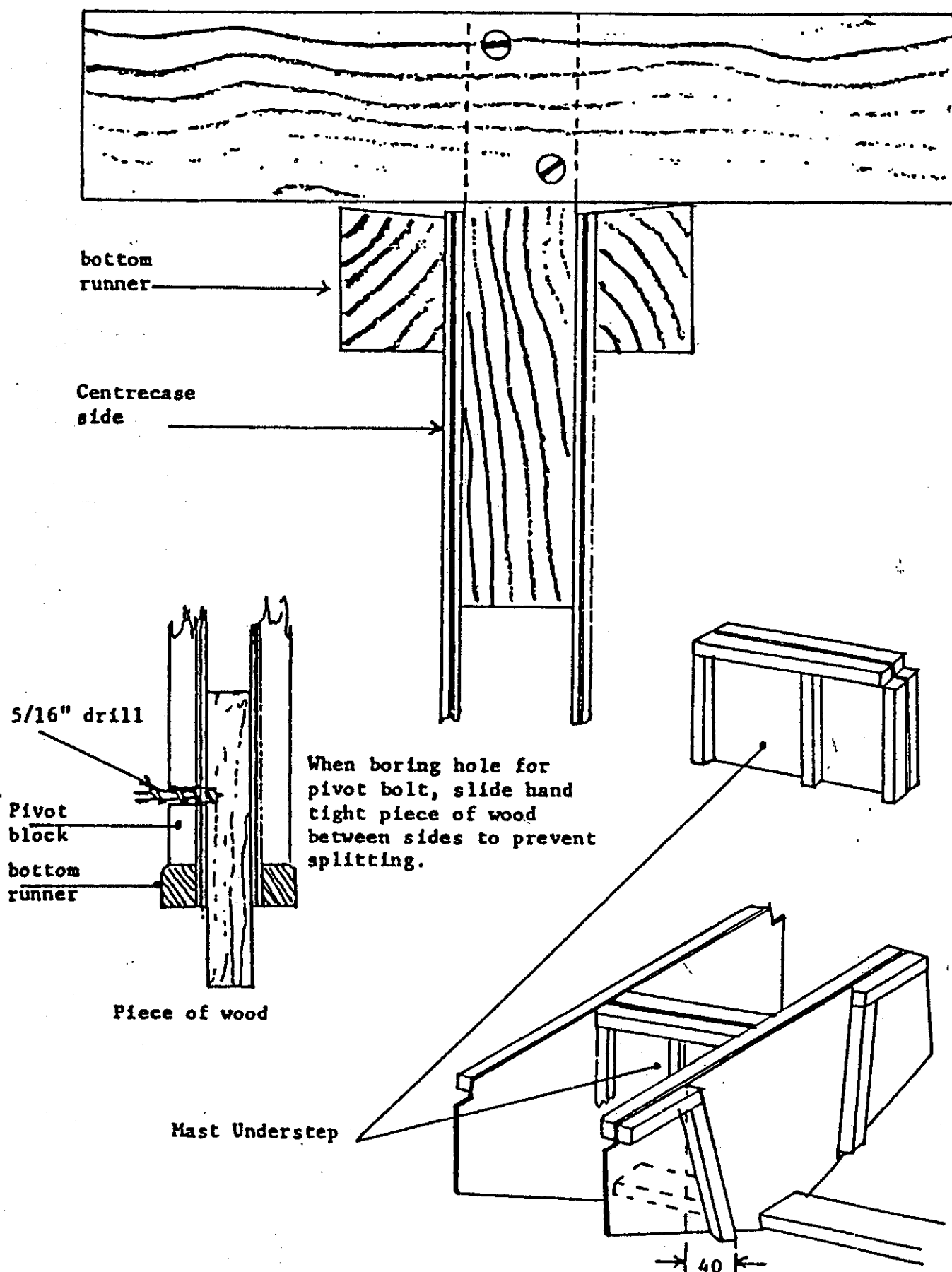


FIGURE 8 : BULKHEAD AND UNDERSTEP

177 mm

FRONT

No. 9

Note that the bottom of the case is open to allow the board to swing through, also the top front half is open to allow control of the board. Glue and nail the pivot blocks in place as shown in figure 9. Coat the inside faces of the ply sides with thinned clear Estapol ensuring that you do not coat where you have yet to glue the two sides together.

Hold the two sides together in place on the keel. Check that you have a fit on the keel. Brush glue onto the faces of the packing pieces and the opposite face of the other side. Stand on the keel as before until both sides sit down snugly. Check that the case is vertical under the plumbline. Now clamp the two sides together firmly, remove and complete nailing together. This method will ensure that your case not only sits on the keel fairly snugly but is vertical under the plumbline.

It is quite impossible for an amateur boatbuilder to achieve an accurate fit between the bottom of the case and keel but get it as snug as you can. The specified glue is a good gap filler. Put the case away until later.

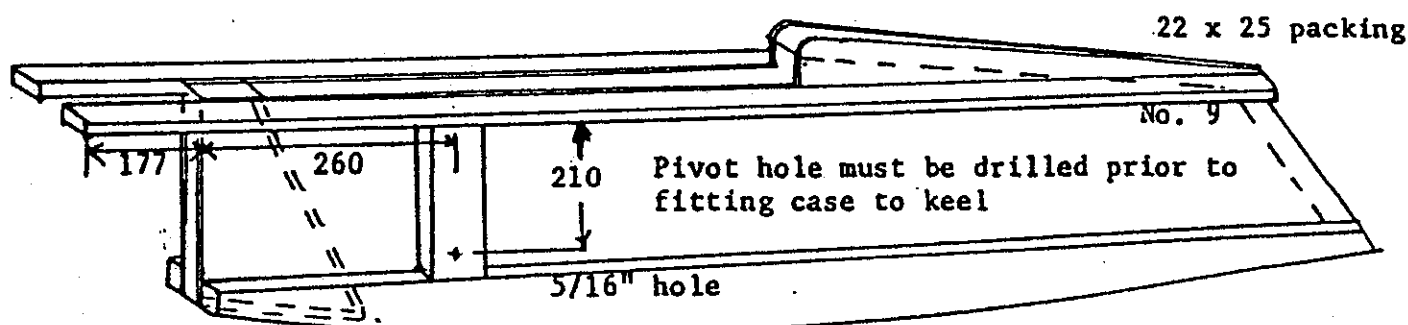


FIGURE 9 : CENTRECASE

## STEM POST

The stem post simply fills in the bows from the top down to the middle of the curve under the bows. Mark a centre line on the aft face and using the shape on your patterns for the bow curve, draw this shape on the aft face and sides of the stem post. Shape the front and then the sides using a surform or disc sander.

Push the wires into the ply, brush glue on the stem post and on the inside of the bow panels, and nail in place from outside the hull.

Note that there is no additional support to the hull between the end of the keel and the end of the stem post. The angles of the ply and the fibreglass which is later placed along this join is quite adequate strength.

## CENTRECASE FIT

Before fitting centrecase, place a spacer equal in size to case spacers (usually 19 mm) inside the case, along the bottom edge to prevent the case being compressed and thus maintaining an evenly spaced slot. Four or five small blocks will do if you don't have a long piece of timber. (see page 13)

Lay the case on its side and accurately measure for the pivot hole. Drill this hole with a 5/16 inch drill, ensuring that the drill is vertical. Drill right through both pivot blocks cleanly and carefully. This is important so as to avoid water leaking in through the pivot stud. Place the centrecase on the keel with the top edging hard up to the aft face of the main bulkhead and central under the plumblane. Check that it is still flush with the keel. If you find that the case will not quite centre under the plumblane due to the bottom of the case being slightly off 90 degrees to the vertical, that it is not more than 4 mm off being centrally under the plumblane, it can be straightened up later by the thwart. If more than 4 mm off centre you will need to plane the offending side of the bottom of the case until it is. Put glue on the ends of the protruding case edging, on the main bulkhead where the edging is to touch, on the bottom of the case and on the keel under the case. Have your helper hold the case in place and screw from underneath the hull with 50 mm wood screws through the hull and keel into the case at 150 mm intervals along both sides of the case. Drive a small monel nail through the forward face of the main bulkhead into the ends of the case edgings. Use adequate glue under the case to ensure filling and wipe away expressed glue after screwing.

## CENTRECASE STIFFENER

Notch out and fit a piece of timber about 25 mm x 12 mm and as long as the forward edge of the stiffener, to the aft face of the main bulkhead and under the two case edgings so that the tops of each are level. That is, the edgings pass through the notches. Glue and nail. Lay the stiffener in place against the main bulkhead and on the two edgings. Glue and lay a couple of house-bricks on top until the glue sets.

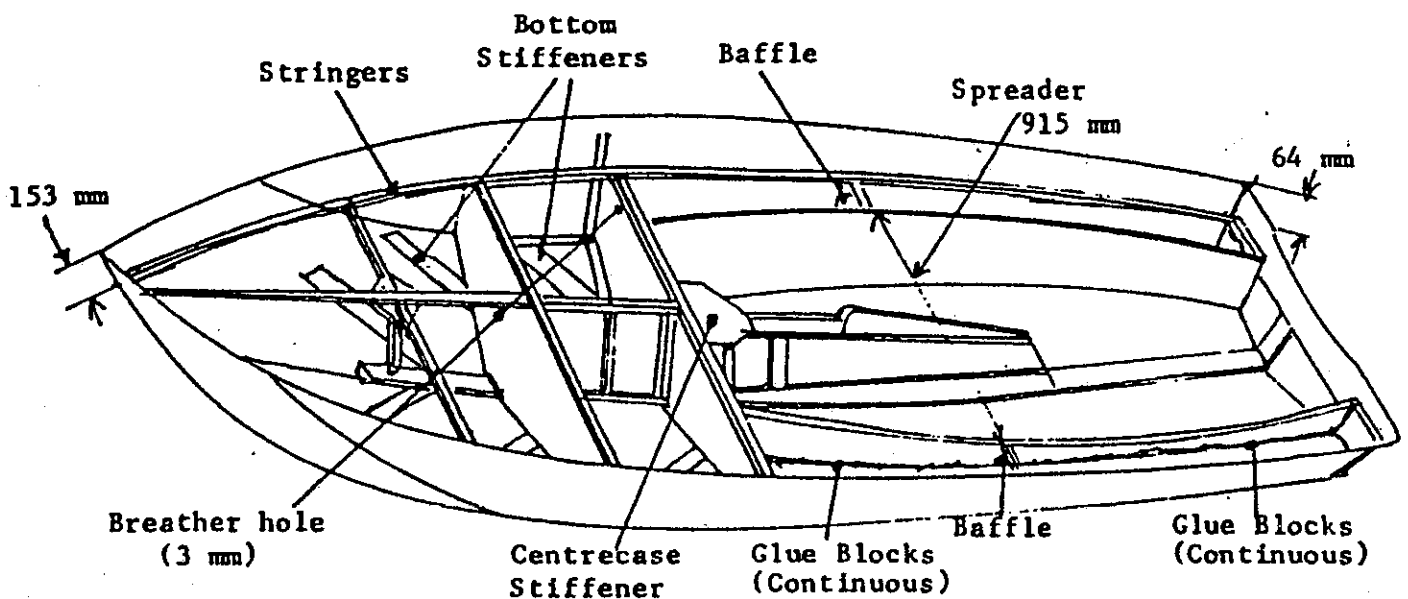


FIGURE 10 : INTERIOR PANELS



## BAFFLES

These support the thwart side load, the seat top and bottom panel loads. The centre of these pieces may be cut out to save weight.

Push out the tops of the side panels until meas. 4 and 5 are satisfied: Shape the baffle to fit. Both sides should be the same. Then glue and nail battens onto the four sides of the baffles and then glue and nail into the hull, 1370 mm from the transom (i.e. on the thwart centreline).

NOTE: If using lightweight plywoods, instal three extra baffles (or half baffles) each side to strengthen the seat top and bottom.

## SEAT SIDES

Hold the seat sides in place in the hull. You will find that they are too long so shorten at the aft end until they fit flush up at the main bulkhead, the baffles and the aft end. Press the bottom edge in until it is touching the bottom of the hull all the way along its length. Draw a pencil line along the hull bottom to show where the bottom edge of the seat side touches the hull. This is drawn on the inner edge that is nearest to the sides of the hull. Bevel and fit a length of battening along this pencil line and glue and nail from underneath flush with the pencil line. Your helper will need to hold the dolly on it while you nail. Bevel the face of this batten to match the angle of the seat sides. (figure 10).

Fit battens on the top insides, one port, one starboard, with this batten 2 mm higher than the edge of the ply, to allow for bevelling.

Glue and nail the seat sides in place to the battens, the glue blocks and the baffles. Place a spreader 915 mm long between the top of the seat sides where glued to the baffles as shown at figure 10.

## STRINGERS

These join the side panels and the decks. This timber needs to be bevelled to the correct angle before glueing into the hull, unless you have a plane with the blade going right to the edge. As you will see from figure 10, this stringer follows a straight line from 153 mm down at the bow, to 64 mm down at the transom. Using a long straight edge over the tops of the seat sides and the bulkheads, mark this line. Sight up by eye and correct where necessary.

Carefully cut back the butt strap to allow for the stringer. Trial fit the stringer and mark a pencil line top and bottom. Remove the stringer and drill very small holes to indicate where to nail from the outside. Then nail and glue the stringers into place. It will probably be necessary to clamp a couple of pieces of wood over the chine area to close up the joint.

## FOREDECK SUPPORTS

One cross and one longitudinal timber is supported on the end of the keel by a vertical post. This framework supports the deck. Use plywood gussets where the timbers attach to the panels.

NOTE: If you intend to race your 125 in very choppy waters (e.g. Port Phillip Bay), a longitudinal web between the stem and the mast understep will stiffen the hull. This may be hollowed out similar to the baffles, but leave some pieces in for strength.

## BOTTOM SUPPORTS

Glue some offcuts of ply (about 40 mm wide) diagonally to strengthen the bow in the area where there is tremendous thrust from waves. Suggested positions are shown on the boat plan and figure 10. Locate with a panel pin and hold in place with push sticks until the glue is dry.

## THWART

This supports the back edge of the centre case, in line with the baffles. Measure to length and check out the thwart until it is horizontal. Glue a small piece of timber to fill in the area between the case top edging and the thwart. Glue and screw (from inside the tanks) a batten to which the ends of the thwart are attached. Centre the back edge of the centre case under the centre line and glue and screw the thwart in position. (meas. 53). As a stronger alternative to the battens at the thwart ends, use a plywood gusset as shown in inset A to figure 13.

Quarter-round 12 mm ply gussets between the thwart and the centrecase, as shown in inset B to figure 13, reduce the sideways strain placed on the centrecase by the centreboard during beating.

## GUNWALES

The gunwales should be straight, the same as the deck line. Measure up from the stringer and mark the position of the top of the gunwale on the sides. 153 mm at the bow, 130 mm quarter of the way aft, 108 mm half way, 86 mm three quarters of the way and 64 mm at the transom.

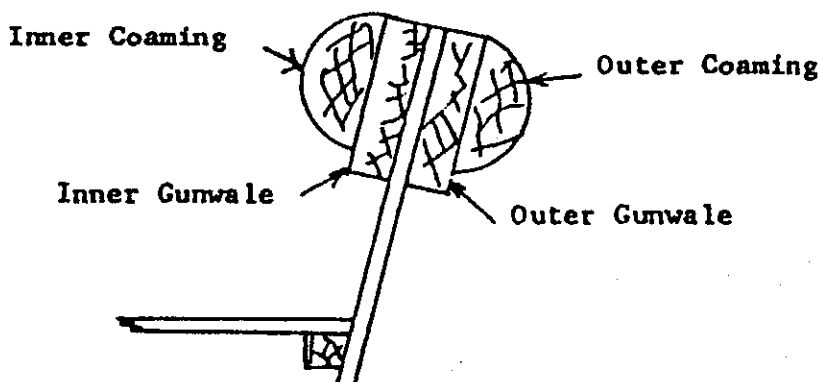
Trim the butt straps to suit the gunwale. The side panels are quite irregular above this line, but will be trimmed off later (meas. 7, 8, 49, 51).

Inspect the grain of the gunwales and use the straightest to the front, where the bending is more severe. If there is any tendency to break, pre-bend the timber by wrapping this area with towels and pouring boiling water over them. Support the ends and hang on weights; 30 minutes should be enough.

Fit the front end of the gunwales to the angle of the stem post. Clamp to the side panel and clamp into position as you work aft. Fit the aft end to the transom. Glue and nail the inner gunwales in position, working from the transom (where the joint is seen) towards the bow.

Similarly fit the outer gunwales, with the ends flush with the side panels. (meas. 49)

NOTE: The chainplate fittings placed on the outside of the side panel results in a stronger boat. However, it is necessary to notch out the inside of the outer gunwale to allow for this fitting. Care must be exercised when bending the gunwales, to avoid breaking at this point.



## TUBES FOR CONTROL LINES

The mast on a 125 is usually stepped 150 mm forward of the main bulkhead. (meas. 67) To simplify leading rope halyards and control lines aft, a maximum of 4 tubes may be fitted between the deck and the bulkhead. These are optional, and if required may be fitted before or after decking.

Usual uses and locations are:-

1. Spinnaker halyard - port side front of the mast to port side of the centre case near the keel.
2. Spinnaker pole lift - starboard front of the mast to the top of the centre case.
3. Cunningham eye - starboard aft of the mast to the top of the centre case.
4. Boom vang, mainsail outhaul or spinnaker pole down haul - locate as desired.

Aluminium tube is most commonly used and must be fastened with epoxy glue. The buoyancy tanks must be sealed. Heat the tube for bending, a large curve being best (figure 12).

Drill the holes for the tube through the bulkhead and understep top battens slightly oversize to allow for the glue. Make a plywood washer to slip over the tube and install with plenty of glue. Put more glue around the joint and slip the plywood washer into place. Glue should be forced into all gaps. The tube must be attached to the mast understep (meas. 69, 70, 71). Wet cotton wool in the ends of the tubes will stop glue entry.

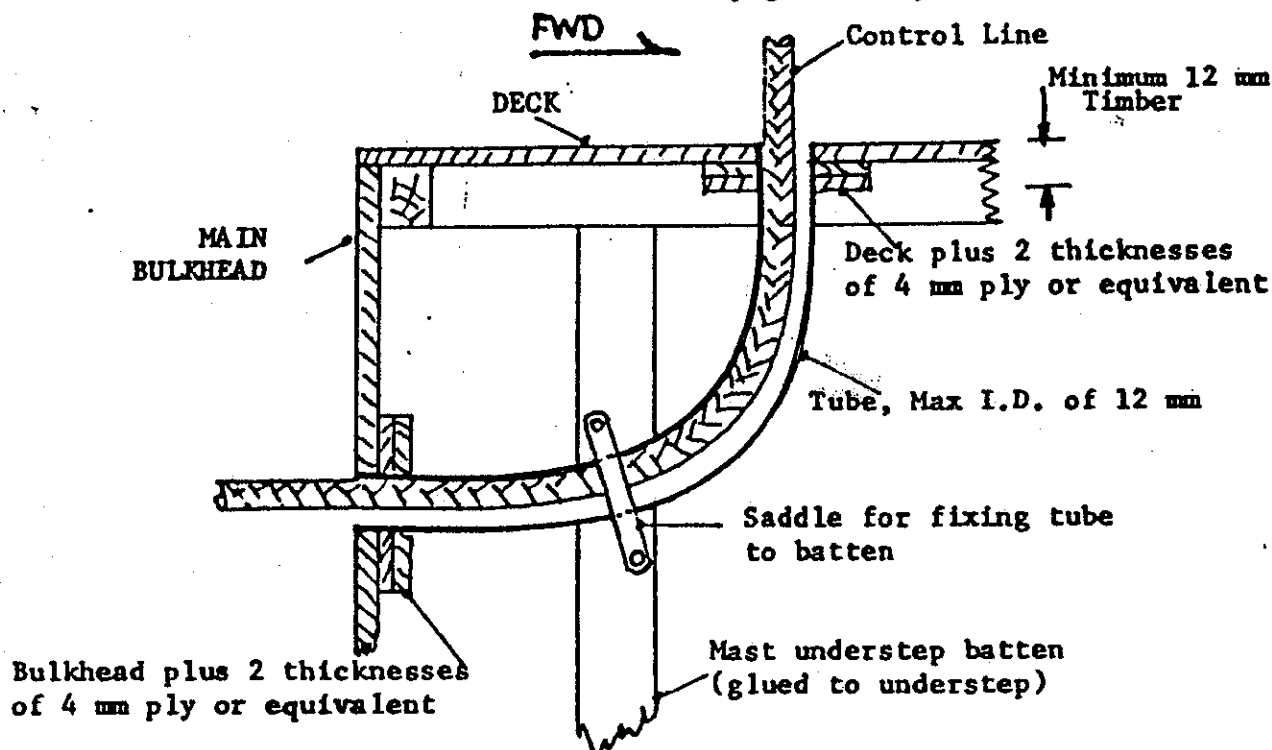


FIGURE 12 : INSTALLATION OF TUBES

## FLOOR BATTENS

Four or six may be fitted, half each side, but the four-batten option is not recommended. Full length battens are recommended, although cockpit drainage is improved if they stop short of the transom by some 25 mm. Locate the batten nearest the keel so that the self bailer (venturi) will fit.

These battens can either be nailed in place from outside (remember how we located the nails for the stringer?), or located with panel pins and held in place with push sticks until the glue has dried. If you decide to use push sticks, place a scrap of timber on top of the batten to avoid bruising. Temporary pieces of wood may be clamped across the seat tops, to push against. (meas. 46, 47, 48).

## FIBREGLOSSING

Check the hull alignment. Flatten all wire loops down to the plywood, checking that none have opened up and fibreglass ALL inside seams including both sides of the seat sides and the bulkheads. Mix your resin in accordance with the directions on the containers and try out a small mix on scraps of plywood to check the proportions against the temperature. Fibreglass as follows: Cut tape to the lengths required and lay alongside the seams. Start with the forward bulkhead as this is entirely enclosed by the foredecks and the mess you are about to make won't be seen. Fibreglass the seams facing the cockpit last; you'll be an expert by then. Mix up about a quarter pint of resin and brush along the seams slightly wider than the tape. Do one seam at a time and then lay the tape and press it down into the resin with the same brush. Ensure that the resin soaks right through the tape which will disappear. Ensure that you fill with the resin any gaps between the ply panels. Brush any resin you have left after each mix along the seam between the front of the keel and the bottom of the stem post and along the forward edge of the buttstraps. When you have fibreglassed all the seams and the resin is dry, roughen up the surface with garnet paper and brush a second coat of resin over the seams. This should dry smoothly with a shiny finish and the tape will be hard to detect. Sand down the edges of the seams until fairly flush to the ply.

There is no need to fibreglass along the edges of the keel or the sternpost. Just the seams between the panels. Taping over the glueblocks is too awkward. Don't!

## PREPARATION FOR DECKING

The tops of the stringer, battens, baffles, etc. must be levelled off to give a good glue joint for the deck. Use a sharp plane, Surform, file, scraper, etc. Do not use a disc sander.

Drill the holes for the drain bungs (meas. 2). The bow tank should drain into one of the tanks alongside the mast understep. Access to this bung is via an inspection hatch. Two hatches are placed in the main bulkhead. (see figure 7). The side tanks are best drained through the transom. A bung alongside the keel through the transom is also of great help when washing the boat after sailing.

Sealed buoyancy tanks can suck-in when a hull which has been sitting in the hot sun on the beach is put into cold water. A 3 mm hole is drilled in the top of the bulkheads to equalise the pressure between the tanks. The inspection hatches are not screwed in until after launching. (see figure 10)

Lay one of the foredeck halves in position. Mark the outer edge with a pencil line parallel to the side and trim to fit. Check the hull alignment and centre line. Mark this centre line onto the foredeck half and trim to it. Remove this half and fit the other half. Lay the first half in position with the central join on top. Mark the join with a pencil, remove the foredeck and trim to fit.

Check the beam measurements (meas. 4 and 5) and similarly fit the seat sides. Check the seat top width (meas. 40). Fit the aft end of the seat tops and terminate the front end over the batten on the front side of the main bulkhead. (It is a good idea to glue another piece of timber onto this batten to increase the glue area.) Many 125s have shown a fracture with the deck joint over the edge of the ply on the main bulkhead. This joint is best stepped. (see figure 13).

The amount to be trimmed off the inner edges of the decks is marked by running a pencil line on the underside along the edge of the seat sides and main bulkhead. Remove the decks and cut off the excess, leaving 2 mm for trimming after glueing. Fit the foredeck to seat top joint.

Mark all glue line positions on the underside of the seat tops. Re-inforce the jib fairlead track areas with a pad of scrap plywood glued underneath.

Clean out all tanks with a vacuum cleaner and seal with Watsonia Proof Oil or a coat of varnish. Seal under the decks except for glue lines.

#### DECKING THE HULL

Check the hull alignment. This is your last chance. Glue both surfaces to be joined, as well as the end grain of the decks where they meet the sides. Starting with the foredecks, glue, position and nail. You may not wish to have nail heads showing all over the decks. These can be avoided by using panel pins through a scrap of ply, which are later removed and the holes filled.

Ensure that all the deck joints are secure. Remove Selleys 308 or Resorcinol glue with a wet rag. Epoxy glues are removed with a scraper.

When the glue is thoroughly dry, remove the excess ply around the edges of the decks. A spokeshave is the best tool for this. Rub the end grain of the ply smooth with sand paper.

#### COMPLETING THE HULL

Fit the bow cover beam, king plank and plywood cover. People tend to lift the boat by this beam, so glue and nail it securely. One side of this beam and king plank will need to be trimmed away slightly if you intend to fit a spinnaker chute (meas. 22, 23, 24, 25 and 26). A dowel through the gunwales into the ends of the beam and the king plank is recommended.

Chainplate packers are now fitted to fill the space between the deck and the gunwale. (meas. 44, 45 and 61).

Glue the inner and outer coamings onto the gunwales as shown in figure 11. (meas. 49, 50 and 52). Clamp this joint to avoid nails if possible. When glue is dry, do any necessary fairing, but take care - it is easy to plane too much off and jeopardise measurement 52.

A gusset to strengthen the side panels to transom joint is recommended. (meas. 31).

Two handholds in the transom are required, not only to aid carrying but also to allow escape of water following excessive heeling. These holes (figure 7 and Rule 2.7b) should be cut down to the level of the seat tops. A coping saw is useful. Now is the time to sand down any rough areas, complete any planing of gunwales and generally prepare the decks and cockpit for clear coating. (meas. 28 and 29).

Your hull should now look like the one in figure 13.

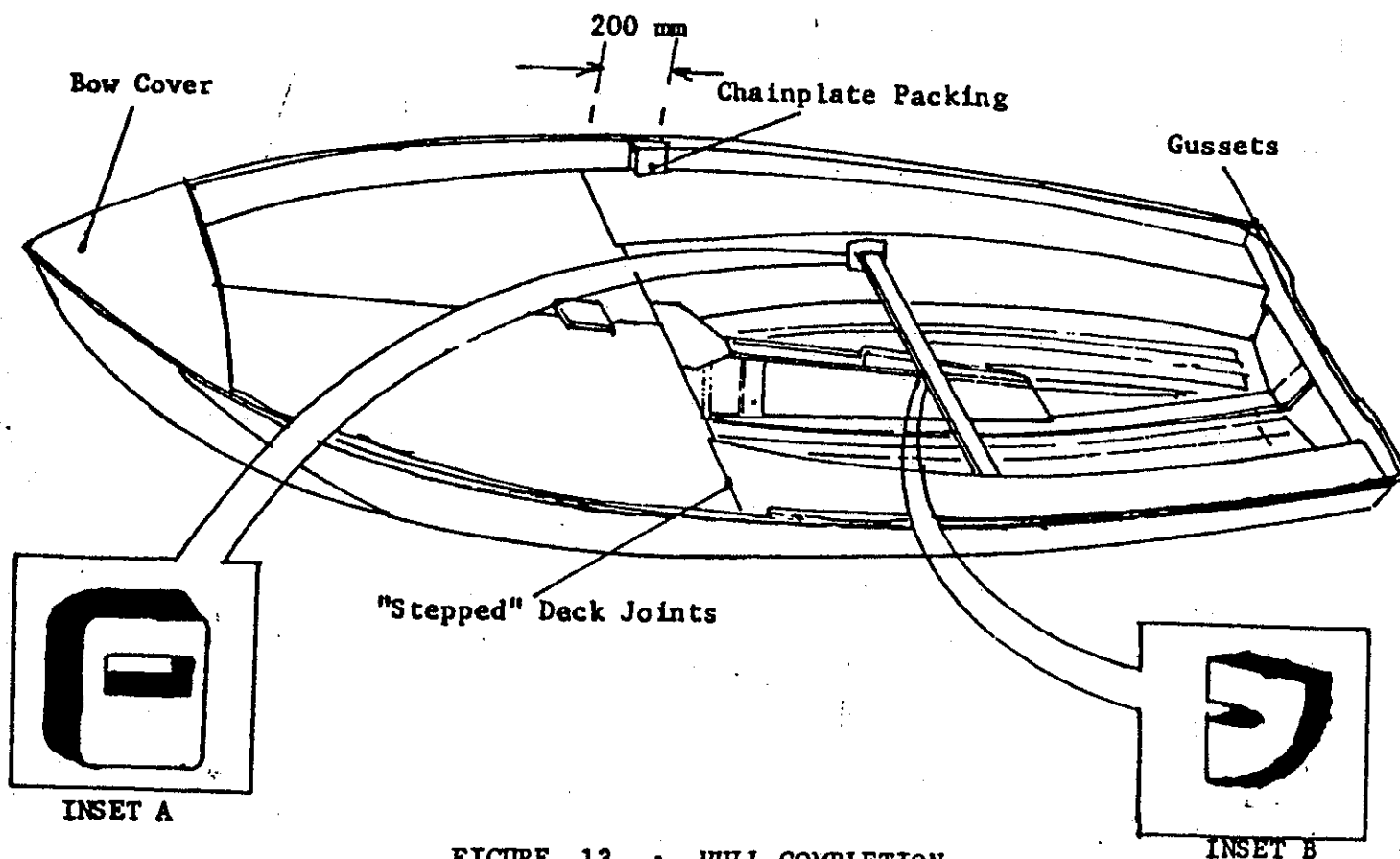


FIGURE 13 : HULL COMPLETION

#### FIBREGLOSSING OUTER SEAMS

Turn the hull over and cut out the centre case slot. Nip off remainder of wires, file down and fibreglass all outer seams. Remember the transom. Slightly bevel the centre case slot edges to enable the tape to adhere to the resin. Ensure that you turn the tape down the forward and aft ends of the slot about 25 mm to ensure that water doesn't enter the end grain of the keel. All right angled seams must be slightly bevelled or the tape will lift. Turn hull right side up and fibreglass along the deck edges and where side decks meet foredeck. Glass the bottom edges of the shroud blocks where they meet the decks. Every glassed seam must be rubbed down after the first coat has dried with coarse wet and dry paper, or scraped where convenient, and then given another coat of resin. The seams must appear glossy and free from any pin holes.

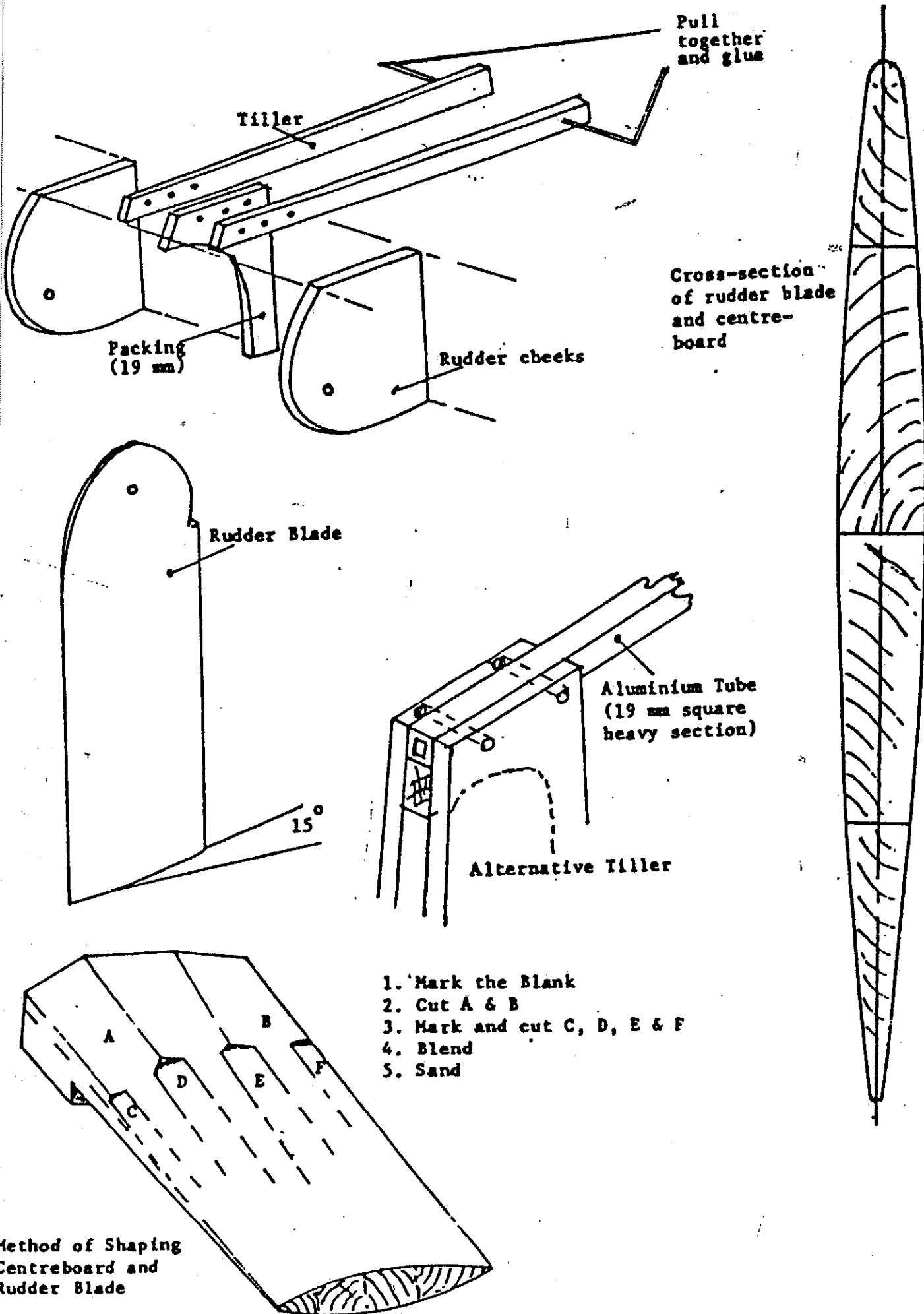


FIGURE 14 : CENTREBOARD, RUDDER & TILLER

The board is best made from narrow planks of a stable quarter-sawn timber, glued together with the grain of adjacent planks opposed to avoid warping. It is not necessary to fibreglass the board if good quality timber is used. Use a maximum thickness board (meas. 12, 13, 15 and 16), and shape to a good hydro-dynamic shape like that for the rudder (see figure 14). This shaping is best done with a very sharp plane blade. Lazy builders may use a disc sander, however it is very difficult to achieve a smooth shape by this method.

**NOTE:** If you wish to fibreglass the board, reduce the thickness by 0.8 mm each side to allow for the cloth and resin build up.

## **RUDDER**

The shape of the rudder blade is optional, however it must fit within a 810 mm by 280 mm rectangle (meas. 18). Cut and shape the rudder as for the centreboard, but a thickness of 19 mm is satisfactory (meas. 17, 18 and 19).

Rudder cheeks may be made from 12 mm ply or three 4 mm ply pieces glued together to make 12 mm. They may also be made from aluminium. Cut the cheeks to shape and glue to the packing piece (see figure 14). The tiller is glued to either side of the packing piece above the cheeks and glued together at the front end. Three bolts through the packing piece and tiller are recommended.

An alternative tiller is shown in figure 14, using a length of 19 mm square, 3 mm wall aluminium tube. This may be fixed by two horizontal bolts through the cheeks or vertical bolts through the packing piece.

An extension tiller is attached to the front end of the tiller. A universal fitting (Ronstan RF 1127) can be bolted to the tiller and a dowel or conduit extension slightly longer than the tiller fitted. Fit a comfortable grip for your fingers on the end.

Remember to varnish inside plywood rudder cheeks before glueing them to the packing piece.

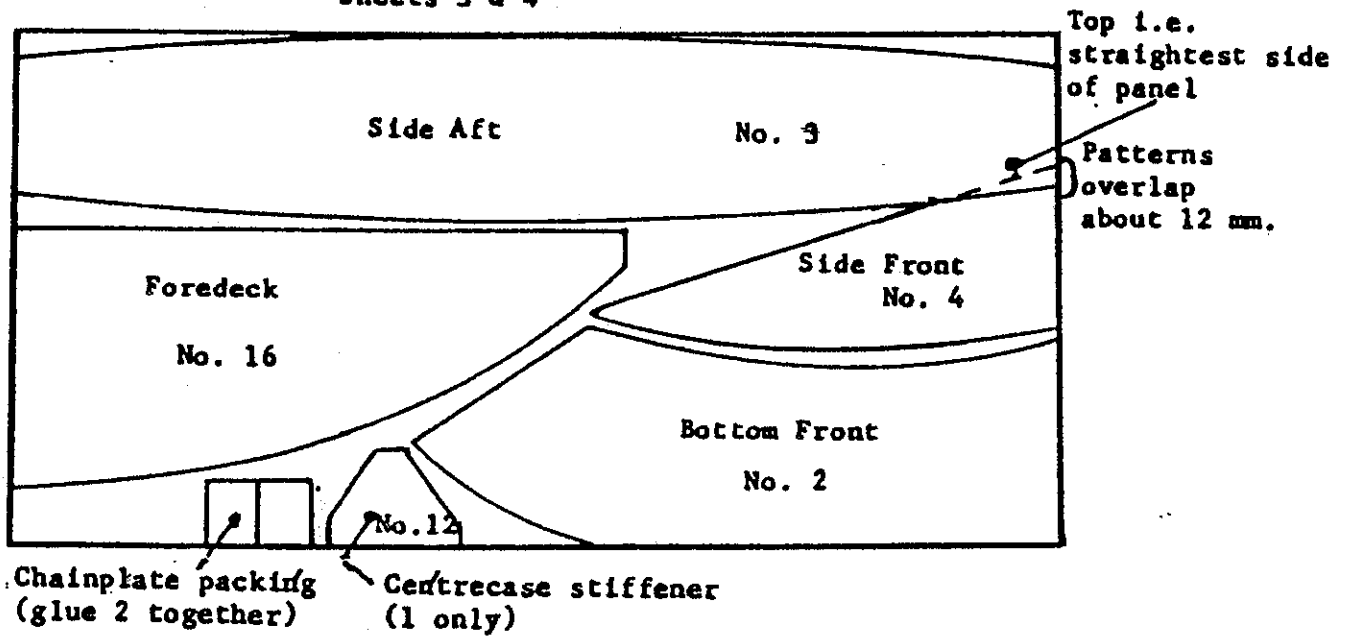
## **METRIC SIZE SHEETS OF PLYWOOD**

Metric size sheets are slightly smaller than the Imperial sheets that the 125 was designed for; they are 2400 mm by 1200 mm as against 2440 mm by 1220 mm. Difficulty will be experienced fitting the pattens onto the sheets. Lay out all sheets before cutting; sheets 3 and 4 will overlap on the Side Front and the Side Aft panels, as shown in figure 15.

Cut out the panels as normal, except the Side Front panel, which will have a corner missing. A fill - in piece of ply is added after the inner gunwales and before the outer gunwales are attached. (see figure 15).



Sheets 3 & 4



Fill in piece is glued in after the inner gunwale has been attached

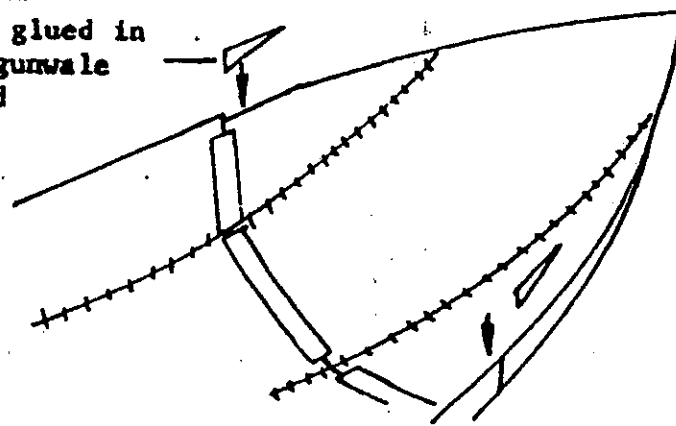
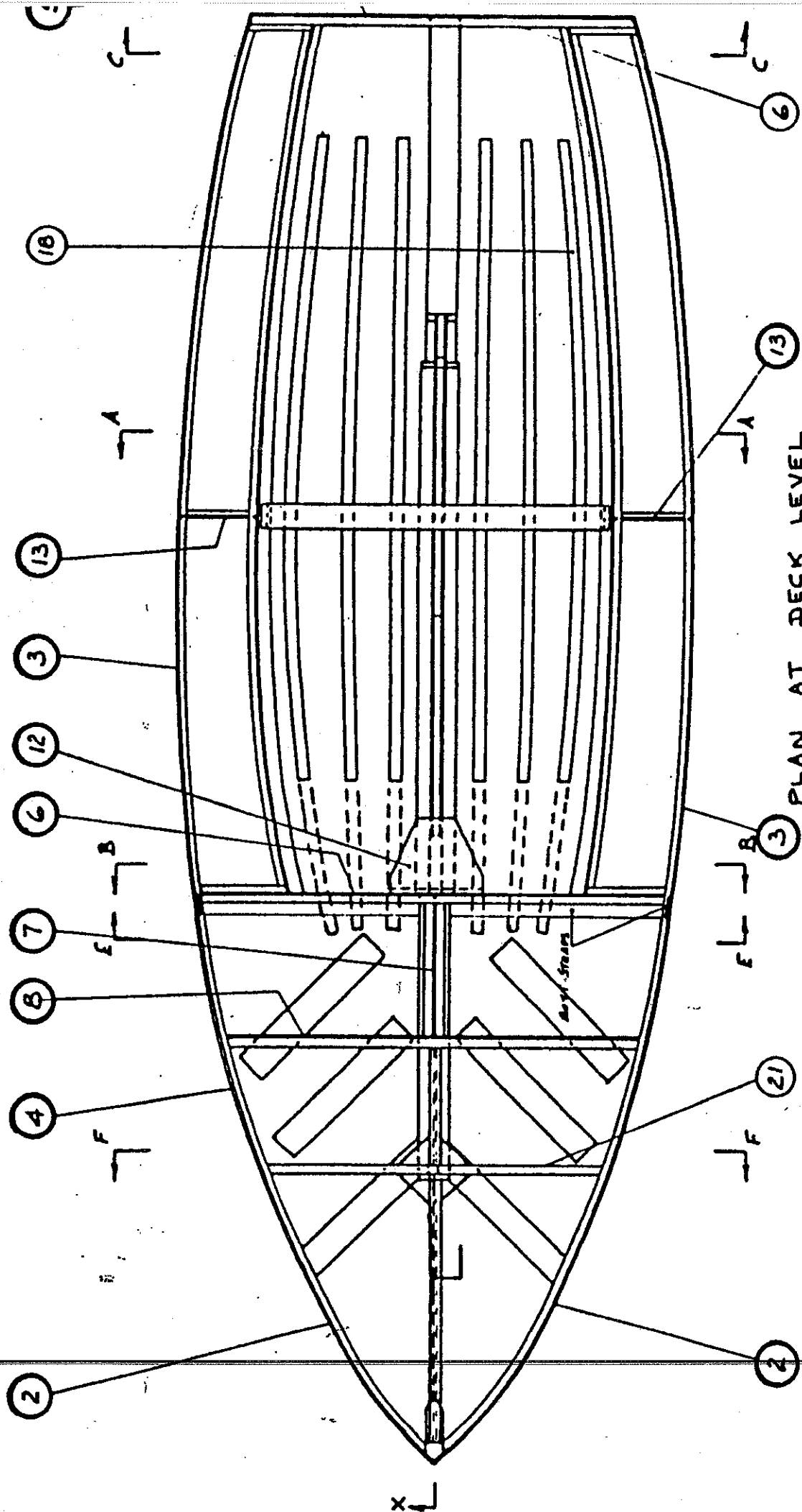
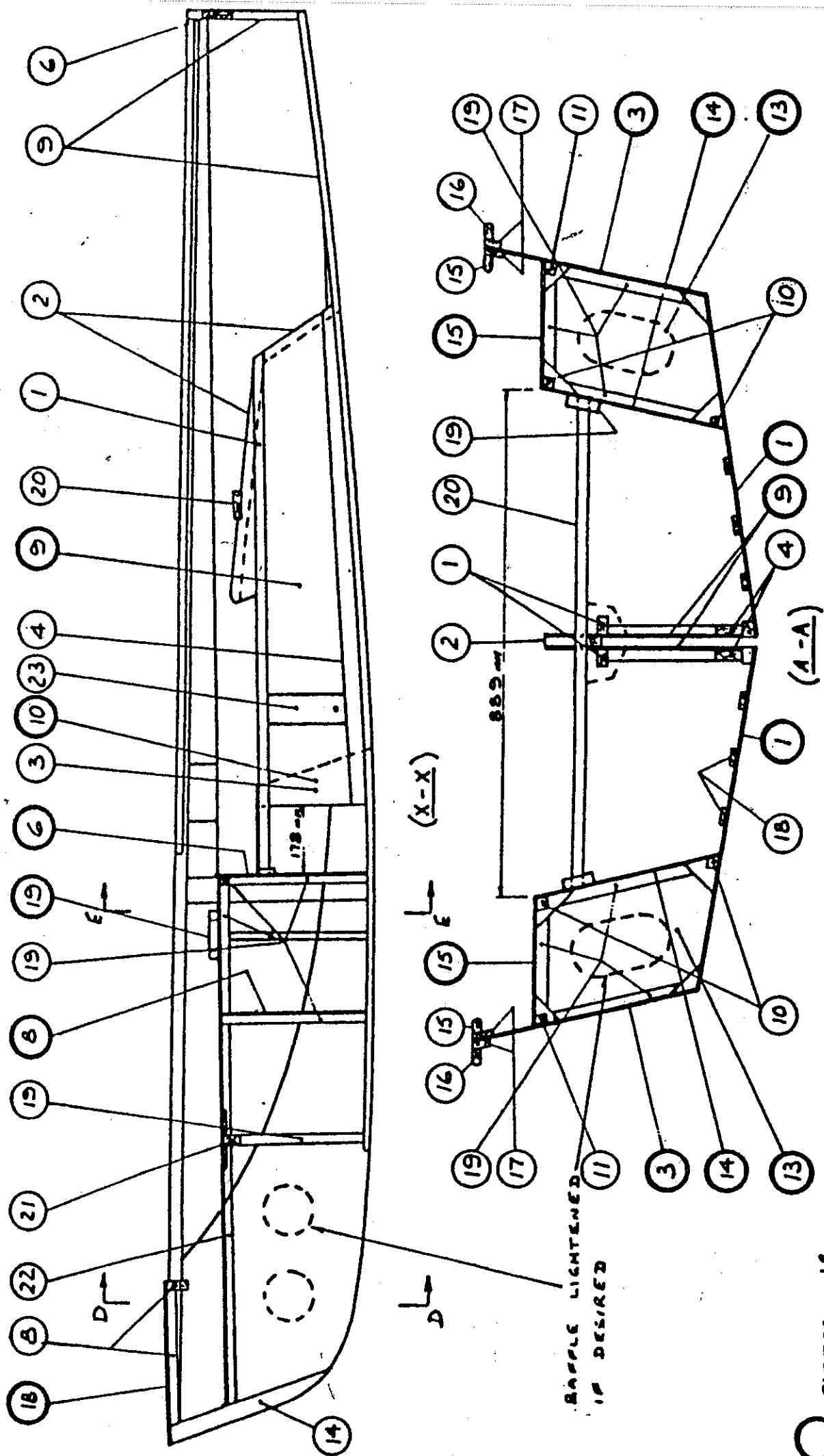


FIGURE 15 : METRIC SIZE PLYWOOD CUTTING



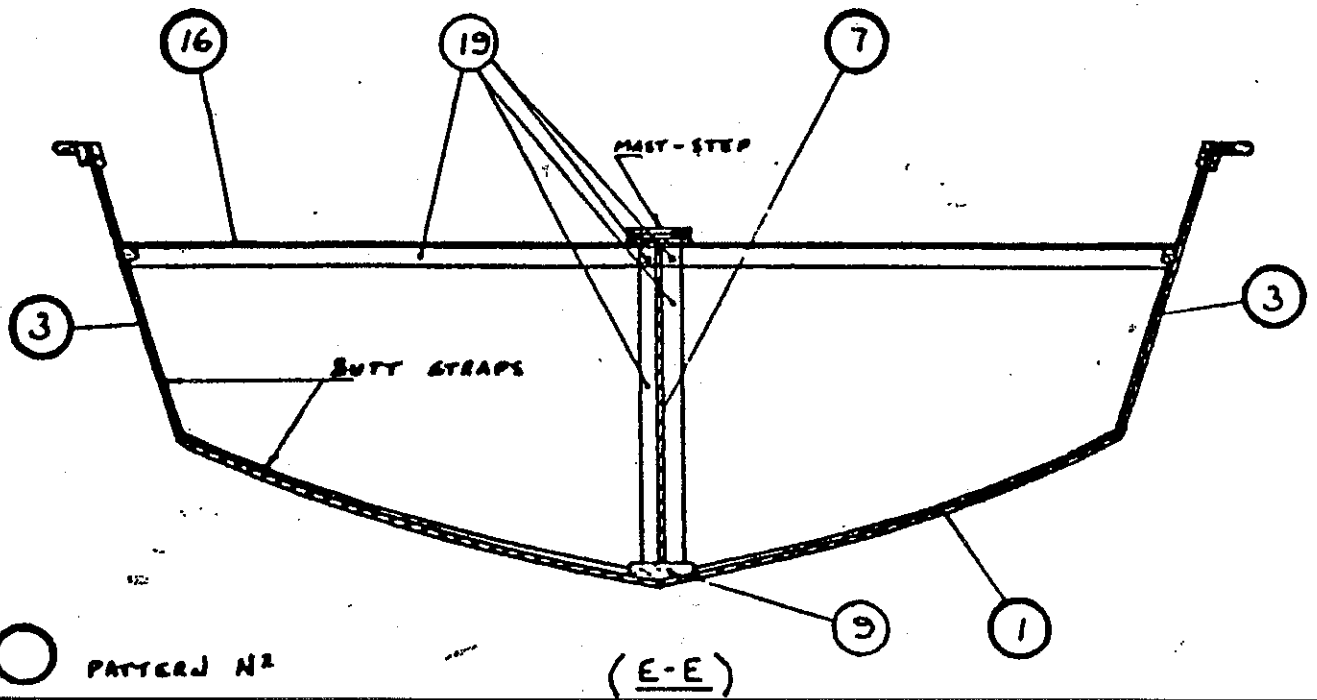
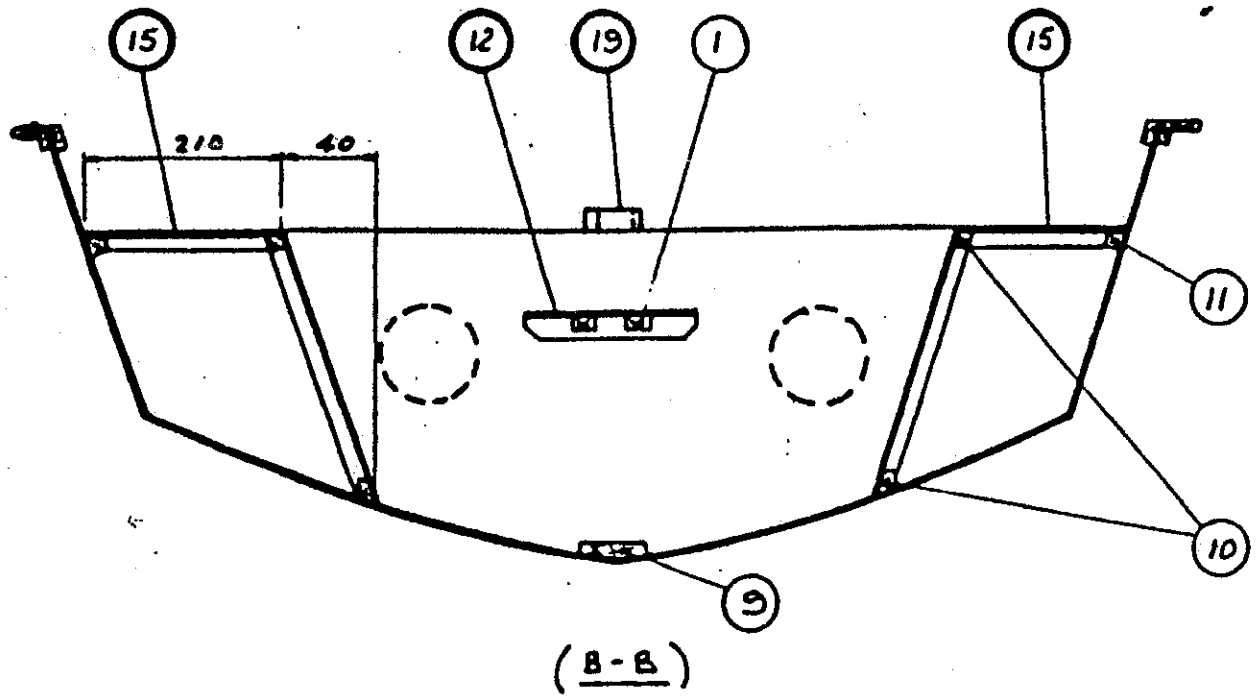
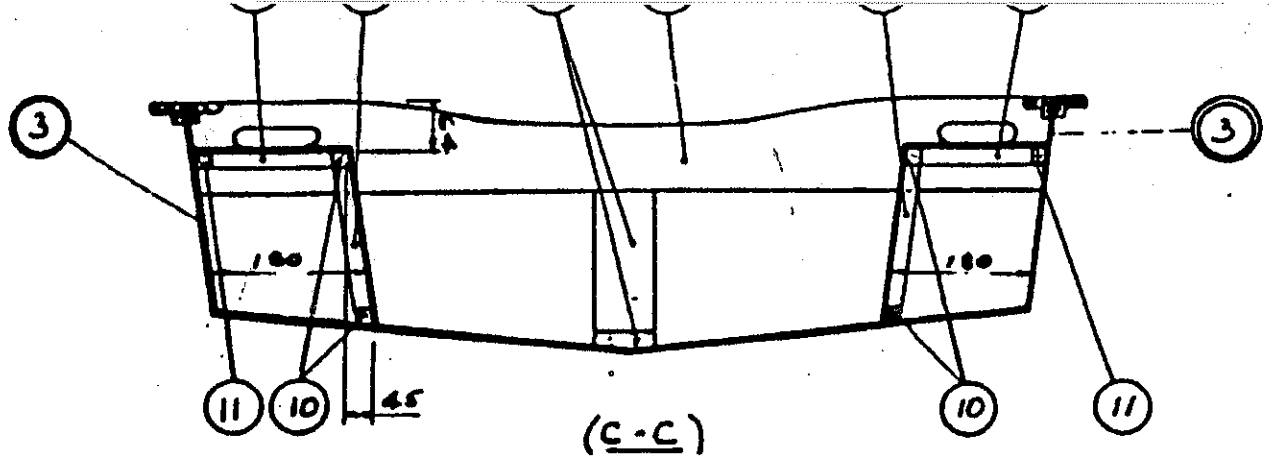
PLAN AT DECK LEVEL  
(SHOWING DECKS AND SEATS REMOVED)

- PATT. N°
- TIMBER ITEM N°

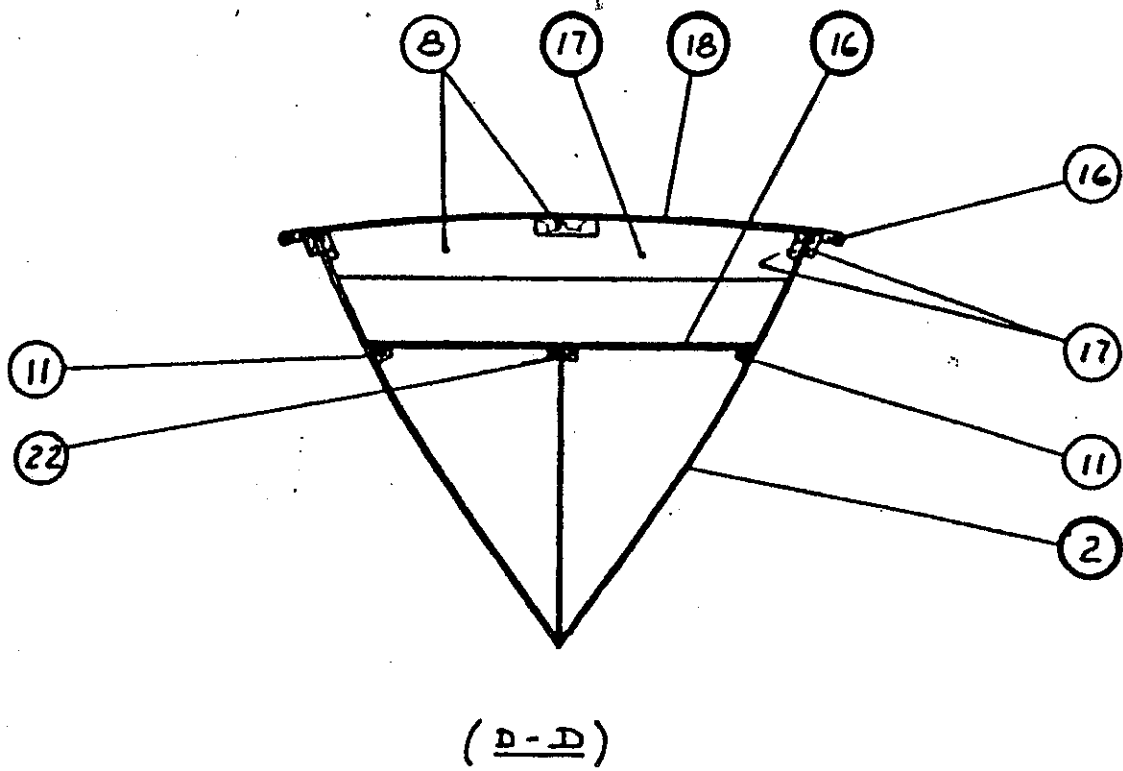
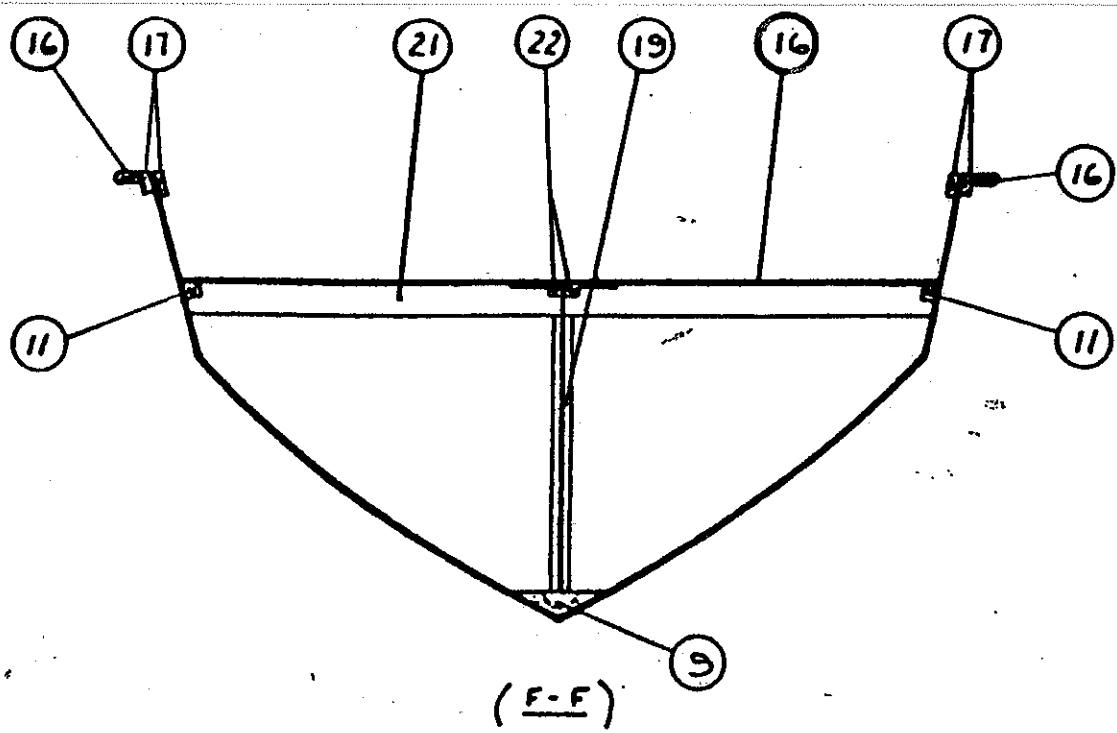


○ PATTERN N°

○ TIMBER ITEM N°



- PATTERN N°
- TIMBER ITEM N°



PATENT N°



TIMBER ITEM N°2

Most people know how to paint. The main point to remember with a boat is that the end result is only as good as its bond to the timber. Use only marine undercoats, finishes and varnishes, unless you really know what you are doing. Buy your material from a reputable store and follow the instructions. Fill all nail holes with a recommended filler, and sand any marks off the areas which will be varnished. Lightly sand all of the boat, rubbing along the grain, with fine paper.

Thin your first coat of varnish or undercoat by 15% to get a good bond. Lightly rub between coats to flatten the grain as it lifts. Apply as many coats as is necessary to fill the pores of the timber.

Fillers are used between undercoats to disguise any problems you may have had with fibreglassing.

When your preparatory coats are finished, apply one good finishing coat. A good result can be achieved by using the paint straight from the can. Thoroughly stir and allow any bubbles to settle. Brush onto the boat with long even strokes. The paint will flow smoother on cold nights if the paint is warmed by standing in a tin of warm water. Do not play with the paint too much, allow the surface tension of the paint to draw out to a smooth finish. Guard against dust fall-out by thoroughly cleaning the shed before the final coat.

The rudder blade and centre plate can either be painted or coated with fibre-glass resin and wet-rubbed smooth.

Wet-rub sand paper is best for surfaces which will be painted, and white 'Trimite' dry-rub paper for areas which are to be varnished.

#### FITTING OUT AND RIGGING

Fittings used and where they are placed are largely dependent upon personal choice, measurement rules permitting. You are advised to inspect other boats, talk with their owners, and decide where fittings are best placed for your needs. Careful selection of good quality fittings will save you money in the long run. Buy the most satisfactory for the job in hand. Unsuitable fittings are usually replaced after one season, effectively increasing the cost.

Read the rules and plan out your fittings based on other boats and the suggestions in Figure 16(hull) and Figure 17(mast and boom).

To avoid discolouration of your plywood due to water penetration, seal all screw and bolt holes with varnish. Electrolysis and water entry into the mast is guarded against by sealing between the fittings and the aluminium spars with silicon rubber also.

#### HULL FITTING (see Figure 16)

- |             |  |
|-------------|--|
| Towing ring | 25 mm internal diameter by 5 mm stainless steel ring attached through the stem between the deck level and bow cover (RF 424)   |
| Bow fitting | Jib luff attachment point. Screw into the stem and the bow king plank (RF 101; meas. 62).  |
| Mast step   | Use a special cast aluminium step or make a step by cutting the shape of the mast out of some ply and screwing to the deck with the back of the mast 130 mm from the bulkhead (meas. 64, 65, 66 and 67). |
| Chainplates | Side stay attachment point. Bolt onto the outside of the side panel with the bolts through the chainplate packing (2 off, RF 488; meas. 61).   |

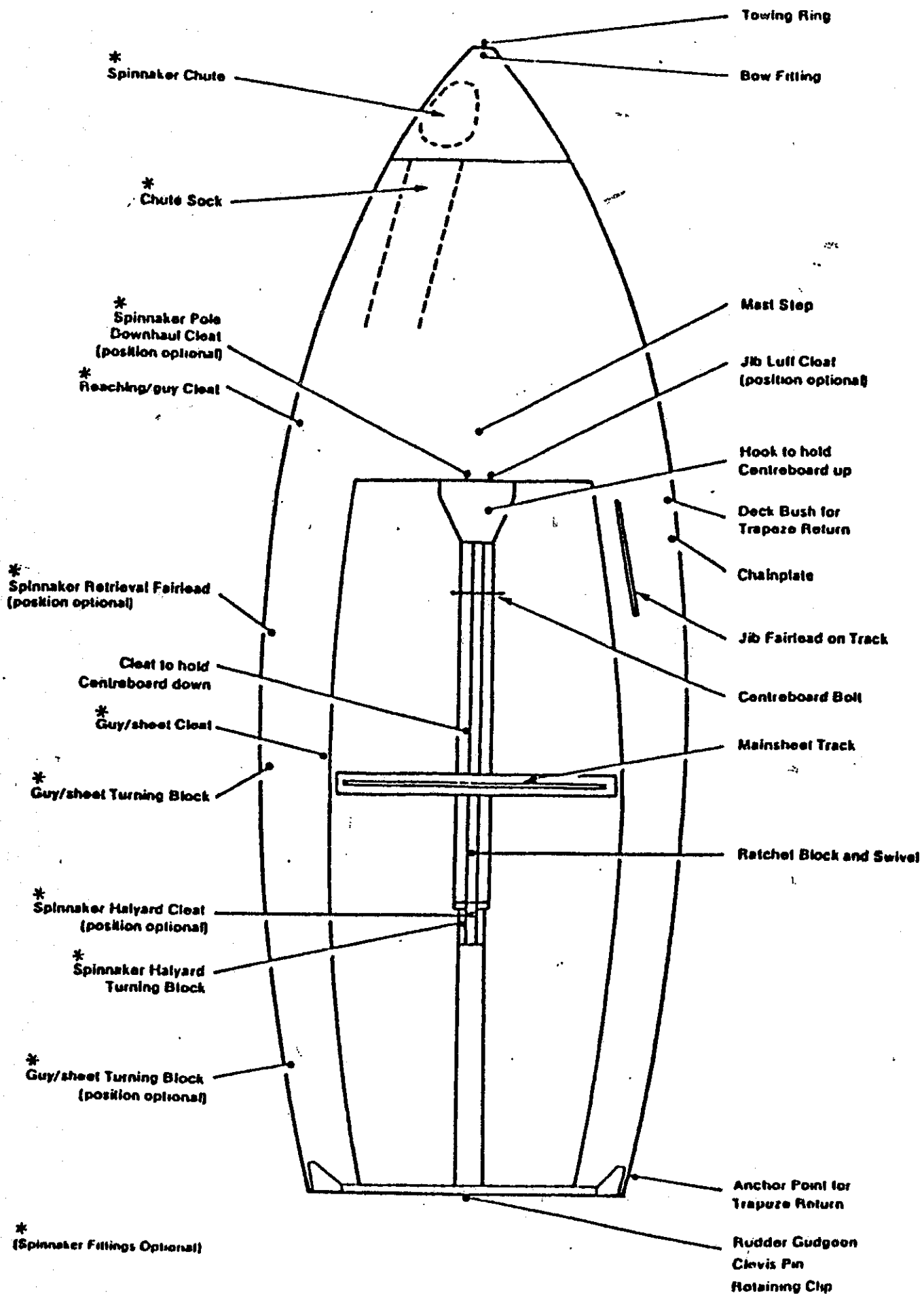


FIGURE 16: HULL FITTING OUT GUIDE

Deck bush	Through the gunwale to lead the trapeze return shock cord aft to a point near the transom (2 off, FG 541).
Jib fairleads	Adjustable on a slide, complete with cleats. These cleats will have to be bent up to let the sheet angle clear the opposite gunwale (2 off, RF 373). Fit them as close to the edge of the seat top as is possible with the support block under the cleat on the deck.
Mainsheet track	Bolt to the top of the thwart for the mainsheet. Use a large screw to attach direct to the case top (500 mm of 16 mm stainless steel track RF 363, 1 only slider RF 370, 2 off track stops RF 367, 2 off track ends RF 366; meas. 63).
Mainsheet swivel	Securely screwed to the case top RF 570.
Jib luff tension	Screw a pulley (RF 568) to the stem just above the deck, and a vertical clamcleat (CL 204) at the aft edge of the foredeck. A rope is passed through these fittings to control jib luff tension.
Centre plate	Screw clam cleat (CL 211) to the front top of the centrecase and a nylon hook to the case stiffener in line with the side of the plate. A rope is passed through a hole in the top of the centre plate and will hold the plate down against the water pressure. To hold up whilst trailering, pass the rope over the hood. A piece of 6 mm diameter brass or stainless steel is suitable for the pivot. Leave 1 mm short, and fill the ends with silicon rubber.
Rudder fittings	Fittings RF 911 (top) and RF 904 (bottom) are bolted to the stock (meas. 20 and 21). Fittings RF 314 (top) and RF 315 (bottom), with a pin RF 413, bolt to the transom. Swivel RF 1121 is used for the tiller extension.
Inspection hatch	Place the largest you can find in the main bulkhead to fit jackets, etc. through.
Drain bungs	Six are required, front bulkhead, main bulkhead (2) and transom (3). Seat these in with silicon rubber to avoid leaks.
Bailer (Venturi)	Cut a hole under the thwart next to the keel to fit a RM 180 venturi.

NOTE: Alternative fittings may be used.

#### BOOM FITTING (see Figure 17)

Cut to length (meas. 97, 98 and 9) and rivet four pulley clips as per Figure 17, three for the mainsheet, and one for the boom vang (captive). Push the gooseneck into the appropriate end and, if required, seal the other end with a ply, foam, or a similar plug. Boom sealing is optional. Place gooseneck RF 562 into the plug and measure the black band position from the aft face of the mast (meas. 100 and 101). Bend to shape and rivet a pulley clip across the end of the boom to tie the sail outhaul to.

#### MAST FITTING (see Figure 17)

Cut mast to length (meas. 76, 77 and 78). Modify a halyard sheave RF 453 and rivet to the top end. Fit bottom plug and seal top and bottom of mast. Drill a 3 mm air hole just above the bottom plug (not more than 100 mm up from base of mast).



Bend a pulley clip to suit, and rivet near the base of the mast for the boom vang. Measure and paint the black bands (meas. 79, 80 and 81). Locate the boom with its top edge just above the top of the black band and rivet the gooseneck on. Expand the track for the bolt rope. Drill the bolt hole for the hounds. NOTE: An aluminium compression tube will guard against leaks.

Rivet the hounds (meas. 84). Should spreaders be required, rivet the base 2250 mm up the mast. The limited-swing type are recommended. Set the arm length at 345 mm with the angle such that when the mast is in the forward position the line between the side stays is 180 mm aft of the back of the mast.

## STANDING RIGGING

Swage the upper end of the side stays. (Four metres of 1 x 19 stainless steel wire.) Attach a vernier fitting RF 445 to each chainplate with its setting in the middle of its adjustment. Hold the mast at right angles to the deck with the aid of a large square, with the top ends of the stays attached to the hounds. Mark with some tape where the bearing points of the verniers come on the stays. Take the mast down, equalise the stay lengths, add 45 mm and swage the verniers on.

Shackle the top of the jib to the hounds and stand the mast up. Pull on the jib hard and adjust the verniers if necessary until the mast is at right angles to the foredeck. Measure the distance between the end of the jib and the bow fitting, and make a strop to suit, allowing for the vernier and shackles. Fit the vernier to the hounds and stand the mast up again, with 3.5 metres of trapeze wire swaged to trapeze nuts on the hound fittings. Put the trapeze handles on the wire and swage a thimble to the end of the wire. Lash the rings to this thimble with cord so that they just touch the gunwale.

## RUNNING RIGGING

Swage a shackle into the end of 5.5 metres of halyard wire. Place another swage 200 mm from this swage to lock in the halyard lock. Run the mainsail up the mast with the bottom attached to the gooseneck. Attach the halyard and tension so that there are no creases. Rivet the halyard lock in its appropriate position. Swage a thimble to the other end and attach a cord halyard which is detached and carried in the inspection hatch while sailing.

Set up a cunningham as per other boats to control luff tension.

The boom vang consists of 600 mm of 2.5 mm wire swaged to the pulley clip on the boom and a RF 188 pulley. An RF 187 jamming fiddle block is shackled to the mast with a RF 628 twisted shackle.

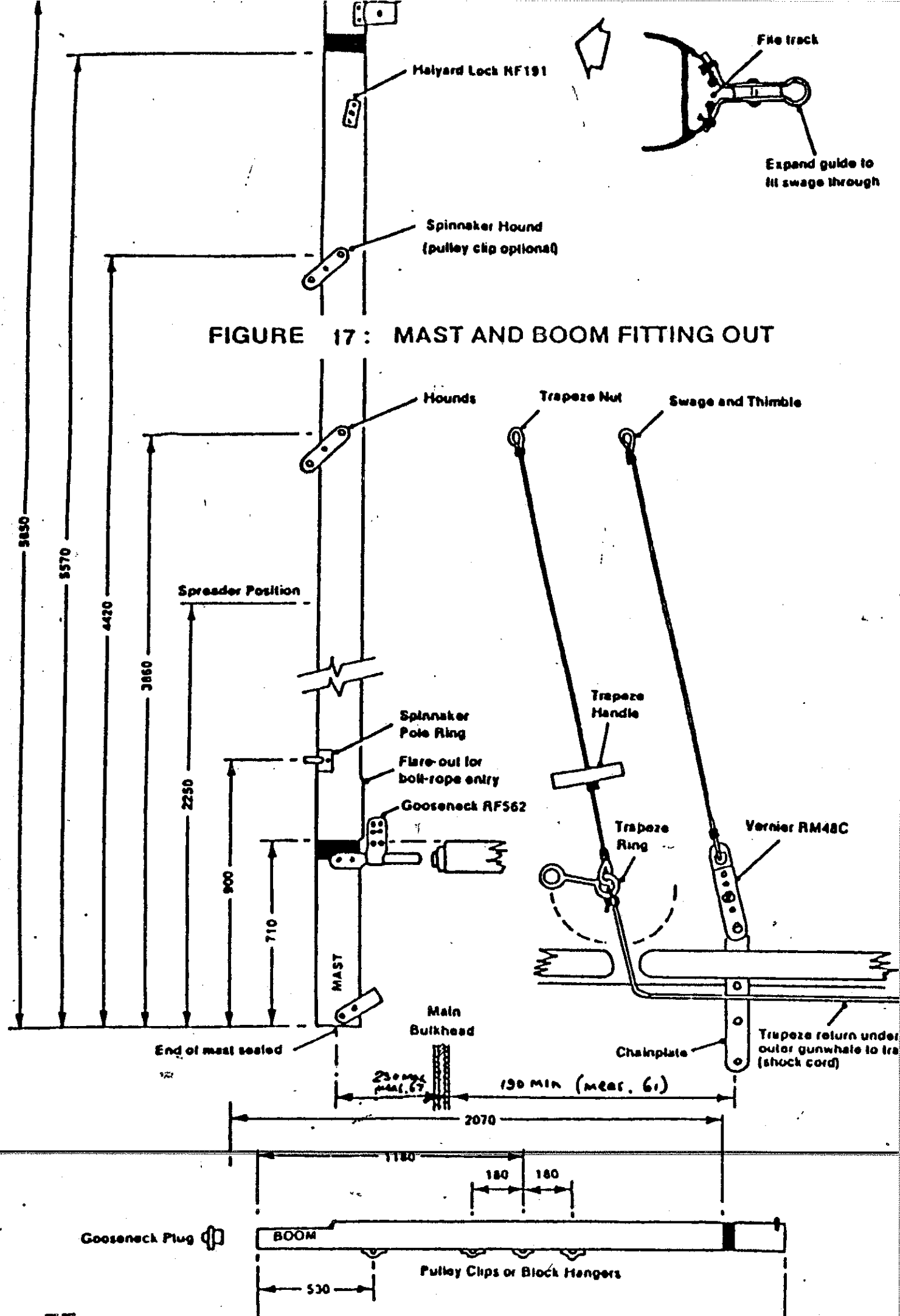
The main sheet utilises a RM 324 ratchet block, RF 1266 on the track, and two RF 1250s on the boom. This gives a 5:1 purchase. 6 metres of mainsheet and 5.5 metres of 10 mm jibsheet are required.

## SPINNAKER

Rig up as per your selection from other 125s. A fitting-out guide for a basic configuration should have been supplied with these instructions. If not, it is available from the Association on request.

## CONTROL LINES

A recent amendment to Class rules now allows control lines to be passed through curved tubes between the foredeck and the main bulkhead, within the following limitations (meas. 69, 70, 71) :



- \* a maximum of four tubes are to be installed.
- \* tubes are to be aluminium, stainless steel or copper.
- \* the maximum internal diameter of tubes shall not exceed 12 mm.
- \* each tube must be securely fixed to the hull at each end, through a minimum timber thickness of 12 mm and must be attached about the middle to the mast understep.
- \* buoyancy tanks must be effectively sealed around the tube openings.
- \* tubes other than those specifically allowed by this amendment are not allowed.
- \* inspection hatches must be installed in buoyancy tanks penetrated by tubes.
- \* tubes must only be used for cord control lines, not wire.

The fixing method is rigidly controlled and is thus incorporated into the Rules of Construction and Measurement (Rule 3.21) However, the following supplementary fixing advice is offered :

- \* the tube bending radius is not important, providing tube flattening does not occur. In general, the larger the radius the better, but do not go less than 30 mm.
- \* if you do not have access to a tube bender, hold the ends of the tube with rags (aluminium is a good heat conductor!) and heat over a gas stove. (A blowtorch or camping stove will do.) When the tube is hot, it will soften enough to bend it round a tin to form a 90° bend.
- \* pre-make plywood washers to fit tightly over the tube ends.
- \* locate the tubes to suit the use intended (i.e. vang, cunningham, spinnaker halyard, pole lift, pole downhaul, jib luff tension). Location of the tubes will determine overall tube length.
- \* the tubes must penetrate the deck and the main bulkhead. Drill these holes accurately. Leave a little extra length while fitting the tubes and file off flush when the glue is dry.
- \* use an epoxy glue - and lots of it. Glue around the tube ends, and the plywood washers; as you fit the items into place, glue will ooze from the joints and make a good seal. Put wet cotton wool in the ends of the tubes to prevent glue getting inside the tube. Make sure all surfaces to be glued, particularly on the aluminium, are cleaned and roughened.

