

# **Tartan 3400**

## **Owner's Manual**



**Tartan Yachts**  
**One High Tech Avenue**  
**Painesville, Ohio 44077**  
**USA**

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# **1.0 INTRODUCTION**

Congratulations on becoming an owner of a new Tartan yacht. Tartan Yachts is pleased to have you join our "Clan" and wish you the best in your sailing endeavors.

This owner's manual has been prepared to provide you with detailed information for the use and maintenance of your yacht. Enclosed you will find not only items pertaining to Tartan manufactured products, but it also includes individual instruction manuals and warranty registration cards from suppliers of major equipment items used in the construction of your vessel.

It is Tartan's policy to continually improve and modify our products. Therefore, you may find that your Tartan has different details or equipment than shown in this manual. In each case, the new details or equipment have been carefully evaluated to determine that it is consistent with the Tartan commitment to excellence.

Your Tartan is identified by a 12 character Hull Identification Number (HIN) located on a placard at the top right corner of the transom in accordance with U.S. Coast Guard Regulations. Please identify your model and hull number when contacting your dealer or Tartan Yachts for any reason.

- **The first three letters of the HIN identify the builder with code HMD**
- **The next two identify the model (Example: 40)**
- **The next three numbers are the hull number of your yacht (Example: 145)**
- **The last four characters identify the month and year of manufacture (Example: E011 reads E as month and year manufactured (May = E, 0 = 10), 11 as model year.**

It is the responsibility of your Tartan Dealer to commission your yacht in accordance with the Tartan Yachts' commissioning procedure. A copy is included in this manual. Please be sure that the *Commissioning Check List* is completed by your dealer and returned to Tartan, as failure to do so may invalidate your warranty.

Tartan is striving to provide you with the most complete and detailed owner's manual. Your Tartan dealer or the Tartan Yachts Customer Service Department would be pleased to provide you with any information you require that is not in the manual.



## **RESPONSIBILITY OF THE DEALER:**

All Tartan yachts are sold through Authorized Tartan Dealers who have been selected on the basis of their knowledge of yachts and their ability to provide you with the service you deserve. They are experts in their profession who realize that they must provide you with a high level of service and attention when you purchase a Tartan.

Your Tartan Dealer is responsible for the following procedures connected with the purchase and commissioning of your yacht.

- ✓ Preparing a detailed specification list for your yacht, including options, colors and upholstery selections at time of ordering.
- ✓ Inspecting the yacht on delivery for loss and damage in transit and the processing of all claims against the transport company. Should you notice any loss or damage you must notify your dealer within 30 days of arrival, as neither the carrier nor Tartan can honor claims beyond 30 days.
- ✓ Inspecting equipment boxes that come with the yacht to assure that all items are received in accordance with the packing list.
- ✓ Commissioning the yacht in accordance with the Tartan Commissioning Check List. The dealer must check and initial each item on the list, and return the list to Tartan.
- ✓ Activating and checking all mechanical systems under the conditions of actual usage.
- ✓ Stepping the spars and installing all rigging. Tuning and adjustment of the rigging must be carried out under actual sailing conditions. Incorrect adjustments can lead to mast failure.
- ✓ Instructing you on the use of your yacht and all its systems.
- ✓ Providing all necessary assistance and service under the terms of the Limited Warranty on your yacht, including the processing of all claims with Tartan Yachts.

## **RESPONSIBILITY OF THE OWNER:**

For maximum safety and enjoyment of your new Tartan, due regard must be given to the hazards of sailing and to proper maintenance procedures. The following is a partial list of items that are the responsibility of the owner for the safe operation of your yacht. However, this must be considered only a partial list of the safety obligations of the owner to be used as a guideline. Consult your local US Coast Guard and Power Squadron offices for additional information on the safe operation of your yacht

- ✓ Complete the Warranty Registration form and return it to Tartan Yachts promptly.
- ✓ Advise Tartan Yachts of any change of address, or change of ownership, to assist us in maintaining an accurate list of owners for possible future mailings regarding safety information about your yacht.
- ✓ Confirm that all the items that are the responsibility of the dealer as outlined in the previous section are completed by your dealer.
- ✓ Operate your yacht in accordance with instructions provided in all sections of this owner's manual, the individual supplier instruction manuals provided and all applicable US Coast Guard and other regulations.
- ✓ Supervise the maintenance of your yacht by competent marine service personnel in accordance with all instructions provided in this owner's manual, the individual supplier instruction manuals, the US Coast Guard standards, the American Boat and Yacht Council standards and all other applicable standards.

- ✓ Supply and maintain all additional safety equipment on board as required or recommended by the US Coast Guard and International Offshore Racing Council for your size yacht and the nature of the voyage.

### **COMMISSIONING PROCEDURE:**

The proper commissioning of your Tartan is the responsibility of your dealer. This is very important in assuring the satisfactory operation of your yacht. The construction and inspection of each Tartan is completed in the fullest extent possible at the factory. However, further commissioning and inspection is necessary under actual sailing conditions and usage. Also, this commissioning procedure should be followed in subsequent years at commissioning time.

#### **Commissioning List:**

The attached Commissioning List must be followed by your dealer in commissioning your yacht. Each item on the list should be checked off by the dealer as the work is completed. Both the dealer and the owner should sign the bottom of the check list to confirm that all items are completed.

#### **Proper Lifting:**

The careful placement of the lifting straps used to lift your Tartan is very important to avoid damaging the saildrive unit, and to assure that the center of gravity of the yacht is midway between the straps. Additional caution should be exercised to avoid placing a strap in contact with a speedometer or depth finder thru-hull fitting.

#### **Standing Rigging:**

The careful adjustment of the standing rigging of the mast under actual sailing conditions is critical to avoid mast failure. The rigging should be adjusted to maintain a maximum bend in the lateral direction, and will differ by model in a fore-and-aft direction under all sailing conditions. The wire rigging will tend to permanently stretch over a period of the time as strands bed into one another, so repeated checking of rigging adjustment is necessary. Detailed instructions for tuning the rigging are included in another section of this manual.

#### **Bottom Paint:**

Anti-fouling bottom paints must be carefully matched to the type of paint already on the boat to avoid the blistering and peeling common to mismatched paints. See bottom paint instructions 12.4

### **COMMISSIONING LIST:**

**The following is a list of minimum commissioning duties to be performed by both the boat owner and the dealer. Additional operations may be required dependent on the model and equipment thereon. It is important to your safety that the dealer completes the attached checklist.**

#### **Prior To Launch:**

##### ***Exterior:***

- ✓ Check hull, deck and keel, etc, for shipping damage and repair as needed. Prep bottom and apply bottom paint including centerboard and inside of truck (if applicable).



- ✓ Clean hull thoroughly.
- ✓ Touch up boot and cove stripe where required
- ✓ Wax topsides
- ✓ Check installation of anodes. Refer to your to your engine manual for care and maintenance of anodes.

***Interior:***

- ✓ Charge and inspect batteries. (NOTE: Batteries are shipped from our plant with only partial charge.)
- ✓ Check hose clamps on ALL thru-hull hoses and tighten as required. Check that engine and head have been de-winterized and that all drain plugs are in place.
- ✓ Check oil level in engine and transmission.
- ✓ Boats with pedestal steering: Emergency tiller fitted and tested; Rudder gater checked for leakage with boat underway.
- ✓ Flush bilge area thoroughly with fresh water and run pumps to flush out excess building dust which settled during the shipping of the boat.
- ✓ Clean bilge pump and sump pump strainers. (This will need to be done quite often in the first several weeks)

**Mast Stepping:**

- ✓ Attach upper shrouds loosely.
- ✓ Attach backstay, leave turnbuckle extended.
- ✓ Chock mast in partners. Refer to SPARTITE instruction for procedure.
- ✓ Tighten the mast tie down rod(s) if necessary.
- ✓ Attach headstay to stem fitting.
- ✓ Use either main halyard or main boom topping lift to measure from side to side in vessel and tighten upper shrouds so masthead is centered in boat. Before final tightening of upper shrouds, check that proper upward angle of the spreaders has been maintained and go aloft to correct if needed
- ✓ Tighten backstay turnbuckle.
- ✓ Tighten lower shrouds so mast is straight athwartships.
- ✓ Tighten intermediate shrouds.



- ✓ With rigging adjustments completed, install all cotter pins in the turnbuckle threads and re-check that all cotters are in clevis pins and opened to 20°. Tape all cotter pins and unfair edges.
- ✓ Install boom and rig mainsheet and topping lift. Check operation of the boom outhaul.
- ✓ Connect mast wiring to terminals inside vessel and check operation of mast lights and electronics.

**After Launching:**

- ✓ Check bilge for water.
- ✓ Check that engine exhaust is pumping water.
- ✓ Verify operation of forward, neutral and reverse before leaving the dock.

**To Be Done Prior to Turning Vessel Over to Owner:**

- ✓ Clean entire deck, including removing excess bedding compound from around fittings, which may continue to ooze for a short time after shipment.
- ✓ Check for deck leaks caused by shipping. NOTE: all boats are thoroughly checked prior to shipment, but fittings can loosen under shipment and handling.
- ✓ Touch up exterior teak finish if applicable.
- ✓ Inspect and tighten engine shifter and throttle controls as needed.
- ✓ Fill water tank(s) and check operation of water system for leaks as well as the hot water if included.
- ✓ Check head operation, holding tank and macerator pump. Operate bilge pump(s). NOTE: if auto pump is installed, adjust switch level and ensure the auto switch is not blocked by bilge hoses. Operate sump pump, shower and drain collection, and on some models sinks.
- ✓ Check operation of all running lights.
- ✓ All fluid levels in engine are to be checked after test run.
- ✓ All gauges should be operational.
- ✓ Operate galley stove and oven (every burner).
- ✓ Adjust lifelines so they are taut.
- ✓ Remove all traces of shipping tape.
- ✓ Operate all winches and lubricate if necessary.
- ✓ Check operation of all thru-hull fittings.

- ✓ Operate all hatches and ensure that no binding occurs.
- ✓ All interior doors, drawers, hatch boards, operated and planed down if necessary after rigging is tensioned. A certain degree of swelling is to be anticipated. (This is not a warranty issue, part of commissioning)
- ✓ Check that all interior lights are operational.
- ✓ Check the hoist on all sails and ensure correct halyard lengths as well as freedom of movement of halyards, etc. Check and adjust operation of reefing system.

**After Shakedown Sail:**

- ✓ Re-tension all rigging if necessary.
- ✓ If excess headstay sag is apparent adjust the headstay and/or backstay tension as required
- ✓ Check steering cables if applicable

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Again, this manual is intended to help you to know your new Tartan Yacht. It is most important to familiarize yourself thoroughly with all aspects of operating and maintaining your yacht in a safe and efficient manner. Read your manual carefully as well as the booklets supplied by the manufacturers of the components. If any questions arise for which you can't find an answer, your Tartan dealer will be pleased to help you.

It is Company policy that the Tartan line of yachts is continually upgraded and improved. Therefore, you may find your yacht equipped with gear different from that shown in your manual. Any new piece of equipment will be in all cases equal to or better than, its predecessor.

On taking delivery of your yacht, be sure to read and understand the Tartan warranty. Complete the warranty registration and return it to Tartan immediately.

If you are a seasoned sailor much of the manual may be old news but if this is your first boat, we hope this will prove useful. We know that you will have many satisfying and happy hours of sailing in your Tartan Yacht.

Should you need to contact Tartan Yachts please use the following addresses and numbers:

**Tartan Yachts**

Customer Service  
One High Tech Ave  
Painesville, OH 44077  
Phone: 440-392-2628  
Fax: 440-354-6162

Websites: [www.tartanyachts.com](http://www.tartanyachts.com) and [www.tartanparts.com](http://www.tartanparts.com)

We would like to take this opportunity to thank you for choosing Tartan Yachts and we wish you good sailing.

## 2.0 ILLUSTRATIONS AND TABLES

### Illustrations

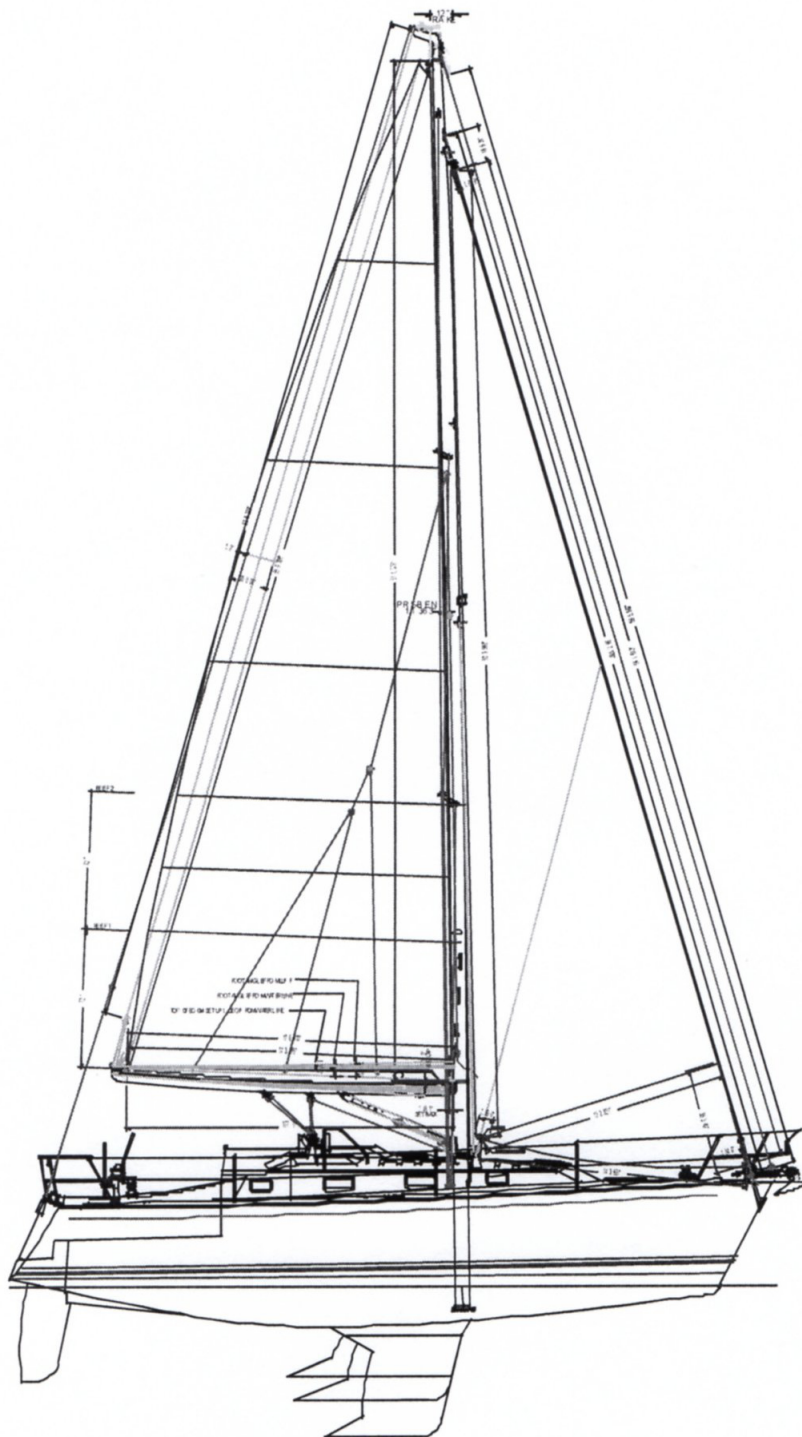
Sailplan  
Deck Layout  
Accommodation Plan  
Hull Lines Plan  
DC Layout  
Interior Lighting Plan  
110 VAC Layout  
Propane Leak Detector Schematic  
Air Conditioning Layout  
LPG Wiring  
Thru Hull Layout

### Tables

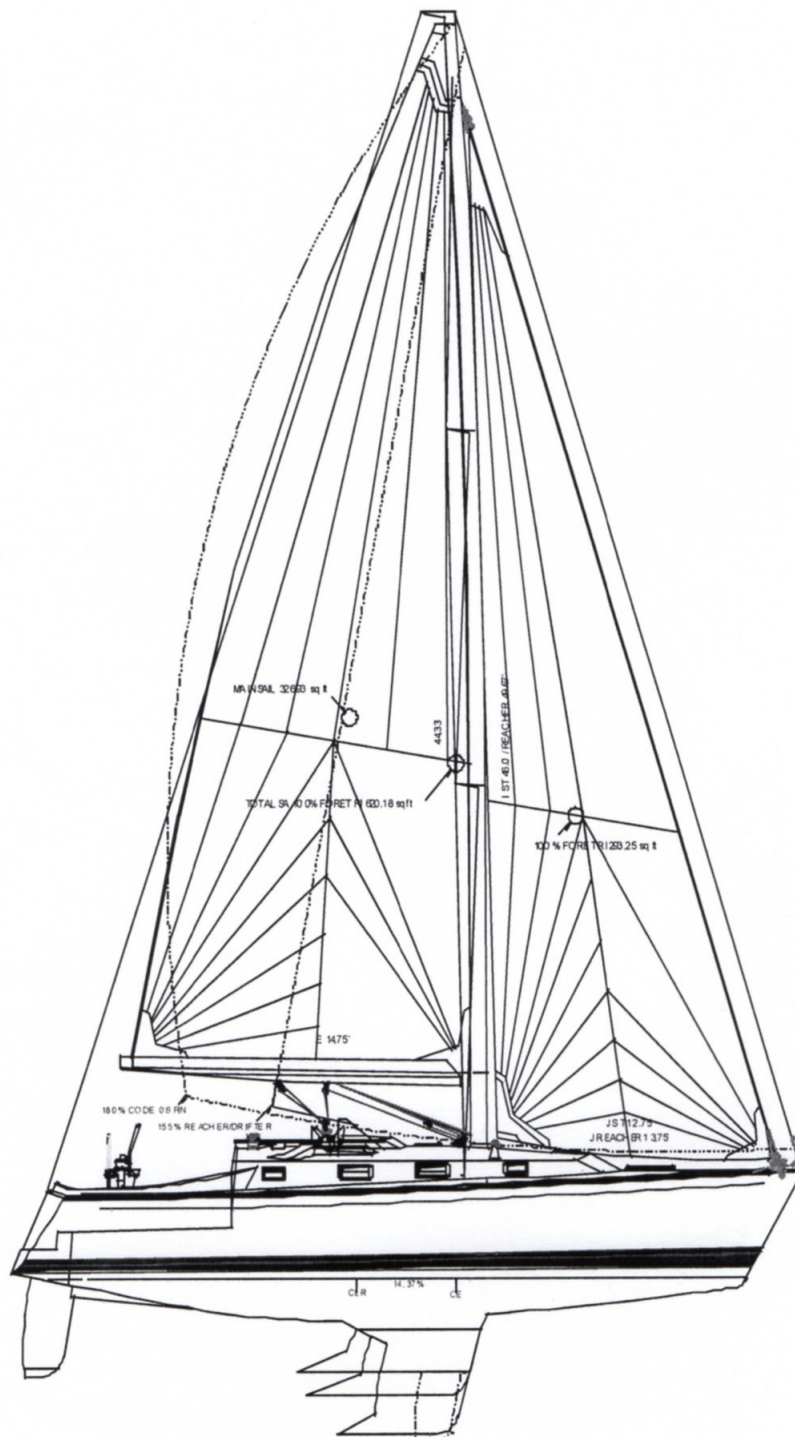
Table 1 Specifications  
Table 2 Sailmaker's Specifications  
Table 3 Running and Standing Rigging Specifications  
Table 4 Recommended Maintenance Schedule



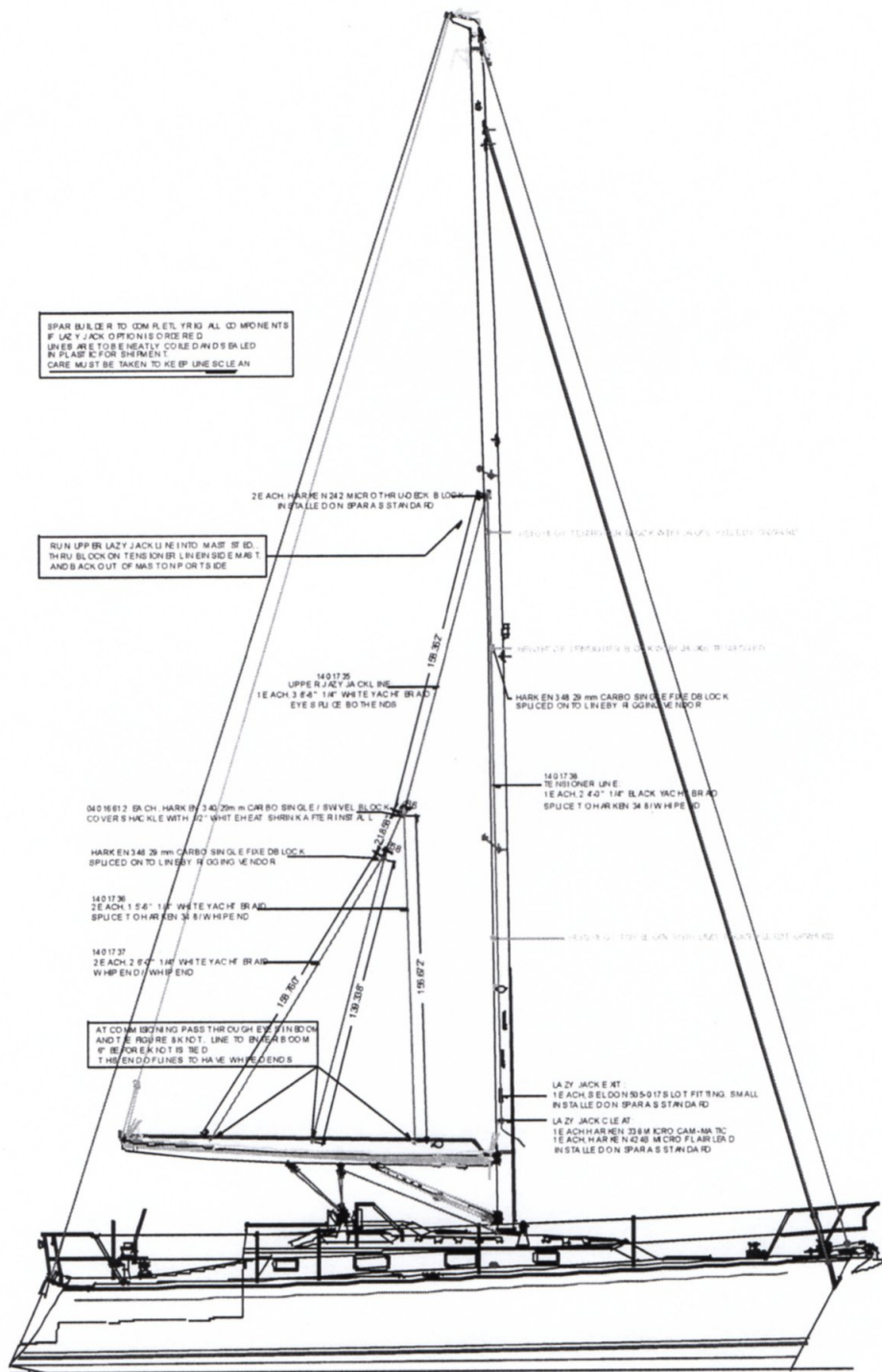
## SAILPLAN DETAILS



# SAILPLAN



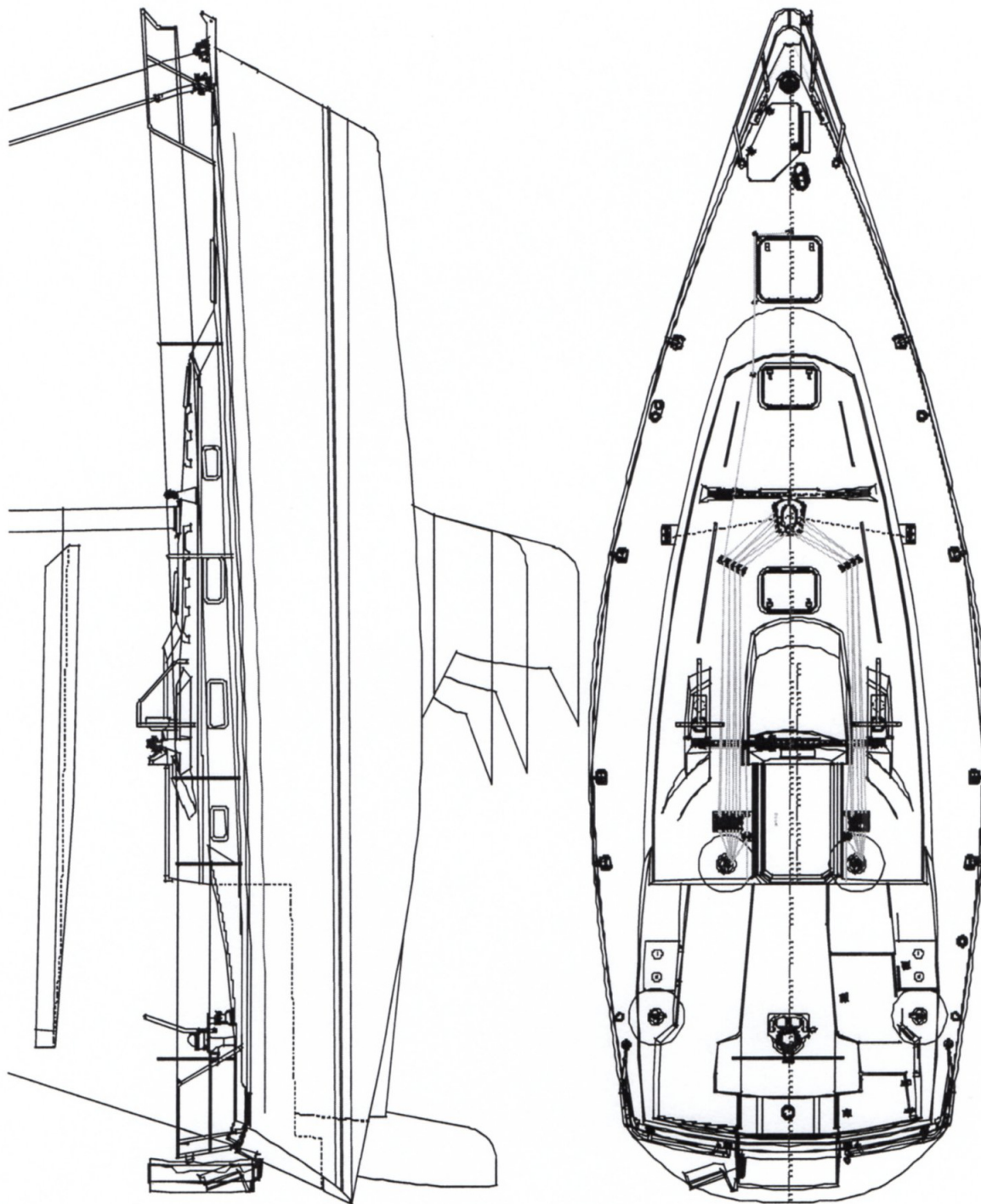
## LAZY JACK LAYOUT





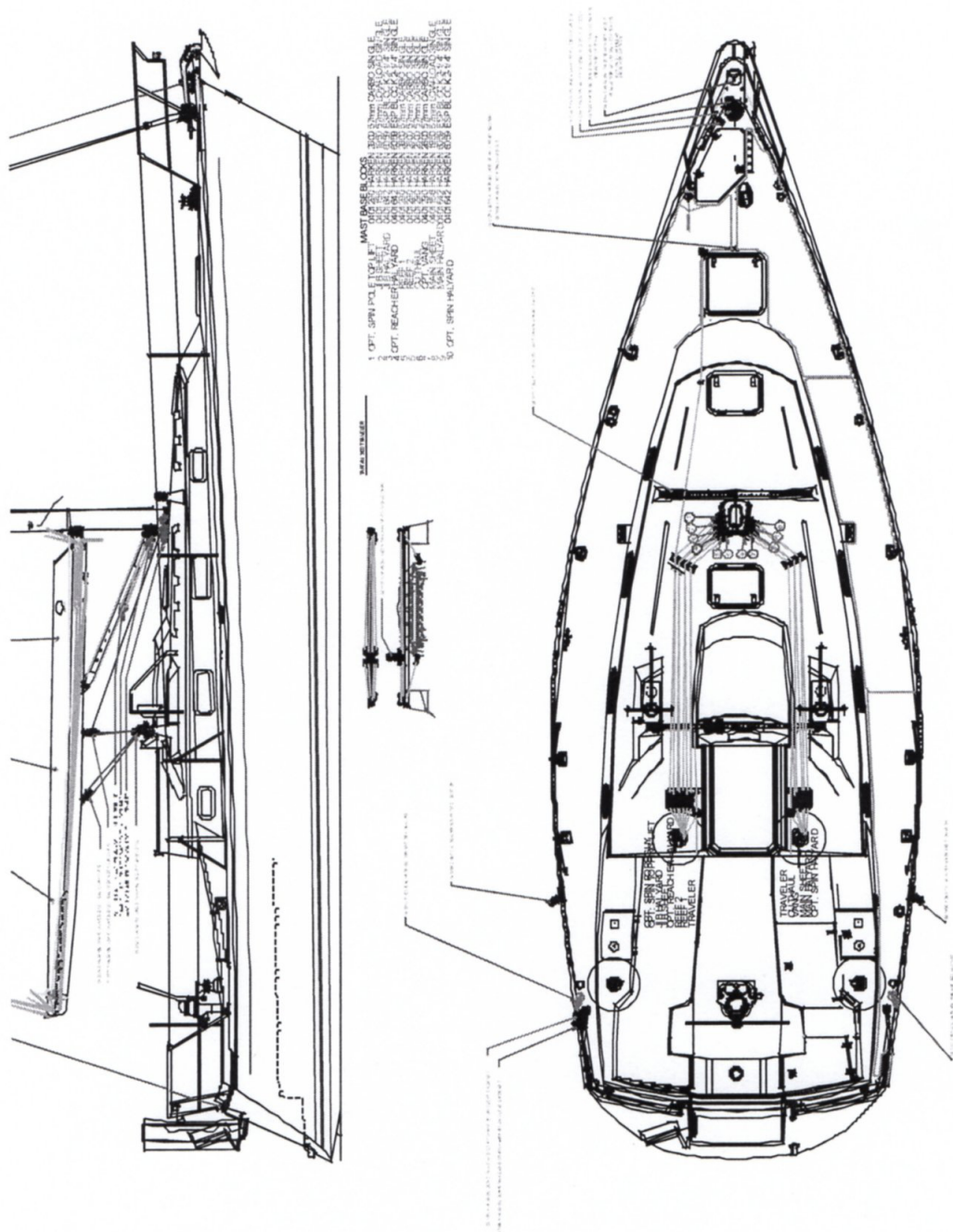


# DECK PLAN



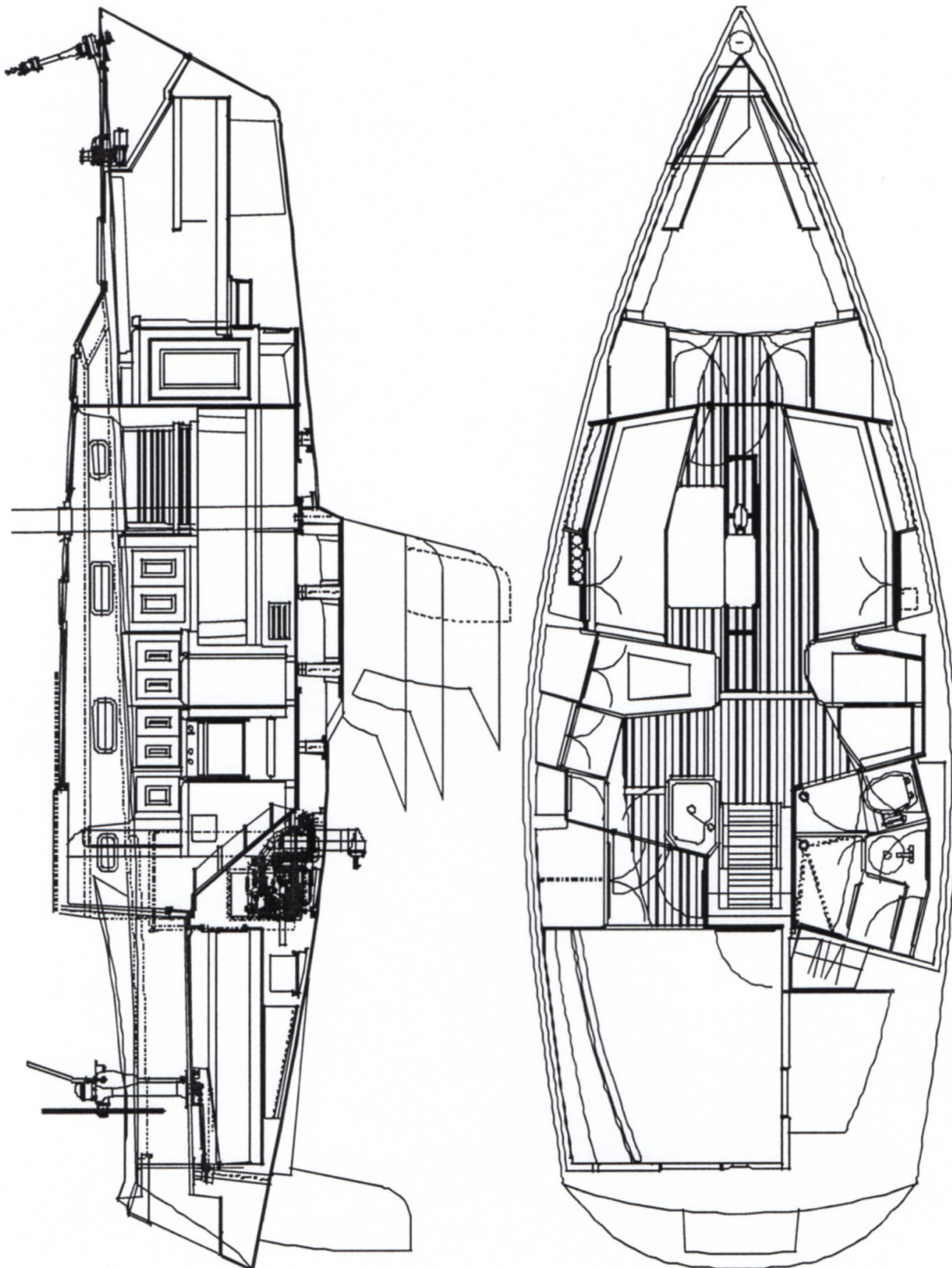


## DECK LAYOUT

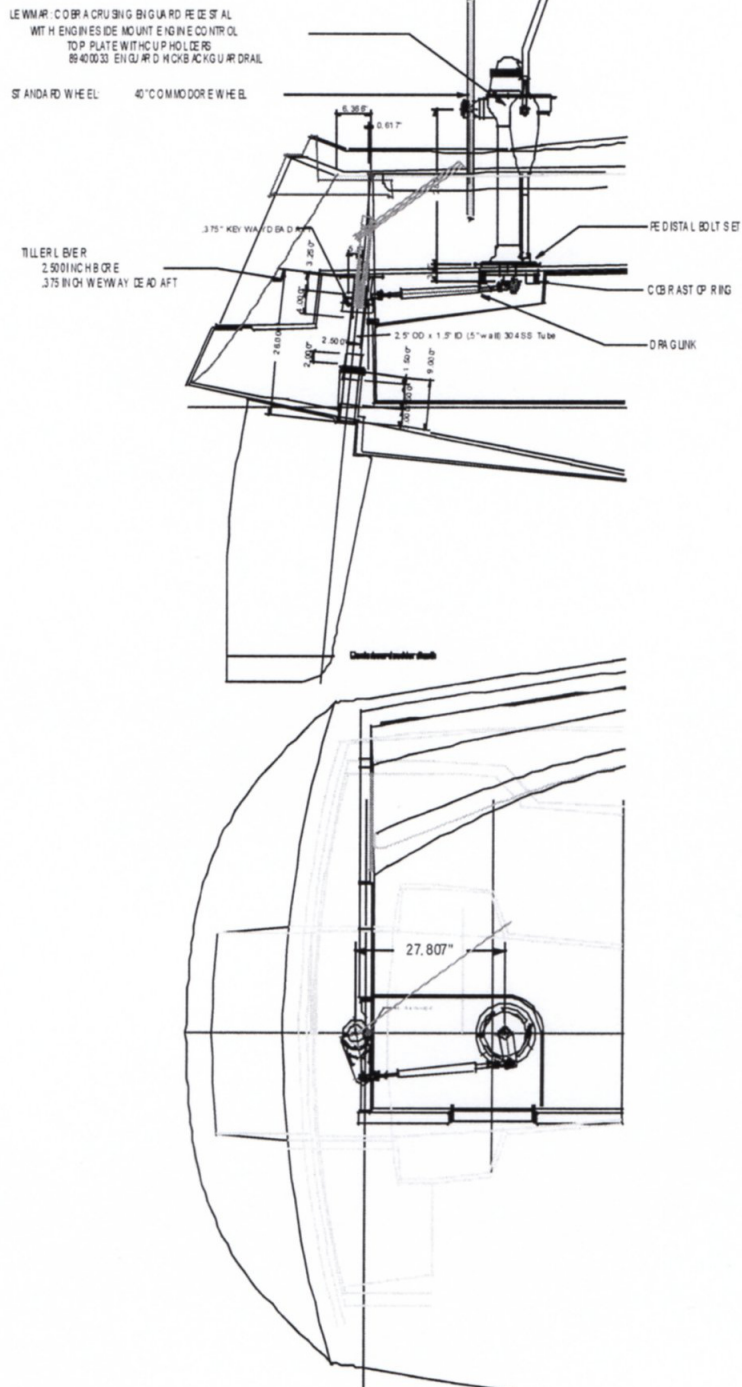




# ACCOMMODATION PLAN

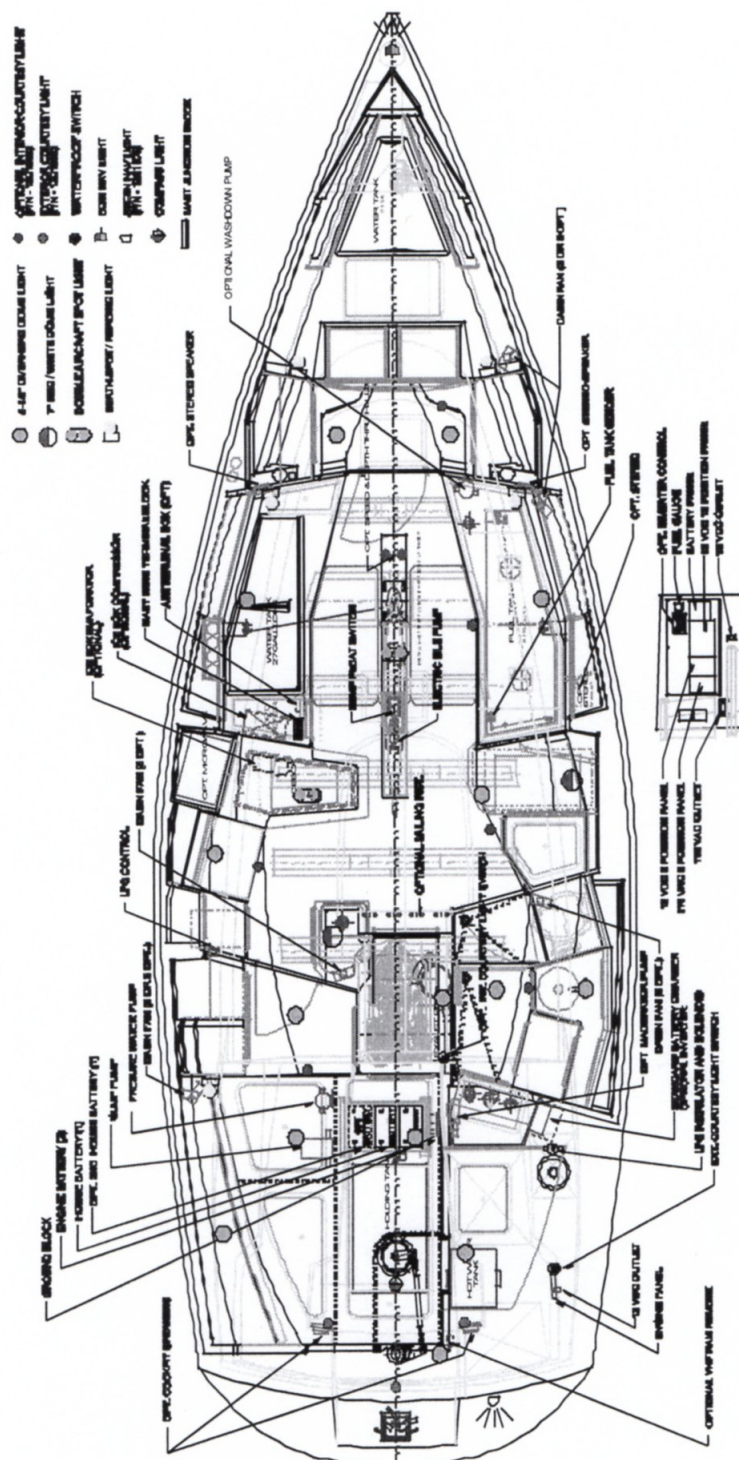


## STEERING LAYOUT



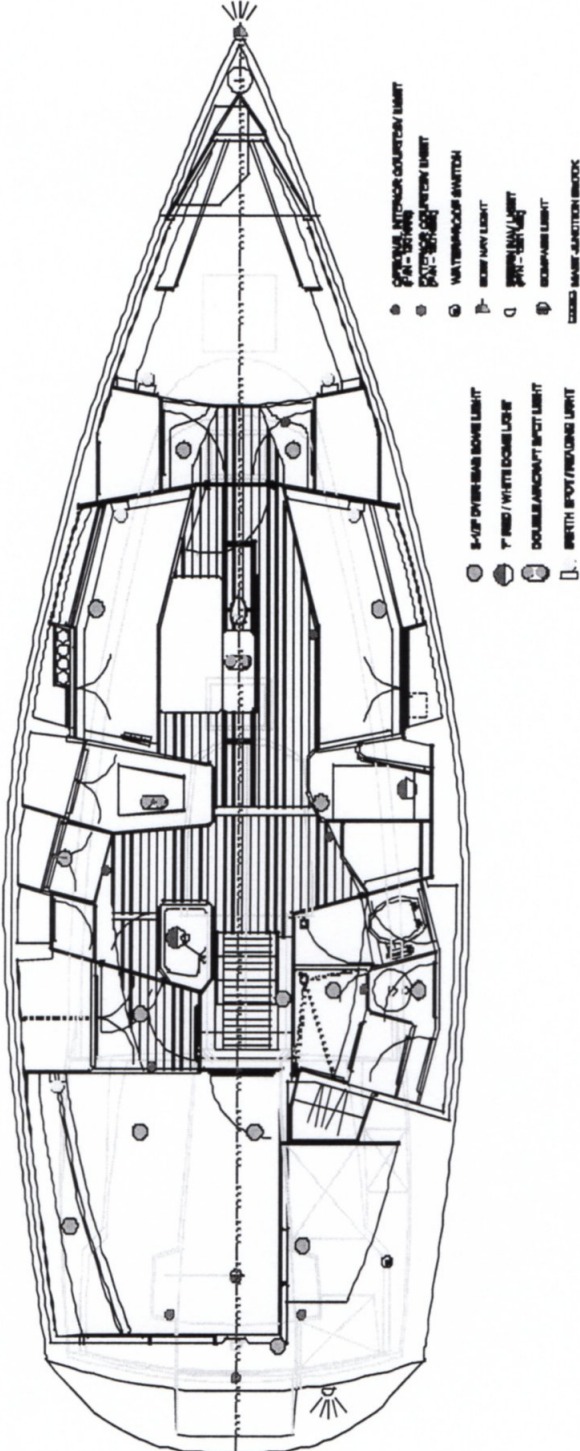


## MAJOR MECHANICAL LOCATIONS

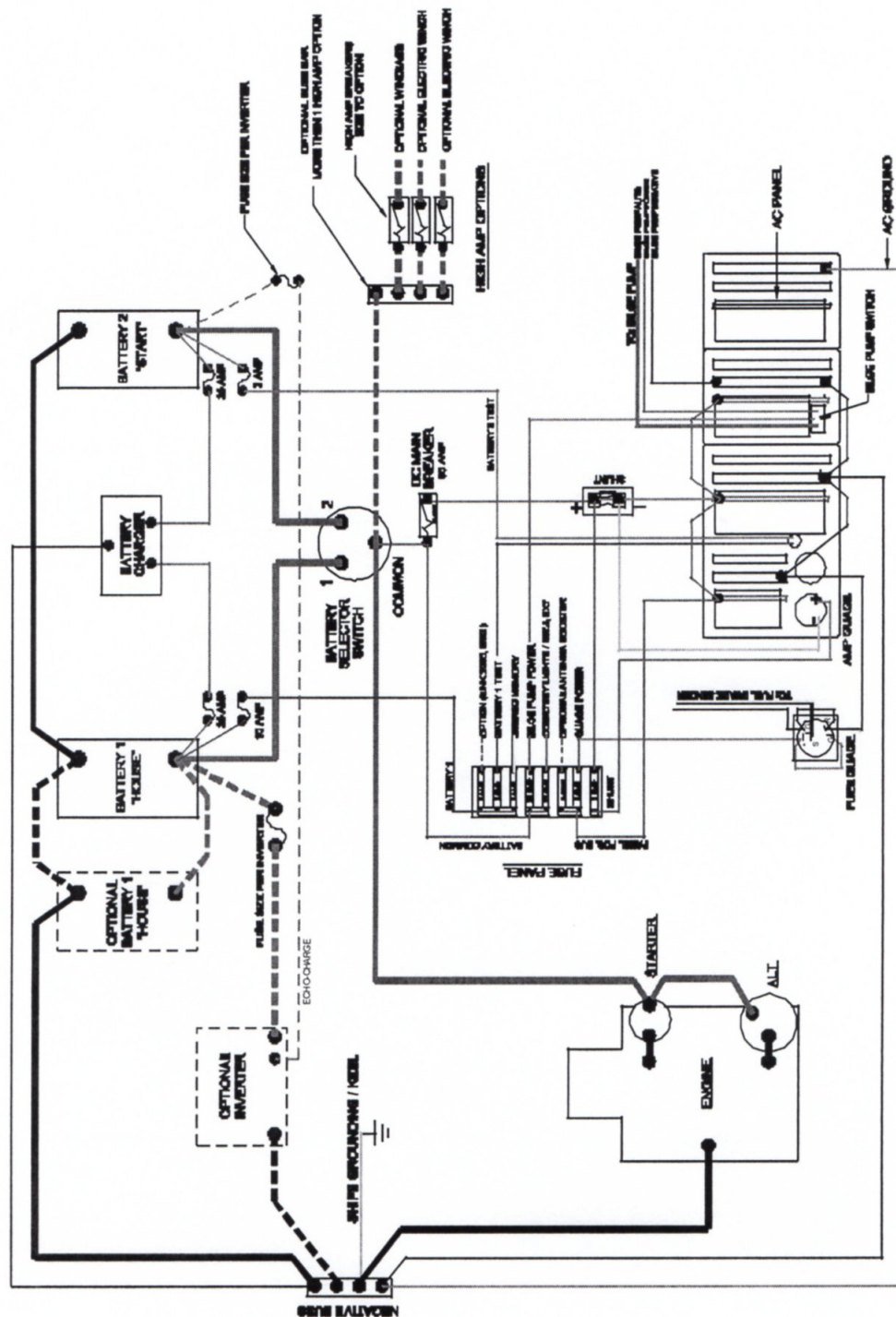




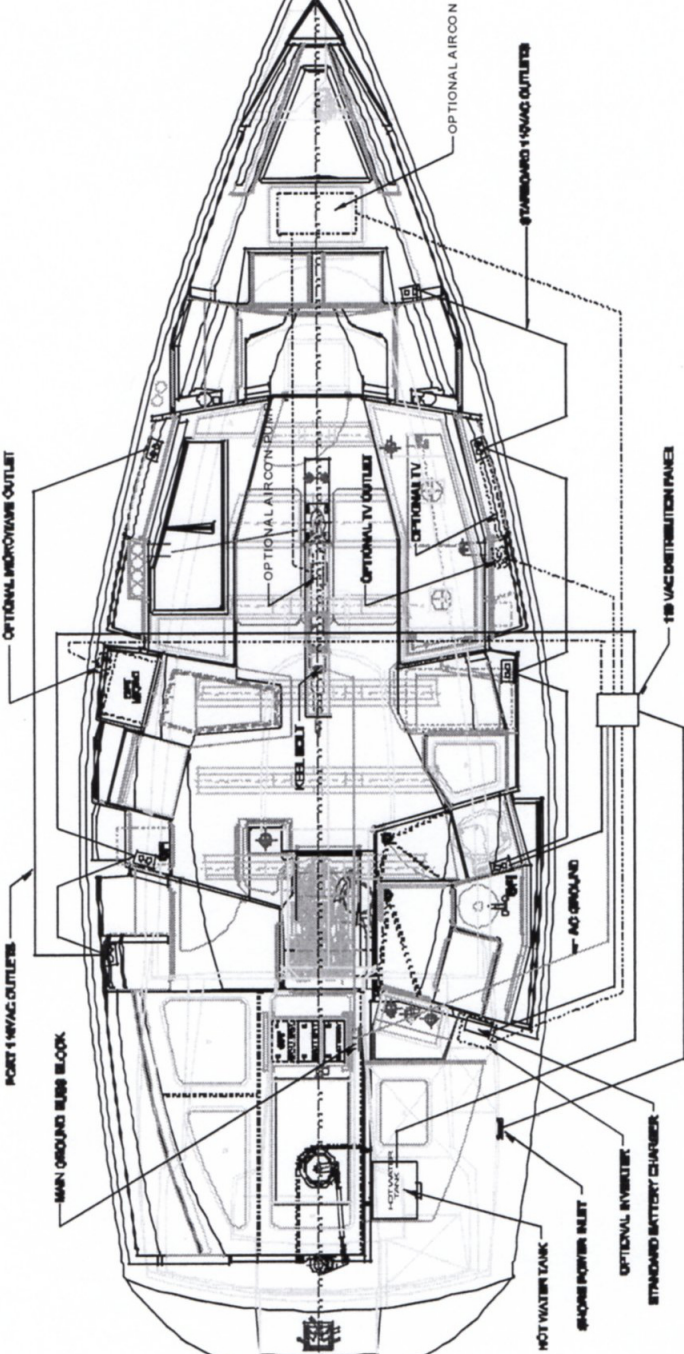
## INTERIOR LIGHTING PLAN



## BATTERY WIRING SCHEMATIC

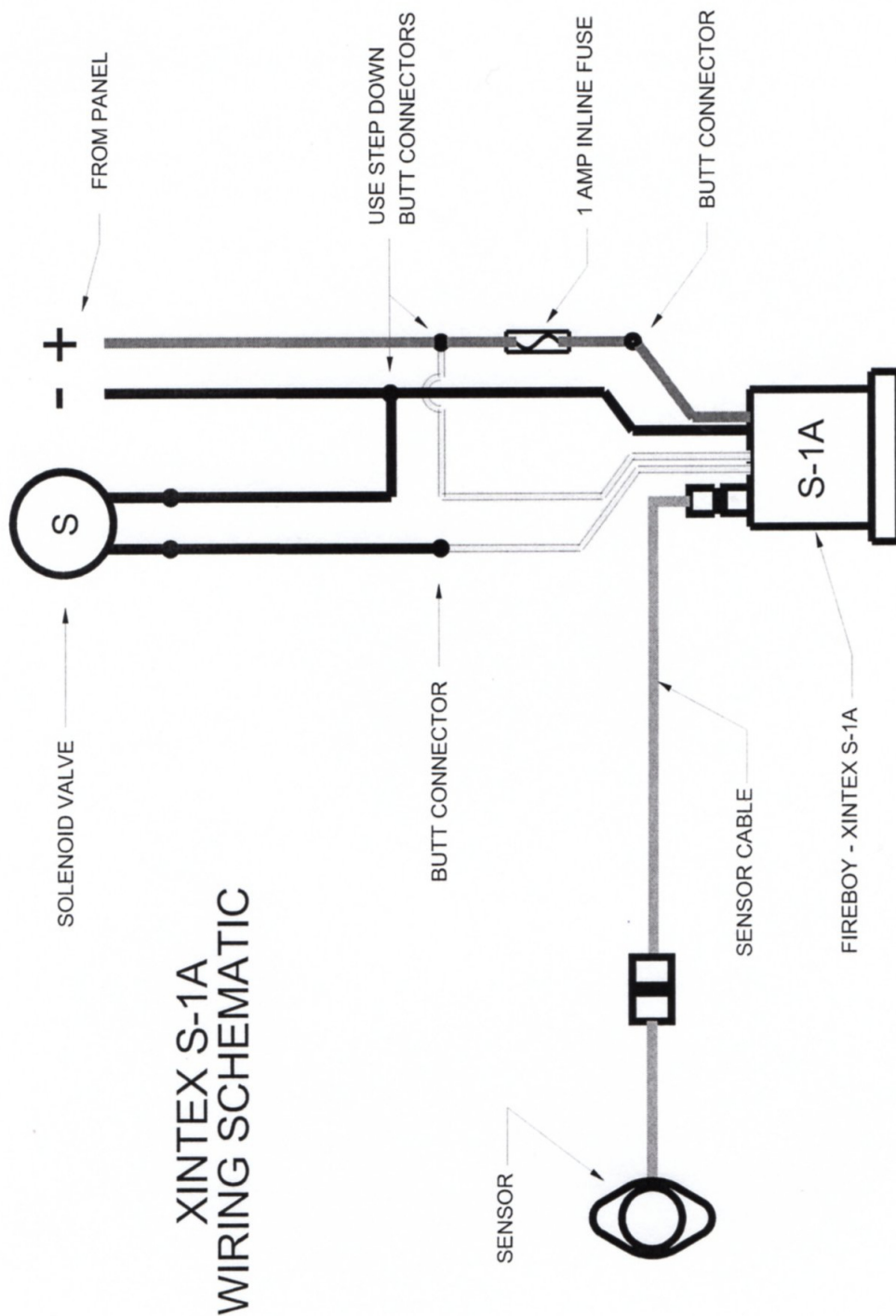


## 110 VOLT AC LAYOUT

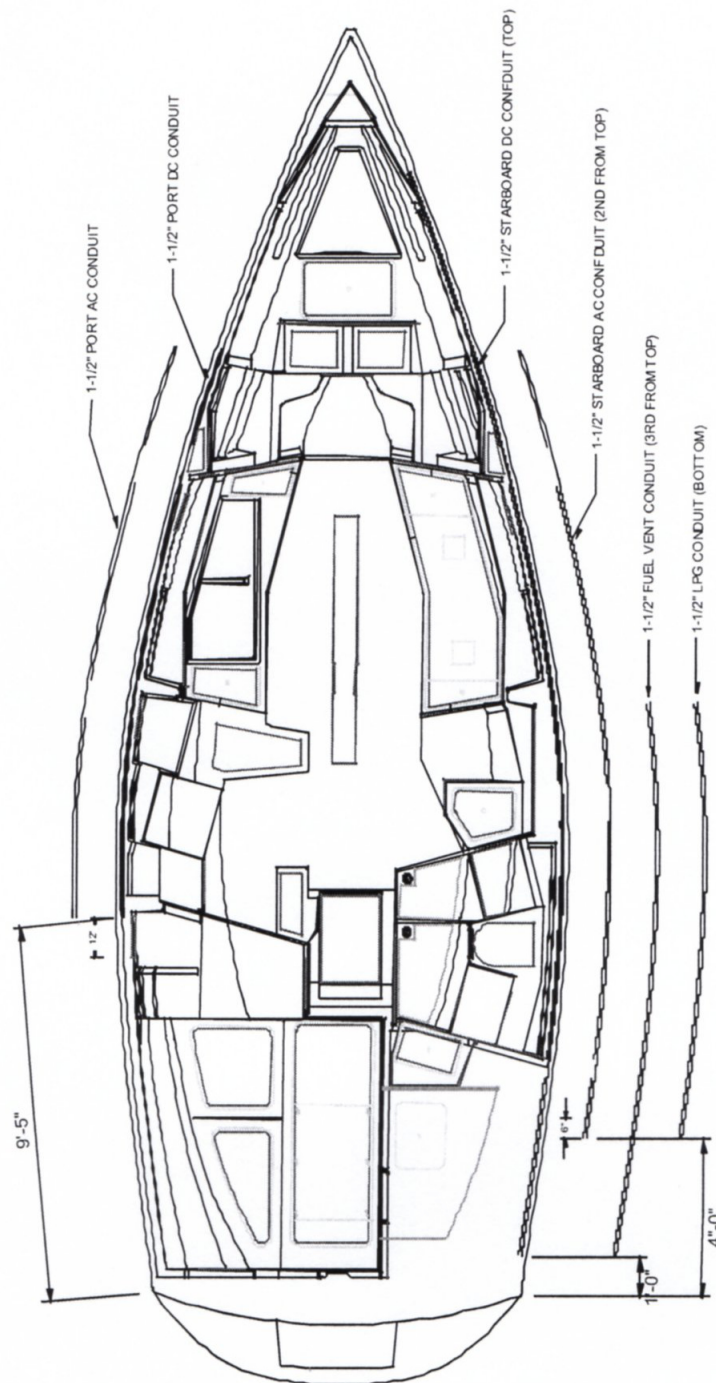




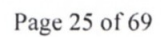
# PROPANE LEAK DETECTOR



# CONDUIT LAYOUT

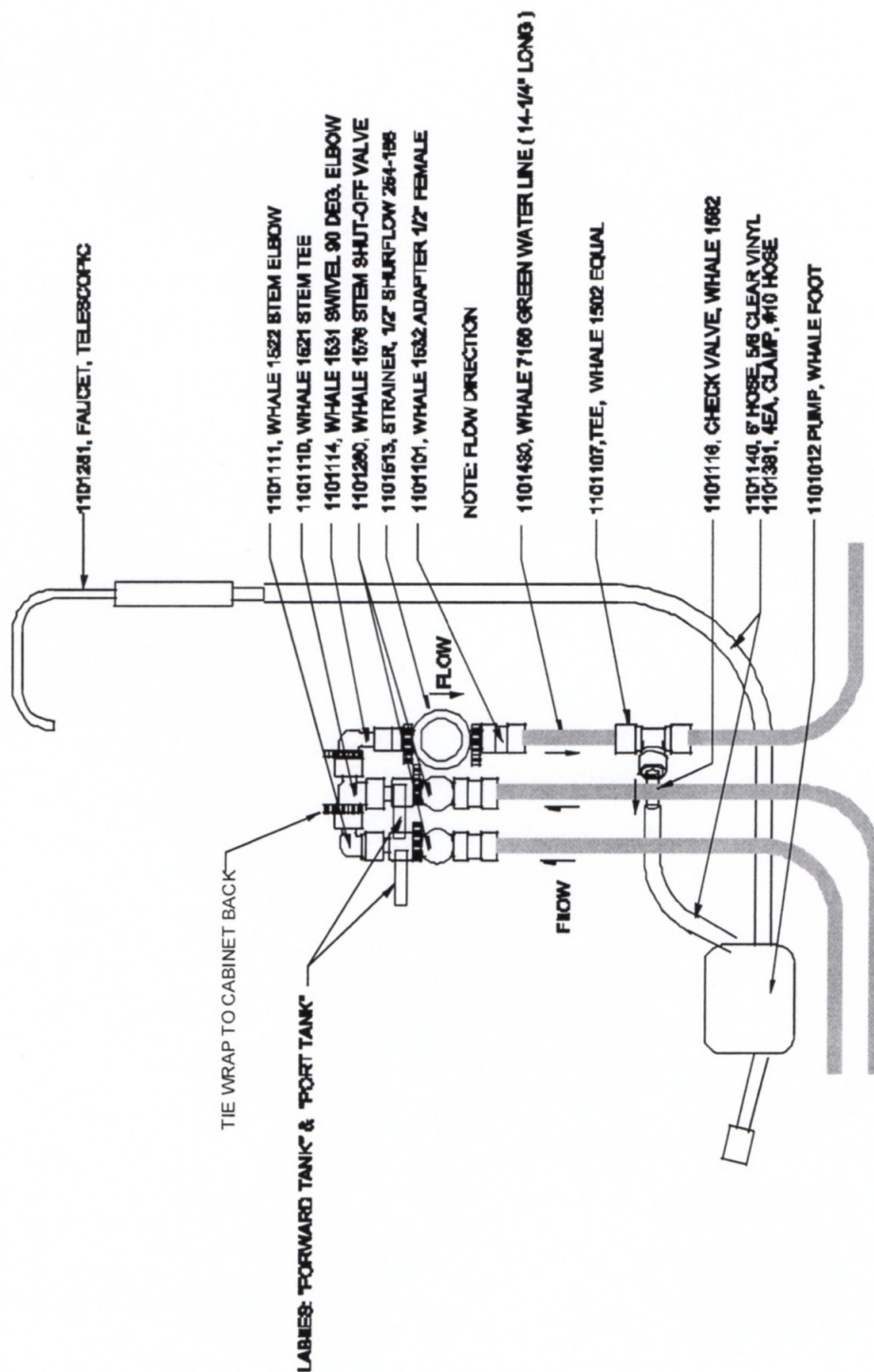


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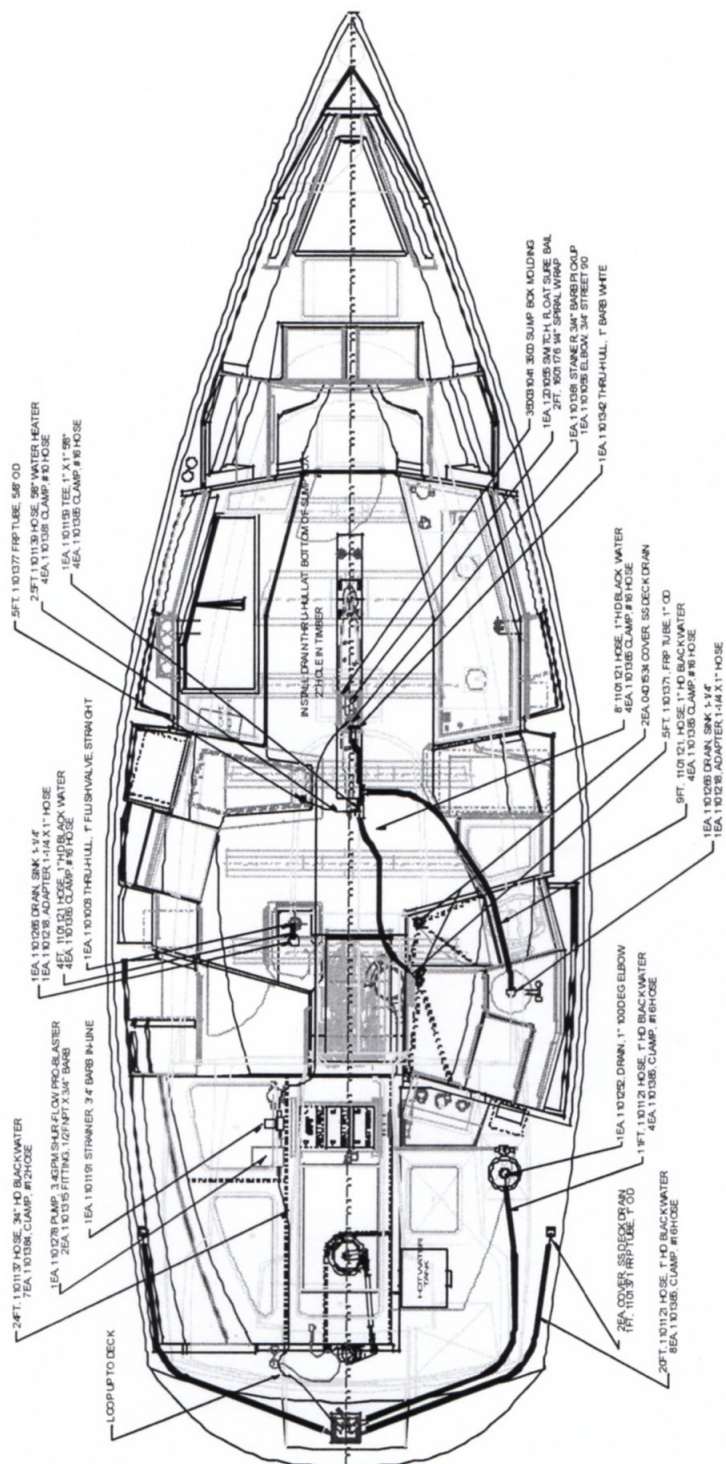




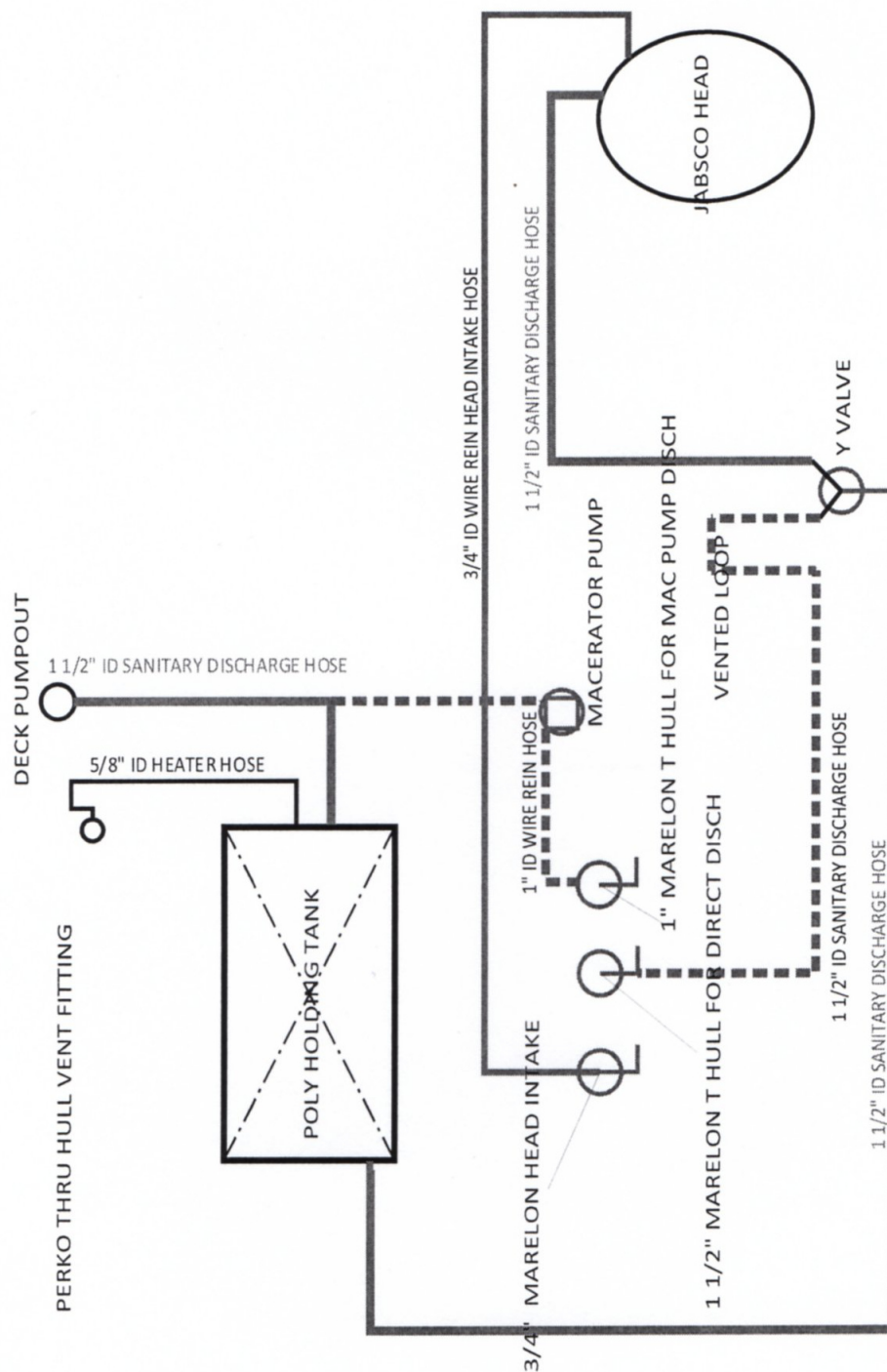
# FRESH WATER MANIFOLD



## GRAY WATER SYSTEM



# BLACK WATER SYSTEM





# Table 1 - SPECIFICATIONS

DESIGNER: TIM JACKETT	
LENGTH OVERALL (LOA)	34'5" (10.5m)
LENGTH WATERLINE (LWL)	30' 5" (9.72m)
BEAM	11' 11" (3.63m)
-DRAFT - FIN KEEL	6' 6" (1.98m)
- BEAVERTAIL	4' 11" (1.5m)
- CENTERBOARD UP/DOWN	3' 11"/7' 0" (1.2/2.13m)
DISPLACEMENT - FIN (LBS)	10,800 (4899kg)
- BEAVERTAIL	11,000 (4990kg)
- CENTERBOARD	11,800 (5353kg)
BALLAST - FIN (LBS)	3,500 (1588kg)
- BEAVERTAIL	3,700 (1678kg)
- CENTERBOARD	4,000 (1814kg)
AUXILLARY - FUEL/ HP	DIESEL/27 (Saildrive)
BERTHS	6
FUEL - GALLONS	25 (94.64 liters)
WATER - GALLONS	60 (227.12 liters)
HOLDING TANK - GALLONS	20 (75.7 liters)
SAIL AREA - SQUARE FEET w/100% Self Tacking Jib	620.18 (57.67 sq m)
I - FORETRIANGLE	46' 0" (14.02m)
J - FORETRIANGLE	12' 9" (3.89m)
P - MAINSAIL LUFF	44' 4" (13.51m)
E - MAINSAIL FOOT	14' 9" (4.5m)
MAINSAIL AREA	326.93 (30.4 sq m)
100% FORETRIANGLE	293.25 (27.27 sq m)
SAIL AREA - SQUARE FEET w/155% Reacher	856.12 (79.68 sq m)
I - FORETRIANGLE	49' 8" (15.14 m)
J - FORETRIANGLE	13' 9" (4.20m)
REACHER SAIL AREA	529.19 (49.28 sq m)
SPINNAKER POLE LENGTH	13' 9" (4.2m)
BRIDGE CLEARANCE	55' (16.76m)
BALLAST / DISPLACEMENT RATIO - PERCENT	34
DISPLACEMENT / LENGTH RATIO	171.3
SAIL AREA / DISPLACEMENT RATIO	18.8
RIGHTING MOMENT AT 1 DEGREE	980 FT LBS
STANDARD WHEEL SIZE	40
SHAFT SIZE	SAILDRIVE
BATTERY SIZE - ENGINE / HOUSE	27 / 27
BATTERY AMP HOURS - ENGINE / HOUSE	105 / 105

<p align="center"><b>Table 2 - SAILMAKER SPECIFICATIONS</b></p> <p align="center"><b>PRELIMINARY</b></p>
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**100% Self Tacking Jib I: 46' 0" J: 12' 9"**  
**155% Stem Mounted Reacher I: 49' 8" J: 13' 9"**  
**P: 44' 4" E: 14' 9"**

MAST SECTION: 110200 (CARBON)			
LUFF:	3/8” INTERNAL ROUND GROOVE		
RECOMMENDED SLIDE:	BAINBRIDGE A017/B036		
<b>Note: Some masts may have an optional track system installed</b>			
BOOM SECTION: POCKET BOOM			
FOOT:	LOOSE		
CLEW ATTACHMENT:	CAR INSTALLED ON BOOM		
CLEW CUT UP	N/A		
TACK CUT BACK:	2 ½” OR 63MM		
TACK CUT UP:	5/16” OR 8MM		
REEF CUT BACK:	N/A		
REEF CUT UP:	N/A		
FOOT ENTRY FROM MAST:	245 MM or 9.65”		
SAIL GATE HEIGHT FROM BOOM:	APPROX. 200 MM or 7.87”		
MAST RAKE	304 MM or 12.00”		
HEADSAIL			
OPTIONAL FURLING SYSTEM:	HARKEN ESP UNIT 1		
FORESTAY BUILD LENGTH:	CALL TARTAN – 440-354-3111		
LUFF TAPE SIZE FOR FURLER:	5 MM or #6 (6/32”)		
RECOMMENDED SAIL SIZE			
SAIL TYPE	LUFF	LEECH	FOOT
MAINSAIL			
100% JIB			
155% REACHER			



# Table 3 – STANDING AND RUNNING RIGGING

FUNCTION	QTY	SIZE	LENGTH	COLOR	GRADE
BOOM TOPPING LIFT TAIL	1	5/16"	25'	WHITE	STA-SET
JIB HALYARD	1	7/16"	110'	RED	STA-SET X PLUS
JIB SHEET	1	7/16"	80'	RED	STA-SET
MAINSAIL HALYARD	1	7/16"	115'	BLUE	STA-SET X
MAINSAIL SHEET	1	7/16"	65'	BLUE	STA-SET
MAINSAIL TRAVELER TAGLINE	2	3/8"	26'	BLACK	STA-SET
CENTERBOARD PENNANT	1	10MM	30'	WHITE	T-900 STRIP COVER 5' 3"
SPINNAKER HALYARD	1	3/8"	110'	GREEN	STA-SET
SPINNAKER LAZY GUY	2	7/16"	60'	WHITE	STA-SET X PLUS
SPINNAKER POLE FOREGUY	1	3/8"	50'	BLUE	STA-SET
SPIN POLE CAR	1	5/16"	31'	WHITE	STA-SET
SPINNAKER POLE TOPPING LIFT	1	3/8"	80'	BLUE	STA-SET
SPINNAKER SHEET	2	3/8"	75'	GREEN	STA-SET
REACHER HALYARD	1	3/8"	165'	BLACK	STA-SET X PLUS
REACHER SHEETS	2	3/8"	70	WHITE	STA-SET
VANG LINE LEAD AFT TO COCKPIT	1	5/16"	30'	BLACK	STA-SET
HEADSTAY	1	1/4"	47' 2 1/4"	STAINLESS	1X19 WIRE
BACKSTAY	1	1/4"	43' 7 1/4"	STAINLESS	1X19 WIRE
SPLIT BACKSTAY	2	3/16"	9' 6"	STAINLESS	1X19 WIRE
UPPER SHROUDS	2	1/4"	46' 6 1/2"	STAINLESS	1X19 WIRE
INTERMEDIATE SHROUDS	2	3/16"	31' 9 1/4"	STAINLESS	1X19 WIRE
LOWER SHROUDS	2	1/4"	16' 10 1/2"	STAINLESS	1X19 WIRE
BOOM TOPPING LIFT	1	1/8"	44' 10"	WHITE	7X7 COATED SS WIRE
HYDRAULIC BACKSTAY TAIL	1	1/4"	16' 6 3/4"	STAINLESS	7X19 WIRE

MEASUREMENTS ARE SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE CONSULT YOUR DEALER OR TARTAN YACHTS .



## Table 5 – RECOMMENDED MAINTENANCE

Note: The items listed in the recommended maintenance schedule are not covered under warranty.

Page (1)	UPON DELIVERY (By Dealer)	AFTER SHAKEDOWN CRUISE	AT EACH USE	EVERY (6) SIX MONTHS	EVERY (12) TWELVE MONTHS
<b>SPARS, RIG AND SAILS</b>					
Watch for chafing at spreader tips, pulpit and shrouds.	X	X	X		
Secure turnbuckles and clevis pins with cotter pins and protect with tape.	X				X
Tune or re-tune rigging.	X	X			X
Inspect all rigging, deck fittings for cracks, crevices, deterioration, kinks, or other unusual conditions.	X			X	
Make sure all rigging functions correctly.	X		X		
Clean or lubricate sheaves as required.				X	
Strip down, clean and lubricate winches					X
Rinse off blocks, sheets, lines and furling unit drum.			X		
<b>ENGINE</b>					
Check all hose clamps, cable straps, mounting bolts and shift/throttle linkages for tightness.	X	X		X	
Check engine and gear oil level.	X		X		
Check fuel level and water accumulation in filter/separator.	X		X		
Check coolant level.	X		X		
Check all warning lamp functions.	X		X		
Check for seawater discharge at exhaust.	X		X		
Inspect engine for oil leak or water leaks.	X		X		
Inspect and clean raw water intake strainer.			X		

Replace engine mounted fuel filter and remote filter separator element.					X
<b>Recommended Maintenance Schedule Page (2)</b>	<b>UPON DELIVERY (By Dealer)</b>	<b>AFTER SHAKEDOWN CRUISE</b>	<b>AT EACH USE</b>	<b>EVERY (6) SIX MONTHS</b>	<b>EVERY (12) TWELVE MONTHS</b>
<b>ENGINE (CONTINUED)</b>					
Change engine oil. (See engine manual for complete engine schedule)				X	
Clean and lubricate the (optional) Saildrive folding propeller					X
Inspect Saildrive blades, pins, and fasteners.	X			X	
Inspect Anodes.	X	X		X	
Spray all electrical connections with WD 40 or similar lubricant.				X	
Change Saildrive oil (see engine manual)					X
Check Saildrive rubber seal for cracks or wear	X				X
<b>PLUMBING SYSTEMS</b>					
Clean out bilge and sump debris strainer.	X		X		
Clean out water system debris strainer.	X	X		X	
Inspect all fittings for leaks.	X	X		X	
Lubricate Head					X
Lubricate sea cocks					X
<b>STEERING SYSTEMS</b>					
Inspect gater and clamps.		X		X	
Lubricate Nylon bearings with WD40					X
Inspect bolt assemblies for tightness and lubrication. Oil bearing areas, check adjustment of quadrant, grease mating areas, oil support bearings on seat face, oil shaft bearings on each side of pinion gear. (Rack and Pinion System)	X			X	
<b>ELECTRICAL</b>					



Inspect all navigation lights for operation.	X		X		
Inspect Batteries/charger for correct operation.	X		X		

*Note: See all of the installed parts manuals for additional maintenance procedures.*

## 3.0 CONSTRUCTION

### 3.1 Hull

The hull of the Tartan 3400 is a single unit fiberglass molding which incorporates a specially developed NPG/ISO gelcoated hull with a resin infused modified epoxy laminate. Alternating layers of strand mat and multi-axial glass in modified epoxy resin are locally reinforced and cored with closed cell synthetic foam in order to achieve an optimum balance of strength, stiffness and weight in the laminate composite.

The construction process ensures the complete weaning of the laminate complex with minimal voids or bubbles. Extra laminate is used in any area that would be subject to additional stresses. The exterior finish consists of gelcoat molded into the fiberglass. The boot stripe is applied using PPG Concept Acrylic Urethane while the cove stripe is a premium vinyl film. A synthetic foam core is sandwiched between the laminate layers to add significant strength and stiffness properties to the hull, and yet ensuring that overall weight is kept to a minimum. The strength/weight characteristic of the sandwich composite as well as resistance to impact and abrasion is magnified by the use of multi-axial glass in the laminate.

### 3.2 Deck

The deck and cockpit, like the hull, is a single unit fiberglass molding with a gelcoat surface. A balsa core is incorporated into the structure between the laminate layers for additional stiffness. A non-skid finish is molded into the working areas of the deck.

### 3.3 Hull / Deck Joint

The top flange of the hull is capped with marine adhesive sealant. The deck is then fitted and fastened through the Teak or Aluminum toerail by means of stainless steel bolts. As the bolts are tightened, the sealant is forced into exposed crevices. If a leak should ever develop in the hull / deck joint, the through bolts may be tightened accordingly.

### 3.4 Rudder & Steering

The rudder is constructed of two molded composite shells, which are bonded together and injected with two-part foam for added strength. The rudderpost is carbon fiber with a reinforcing web positioned within the rudder.

Wheel steering is standard. The pedestal system is a smooth operating wire rope; Edson steering system. The pedestal manufacturer has provided maintenance instructions concerning the steering system.