Kotzebue Marine Enterprises
P.O. Box 7981 - San Diego, California 92107
Phone (619)226-4342

19 August 1989

Outline for Proposed New Boatbuilding Company

I. Purpose and Intent of New Company

a. The purpose of the new company is to design and build high quality custom yachts, both power and sail, in lengths varying from 40 feet to 70 feet.

b. The primary goals of the company are:

i. To maintain a high standard of quality and workmanship.

ii. To still be in business and making a profit 10 years after formation of the company. It is recognized that this is a long term goal and in order for it to be met many types of work will have to be done, including work that does not relate to the yachting industry, so that the company can maintain its overhead and retain quality personnel. Other types of work may include custom metal fabrication, modifications to existing boats and yachts, construction of boats and yachts designed by outside designers, tooling and production of fiberglass molds and parts, etc.

II. Means of Achieving Desired Purpose and Goals

a. Develop standard construction and installation techniques. Standardized construction techniques will enable the company to build custom yachts that are completely unique in arrangement and appearance at prices competitive with high quality production boats. Standardization of electrical and mechanical installations not only will improve productivity on new boats, but will make the company more competitive for re-fit and modification jobs.

b. Build away from the waterfront. Quality indoor facilities for boatbuilding are rare along the water and much more common a little way inland. Workman's compensation rates are higher at the waterfront, and there are too many distractions for the workforce, especially in the summer. Even large powerboats can be trucked to the water with the flybridge and/or pilothouse removed. Large sailboats will have the keel and mast delivered directly to the launching facility, while the boat itself is trucked seperately.

c. Keep the company small and lean. Only hire enough people to do the job efficiently. A crew of four to six people is enough to build a well equiped 50 foot boat, adding more people can actually slow a project down. Management personnel must be able to perform various labor tasks on the shop floor to help take up the slack, and be willing to work at least 50 hours a week on salary.

d. Never let hourly employees work overtime. Paying time and one half for labor produces a burden on the profit margin of a custom yacht project that is impossible to bear.

e. Plan all projects from start to finish before work begins. All mechanical and electrical systems for a new boat must be worked out in advance. With proper planning several jobs can be started early on, such as keels, rudders, custom hardware, electrical panels, plumbing manifolds, fiberglass decks, etc., rather than just building a hull. Probably the largest contributing factor to the high costs associated with custom boatbuilding is the tendancy for builders to build the hull without giving any thought to what goes in in it.

III. Description of the Company:

a. Company name. The company will not be named after individuals. The name should be something like "San Diego Boatbuilding Company" to help instill a team spirit as opposed to an individual effort.

b. Employee ownership and profit sharing. Employees should be given the chance to participate in the development of the company and share in its profits as part of the "team spirit" philosophy. Custom yacht building is labor intensive and demands the highest quality of workmanship, so anything that can be done to instill loyalty and a sense of pride amongst the workforce will be reflected in improved productivity and quality.

c. Management: Management will consist of two principals, Paul Kotzebue and Davis Gregg. Kotzebue will be responsible for new designs, writing specifications, bidding projects, lofting, company promotion, and quality control. Gregg will be responsible for hiring and firing employees, production management, purchasing, mechanical and electrical installations, implementation of standard production techniques, and custom metal fabrication.

d. Workforce: The workforce required to build a 50 foot to 60 foot custom yacht will consist of one skilled carpenter, one semi-skilled carpenter, one worker skilled in metal work, and two or three helpers. Workers must be willing and able to work in areas other than their specialties.

e. Support persons: One part time bookeeper/clerk/secretary.

f. Shop facility will probably be located in one of the many industrial parks in the San Diego area. We will need around 3000 square feet with an office and bathroom.

g. Company expansion. As business grows the company will

need to expand. Expansion must not proceed too fast so that a backlog of orders will exist, giving the company some security for the future.

IV. Demonstrator Boat

a. Purpose. The primary purpose of building a company owned demonstrator boat is to show to the market place what kind of work the company is capable of doing. The boat must be impressive enough to get the attention of the custom yacht market, yet be simple enough for the company to build in a reasonable amount of time and for a reasonable cost.

b. Building a demo boat will allow the company to achieve the following:

i. Develop standard construction and installation techniques.

ii. Demonstrate the boatbuilding operation to prospective customers. It is much easier to sell a project while a boat is being built than when the shop is empty.

iii. Demonstrate the finished product to the market place. The boat will be put in boat shows and used in the company's advertising and promotional material. In addition to the demonstrator boat, it may be desireable for the company to keep the "Blue Moon" in inventory as she has some value to the company as a demonstration product because of Kotzebue's and Gregg's involvement with the design and construction.

b. Description of the demonstrator boat. Attached to this outline are preliminary drawings and specifications for the proposed demonstration boat. The hull will be built out of wood, two layers of strip planking with fiberglass sheathing on the outside and natural finish on the inside. The deck will be plywood over laminated deck beams with a teak overlay. The cabin and cockpit will be a one piece foam core fiberglass molding.

V. Cost Estimate:

a. Set up shop	$ 20,000
b. Build demo boat	$293,000
c. Advertising/promotion	$ 25,000

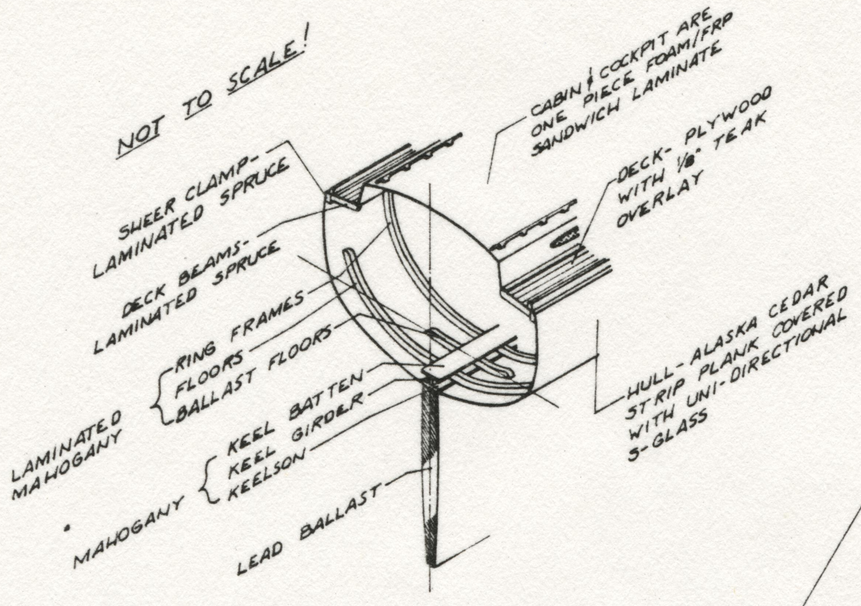
VI. Items to be resolved:

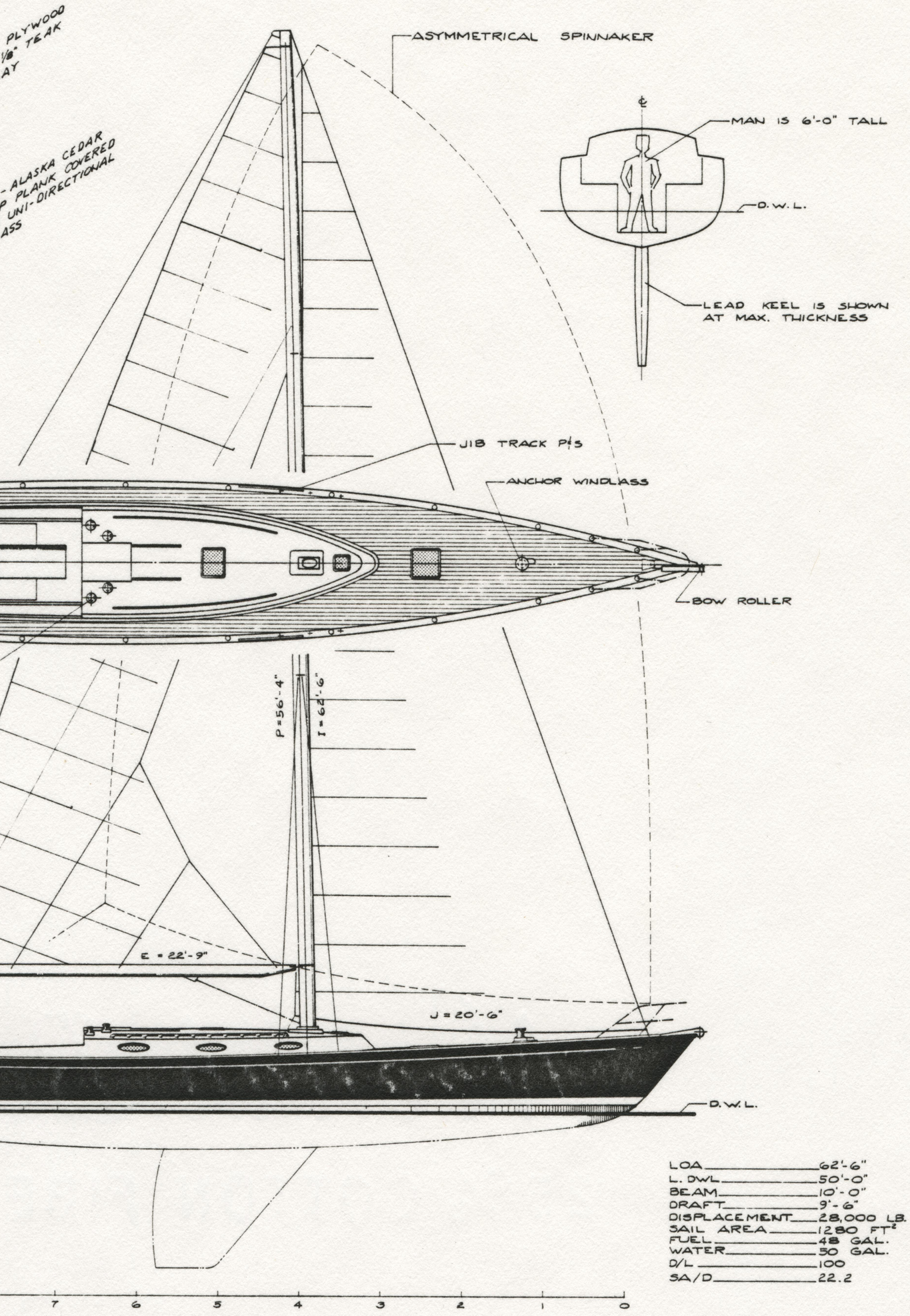
a. Complete cost breakdown.

b. Procedure for starting up company.

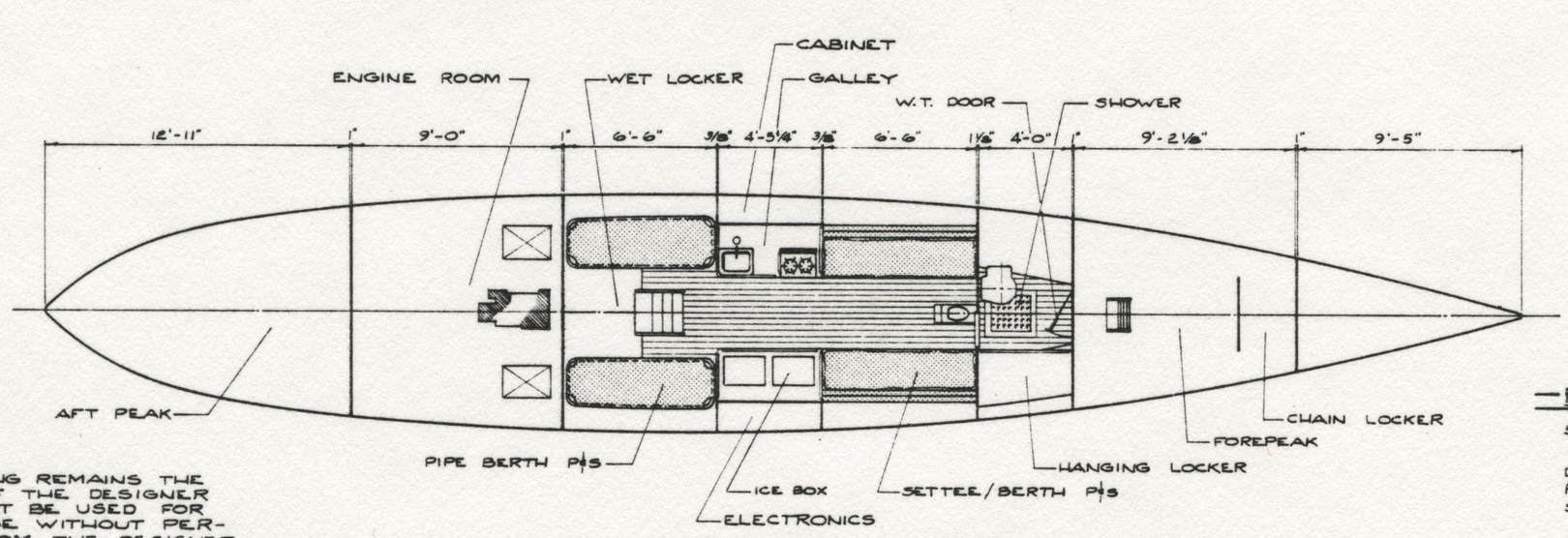
c. Means of financing start up of company.

NOT TO SCALE!





LOA	62'-6"
L. DWL	50'-0"
BEAM	10'-0"
DRAFT	9'-6"
DISPLACEMENT	28,000 LB.
SAIL AREA	1280 FT²
FUEL	48 GAL.
WATER	50 GAL.
D/L	100
SA/D	22.2



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PRELIMINARY DESIGN

50'-0" W.L. CANOE SLOOP

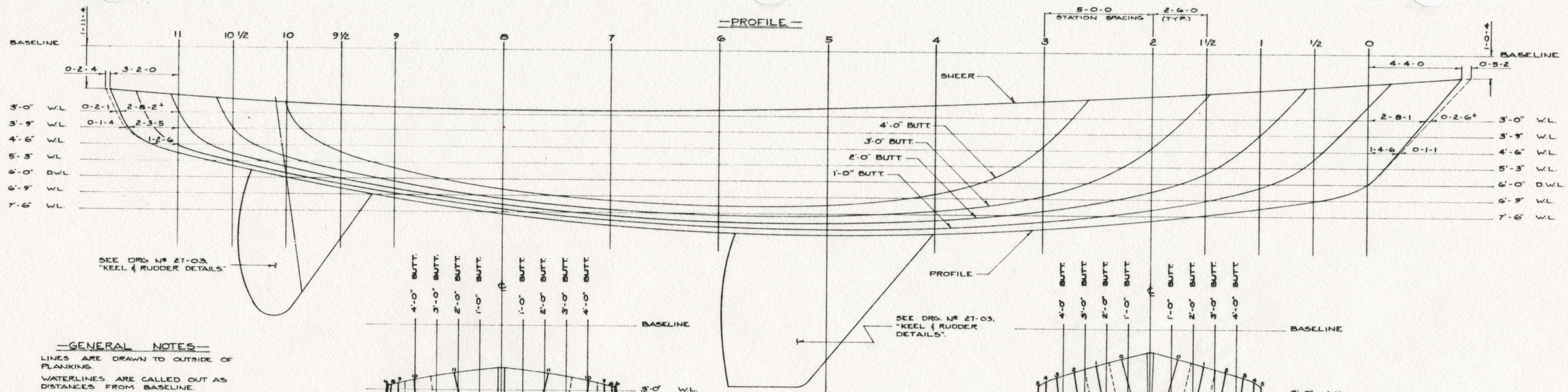
DESIGNED BY:
PAUL R. KOTZEBUE
SAN DIEGO, CALIFORNIA

SCALE: 1/4" = 1'-0" UNLESS NOTED

20 AUG 88

PK

—PROFILE—



—GENERAL NOTES—

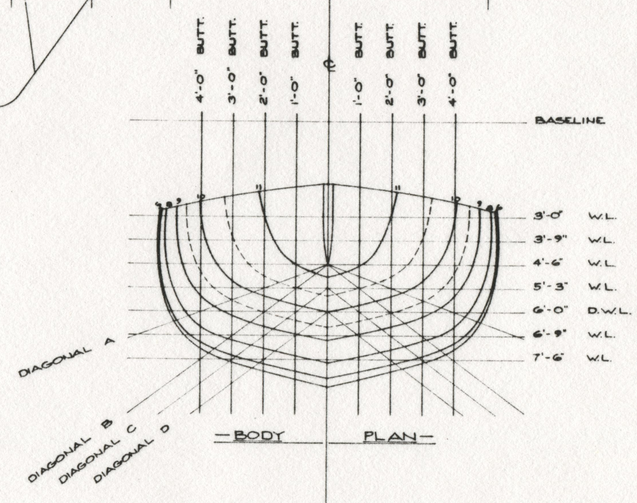
LINES ARE DRAWN TO OUTSIDE OF PLANKING.

WATERLINES ARE CALLED OUT AS DISTANCES FROM BASELINE.

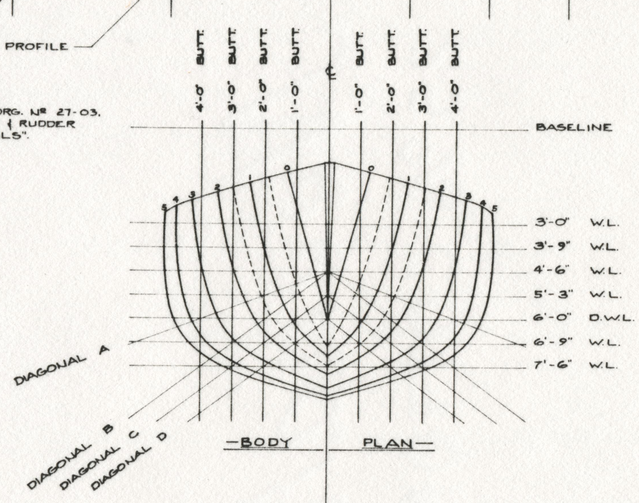
BUTTOCKS ARE CALLED OUT AS DISTANCES FROM ℄.

NOTE WHERE DIAGONALS INTERSECT BUTTOCKS AND WATERLINES ON BODY PLAN.

DIMENSIONS ARE IN FEET - INCHES - EIGHTHS OF AN INCH. + DENOTES 1/16" ADDITIONAL.



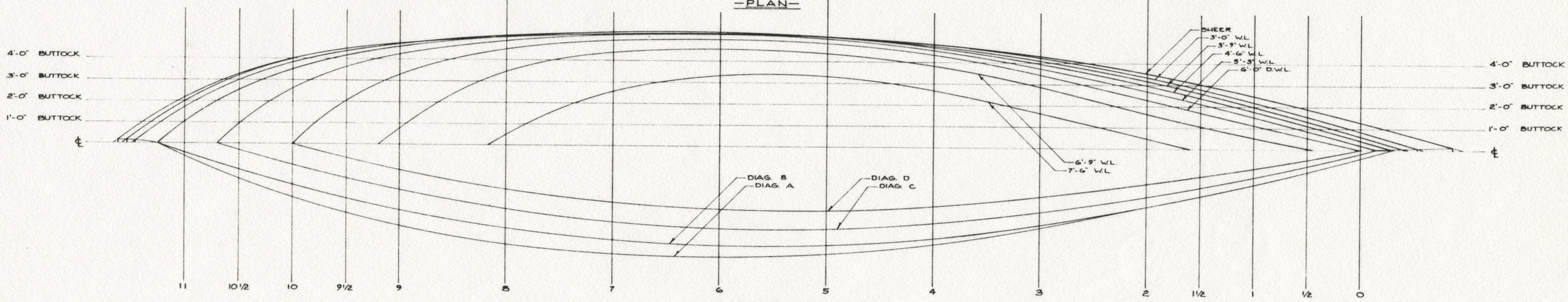
—BODY PLAN—



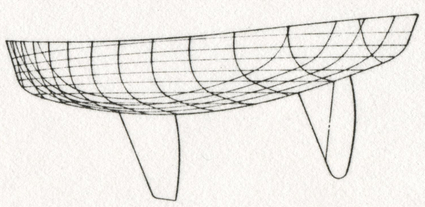
SEE DRG. Nº 27-03, "KEEL & RUDDER DETAILS".

—BODY PLAN—

—PLAN—

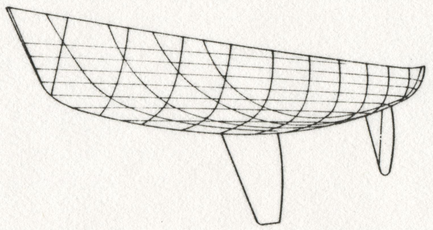


—DIAGONALS—



—DIMENSIONS—

L.O.A.	62'-6"
D.W.L.	50'-0"
BEAM	10'-8"
DRAFT	9'-6"
DISPLACEMENT	30,500 LB.
P.C.	0.544
L.C.B.	54.1 % D.W.L.
L.C.F.	56.7 % D.W.L.
P.P.I"	1777 LB/I"
M.T.I"	4317 FT·LB./I"
GM	4.19 FT.
WETTED SURFACE	553 SQ. FT.



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—LINES PLAN—

50'-0" W.L. CANOE SLOOP

DESIGNED BY:
PAUL R. KOTZEBUE
SAN DIEGO, CALIFORNIA

SCALE: 1/2" = 1'-0"
DATE:

DESIGN Nº 27
DRAWING Nº 27-01

PK

—HULL OFFSETS—

	STATIONS	0	½	1	1½	2	3	4	5	6	7	8	9	9½	10	10½	11	STATIONS	
HEIGHTS BELOW ℄	SHEER	1-4-4	1-6-5	1-8-4⁺	1-10-2	1-11-7⁺	2-2-7	2-5-4	2-7-4	2-8-7	2-9-6	2-9-4	2-8-3⁺	2-7-4	2-6-3	2-4-5	2-2-6	SHEER	HEIGHTS BELOW ℄
	4'-0" BUTT.						4-3-6⁺	6-6-4	7-1-1	7-2-0	6-11-4	6-5-5	5-6-0⁺	4-8-7				4'-0" BUTT.	
	3'-0" BUTT.				2-0-3	4-3-3	6-7-0	7-3-7	7-7-4	7-7-2	7-4-4	6-10-6	6-1-4	5-7-4⁺	5-0-2	3-8-4		3'-0" BUTT.	
	2'-0" BUTT.			3-9-2	5-5-5	6-4-5	7-3-6	7-9-0⁺	7-11-4	7-10-4	7-7-5	7-1-7	6-5-6	6-0-2	5-3-0	4-10-4	2-11-4	2'-0" BUTT.	
	1'-0" BUTT.	2-4-7	4-10-0	6-2-3	6-9-4	7-2-3	7-9-2	8-1-4	8-3-2	8-1-4⁺	7-10-5	7-4-5⁺	6-8-3	6-3-3	5-9-3	5-2-7	4-6-1	1'-0" BUTT.	
	PROFILE	6-0-0	6-9-5	7-1-7	7-5-4	7-8-6	8-1-7	8-5-0	8-6-0	8-4-6	8-1-3⁺	7-7-3	6-10-7⁺	6-5-6	6-0-0	5-5-6⁺	4-10-6	PROFILE	
HALF BREADTHS FROM ℄	SHEER	1-3-2	1-10-6	2-5-6⁺	3-0-3	3-6-0	4-3-4⁺	4-9-6⁺	5-1-5	5-3-1	5-2-5	5-0-5	4-8-7	4-5-4⁺	4-0-1	3-3-2	2-1-6	SHEER	HALF BREADTHS FROM ℄
	3'-0" W.L.	0-10-0	1-6-6	2-2-4	2-9-4	3-3-6	4-2-4⁺	4-9-4	5-1-7	5-3-4	5-3-0	5-1-2	4-9-1	4-5-4	3-11-7	3-2-1	1-11-6	3'-0" W.L.	
	3'-9" W.L.	0-7-4	1-4-2⁺	2-0-1	2-7-0	3-1-6	4-1-2	4-9-1	5-2-2	5-4-1	5-3-5⁺	5-1-3	4-8-6	4-4-3	3-9-6⁺	2-11-3	1-8-1	3'-9" W.L.	
	4'-6" W.L.	0-5-0	1-1-3	1-9-4	2-4-2⁺	2-11-2	3-11-2	4-8-1	5-1-6	5-3-6⁺	5-3-4	5-0-5	4-6-6⁺	4-1-4	3-5-4	2-5-4	1-0-4	4'-6" W.L.	
	5'-3" W.L.	0-2-4	0-10-2	1-6-0	2-1-2	2-8-0⁺	2-8-6	4-6-6	5-0-4	5-2-4	5-1-7	4-10-3	4-2-4	3-6-6⁺	2-7-2	0-11-4		5'-3" W.L.	
	6'-0" D.W.L.	0-0-0	0-6-2	1-1-4	1-8-5	2-3-4	3-5-0⁺	4-3-7	4-10-1	4-11-6	4-10-5	4-5-4	3-3-1	2-0-5	0-0-0			6'-0" D.W.L.	
	6'-9" W.L.		0-1-0	0-6-1⁺	1-0-3	1-7-4	2-10-2	3-9-6	4-4-4	4-5-7	4-3-3	3-5-0	0-8-6					6'-9" W.L.	
	7'-6" W.L.					0-5-4	1-7-3	2-7-5	3-3-3	3-3-2	2-5-6	0-5-4⁺						7'-6" W.L.	
DIAGONALS	DIAG. A	0-4-6	1-0-6	1-8-0	2-2-5	2-9-0	3-8-7	4-6-5	5-0-3	5-1-6	5-0-4	4-7-4⁺	3-9-2	3-2-5	2-5-6	1-7-4	0-6-7	DIAG. A	DIAGONALS
	DIAG. B	0-5-0	1-1-1	1-8-3⁺	2-3-0	2-8-6	3-7-4	4-3-2	4-7-5	4-7-6	4-5-0	3-10-5	3-0-3	2-5-7	1-10-4	1-2-4	0-5-3	DIAG. B	
	DIAG. C	0-2-4	0-9-3	1-4-0	1-9-5	2-2-6	3-0-2	3-6-6⁺	3-10-4	3-10-1	3-6-6	2-11-6	2-1-3	1-7-0	0-11-4	0-3-5		DIAG. C	
	DIAG. D	0-0-0	0-5-4	0-10-6	1-3-2⁺	1-7-5	2-3-5	2-9-3	3-0-3	2-11-2	2-7-6⁺	2-0-4	1-2-0	0-7-4⁺	0-0-0			DIAG. D	
	STATIONS	0	½	1	1½	2	3	4	5	6	7	8	9	9½	10	10½	11	STATIONS	

—KEEL OFFSETS—

% CHORD	5	10	15	20	30	40	50	60	70	80	90	100	L.E.R.	% CHORD
ROOT	1.82	2.66	3.28	3.72	4.23	4.38	4.25	3.88	3.27	2.42	1.36	0.08	0.23	ROOT
Nº 1	1.85	2.71	3.34	3.78	4.31	4.46	4.33	3.95	3.33	2.46	1.38	0.08	0.24	Nº 1
Nº 2	1.81	2.65	3.26	3.70	4.21	4.35	4.23	3.86	3.25	2.41	1.35	0.08	0.21	Nº 2
Nº 3	1.68	2.46	3.02	3.43	3.90	4.04	3.92	3.58	3.01	2.23	1.25	0.08	0.21	Nº 3
Nº 4	1.45	2.12	2.61	2.96	3.37	3.49	3.39	3.09	2.60	1.93	1.08	0.06	0.19	Nº 4
TIP	1.12	1.65	2.03	2.30	2.62	2.71	2.63	2.40	2.02	1.50	0.84	0.05	0.14	TIP

—GENERAL NOTES—

HULL OFFSETS ARE GIVEN IN FEET - INCHES - EIGHTHS OF AN INCH.
+ DENOTES 1/16" ADDITIONAL.

KEEL OFFSETS ARE GIVEN AS HALF BREADTHS FROM ℄ IN INCHES.

L.E.R. = LEADING EDGE RADIUS.

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—TABLE OF OFFSETS—

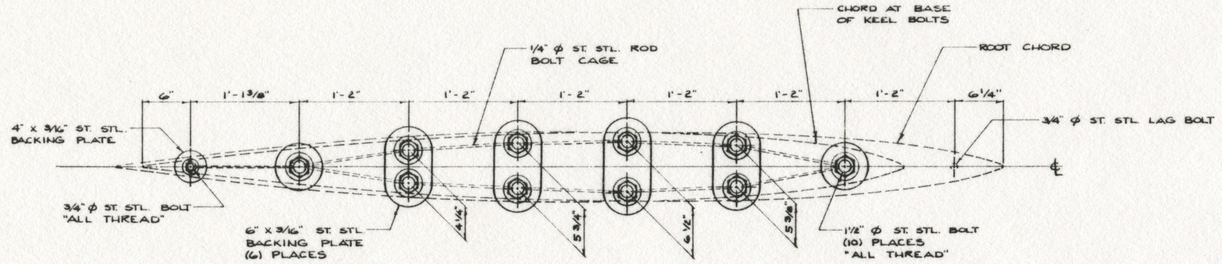
50'-0" W.L. CANOE SLOOP

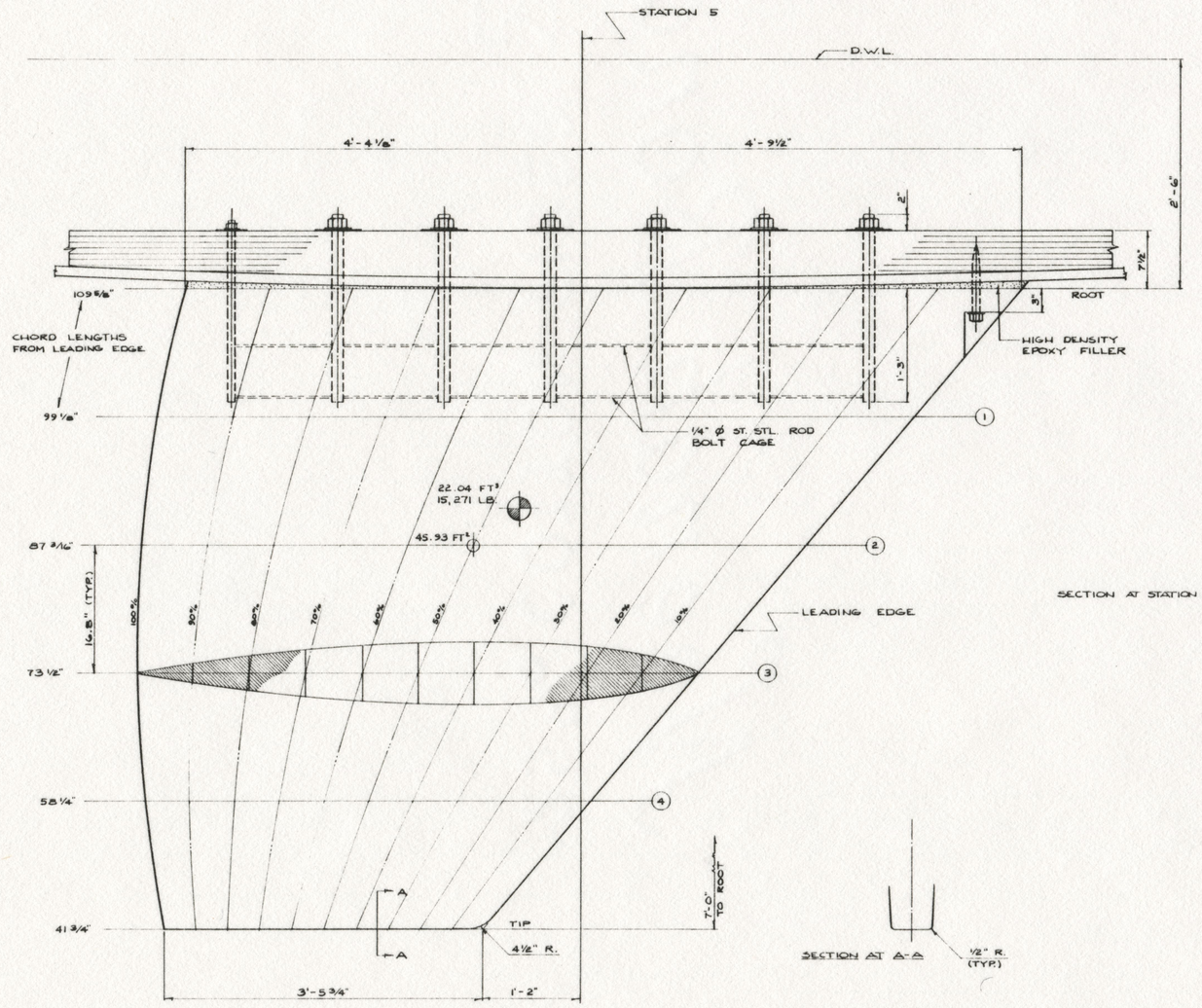
DESIGNED BY:
PAUL R. KOTZEBUE
SAN DIEGO, CALIFORNIA

SCALE : NONE
DATE : 7 MAY 89

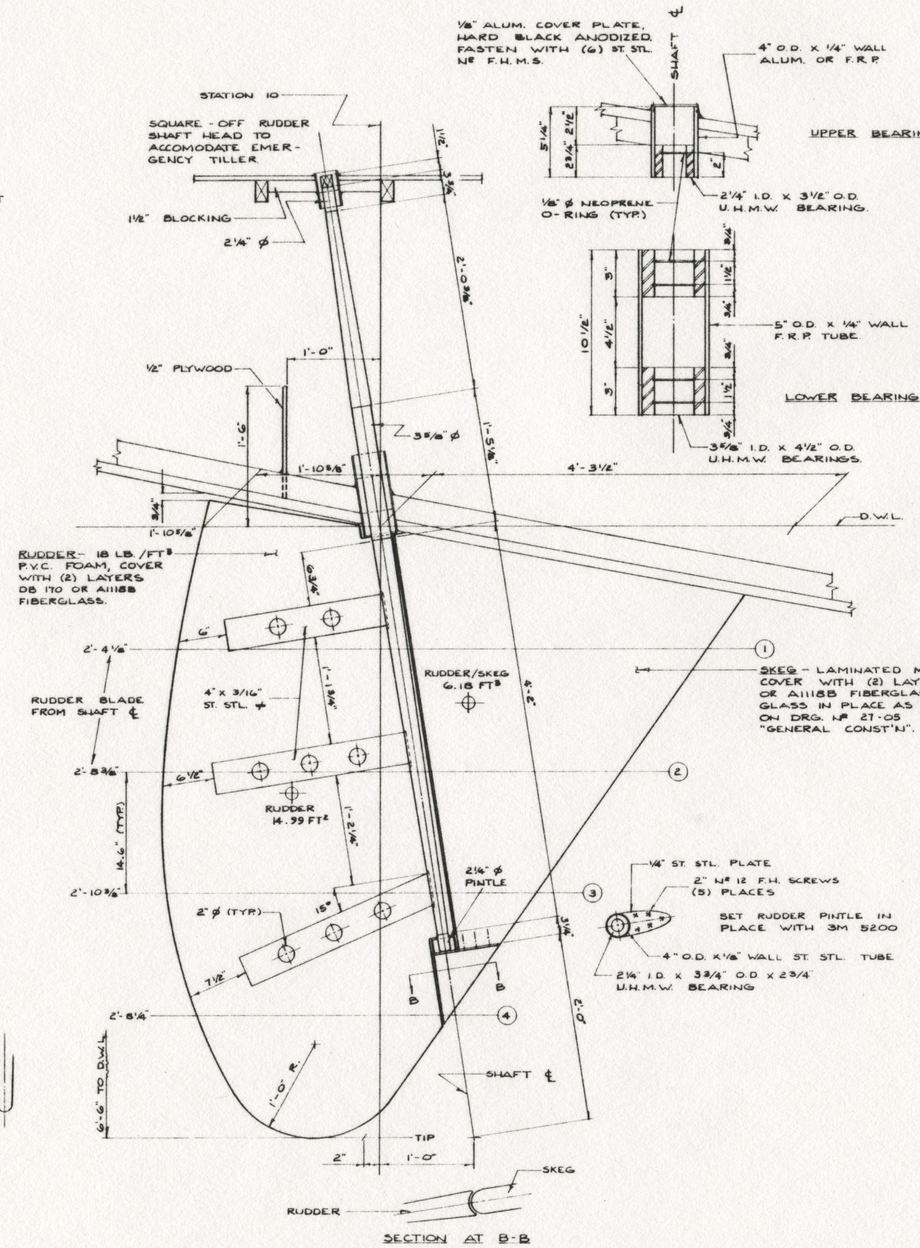
DESIGN Nº 27
DRAWING Nº 27-02

PK

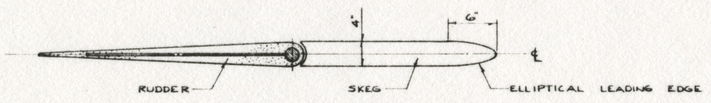




SECTION AT STATION 10



SECTION AT B-B



SECTION AT (2)

NOTE: RUDDER SHAFT AND RUDDER BEARINGS ARE NOT TO SCALE.

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KOTZEBUE MARINE ENTERPRISES

KEEL & RUDDER DETAILS

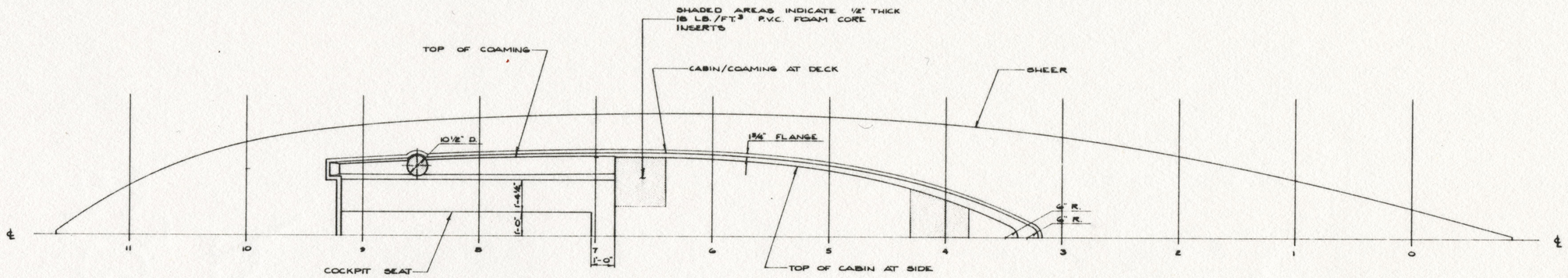
50'-0" W.L. CANOE SLOOP

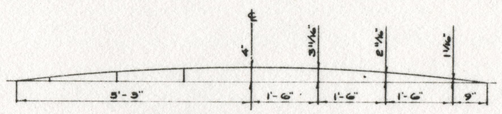
DESIGNED BY:
PAUL R. KOTZEBUE
SAN DIEGO, CALIFORNIA

SCALE: 1 1/2" = 1'-0"
DATE: 6 MAY 89

DESIGN Nº 27
DRAWING Nº 27-03

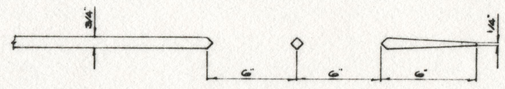
PK



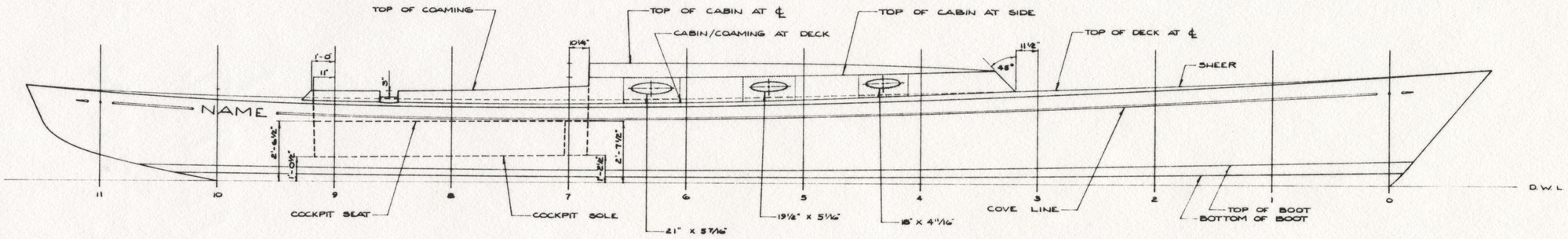


MAIN DECK CROWN IS 41'-6" R.
3/4" = 1'-0"

NOTE: VERTICAL SURFACES ARE TO HAVE 1/16" IN 1'-0" DRAFT.



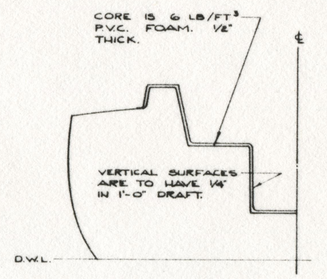
COVE LINE DETAIL
3" = 1'-0"



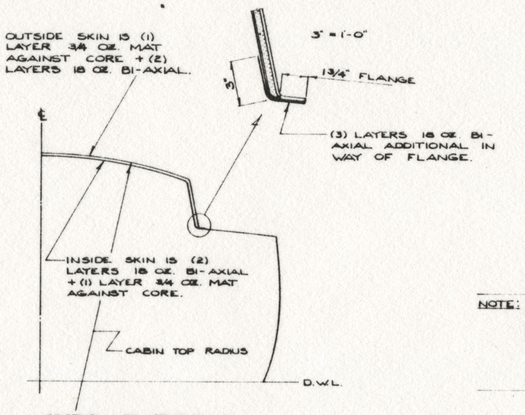
—DECK OFFSETS—

STATIONS		0	1	2	3	4	5	6	7	8	9	10	11
HEIGHTS ABOVE D.W.L.	DECK AT ℄	4-7-6	4-4-2⁺	4-1-6⁺	3-11-6⁺	3-9-7	3-8-2⁺	3-7-1	3-6-1⁺	3-6-1⁺	3-6-6⁺	3-7-7⁺	3-9-7⁺
	TOP OF CABIN AT ℄					4-11-6⁺	5-0-7	5-1-1⁺	(5-0-6)				
	TOP OF CABIN AT SIDE					4-8-4	4-7-0	4-6-0	(4-5-6)				
	TOP OF COAMING								4-0-7	3-10-5⁺	3-10-2⁺	(3-10-6)	
	BOTTOM OF COVE LINE	3-11-0	3-7-4⁺	3-3-3	3-1-5⁺	2-11-3	2-9-4	2-8-3	2-7-6	2-7-7	2-9-1	2-11-5	3-3-3⁺
	TOP OF BOOT	1-0-2	0-10-6	0-9-3	0-8-2	0-7-3	0-6-6	0-6-4	0-6-3	0-6-4	0-7-0	0-7-5	
	BOTTOM OF BOOT	0-6-5	0-5-4⁺	0-4-5	0-3-6	0-3-2⁺	0-2-6⁺	0-2-6	0-2-7	0-3-0⁺	0-3-3⁺	0-3-7	
1/2 BEAM HEIGHTS	CABIN/COAMING AT DECK					1-11-2	3-0-5	3-6-0	3-6-5	3-5-4	3-2-4⁺	(2-9-6)	
	TOP OF CABIN AT DECK					1-7-2⁺	2-10-0	3-3-6	(3-4-3)				
	CABIN TOP RADIUS					4-9-7⁺	8-5-2⁺	9-5-4	9-11-7⁺				

OFFSETS ARE GIVEN IN FEET-INCHES-EIGHTHS OF AN INCH TO OUTSIDE OF SHELL.
+ DENOTES 1/16" ADDITIONAL.



— SECTION AT STATION 8 —
3/4" = 1'-0"



— SECTION AT STATION 6 —
3/4" = 1'-0"

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—DECK LINES—

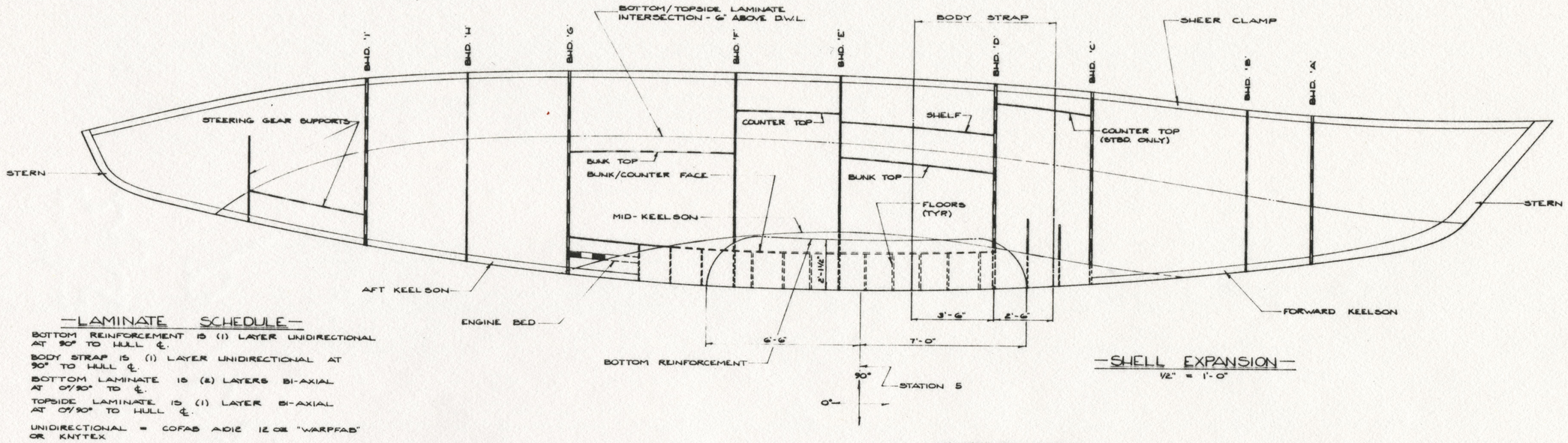
50'-0" W.L. CANOE SLOOP

DESIGNED BY:
PAUL R. KOTZEBUE
SAN DIEGO, CALIFORNIA

SCALE: 1/2"=1'-0" UNLESS NOTED
DATE: 4 JUN 89

DESIGN Nº 27
DRAWING Nº 27-04

PK



—LAMINATE SCHEDULE—

BOTTOM REINFORCEMENT IS (1) LAYER UNIDIRECTIONAL AT 90° TO HULL ℄.

BODY STRAP IS (1) LAYER UNIDIRECTIONAL AT 90° TO HULL ℄.

BOTTOM LAMINATE IS (2) LAYERS BI-AXIAL AT 0°/90° TO ℄.

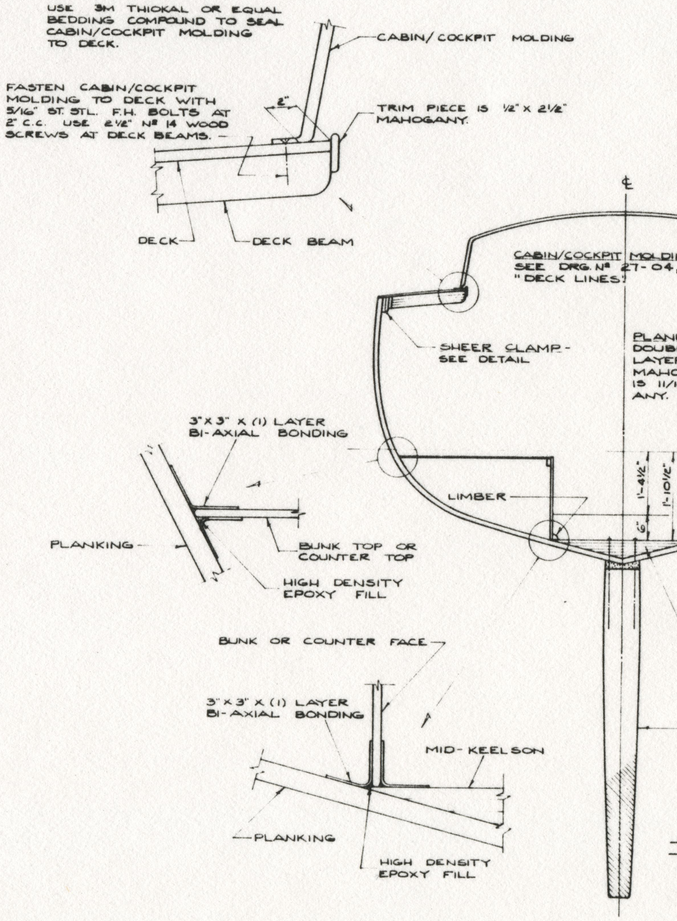
TOPSIDE LAMINATE IS (1) LAYER BI-AXIAL AT 0°/90° TO HULL ℄.

UNIDIRECTIONAL = COFAB A1018 12 OZ "WARPFAB" OR KNYTEX

BI-AXIAL = COFAB A1188 18 OZ BI-AXIAL OR KNYTEX

—SHELL EXPANSION—

1/2" = 1'-0"

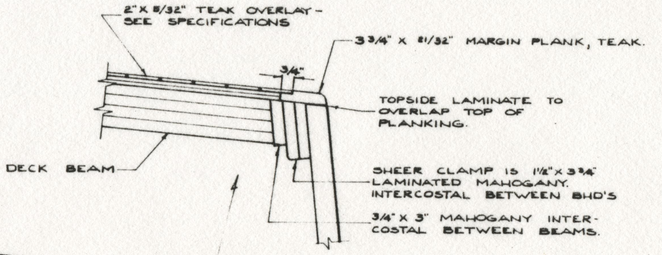


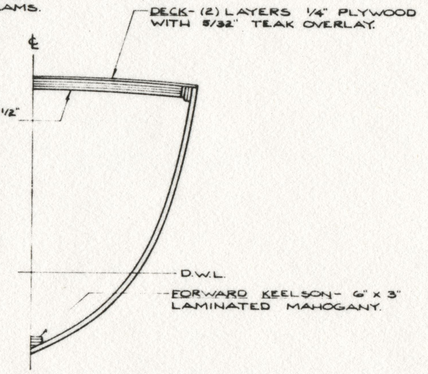
—SECTION AT STATION 9—

3/4" = 1'-0"

—SECTION AT STATION 6—

3/4" = 1'-0"
DETAILS ARE 3" = 1'-0"





—SECTION AT STATION 2—

3/4" = 1'-0"

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—GENERAL CONST'N—

50'-0" W.L. CANOE SLOOP

DESIGNED BY
PAUL R. KOTZEBUE
SAN DIEGO, CALIFORNIA

SCALE : AS NOTED
DATE : 22 JUL 89

DESIGN № 27
DRAWING № 27-05
SHEET 1 OF 2

PK

SPECIFICATIONS
50 Ft. Waterline Cruising Sloop

Table of Contents

1. GENERAL CONDITIONS
   - 1.1 Definitions
   - 1.2 Dimensions
   - 1.3 Precedence
   - 1.4 Regulatory Bodies
   - 1.5 Drawings
   - 1.6 Calculations
   - 1.7 Change Orders

2. HULL AND DECK CONSTRUCTION
   - 2.1 Lofting
   - 2.2 Materials
   - 2.3 Construction
   - 2.4 Joinerwork
   - 2.5 Scantlings

3. MECHANICAL/ELECTRICAL
   - 3.1 Auxiliary Engine
   - 3.2 Anchor Windlass
   - 3.3 Plumbing
   - 3.4 Exhaust System
   - 3.5 Steering System
   - 3.6 12 VDC Electrical System
   - 3.7 115 VAC Electrical System
   - 3.8 Heating Appliances
   - 3.9 Fuel System
   - 3.10 Fire Control System
   - 3.11 Bonding and Lightning Protection

4. HARDWARE AND RIGGING
   - 4.1 Winches
   - 4.2 Hatches
   - 4.3 Ground Tackle
   - 4.4 Deck Hardware List
   - 4.5 Stanchions and Pulpits
   - 4.6 Custom Hardware
   - 4.7 Mast and Boom
   - 4.8 Standing Rigging
   - 4.9 Running Rigging

5. OUTFIT
   - 5.1 Safety Gear
   - 5.2 Sails
   - 5.3 Items To Be Supplied By Owner

6. LIST OF MANUFACTURERS

DRAFT

1. GENERAL CONDITIONS

1.1 Definitions

The following terms are used in these specifications and are defined as follows:

ABS - American Bureau of Shipping

Builder - Kotzebue Marine Enterprises

Designer - Kotzebue Marine Enterprises

Owner - John Doe or his designated representives

Vessel - The yacht described in these specifications.

ASTM -
AISI -
ABYC - American Boat and Yacht Council

USCG - United States Coast Guard

1.2 Dimensions

L.O.A.	62'-6"
D.W.L.	50'-0"
Beam	10'-6"
Draft	9'-6"
Displacement	30,000 lb. (approx.)
Hull Surface	930 sq. ft. (approx.)
Deck Surface	330 sq. ft. (approx.)
Cabin/Cockpit Surface	350 sq. ft. (approx.)
Sail Area	1280 sq. ft. (approx.)

The above dimensions, although considered to be preliminary and approximate, are to vary not more than 10% without written approval from both the Owner and the Designer.

1.3 Precedence

When conflict exists between plans and specifications the conflict will be resolved according to the following order of precedence:

1. Written change orders approved by the Owner and by the Builder.

2. These specifications.

3. The drawings listed in part 1.5 of these specifications.

1.4 Regulatory Bodies

The vessel is to be built under ABS survey and is to be classed + A1 Offshore Racing Yacht by ABS. The vessel will

comply with all applicable USCG regulations for uninspected vessels. As a minimum, construction and electrical/mechanical installations will comply with the guidelines given by the ABYC in "Safety Standards for Small Craft".

Samples of the desired hull construction will be made up and submitted to a qualified testing laboratory for the following tests:

1. Tensile strength - ASTM XXX
2. Compressive strength - ASTM XXX
3. Modulus of elasticity - ASTM XXX

1.5 Drawings

The following drawings will be provided by the Designer for the construction of the vessel:

Lines Plan
Table of Offsets
Deck Lines
Ballast Keel Plan*
Rudder Plan*
General Construction Plan*
Construction Sections*
Watertight Bulkheads*
Shell Expansion*
Sail Plan**
Mast and Boom Layout
Cabin Arrangement**
Joiner Sections**
Deck Plan**
Steering and Shaft Line
Piping Schematic
Fuel System Schematic
D.C. Electrical Schematic
A.C. Electrical Schematic
Typical Details as required

Drawings marked "*" are to be submitted to ABS for approval. The vessel is to be built from ABS approved plans and any variations from those plans must be re-submitted to ABS for approval. Drawings marked "**" are to be approved by the Owner in a timely manner prior to starting construction of the vessel.

1.6 Calculations

In addition to calculations required to determine construction scantlings, the following calculations will be performed by the designer:

1. Hydrostatic Curves including:
   a) Displacement
   b) V.C.B.
   c) L.C.B.
   d) Pounds/Inch Immersion
   e) Transverse Metacenter
   f) Longitudinal Metacenter

g) Moment to Trim 1 Inch
h) L.C.F.

2. Cross Curves of Stability at:
a) 10 degrees of heel
b) 15 degrees of heel
c) 20 degrees of heel
d) 30 degrees of heel
e) 45 degrees of heel
f) 60 degrees of heel
g) 90 degrees of heel
h) 120 degrees of heel

3. Righting Arm Curves to comply with:
a) 46CFRXXX of USCG regulations for service in protected waters with 30 persons.
b) 46CFRXXX of USCG regulations for service in unprotected waters with 8 persons.

4. One Compartment Damage Stability to comply with 46CFRXXX of USCG regulations.

The above calculations are to be reviewed by ABS or USCG and compliance with intact and damage stability requirements is to be verified by determining the vessel's light ship center of gravity with an inclining experiment witnessed by ABS or USCG. As an alternative, the vessel's light ship center of gravity may be determined from data obtained from an IOR or IMS measurement certificate.

1.7 Change Orders

Any changes to these specifications or to any drawings marked "**" in part 1.5 of these specifications are to be considered change orders and are subject to the following conditions:

1. Change orders requested by the Owner are to be submitted to the Builder in writing. Such change orders are subject to extra charges based on labor and materials required to execute the change order.

2. Change orders requested by the Builder or Designer are to be submitted to the Owner in writing for timely approval. Included in the request for change order will be a summary of the effects that the change order will have on the cost of the vessel. If the Owner accepts the request for a change order, the Builder will be bound by the cost summary included in the request.

2. HULL AND DECK CONSTRUCTION

2.1 Lofting

Hull lines are to be lofted and faired full size. After the hull lines are faired full size, the following parts are to be lofted full size prior to fabrication to insure a proper fit:

1) Station molds
2) Stem piece
3) Stern piece
4) Engine beds
5) Floors
6) Structural bulkheads
7) Longitudinal girders
8) Keelson in way of ballast keel
9) Ballast keel
10) Rudder and skeg
11) Counter tops
12) Settee and bunk tops

2.2 Materials

Wood is to be quartersawn, dressed on all sides, and free of knots, sap pockets, checks and other defects. Maximum acceptable moisture content is 12%.

Plywood is to be Bruynzeel or other marine grade equivalent.

Adhesives and fillers are to be WEST System or System Three epoxy throughout the vessel with the exception of the cabin and cockpit molding. No substitutions are permitted.

Resin for cabin and cockpit molding is to be Ashland AME 4000 or equivalent. Polyester fillers may be used on cabin and cockpit molding.

Resin for hull sheathing is to be WEST System or System Three epoxy laminating resin. No substitutions are permitted.

Fiberglass for hull sheathing is to be Orcon S-500 unidirectional S glass or equivalent. Fiberglass for cabin and cockpit molding is to be COFAB A1118B biaxial E glass or Knytex DB170 double bias E glass.

Foam core for cabin and cockpit molding is to be Divinycell H 80 or equivalent. High load areas on cabin and cockpit molding are to have Divinycell H 250 or equivalent inserts as shown on plans.

Exterior paint is to be Sterling or equivalent linear polyurethane paint system applied in strict accordance with the manufacturer's recommendations. Inside of cockpit and cabin molding is to be painted with Z-Spar XXX or equivalent flat enamel. Bottom paint is to be Interlux Micron 33 or equivalent. Exterior varnish is to be Z-Spar Captain's

Varnish.

Aluminum extrusions and plate are to be 6061-T6.

Stainless steel is to be AISI 304L or 316L.

Bronze castings are silicon bronze (Everdur, Herculoy, or equivalent).

Materials not listed in these specifications will be called out in the vessel's construction plans.

2.3 Construction

In general, the vessel's hull is to be of strip plank construction, sheathed with two layers of unidirectional S glass. Hull sheathing is to overlap in keel area as shown on plans. Plywood bulkheads and interior componets are structural members bonded to the hull with epoxy resin as shown on plans. Deck is marine grade plywood over laminated spruce deck beams. Deck is covered with 5/32" thick teak veneer installed according to the method described in "The Gougeon Brothers on Boat Construction".

Four watertight bulkheads are to be installed as shown on plans. Watertight bulkheads are vaccum bagged laminates of plywood and Divinycell H 80 or equivalent foam core. Watertight door in forepeak bulkhead is to be Freeman Marine No. XX or equivalent aluminum watertight door, 24" x 48" clear opening.

Cabin house and cockpit is to be a one piece foam core fiberglass molding through bolted to the deck as shown on plans.

Ballast keel is to be a lead casting of about 15,000 pounds. Lead is to be KeelCo "Racing Lead" with calcium added or equivalent. Minimum density of lead is to be 693 pounds per cubic foot.

Rudder shafting is stainless steel tube as shown on plans welded to 1/8" stainless steel rudder stiffeners. Rudder blade is shaped from 18 pound per cubic foot Clark foam and sheathed with fiberglass and Ashland AME 4000 resin.

2.4 Joinerwork

Bulkheads, bunk faces, counter tops, etc. are structural as described in part 2.3 of these specifications. Structural joinerwork is to have natural finish. Choices of veneers for structural joinerwork are to be selected by the Builder for timely approval by the Owner.

Counter tops are covered with Formica or equivalent material, with colors selected by the Builder for timely approval by the Owner.

Corner posts, fiddles, bunk boards, bulkhead trim, etc. are to be mahogany moldings selected by the Builder for timely approval by the Owner. Stock H&L moldings are to be used

where applicable.

Nimbus check w/ Sue

Bunk cushions are 4" thick Brand X foam or equivalent. Pipe berth cushions and backrests are 2" Brand X foam or equivalent. Fabric is to be selected by the Builder for timely approval by the Owner.

Nimbus

Cabin sole is to be 3/8" plywood covered with 7/16" thick G.M.T. or equivalent teak and holly decking. Sole is to be fitted with flush access hatches of similar construction. Edges of sole and access hatches are to be trimmed out with solid teak.

2.5 Scantlings

Preliminary construction scantlings are shown on the Preliminary Construction Section drawing. Final scantlings will be shown on the drawings listed in part 1.5 of these specifications.

3. MECHANICAL/ELECTRICAL

3.1 Auxiliary Engine

The vessel's auxiliary engine is to be a Lehman 4D46 marine diesel. Transmission is Hurth model XX with 2.XX:1 reduction.

Propeller shaft is 1 1/4" dia. Aquamet 18 or equivalent, approximately five feet long.

Shaft coupling is Federal No. XX or equivalent flexible shaft coupling.

Propeller is Martec 18" diameter elliptic folding. Propeller pitch is called out on Shaft Line drawing.

Shaft seal is ~~Lasdrep~~ PSS or equivalent for 1 1/4" diameter shaft.

Propeller shaft strut is custom bronze casting as shown on plans.

Strut bearing is 1 3/4" O.D. bronze sleeved rubber cutlass bearing, 5" long. Bearing to be set in Chockfast or equivalent bedding compound.

Stuffing tube is 2" O.D. by 1/8" wall bronze tube, approximately 2 feet long.

Engine shutdown is Morse No. 301916 DC Control or equivalent.

Engine controls are called out in part 3.5 of these specifications.

Engine compartment blower is Par No. 35115-0020 or equivalent with Par 34764-0000 ventilator intake screen. Ventilation hose is Shields No. 450-3000 3" I.D. or equivalent. Use Par mounting collars No. 34943-0000 and 34856-0000 for hose connections at engine compartment. Deck mounted ventilators are Nicro Fico No. NF 10893 with NF 10863HA hose fittings, (2) required.

3.2 Anchor Windlass

Windlass is Maxwell - Nilsson V3000 12 VDC with overload protector provided.

See part 3.6 of these specifications for batteries, and part 4.3 for ground tackle.

3.3 Plumbing

Water tanks are two Nauta No. 661 or equivalent flexible tanks with 1 1/2" fill, 1/2" supply and shut off valve at each tank. Tanks are to be plumbed into a "Y" type selector valve.

Fresh water piping is Shields No. 164-0120 (1/2") or equivalent for cold water, Shields No. 162-0120 (1/2") for hot water.

Pressure pump for shower is Par ~~37205-0000~~ 37215-1000 or equivalent 12 VDC electric pump.

Shower unit is Whale XL5002 or equivalent, ~~with Whale PS7207 or equivalent pressure switch.~~

Shower sump pump is Rule shower sump with Rule No. 750 pump or equivalent.

Vented loop for shower sump overboard is Forespar model no. MF 842 or equivalent.

Galley sink is Polar XX. Sink drain is Forespar model no. SW 6 or equivalent.

Galley pump is Whale No. GP0550 foot pump or equivalent.

Galley faucet is Whale No. FT1102 or equivalent.

Water closet is Wilcox Crittenden ~~M4042-6~~ (Regal OK) or equivalent. W.C. discharge is to be plumbed overboard and to holding tank through Forespar model no. MF 852 "Y" valve.

Vented loop for water closet is Forespar model no. MF 840.

Holding tank is Nauta No. 660 or equivalent. Vent line is same as cold water piping with Forespar model no. CF 253 thru-hull.

Piping for water closet supply and discharge, sink overboard, shower overboard, bilge pump overboard, and cockpit drains is Shields 140 series "Vac Standard" hose.

Thru-hull fittings are to be bronze Wilcox Crittenden 8564 series or equivalent.

Sea cocks and and tail pieces are bronze Wilcox Crittenden or equivalent to fit thru-hull fittings.

Sizes of intakes and overboards are as follows:

Engine intake 3/4"
W.C. intake 3/4"
W.C. overboard
1 1/2"
Shower sump overboard
3/4"
Holding tank overboard
1 1/2"
Galley sink overboard
1"
Bilge pump overboard
1 1/2"
Cockpit drains
1 1/2" → move (10) spaces for

Manual bilge pump is Whale no. BP3503/DP3510 "Whale Gusher 25" or equivalent. Manual bilge pump is to have a four valve manifold on the intake side. Bilge manifold is made from 1-1/2" PVC pipe fittings and valves. A suction line from each of four bilge compartments will have a Whale no. LV1215 non-return valve and a Whale no. SB4230 strainer. Discharge thru-hull is Foresapar model no. CF 260 1 1/2 or equivalent.

Backup pump is a Whale no. ND3713 portable "Whale Gusher 10" or equivalent.

Vessel is to have one submersible 12 VDC bilge pump. Submersible pump is Rule 1500 with adapter for 3/4" hose or equivalent. Thru-hull is Forspar model no. CF 260 3/4 or equivalent.

Cockpit drains are Forespar model no. CF 254 2 S, two required.

3.4 Exhaust System

Exhaust is to be water injected with Lehman model no. XX water inject elbow bolted to exhaust manifold on auxiliary engine.

Exhaust piping is Vernay Vernatube 2" O.D. fiberglass tube or equivalent. Sections requiring tight bends are to be Vernay Vernatube or equivalent 2" O.D. fiberglass tube hose connections. Flexible sections are to be Shields marine exhaust hose no. 200-2000 (2" I.D.) or equivalent.

Muffler is a Vernay Vernalift no. 1300116 or equivalent. In addition, a Vernay Vernatone no. 1000154 or equivalent muffler is to be installed in the exhaust line as shown on the plans.

Exhaust thru hull fitting is to be Schaefer part no. 99-58 or equivalent stainless steel exhaust flange.

3.5 Steering System

Steerer is to be Edson no. 400S pedestal with brake assembley.

Steering wheel is Edson No. 834 or equivalent teak rimmed wheel, 38" diameter.

Steering quadrant is Edson no. 676 18" radius.

Sprocket for pedestal steerer is Edson no. 855 size 10 for 3/4" no. 60 chain.

Engine controls are Edson no. 816 mechanical clutch and throttle controls. Control cables are Edson no. 734 or equivalent for throttle and clutch.

Steering wire idler is Edson no. 711 with 6" sheaves. (2) Edson no. 620 6" upright sheaves are also required.

Wire rope for steering gear is 5/16" 7x19 stainless steel.

Chain to wire rope adapters are Edson no. 635B, (2) required.

Rudder stock bearings are custom made from UHMW plastic as shown on plans. Lower bearing is to be grooved to accept (2) 3/16" diameter O-rings and upper and lower bearings are to have (2) 1/4" diameter threaded holes in the flange to facilitate removal.

3.6 12 VDC Electrical System

Engine starting is 12 VDC. Starter/windlass battery is 220 A.H. 8D 12 volt. House battery bank is (2) 220 A.H. 8D 12 volt batteries wired in parallel. Starting and house battery banks are to be isolated from each other as shown on plans. (3) Cole Hersee No. M-284 or equivalent battery disconnect switches are used as shown on plans for battery disconnect and parallel switching.

Battery charging is done by a 120 amp Lewco No. XX or equivalent alternator through a Guest or equivalent battery isolator. Check alternator specifications when selecting battery isolator.

12 VDC distribution panel is Marinetics No. 660 "Sierra" or equivalent. 12 VDC panel is to include a battery condition monitor, 0-100 amp ammeter, and (16) branch circuit breakers. 115 VAC distribution panel is included with the "Sierra" unit. The following circuits are to be included in the 12 VDC panel:

Cabin Lights Port	10 amp
Cabin Lights Stbd	10 amp
Running Lights	10 amp
Bow Light	5 amp
Anchor Light	5 amp
Strobe Light	5 amp
VHF R/T	5 amp
Instruments	5 amp
Radar	5 amp
Loran	5 amp
Bilge Pump	10 amp
Shower Fwd	10 amp
Blower	10 amp
Auto Pilot	10 amp

Cabin lights are Guest or equivalent; (8) No. 835, (3) No. 807-2R, (1) No. 811. (1) Guest No. 900 cabin fan is to be on Cabin Lights Port circuit breaker.

Running lights are Aqua Signal or equivalent; No. XX and No. XX.

Bow light and combination anchor/strobe light are to be included with mast. See part 4.7 of these specifications.

VHF radio is Horizon No. XX or equivalent.

Instruments are Signet or equivalent; MK 172 depthsounder, MK

254 wind indicator, MK 267 knotlog.

Radar is Raytheon R10 small boat radar.

Loran is Brand X No. XX or equivalent.

See part 3.3 of these specifications for bilge pump and part 3.1 for blower.

See part 3.3 of these specifications for shower water pressure and sump.

Auto pilot is Brand X No. XX or equivalent.

12 VDC wiring is Brand-Rex or equivalent tinned copper wire rated at 90 degrees C. and 300 volts minimum, and stranded in accordance with ABYC Type III minimum stranding. Approximate lengths of 12 VDC wiring are as follows:

14-2	375 ft.
12-2	155 ft.
8	25 ft.
4	60 ft.
2	110 ft.

12 VDC installation is to be in accordance with ABYC Safety Standards for Small Craft part E-9.

3.7 115 VAC Electrical System

Vessel is to be equiped with a 115 VAC shore power system. 115 VAC panel is integral with 12 VDC panel as outlined in part 3.6 of these specifications. 115 VAC panel includes a 0-150 volt voltmeter, a 0-50 amp ammeter, a polarity test provision, (1) double pole main AC circuit breaker, and (3) double pole branch circuit breakers. Circuit breakers are as follows:

AC Main Breaker	50 amps
Battery Charger	20 amps
AC Outlets	15 amps
Water Heater	15 amps

~~Duplex~~ OK

Battery charger is Professional Mariner "~~Promite 15~~" or equivalent.

Outlets are standard three prong duplex type; (2) located in galley area as shown on plans. Outlet covers are stainless steel and wired to ship's safety ground system.

Water heater is specified in part 3.8 of these specifications.

All 115 VAC wiring is Brand-Rex or equivalent tinned copper THHN/THWN rated at 105 degrees C. and 600 volts minimum stranded in accordance with ABYC Type III stranding minimum. Approximate lengths of 115 VAC wiring are as follows:

6-3	20 ft.
12-3	75 ft.

Shore power cable is Hubbel No. 61CM28 or equivalent. Power inlet is Hubbel No. 60CM61 or equivalent. Ship to shore connections are for 30 amp 125 volt service. Other dockside service may require adapters or different connections.

Installation of 115 VAC electrical system is to be in accordance with part E-8 of the ABYC Safety Standards for Small Craft.

3.8 Heating Appliances

Galley stove is Gas Systems no. GS-23320 "Radiant" gimballed stove/broiler system consisting of GS-50 cylinder, regulator and appliance with optional pot holders. Accessories required are approximately 25 ft. Safgas hose, regulator vent, cylinder mounting bracket, and gas lighter. Equivalent substitutions are permitted.

Cabin heater is Balmar 120 stainless steel or equivalent with 2" flue vent kit, 2" air intake kit, flue guard, gravity fuel tank, and electric fuel pump kit. Fuel tank is to have Dayton no. 1A760 or equivalent fluid level gauge. Equivalent substitutions for the aforementioned heating system are permitted.

Water heater is Wolter no. M160 or equivalent instant water heater.

CNG stove and water heater installation is to be done in accordance with part A-22 of the ABYC Safety Standards for Small Craft.

3.9 Fuel System

Fuel tanks are (2) Tempo AL-20-T or equivalent aluminum fuel tanks with mechanical fuel level gauges.

Deck fill fittings are (2) chrome plated flush mount for 1 1/2" hose, clearly marked "DIESEL". Fill fittings are to be electrically connected to fuel tanks. Fuel fill hose is Shields code no. 340-1120 or equivalent.

Fuel tank vents are (2) Tempo no. 201 V90 or equivalent thru hull vents with 90 degree elbow. Vent hose is Shields code no. 340-0580 or equivalent.

Fuel supply and return lines, including supply line to cabin heater, are Aeroquip FC234-06 or equivalent. Use Aeroquip reusable fittings as required.

Fuel system is to comply with part H-24 of the ABYC Safety Standards for Small Craft.

3.10 Fire Control System

Engine space is to have a Fireboy no. XX or equivalent automatic 1301 Halon system.

See part 5.1 of thses specifications for hand held fire

extinguishers.

3.11 Bonding and Lightning Protection

Bonding conductor is Brand-Rex No. 8 or equivalent with green jacket, approximately 100 ft. required. The following items are to be included in the bonding system:

Auxiliary Engine
Fuel Tanks
Metal casings of 12 VDC electric motors (pumps, windlass, etc.))
Metal casings of 12 VDC electronic equipment (radio, radar, loran, etc.)

The following items are to be electrically connected to keelbolts to provide protection against lightning:

Chainplates
Stemhead
Backstay chainplate
Sail Tracks
Pulpits and Stanchions
Radio and Loran Antennas

Conductor for protection against lightning is Brand-Rex No. 8 or equivalent bonding conductor, approximately 125 ft. required.

In general, the requirements of parts E-1 and E-4 of the ABYC Safety Standards for Small Craft are to be met for bonding and lightning protection.

4. HARDWARE AND RIGGING

4.1 Winches

Winches are Lewmar or equivalent, aluminum and self-tailing.

Primary	(2) No. 55ST
Mainsheet	(1) No. ~~A6 43~~ ST
Halyard/Reef	(4) No. 43ST

4.2 Hatches

Deck hatches are Lewmar or equivalent, with optional exterior handles. The following model numbers are required:

(2) 8830
(1) 8820
(1) 8870

4.3 Ground Tackle

Anchor is Danforth P1800 or equivalent plow anchor. Anchor rode is 300 feet of 3/8" BBB steel coil chain.

Auxiliary anchor is Danforth T4000 or equivalent. Auxiliary anchor rode is 50 feet of 3/8" BBB steel coil chain and 300 feet of 3/4" nylon anchor rode. Auxiliary anchor is to be stowed in suitable chocks in lazarette.

Bow roller is stainless steel CQR or equivalent bow roller suitable for plow anchors up to 60 lb.

See part 3.(x) of these specifications for anchor windlass.

4.4 Deck Hardware List

Item	Quantity	Maker	Model	
Jib Track	8'	~~Schaefer~~ ~~8' x 1 1/2" x 1/4" stainless steel~~	41-12	endstops (4) 74-39
Lead Blocks	(2)	Schaefer	32-89	5.25
Foot Blocks	(2)	Schaefer	30-87	3.75
Snatch Blocks	(2)	Schaefer	11-99	2.5
Padeyes	(2)	Schaefer	78-96	.5
Runner Blocks	(2)	Schaefer	32-25	2.0
Mainsheet Block	(1)	Schaefer	12-26	2.75
Mainsheet Blocks	(2)	Schaefer	12-25	2.00
Padeyes	(2)	Schaefer	78-17	.75
Backing Plates	(2)	Schaefer	97-54	.25
Halyard Blocks	(4)	Schaefer	32-09	1.25
Cheek Blocks	(4)	Schaefer	30-55	.5
Halyard Stoppers	(2)	Forespar	MC-1	3.5
Reef Line Blocks	(2)	Schaefer	09-05	.75
~~Padeyes~~	~~(2)~~	~~Schaefer~~	~~78-71~~	~~.25~~
Boom Vang	(1)	Forespar	YR-L	17
Vang Block	(1)	Schaefer	700-43	1.0
Vang Block	(1)	Schaefer	700-75	1.25

Cunningham Block	(1)	Schaefer	700-431.0
Cunningham Block	(1)	Schaefer	700-75 1.25
Hook	(1)	Schaefer	76-47 .75
Deck Cleats	(2)	N.F.M.	CL-15H 8.0
Cockpit Cleats	(2)	N.F.M.	CL-8H 4.0
Cabin Top Cleats	(4)	N.F.M.	CL-6H 2.5
Chocks	(4)	N.F.M.	CH-10 5.0
Springline Chocks	(2)	N.F.M.	CH-8 3.0

N.F.M. is New Found Metals. All N.F.M. fittings are to be polished bronze.

Builder is to provide backing plates for snatch block padeyes and cleats, make from 3/16" thick G-10 fiberglass sheet.

4.5 Stanchions and Pulpits

Stanchions are Railmakers or equivalent 1" O.D. stainless steel tube tapered stanchions for double lifelines. (16) required, (4) of which are braced for lifeline gates port and starboard. Stanchions are 26" high.

Upper lifelines are 3/16" vinyl coated 7x19 wire, lowers are 1/8". Builder is to provide stainless steel fittings for terminals and gate releases.

Bow and stern pulpits are Railmakers or equivalent 1" O.D. stainless steel tube double rail as shown on plans. Pulpits are 26" high.

4.6 Custom Hardware

All custom made hardware is to be provided by the builder. The following items are to be considered custom hardware:

Stemhead and tack fitting, stainless steel.

Chainplates, stainless steel.

Backstay chainplate, stainless steel.

Mast collar, hard black anodized aluminum.

Mast step, hard black anodized aluminum.

Mainsheet winch base, hard black anodized aluminum.

Emergency tiller head, stainless steel.

Lower rudder bearing clamp collar, stainless steel.

4.7 Mast and Boom

Mast is Forespar 6210 or equivalent 6061-T6 aluminum extrusion. Minimum moments of inertia are 66.00 x 25.25. Mast is to be built as follows:

Masthead is to have crane with fittings for permanent backstay, ~~and topping lift~~ OK Crane is to extend forward to accomodate Schaefer 11-05

spinnaker halyard block. Masthead is to have sheavebox with stainless steel chafe cage for wing halyards and main halyard.

~~Upper end of topping lift is to have marine eye and lower end is to have marine eye with Schaefer No. 05-41 or equivalent wire block for 1/8" 7x19 wire.~~ OK

External stainless steel tangs to accommodate upper, intermediate, and lower shrouds as well as running backstays. Dimensions and construction of tangs are to be approved by the Designer.

Anchor and bow lights with No. 14 double insulated wiring.

Spreaders are Forespar section 171 or equivalent tapered airfoil spreaders with welded mounting bases and padeyes for flag halyard blocks port and starboard.

Exit blocks for internal lazy jacks port and starboard.

(5) internal halyard exits with stainless steel chafe plates for main, port wing, starboard wing, port lazy jacks, and starboard lazy jacks.

Welded goosneck bracket with stainless steel tack fitting and reef hooks.

Articulating vang bracket with swivel.

PVC conduit to masthead for wiring.

Mast step.

Sterling or equivalent linear polyurethane finish done in strct accordance with manufacturer's recommendations.

Boom is Forespar ~~5484~~ 220 or equivalent 6061-T6 aluminum extrusion. Minimum moments of inertia are x.xx x x.xx. Boom is to be built as follows:

Welded goosneck with two channel jammer box for two reef lines.

8:1 outhaul purchase system with milled exit slot and accompanying cleat.

Internal 4:1 topping lift with milled exit slot and accompanying cleat.

Reinforced boom vang lug.

Lazy jack padeyes port and starboard, (6) required.

Internal stainless steel mainsheet bail.

Integral (3) sheave exit box for outhaul and (2) reef lines.

Exit box and padeye for topping lift.

Outhaul car and track.

Sterling or equivalent linear polyurethane finish done in strict accordance with manufacturer's recommendations.

4.8 Standing Rigging

Shrouds and stays are 1x19 stainless steel wire. Upper ends of shrouds and stays are to have swaged on marine eyes. Lower ends of shrouds and stays are to have Navtec series 500 or equivalent swaged on integral toggle turnbuckles.

Wire sizes are as follows:

Shroud/Stay	Size	Length
Uppers	3/8"	(2) x 63'
Intermediates	3/8"	(2) x 43'
Lowers	3/8"	(4) x 24'
Headstay	7/16"	(1) x 66'
Backstay	5/16"	(1) x 73'

Shroud and stay lengths are approximate and are for cost estimate puposes only. See plans for actual lengths.

4.9 Running Rigging

Item	Size/Material	Length
Wing Halyards	1/2" P.S. Dacron	(2) x 150' 32.1
Main Halyard	1/2" P.S. Dacron	(1) x 140' 15.0
Spinn. Halyard	9/16" Dacron	(1) x 150' 19.7
Reef Lines	7/16" Dacron	(2) x 80' 10.4
Outhaul Tackle	3/8" Dacron vinyl coated	Supplied with boom 12
Topping Lift	3/16" 7x19 wire	(1) x 58' 4.7
Top. Lift Tackle	1/8" 7x19 & 3/8" Dacron	Supplied with boom 10
Lazy Jacks	1/4" Dacron	(2) x 115' 5.0
Mainsheet	5/8" ~~9/16~~" Dacron	(1) x 90' 14
Jib Sheets	3/4" Dacron	(2) x 55' 20.4
Spinnaker Sheets	1/2" Dacron	(2) x 70' 15.0
Running Backstays	1/4" 1x19	(2) x 45' 13.1
Backstay Tails	1/2" P.S. Dacron	(2) x 25' 5.4
Cunningham	3/16" 7x19 vinyl coated	(1) x 3' .2
Cunningham Tail	3/8" Dacron	(1) x 15' .7

P.S. is Samson XXX or equivalent pre-stretched Dacron line. Dacron is Samson XXX or equivalent Dacron line.

Running rigging lengths are approximate net lengths. Allow extra for splices, etc. Builder is to provide all running rigging with appropriate splices or nico-presses with

thimbles prior to delivery of the vessel.

Main halyard is to have a Schaefer No. 93-76 or equivalent headboard shackle. Wing and spinnaker halyards are to each have a Schaefer No. 45-10 or equivalent snap shackle.

Builder is to provide a stowage system for running backstays. Backstays are to be stowed at chainplates when not in use.

5. OUTFIT

5.1 Safety Gear

The following items are to be supplied by the builder and installed on the vessel prior to delivery to the Owner:

Boarding ladder is custom folding ladder made of teak with stainless steel fittings as shown on plans.

Liferaft is JCR or equivalent 8 man. (2) 4 man?

EPIRP is A.C.R. RLB-24 (Category 2) or equivalent.

Man overboard pole is Forespar model no. OP-150-S or equivalent with integral strobe light.

Horeshoe life ring, strobe light, dye marker, and floating line are Forespar model no. SP-1 or equivalent safety package with white life ring. Release lanyard leads to double ended 1/8" 7x19 wire with pull rings in cockpit port and starboard. Use Schaefer no. 33-02 block at lanyard and (2) Schaefer 94-03 pull rings.

Assorted softwwod plugs for thru hull fittings.

(8) USCG approved Type II personal flotation devices.

(4) USCG approved Type IV flotaion cushions, white.

Olin 25mm Alert/Locate or equivalent USCG approved marine signaling kit.

(2) Kidde Mariner 2A40BC or equivalent hand held fire extinuishers.

5.2 Sails

Sails are to be obtained by the Builder and installed on the vessel prior to delivery to the Owner.

Mainsail is North or equivalent x.x oz. Dacron. Head, tack, and clew are to be reinforced as required. Spreader patches are to be installed as required to prevent chafing on upper and lower spreaders. Two sets of reef points with reiforced panels at tack and clew are to be installed as shown on plans. Provide gromet for cunningham. Sail slides are XXX to fit slot in mast. Foot of mainsail is to have bolt rope to fit slot in boom.

Jib is North or equivalent x.x oz. Dacron. Head, tack, and clew are to be reinforced as required. Jib is to have patches to prevent chafing on lifeline stanchions and bow pulpit.

Spinnaker is North or equivalent 0.75 x.x oz. nylon. Spinnaker is to be asymmetric and is to be set without a pole.

5.3 Items To Be Supplied By Owner

The following items are to be supplied by the Owner and installed by the Builder (if so supplied) before delivery of the vessel:

Storm Jib
Storm Trisail
Code Flags
Cookware and Table Service

LIST OF MANUFACTURERS

The following compaines are manufacturers of products called out in these specifications:

ACR Electronics, Inc.
5757 Ravenswood Road
Box 5247
Ft. Lauderdale, FL 33310-5247

Ashland

Aquamet
ARMCO Steel Corporation
Advanced Materials Division
P.O. Box 1697
Baltimore, MD 21203

Aqua-Signal

Balmar Products, Inc.
4611 - 11th Avenue N.W.
Seattle, WA 98107

Brand-Rex Cable Systems Division
BR Intec Corporation
1600 West Main Street
Willimatic, CT 06226-1128

Bruynzeel

C.Q.R.
c/o Seagull Marine
1851 McGaw Avenue
Irvine, CA 92714

Clark Foam

CoFab
Composite Reinforcements Business
P.O. Box 3199
Tuscaloosa, AL 35404

Cole-Hersee Co.
20 Old Colony Avenue
Boston, MA 02127

Danforth
Rule Industries, Inc.
Cape Ann Industrial Park
Glouster, MA 01930

Dayton
c/o W.W. Grainger, Inc.
Dept. G13
5959 W. Howard Street
Chicago, Il 60648

Divincell
Diab-Barracuda
2001 108th Street
Suite 102
Grand Prarie, TX 75050

The Edson Corporation
460 Industrial Park Road
New Bedford, MA 02745

Federal Marine Motors Company
3033 - 47th Avenue N.
St. Petersburg, FL 33714

Fireboy Systems Division
100 Commerce Avenue S.W.
Grand Rapids, MI 49503

Forespar
Fores Mfg. Corp.
22322 Gilberto
Rancho Santa Margarita, CA 92688

Freeman Marine

The GMT, Inc.
6116 - 21st Street East
Bradenton, FL 34203

Gas Systems, Inc.
5361 Production Drive
Huntingtgon Beach, CA 92649

Guest Corporation
17 Culbro Drive
West Hartford, CT 06110

H&L Marine Woodwork, Inc.
2323 W. 190th Street
Redondo Beach, CA 90278

Hubbel
Wiring Device Division
Harvey Hubbel, Inc.
Bridgeport, CT 06602

JCR

Interlux
International Paint Company, Inc.
2270 Morris Avenue
Union, NJ 07083

KeelCo
327 E. "B" Street
Wilmington, CA 90744

Kidde Belleville
Walter Kidde and Company, Inc.

Belleville, NJ 07109

Knytex

Lehman Power Corporation
800 E. Elizabeth Avenue
Linden, NJ 07036

Lewco

Lewmar Marine, Inc.
876 West 16th Street
Newport Beach, CA 92663

Marinetics Corporation
P.O. Box 2676
Newport Beach, CA 92663

Martec Engineering Corporation
2257 Gaylord Street
Long Beach, CA 90813

Maxwell- Nilsson
Maxwell Marine, Inc.
629 Terminal Way
Suite 27
Costa Mesa, CA 92627

Morse Controls
Incom International, Inc.
21 Clinton Street
Hudson, OH 44236

Nauta
c/o Seagull Marine
1851 Mcgaw Avenue
Irvine, CA 92714

Navtec, Inc.
527 Great Road
Littleton, Ma 01460

New Found Metals
240 Airport Road
Port Townsend, WA 98368

Nimbus

North Sails
1111 Anchorage Lane
San Diego, CA 92106

Olin Signal Products
Standard Fusee Corp.
Rural Route 4
Peru, IN 46970

Orcon Corporation
33-430 Western Avenue
Union City, CA 94587

PSS Shaft Seal
PYI, Inc.
P.O. Box 71098
Seattle, WA 98107

Par
ITT Jabsco
MARC Division
1485 Dale Way
Costa Mesa, CA 92626

Polar

Professional Mariner
1210 Beachmont Street
Ventura, CA 93001

Railmakers
849-B West 18th Street
Costa Mesa, CA 92627

Raytheon Marine Company
46 River Road
Hudson, NH 03051

Rule Industries, Inc.
Cape Ann Industrial Park
Glouster, MA 01930

Samson Ocean Systems, Inc.
99 High Street
Boston, MA 02110

Schaefer Marine, Inc.
Industrial Park
New Bedford, MA 02745

Shields Marine Products
9133 Red Branch Road
Columbia, MD 21045

Signet Marine
3401 Aerojet Avenue
P.O. Box 5770
El Monte, CA 91731

Sterling Lacquer Manufacturing Company
3150 Brannon Avenue
St. Louis, MO 63139

System Three Resins
P.O. Box 70436
Seattle, WA 98107

Tempo Products Company
6200 Cochran Road
Cleveland (Solon), OH 44139

Vernay Products, Inc.

Yellow Springs, OH 45387

WEST System
Gougeon Brothers, Inc.
P.O. Box X908
Bay City, MI 48707

Whale
c/o Seagull Marine
1851 McGaw Avenue
Irvine, CA 92714

Wilcox-Crittenden
Middletown, CT 06457

Wolter Systems
P.O. Box 5128
Cincinnati, OH 45205

Z-Spar
Koppers Company, Inc.
5900 S. Eastern Avenue
Suite 104
Commerce, CA 90040

Items for spec's

SHORE BOAT

COMPASS

PEDESTAL GUARD

HANDRAILS

TOE RAILS

Take out Fridge - add (1) small hand held in cockpit

Emergency Tiller

Oil change Line

New Bilge pump arrangement

"WATER" Fills

"WASTE" Pump out

Battery Boxes

Refrigeration

~~Eliminate stepping Lights~~

Jensen Marine Ladder in lieu of custom Custom Hardware

cleaning supplies

Rescue Ring

Eliminate Coast Guard Stability? offshore only

Dock Lines

Safety harnesses

Roller Furling

custom Bow Roller

Tie Rods & Turnbuckles (stemhead & Mast)

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