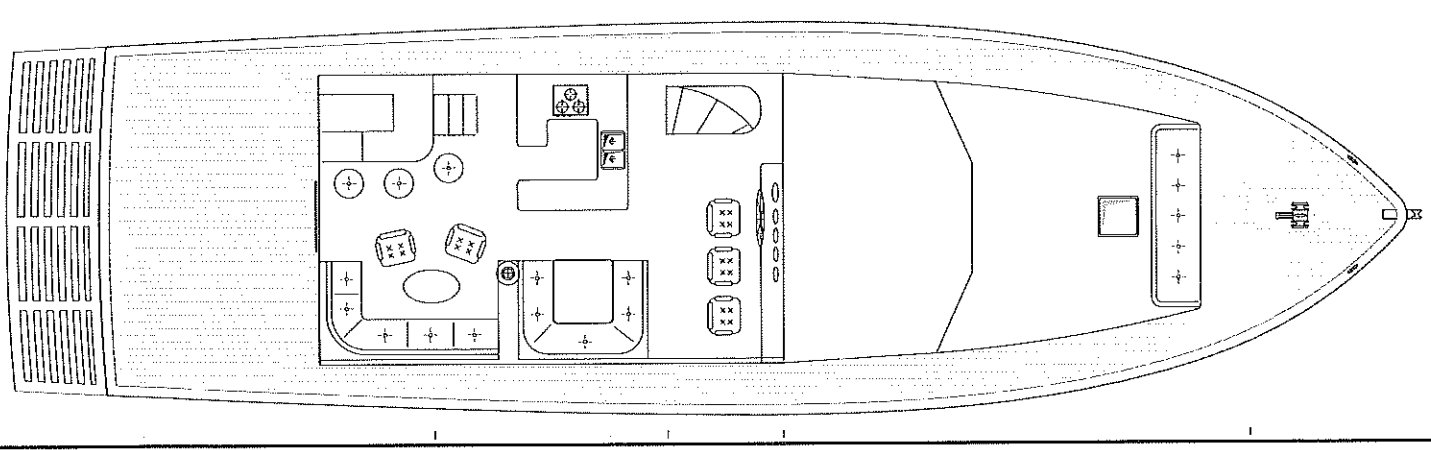
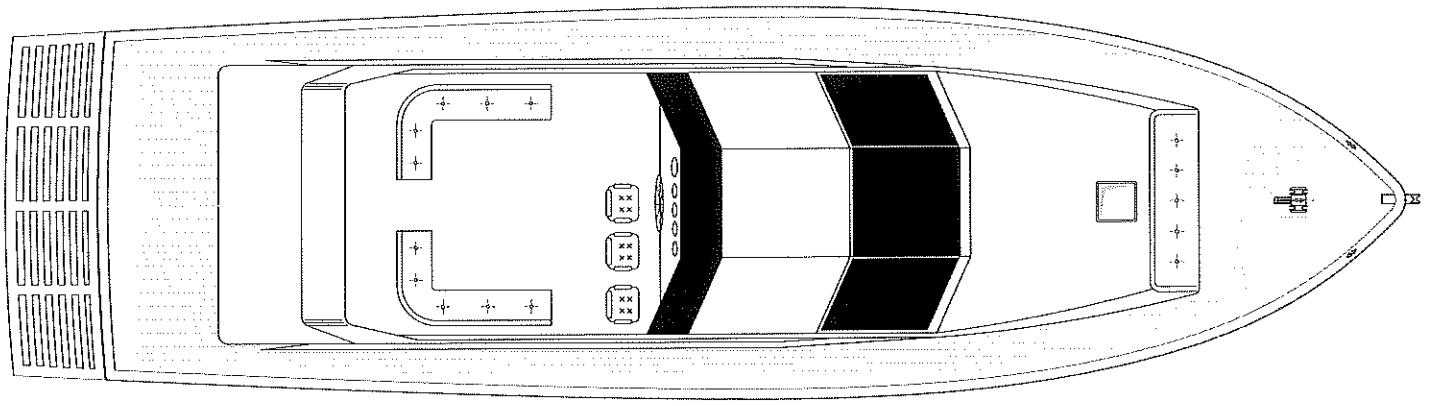
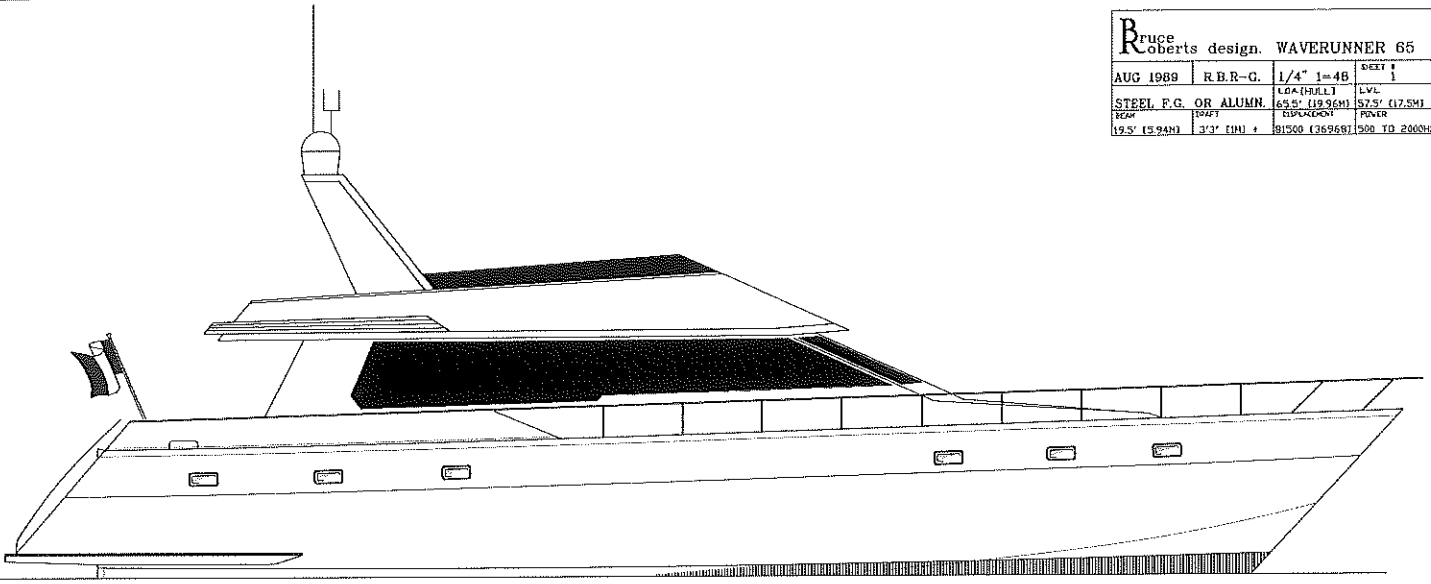
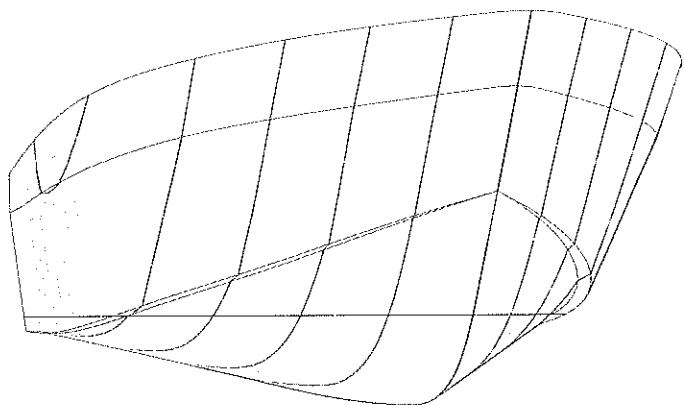
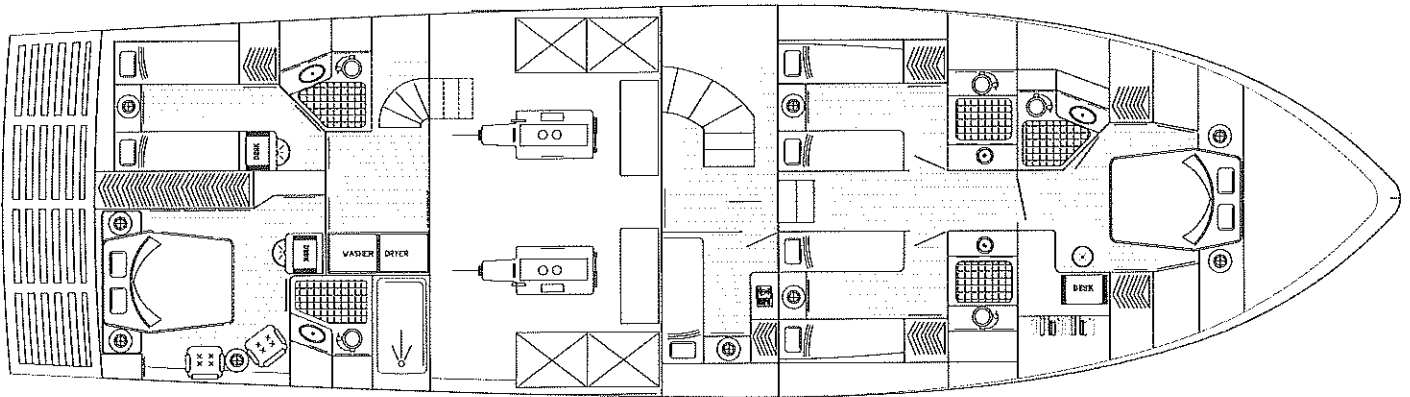
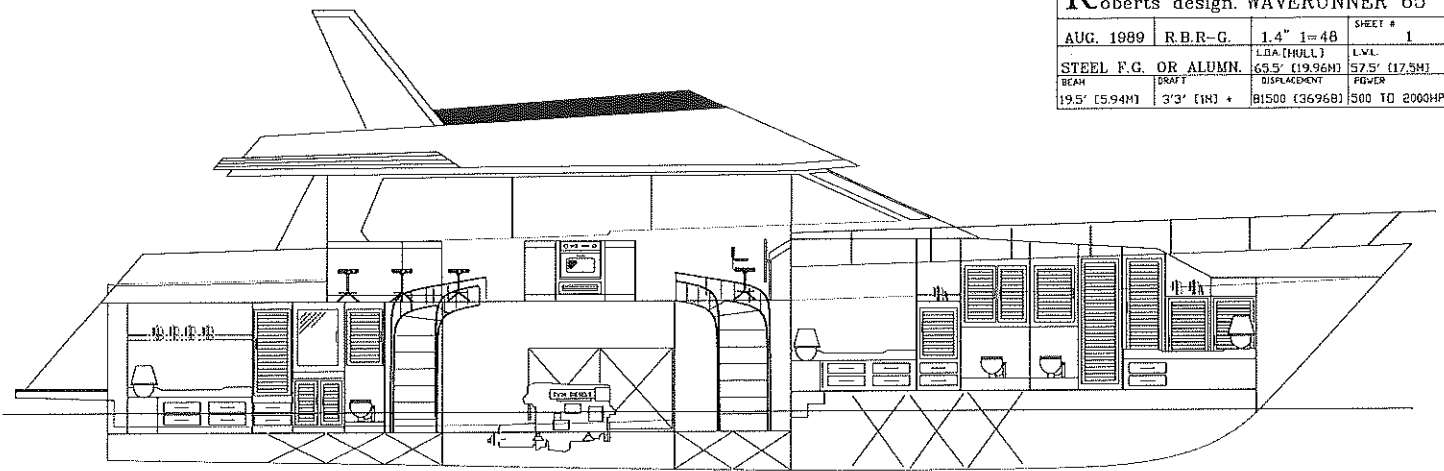


R. Bruce Roberts design. WAVERUNNER 65			
AUG 1989	R.B.R.-G.	1/4" 1=48	SHEET 1
STEEL P.G. OR ALUMN.		LOA (HULL)	LVL
REAR	DEPTH	DISPLACDWT	POWER
19.5' (5.94M)	3'7" (1.10M)	8150 (36968)	500 TO 2000HP



Bruce Roberts design. WAVERUNNER 65			
AUG. 1989	R.B.R.-G.	1.4" 1=48	SHEET # 1
STEEL F.G. OR ALUMN.		LDA (HULL)	LVL
		65.5' (19.96M)	57.5' (17.5M)
BEAM	DRAFT	DISPLACEMENT	POWER
19.5' (5.94M)	3'3" (1M) +	81500 (36968)	500 TO 2000HP



The Waverunner 65 is the first of our new range of SEMI-CUSTOM designs. Each plan has Lines and Full Size Patterns drawn to suit YOUR requirements.

You may choose from the following features.

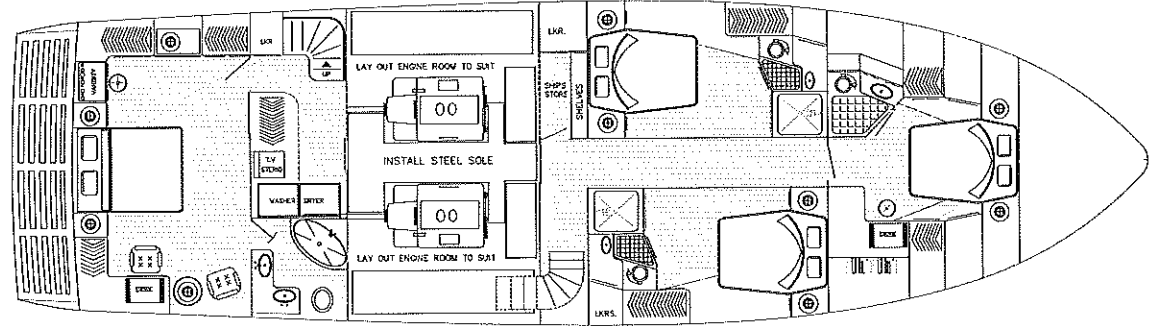
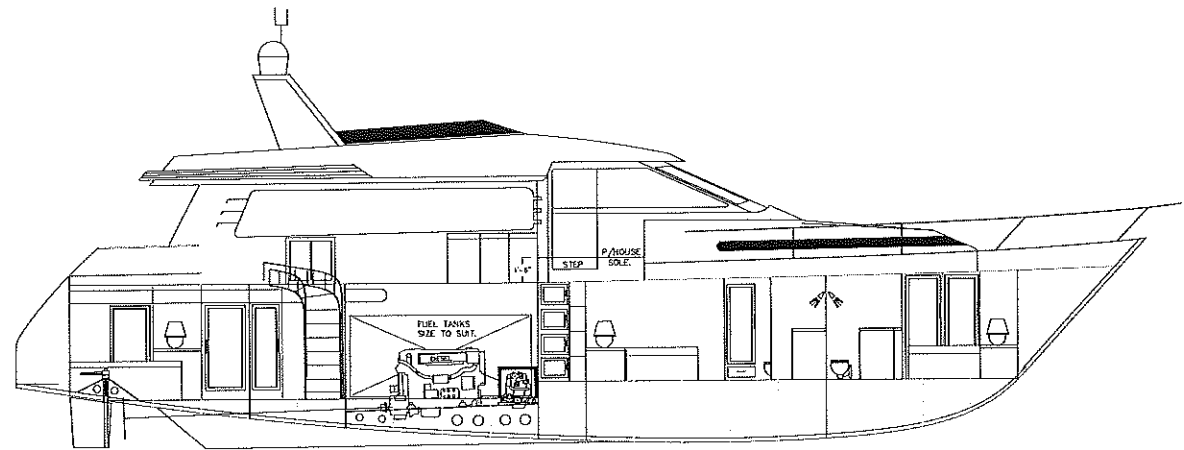
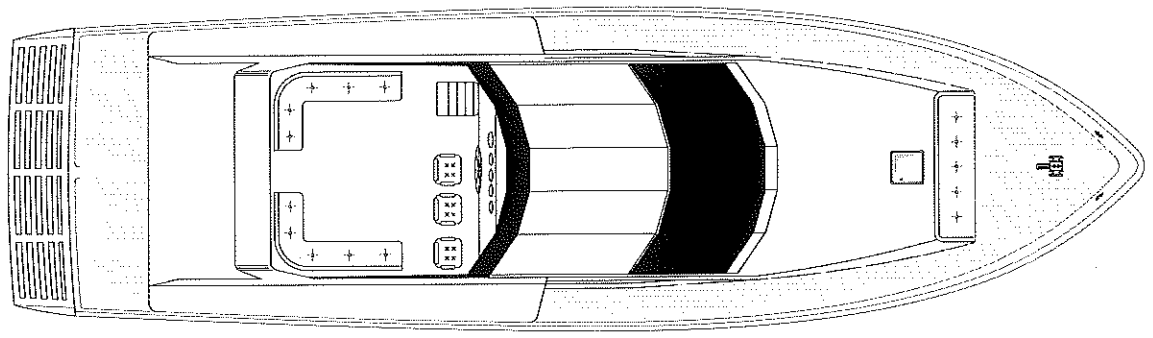
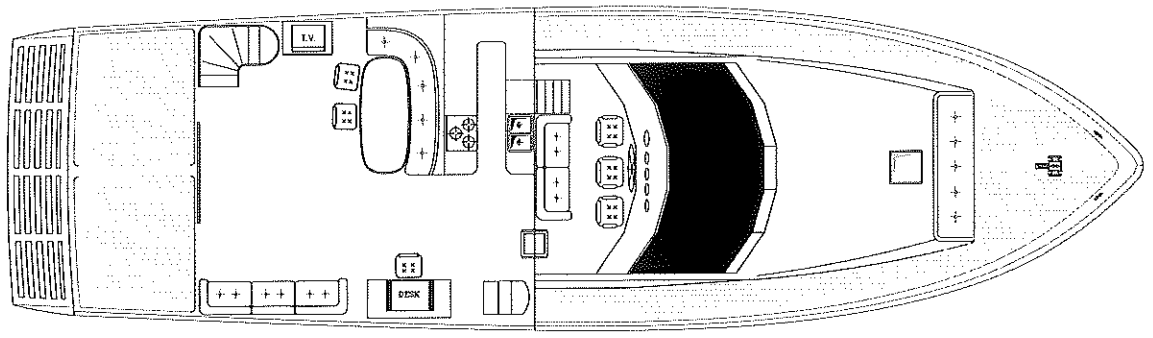
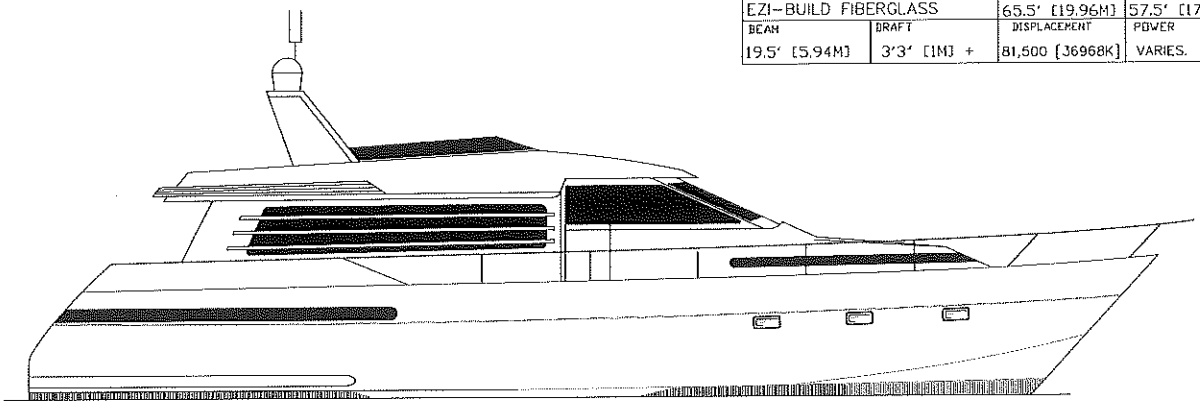
- ALUMINUM CONSTRUCTION
- EZI-BUILD FIBERGLASS CONSTRUCTION
- EZI-BUILD STEEL CONSTRUCTION

- PLANING HULL
- SEMI-DISPLACEMENT HULL
- FULL DISPLACEMENT HULL

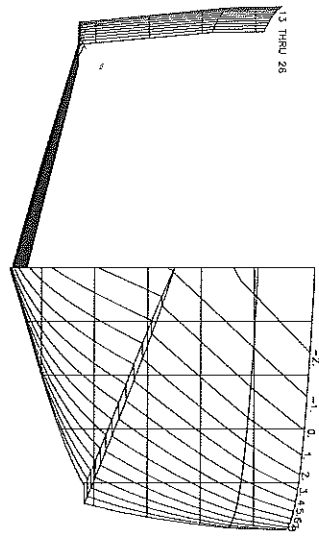
- ALTERNATE ACCOMODATION PLANS AVAILABLE
- PLANS INCLUDE CONSULTATION WITH DESIGNER
- PERFORMANCE PREDICTION INCLUDED WITH PLANS BASED ON YOUR SELECTION OF POWER, HULL TYPE AND CONSTRUCTION MATERIAL, ALL PLANS TAILORED TO YOUR PARTICULAR REQUIREMENTS.

R Bruce Roberts design. WAVERUNNER 65

FEB 1991	R.B.R-G	1/4" 1=48	SHEET # 18B
EZI-BUILD FIBERGLASS		LOA [HULL]	LWL
BEAM	DRAFT	DISPLACEMENT	POWER
19.5' [5.94M]	3'3" [1M] +	81,500 [36968K]	VARIABLES.



10.5 10. 9.5 9. 8.5 8. 7.5 7. 6.5 6. 5.5 5. 4.5 4. 3.5 3. 2.5 2. 1.5 1. .5 0. -5 -1.

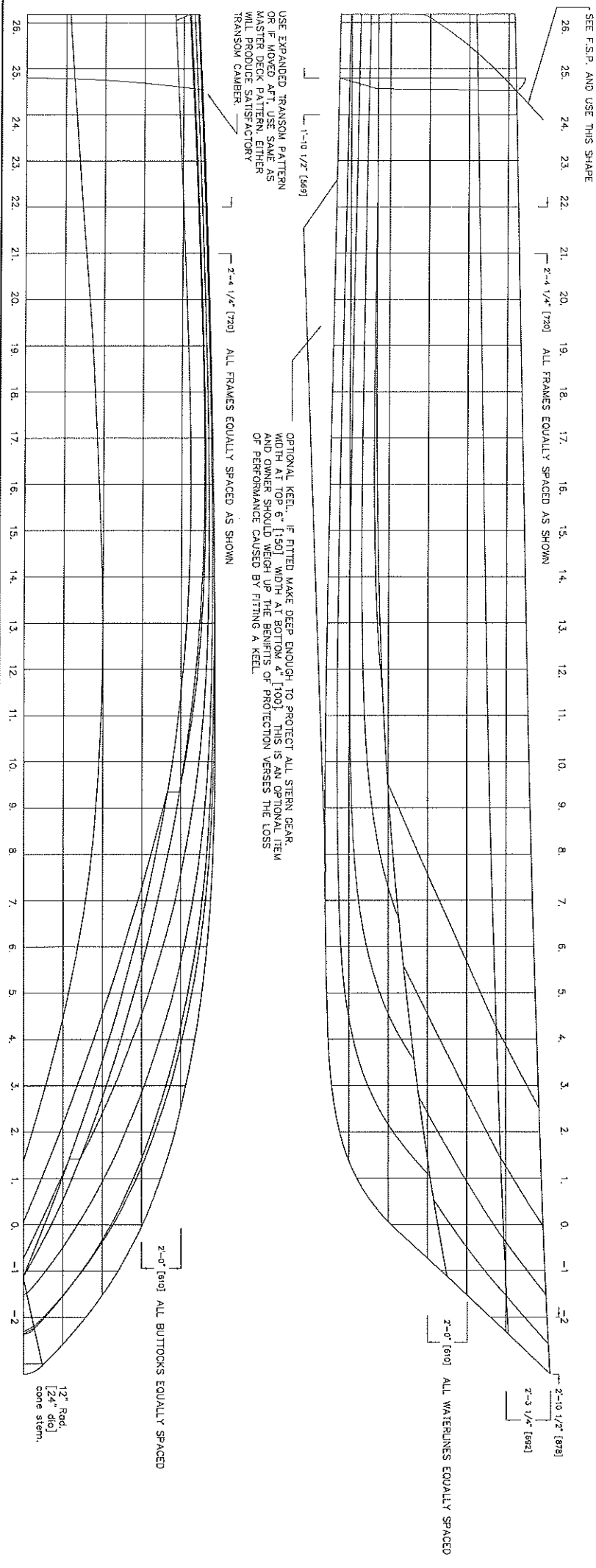


There is more than one way to build this stern so the extended lines have been made available to cover one of the options. The Stern profile curve is shown in its primary location, see various construction sheets for details.

Please use the Full Size Patterns provided with this plan, this lines sheet is for general interest only, do not use it to re-lift the hull. The computer with a little input from ourselves has lifted this hull to "Thickness of a penline" accuracy, so we repeat, please use the patterns.

Millar firm full size patterns are available for this hull priced at \$750 per set, contact your local Bruce Roberts Design Office for details.

Roberts design			
THIRD STERN			
WAVERRUNNER 65 STEEL & ALUMINUM			
DATE	SCALE	SHEET #	2A
1990	3/8" = 1'-0"	2A	
DESIGNER	PROJECT	NO.	1751
STEEL & ALU.	DISCREPANCY	POUNDS	800-1800
19.5 [5.94]	85,000 [38556]		

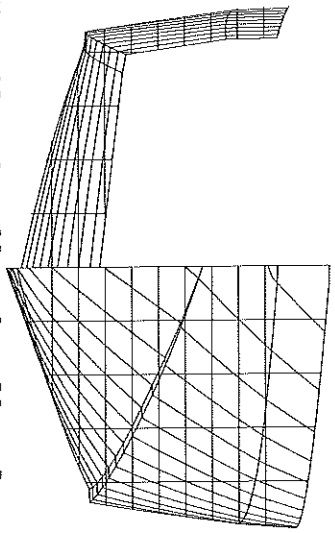


USE EXPANDED TRANSOM PATTERN OR IF MOVED AFT, USE SAME AS MASTER DECK PATTERN, EITHER WILL PRODUCE SATISFACTORY TRANSOM CAMBER.

OPTIONAL KEEL. IF FITTED MAKE DEEP ENOUGH TO PROTECT ALL STERN GEAR. WIDTH AT TOP 6" [150] WIDTH AT BOTTOM 4" [100]. THIS IS AN OPTIONAL ITEM AND OWNER SHOULD WEIGH UP THE BENEFITS OF PROTECTION VERSUS THE LOSS OF PERFORMANCE CAUSED BY FITTING A KEEL.

12" Rad. [24" dia] cone stem.

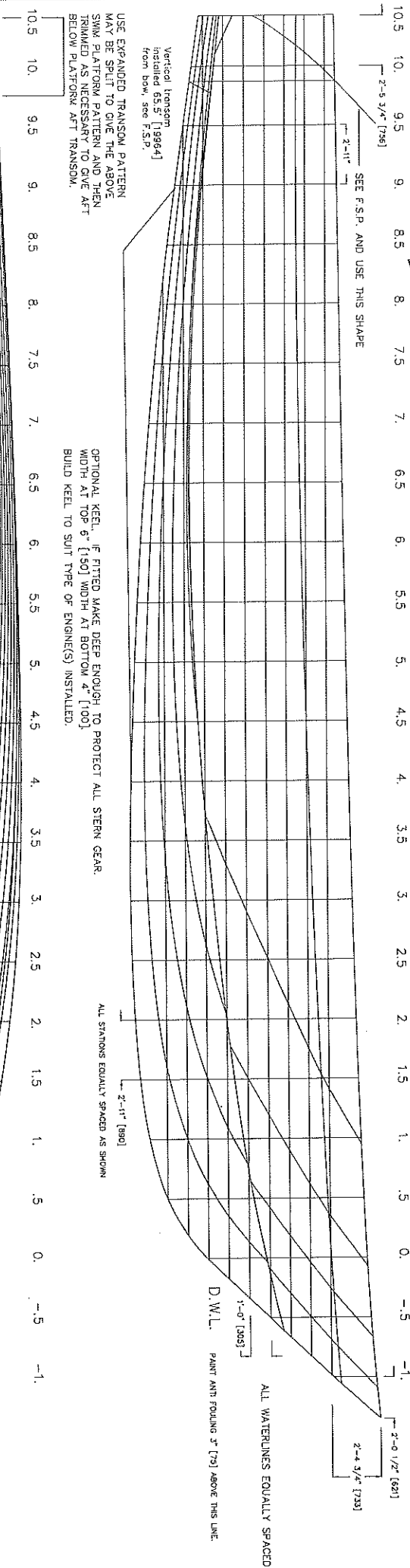
NOTE: WHEN BUILDING THIS DISPLACEMENT HULL VERSION, IGNORE THE SETTING UP MEASUREMENTS ON SHEET 4AS AND USE THE MEASUREMENTS SHOWN HERE.



There is more than one way to build this stern so the extended lines have been made available to cover one of the options. The "Stern profile curve is shown in its primary location, see various construction sheets for details.

Please use the Full Size Patterns provided with this plan, this lines sheet is for general interest only, do not use it to re-loft the hull. The computer with a little input from ourselves has lofted this hull to "Thickness of a penline" accuracy, so we repeat, please use the patterns.

Milar film full size patterns are available for this hull priced at \$750 per set, contact your local Bruce Roberts Design Office for details. Note that we have incorporated a spray chine forward and faired it out aft, the frames when built from the F.S.P. will ensure a smooth transition.

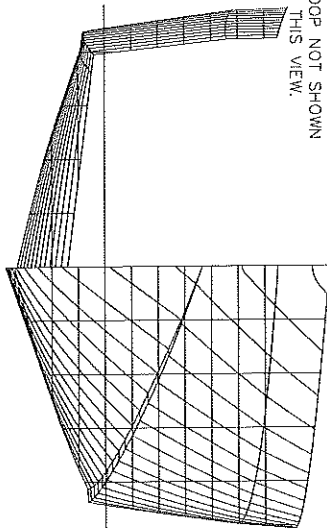


THESE PLANS ARE FOR THE BUILDING OF ONE BOAT ONLY. FOR ADDITIONAL BUILDING LICENSES CONTACT THE DESIGNER. A ROYALTY OF \$500 IS PAYABLE TO THE DESIGNER FOR EACH ADDITIONAL BOAT BUILT FROM THESE PLANS.

Bruce Roberts design.

DRAWING TITLE			
WAVERRUNNER 65 DISPLACEMENT STEEL			
DATE	DRAWN BY	SCALE	SHEET #
AUG. 1990	R.B.R.-G.	3/8" = 1'-32"	2D
MATE	LEA	L.W.L.	DIRAFT
STEEL & ALU.	65'3" [19.8]	57'5" [17.5]	VARIES
BEAM	DISPLACEMENT	POWER	
19.5 [5.94]	85,000 [38556]	800-1600	

POOP NOT SHOWN
IN THIS VIEW.

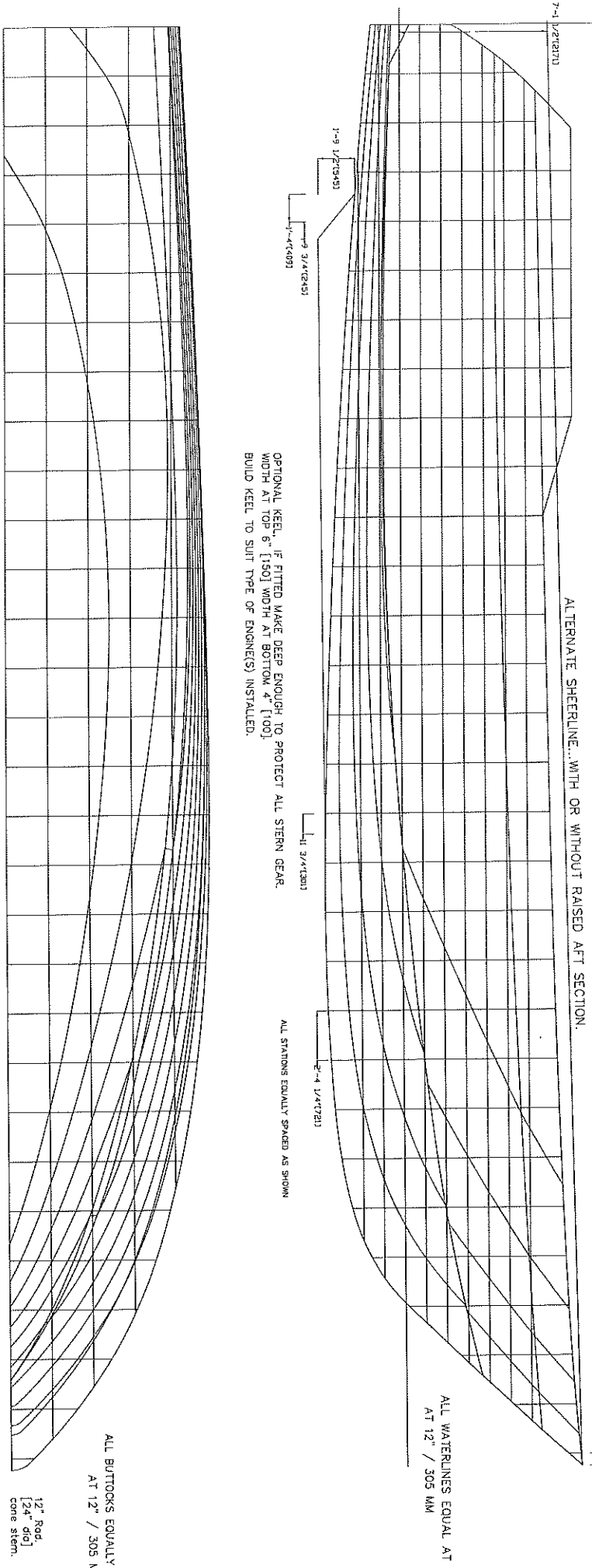


There is more than one way to build this stern so the extended lines have been made available to cover one of the options. The "Stern profile curve is shown in its primary location, see various construction sheets for details.

Please use the Full Size Patterns provided with this plan, this lines sheet is for general interest only, do not use it to re-lift the hull. The computer with a little input from ourselves has lofted this hull to "Thickness of a panline" accuracy, so we repeat, please use the patterns.

Millor firm full size patterns are available for this hull priced at \$750 per set, contact your local Bruce Roberts Design Office for details. Note that we have incorporated a spray chine forward and faired it out aft, the frames when built from the F.S.P. will ensure a smooth transition.

ALTERNATE SHEERLINE...WITH OR WITHOUT RAISED AFT SECTION.



OPTIONAL KEEL...IF FITTED MAKE DEEP ENOUGH TO PROTECT ALL STERN GEAR.
WIDTH AT TOP 6" [150] WIDTH AT BOTTOM 4" [100].
BUILD KEEL TO SUIT TYPE OF ENGINE(S) INSTALLED.

ALL STATIONS EQUALLY SPACED AS SHOWN

ALL WATERLINES EQUAL AT
AT 12" / 305 MM

ALL BUTTOCKS EQUALLY SPACED
AT 12" / 305 MM

12" Rad.
[24" dia]
cone stem.

THESE PLANS ARE FOR THE BUILDING OF ONE BOAT ONLY. FOR ADDITIONAL BUILDING LICENCES CONTACT THE DESIGNER. A ROYALTY OF \$500 IS PAYABLE TO THE DESIGNER FOR EACH ADDITIONAL BOAT BUILT FROM THESE PLANS.

Bruce
Roberts design.

DRAWING TITLE			
WAVERUNNER 65 SEMI-DISPLACEMENT			
DATE	DRAWN BY	SCALE	SHEET #
SEPT. 1998	R.B.R.-G	3/8" 1=32	2SD
MATE	L.B.A.	L.V.L.	DRIFT
STEEL & ALU.	68'-0" / 21 M	61'-3" / 18.7 M	VARIOUS
BEAM	DISPLACEMENT	POWER	VARIOUS
19'-6" / 5.94 M	101,000 LB / 45,814 KG	VARIOUS	VARIOUS

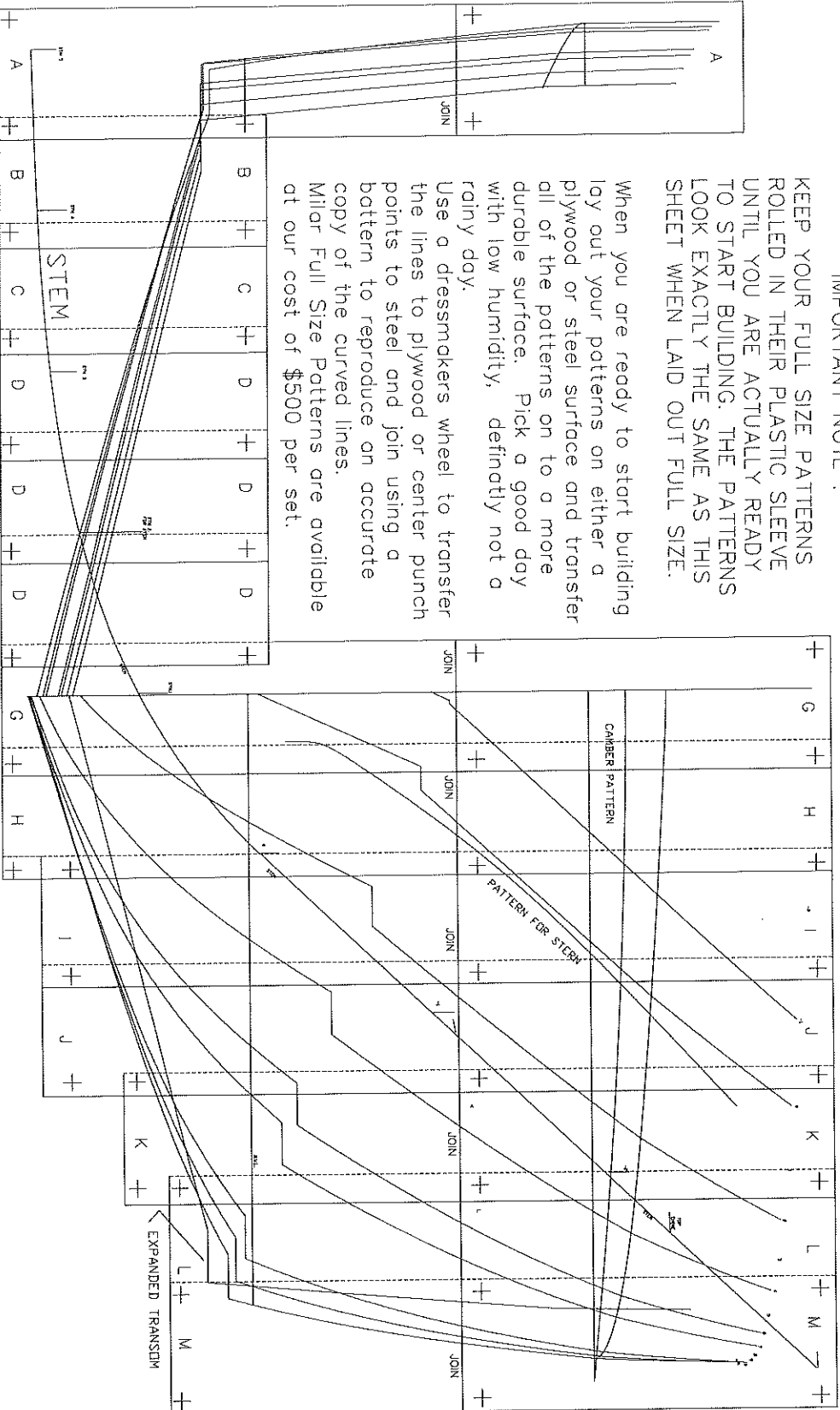
KEY TO FULL SIZE PATTERNS STEEL & ALUMINUM VERSION

IMPORTANT NOTE :

KEEP YOUR FULL SIZE PATTERNS ROLLED IN THEIR PLASTIC SLEEVE UNTIL YOU ARE ACTUALLY READY TO START BUILDING. THE PATTERNS LOOK EXACTLY THE SAME AS THIS SHEET WHEN LAID OUT FULL SIZE.

When you are ready to start building lay out your patterns on either a plywood or steel surface and transfer all of the patterns on to a more durable surface. Pick a good day with low humidity, definitely not a rainy day.

Use a dressmakers wheel to transfer the lines to plywood or center punch points to steel and join using a pattern to reproduce an accurate copy of the curved lines. Millar Full Size Patterns are available at our cost of \$500 per set.



Ruggels design.		STEEL & ALUMINUM
WAVERRUNNER 65		
DATE 1990	REVISED 10-86	SCALE 1/8" = 1'-0"
STEEL & ALU. 85.50 18.81	DESIGNER	SHEET # 5A5
19.5 15.94	85.000 1385561	PRICE 800--800

STEEL MATERIALS FOR THIS SHEET

STRONGBACK	5/8" (16M) or 6"x2" (150x25) TUBE
STEM	2x12 (57S) or 4" x 1 1/2" (100x21) FLAT BAR
BACKSTOCKS	5/8" (16M) or 4" x 1 1/2" (100x21) FLAT BAR
FRAMES	5/8" (16M) or 4" x 1 1/2" (100x21) FLAT BAR
STRONGBACK	200' (50M) or 2' x 2 1/2" (50x26) ANGLE

ALUMINUM MATERIALS FOR THIS SHEET

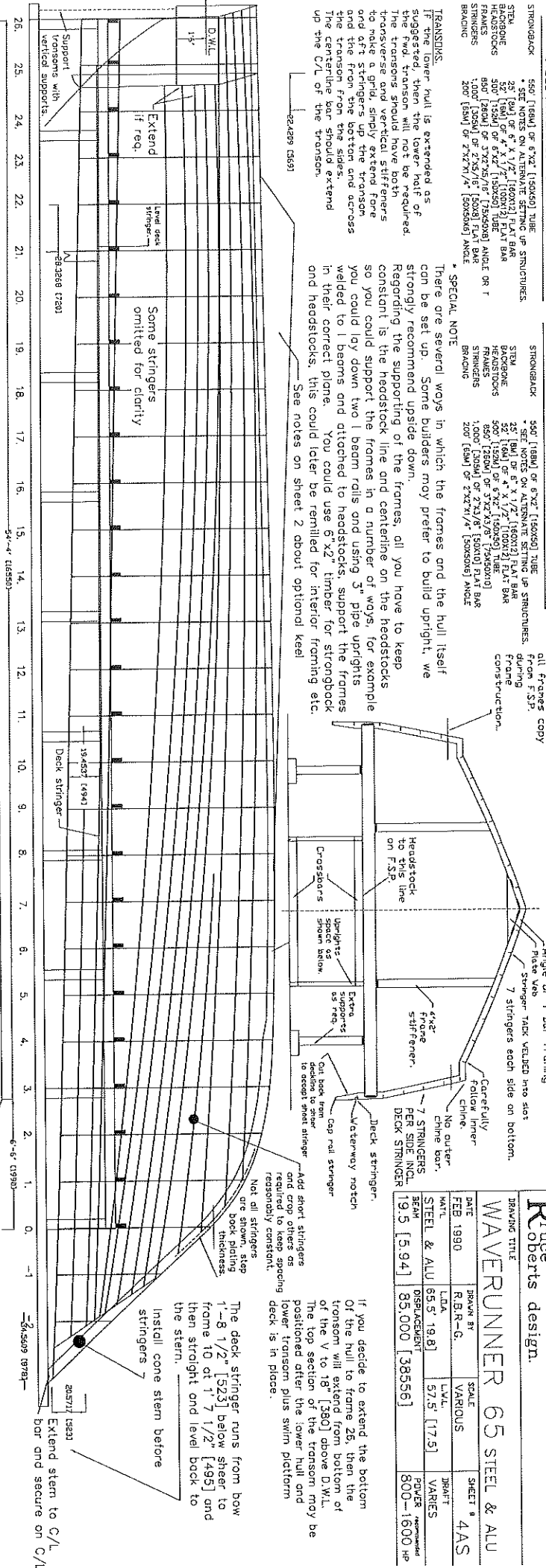
STRONGBACK	3/4" (19M) or 4"x2" (100x25) TUBE
STEM	2x12 (57S) or 4" x 1 1/2" (100x21) FLAT BAR
BACKSTOCKS	5/8" (16M) or 4" x 1 1/2" (100x21) FLAT BAR
FRAMES	5/8" (16M) or 4" x 1 1/2" (100x21) FLAT BAR
STRONGBACK	200' (50M) or 2' x 2 1/2" (50x26) ANGLE

* SPECIAL NOTE

These are several ways in which the frames and the hull itself can be set up. Some builders may prefer to build upright, we strongly recommend upside down. Regarding the supporting of the frames, all you have to keep constant is the headstock line and centerline on the headstocks so you could support the frames in a number of ways, for example you could lay down two 1 beam rails and using 3" pipe uprights welded to 1 beams and attached to headstocks, support the frames in their correct plane. You could use 6"x2" timber for strongback and headstocks, this could later be remitted for interior framing etc.

See notes on sheet 2 about optional keel

TYPICAL FRAME CONSTRUCTION AND SET-UP.



Bruce design.

Waverunner 65 Steel & Alu

DATE: FEB 1990

SCALE: VARIOUS

SHEET # 4AS

DATE: 19.5 [5.94]

DISPLACEMENT: 85,000 [38556]

POWER: 800-1600 HP

avoid the Full Size Patterns as shown, overlap the ' + ' and check that everything lines up, particular attention to the headstock and waterline. Patterns are best transferred to plywood or steel area so that the frames can be assembled over the pattern. A dressmaker's wheel transfer lines to plywood, center-punch to steel, use falling pattern, no reproduce slightly curved sections of frames. The stem should be bent to shape, the stem fittings measurements are shown, build full width, build transoms on level surface and check for level in all directions. Install a wire centerline just above the bottom runners and use a plumb-bob from top of frames down to wire centerline. Carefully provide additional support to frames where they overhang the strongback, see frame drawing at top of sheet.

Frames 1 through 13 are set up so forward edge of frame matches the station spacing line as marked on the tops of the strongback.

Frames 14 through 26 have the aft edge of the frame on the centerline.

Use sizes of stem only divide each panel into cut slots to accept stringers, also make slots to take stem and keel bar. Bottom of frame can be fabricated with necessary slot for keelbar and stem to save on notching later.

Make webs on bottom of all frames to allow for stem and keel bar, minimum depth 9" (230) will need to be deeper in area of stem.

After the Strongback, Frames and Stem are fabricated now is the time to commence setting up the basic hull structure.

And the centerline line is in the correct location on the top rails of the strongback, see above and sheet 2 for frame spacings.

Mark L.V.L. on all frames copy from F.S.P. during construction.

Set the frames in position using a large builders square and plumbed to assist in placing the frames vertical and square off the centerline. Use temporary bracing to hold the frames 1/4" (19mm) plywood pattern for the transoms. Curve to shape from the expanded transom pattern. Some up to centerline transom bar and check that stringers will meet transom without forming a 'fishtail' effect. Transom too wide for hull 1, dismantle pattern and cut transom to shape, bend on roll to correct curve or camber and install in position, hang off centerline transom bar and then crop stringers to correct length. Your transom may be in two parts if you elect to extend the hull bottom under the swim platform.

Stringers should be left over-length at stem to allow to be later welded to stem, a sample of the plating is shown at stem.

Stringers to stem will assist to get the correct distance back from forward edge of plating.

Stringers etc. should be only TACK WELDED into the slots at this stage. This is to allow the plating to take a fair curve, and allows the stringers to be eased into the slots.

Some transoms builders install all stringers and chime-bars about 1/8" (3mm) proud of the frames, no attempt is made to attach plating to frames. For the sake of clarity not all stringers are shown in profile view, see frame drawing for numbers and positions of stringers.

Not all stringers are shown, stop back plating thickness.

Add short stringers and crop others as required to keep spacing reasonably constant.

The deck stringer runs from bow 1-8 1/2" (152S) below sheer to frame 10 at 1 7 1/2" (49S) and then straight and level back to the stem.

Install cone stem before stringers

Extend stem to C/L bar and secure on C/L

Brude
Roberts design.

WAVERUNNER 65 STEEL & ALU

DRAWING TITLE			
DATE	DRAWN BY	SCALE	SHEET #
FEB 1990	RBR-G	3/8" 1=32	5AS
MATL	L.C.A.	L.V.L.	DRAFT
STEEL & ALU	65.5' 19.8'	57.5' [17.5]	VARIES
BEAM DISPLACEMENT	85,000 [38556]		FINISH
19.3 [5.94]			800-1600 #P

Before the plating is started it is desirable to determine sizes and types of engines to be installed. With this information you will be able to ensure that the centerline keel is of sufficient depth to protect the propellers, rudders etc., when the boat is upright on a slipway or cradle.

The centerline skeg is cut from 3/8" [10mm] plate and the surround is 4"x2" [100x50] heavy walled rectangular tube.

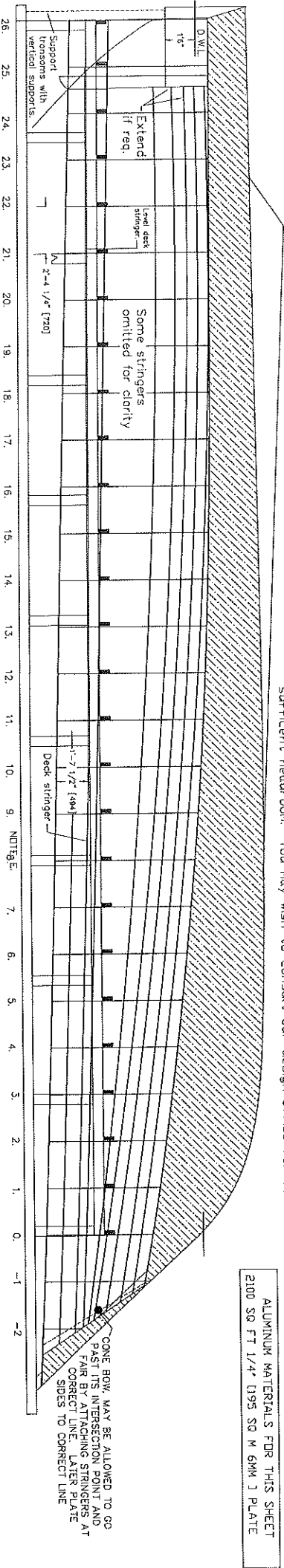
When the hull plating is completed, the sides of the skeg will be plated from tube down to hull bottom plate with 3/16" [6mm] plate, both sides to give a three plate support to the hull when it rests on the skeg.

Make patterns for the various hull panels, if possible join plate on sloop floor into one full length plate each panel, in any case put joints between frames.

You may choose to plate the bottom or sides first, make sure that both sides of selected panel are plated in sequence, DO NOT plate all of one side before starting the other.

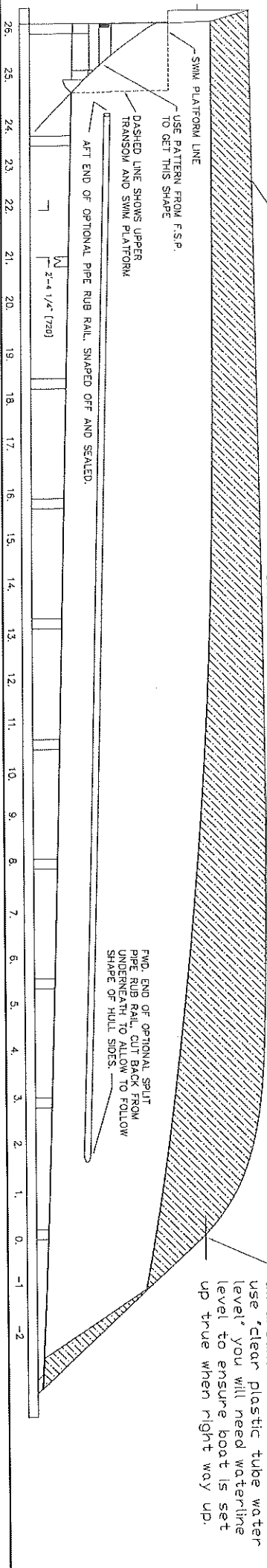
When plating is in place, install 2" [50] or 2 1/2" split pipe rubbing strake, or if you prefer install steel channel to accept rubber rubbing strake. Check local suppliers, try Dunlop brand.

Turning the hull over to upright position is best arranged with the aid of a crane, say 20' [6 meters] spreader bar and two endless slings. Two chain blocks and endless slings may be used if your building will support weight and there is sufficient headroom. You may wish to consult our design office for details.



SEE NOTE 2 FOR HINTS ON PLATING THIS HULL.

Make sure you mark waterline all around hull before turnover use 'clear plastic tube water level' you will need waterline level to ensure boat is set up true when right way up.



STEEL MATERIALS FOR THIS SHEET
2100 SQ FT 3/16" [195 SQ M 5 MM] PLATE
- OR -
ALUMINUM MATERIALS FOR THIS SHEET
2100 SQ FT 1/4" [195 SQ M 6MM] PLATE

Bruce
Roberts design.

DRAWING TITLE
WAVERUNNER 65 STEEL & ALU

DATE FEB 1990
DRAWN BY R.B.R.-G.
SCALE 3/8" = 1'-32"
SHEET # 6AS

If you have not already done so, now is the time to make up one male and one female full width camber pattern.

Mark Centerline
Use wide enough timber to get both the male and female patterns from the one plank. A 16"x 1" x 20'-0" plank, laminate to get width if necessary.

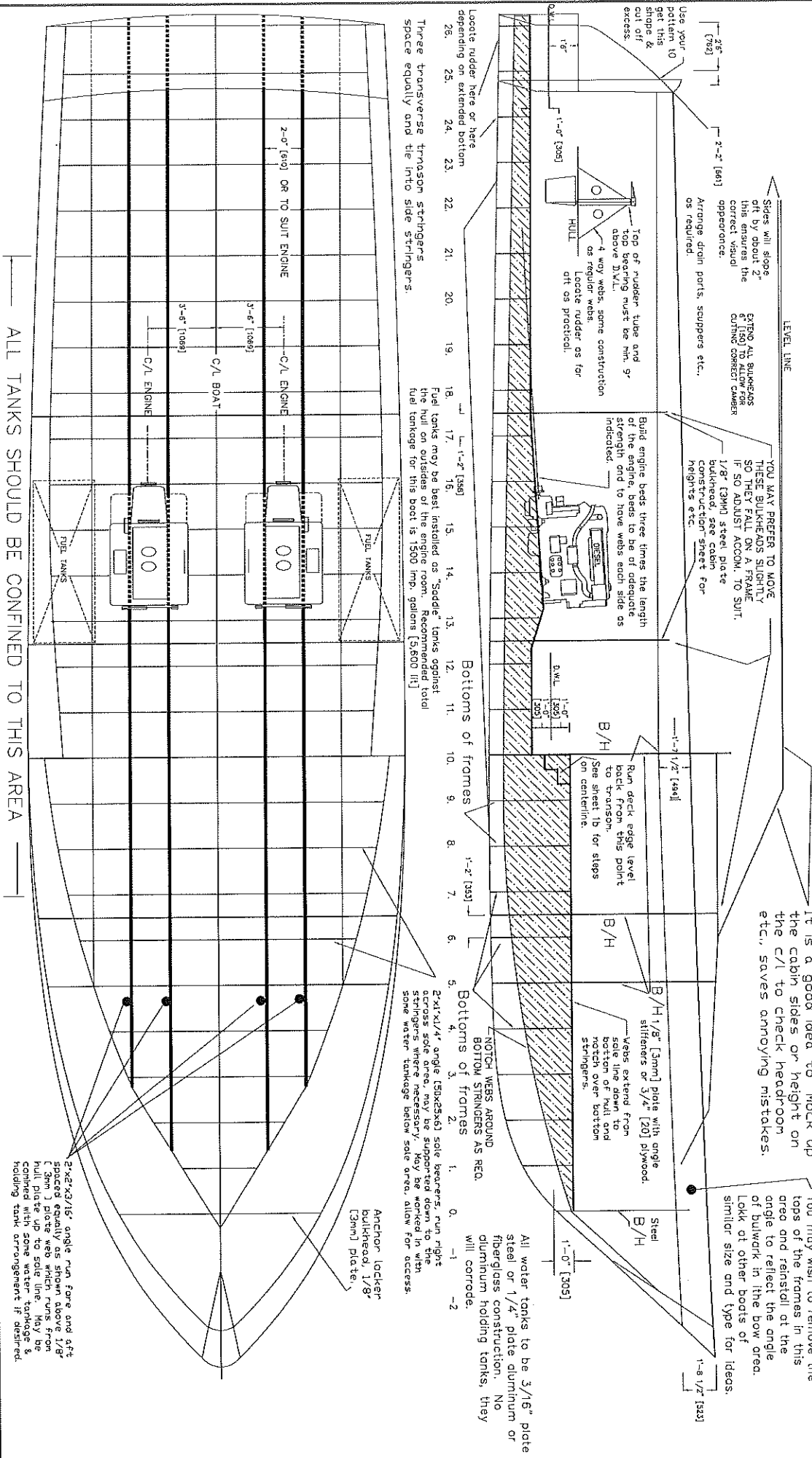
Total of 5 vertical stiffeners at transom, one on centerline and two spaced to match up with stringers, put 12" (300) gusset between vertical transom stringer and stringer.

Now is a good time to plan and run the basic plumbing and electrical wiring and systems. Plan carefully and install the basic piping on the electrical side, you can create electrical problems if you do not wire the boat correctly.

After the hull is turned upright ensure that it is true and level, next carefully layout the various bulkhead and soleline locations. It is recommended that you start from the bottom and work up. For instance one of the first jobs will be to locate and install the engine beds. Fabricate the beds from 3/8" (10mm) plate with 4" tops to take engine mounts. Consult your engine supplier or nearest Bruce Roberts office for additional advice on choice of engines and installation information. If you plan externally made tanks, now is the time that fuel and water tanks should be made and installed. Support the tanks with 3/16" web floors with angle tops, of each frame or as required to give adequate support to a tank full of liquid. Hold tanks in place with a ring of angle. Make adequate provision for access to tanks for cleaning.

The arrangements and bulkhead placement shown below are our suggestions for this boat. With any large boat of this type it is possible to rearrange interior layouts to suit your personal needs, however please consult your Bruce Roberts design office before making any major changes that may effect the performance and handling of this design.

You may wish to remove the tops of the frames in this area and reinstall at the angle to reflect the angle of bulwark in the bow area. Look at other boats of similar size and type for ideas.



ALL TANKS SHOULD BE CONFINED TO THIS AREA

2"x2"x3/16" angle run fore and aft spaced equally as shown above 1/8" (3mm) plate web which runs from hull plate up to sole line. May be combined with some water tankage & holding tank arrangement if desired.

NOTCH WEBS AROUND BOTTOM STRINGERS AS REQ.

2"x1x1/4" angle (50x25x6) sole bearers, run right across sole area, may be supported down to the stringers where necessary. May be worked in with some water tankage below sole area, allow for access.

All water tanks to be 3/16" plate steel or 1/4" plate aluminum or fiberglass construction. No aluminum holding tanks, they will corrode.

Anchor locker bulkhead, 1/8" (3mm) plate

Fuel tanks may be best installed as 'Saddle' tanks against the hull on either side. Recommended total fuel tankage for this boat is 1500 Imp. gallons (5,800 lit)

Sides will slope aft by about 2" this ensures the correct visual appearance.

Arrange drain ports, scuppers etc. as required.

YOU MAY PREFER TO HAVE THESE BULKHEADS SLOTTED IF SO ADJUST ACCORD. TO SUIT. 1/8" (3mm) steel plate bulkhead, see section for heights, etc.

Top of rudder tube and top bearing must be min. 9" above D.V.L. as regular webs. Locate rudder as far aft as practical.

Run deck edge level back from this point to transom. See sheet 1b for steps on centerline.

B/H 1/8" (3mm) plate with angle stiffeners or 3/4" (20) plywood. Webs extend from sole line down to notch over bottom stringers.

Steel B/H

2'-0" (60) OR TO SUIT ENGINE

3'-6" (1065) C/L ENGINE

3'-6" (1065) C/L BOAT

3'-6" (1065) C/L ENGINE

RIB TANKS

26. 25. 24. 23. 22. 21. 20. 19. 18. 17. 16. 15. 14. 13. 12. 11. 10. 9. 8. 7. 6. 5. 4. 3. 2. 1. 0. -1. -2.

Locate rudder here or here depending on extended bottom

Use your pattern to get this shape & cut off excess.

Build engine beds three times the length of the engine beds to be of adequate strength and to have webs end side as indicated.

EXTRA AL BULKHEADS TO ALLOW FOR CUTTING CORRECT CAMBER

LEVEL LINE

1'-0" (305)

1'-2" (305)

1'-2" (305)

1'-2" (305)

1'-2" (305)

1'-0" (305)

1'-8 1/2" (333)

1'-0" (305)

1'-8 1/2" (333)

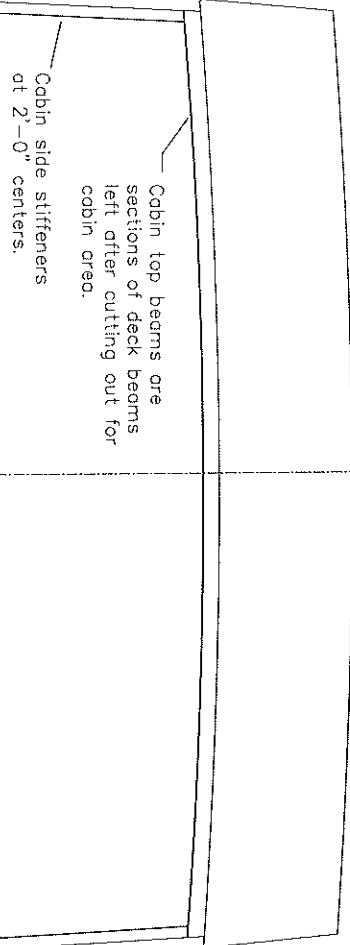
1'-0" (305)

1'-8 1/2" (333)

1'-0" (305)

Build fly bridge as lightly as possible. Use Aluminum or fiberglass if possible. If you use Steel, keep the framing to a minimum.

The cabin sides are set at 3 degrees and are of 1/8" or 5/32" [3 or 4 mm] steel. 1/4" [6mm] Aluminum would build the best superstructure.
Bolt up the sides with 2"x2"x1/4" [50x50x6] angle placed vertically between each window panel, not more than 2'-0" [610] apart.



The inside of the hull is to be thoroughly coated with a Tar Epoxy coating, work progressively and paint each section as completed. It will be necessary to insulate the hull above the waterline and also insulate the Superstructure, a non-flammable type foam is recommended, the spray in place variety is probably the best.

"Saddle" fuel tanks about this size by 8'4" long will hold 700 + gallons each side.

It is suggested you incorporate a system of fore and aft bearers to support saloon sole, tie in to pillars and tank restraints. Bearers should be 6"x2" tube or similar.

"Saddle" fuel tanks about this size by 8'4" long will hold 700 + gallons each side.

BUILDING SEQUENCE.

Study the Deck/Beam/Frame attachments as shown on right.

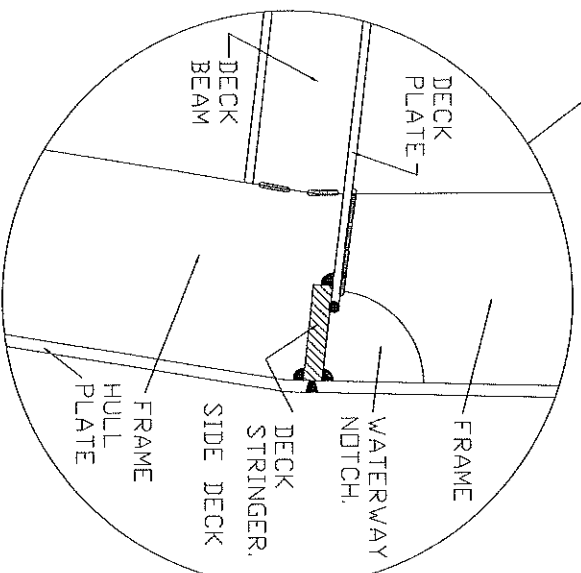
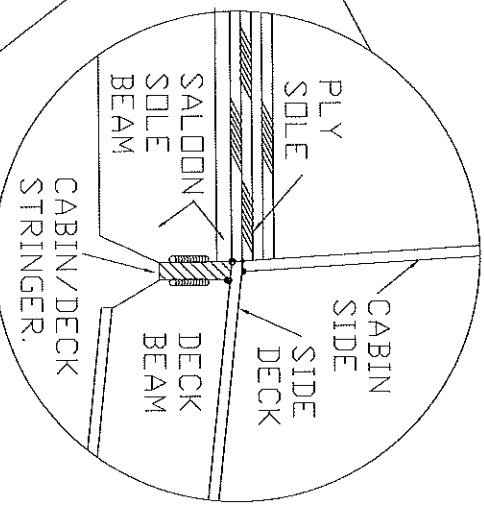
Make deck beam master pattern. The beams are bent cold, mark centerline on each beam. Flange is usually inwards this allows for attaching lining at later stage. Saloon sole bearers have flange upwards to accept plywood sole. Run deck beams right across hull, later cut out and ease for cabin top beams etc. Mark location of bulkheads and the full length of the deck beams. The deck beams should be 1/8" [3 or 4 mm] plate. The bulkheads to stand above estimated height, allow for deck camber and trim at later stage when deck beams are installed. Steel bulkheads should have 1"x1/2"x1/8" [25x25x3mm] angle vertical stiffeners placed at 2'0" [610] centers, aft side of both engineroom bulkheads.

Anchor locker bulkhead at station 0 is 1/8" plate and stiffeners as above. When all beams are in place, see sheet 9, mark out the cabin side locations as shown on sheet 9. Use pattern to mark out fair curve, and cut beams at that point, and install deck stringer as shown in sketch at right. Next fit angled uprights, angle in at 3 deg., then make Masonite or cheap plywood pattern of cabin sides. Trial fit and cut cabin sides to shape, check for fit and lay aside. Plate fore and aft decks as shown on sheet 9 and then install cabin sides. Front of forecabin has same round as master camber. Use camber patterns to bend fore cabin front. Next install fore cabin top beams as shown on sheet 9A5. Use the camber pattern to shape cabin fronts, windshield frames etc., to accept camber of the later to be added top.

1/4" plate doubling plates run full length of engine beds and 6" each side.

Webs at each frame tied to engine beds.

2'-0" [613]



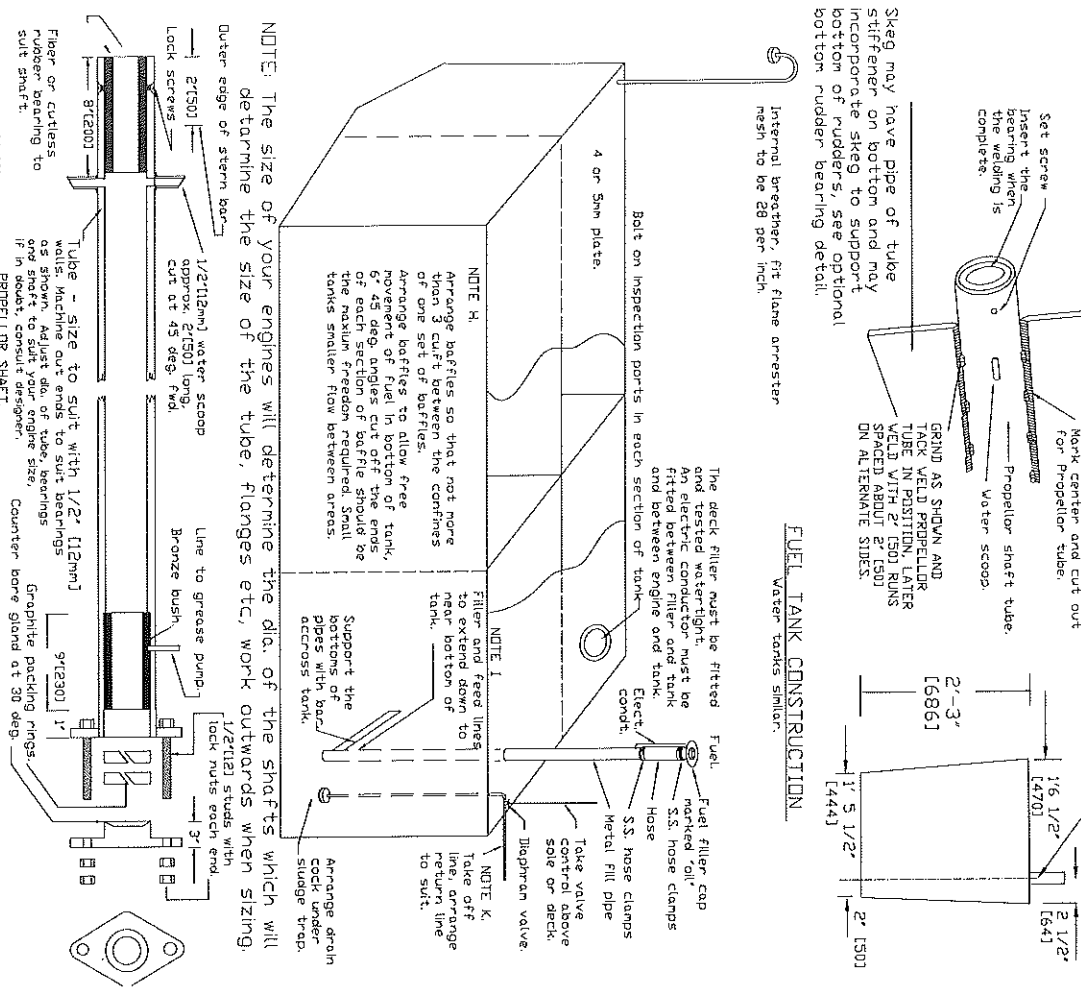
Ruge
oberts design.

DRAWING TITLE: WAVERUNNER 65 STEEL & ALU

| | | | |
|----------------|---------------------|----------------------|-------------|
| DATE: FEB 1990 | DRAWN BY: R.B.R.-G. | SCALE: 3/8" = 1'-32" | SHEET 9 7AS |
|----------------|---------------------|----------------------|-------------|

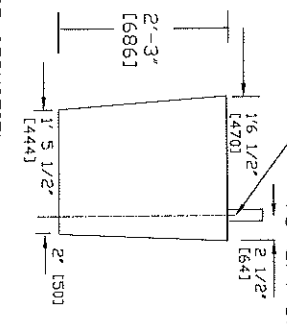
3/8" (10mm) plate skag for twin engine installations.

SUGGESTED ARRANGEMENT FOR SKEG PROTECTED RUDDER AND PROPELLOR, TUBE ETC.

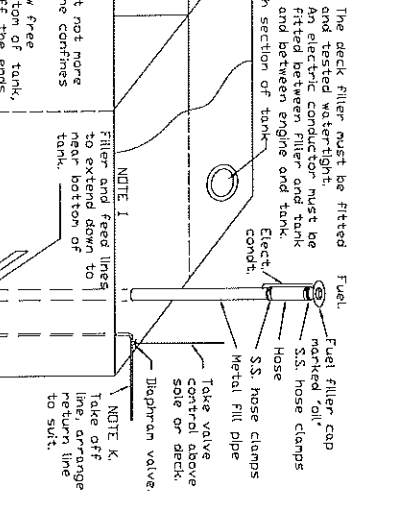


Twin Rudder.

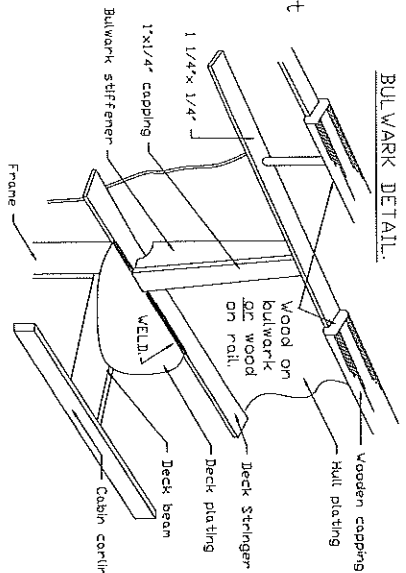
Shaft, length to suit. To c/l shaft



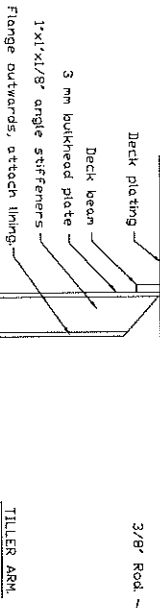
FUEL TANK CONSTRUCTION



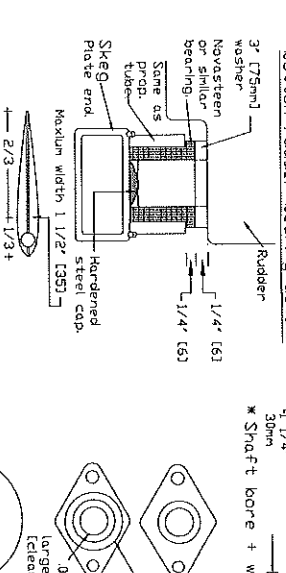
BULKWARK DETAIL.



STEEL BULKHEAD STIFFENER



Single rudder, optional twin. Bottom rudder bearing detail.



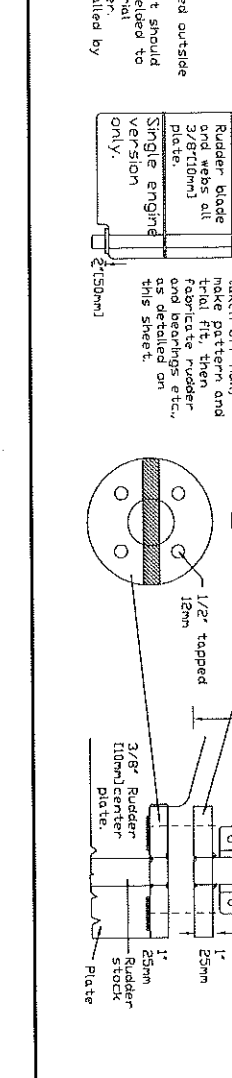
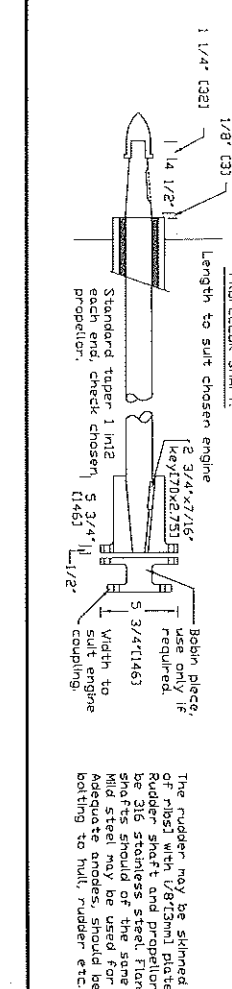
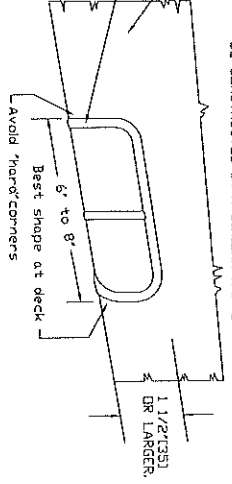
Rubearts design.

WAVERUNNER 65 STEEL & ALU

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| DATE | DESIGNED BY | SCALE | SHEET # |
| FEB 1990 | R.B.R.-G. | VARIOUS | 8AS |

NOTE FABRICATION FOR JOCK LINES ETC. MAY BE CONSTRUCTED IN A SIMILAR MANNER.

SCUPPERS

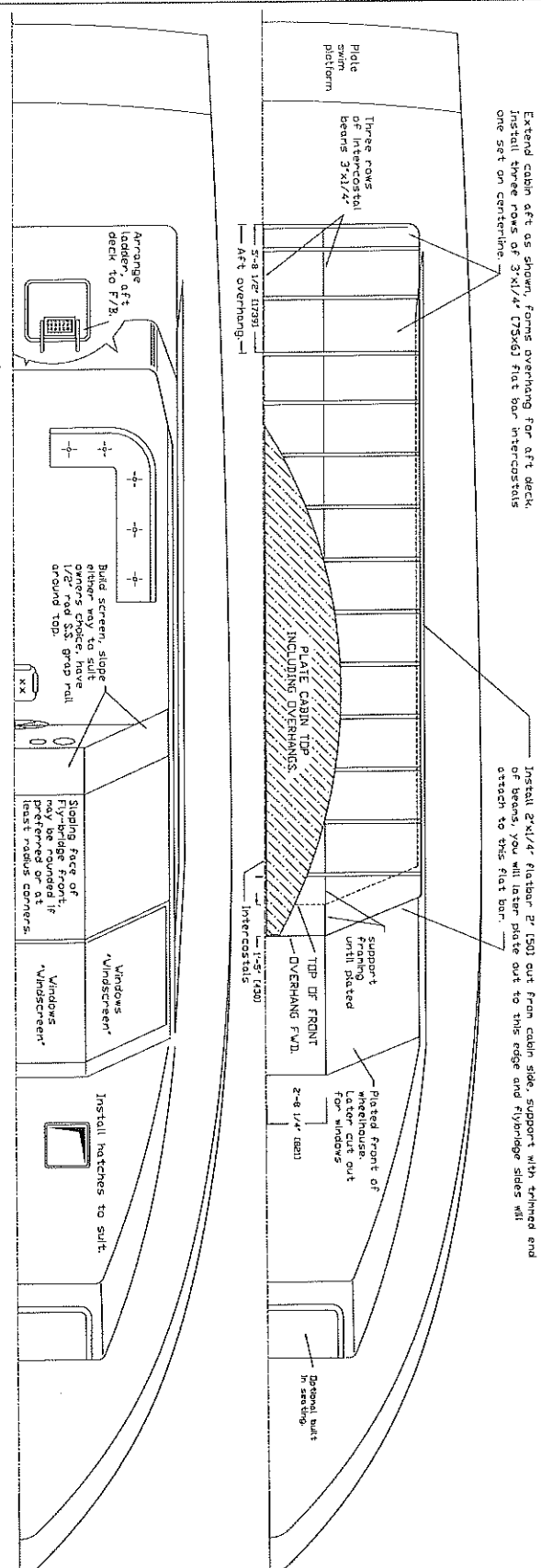


BASIC STEEL MATERIAL LIST

- STRONGBACK 550 [168M] OF 6"x2" [150X50] TUBE
- * SEE NOTES ON ALTERNATE SETTING UP STRUCTURES.
- STEEL 25 [6M] OF 6" X 1/2" [150X12] FLAT BAR
- BACKBONE 52 [16M] OF 4" X 1/2" [100X12] FLAT BAR
- HEADSTOCKS 500 [152M] OF 6"x2" [150X50] TUBE
- FRAMES 850 [260M] OF 3"x2"x5/16" [75X50X8] ANGLE OR T
- STRINGERS 1,000 [305M] OF 2"x3/8" [50X10] FLAT BAR
- BRACING 200 [60M] OF 2"x2"x1/4" [50X50X6] ANGLE
- HULL PLATING 2100 SQ FT 3/16" [1.95 SQ M 5 MM] PLATE
- TRANSVERSE SILE BEARERS 350' OF 2"x11x1/4" [106 M OF 50X25X61 ANGLE
- FULL LENGTH WEBS 500 SQ FT OF 1/8" [45 SQ M OF 3MM] PLATE
- FUEL TANKS 500 SQ FT OF 3/16" [47 SQ M OF 5MM] PLYWOOD
- CABIN SOLES 600 SQ FT OF 5/8" [185 SQ M OF 15MM] PLYWOOD
- AFT SALIDON BULKHEAD 200 SQ FT OF 1/8" [119 SQ M OF 3MM] PLATE
- ENGINE BEDS 120 SQ FT OF 5/16" [11.2 SQ M OF 8MM] PLATE
- DECK & S.S. PLATE 2,000 SQ FT OF 3/16" [166 SQ M OF 5MM] PLATE
- FLYBRIDGE 250 SQ FT OF 1/8" [24 SQ M OF 3MM] PLATE
- BULKHEADS PLYWOOD 420 SQ FT 3/4" OR 840 SQ FT 1/2" PLYWOOD.
- DECK BEAMS 500' OF 3"x2"x3/8" [153M OF 150X100X8] ANGLE

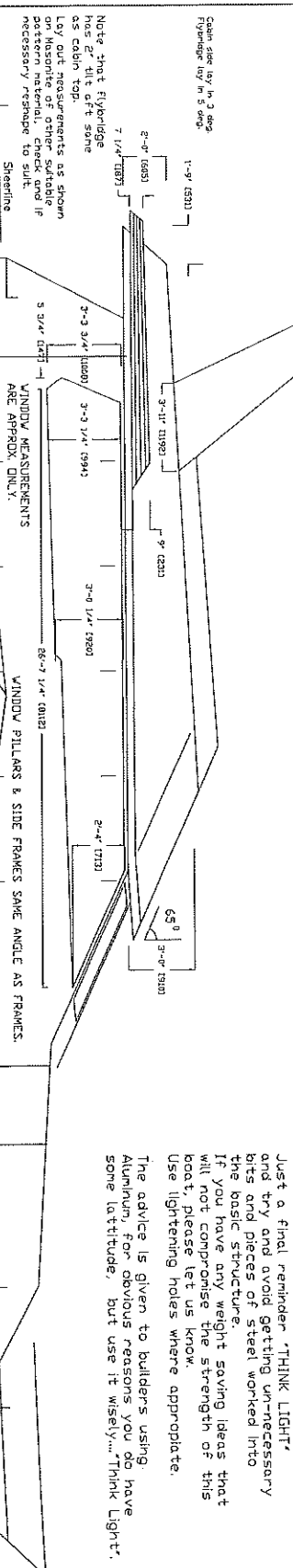
BASIC ALUMINUM MATERIAL LIST

- STRONGBACK 550 [168M] OF 6"x2" [150X50] TUBE
- * SEE NOTES ON ALTERNATE SETTING UP STRUCTURES.
- STEEL 25 [6M] OF 6" X 1/2" [150X12] FLAT BAR
- BACKBONE 52 [16M] OF 4" X 1/2" [100X12] FLAT BAR
- HEADSTOCKS 500 [152M] OF 6"x2" [150X50] TUBE
- FRAMES 850 [260M] OF 3"x2"x3/8" [75X50X10] ANGLE
- STRINGERS 1,000 [305M] OF 2"x3/8" [50X10] FLAT BAR
- BRACING 200 [60M] OF 2"x2"x1/4" [50X50X6] ANGLE
- HULL PLATING 2100 SQ FT 1/4" [195 SQ M 6MM] PLATE
- TRANSVERSE SILE BEARERS 350' OF 2"x11x1/4" [106 M OF 50X25X61 ANGLE
- FULL LENGTH WEBS 500 SQ FT OF 1/8" [45 SQ M OF 3MM] PLATE
- FUEL TANKS, INCLD BE F.G. DR 500 SQ FT OF 1/4" [47 SQ M OF 6MM] ALUMINUM PLATE
- CABIN SOLES 600 SQ FT OF 5/8" [185 SQ M OF 15MM] PLYWOOD
- ALUMINUM B/H'S 560 SQ FT OF 1/4" [52 SQ M OF 6MM] PLATE
- ENGINE BEDS 120 SQ FT OF 1/2" [36 SQ M OF 12 MM] PLATE
- DECK AND S.S PLATE 2,000 SQ FT OF 1/4" [166 SQ M OF 6MM] ALUMINUM PLATE
- FLYBRIDGE 250 SQ FT OF 1/8" [24 SQ M OF 3MM] PLATE
- BULKHEADS PLYWOOD 420 SQ FT 3/4" OR 840 SQ FT 1/2" PLYWOOD.
- DECK BEAMS 500' OF 3"x2"x3/8" [153M OF 150X100X10] ANGLE OR T



Extend cabin aft as shown, frame overhang for aft deck. Install three rows of 3"x1/4" [75x6] flat bar intercostals, one set on centerline.

Install 2"x1/4" flatbar 2' [60] out from cabin side support with trimmed end of beams. You will later plate out to this edge and flybridge sides will attach to this flat bar.



Note that flybridge is 2' [60] ft above cabin top. Lay out measurements as shown on Absorber of other suitable pattern material. Check and if necessary reshape to suit.

WINDOW MEASUREMENTS ARE APPROX. ONLY.

WINDOW PILLARS & SIDE FRAMES SAME ANGLE AS FRAMES.

Just a final reminder 'THINK LIGHT' and try and avoid getting unnecessary bits and pieces of steel worked into the basic structure. If you have any weight saving ideas that will not compromise the strength of this boat, please let us know. Use lightening holes where appropriate. The advice is given to builders using Aluminum, for obvious reasons you do have some latitude, but use it wisely. 'Think Light'.

Robererts design.
WAVERUNNER 65 STEEL & ALU

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|----------|-----------|--------------|---------|
| DATE | ISSUED BY | SCALE | SHEET # |
| FEB 1990 | R.B.R.-G. | 3/8" = 1'-0" | 10AS |

BUILDING SEQUENCE.
 Once the forecabin top and the main saloon 'windscreen' or front is in position it is time to start on the cabin top plating.

Before proceeding make sure you have all large items in the cabin etc, that may be difficult to put into place once the cabin top is fully plated.

The plywood bulkheads may be more easily fitted and installed before cabin top, take a moment to check and plan your layout out process before you close in the top.

The beams that were used to form the main side decks will have left you with some sections to use on the cabin top. You may weld lengths together to get sufficient length where the cabin top extends out to form the one overhangs.

Install the beams and and plates as shown in the drawings and notes on this sheet. Allowing the top to overhang where shown.

When all beams, intercostals and edging is in place, check for fairness before installing the plating.

When all beams, intercostals and edging is in place, check for fairness before installing the plating.

Fiberglass flybridge ???? Aluminum flybridge ??? The flybridge should be kept as light as possible, you could make a very attractive one using a Messner or light plywood model. This would be better than the heavy fibreglass one. You would have to drop the height down for transporting you boat to water. Call our Design office for ideas if you decide to take this route.

A steel flybridge can be built as shown in the drawings, attach bottom of stairs, the door to the top, the door in an extra 2 degrees.

Use split pipe or better still rolled 1/8" plate on the front corners, you should be able to roll the front into the desired radius without any outside assistance. You may prefer to have angled shape the stern as the cabin front.

The screen and radar tower can fitted to your taste. If you need help with the construction details on either, contact our office.

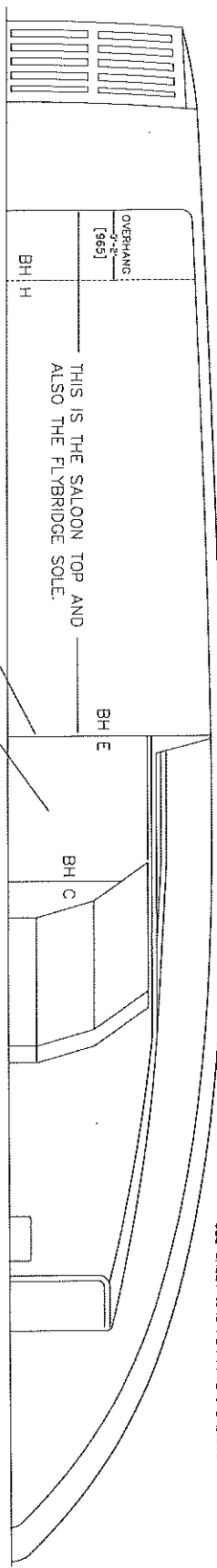
Lay out the windows as shown, consult your manufacturer and adapt as you wish. It is a lot easier to adapt your windows slightly to suit a manufacturer's sizes and practices BEFORE you cut any holes. Do not compromise too much, custom made windows may not be too different in price for this boat.

Radius for corners will depend on manufacturer's normal practice.

You will require pillars as shown, these can be disassembled behind the larger window panels. Make paper patterns and try for appearance.

PILOTHOUSE - VERSION B
SEE SHEET 10AS FOR MATERIAL LISTS

Roberts design. WÄVERUNNER 65
VERSION B
DATE: APRIL 1997 DRAWN BY: RBR-G SCALE: 3/8" = 1'-0" SHEET # 10ASB

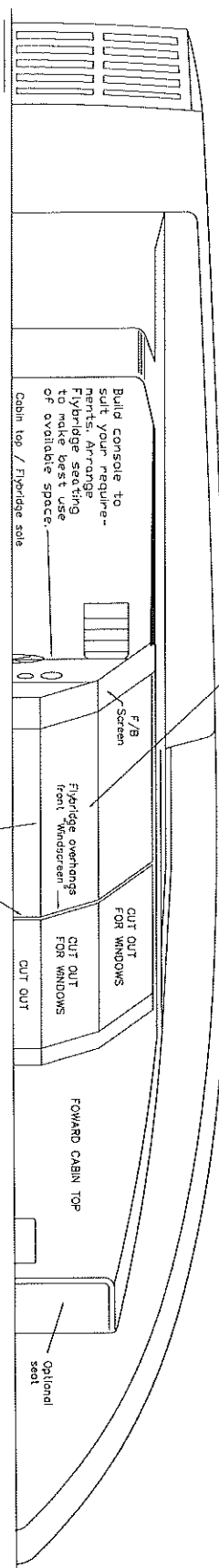


THIS IS THE SALOON TOP AND ALSO THE FLYBRIDGE SOLE.

NOTE THAT BULKHEAD E IS HIGHER THAN SALOON TOP SO AS TO ACCEPT THE CURVED PILOT HOUSE TOP

BUILDING THIS PORTION OF THE PILOT HOUSE TOP WILL BE THE MOST DIFFICULT AS THERE IS CONSIDERABLE AMOUNT OF DOUBLE CURVATURE. YOU MAY EITHER MAKE AN EDGE CHAIR OF THE WOOD FROM OVERBOARD, ASH OR ALUMINUM OVER AN OPENED GANGWAY. STUDY ALL ANGLES OF THE PILOT HOUSE TOP BEFORE ATTEMPTING THIS WORK.

Cabin fronts and flybridge fronts may be rounded, use deck mold to produce rounded panels and for cabin fronts and flybridge.



The console may be best molded in fiberglass, simply make a female mosaic mold. Give corners a generous radius. Many other parts may be made in a similar manner.

Additional seating may be arranged on the flybridge. Keeping in mind that it is desirable to limit the number of people who occupy the flybridge in adverse weather conditions, my suggestion is absolute maximum seating for 6 with comfortable seating for 6.

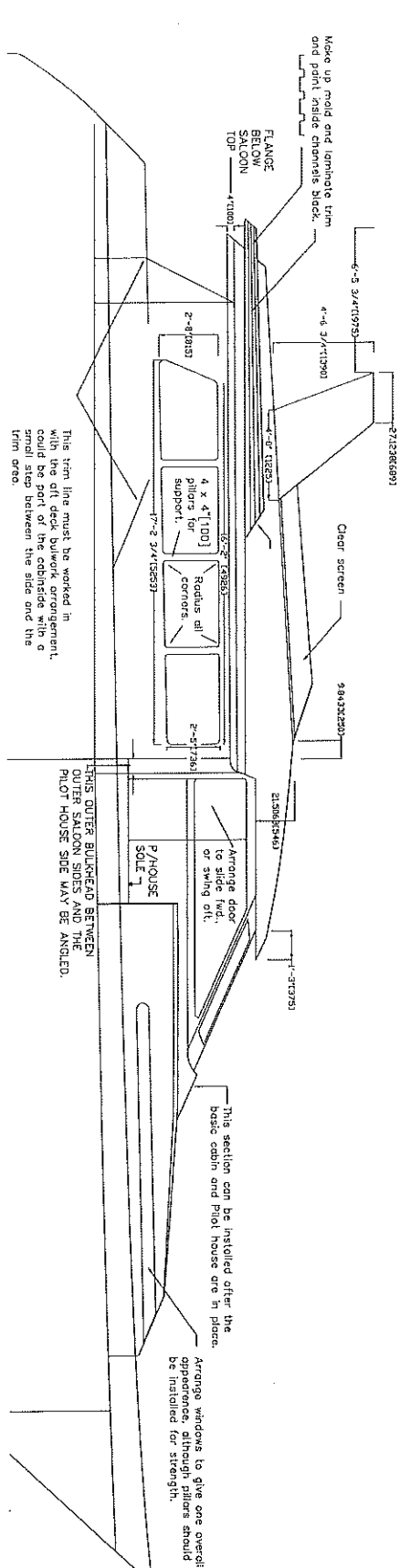
Angle flybridge side inwards at least 1 degree more than wheelhouse sides. A "Mock-up" will assist in getting the fly-bridge to look just right.

Cabin side lay in 3 deg. Flybridge lay in 5 deg.

MAY BE ROUNDED OR FORMED WITH ANGLES AS SHOWN HERE.

Extend P/House top to provide bridge overhang (over)

Optional seat



Make up mold and laminate trim and paint inside channels black.

This trim must be worked in with the aft deck bulwark arrangement, could be part of the cabin with a small step between the side and the trim area.

THIS OUTER BULKHEAD BETWEEN OUTER SALOON SIDES AND THE PILOT HOUSE SIDE MAY BE ANGLED.

This section can be installed after the basic cabin and pilot house are in place.

Arrange windows to give one overall appearance, although pillars should be installed for strength.

BUILDING SEQUENCE.

Once the forecabin top and the main saloon windscreen or front is in position it is time to start on the cabin top plating.

Before proceeding make sure you have all large items in the cabin etc., that may be difficult to put in place once the cabin top is fully plied.

The plywood bulkheads may be more easily fitted and installed before cabin top, take a moment to check and plan your fitting out process before you close in the top.

The beams that were used to form the main side decks will have left you with some sections to use on the cabin top. You may weld lengths together to get sufficient length where the cabin top extends out to form the overhangs.

Install the beams and end pieces as shown in the drawings and notes on this sheet. Allow the top to overhang where shown.

When all beams, intercostals and edging is in place then check for fairness before installing the plating.

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Fiberglass flybridge ??? Aluminum flybridge ??? The flybridge should be kept as light as possible, you could make a very attractive one using a Mosonite or light plywood mould, this would be bolted on to the cabin top, very handy if you have to keep the height down for transporting you boat to water, coil our Design office for ideas if you decide to take this route.

A steel flybridge can be built as shown in the drawings, attach bottom of sides and front to the top of the flator around the cabin. Angle the sides in an extra 2 degrees.

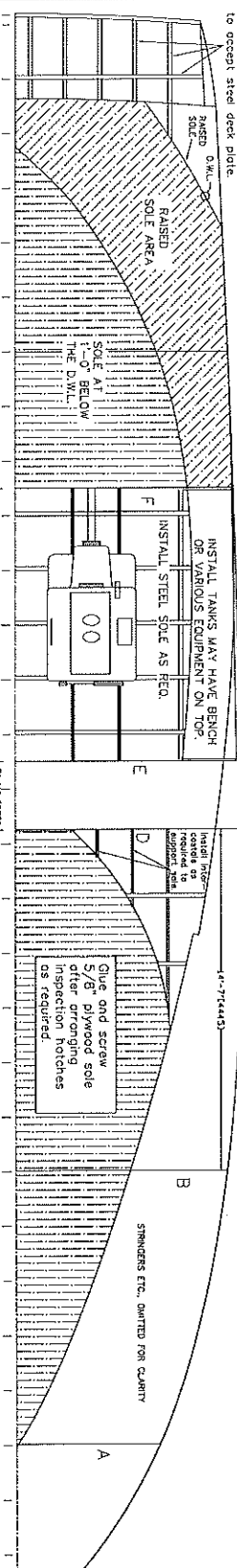
Use split pipe or better still rolled 1/8" plate on the front corners, you should be able to roll the front into the desired radius without any outside assistance. You may prefer to have angled shape the same as the cabin front.

The screen and radar tower can fitted to your taste. If you need help with the construction details on either, contact our office.

Lay out the windows as shown, consult your window supplier before making any cutouts. It is a lot easier to adapt your windows slightly to suit a manufacturer's sizes and practices BEFORE you cut any holes. Do not compromise too much, custom made windows may not be too different in price for this boat. Radius for corners will depend on manufacturer's normal practice.

You will require pillars as shown, these can be discussed behind the large window panels. Make paper patterns and try for appearance.

Frame up swim platform to deck steel deck sole.



Frame up swim platform to deck steel deck sole.

INSTALL TANKS MAY HAVE BENCH OR VARIOUS EQUIPMENT ON TOP.

INSTALL STEEL SOLE AS REQ.

SOLE AT 1'-0" BELOW THE D.W.L.

RAISED SOLE AREA

SOLE AREA

RAISED 0.1 M.L.

26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2

LAY-IN OF SIDES IS EXAGGERATED FOR ILLUSTRATION ONLY.

Arrange engine room layout to suit your needs, there is room for Gen. set, batteries and some fuel tanks. Other tanks may be located under soles, see sheet 81.

SALOON SIDE IS SET IN ON INSIDE OF SHEER STRINGER

INSTALL WHEELHOUSE/SALOON DECK/SOLE

SALOON SIDE, SUPPORT UNTIL BULKHEAD "G" IS INSTALLED

AFT DECK, SALOON DECK/SOLE

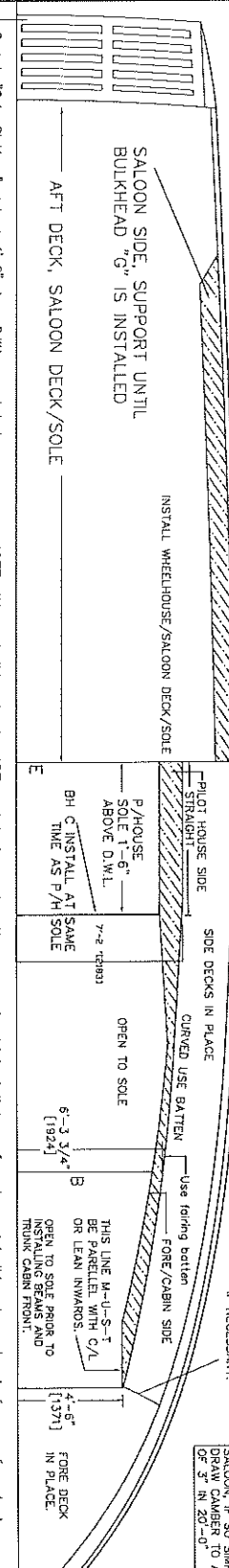
INSTALL WHEELHOUSE/SALOON DECK/SOLE

NOTE: Where bulkheads do NOT match frame locations you should install logs for plywood bulkheads and sub frames for steel ones.

Deck in "Swim Platform" at level 1'-6" above D.W.L., rounded stem on platform to match main transom will look best.

Deck in "Swim Platform" at level 1'-6" above D.W.L., rounded stem on platform to match main transom will look best.

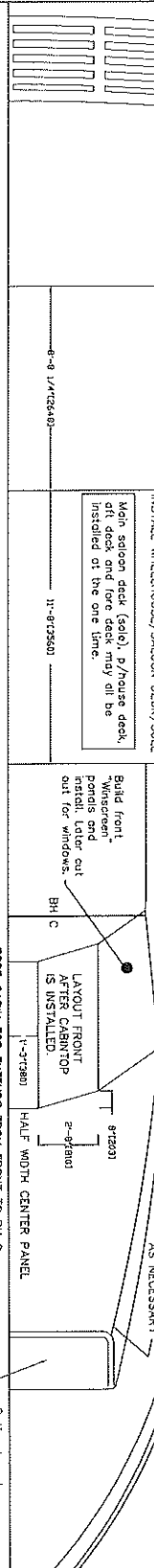
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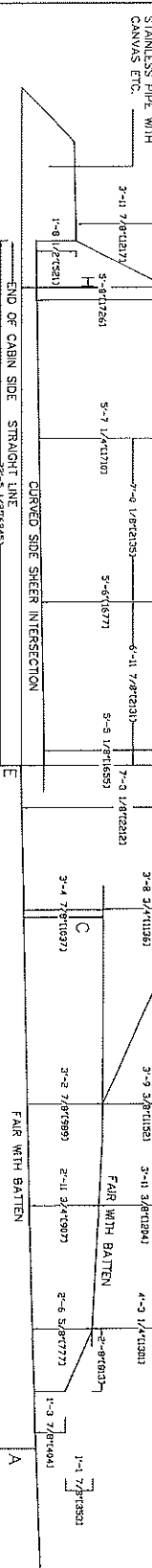
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Roberts design.

WATERRUNNER 65
VERSION B

DATE: APRIL 1987

SCALE: 1/8" = 1'-0"

SHEET: 9/ASB

PILOT HOUSE VERSION B

SEE SHEET 9AS FOR ADDITIONAL INFORMATION ON INSTALLING DECK AND CABIN BEAMS ETC.

THIS VERSION IS SHOWN WITH A FULL WIDTH SALOON. YOU MAY PREFER TO HAVE SIDE DECKS ON ONE OR BOTH SIDES. SEE SHEET 9AS FOR THE DECK WIDTH, USE DECK WIDTH MEASUREMENTS FROM SHEET 9AS IF YOU OPT FOR SIDE DECKS IN THE SALOON AREA.

First job shown on this sheet is the installation of the cabin soles.

You should not secure these finally in place until you are sure that all work behind the soles is complete, simply fit, and make ready the soles for final installation and then proceed as follows.

Before you start work on the decks and superstructure make sure you have installed all of the larger items such as tanks, engines, large plywood panels (bulkheads & soles) etc.

Work out your bilge pumping system and ensure you have left waterways so any bilge water can drain to an area where a Struon can be installed and connected to your overall bilge pumping system. Back up your mechanical bilge pumps with manual systems.

Decide what fire fighting system you are going to install, especially in the engine room and lay out plumbing for these systems.

You may prefer less camber than we show in the master pattern, if so then remember for your decks to not only shed water properly but for your boat to 'look right' you must have some camber in the decks, also add a lot of strength to the structure.

Deck beams are installed right across the hull. This enables you to get fair and even decks, especially side decks which are almost impossible to install as short lengths, so follow our advice and start off with your deck beams right across the hull.

When all the beams are in place, next job is to mark out the position of the cabin sides. Make sure the side beams have adequate support and cut beams to receive cabin/deck stringer, see detail sketch on sheet 7AS.

The center portions of the deck beams will later be used for the cabin top, so put these aside.

Make a pattern of the cabin sides and trial fit until perfect fit and shape. Cut out cabin sides and stand up in one piece. Install fore-cabin front; use master camber for radius of front and use pipe section for corners, make sure forward end of sides do not appear to lean outwards, some twist inwards of forward ends of sides will cure this.

Install aft deck intercostals and plate forward, sole, aft deck & fore cabin top install Wheelhouse/Saloon front "Wind screen" panels. May be divided into more sections than shown, your choice.

THE MEASUREMENTS SHOWN ABOVE ARE TO ALLOW YOU TO MAKE A MASTER PATTERN FOR THE SIDES. IF YOU DESIRE TO ACHIEVE THE OVERALL LOOK OF THE SHEET 1 PROFILE THEN YOU WILL USE MASTER PATTERN TO MAKE OTHER PATTERNS FOR VARIOUS SECTIONS. YOU WILL MOST LIKELY WANT TO KEEP THE PILOT HOUSE SIDES VERTICAL OR NEAR VERTICAL SO DOOR WILL BE EASIER TO INSTALL. FABRICATE THE FAIRING SECTION AHEAD OF THE PILOT HOUSE FRONT TO APPEAR AS SHOWN IN SHEET 1.

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