



# TARTAN 46 \*

DESIGNER: Sparkman and Stephens, Inc.

New York, New York

BUILDER: Tartan Marine Company

Grand River, Ohio 44045

## SPECIFICATIONS

LOA 46'8"*	DISPLACEMENT @ D.W.L.	28,500 lbs.
LWL 37' 8"	BALLAST (outside lead)	13,400 lbs.
BEAM (Max.) 14' 0"	LONG. CENTER OF FLOTATION	54.37%
DRAFT 7' 6½"	MOMENT TO CHANGE TRIM 1"	2856
SAIL AREA 1053 sq. ft.	CALCULATED I. O. R. RATING (Mark III)	37.2

\* Also available with conventional transom  
transom L.O. A. 48'2"

(Folding Prop and 150% L. P.)

With her high aspect sail plan, the Tartan 46 is a powerful machine built to sail offshore in any conditions. A thorough stress analysis has been conducted by Sparkman and Stephens, Gibbs & Cox, and Owens Corning on the single piece hull and deck structures to yield maximum strength weight ratio. Intercostal longitudinal floors and girder sections are incorporated in the hull for maximum stiffness.

Designed to the I.O.R. rule, the fourteen foot beam of the Tartan 46 yields tremendous below decks room. The accomodation plan shown later in the brochure portrays the standard layout with accomodations for 10. Options include a second head aft, double berth in aft cabin, root berths in mid cabin and aft cabin.

All deck joiner work is teak, with below deck accomodations in teak. The base boat includes a diesel engine, racing strength spar with double spreaders, boom, all standing and running rigging, head with vanity, three burner stove with oven, pedestal steering, life lines with bow and stern pulpits, and navigator's station.

# HULL

## CONSTRUCTION:

The hull is built with fiberglass layup having good multi-directional properties.

Hull structural thicknesses are based on layups having wet properties (after 30 days immersion in water as follows):

A minimum modulus in any direction of  $1.0 \times 10^6$ , a minimum tensile strength in any direction 12,000 p.s.i., and a maximum density of 105 lbs. per cu. ft.

The glass content exceeds 30%.

The hull layup consists of gelcoat, then mat, followed by alternate layers of woven roving and mat. Stiffeners and coring are installed as per plans.

## STRUCTURAL MEMBERS:

16 floor timbers are erected in the hull and laminated to hull shell with five layers of fiberglass mat and roving, completely encapsulating the floor's base structure. A network of parallel and longitudinal foam encapsulated members are erected in the same manner as above.

All floors are limbered with 1" holes.

Stringers are installed and encapsulated per construction plan.

## FASTENINGS:

The size, number, and arrangement of fastenings in all cases are carefully worked out to maintain maximum joint efficiency of connected parts. Hull fastenings are silicon bronze or stainless steel, size and type as shown on plans. Fastenings for wood-to-aluminum are stainless steel for threaded fasteners. Accessibility of nuts is of prime importance where threaded bolts are used. Large size plates are used under all nuts. All holes for screws made with tapered drills.

## BALLAST KEEL:

Ballast Keel is a lead casting bolted on, having a finished weight to specification with center of gravity as per plans. The casting contains 3% antimony by volume, and two pounds of caustic soda per ton are added to facilitate skimming off impurities. The fourteen keel bolts are 1" dia. 304 alloy located as per plans.

## ENGINE BEDS:

Are fiberglass, as per plan, and let into the longitudinal floor network.

## CHAIN PLATES:

Are stainless steel thru-bolted as per plans. Lugs are carefully installed to align properly with standing rigging and caulked and payed. Suitable brackets and hull stiffening are installed as per plans. The hull layup is reinforced at all chainplates.

## MAST STEP:

Is a fiberglass I beam, glassed in after fabrication, as per plans. Adjustable heel fitting installed to permit the adjustment of rake and to provide adequate bearing surface for the mast heel.

## BULKHEADS (Structural):

Are waterproof plywood, thickness as specified on plans, glassed to inside of hull on both surfaces with mat and woven roving tapes.

## RUDDER:

Fiberglass, of shape and size as per plans, with bronze heel fittings, gudgeons and pintles. Trailing edge of rudder finished sharp. Head of stainless steel rudder stock internally accepts emergency tiller.

The rudder post runs through a bronze stuffing box mounted on a floor glassed into the hull as shown.

## STEERING

Steerers have sprocket and non-magnetic chain leading to steering cables of 7 x 19 stainless steel wire. Sheaves for cables have a score diameter of not less than 20 times the diameter of the wire rope. Wire rope has threaded end terminals at quadrants to permit adjustment and replacement. Sheaves have roller bearings and lubrication fittings. All sheaves and sprockets are fitted with guards at tangent points, and elsewhere as required, to prevent slack cables or chain from jumping off or jamming.

Steering gear in general - and especially within six (6) feet of the steering compass - consists solely of non-magnetic materials. Special attention is given to lubricating of bearings and sheaves so that the entire assembly operates freely. Maximum strength and minimum friction are of paramount importance in this installation. Entire system turns rudder with not more than one (1) foot pound of torque applied to the wheel, in a "no load" condition such as at a mooring.

## STEMHEAD FITTINGS:

Is a stainless steel weldment, detail as per plans. A dual tack fitting is included.

## DRAFT MARKS:

Round head screws of suitable size are installed on the centerline of the boat at the forward end after ends of the designed waterline, at the ends of a waterline 12" above, and parallel to the datum waterline.

## BOOTTOP:

Scribed to hull mold in accordance with plane of flotation and painted to color specification.

## STANDARD EQUIPMENT

Cast bronze docking plates under keel

3% antimony lead keel with stainless bolts.

Bronze sea cocks or valves on all through hull fittings finished flush.

Structural fiberglass floors, stringers, and longitudinal members intercostal throughout.  
12" draft marks installed.

All colors to owner's specification.

Edson steering pedestal or equal with wheel size to suit owner. 5" compass in binnacle.

Phosphor bronze fairing strips at skeg to fair rudder attachment.

Two coats bottom paint after etch and prime.

## ACCOMMODATIONS

### GENERAL:

All joiner work accomplished in accordance with the best yacht practice. Corners of hatches, bureaus, seats, dressers, etc., have rounded corners. All projecting corners of partitions fitted with neatly rounded corner posts. All fastening pieces, rails, door sills, etc., screw fastened. Hooks, lanyards, and bumpers are installed to control the swing of doors throughout. All passage doors are of maximum height permitted by overhead structure. No friction type nor magnetic type catches used anywhere on this design.

### PLAN:

Basic accommodation plan includes pipe berths in forward cabin with 2 large hanging lockers at head of each berth. Transom berth opposite head with optional upper berth available. The main cabin has pilot berth to port with settee around dining table providing an additional "in port" berth. Pilot berth with transom berth below starboard side. A slide out seat allows additional seating around the dining table.

Galley to port includes Shipmate stainless 3 burner gimballed stove, large ice box, deep double sink, ample storage. Navigator station to starboard with full size chart table, chart storage under. Hanging locker aft of navigator seat.

Aft stateroom includes quarter berth starboard with shelves above, storage under settee between with storage bin aft. Two opening ports in cockpit walls port & starboard for ventilation.

### JOINER HARDWARE:

All fittings and hardware are marine grade, of suitable pattern and size consistent with the joiner work. Interior hardware is chrome plated. Small interior hardware, if unobtainable in bronze, may be made of brass.

Bow and stern pulpits are installed as shown, fabricated of tubing similar to that used for the life rail stanchions. Pulpits are fitted with side lights. Height of pulpits and stanchions, spacing, distance inboard and splay outboard, all conform to NAYRU requirements. All stanchions are removable from bases.

#### STANDARD EQUIPMENT

5" compass mounted in binnacle Edson steering system - 36" destroyer wheel - emergency tiller.  
Manual deck mounted bilge pump.  
Bow pulpit - double rail w/navigation lites built in.  
Stern Rail.  
Double Life Lines.  
Fiberglass spray hood coaming.  
Two dorade boxes at spar with 4" PVC cowls and hinged lucite tops.  
Opening ports with screens in aft stateroom.  
Main sheet traveller. (roller bearing)  
2 - 4" PVC snatch blocks.  
4 windows 22" x 8" clear in galley, chart room, and main cabin.  
Hard anodized aluminum T rail with staggered fastenings on 2" centers.  
3 deck prisms to head, starboard state room and main cabin.  
Molded companion hatch hood.  
14" mooring cleats foreward - 10" aft.  
Moulded jib stay well with cover.  
Welded aluminum (hard anodized) mast partners.  
Four stowage compartments coamings.  
36" x 36" sliding foredeck hatch w/teak molding and dacron cover.  
Teak lazarette hatch.  
Dual pin stem head fitting.

## MECHANICAL AND ELECTRICAL

### ENGINE

Westerbeke 4-107 (36 HP @ 2500 RPM) Diesel or equal with a reduction and manual reverse gear turning left hand propeller, complete with manufacturer's standard equipment including fresh water cooling, 12-volt 55 amp. alternator with regulator for charging starting batteries. 12 volt 2-wire starting system, full flow lube oil filter, fuel pump, hand primer, cold weather starting aid, and sump pump.

The instrument panel is located convenient to the helmsman. Instruments shall include tachometer, oil pressure gauge, water temperature gauge, and ammeter for the main engine. Throttle and clutch controls are Morse or equal.

### PROPELLER

Solid blade 16" diameter.

### MAIN ENGINE EXHAUST SYSTEM:

The main engine exhaust system consists of two mufflers, sections, and exhaust hose laid out as shown on plans. Cooling water is injected at 316 L stainless muffler and exhausted through hull side. All hot piping is stainless steel.

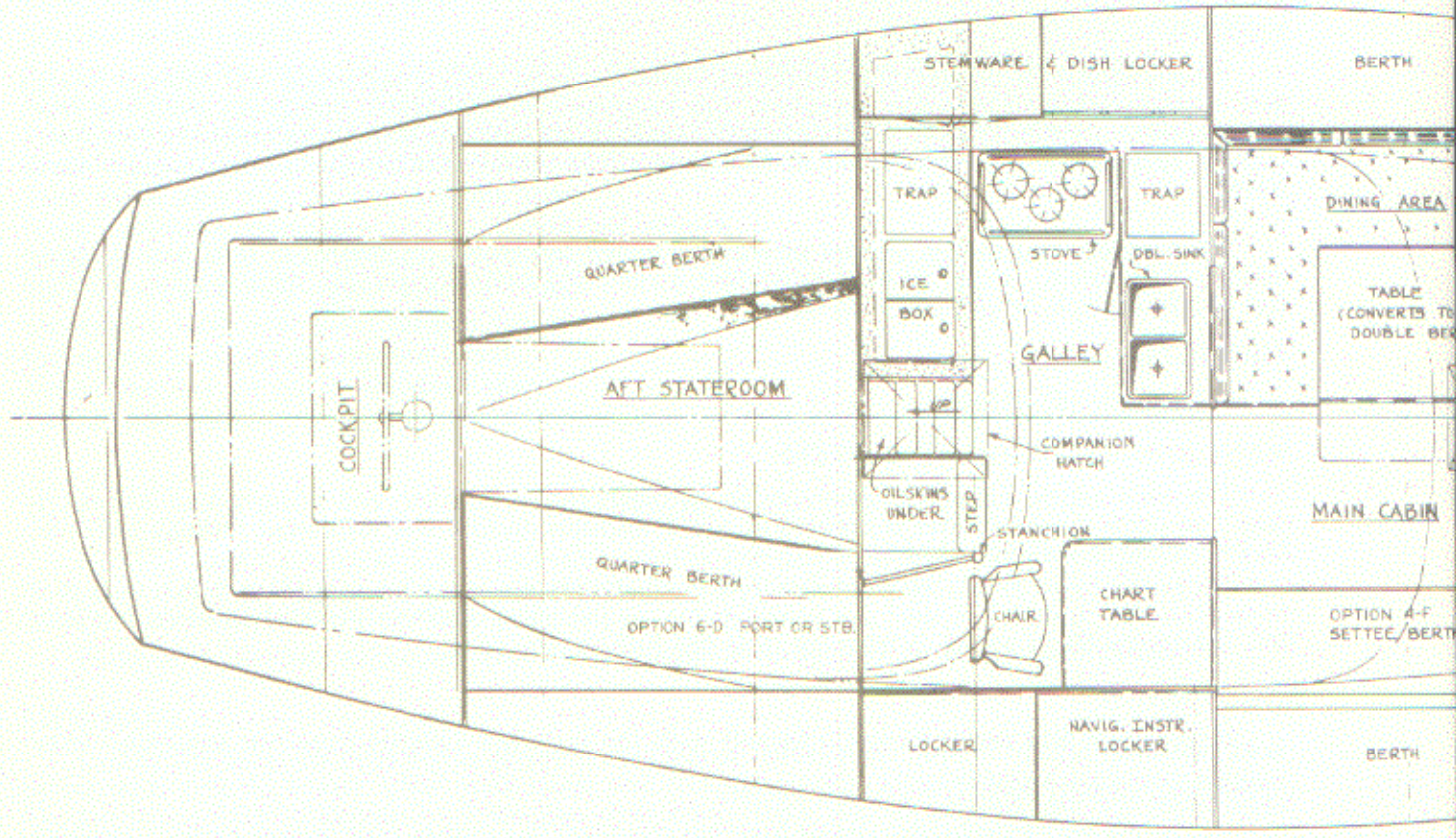
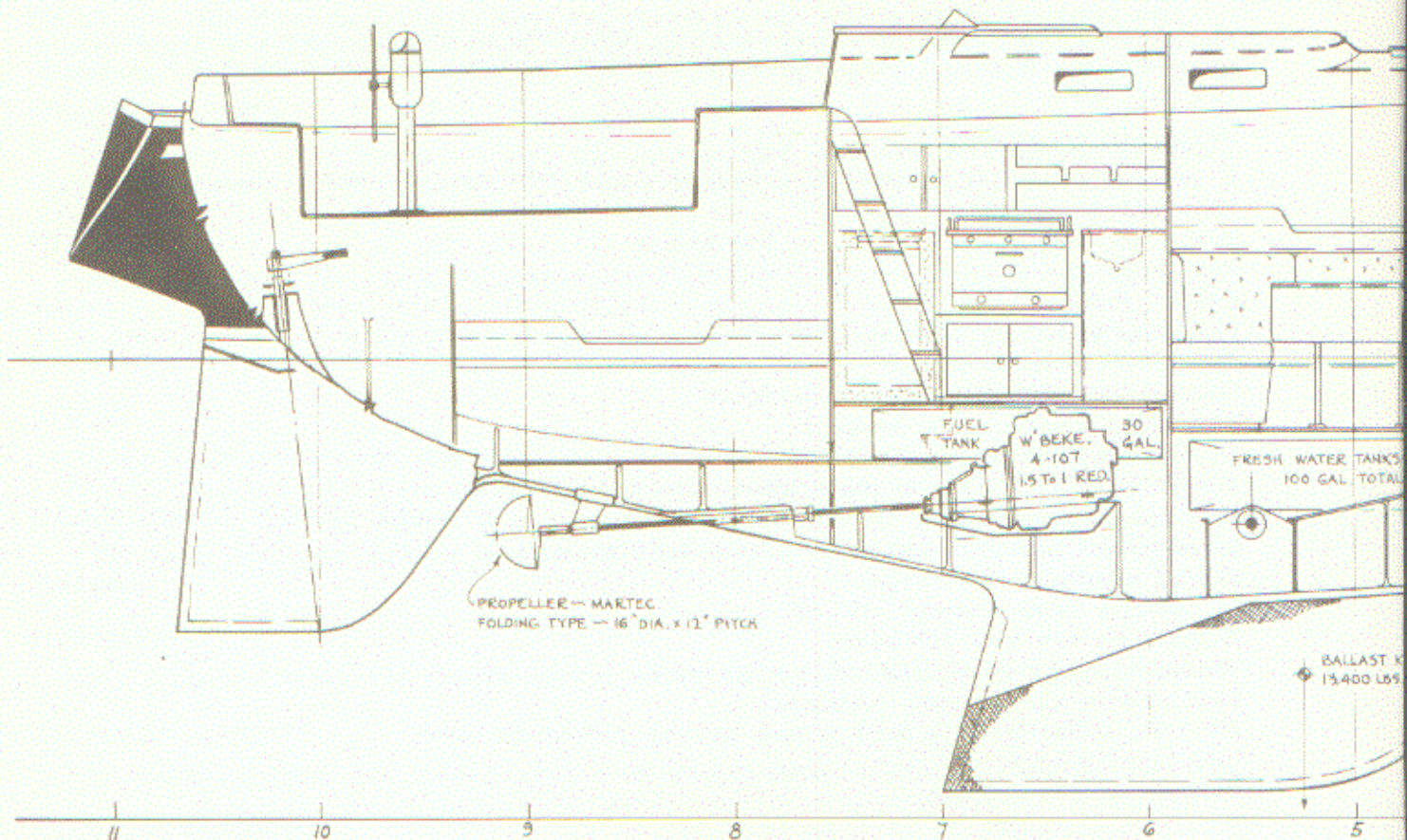
There are two (2) mufflers in this system: One (1) standpipe type muffler similar to S & S Type Plan #94 is installed near the diesel engine, as per plans, and one (1) horizontal rubber muffler, Elasto-Muffle or equal, is installed near the hull as per plans.

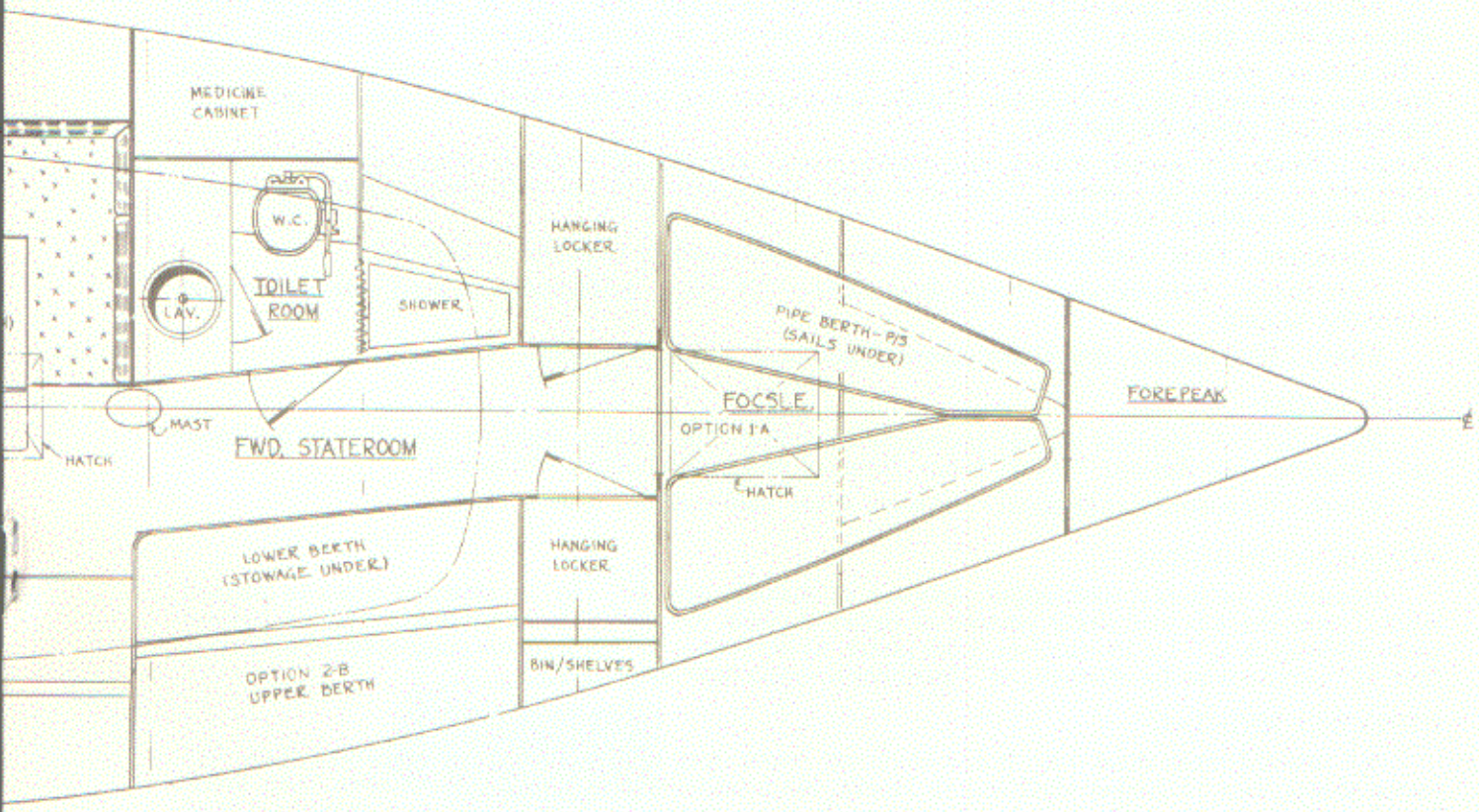
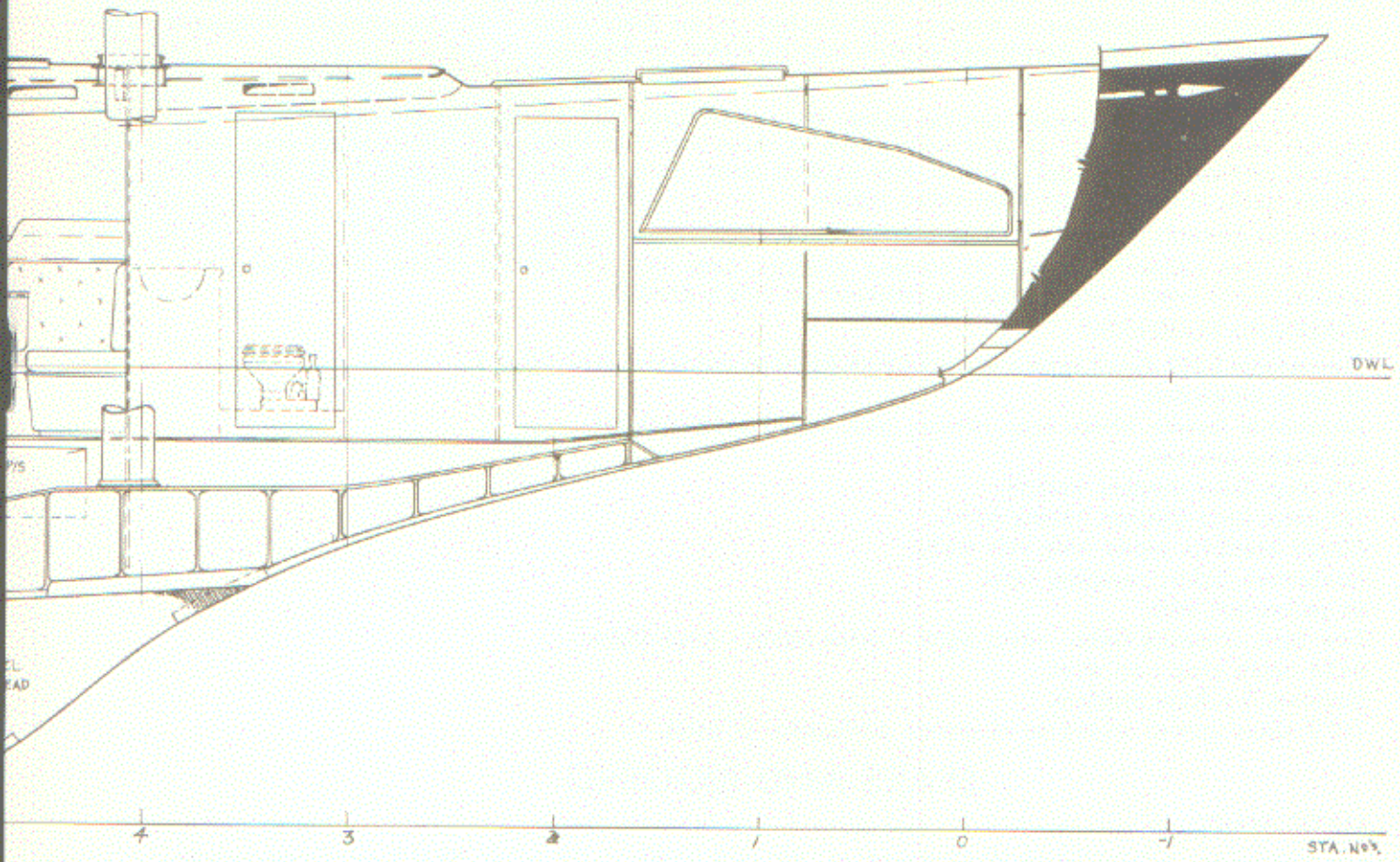
### DRIP PAN:

Main engine drip pan is formed integrally with the hull, but isolated from the remaining bilge.

### GENERAL ELECTRICAL - 12- volt system

All circuits are protected by circuit breakers mounted in a power distribution panel convenient to the companionway and navigator. The power distribution panel contains a heavy duty marine switch to allow the electrical requirements of the ship to be drawn from either battery or both in





parallel. An expanded scale voltmeter with separate selector switch enables monitoring charge status of either battery regardless of whether that battery is on line. Panel light provided to illuminate circuit legends on panel. Additional circuits may be added in multiples of six.

#### 110 Volt System:

110 volt power shoreside service enters the vessel through a recessed male connection let into the aft cockpit coaming. All 110 volt wiring is three wire #12 waterproof underground type cable. Circuit protection by circuit breaker with manual reset. Duplex outlets in galley, head, and navigator's area, with stainless steel cover plates.

#### Electrical ground:

#4 bare copper wire used to connect shrouds, mast step, and engine to keel for lightning protection. #1/0 copper cable connects batteries to ship's ground.

#### STANDARD EQUIPMENT

Westerbeke 4-107 diesel engine or equal with Paragon reduction gear 1.5 to 1.

55 amp. alternator.

Removable handle Morse type reverse gear and throttle linkage.

All engine gauges.

105 amp. hour starting battery.

180 amp. hour lighting battery bank.

Circuit breakers panel with volt meter.

Navigation lights, compass light.

40 gallon fuel tank.

Bow light - running lights - stern lights - dome lights - bunk lights.

Solid blade prop. on strut.

Stainless & rubber mufflers.

110 V shore power w/outlets at galley, navigation & head.

## SPARS AND RIGGING

#### MAIN MAST:

Extrusion - 11" x 7" true elliptical section, .186 wall, 6061 - T6 alloy, 38,000 minimum tensile.

Masthead - Four sheave type welded 6061 - T6, designed with angle to minimize height above extrusion while exploiting "I" point measurement relative to foresail halyard sheave location. 6061 - T6 sheaves grooved for 1/2" line and 1/4" wire incorporate Oilite bushings turning on type 304 Stainless passivated shafts. Stainless double jaw toggles for headstay and main boom topping lift. Stainless link plates for backstay.

Tangs - Tangs for uppers, lowers, and intermediates are double stainless plate type for internal retention of marine eye swage. Tangs and their respective bolts are sufficiently strong to exceed the breaking strength of the wire.

Spreaders - Four tapered aluminum spreaders with positive retention of shrouds.

Butt Strap - Internal sleeve type, from 6061 - T6 alloy, with stainless steel machine screws internally tapped.

Finish - Fine sanded, chemically cleansed, alodined and spar coated.

#### MAIN BOOM:

Extrusion - 6" elliptical section gooseneck swiveling with toggles, fixed to spar. Set up for quick reef complete with Barent #10 on boom. Internal tackle outhaul to #10 winch.

Finish - Fine sanded, chemically cleansed, silver alodined and spar coated.

#### STANDING RIGGING:

Headstay, backstay, and upper portions of shrouds are 3/8" 1 x 19 stainless steel to swaged ends. Lower shrouds and lower portion of upper shrouds are 1/2" 1 x 19 stainless steel to swaged ends. Midstay is 1/4" 1 x 19 stainless. Link plates at headstay, 5/8" open center turnbuckle at backstay, four 3/4" turnbuckles for shrouds, 1/2" turnbuckle, open type for midstay.

#### RUNNING RIGGING:

1/2" braided main sheet with fiddle block on boom and becket block on traveller. Two 5/8" genoa sheets, two #4 rubber shell snatch blocks. Main halyard is 3/16" 7 x 19 stainless, with headboard shackle. Genoa halyard is 1/4" 7 x 19 with snap shackle and stainless steel thimble spliced into 1/2" braided tail. Flag halyard on starboard spreader and masthead. Main boom topping lift 1/8" 7 x 19 wire spliced to 3/8" braided dacron tail, with tackle.