SPECIFICATIONS

DESIGN NO. 1029

DESCRIPTION

Auxiliary Ketch of Fiberglass

Reinforced Plastic Construction

PRINCIPAL DIMENSIONS

LOA	33' 3"
LWL	26'0"
BEAM	10'0"
DRAFT	5'0"

DESIGNED FOR

FUJI YACHT BUILDERS, LTD.

DESIGNED BY

John G. Alden, Inc.
Naval Architects
89 Commercial Wharf
Boston, Mass. 02110

February 9, 1973

HULL CONSTRUCTION

I A. HULL

1. General

The hull to be of glass reinforced plastic, using cloth, woven roving and mat, as indicated on plans and described below.

2. Shell: The shell including the transom, is to be a one-piece fiberglass layup of alternate layers of woven roving and mat with cloth in external layers, all as per Hull Layup plan.

3. Hull Openings: Built-up layup suitable to take seacocks, shaft tube, rudder stock, exhaust outlet fitting, etc., are to be provided. All holes are to be treated with resin and allowed to cure prior to installation of fittings.

4. Longitudinals: To be F.R.P. layups over 1/2" x 4" plywood formers, to be installed as per Construction Plan.

5. Engine Beds: To be F.R.P. angles as per Construction Plans and Construction Details, with athwartship brackets. Top flange to be suitable for engine hold down bolts, brackets to have limber holes.

6. Floors: 1/4" thick with 1-1/2" flanges glassed to hull and bolted to floorbeams and bulkheads as per Construction Plan.

7. Deck Scuppers: To be bonded to hull and deck with four layers 600 gr. mat at low point of sheer with discharge in the boot top.

8. Mast Support: To be a wood post as per Construction Plan. Post to land on foot of solid glass layup.

9. Cabin Sole Flange: To be constructed as per longitudinals (par. 4)

10. Ballast Keel: To be cast lead of 5500 lbs encapsulated in hull in location shown on hull Construction Plan.

11. Deck Flange: To be moulded into hull

12. Chainplate Flanges: Plywood formers glassed to hull as per Construction Plans.

13. Structural Bulkheads: Of number and location as shown on Construction Plan. To be 1/2" waterproof plywood with sliced grain exterior veneer. To be fastened to hull with R.P. angles, and bolted to angles with 1/4" diag. bolts with washers, on 12" centers.

14. Trail Boards: Of teak as per grid on Lofting Plan

15. Foam Filler: Bilge to be foam filled in areas shown on Construction Plan. Foam to be covered with two layers of mat, and sloped to drain towards bilge.

16. Drains and Limber Holes: All areas of bilge are to drain to the bilge sump, with free drainage and limber holes from all areas where water will settle.

I B. DECK

1. Deck: Deck to have 3/4" thick end grain balsa core that has been resin treated and allowed to partially cure prior to layup to deck. Layup to be according to Hull Layup Plan.
2. Deck Blocking: Blocking under deck fittings to be 1/2" hard waterproof plywood, 3/16" st. steel under cleats and winches. Balsa core to be omitted in areas of st. steel blocking, and two extra layers of mat and woven roving are to be applied in these areas. Areas of mast steps to be solid F.R.P. built up to total thickness of balsa cored deck.

I C. SUPERSTRUCTURE

1. Trunk Top: As per deck, (par I B 1.)

2. Trunk Sides: To be solid F.R.P. with portlight apertures molded in. Layup as per Hull Layup Plan.

3. Blockings: As per deck blockings, (par. B 2.)

4. Ports: Seven fixed and one opening port.

I D. COCKPIT

1. Cockpit coamings: of 3/4" teak.
2. Cockpit Seats: of F.R.P. with 3/4" endgrain balsa core. As per layup plan.
3. Cockpit Seat Faces: Of solid F.R.P. as per layup plan.
4. Cockpit Sole: Of F.R.P. with 3/4" endgrain balsa core as per layup plan.

JOINERWORK

III A. EXTERIOR JOINERWORK

1. Bowsprit: Of sitka spruce as per Spars Plan.
2. Hatches: Tops of 5/8" Translucent plexiglass, frames 1-1/2" teak set on rabbeted coamings. Hatches to have friction type openers and cam type hold down hasps on inner side port and starboard. Hatches to be double hinged so that they may be opened forward or aft.
3. Companionway Hatch: 3/4" top, splined, grooved and glued, or laminated with crown. stainless steel capped runs. Tapered drop boards with rabbet. Padlock hasp located all the way outboard on sliding top.
4. Vent Boxes: Two water trap vent boxes of 5/8" teak with 1/2" translucent plexiglass tops. Cowls vents of PVC.
5. Gas Bottle Locker: Sides and top of 3/4" teak. Interior to be F.R.P. molded into deck. To be gas tight and have overboard vent from lowest part, with no part of vent hose lower than its outlet.
6. Grab Rails: Of teak as per plans on each side of trunk and fastened to trunk top with screws from bottom up.
7. Wheel Box: Molded F.R.P., shaped as shown on plans, with hinged teak seat.
8. Cockpit seats: To have 5/8" teak overlay, seat hatches of 5/8" teak constructed to prevent warping, with piano hinges, cam and padlock hold down hasps. To have drip lips around edges.

9. Cockpit Sole: 1/2" teak overlay, laid down on and payed with 3M compound.

10. Toe Rail: Of teak as per plans

11. Trim: All trim of teak.

III B. INTERIOR JOINERWORK

1. General: Exterior veneer of plywood to be sliced grain. All end grains are to be faced, and all plywood to be waterproof and paint-grade. Woods to be varnished are to be carefully matched for grain and color. Steps to be bare teak, and sea rails on counters to be 2" high. All berths to be built for 4" thick mattresses.

2. Cabin Sole: To be loose boards, each made of two pieces each of 5/8" x 1-1/2" teak and 3/16" x 5/8" holly or maple strips glued together and laid fore and aft. The sole is to be laid in sections one for each compartment. Each section will be surrounded with a permanently fastened rim of 5/8" x 3/4" teak. One board in each section to be equipped with flush lifters.

3. Sole Beams: Molded 2" sided 1-1/2" spruce bolted to cabin sole flanges.

4. Bulkheads: To be of 1/2" waterproof marine plywood. Bulkheads to be painted or vinyl covered.

5. Berths: Fronts to be painted plywood. Flats to be plywood. Risers to extend 2" above flats. Drawer faces, flaps and risers to be solid teak or mahogany.

6. Doors: Large doors to be built up hollow with mortice lock sets. Small doors to be solid with flush front and have finger holes with elbow catches inside.

7. Drawers: All drawers built up in hardwood, corners lock-jointed, bottom of masonite or plywood, to have drop type catches, and fingerholes in fronts.

8. Counters: Galley and bathroom counter to be formica covered plywood.

9. Fronts: Locker and counter fronts to be built of solid teak or mahogany in galley, and painted mahogany in toilet room.

10. Hull Ceiling: 3" x 3/8" mahogany mitered on top and bottom edges.

11. Overhead Liner: 1/2" x 1-1/2" furring strips bonded to house top, to take 11" wide 1/4" thick vinyl covered plywood held up by retaining strips screwed to furring strips.

12. Glass and Dishracks: Galley dishracks to be partitioned for plates, saucers, bowls, mugs, etc. and glass racks to have holes for glasses. All to be sized for secure stowage of dishes and glasses, with adequate dust holes in partitions and shelf risers.

13. Ladder: To be removable of teak or mahogany, with bare teak treads.

14. Table: To be a fixed table of teak or mahogany with drop leaf. To have secure hold downs to cabin sole, and hook and eye to secure drop leaf. Sea rails to be removable.

15. Ice Box: To be top opening, with 3" insulation and vapor barrier.

PROPULSION SYSTEM

IV A. MACHINERY

1. Engine: Westerbeke four 91 marine diesel.
2. Reduction Gear: Paragon type SA0-2:1 reduction and manual reverse gear.
3. Starter: 12 volt starting.
4. Alternator: One 55 amp 12 volt.
5. Tachometer Drive: Electronic.
6. Engine Mounts: Adjustable flexible Westerbeke mounts, aft mounts to be raised 3" above the center line of engine crankshaft.
7. Engine Instrument Panel: Westerbeke all-electric panel with electronic tachometer and hour meter, ammeter, water temperature and oil pressure guages.
8. Key Switch Panel: Westerbeke panel with on-off switch, preheat push button, manual stop and engine alarm.
9. Engine Pan: Of fiberglass under engine to catch all drip, with sump at forward end.
10. Engine Controls: Morse model MSC single lever control.
11. Engine Alignment: The shaft and engine shall be aligned to a tolerance of no more than .004" measured between the flanges of the coupling with the coupling bolts loose.

IV B. COOLING SYSTEM

1. Piping: To be aeroquip, or equivalent, flexible hose. The hose shall have two hose clamps at each connecting point. Cooling water from the engine is to discharge into the muffler, muffler to have a valved overboard drain.

2. Seacocks: To be Wilcox fig. 1507 and fig. 1511 as required or similiar.

3. Strainers: Intake line to have a Groco model SA-500 strainer or similiar.

IV C. SHAFTING

1. Coupling: Cast grey iron, keyed to shaft, coupling to have set-screw.
2. Propeller Shaft: 1" dia. hard tobin bronze, minimum torsional yield strength 22,500.00 PSI.
3. Stuffing Box: Wilcox Crittenden fig. 8657 with rubber neck. Two heavy duty stainless steel hose clamps are to be used at each end of rubber neck. Rubber neck to be heavy weight neoprene hose, 5" long.
4. Shaft Tube: FRP pipe, well bonded and glassed to hull and both sides of floor at mizzen mast support post.
5. Stern Bearing: Cutless rubber bearing set firmly into shaft tube.
6. Propeller: Two blade Columbian style "E" 18" dia., 12" pitch. Propeller nut to be pinned to shaft with a bronze cotter pin.
7. Installation: Stern bearing and stuffing box shall be carefully aligned to shaft. Propeller shall be mounted on the shaft so that the distance between the forward end of the propeller hub and the aft end of the stern bearing is no more than one shaft diameter.

IV D. EXHAUST SYSTEM

1. Flexible Exhaust Section: A 18" long 1-1/2" ID corrugated stainless steel line between silencer and engine.
2. Insulation: Asbestos insulation from engine to silencer.
3. Silencer: Maxim model TR3 No. 3. mounted in vibration absorbing mounts.
4. Wet Section: To be a 1-1/2" ID rubber hose from silencer to outlet fitting.
5. Outlet Fitting: To be a bronze casting with a drip lip.
6. Installation: Exhaust line shall be gas-tight throughout its passage through the interior of the hull. Silencer, hose and pipes shall be well secured throughout. Wet section shall have an even slope from silencer to outlet with no low points.

PLUMBING

V A. FUEL SYSTEM

1. Fuel Tank: To be built of FRP of forty gallons capacity, constructed as shown on plans. Tank to have a 8" dia. plate hand hole in top, over deepest part of the tank, fitted with oil-proof gasket.
2. Gauge: To be a float of spiral type liquid level gauge, Rochester or similiar.
3. Tank Testing: Tank to be tested to 3PSI or 1-1/2 times the hydrostatic head to which it may be subjected in service for no less than 24 hours.
4. Deck Fill Plate: 1-1/2" dia. bronze or marinium, marked "fuel" on rim of deck plate.
5. Fill Pipe: 1-1/2" dia. oil and fire resistant hose.
6. Vent Line: 3/4" copper or neoprene tubing, from tank to screened outlet above deck.
7. Fuel Piping: Supply and return lines to be of aeroquip hoses of size specified by eng. manufacturer. A packless shut-off valve to be installed at tank.
8. Fuel Filter: Supply fuel line to have a Cuno or similiar filter with removable cartridge and water drain at bottom.
9. Installation: The system shall be liquid and vapor tight to the hull interior. The system shall be permanently installed and all component parts independently supported. Valves and filters shall

be readily accessible and clearly labeled as to function.

V B. FRESH WATER SYSTEM

1. Water Tank: To be built of F.R.P., of sixty gallons capacity, constructed as shown on plans. Tank to have a 8" dia. plate handhole in top, over deepest part of the tank.

2. Gauge: To be a float or spiral type liquid level gauge, Rochester or similiar.

3. Tank Testing: Tank to be tested to 3 PSI or 1-1/2 times the hydrostatic head to which it may be subjected in service, for no less than 24 hours.

4. Deck Fill Plate: 1-1/2" dia. bronze or marinium, marked "water" on rim of deck plate.

5. Fill Pipe: 1-1/2" dia. plastic hose, F.D.A. approved for potable water.

6. Vent Line: Vent pipe to be 3/4" plastic hose carried to underside of deck, a 180 degree turn, and ending below level of cabin sole. Vent to have a siphon breaker.

7. Water Piping: Supply pipes of copper tubing or heat resistant F.D.A. approved PVC, with shut-off valve at tank.

8. Pressure System: To be a Crowell pressure "Princess" unit for 12 volt D.C.

9. Water Heater: A Sendure model 189 8-1/2 gallon horizontal stainless steel heater.

10. Sink: A single compartment stainless steel sink, approximately 12" x 12" x 10" inside dimension.

11. Lavatory: An oval shaped stainless steel bowl, approximately 13" x 10" x 5" inside dimension.

12. Shower Fittings: Mixing valve for hot and cold water, with

telephone-type shower head and flexible hose.

13. Faucets: Hot and cold combination faucet in bathroom, galley combination faucet to have swing spout.

14. Hand Pump: One Wilcox-Crittenden "Sea-Gal" fig. 6528 no. 2 or similiar at galley sink.

15. Sink, Lavatory, and Shower Drains: Galley sink to drain directly overboard, shower and lavatory to drain into sump and be pumped overboard with an automatic sump pump.

16. Installation: The entire system shall be carefully installed and properly tested. It shall be laid out for ease of drainage and have drain plugs fitted at low points. All pipes and fittings shall be well secured.

V C. BILGE AND SANITARY SYSTEM

1. Holding Tank: To be built of F.R.P. of thirty gallons capacity, constructed as shown on plans. Tank to have a 12" dia. plate handhole in top, over deepest part of tank.
2. Gauge: To be a float or spiral type liquid level gauge, Rochester or similiar.
3. Tank Testing: Tank to be tested to 3 PSI or 1-1/2 times the hydrostatic head to which it may be subjected in service, for no less than 24 hours.
4. Vent: Vent pipe of 3/4" plastic hose carried up to deck and venting out through a vent fitting.
5. Holding Tank Discharge: One dockside discharge deckplate, and one overboard discharge.
6. Piping: To be PVC or equal.
7. Seacocks: All hull openings to have seacocks, intakes to have strainers, discharges to have vented loops.
8. Bilge Pump: One whale gusher 15 hand bilge pump, piped to pump either from bilge or holding tank. Bilge suction to have strainer.
9. Sump Pump: A Lovett automatic bilge pump mounted in sump.
10. Water Closet: A Wilcox-Crittenden Imperial # 51 hand toilet.
11. Installation: The entire system shall be carefully installed and properly tested. It shall be laid out for ease of drainage and have drain plugs at all low points. Pipes, pumps fittings, etc., shall be well secured.

ELECTRICAL INSTALLATION

1. General: All to be in accordance with N.F.P.A. booklet No. 302.

   Wiring to be plastic coated color-coded stranded cable, sized to suit circuit load, minimum size of 16 A.W.G. All wires are to be secured with plastic clips spaced about 12".

   System to be 12 v. D.C. two wire with negative ground.

2. Bonding: All exposed non-current carrying parts of equipment aboard the boat such as motor frames, electronic equipment cabinets, thru-hull fittings chain plates, etc., shall be bonded and connected to the common ground point with no less than a #8 A.W.G. copper conductor.

3. Alternator: One 55 amp. 12 v.

4. Batteries: Two 12 volt marine batteries, each of 105 amp. hr. capacity at 20 hour rate.

5. Switchboard: To be located as shown on cabin plan, with flush door cover over the board. Board to have voltmeter, ammeter and ten switch/circuit breakers. A rotary transfer switch to be located near the switchboard.

6. Circuits:

1. Cabin lights port
2. Cabin lights starboard
3. Navigation lights
4. Spreader lights
5. Blower
6. Water pressure system
7. Sump pump
8. Spare
9. Spare
10. Spare

7. Secondary Switchboard: To be located in cockpit seat recess together with engine start-stop control. Power supply to the switchboard will be from circuit no. 3, "navigation lights", no. 4 spreader lights and no. 5 blower. To have fused switches for the following lights:

1. Side and stern lights
2. Bow light
3. Masthead light
4. Binnacle light
5. Spreader lights
6. Engine instrument panel
7. Engine room blower

8. Electrical Fixtures: To be located over berths and in working areas. To be as follows, or of equal quality; for use with 12 v. system.

8. Electrical Fixtures (continued):

1	blower	Perko Fig. 791 No. 2
5	Adjustable berth lights	Perko Fig. 341
4	Bulkhead fixtures with outlets	Perko Fig. 1295
1	Mast head light	Perko Fig. 913
1	Stern light	Perko Fig. 965
1	Bow light	Perko Fig. 943
1	Pair side lights	Perko Fig. 902
1	Pair spreader lights	Perko Fig. 265
1	Transfer switch	Perko Fig. 85-A

VII

STEERING SYSTEM

1. Wheel: 24" dia. teak. Hub to be keyed to shaft
2. Steerer: Edson Simplex No. 00, screw aft of rudder post. Coupling to be keyed to steerer and rudder stock.
3. Bearing: Pillow block top bearing carefully aligned with rudderstock, to be securely fastened to wood blocking.
4. Rudder Stock: 1-3/4" dia. tobin bronze, minimum tensile yield strength 37,000 PSI.
5. Rudder Port: Columbian Fig. 330 A for 1-3/4" dia. shaft.
6. Gudgeon, Pintle and Heel Fitting: Manganese bronze castings.
7. Rudder: Foam filled F.R.P. construction, of 3-1/2" teak with Everdur bronze fastenings, trailing edge of rudder to be faired to a streamline.

VIII

HARDWARE

VIII A. Deck Hardware:

1. General: All to be stainless steel, chromed bronze, marinium or similiar, fittings to be as specified or of equal quality.
2. Pulpit: On bowsprit to be 1" OD stainless steel tubing weldment. Pulpit to have lugs to take life lines.
3. Sternrail: Of 1" OD stainless steel tubing constructed similiar to pulpit. Stern rail to have sockets thru-bolted to the deck.
4. Stanchions: To be of 1" OD stainless steel tubing with stanchion bases thru-bolted to deck.
5. Lifelines: To be 1/4" dia. stainless steel wire white plastic coated.
6. Bowsprit End Fitting: To be a stainless steel weldment.
7. Fore Stay Fitting: To be a stainless steel weldment.
8. Chocks and Cleats:

   Bow Chocks: Two Rostand No. 2156 8" chocks.

   Side Chocks: Closed type recessed into toe rail.

   Stern Chocks: Two Rostand No. 2158 6" chocks.

   Mooring Cleats: Two Wilcox-Crittenden Fig. 4020 12" cleats

   Four Wilcox-Crittenden Fig. 14051 9" cleats.

9. Deck Pipe: One Wilcox-Crittenden Fig. 16710.

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   Mooring Cleats: Two Wilcox-Crittenden Fig. 4020 12" cleats
   Four Wilcox-Crittenden Fig. 14051 9" cleats.
9. Deck Pipe: One Wilcox-Crittenden Fig. 16710.
10. Chain Plates: To be stainless steel angles located as per construction plan, with stainless steel chainplate collars.
11. Turning Block Bases: To be stainless steel weldments.

12. Mizzen Backstay Deckplates: Schaefer Marine Fig. 78-01SH pad eye with Fig. 79-51SH backing plate.

13. Main and Mizzen Mast Steps: To be stainless steel weldments, of manganese bronze castings. Steps to have large drain holes, and mast step to have wiring pipe.

14. Binnacle and Pedestal: Edson Fig 317-5" compass pedestal.

15. Vents: Two 4" dia. cowl vents, one clamshell vent.

16. Running Rigging Deck Fittings: All to be as per block and fitting list.

VIII B. INTERIOR HARDWARE

1. General: All to be stainless steel or chromed bronze.

2. Locksets: Large doors to have Mortise lock sets.

3. Fly Screens: Hatches, vents, opening ports and companionways to have removable screens.

4. Miscellaneous: Hinges, door hooks, elbow catches, flush hatch lifters, door catches, toilet fittings, etc., to be selected by builder.

RIGGING

1. Spars: Main mast, main boom, mizzen mast, and mizzen boom, to be hollow rectangular construction of sitka spruce, as shown on detail drawings. Bowsprit, forestaysail boom, and spreaders of solid spruce. Main mast to have internal electrical wiring as required by electrical diagram, clipped to prevent slatting.
2. Standing Rigging: To be of stainless steel wire 1 x 19 strand, of sizes shown on sail plan with stainless steel swaged fittings on ends.
3. Running Rigging: Lifts, outhauls, halyards, etc., of 7 x 19 strand stainless steel wire with dacron braided rope, as per block list. Sheets to be Samson yacht braid, as per block list.
4. Fittings: Mast tangs, bolts and screws of Everdur bronze, tracks cleats, goosenecks, outhauls, etc., as per block list.

X

VENTILATION

Toilet room and forward cabin to have one 4" dia. cowl vent each. Blower ducted to clamshell vent from engine room.

XI

INSULATION

1. Engine Room: The engine room is to have 1" thick Navy board sound insulation applied to the engine room side of the cabin bulkheads, the underside of the bridge deck, forward side of cockpit well, underside of cockpit and inboard face of cockpit lockers.
2. Hull Insulation: To be as per construction plans.

FINISH

1. Exterior: All deck joinerwork except cockpit seats are to be varnished a sufficient number of coats to give a smooth, grain free finish. Colors on fiberglass are to be impregnated in Gel coat, except on bottom, boot top, cove stripe, name and hail port. Name to be in 5" high letters and hailport to be in 4" high letters.

2. Interior: Bulkheads to be vinyl covered or painted, berth fronts and cabin trunk sides to be painted. Trim, house beams, berth risers, drawer fronts, locker fronts, sea rails, etc., and table to be varnished and have a rubbed effect finish. Cabin sole to be gloss varnish. Galley and bathroom counter top to be formica covered. Inside of lockers to be painted semi-gloss white. All paint and varnish to be of sufficient number of coats to give a smooth, grain free finish.

EQUIPMENT

1. General: All to be as specified or of equal quality.
2. Anchor: One Danforth 20 lb hi-tensile.
3. Anchor Rope: 150 ft. 5/8" dia. nylon with thimbled eye splice and shackle to 12 ft. of 5/16" chain.
4. Dock Lines: Three 35' lengths of 1/2" nylon.
   One 55' length of 1/2" nylon.
5. Fenders: Four Par air bumpers, No 4446.
6. Boat Hook: One 7 ft. Wilcox-Crittenden Fig. 244 No. 4
7. Life Preservers: Five U.S.C.G. approved life jackets.
8. Fire Extinguishers: Two 2-1/2 lb. dry chemical fire extinguishers.
9. Bell: Perk Fig. 159, 6" dia.
10. Cockpit Cushions: To be of 3" firm density polyurethane foam covered with Naugahyde covers.
11. Upholstery: Berths to have mattresses of 4" thick polyurethane, with inner liners and other cloth covers, with zippers, for removal.
12. Compass: 5" Danforth Constellation compass.
13. Galley Stove: Hiller three-burner alcohol or gas stove with oven, mounted on Gimbals.
14. One flagpole socket: Wilcox-Crittenden Fig. 10550, No. 1