09-06-85

2

FREEDOM YACHTS

FREEDOM 32 SPECIFICATIONS*

LOA	32' 9"	Mast Height Above Water		49 ft.
LWL	25' 9"	Sail Area-Main		400 sq. ft.
Beam	12' 3"	Spinnaker		502 sq. ft.
Draft-Shoal keel	4' 11"	Headroom	83 spec	6' 2"
Deep keel	6' 1"	Tankage-Water	55	46 gals.
Displacement	8,500 lbs.	Fuel	30	20 gals.
Lead Ballast	3,500 lbs.	Waste	12	12 gals.
Engine	Yanmar 3 GM 3 cyl., 22.5 hp.			

The Freedom 32 is a modern cat rig, from the innovative designs of Freedom Yachts. The Freedom 32 utilizes the Tillotson Pearson high technology carbon fiber spar engineering with ability to carry a spinnaker from an unstayed rig-unsupported by shrouds or running backstays. A fin keel and spade rudder are standard with a shoal draft keel optional.

FIBERGLASS STRUCTURAL COMPONENTS: Laminate of isophtalic neopentyl gelcoat, .75 oz. E glass mat and layers of stitched unidirectional fiberglass. Outer underwater laminates utilize vinylester barrier resins. Contourcore(r) in hull and deck for strength, acoustical and thermal insulation carries Lloyds Register of Shipping Quality Approval Certificate #YSC/OU103.

CARBON FIBER MAST: Conventional masts require wires to hold them up. Each end of each wire has to be attached to something and generally a chainplate or tang is also involved before the linkage is complete. The unstayed carbon fiber mast eliminates all these potential problem points. On a pound for pound basis, carbon fiber is 4 times stronger than stainless steel and 8 times stronger than aluminum. Tillotson-Pearson is the only carbon fiber user in the country both weaving and laminating in house, which helps maintain high quality and control costs. Although the cost of an unstayed carbon fiber mast greatly exceeds that of a conventional spar, the resultant safety, simplicity, and strength well warrants the expense.

SAIL CONTROLS: All major sail controls lead to Barient 30:1 power ratio winches mounted on the aft end of the cabin house, convenient to cockpit. Schaefer stoppers are provided for the standard halyards, sheets and reef lines. Halyards are extremely low stretch NER StaSet-X cordage, with balance of running rigging color coded Dacron double braid. Hangars provided to organize lines lead to cockpit.

Main sail is controlled by ball bearing traveller with high strength car. 3:1

* SPECIFICATIONS, OPTIONS & PRICES SUBJECT TO CHANGE WITHOUT NOTICE

traveller athwartships control lines lead to cam cleats on ends of traveller. 4:1 main sheet with Harken blocks leads to winch through Schaefer stopper. Outhaul is 5:1 ratio internal to boom. Two single line reefing systems lead to cockpit winches through stoppers, so mainsail can be reefed totally from the security of the cockpit by one person in about 30 seconds. 4:1 tackle boom vang also leads to cockpit. Lazy jack boom support system guides mainsail as it is lowered, similar to a venetian blind. Wire headstay, tack fitting, sheet and halyard lead to cockpit stopper for internally booomed self tacking jib.

DECK

The cockpit features coaming lockers on both sides. The port coaming locker contains a propane regulator with chocks and a 6 lb. aluminum propane tank.

Starboard locker has an anchor well in addition to storage for a spare propane tank.

[redacted]venient to the helmsperson is a beverage locker opens to with overboard drain. The starboard seat locker opens to reveal a voluminous storage compartment.

STEERING: Pedestal steering by Edson with 32" diameter stainless steel wheel turning Radial Drive(r) through swivel idler with tangency guards. Rudder post is pressure molded unidirectional glass. Stainless sleeve bearings with interior adjustable stuffing box. Ritchie 5" stainless steel base compass mounted on steering pedestal. Aluminum fabricated emergency tiller fits into head of rudder stock.

LIFELINES AND PULPITS: Double rail bow and stern pulpits are welded construction of highly polished 1" diameter .065 wall stainless steel tubing. Stanchion bases are bolted both to aluminum toe rail for security. Upper lifeline is 3/16" diameter 7 X 7 stainless steel wire white vinyl coated to 5/16". Optional lower lifeline is 1/8" wire coated to 1/4". Optional boarding gates both port and starboard include stanchion braces and pelican hook for upper lifeline. Lifelines are terminated with toggles and chromed bronze turnbuckles for adjustment.

MOORING CLEATS: All stainless, yacht type cleats with 4 mounting holes.

[redacted]PANE TANK

A 6 lb. capacity aluminum tank is located in a vented compartment built into

the cockpit coaming. Storage chocks installed for spare tank.

COMPANIONWAY HATCH

Formed translucent hatch slides into a fiberglass sea hood with water channels for drainage. A smoked polycarbonate weather board is provided for hatch closure.

TOE RAIL

Full length custom slotted aluminum extrusion. The toe rail and deck flange are thru-bolted to the hull flange using 5/16" stainless steel bolts at 4" intervals. The deck if further bonded to the hull using 3M #5200 flexible sealant.

ANCHOR ROLLER

Stainless steel stemhead cap includes anchor roller suitable for up to 35 lb. plow type anchor.

INTERIOR ARRANGEMENT

ARRANGEMENT PLAN: Acccomodations and amenities of a 40 footer are incorporated in the Freedom 32. Aft is a true stateroom with hanging locker. The double berth is over 6' 2" long and over 4 feet wide at the shoulders. Door for complete privacy.

HEAD

Located in the starboard quarter, with Groco Marine Toilet and overboard bypass for use offshore, also plumbed to a 12 gallon holding tank. A molded sink drains overboard via a thru hull located well inboard. Telephone type shower, teak grate and separate sump with electric pump are standard. Ventilation is provided by an overhead opening deck hatch. A storage locker is located over the sink vanity with a wet gear locker aft.

MAIN SALOON

Port side is an L shaped settee with a bulkhead mounted fold down drop leaf table. Stemware and liquor storage compartment is concealed by table when in folded position. Table may be used with one leaf for seating three, or with the starboard side upright to feed a crowd. Outboard of the settees port and starboad are lockers with louvered doors and central storage alcove.

* SPECIFICATIONS, OPTIONS & PRICES SUBJECT TO CHANGE WITHOUT NOTICE

FREEDOM YACHTS

FORE CABIN

6'6" long large double berth with standard 4" cushions. Storage is provided below the berth top. To port is a large hanging locker with cane door for ventilation. To starboard is a dresser with vanity top. A sliding privacy door separates the fore cabin from the rest of the vessel.

GALLEY

L shaped design for efficient cooking. Two burner LP gas stainless steel stove has thermostatically controlled oven with pilot light. Tray which fits on top of stove provides convenient gimballed counter space. 7 cubic foot ice box has two level storage with sliding acrylic shelf, and is well insulated with polyurethane foam. Stainless steel 10" deep double bowl sink is provided with pressure hot and cold water and a manual back up pump. Large lockers with smoked acrylic sliding doors run full length outboad of galley.

CHART TABLE

Large charting surface (26" X 44") hinges for access to chart storage. Double door locker under with interior shelves and three drawers holds copious ship's stores. Electrical panel and sliding door locker outboard.

VENTILATION

Bowmar overhead hatches are provided for the fore cabin, the main cabin, the aft cabin and the head. Also standard is an opening port in the aft cabin which opens into the cockpit.

INTERIOR FINISH

Joinery of teak wood is custom formed to graceful cold molded curves. Cabin sole is teak and holly. Hand rubbed oil finish is standard. Overheads are white foam backed vinyl.

MECHANICAL AND ELECTRICAL

Engine - Yanmar 22.5 hp. three cylinder diesel complete with fresh water engine cooling located amidships, provides superior weight distribution. Covers compliment the engine installation's lack of noise and vibration. The drive train includes coupling, 1" diameter stainless steel shaft, interior adjustable stuffing box, and a 14" RH two blade bronze propellor. The

removable settee end, which houses the engine, provides complete access to the engine area. Lead sandwich engine room insulation is standard. Exhaust is muffled with a water lift type silencer, exiting at the transom. Engine instrumentation is recessed into the cockpit and includes warning lights for temperature, oil pressure, and voltage with a tachometer gauge. Primary and secondary fuel filters are standard, as is a clean out port in the 20 gallon aluminum fuel tank located under the saloon settee.

Hot water - A six gallon water heater operates either from optional shore power or standard engine fresh water cooling.

Electrical - Two 90 amp hour heavy duty batteries are standard with a selector switch which may be changed while the engine is running without damage to the 35 amp alternator. 12V DC power distribution is through a Bass modular panel with battery condition meter and circuit breakers. All wiring is 14 gauge or larger stranded copper run through non-metallic conduits with junction boxes to covered terminal block. Navigation lights conform to marine standards. Four swivel brass reading lights, and five overhead domes provide interior illumination.

PLUMBING

All apertures below water line are fitted with bronze flanged thru hull fittings installed in specially reinforced laminate, with bronze 90 degree throw sea cocks. Hoses below water line are double clamped with stainless worm drive clamps. Pressure fresh water system is standard with FDA approved materials for fresh water tanks and polyethelene tubing.

LOOSE GEAR:

(2) two 1/2" X 40' docklines
(2) two inflatable fenders
(1) Barient lock-in winch handle

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TILLOTSON - PEARSON INC.

BEND BOAT BASIN
MELVILLE, NEWPORT, RI 02840
401-683-3500

WELCOME ABOARD!

Congratulations on the purchase of your new Freedom. She is designed for optimum performance, ease of handling and will accomodate you and your crew in ultimate comfort and safety. Freedoms utilize only the best materials resulting in solid construction that is well executed throughout.

Properly cared for your Freedom will give you years of safe and pleasurable sailing. Your owner's manual provides you with information including commissioning, safety and maintenance. Please take the time to review the information yourself and with your dealer.

For safe, pleasurable sailing DO NOT operate your boat without a knowledgeable, experienced skipper and crew. It is not our intent to provide ALL of the information in this manual that you will need to operate your boat safely. This manual will acquaint you with SOME of the features onboard that you may find unusual. If you are not experienced you are strongly encouraged to take courses in boating skills and safety. Also, update your knowledge by reading from the many books and magazines available.

HAPPY SAILING!

Everett A. Pearson
President
TPI

INTRODUCTION

Freedom Yachts has prepared this Owner's Handbook which will provide you with some information for the safe, enjoyable use and maintenance of this proper cruising yacht. Warranty Registration Cards from the factory and the engine manufacturer are included with this manual. These cards should be filled in and returned as soon as possible.

Freedom Yachts are produced in Tillotson-Pearson's Warren and Melville, Rhode Island, plants where fine sailing yachts such as Aldens, J-Boats and Rampage Sportfishing Boats are also manufactured. Our staff is comprised of craftsmen and engineers experienced in all areas of the boating industry. Each boat produced is thoroughly inspected and tested by our rigid quality control procedures.

Freedom is always seeking new and better ways to make our product the best it can be. Therefore, you may find your Freedom has equipment that differs from equipment shown in this manual. Whenever changes have been made in the specifications or equipment, they have been carefully developed and tested to be sure they meet our high quality standards.

TABLE OF CONTENTS

	SECTION
INTRODUCTION	1.1
GENERAL	
HIN NUMBERS	2.1
Statement of Limited Warranty Of Carbon Fiber Spars	2.2
Responsibility of the Owner	2.3
Responsibility of Your Dealer	2.4
Construction Details	2.5
SAFETY	
Safety Guidelines	3.1
Safety Equipment	3.2
Anchor & Rode Recommendations	3.3
Annual Safety Maintenance Recommendations	3.4
Recommended Tools for Onboard Maintenance	3.5
COMMISSIONING	
Commissioning Instructions	4.1
Commissioning Checklist	4.2
Block List/ Running Rigging List	4.3
MECHANICAL	
Steering System	5.1
Engine Operation & Precautions	5.2
Diesel Engine System	5.3
Syntron Shaft Seal (F-36)	5.4
Fuel Tank /	5.5
Fuel System & Fueling Procedure	5.6
Engine Fresh Water Cooling System	5.7
Exhaust System	5.8
ELECTRICAL	
Electrical System	6.1
Batteries/Battery Chargers	6.2
Electrical Leakage Analysis	6.3
Lightning Protection	6.4
PLUMBING	
Plumbing System/Fresh Water System	7.1
Water Tank	7.2
Head System /Holding Tank	7.3
MAINTENANCE	
Exterior Maintenance	8.1
Interior Maintenance	8.2
MISCELLANEOUS	
Stove /	9.1
Propane Set Up	
Winter Storage	9.2
Sailing Characteristics	9.3

TABLE OF CONTENTS

	SECTION
INTRODUCTION	1.1
GENERAL	
HIN NUMBERS	2.1
Statement of Limited Warranty Of Carbon Fiber Spars	2.2
Responsibility of the Owner	2.3
Responsibility of Your Dealer	2.4
Construction Details	2.5
SAFETY	
Safety Guidelines	3.1
Safety Equipment	3.2
Anchor & Rode Recommendations	3.3
Annual Safety Maintenance Recommendations	3.4
Recommended Tools for Onboard Maintenance	3.5
COMMISSIONING	
Commissioning Instructions	4.1
Commissioning Checklist	4.2
Block List/ Running Rigging List	4.3
MECHANICAL	
Steering System	5.1
Engine Operation & Precautions	5.2
Diesel Engine System	5.3
Syntron Shaft Seal (F-36)	5.4
Fuel Tank /	5.5
Fuel System & Fueling Procedure	5.6
Engine Fresh Water Cooling System	5.7
Exhaust System	5.8
ELECTRICAL	
Electrical System	6.1
Batteries/Battery Chargers	6.2
Electrical Leakage Analysis	6.3
Lightning Protection	6.4
PLUMBING	
Plumbing System/Fresh Water System	7.1
Water Tank	7.2
Head System /Holding Tank	7.3
MAINTENANCE	
Exterior Maintenance	8.1
Interior Maintenance	8.2
MISCELLANEOUS	
Stove /	9.1
Propane Set Up	
Winter Storage	9.2
Sailing Characteristics	9.3

MAINTENANCE MISCELLANEOUS

Engine

- Oil-30 weight CC (not CD) (15/40 if not available)
- Every 100 hours
- Trans oil same--don't push dip stick down when measuring
- Yanmar oil filter only because of flapper valve and bypass
  Fill ½ w/oil--oil on O-ring--hand tighten ½ to ¾ turn
- Idle @ 1,200 minimum
- Antifreeze 50/50 every 3 years + ½ pint of conditioner

Camber Spars 11"offset---40-45% back from luff end

WINTER LAY-UP

1) FWS-Drain by evacuating water through pumping. First run engine to run through heating system. Use electric pump and open a faucet until water stops running, check that tank empty through strainer. Put 3 to 4.5 gallons of pink antifreeze in tank and let pump do work. First, do hand pump in galley, then hot water faucets in turn, and finally cold.

2) HEAD-Flush through discharge, then dip holding tank valve and pump into it (1-1.5 gals.)

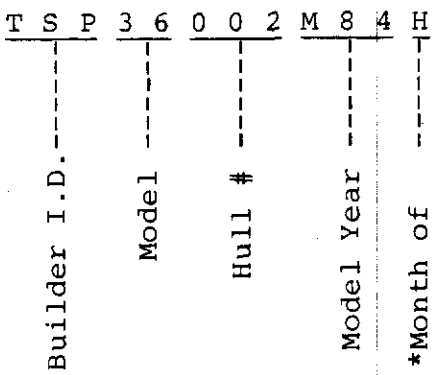
3) ENGINE-Change oil engine & transmission (4+ & 1+qts total) Oil filter. Check strainer. Run green engine antifreeze through intake hose from seacock until green fluid seen running out of exhaust. Tape air intake & exhaust port. Spray engine with WD-40.

4)BILGE-Pour in some green antifreeze.

HIN NUMBERS

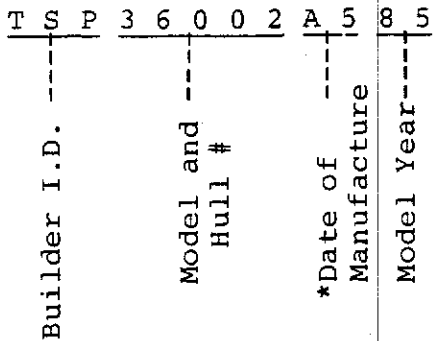
In accordance with Coast Guard Regulations, your Freedom is identified by a Hull Identification Number or "HIN". This HIN is molded into the upper starboard corner of the transom. Please have this number handy whenever contacting your dealer or Freedom Yachts for any reason.

On boats molded before August 27, 1984 the HIN number appears as follows:



*July 16- Aug 15	"A"
Aug 16- Sept 15	"B"
Sept 16- Oct 15	"C"
Oct 16- Nov 15	"D"
Nov 16- Dec 15	"E"
Dec 16- Jan 15	"F"
Jan 16- Feb 15	"G"
Feb 16- Mar 15	"H"
Mar 16- Apr 15	"I"
Apr 16- May 15	"J"
May 16- June 15	"K"
Jun 16- July 15	"L"

On boats molded after August 27, 1984, the Coast Guard changed the format so that the HIN number appears as follows:



*Letter identifies month, number identifies last digit in year manufactured.

January	"A"	July	"G"
February	"B"	August	"H"
March	"C"	September	"I"
April	"D"	October	"J"
May	"E"	November	"K"
June	"F"	December	"L"

TILLOTSON-PEARSON, INC.

Statement of Limited Warranty Of
Carbon Fiber Spars

Tillotson-Pearson, Inc. warrants all carbon fiber masts installed on Freedom Yachts to be free from defects in material and workmanship under normal use and circumstances and with normal care and maintenance for the ownership of the original consumer.

What is Covered:

In the event of a failure due to a defect in the manufacture of the mast(s), TPI will supply a replacement at no cost to the original consumer. TPI will also transport the mast(s) to any city or port in the continental United States at no cost to the original consumer.

What is Not Covered:

TPI does not, under any circumstances, assume responsibility for the loss of time, inconvenience or other consequential damages, including but not limited to, expenses for transportation and travel, telephone, lodging, loss or damage to personal property, such as electronics , or loss of revenue. In addition, TPI will not assume responsibility for commissioning expenses including but not limited to stepping, rigging, rewiring, and deck boss and collar adjustments to accomodate diameter variation.

PLEASE NOTE:

Some states do not allow limitations on how long an implied warranty lasts, and/or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. Moreover, this warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

* _____ (cut) _____

*

* Tillotson-Pearson
* Limited Warranty
* W578

*

* Model _____ Hull Number _____

* Date Purchased _____ Dealer _____

THIS SLIP MUST BE SENT TO THE BUILDER WITHIN 30 DAYS AFTER DELIVERY.

* Name of Owner(s) _____

* Address _____
street city/state zip

* Phone Number(s) _____ (H) _____ (B)

* Name of Boat _____

* I have read, and agree to the conditions outlined in the Limited Warranty which was attached hereto.

* _____
owner's signiture(s) date

RESPONSIBILITY OF THE OWNER

To obtain maximum safety and pleasure from your Freedom, particular attention must be paid to proper maintenance of your boat. A partial list of Owner Responsibilities follows, which is only intended as a partial guide. Please contact your local U.S. Coast Guard and Power Squadron offices for safety information on the operation of your boat.

1. Complete the Warranty Registration Cards and return them to Freedom Yachts and the engine manufacturer. Please mail any change of address or ownership to Freedom Yachts so we may keep an accurate list of owners.
2. Ensure that all items listed as the Responsibility of the Dealer are completed by your dealer. If your boat has been delivered to any address other than that of your dealer, the responsibilities of the dealer become yours, unless specific arrangements are made with your dealer.
3. Operate your boat following the instructions provided in this owner's handbook, instructions from our suppliers and applicable U.S. Coast Guard and other regulations.
4. Keep all additional safety equipment on board as required or recommended by the U.S. Coast Guard for the size of your boat and nature of use.
5. Have your boat serviced by a competent marine agency. All service should be carried out in accordance with the specifications in this owner's handbook, our supplier's manuals, and preferably by an authorized Freedom dealer.
6. Before each operation of your boat review the SAFETY section of this manual. Also, review the ANNUAL SAFETY MAINTENANCE RECOMMENDATION - p 3.4

RESPONSIBILITY OF YOUR DEALER

Freedom Yachts are sold only through Authorized Freedom Dealers. Our dealers have been selected because of their knowledge and expertise in the boating industry and because of their dedication to the provision of a high level of service and attention.

Your Freedom dealer is responsible for the commissioning of your boat according to the Freedom Commissioning Procedure. Please be sure your dealer completes the Commissioning Check List and returns it to Freedom Yachts. Failure to do so will complicate warranty procedures. Your yacht commissioning is as follows:

1. Clearly explaining and accurately describing the Freedom options that are best suited to enhance your needs and planned use of your new Freedom.
2. Inspecting the boat upon receipt to assess any losses or damages; filing and following through all claims against the carrier transporting your Freedom. Should you notice any loss or damage you must notify your dealer immediately or , at the latest, within 30 days after receiving your boat.
3. Inspect all equipment, installed or shipped loose, to assure that all items are received.
4. Commissioning the boat per the Commissioning Check List. Dealer's responsibility includes completing the following (p 2.4) Commissioning Check List and reviewing the same with the owner.
5. Checking all mechanical systems during actual use on a trial run.
6. Instructing you on the use of your boat and its equipment.
7. Providing assistance and service, including processing of claims, under the terms of our Limited Warranty.

CONSTRUCTION DETAILS

The technology we use for designing and constructing our boats is the most advanced in the marine industry. Only top quality, top performance materials which are thoroughly tested in our own lab are used.

Materials:

1. All Freedoms utilize Glidden Neo Pentyl Glycol (NPG) Isophthalic Gelcoat. NPG Iso Gelcoats yield a denser, more frequently branched molecular network which inhibits migration of water molecules. Because of their structure, NPG Iso Gelcoats offer superior resistance to moisture penetration, blistering and fading. They are formulated to yield slightly more flexibility than most gelcoats which aids in resisting cracking. Testing also indicates that Glidden NPG Iso Gelcoats produce the highest gloss and retain it through environmental exposure.

2. High performance glass fabrics are used throughout the sandwich laminate. They offer superior strength and stiffness when compared to conventional cloth and woven roving materials used by many other builders. Unidirectional fabrics require less resin and therefore produce stronger structures without excess weight. The fibers can also be oriented to yield maximum hull and deck strength and stiffness.

3. The resins used by Tillotson-Pearson are properly engineered to incorporate the correct balance of properties based on required performance. A special vinyl ester resin is used as a barrier coat behind the gelcoat to arrest moisture penetration. By arresting moisture permeation blistering cannot occur.

   This vinyl ester in combination with Glidden NPG Iso Gelcoats and properly specified fibers generate the most blister resistant hull available today. The vinyl ester used by Tillotson-Pearson is also resilient like the gelcoat to further aid in crack resistance.

   A high quality polyester resin is used to complete the rest of the laminate. Again the correct balance of properties are designed into the resin to assure resistance to cracking and fatigue. These designed-in properties assure that high strength and stiffness will be retained throughout the life of your vessel.

Construction Details Cont'd.

Sandwich Construction:

Sandwich construction is used in all Freedom Yachts' hulls and decks to produce lighter, faster performance boats. A fiberglass sandwich functions similarly to an "I" beam. "I" beams are used for construction because they make the most efficient use of materials based on structural criteria at reduced weights. The inner and outer skins of the sandwich function in the same way as the top and bottom flanges of the "I" beam, and the core functions similarly to the web of the "I" beam. This means lighter hulls and decks can be produced which are actually stiffer and stronger than a solid glass hull or deck.

Many different cores are available for use in sandwich construction. We choose end grain balsa core because it has superior physical properties in performance over all others. It has excellent thermal stability in warm climates or direct sunlight. When compared with foam cores, the end grain balsa core's fatigue properties are far superior. It also has excellent impact and puncture resistant properties.

Production Control:

Great care is taken in the quality control of the production of laminated parts. The following steps are necessary to guarantee that the physical properties used to design are the same as those which are built into the part.

1. Ultrasonic inspection is used to measure thicknesses as well as to count individual plies of material in the laminate.
2. Weights are checked on a regular basis.
3. Resin burn off tests are run randomly to check on the ratio of resin to glass built into the laminates.

Gelcoat application is carefully controlled to ensure the proper coating thickness and performance. This is important when considering

Construction Details Cont'd.

Production Control Cont'd.

blister resistance. Proper catalization, thickness, and low porosity are key in producing a finish that will best resist the osmotic passage of moisture. Control of catalization is also very important for weatherability. Barcol hardness testers are used to check the relative cure of both resins and gelcoats.

Assembly:

Major structural framing and bulkheading are glassed to the hull and deck using non-woven biaxial glass fabric. This provides for an integral bond between the hull, deck and frames.

By using both mechanical and adhesive fastenings, hull to deck joints of reliable integrity are achieved. Glass thicknesses are increased in the hull and deck flanges which are joined together primarily with through-bolts, capable of handling the high local stresses that are produced as loads are transmitted through the hull and deck.

Before bolting, 3M-5200 high strength urethane adhesive sealants are applied to the flanges to totally seal the joint. This combination of bolting and bonding with 5200 creates an unusually strong water-tight hull to deck joint.

All internal and external hardware connections are engineered individually for long lasting integrity. Backing plates are designed as required for all deck hardware as well as additional laminate backups to ensure reliable hardware fastenings.

Through hull fittings are engineered using the highest quality bronze and glass reinforced nylon fittings available. Each metal fitting is individually grounded to protect against galvanic corrosion. 5200 sealant is used to create a watertight seal. All hull core is terminated several inches from the through hull fitting

Construction Details Cont'd.

Assembly Cont'd.

and replaced with solid glass to prevent water from contacting the core.

The keel sump area is designed using solid glass laminates to accomodate the locally high loads induced by the keel. Heavy duty stainless keel bolts are utilized in the keel. When the bolt holes have been bored in the sump, a potting layer of resilient epoxy is placed on the bottom of the sump and top of the keel. The keel is then snugged up to the sump as the keel bolt nuts are tightened. When epoxy hardens a perfect fit has been produced which is water tight. Fairing is done on the keels with a special epoxy which was formulated to provide long lasting adhesion to lead. It also resists water permeation and cracking which may occur as a result of thermal cycling.

Carbon Fiber Masts:

Carbon fibers are produced by the thermal decomposition of polyacrilonitrile or "pan" for short. The "pan" precursor is spun into a filament and then stretched to orient its molecules. The filament is then subjected to 220° C to stabilize its orientation. Once stabilized the filaments are heated (carbonized) at 1500° C in a nitrogen atmosphere. The process in effect burns off all the compounds and chemical structure which are inherent in the pan precursor leaving only the carbon backbone of the pan molecule. The carbonized filaments are then bundled together in groups of approximately 12000 forming what is referred to as a tow of carbon. The tow is similar in size to yarn used for knitting.

Carbon Fiber Masts Cont'd.

Tillotson-Pearson purchases the fiber in tow form. The fibers are then oriented on a loom and woven with very small cross fibers to hold the tows together in a form which can be handled in production. The carbon fiber is then precisely impregnated with a special resin system and laminated on an aluminum mandrel. Precise application of heat and pressure is required to cure the composite while yielding maximum physical properties. The process used by Tillotson-Pearson is the only one of its kind in existence. All spar manufacturing is done at the same facility which produces Freedom Yachts FRP structures.

Of course no spar can be produced until it has been properly designed and engineered to perform in its specific application. The key to the success and reliability of the Freedom spars is a culmination of design, manufacture and quality control expertise. Many complex techniques are used in design which require computer assistance. Every one foot length of spar is extensively analyzed in the design process so that laminates can be determined with precision and weights optimized. Each fastening and hole is analyzed for stress concentrations and potential local failure to assure reliable hardware attachment design.

Before production can begin to build a part, the quality control team checks all resin, fiber and process set points to assure that all performance requirements will be met. Skilled operators then produce the bare shaft of the spar. It is then weighed and sampled by quality control to check its physical integrity. The spar then undergoes final finishing and hardware application after which quality control will give their final seal of approval.

Construction Details Cont'd.

Carbon Fiber Masts Cont'd.

A specially designed system is used to monitor stress levels in the mast under harsh conditions. Twenty-four channels are simultaneously monitored by a computer which records strains, wind data, and gravitational acceleration due to slamming. This information is vital in confirming the actual stress and load conditions in the spar. It has also helped us to refine our design techniques to project actual performance more closely. This unique blend of testing, design, manufacture and quality control has been the driving force behind the driving power of the Freedom spar. It is truly a technological masterpiece.

SAFETY GUIDELINES

We strongly recommend that you contact your local U.S. Coast Guard office for up to date safety requirements. Basic requirements which should be observed include the following equipment: Distress signals, flotation devices, fire extinguishers and an emergency tiller. Also, include spare parts kits - winches, engines, steering, etc. For the safe operation of your boat, we urge you on a routine basis to check all running rigging, electrical equipment, fire extinguishers, running lights, diesel & propane fuel lines, and steering cables.

SAFETY EQUIPMENT

U.S. Coast Guard regulations require certain safety and emergency equipment to be kept aboard. For the safety and comfort of all passengers, it is the owner's priority responsibility to learn and procure the equipment and to maintain it in proper working condition. Contact your local U.S.C.G. office for more complete required and recommended equipment lists. The following is not intended to be all inclusive.

Distress Signals: The U.S.C.G. requires visual distress signals be kept aboard boats 16 feet or more in length, and by all boats operating at night. Be familiar with their employment and keep them up to date.

Flotation Devices: One approved life preserver is required for each passenger aboard by the U.S.C.G. It is also recommended that a horseshoe life ring or floating seat cushion be kept ready in the cockpit in case of a man over-board situation. It is also prudent to carry safety harnesses and to wear these at night and in foul weather.

Fire Extinguisher: Two fire extinguishers are required and should be located for quick access.

Ground Tackle: Please refer for anchor and rode size suggestions to the table on the following page. In general, at least two anchors with proper size rodes should be carried. One can be stowed in a locker while the other should be ready to use. The length of the rode should be determined by the depth of the water where you sail. A ratio of 7 ft. rode to 1 ft. water depth is desirable. In some areas an all chain rode is recommended to prevent chafing on a rope. In general, an all chain rode is more suitable for use with an anchor windlass. It is common practice to carry a small "lunch hook" for easier short term anchorage with someone staying aboard.

Additional Equipment: Other items, some of which are required, that should be kept on board include: soft wood plugs for the seacocks, bell, hand and air horns, flashlights, first aid kit, bucket with lanyard, radar reflector, heaving line, and tools and spare parts.

ANCHOR RODE RECOMMENDATIONS

Working Anchor (Winds up to 30 knots)

	RODE		ANCHOR	
	Nylon	Chain	Plow	Danforth
Freedom 36	250'-½"	18'-3/8"	35#	20 H
Freedom 32	250'-½"	15'-3/8"	25#	20 H
Freedom 30	200'-7/16"	15'-3/8"	25#	12 H

Lunch Hook

	RODE		DANFORTH TYPE	
	Nylon	Chain	Standard	Hi-Tensile
Freedom 36	150'-3/8"	6'-¼"	13 - S	12 - H
Freedom 32	150'-3/8"	6'-¼"	8 - S	5 - H
Freedom 30	125'-5/16"	6'-3/16"	8 - S	5 - H

The above recommendations are taken from Danforth and Jay Stuart Haft literature and from Chapman's Piloting, Seamanship and Small Boat Handling. TPI publishes these suggested sizes for guidance only and accepts no responsibility whatsoever. The number and size of anchors and rodes to be carried aboard must be conditioned upon the size of the boat, location, weather conditions, and anchor and rode types. The suggestions above all assume fair holding grounds, adequate scope, and reasonable protection from seas.

ANNUAL SAFETY MAINTENANCE CHECK LIST

The following list has been compiled as a guide to check critical safety related components of the boat. It is very important that this maintenance inspection be completed each year to assure the ongoing safety of your boat. This list is not all inclusive. It is intended as a guide only.

RUNNING RIGGING

____Check lines for wear and splice conditions.
____Check block attachment and condition of sheaves.
____Service winches, check for free operation and ratchet stop function.
____Check for secure fastening of all cleats.

DECK HARDWARE

____Check Lifeline integrity, stanchion, and rail attachment to deck.
____Check all chocks, cleats, and other hardware for attachment and soundness.

STEERING SYSTEM

____Check rudder condition.
____Check rudder post play in bearing tube.
____Check drive wheel attachment.*
____Check integrity of cables and chain clamps.*
____Check steering wheel shaft lubrication and wheel security.*
____Check cable tension.*

THRU HULL AND SEACOCKS

____Check seacock integrity.
____Check seacock attachment to hull.
____Check for free operation and lubrication.
____Check hose, integrity, attachment and clamps.

ELECTRICAL

____Check battery charge, terminal connections, and electrolite level.
____Check breaker panel and switch condition.

____Check running light operation.
____Check ground wire attachment to keel, mast step, thru hulls, and engine.

MECHANICAL SYSTEMS

____Check stove fuel system, hoses, clamps and shut offs.
____Check heating stove + clearances and exhaust pipes.

* Pedestal Steered boats Only

ENGINE AND DRIVE TRAIN SYSTEM

____Check engine fluid levels and systems for leaks - shut off controls.
____Check throttle action - start and stop controls, cable clamps, and locknut.
____Check shifter cable clamps and locknuts.
____Check exhaust system soundness, hose clamps, and waterlock cannister.
____Check coolant system, hose clamps, intake, and filters.
____Check transmission shift lever action, control wirage, fluid level, and alignment.
____Check trueness of shaft, coupling, and prop attachment.
____Check shaft log tube integrity, packing, hoses, and clamps.
____Check strut bolt attachment, cutlass bearing, and shaft bolts.
____Check all engine wire connections.

KEELS

____Check keel bolt nuts for tightness*(on cradle to 90 foot pounds).

PLUMBING

____Check bilge pump function, hose clamps, and strainer.

REPAIRS

All necessary repairs should be completed before continuing to use the boat.

*Do not arbitrarily tighten keel bolts. Adjustment may break bedding compound bond and cause leakage.

RECOMMENDED TOOLS FOR ONBOARD MAINTENANCE

1. Screw Drivers
   a) Straight - stubby - offset - jewelers set
   b) Philips - stubby - offset - jewelers set
2. Wrecking Hammers
3. Ball Peen Hammer
4. Crow Bar
5. Set Adjustable Wrenches
6. Small Sledge Hammer
7. Rubber Mallet
8. Set Wood Chisels
9. Set open/box standard & metric to 1" and 19 mm
10. Socket set standard & metric to 1" and 19 mm
11. Pipe wrench - small & large
12. Channel locks: 12" and largest available
13. Pliers
14. Needlenose--small & large
15. Wire strippers/crimps
16. Drift punch set
17. Small level/combination T-square
18. Hand Plane
19. Hack Saw
20. Back Saw
21. Vise grips - large/small
22. Caulking Gun
23. Utility Knife
24. Plumbers Snake 25'
25. Set Files
26. Electric drill
27. Multi-meter
28. Spare parts kits - engine, winches, steering, etc.

COMMISSIONING

On Arrival

The boat should be inspected while still on the trailer. Make sure all items listed on the bill of lading are on the trailer undamaged. Any damage or loss should be recorded on the Bill of Lading in the presence of the truck driver and prior to signing the document.

Before Launching

Read owner's manual to familiarize yourself with your boat.
Check through inventory sheet and commissioning checklist.

Check that the engine and head(s) have been de-winterized, and that all drain plugs are in place. Check all hose clamps and tighten as necessary. The engine fresh water cooling system is filled with permanent anti-freeze solution at the factory. Check for evaporation and add more anti-freeze solution if required.

Mark propellor shaft with fixed prop vertical and folding prop with blades opening horizontally. For best sailing speed, set shaft to this position while sailing. Never leave engine out of gear and allow the shaft to rotate while sailing. Transmission should be set in reverse while sailing with engine off.

After Launching

Refer to commissioning checklist. Please note that all boats are shipped with shaft couplings disconnected. Engine alignment and shaft coupling hook-up must be performed prior to operating the vessel.

If water does not come out the exhaust thru hull on the transom when the engine is initially started, check that the engine water intake seacock is open and not blocked. Then check the water pump impellor. (Consult the Engine Owner's Manual)

Halyards - (Refer to appropriate block; running rigging lists)

The main, spinnaker and jib halyards run inside the mast on the cat sloop. Staysail halyards are external on the cat ketch and schooner rigs. Ribbon tape messengers have been installed to facilitate pulling the halyards through.

Flag halyards are provided for each spar. These run through small mast head padeyes.

Pre-Rig Masts

All halyards, running backstays, and lazy jacks should be rigged before hoisting the spars. All shackle pins should be tightened with pliers, wired shut, and taped for extra security. A sail luff slide should be slid up and down the luff track and lubricated with a silicone based lubricant to insure that it is free of dents, burrs and dirt.

Prior to hoisting a spar, slide the aluminum mast collar up the mast and tie it under the gooseneck. It is important that the collar is placed on the mast right side up prior to stepping. Assure that the mast collar does not bang against the mast causing damage.

All wiring for masthead wind indicators, antennas, and lights should be installed prior to hoisting the spars. If antennas and wind instrument sending units are installed prior to stepping the mast great caution should be taken to avoid damaging them while hoisting mast.

Hoisting Spar

Because Freedom spars lack hardware to which to attach a lifting line, hoisting the spar must be done by a skilled rigger. One procedure is to pass a lifting line twice loosely around the spar, to which a crane hook may be attached. Tie the free end of the line with a bow line back around the standing part of the

Hoisting Spar Cont'd.

line. The standing end of the line can be led down the spar to a position just under the gooseneck, and secured with a series of half hitches. Care must be exercised in lifting the spar so that the half hitches remain tight and do not slip as they accept the weight of the spar. As with any crane load, personnel should not place themselves in a position which would result in injury if the load falls.

The overhead trim pieces around the mast opening in the deck should be removed at this time so that they are not damaged as the spar is lowered through the deck partners.

Completion of Spar Installation

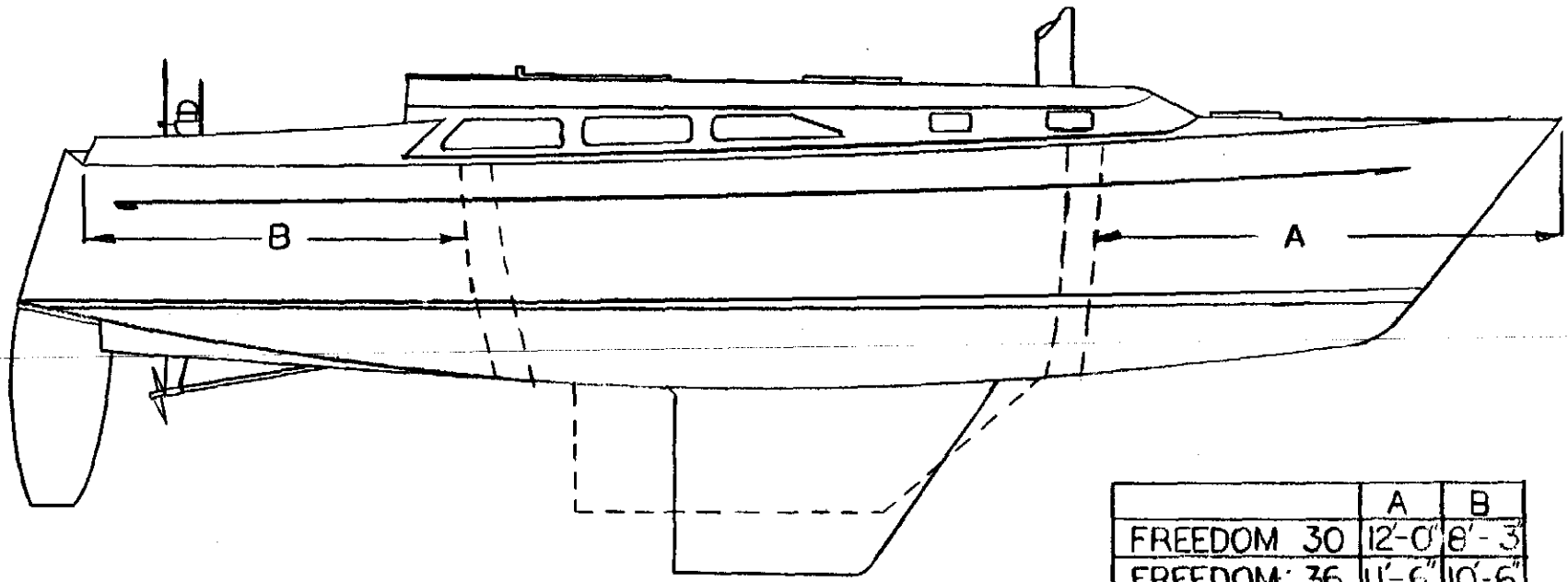
After the spar is stepped, rotate the spar to align the track fore and aft in the vessel.

The wedges must be driven so the top of the wedge is snug with the mast, and flush with, or slightly below, the deck boss level. Use extreme care in driving the wedges to avoid hitting the spar, which can be damaged by a careless hammer blow. Use a length of soft wood to direct blows to the wedge rather than attempting to hit it directly.

After the wedge is fully driven, caulk the seams between the deck and wedge, and wedge and spar. Bolt the deck collar down with caulking under the bottom flange and under each nut. Lightly sand the mast at the collar for better sealant adhesion and then add silicone. Do not use caulking with a high amount of adhesive quality (like 3M #5200), as the adhesive will make removal of the collar and wedge difficult. A tube of silicone sealant RTV is supplied for this purpose.

NOTE: DO NOT SUBSTITUTE mast wedges other than the polyurethane wedges shipped with the boat. The use of any other wedges will void all warranties of the spars. Replacements are available through TPI.

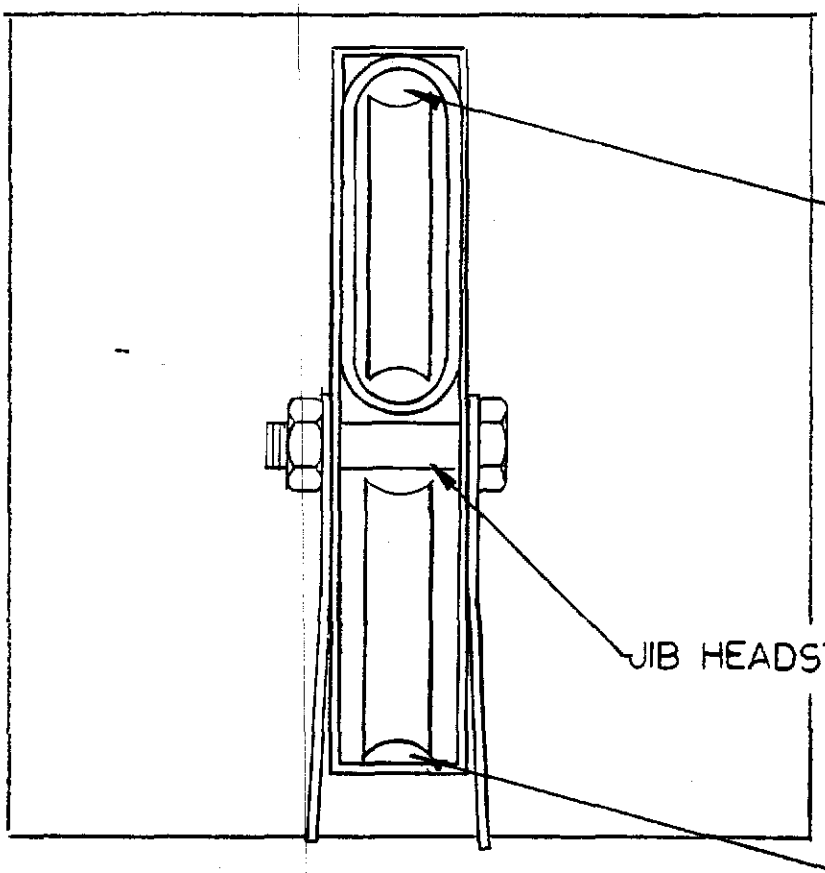
FREEDOM SLING
LIFTING LOCATION

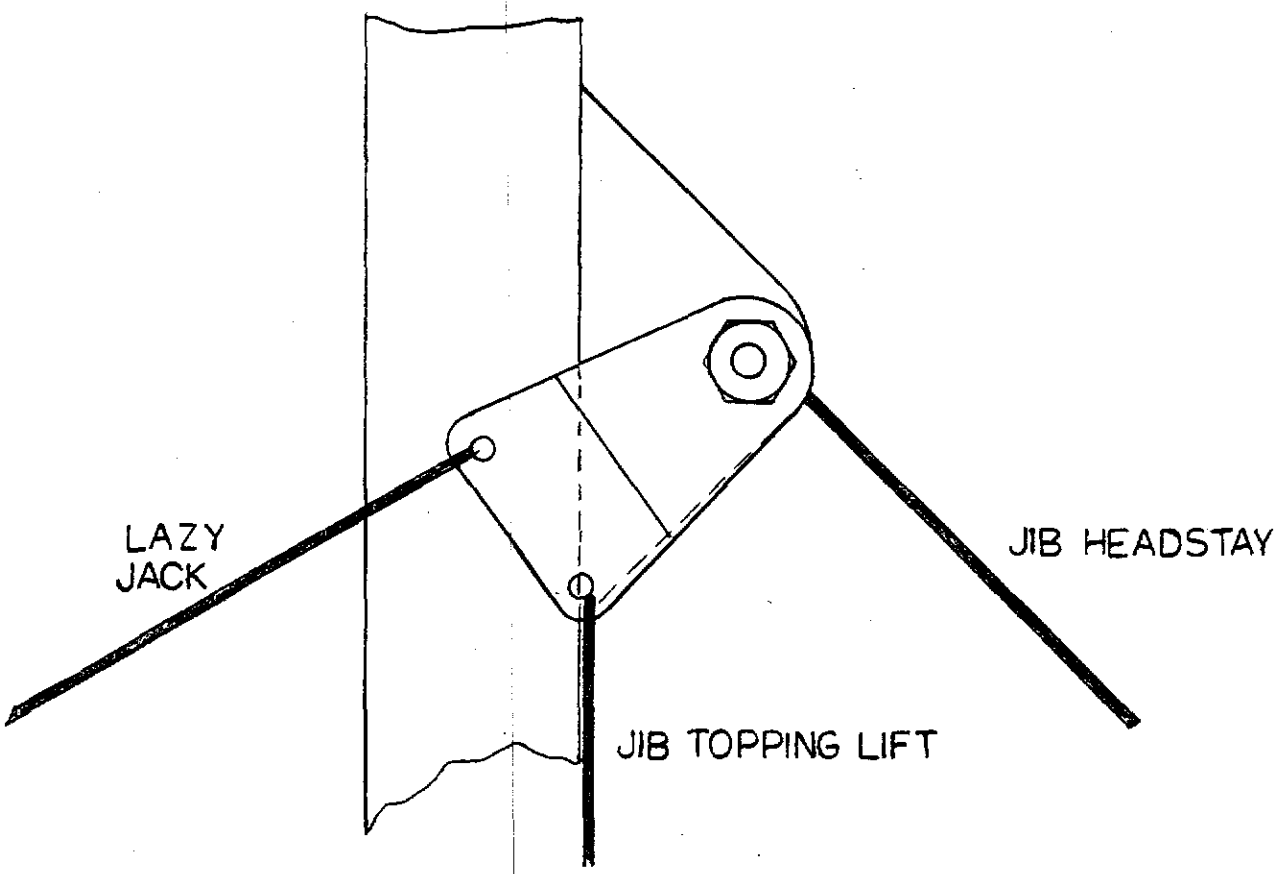


	A	B
FREEDOM 30	12'-0"	8'-3"
FREEDOM 36	11'-6"	10'-6"

RJD 9 5 86

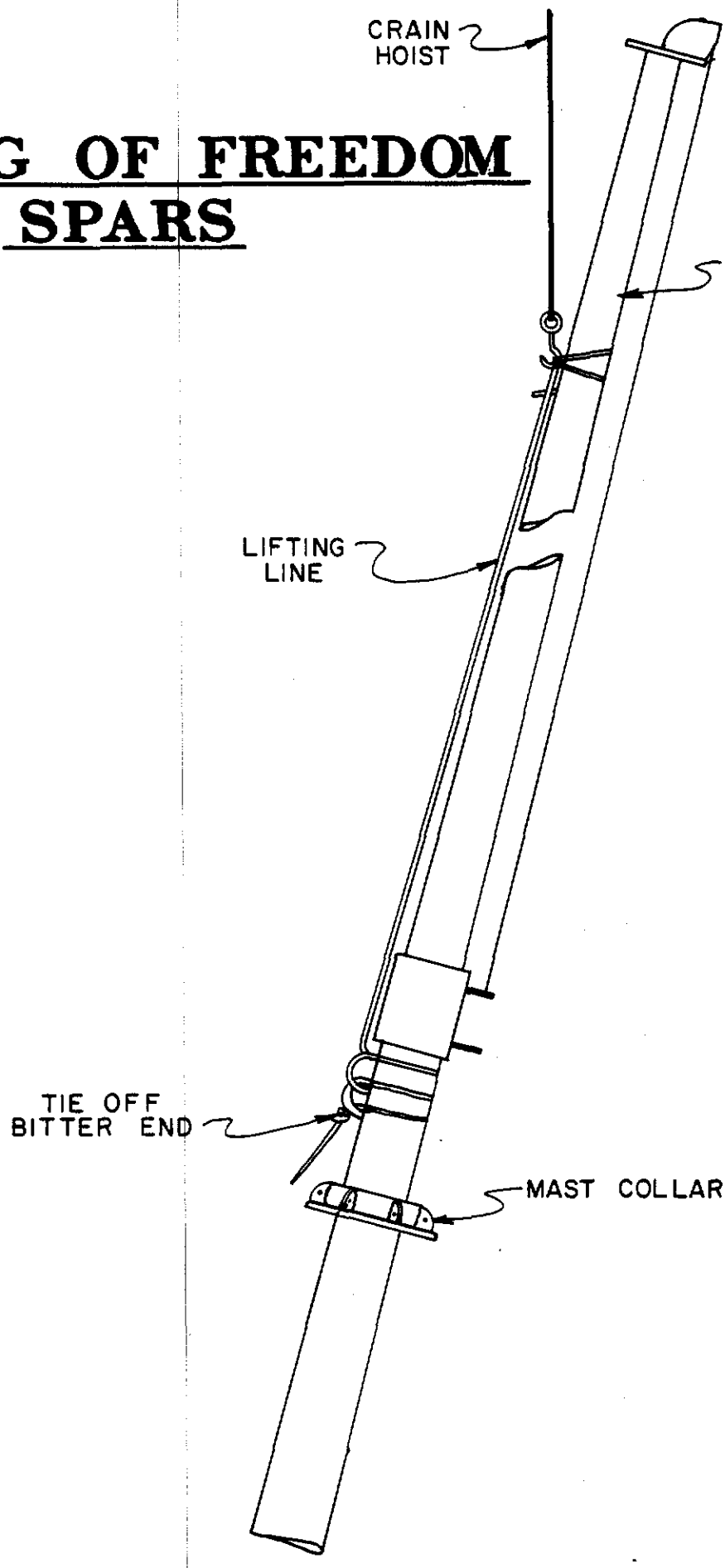
JIB AND SPINNAKER EXIT BOX





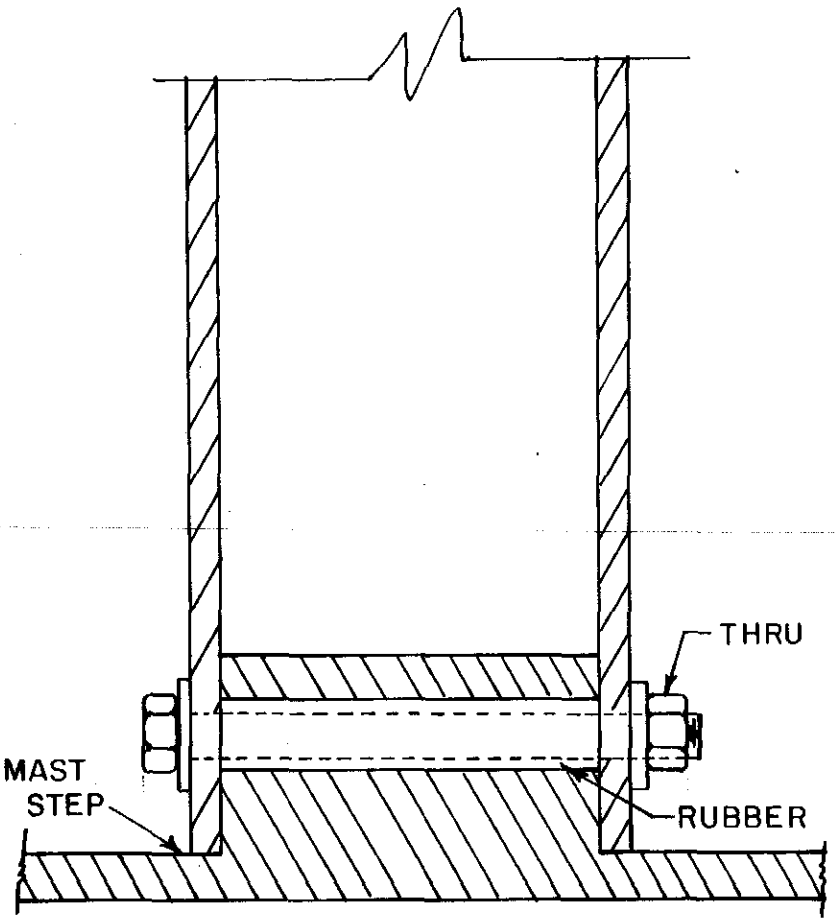
RJD

HOISTING OF FREEDOM SPARS

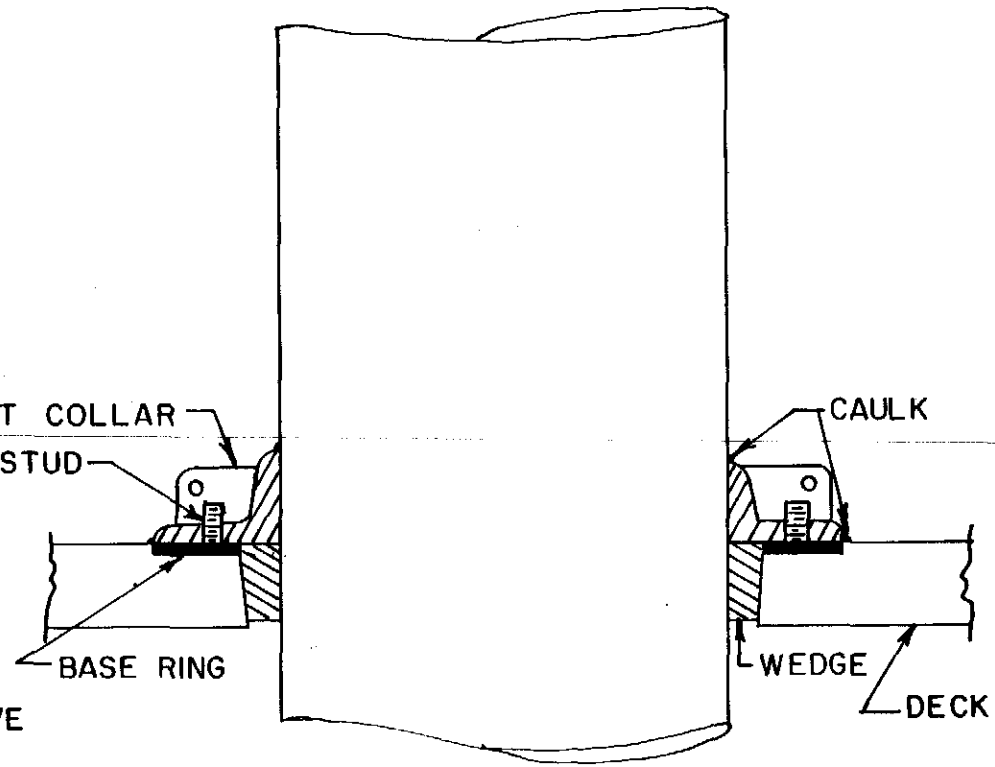


FREEDOM MAST INSTALLATION

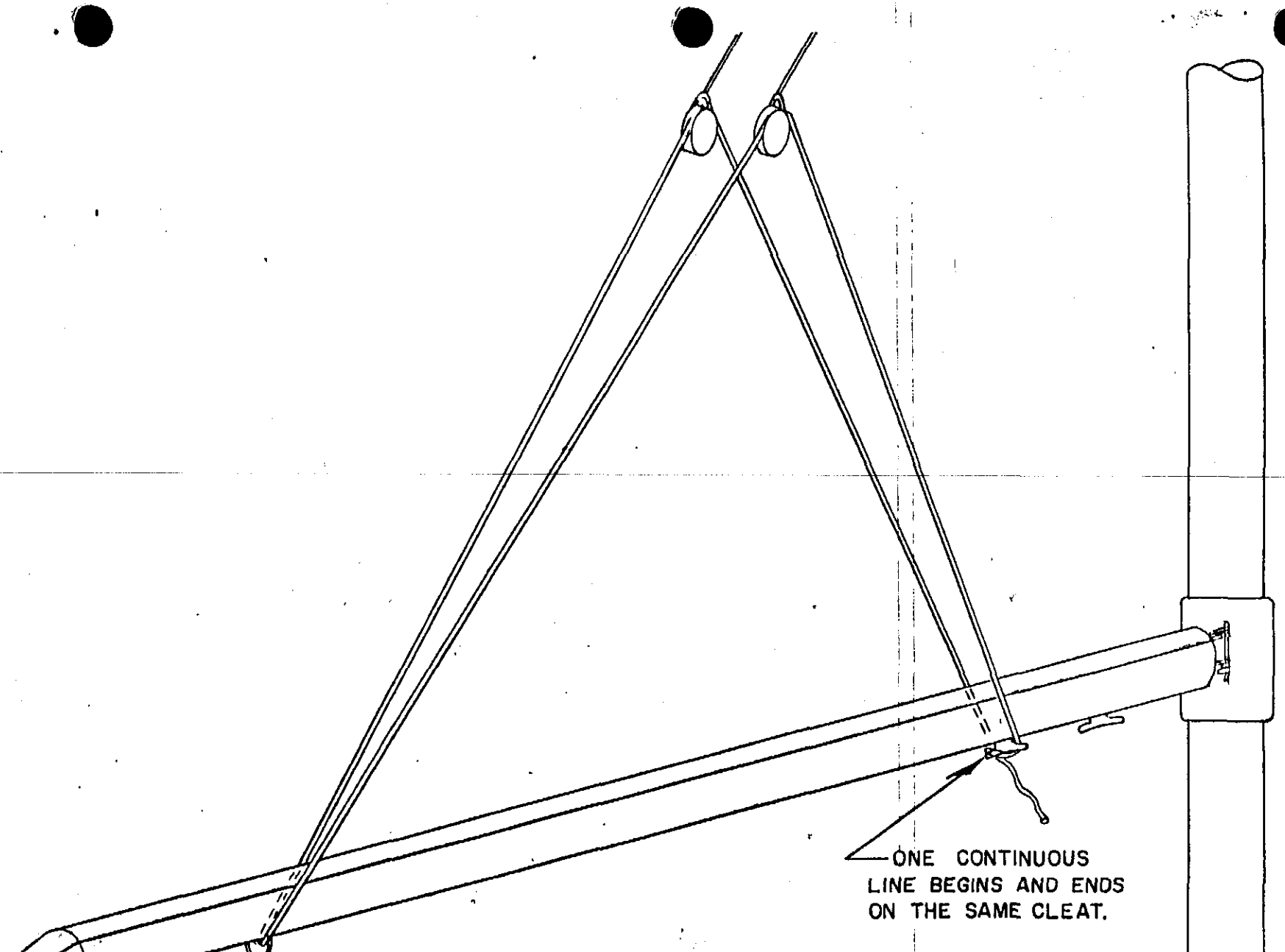
4.1-5



MAST STEP



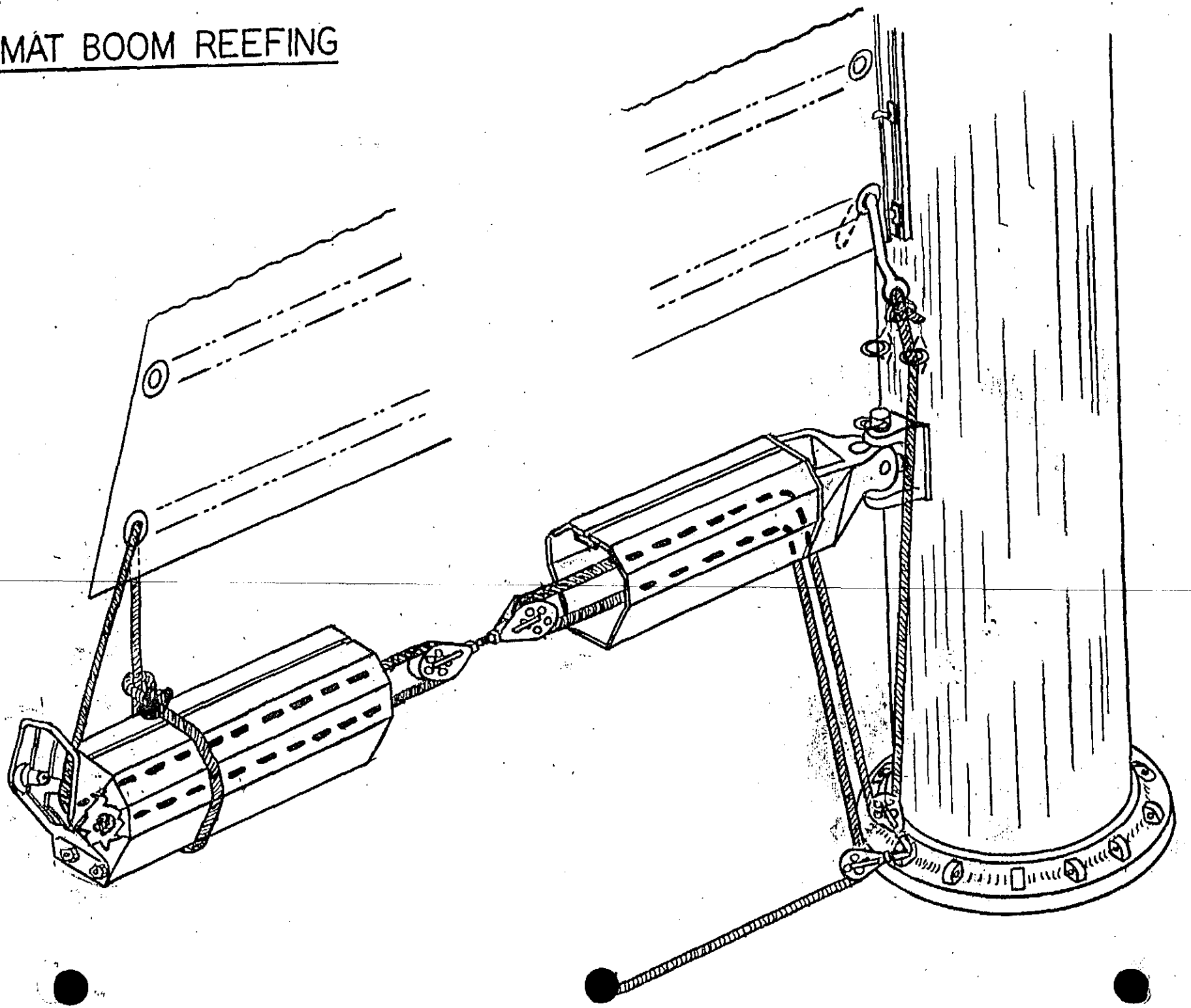
MAST COLLAR

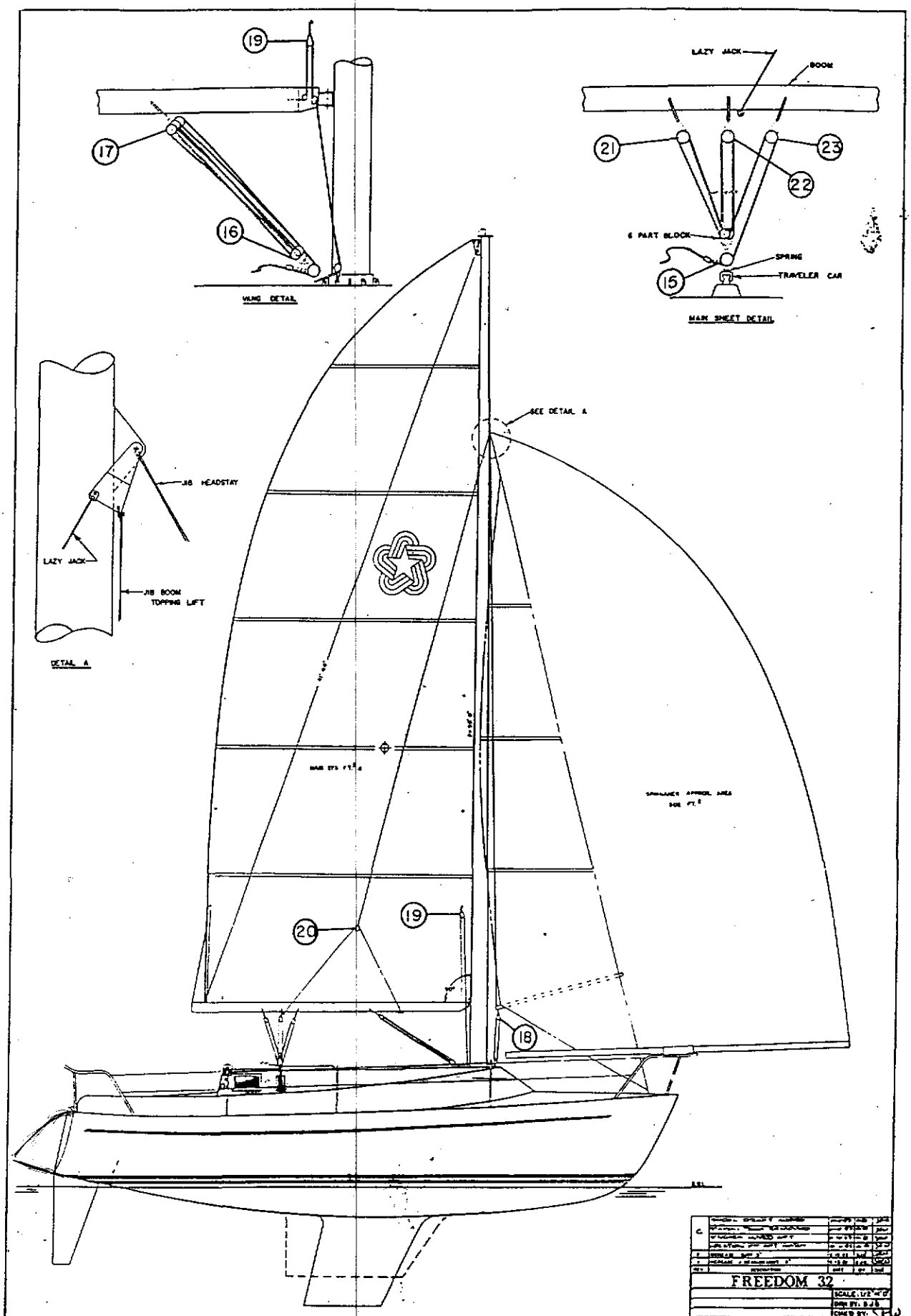


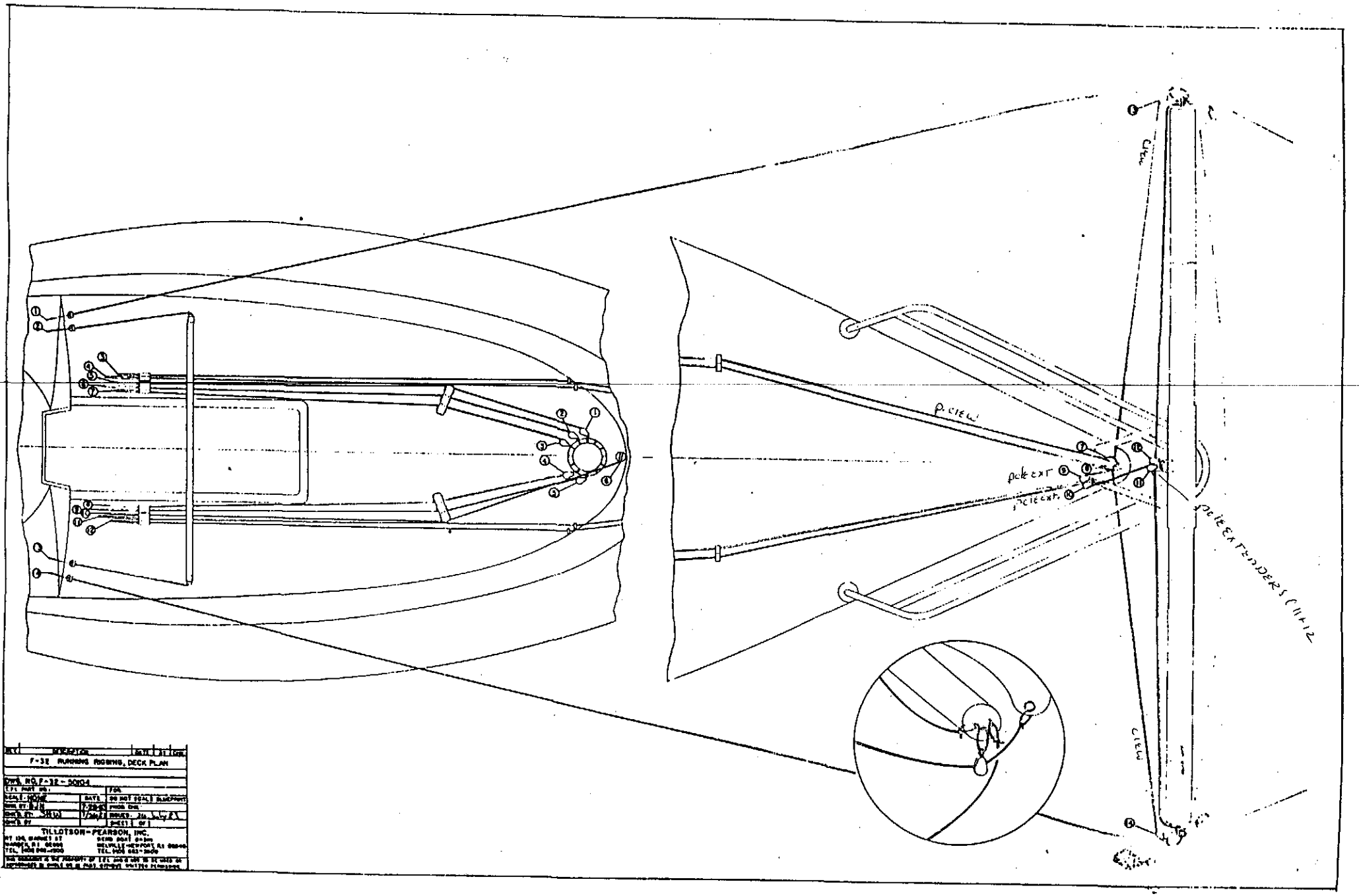
FREEDOM LAZY JACK DETAIL

F-32

ISOMAT BOOM REEFING




19
17
16
WING DETAIL
LAZY JACK
BOOM
21
23
22
6 PART BLOCK
SPRING
15
TRAVELER CAR
MAIN SHEET DETAIL
JIB HEADSTAY
LAZY JACK
JIB BOOM TOPPING LIFT
DETAIL A
SEE DETAIL A
20
19
18
FREEDOM 32
SCALE: 1/2"=1'-0"
DWG NO F-32-MA-101
TILLOTSON-PEARSON, INC.
WARREN, RHODE ISLAND
USA 02885



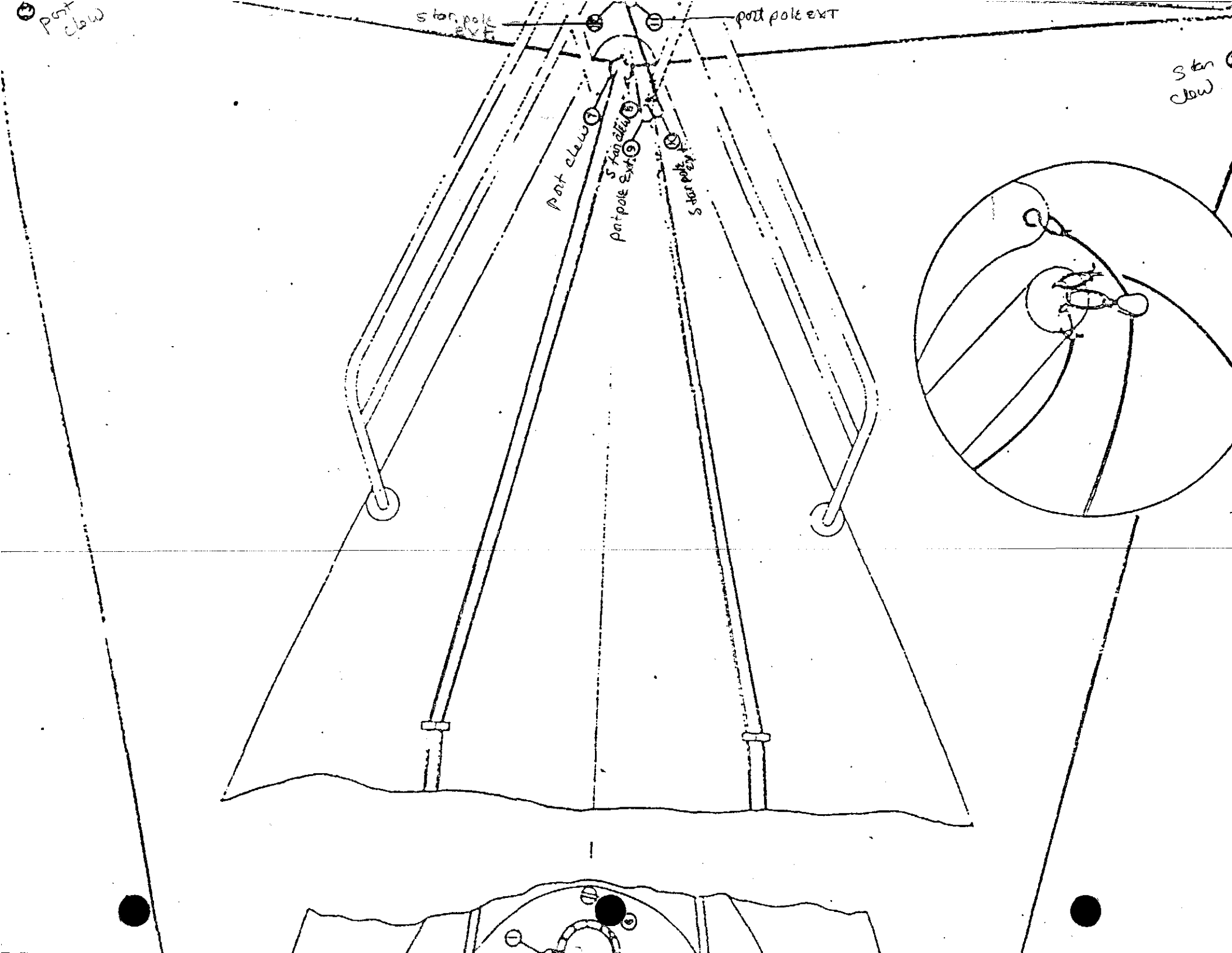
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	F-32 RUNNING RIGGING, DECK PLAN			

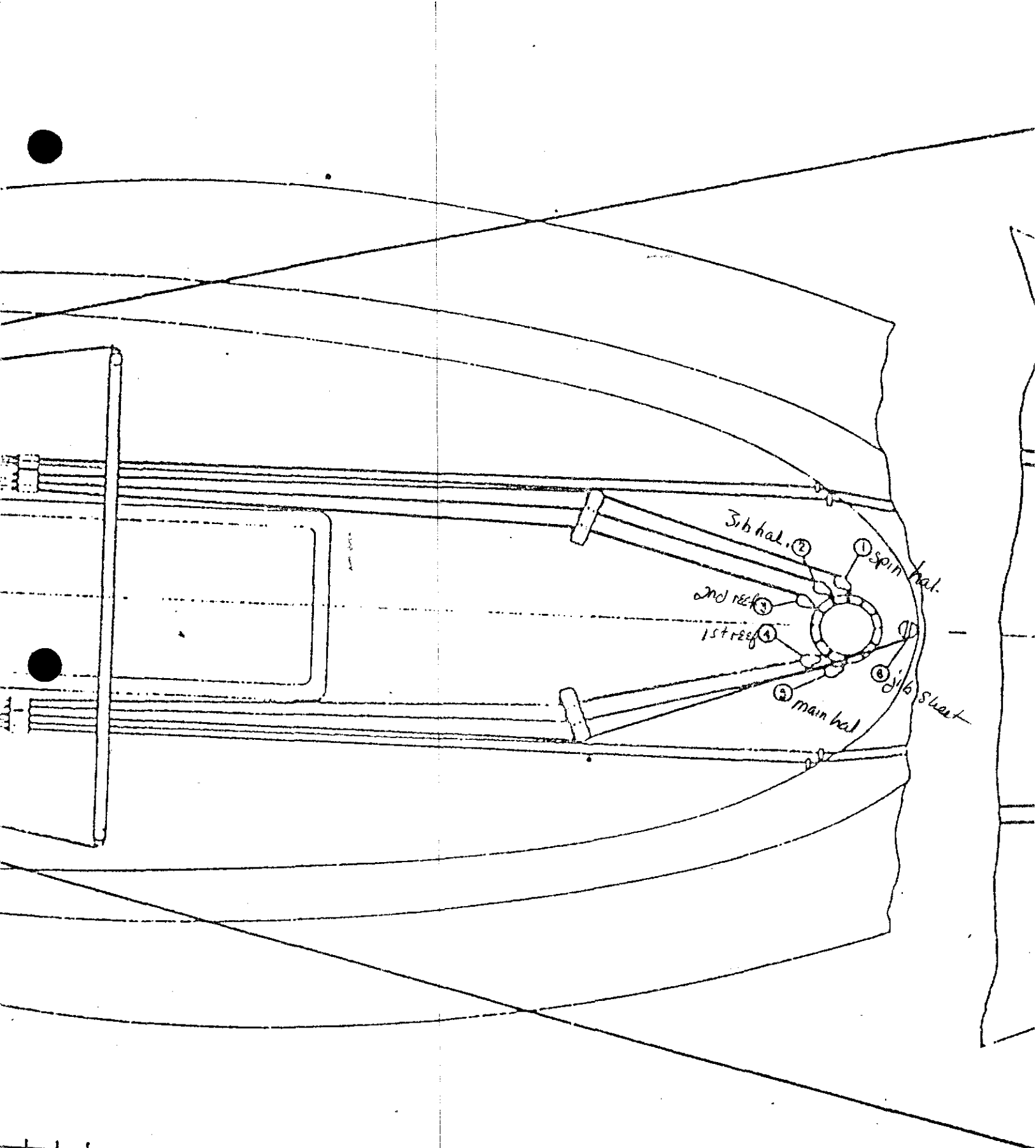
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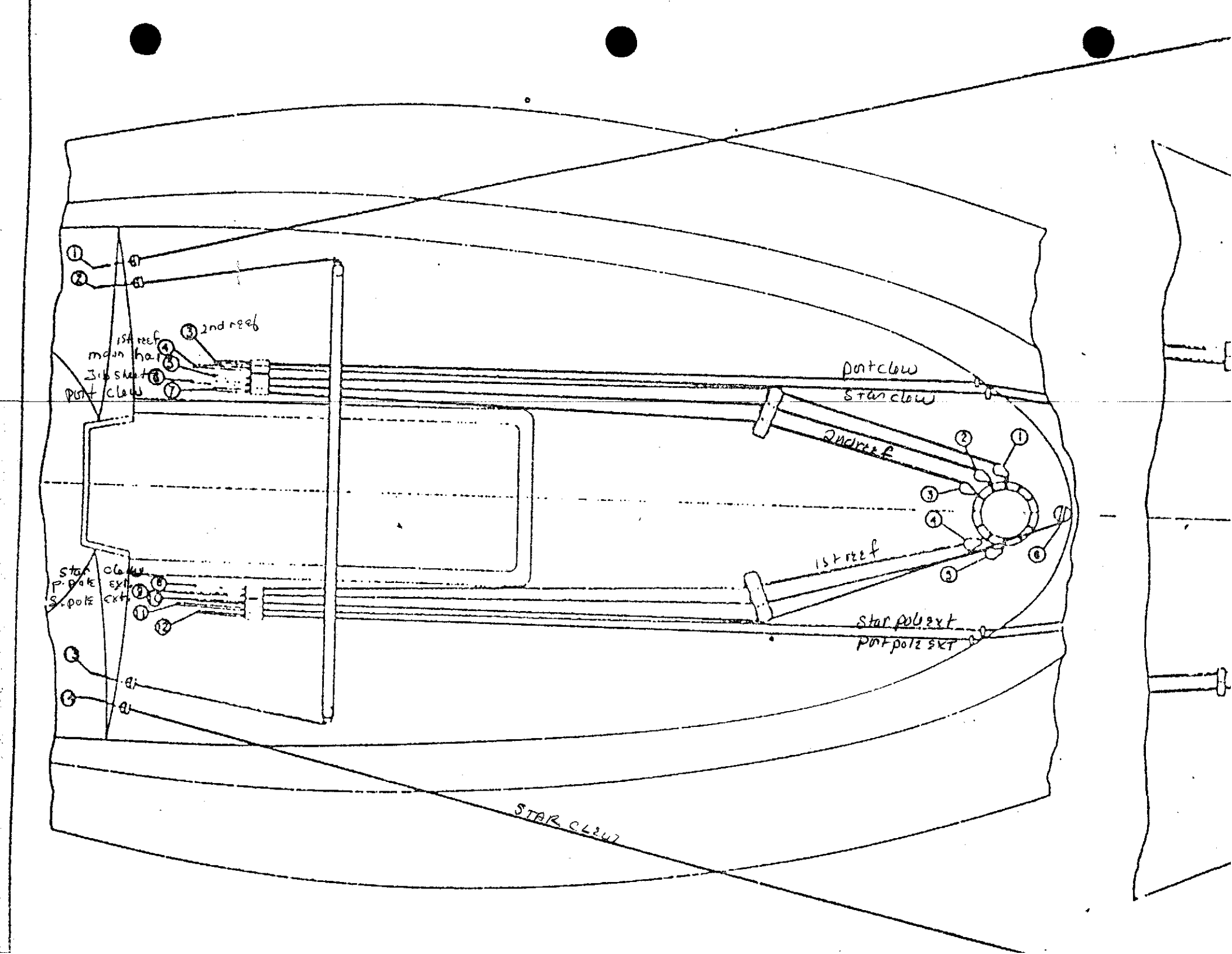
P.N. PART NO.		FOR
SCALE: NONE	DATE:	DO NOT SCALE BLUEPRINT
DRN BY: R.H.	7-28-82	PRODUCTION
CHK'D BY:	7/28/82	ISSUED: JIB, SPIN & A
CHK'D BY		SHEET 1 OF 1

TILLOTSON-PEARSON, INC.
BEING boat power
NEWPORT, RI 02840
TEL. (401) 683-3600

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port claw
starboard pole EXT
port pole EXT
port claw
starboard pole EXT
port pole EXT
starboard pole EXT
starboard claw


3/h hal.
2
1 spin hal.
2nd reef
3
1st reef
4
6 j/b sheet
5 main hal


1st reef
main hal
Jib sheet
port clew
2nd reef
port clew
stan clew
2nd reef
1st reef
star clew
P. pole ext
S. pole ext
star pole ext
port pole ext
STAR CLEW

RUNNING RIGGING

NO.	DESCRIPTION	TPI NO.	APPROX LENGTH	USE	COLOR
1.	Dacron braid 3/8"	25463	40'	port reins	red
2.	Dacron braid 3/8"	25456	25'	port traveler	blue
3.	Dacron braid 3/8"	25464	65'	port clew	green
4.	Dacron braid 3/8"	25464	65'	strbd clew	green
5.	Dacron braid 7/16" w/20' white tail	25450	110'	spin halyard	red
6.	Kevlar 7/16"	25449	85' -87	jib halyard	blue
7.	Dacron braid 3/8"	25460	75'	2nd reef or cnhm	red
8.	Dacron braid 3/8"	25459	55'	1st reef or cnhm	green
9.	Kevlar/dacron 7/16"	25448	100' -103	main halyard	blue
10.	Dacron 3/8"	25452	40'	jib sheet	white
11.	Dacron braid 3/8"	25462	50'	port pole control	blue
12.	Dacron braid 3/8"	25462	50'	stbd pole control	blue
13.	Dacron braid 3/8"	25456	25'	strbd traveler	blue
14.	Dacron braid 3/8"	25463	40'	strbd reins	red
	Dacron Braid 7/16		25'	VANG	

BLOCKS

NO.	DESCRIPTION	USE	TPI NO.
1.	Block, swivel, 2.25" dia, 2240-030, Mer	spinnaker halyard	10031
2.	Block, swivel, 2.25" dia, 2240-030, Mer	jib halyard	10031
3.	Block, swivel, 2.25" dia, 2240-030, Mer	2nd reef	10031
4.	Block, swivel, 2.25" dia, 2240-030, Mer	1st reef	10031
5.	Block, swivel, 2.25" dia, 2240-030, Mer	main halyard	10031
6.	Block, upright, w/b #07-64 Sch	jib sheet	10353
7.	Block, swivel, 2.25", 001 Harken	port clew	25001
8.	Block, swivel, 2.25", 001 Harken	strbd clew	25001
9.	Block, swivel, 2.25", 001 Harken	port pole extender	25001
10.	Block, swivel, 2.25", 001 Harken	strbd pole extender	25001
11.	Block, swivel, 2.25", 001 Harken	port pole extender	25001
12.	Block, swivel, 2.25", 001 Harken	strbd pole extender	25001
13.	Block, swivel, 2.25", 001 Harken	port clew	25001
14.	Block, swivel, 2.25" 001 Harken	strbd clew	25001
15.	Block, 6 part, ratchet w/cam, 079 Harken	main sheet	25075
16.	Block, 6 part, ratchet w/cam, 079 Harken	vang (deck)	25075
17.	Block, triple, fixed, 2.25", 048 Harken	vang (boom)	25076
18.	Block, swivel, 2.25", 001 Harken	jib boom	25001
19.	Block, 2" dia, w/hook	reef or cunningham	25319
20.	Block, swivel, 1 3/4", 023 Harken	lazy jack	10288
21.	Block, swivel, 2.25", 001 Harken	main sheet (boom)	25001
22.	Block, swivel, 2.25", 001 Harken	main sheet (boom)	25001
23.	Block, swivel, 2.25", 001 Harken	main sheet (boom)	25001

27 September 1983

Freedom 32

Sail Plan Specifications

A) Main Sail

1) Area of Triangle = 273 sq. ft.
2) Recommended Total Area = 400 sq. ft.
3) P = 39.0 ft.
4) E = 14.0 ft.
5) Luff Slides for #8 Metal Mast Track
6) Foot Slugs ½" Rd. or Bolt Rope
7) Tack cut backs, cut ups, & reef cut backs per Dwg. #F-39-50300
8) There is no outhaul car. Sail should have heavy duty clew slug slide.

B) Spinnaker

1) Recommended Area 502 sq. ft.
2) Vertical Height of Hoist above pole 31' 9"
3) Pole Length 18' 0"
4) Pole Pivots parallel to sheerline 10' 0" forward of mast face.

C) Self Tacking Jib

1) For information contact: David Bierig
Bierig Sailmakers
11092 Freeport Lane
NorthEast, PA 16428
(814) 459-8001

NOTE: All sails to be fully battened with two reef points.

SPINNAKER PACKAGE COMMISSIONING INSTRUCTIONS

A. Spinnaker halyard

1. Exits mast to port, runs down through 1 3/4" swivel block to port at base of mast, and then aft on port side through the 2nd from the inside bullseye and stopper

B. Spinnaker pole centering lines

1. Tie off end to the ring on outboard end of pole. The line then runs through a swivel bullet block which is shackled to the bail on the gun mount then down to another swivel bullet block on the bail at the fwd pulpit base. From here the line goes aft through the two outboard bullseyes and stoppers on the starboard side. Follow the same procedure for the other side.

C. Spinnaker clew lines

1. These lines are tied to the clews of the sail, running through a swivel bullet block shackled on the ring at the end of the pole. From here, they pass directly to another swivel bullet block shackled to the fwd pulpit base then aft to the outboard bullseyes and stoppers on the port side.

D. Spinnaker Reins

1. This line is tied to the eye on the end of the pole then runs directly to the outboard cam cleat on the coach roof. Being an endless line, it then runs around to the outboard cam cleat and passes forward where it is tied to the other end of the pole.

SETTING UP THE HOYT GUN MOUNT

Either end of the yard is inserted into the swivelling sleeve - the other end rests along the life lines. Attach the continuous spinnaker sheet (referred to hereafter as "reins" to the port and starboard ends of the yard. Then lead the spinnaker clew lines through the blocks on the Gun Mount and out through the blocks on the ends of the yard - to the clews of the spinnaker. The spinnaker is then loaded into the launcher by pulling on the retriever line which is led through the after end of the launching tube out through the mouth of the launcher. Note that the retriever line is continuous with the spinnaker halyard.

HOISTING THE SPINNAKER

Set up the running backstay on the appropriate side. The backstay is needed to resist the tip loading of the spinnaker, so the backstay should be set up with enough tension to keep the mast straight. Extend the spinnaker yard to the exact midway point. (If the yard is not set exactly in the middle, the forces are not balanced, and handling problems ensue. You should mark the lines to precisely locate the yard in the middle). Then pull out on the spinnaker outhauls, snugging each clew down to the respective ends of the yard. At this point the foot of the spinnaker is stretched out. With the reins, pull the yard around so the windward end points roughly into the wind. Hoist the chute all the way up to the top. Secure the halyard - then swing the yard around square to the wind, fill the chute, and take off.

JIBING THE SPINNAKER

All you do is sail the chute around - keeping it square to the wind as the boat swings through the jibe. The chute should stay full throughout the jibe - speed gives you stability and lessens the force of the jibe. If it is blowing hard, the yard should simply be squared at right angles to the center line. As soon as the boom comes over, the helmsman should steer back downwind to keep the boat level.

JIBING THE MAINSAIL

During the jibe, the backstay must be released on one side and set up on the other. This takes a bit of co-ordination. If there are two people on board - put the crew person in charge of releasing the old backstay and pulling on the new running backstay. Then the helmsman is in charge of jibing the main. If the chute is squared, it can be left unattended during the jibe, presuming that the helmsman makes the downwind correction right after the main boom jibes.

LOWERING THE SPINNAKER

Head downwind rather than reaching. Ease off on the spinnaker halyard while simultaneously hauling in on the retriever line. Wehn 2/3 of the chute has been pulled into the launching tube -

release the spinnaker outhaul lines. Do not release the outhaul lines until the chute is well down. As long as you keep the foot of the spinnaker stretched tight, you have control. Release the clew ends prematurely, and you have trouble. When all corners of the chute are back in the launching tube, retract the yard to its stowage position. Note that the retriever line should run on the outside of the chute, not the inside, as shown in the illustration for reasons of visual clarity.

SPINNAKER HANDLING HINTS

When the boat starts to heel excessively under the chute, the windward rein must be pulled aft, while the helmsman bears away slightly. Simply easing the leeward rein (as with the conventional spinnaker sheet) will not help much. It is best for one man to handle both reins just like the reins of a horse. Should the boat broach under spinnaker, the press of the spinnaker must be relieved by pulling hard to bring the windward end of the yard aft. Or, alternatively, the spinnaker halyard can be released.

CRUISING DOWNWIND

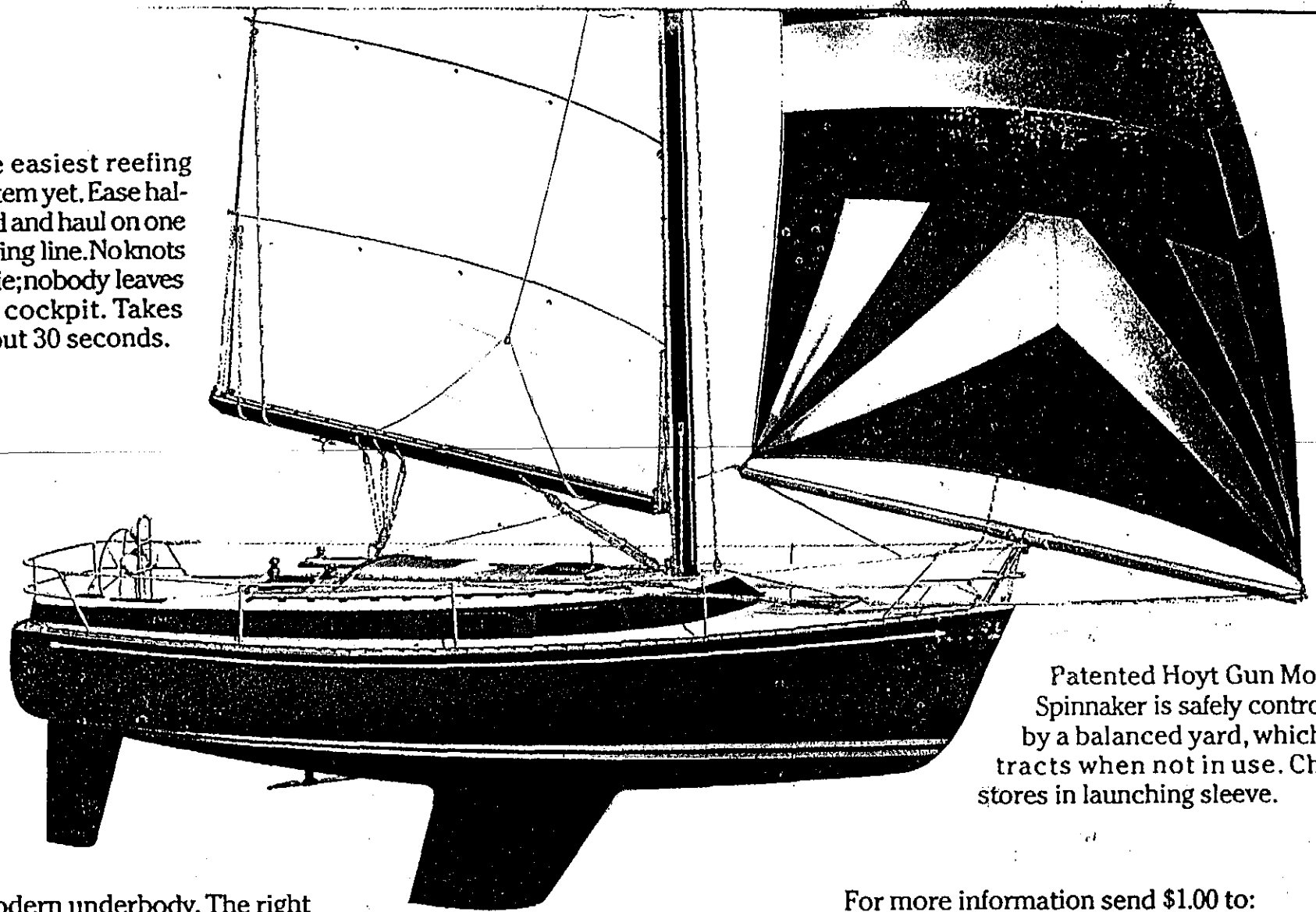
You can't beat the Gun Mount spinnaker for ultimate ease, since it is a perfectly balanced sail right in the front of the boat. It acts just like an old square rigger and there are no steering problems. Cruising in winds over 20 mph, one would not normally consider setting the spinnaker. But in the Freedom 25, you would be better off to drop the mainsail and run on just the chute alone - under complete control. To do this, first center the mast directly amidships with the mast control lines, (sail slot facing aft) and both backstays set up firmly. The rig is now completely in its strongest configuration. Pop the chute, grab the reins, and you're off and running.

MAST TRIM

As previously mentioned, the mast is designed to try to over-rotate, and is restrained by the mast tiller. To get the correct angle, step forward of the mast and sight along the leeward side. When the mast blends smoothly into the curve of the sail, you have the correct relationship. Set the mast tiller to that angle via the short rope to the jam cleat on the underside of the boom.

Mast control lines are also provided. These lines are used to position and hold the mast on the center line when at anchor or on the dock. If you leave the mast at an angle, it will try to sail. The mast control lines can also be used to pull the mast around in light winds - and to slightly change the mast angle when racing.

The easiest reefing system yet. Ease halyard and haul on one reefing line. No knots to tie; nobody leaves the cockpit. Takes about 30 seconds.



Patented Hoyt Gun Mount. Spinnaker is safely controlled by a balanced yard, which retracts when not in use. Chute stores in launching sleeve.

Modern underbody. The right balance of fin keel and spade rudder reduces drag and improves steering characteristics.

For more information send $1.00 to:
FREEDOM YACHTS INTERNATIONAL INC.,
49 America's Cup Avenue
Newport, Rhode Island 02840 (401) 847-7475.

STAYSAIL USE

In winds of 5-10 mph you may find the Freedom 25 to be underpowered, particularly to windward. To compensate, it is useful to consider adding a triangular staysail. Tack the staysail to the eye on the foredeck. Connect the two jibsheets to the clew and lead them through blocks, which are fastened on the stanchions. These jibsheets are then lead back to the cockpit. The spinnaker halyard is used to hoist the staysail.

Note that this staysail is purely and exclusively a lightwind sail. The minute the wind goes over 11 mph, the staysail starts to become inefficient. At that point, lower the staysail, and proceed with just the wingmast and full sail. Reduce sail subsequently by reefing the mainsail.

This free standing wingmast is not designed to take the kind of heavy compression loads that would result if one attempted to heavily tension the staysail via the halyard. Anyone fooling around with winching up heavy halyard loads on the staysail does so at his own risk.

Garry Hoyt

COMMISSIONING CHECKLIST

PRELIMINARY

___ Read owner's manuals

___ Check propeller, nut, cotter pin and zinc.

___ Install transducers

___ Close seacocks

___ Check all hose clamps and tighten as required

___ Touch up bottom paint

___ Install wheel

___ Dewinterize engine and heads, if so supplied

___ Check engine oil, transmission and coolant levels

___ Check battery charge with battery test switch on electrical panel

___ Remove mast hole covers

___ Pre-rig masts - run halyards; install headstay, lazy jacks, topping lift and mast collar

___ Cover the cushions or remove them from boat in order to protect them during commissioning.

___ Mark prop shaft

LOOSE GEAR

___ Fenders w/lines ready

___ Dock lines ready

___ Winch handles

___ Ignition keys

___ Bilge pump handle

___ Install portlight screens

___ Sink strainers

___ Mast wedges ready on mast

___ Mast retaining bolt ready

___ Stow remaining loose gear

COMMISSIONING CHECKLIST

LAUNCH

___ Check for leaks
___ Check operation of seacocks
___ Check stuffing box

ENGINE START

___ Read engine owner's manual
___ After launching, check alignment and hook up couplings
___ Start engine
___ Check exhaust for cooling water flow
___ Check oil pressure, water temperature, charging guages - stop engine immediately if not in proper ranges per engine manual.
___ Check transmission operation
___ Check stuffing box

STEP MASTS

___ Pre rig masts w/halyards, lazy jacks, collar, alignment bolt, etc.
___ Install electronics wiring in masts
___ Remove headliner trim pieces around mast opening in deck.
___ Hoist spar and lower carefully into boat
___ Install wedges while aligning masts
___ Install deck collars - place on mast prior to stepping mast
___ Install overhead trim
___ Make electronical connections at mast base

RIGGING

___ Install boom and attach lazy jacks
___ Lead all sheets and halyards to stoppers on deck house
___ Rig reefs and vangs
___ Bend on sails
___ Install battens

COMMISSIONING CHECKLIST

SYSTEMS CHECK

___ Fill water tanks- flush tanks twice to eliminate non-toxic anti-freeze

___ Check water pressure system. Bleed air from hot & cold water lines to insure that the hot water tank is full (if so equip.)

___ Fill and check L.P. Have LP tank filled and then check system per p 9.1.

___ Fill fuel tanks

* ___ Run engine under load

___ Check operation of electrical systems and pumps

___ Check electronics (opt)

___ Check refrigeration (opt)

TRIAL SAIL

___ Raise and Lower sails

___ Monitor engine performance

___ Check bilge for leaks

___ Check electronics (opt)

___ Check autopilot (opt)

___ Check reef points and lines for proper installation

CLEAN UP

___ Vacuum interior including all lockers

___ Clean bilge

___ Oil sole (if not varnished)

___ Washdown Deck

___ Install sail covers

* Tie boat securely to dock and run in gear forward and reverse for 1 hour each. Check temp, volt, pressure and vibration.

STEERING SYSTEM

Your vessel is equipped with an Edson pedestal steering system. Information on maintenance of this system is included on the next two pages. Following is a list of Freedoms indicating which Edson system each model has installed. This will make the Edson Pedestal Maintenace Guide more useful.

Freedom 44	-	Standard System
Freedom 39 Pilot	-	Pull-Pull System
Freedom 39 Express	-	Pull-Pull System
Freedom 36	-	Radial Drive System
Freedom 32	-	Radial Drive System
Freedom 30	-	Radial Drive System

Additionally, an emergency tiller is provided. This is generally stowed in either cockpit locker.

The emergency steering system may not allow as much rudder angle as the pedestal steering system, and the force on the tiller can be considerable, as the mechanical advantage in the pedestal system is not used. Steering with the emergency tiller may be more convenient if the steering wheel is removed from its hub. This is readily done by unscrewing the nut which holds the wheel on the hub, and pulling the wheel off the hub. Each time the steering system is inspected, check that the wheel has not seized on the hub, and can still be readily removed. A light coating of grease on the hub is recommended to prevent seizing.

Be certain to try out the emergency steering system while you are becoming acquainted with your boat, and develop the procedures necessary to rig the system quickly in the event of failure of the pedestal system.

Edson

EDSON PEDESTAL MAINTENANCE GUIDE

This guide has been prepared to assist you in the proper maintenance of your Edson Steering System. To properly maintain the moving parts in the top of the pedestal, it is necessary to remove the compass and its cylinder. For proper alignmment when re-installing the compass, we recommend placing 3 or 4 lengths of tape on the pedestal and compass as shown below. Slit the tap when removing compass, align the strips of tape when re-installing the compass for visual compass re-alignment. Your compass MUST then be check for accuracy.

Lubrication of needle bearings should be done by squeezing Edson Fig. #827 Teflon Lubricant into the holes located on top of the bearing housings inside the pedestal bowl. Spin the wheel when squeezing the lubricant in to make sure the entire bearing is serviced. Winch grease or water pump grease can be used as an alternative, but don't let the bearings run dry. Do not over grease as it will run onto the brake pads. Oil the chain with #30 weight motor oil. Do not grease chain as it does not penetrate the links.

Inspect the condition of the wire, tension of the wire and lightly oil. Edson recommends placing about 5 layers of "Kleenex" on the palm of your hand, squirt oil on the tissues and lightly oil the wire. This will lubricate the strands but will also "flag" a broken or hooked strand by tearing off a small section of tissue. If you do have a wire break, replace the wire immediately. See Edson Fig. 775 wire and chain replacement kits. (Caution: Wire splinters can cause painful cuts.) Replace the wire after 5 years. If still good, keep the old wire on board as a spare. To check for proper wire tension, lock the wheel in position by using the pedestal brake, or by tying off the wheel. Cable tension is best when you cannot move the quadrant or drive wheel by hand with the wheel locked in place. Over tightening will greatly reduce the sensitivity of the system.

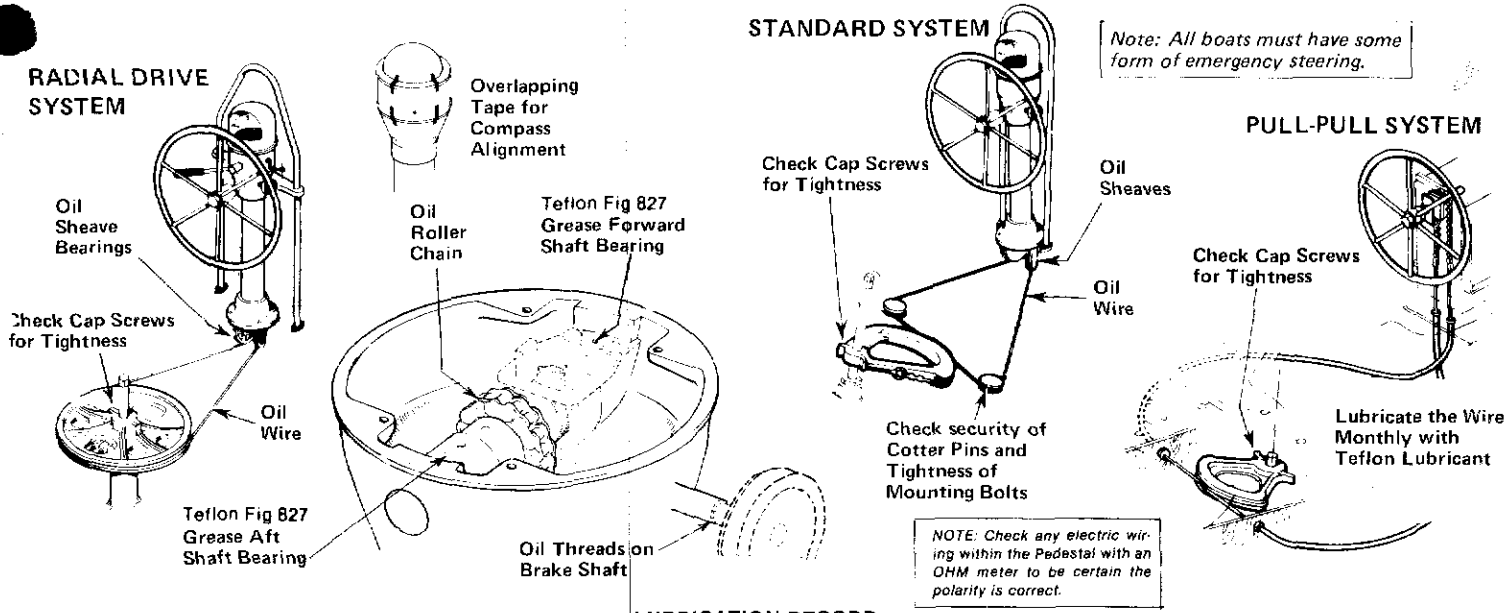
It must be emphasized that all on board must be familiar with the care and operation of the Steering System and engine controls. One person must be assigned the job of maintenance and must be thoroughly familiar with the operation and intent of all the equipment. If at any time your Steering System makes strange noises or reacts differently than it has previously, you must find the causes immediately and correct the problem.

Screws, nuts, bolts as well as clevis and cotter pins that are part of the steering system, engine controls, or pedestal accessories must be check regularly for tightness and wear. Failure to inspect all steering parts, engine controls and pedestal accessories may cause loss of control or failure of the engine or steering system. *All boats must have an emergency tiller or its equivalent and all on board must be familiar with its location and operation. An emergency tiller drill is just as important as a man-overboard drill and must be regularly conducted.*

On a new boat and at least once a year, inspect the system when under a strong load. On a calm day and under power, go away from the other boats and with the person who is assigned the maintenance watching from below, put the wheel hard over at full throttle. The maintenance man should watch carefully for all parts of the system bending, distorting, creaking, or giving any indication of failing if placed under a heavy load for a period of time. If for any reason, something did fail or needs adjusting the day is early and you will have plenty of time.

When leaving your boat at her mooring or slip, make sure that your wheel is properly tied off. DO NOT LEAVE THE STEERING SYSTEM TO FREE WHEEL.

The pedestal exterior should be cleaned with detergent and water, do not use acetone or/and any other strong solvents as they may damage the finish. Edson will be pleased to assist you. Call us or write us if we can help.



LUBRICATION RECORD

component	lubricant	schedule	first year 19__	second year 19__	third year 19__	fourth year 19__	fifth year 19__
sheave bearings	#30 oil*	check and oil monthly					
pull-pull cables	Teflon Fig 827	check and grease monthly					
wire rope	#30 oil*	check and oil annually					
roller chain	#30 oil*	check and oil annually					
pedestal shaft bearings	Teflon Fig 827	check and grease annually					

*Any light oil is suitable. We recommend #30 weight motor oil since most boat owners have it aboard

Caution: 1.) On extended voyages your steering system should be inspected each day and lubricated weekly. Carefully inspect your steering system at least one week before a vacation cruise to avoid last minute maintenance.
2.) When the boat is unattended secure the wheel with the brake or a line. In rough weather the rudder can swing violently from stop to stop causing damage.

For complete maintenance information please contact

Edson International

The Edson Corporation
460 Industrial Park Road
New Bedford, Mass. 02745

Telephone (617) 995-9711
Telex 95-1337

Edson

CUSTOMER SERVICE

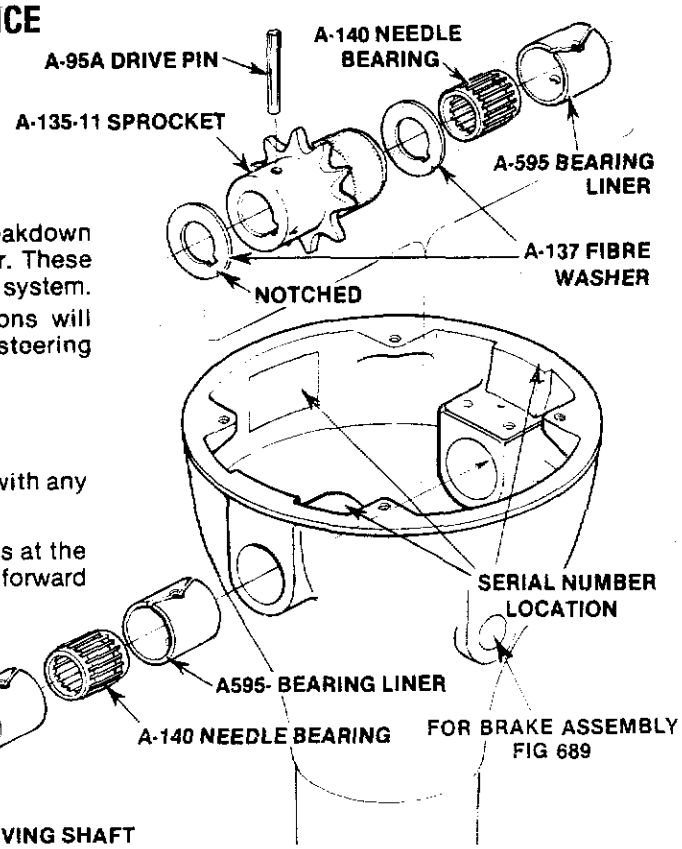
PARTS LIST / EDSON PEDESTAL STEERING ASSEMBLY

As a further service to our customers we have illustrated a parts breakdown showing the design and construction of your Edson Pedestal Steerer. These parts drawings will assist you in the proper maintenance of your steering system.

If disassembly should become necessary the following instructions will provide a simple but precise method of removing and replacing the steering shaft and its components.

DISASSEMBLY

1. With the wheel and brake assembly removed, replace the wheel nut with any standard thread ¾" or 1" hex nut.
2. Loosen the steering cables and chain by backing off the take-up eyes at the Quadrant or Radial Driver, lift the chain off the sprocket and tie to the forward part of the bowl.

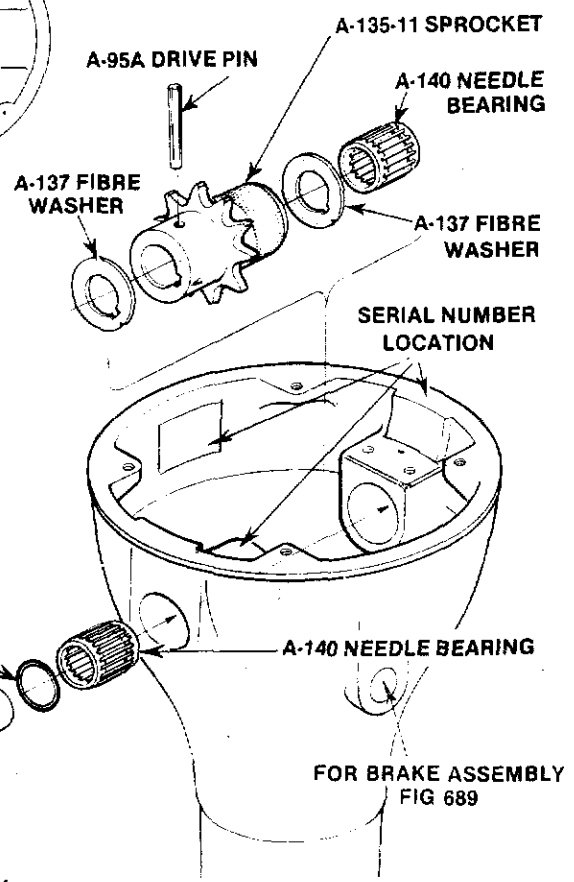


MODEL 400 PEDESTALS

3. Align the notch in the aft fibre washer with the "V" stamped on the sprocket.
4. Carefully drive the pin out of the sprocket (drive from the round end toward the grooved end).
5. With a piece of wood against the ¾" or 1" hex nut, gently tap the wheel shaft from the housing, see illustration above, be careful not to drop the shaft components into the pedestal.
6. Remove sprocket, two fibre washers and forward needle bearing.
7. Remove aft needle bearing and washers.
8. Wipe out any dirt or old grease before reassembly.

To reassemble reverse the above procedure, do not grease the bearings until reassembly is completed.

NOTE: Check your compass for possible readjustment.



MODEL 334 & 335 PEDESTALS

ORDERING INSTRUCTIONS

When ordering spare parts give the pedestal serial number, part number, part name, and quantity. Your order will be filled promptly.

If you have any question don't hesitate to call the Edson factory. We will be pleased to assist you.

Edson International

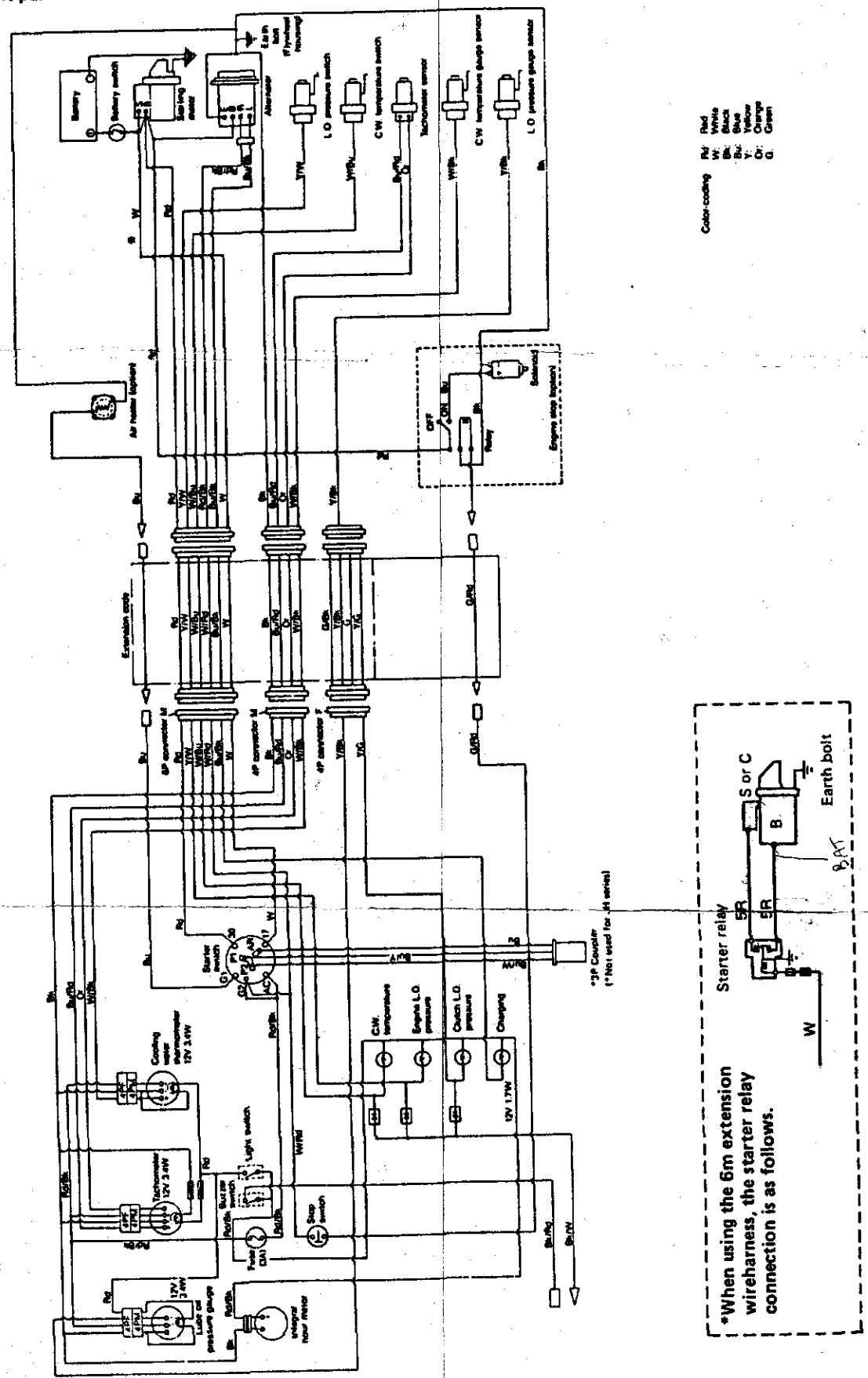
The Edson Corporation
460 Industrial Park Road
New Bedford, Mass. 02745

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Telephone (617) 995-9711
Telex 95-1337

use RED wire off alt.

1-2.2 For C-type instrument panel



ENGINE OPERATION

TO START ENGINE: Read Engine Owner's Manual before operating.

1. Battery switch must be ON. On any boat with two or more batteries, battery select switch should be placed in number one (1) position.
2. Turn on "MAIN" D.C. breaker on electrical panel, if applicable.
3. Be sure gear shift is in neutral.
4. Advance throttle to approximately ¼ position.
5. PREHEAT - if engine is so equipped. If engine has not been started for some time, or in cold weather, use "PREHEAT" switch on engine control panel in cockpit to facilitate starting.
6. Turn key switch to the "ON" position. At this time the oil pressure and electric discharge warning lights and alarms will come on.
7. Turn key to 'START' position.
8. If the engine start, check oil pressure, ammeter charge rate and discharge of cooling water. It may be necessary to momentarily speed up the engine to cause a charge to be shown on the ammeter, if so equipped. Warning lights and audible alarms should now go off. If they do not the engine should be stopped immediately and the engine manual consulted.
9. Let the engine warm up at a fast idle, perhaps 20% above minimum idle speed.
10. If engine doesn't start due to a lack of battery power, momentarily reposition battery select switch to 'BOTH'.
11. Do not crank engine for long periods of time. Extended cranking may cause cooling water to fill the muffler and back flow into the engine.

NOTE: If it is necessary to crank engine for a long time drain exhaust system at water lock before attempting to

Engine Operation Cont'd.

TO STOP ENGINE:

1. Pull stop knob and hold it until engine dies, then push knob back fully or push electric stop button on engine panel, if so equipped.
2. ONLY AFTER ENGINE HAS STOPPED - Visual and audible alarms will be effected until key is turned to 'OFF" position. Shut off key switch or ignition breaker. Turning off the switch while the engine is operating will NOT stop the engine, and may damage the alternator. Be sure to shut off the switch after the engine has stopped, as leaving the switch on will maintain a flow of current to the alternator.

SAFETY PRECAUTIONS WITH DIESEL ENGINES

Diesel engines used in the marine industry today operate with very high exhaust temperatures. The result is that any defect or restriction of flow anywhere in the cooling water system running to the exhaust line can cause excessive build up of heat, which in turn could burn the exhaust hose. Also, due to high temperatures it is recommended that after running the diesel for a period of time it should be brought back to the idle position and allowed to operate for a few minutes to dissipate any excess heat.

DIESEL ENGINE SYSTEM

The most common cause of trouble with a diesel engine is contaminated or dirty fuel. Your boat is equipped with a primary fuel filter located in the engine compartment and a secondary filter on the engine. The wise skipper carries replacement filter cartridges.

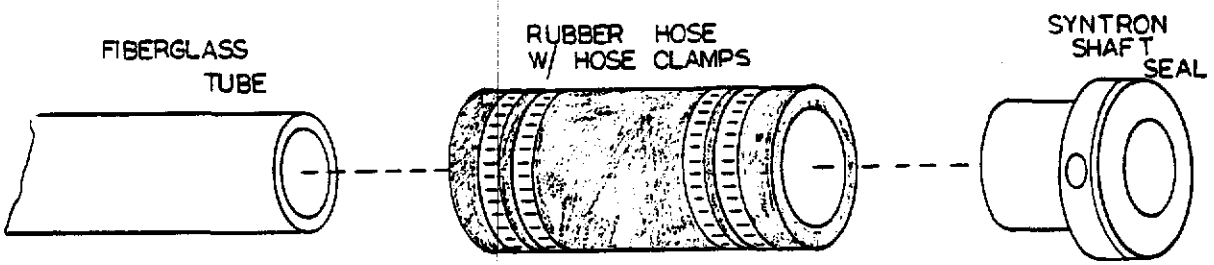
Familiarize yourself with the bleeding procedure for the engine and try bleeding it yourself. The procedure only takes five minutes after you are aquainted with what to do, but can be exasperating to the uninitiated.

As with any engine, do not shift from forward to reverse at high engine RPM. Keep engine gear shift lever in "Reverse" position while sailing. The engine manufacturer's owner's manual contains a wealth of information about the engine. Take time to read the manual BEFORE you need the information due to a malfunction.

SYNTRON SHAFT SEAL

Where the propellor shaft passes throuh the hull from the engine to the propellor, a syntron shaft seal is installed to prevent the ingress of water. This shaft seal consists of a number of O-rings. Owner's maintenance is limited to inspecting the clamps that hold the hose to the seal and to the fiberglass shaft log and periodic application of grease to the syntron shaft seal.

FREEDOM SHAFT SEAL



RJD

FUEL TANK

(For the following locations refer to Thru-Hull and Tank Location Diagrams)

The fuel tank is an aluminum tank that has been pressure tested by the manufacturer and securely installed by TPI. Connected to each tank are the following hoses: (a) Fuel Fill; (b) Engine Feed; (c) Tank Vent; (d) Engine Return. The tank is included in the boat bonding system. A guage is mounted on the tank top to display fuel status. Please note, however, that due to the asymmetrical shapes of the fuel tanks, the gauges register tank levels not remaining capacity.

FUEL SYSTEM

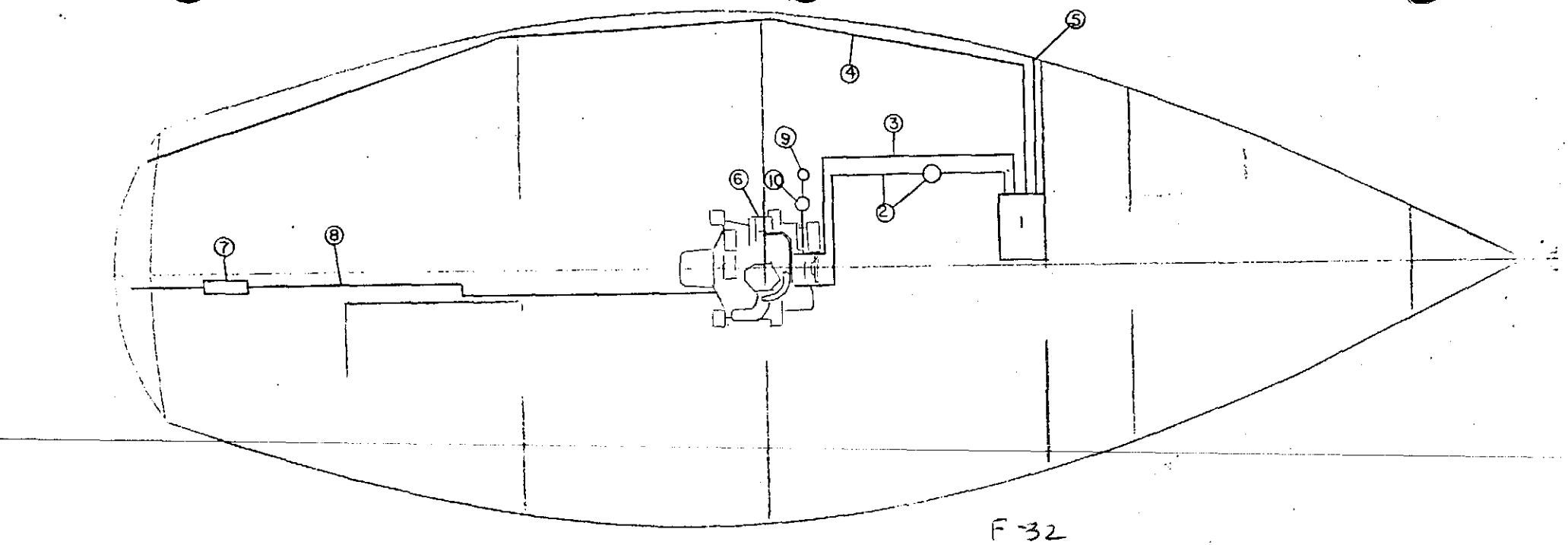
Fuel Tank:

Since diesel engines require bleeding after they have been deprived of fuel, it is important the shut-off valve be in the "ON" position (lever parallel to piping) anytime the engine is started.

Fueling:

When preparing to take on fuel, the following safety precautions should be followed at all times:

1. Properly secure boat to dock using bow, stern and spring lines.
2. Close all hatches and ports.
3. DO NOT SMOKE.
4. SHUT OFF ALL EQUIPMENT...ENGINE, GENERATOR, MASTER BATTERY SWITCH, STOVE, CABIN, HEATER, RADIOS, LIGHTS, ETC.
5. If possible, all personnel not involved in fueling should leave boat.
6. Keep a fire extinguisher handy.
7. Remove fuel fill plug and clean threads of both plug and deck plate carefully so no dirt falls into filler aperture.
8. Place the nozzle of the fuel hose in the fill pipe. Keep it in contact with the deck plate rim to avoid a static electric charge.



F-32

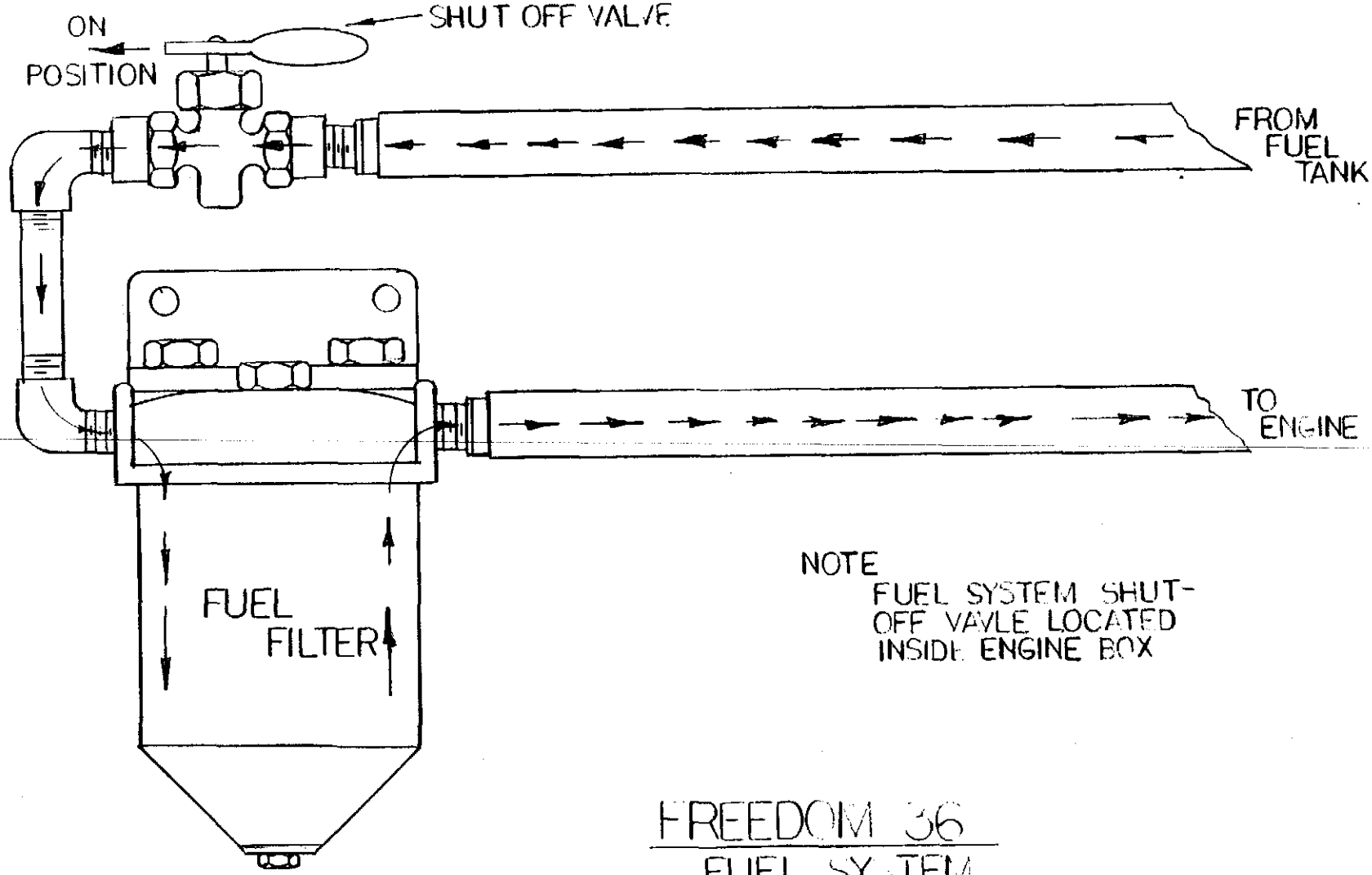
FUEL & MECHANICAL SYSTEM	T.P.I. PART NO.
1. 32 GAL. FUEL TANK	19071
2. FUEL SUPPLY W/FILTER	29000/19002
3. FUEL RETURN	29000
4. VENT	19012
5. FUEL FILL/DECK FITTING	10096
6. ENGINE	19076
7. MUFFLER	19001
8. EXHAUST HOSE	29011
9. 3/4" THRU HULL (SEA WATER IN)	23043
10. SEA WATER STRAINER	23036

Fueling Cont'd.

9. Fill slowly. DO NOT OVERFILL. Marine fuel expands with an increase in temperature. Therefore, fill only to approximately 95% capacity.
10. If you cannot see the fuel pump, ask the attendant or a crew member to call out the gallonage.
11. If fuel tank is overfilled, fuel will leak out the tank vent, generally located on the transom. This spillage should be cleaned up immediately.
12. After fueling, replace fill plate and wash up any spillage. Go below deck and check for fumes or leakage. Check bilge. IF EITHER FUMES OR LIQUID FUEL ARE PRESENT, CORRECT THE SITUATION BEFORE PROCEEDING.
13. Open all hatches and ports to facilitate ventilation.
14. Only after you are totally satisfied that no potentially dangerous condition exists, leave the fuel dock. Be considerate of your fellow yachtsmen.
15. In the event of serious spillage, STOP FUELING IMMEDIATELY. Replace fill plate, notify attendant so he may warn others and wash down thoroughly until all traces of fumes or fuel have disappeared.
16. Do NOT fuel during electrical storms.

NOTE: In remote areas, be sure to check fuel before filling tank(s) to be sure it is water free, clean, diesel oil. Once contaminated by dirt, water, or gasoline, the tank(s) can be difficult to clean.

FREEDOM ★ 36



NOTE
FUEL SYSTEM SHUT-
OFF VAVLE LOCATED
INSIDE ENGINE BOX

FREEDOM 36
FUEL SYSTEM

RJD

ENGINE FRESH WATER COOLING SYSTEM

The engine utilizes a closed system in which a mixture of water and anti-freeze is circulated within the engine for cooling. This liquid is cooled by a heat exchanger which uses sea water, in a similar fashion to the radiator on a car, using air to cool a contained liquid. The filler cap for the fresh water (closed) cooling system is located on the top of the engine manifold, and looks like a radiator cap. Use the same precautions in removing the cap from a hot engine as are appropriate for the radiator cap on an automobile - open cap slowly to allow steam to escape. Check the level in the manifold frequently. If additional liquid is needed, the liquid should be anti-freeze and a fresh water mixture.

If the fresh water system is drained, or has a substantial leak, an air lock may develop in the fresh water cooling system, especially on boats having the water heater option. It may be necessary to disconnect a hose running from the engine to the water heater and fill the hoses and exchanger inside the water heater with coolant mixture.

In northern latitudes where freezing may occur over the winter, be sure to test the coolant anti-freeze/water mixture for freezing point and add anti-freeze as needed if the system is not drained for winter lay-up.

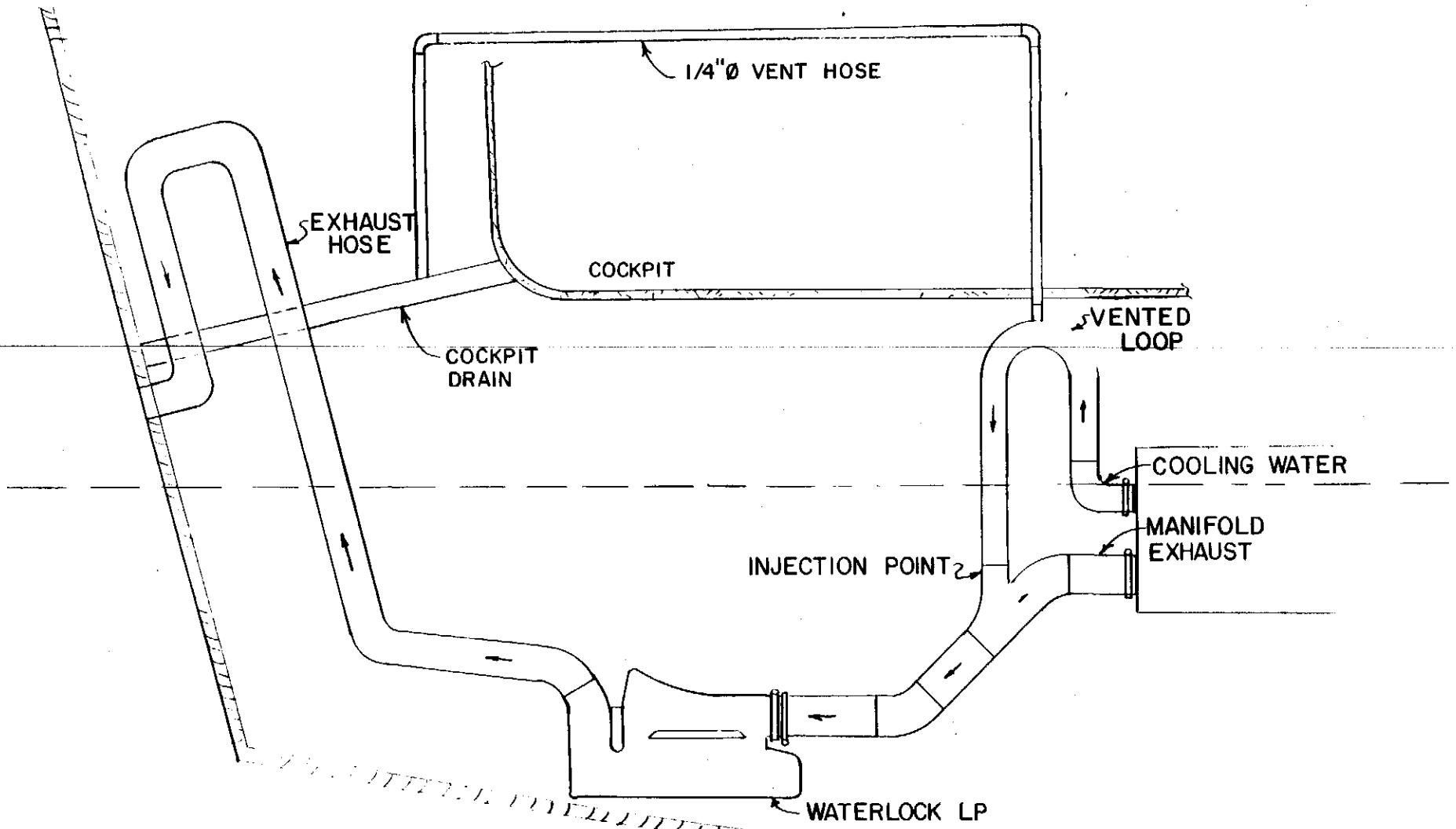
EXHAUST SYSTEM

Your boat is equipped with a water injected exhaust system which cools the exhaust as it exits from the engine. See following page for description and a diagram of this system. If the flow of cooling water is interrupted and the engine overheats severely, the rubber hose coming from the engine exhaust elbow may melt. Always check this hose after an occurance of overheating.

There will always be a little water in the bottom of the water lift "pot". In fall decommissioning, the pot should be drained using the drain plug, or anti-freeze added to the pot so the residual water will not freeze.

If the engine is cranked for a prolonged period of time the engine cooling water may build up in the pot. In this very unlikely situation, the drain on the pot should be opened.

Before engine cooling water is injected into the exhaust elbow, it runs up to a point above the waterline, where either an anti-syphon valve or an overboard vent admits air to the line when the engine is off, to prevent syphoning. Especially if operating in dirty water, the anti-syphon valve may clog, and fail to admit air at engine shutdown. Check the operation of, and lubricate the antisyphon valve frequently.



EXHAUST SYSTEM WITH WATERINJECTION POINT BELOW OR LESS THAN 6" ABOVE THE WATERLINE.
THE TWO MAIN FUNCTIONS OF THE WATERLOCK ARE:
1.) TO COLLECT THE WATER, WHICH IS PRESENT (by injection) IN THE HOSE, AFTER THE ENGINE IS SWITCHED OFF.
2.) TO REDUCE THE EXHAUST NOISE TO A MINIMUM.

ELECTRICAL SYSTEM

A 12 V D.C. electrical system is used throughout the vessel for lighting and operation of pumps and various accessories. For any 12 V current to be delivered, the following criteria must be met:

1. Charge in the battery
2. Master switch in "Batt. 1" - "Batt. 2" - or "Both" position
3. Master circuit breaker on the electrical panel - 'ON' (if vessel so equipped)
4. Circuit breaker for the individual appliance - (cabin lights, running lights, etc.) - 'ON'
5. Switch on the appliance (if there is one, such as cabin light) - 'ON'

The battery monitor installed on the electrical panel will give an indication of the charge status of the battery, or bank of batteries when optional battery installed, to which the battery selector has been switched. The battery monitor will show a high reading, between 13.6 and 14V when the engine is on and the alternator is charging. When the battery is fresh and fully charged, the battery monitor will read between 12.8 and 13.2V.

The amount of charge going into the batteries is shown on the ammeter in the engine panel in the cockpit, if so equipped. Generally, this meter will show a high rate of charge as soon as the engine starts, and the charge will taper off as the batteries come up to full charge. The voltage regulator automatically regulates the amount of charge going into the batteries, and reduces the level to prevent the batteries "boiling" over as they reach capacity. For this reason, even though an engine has a 55 amp alternator, charging the batteries for an hour will NOT put a full 55 amp-hours back into the battery.

On boats equipped with three or more batteries, the #1 position on the battery bank select switch indicates the "primary" use or

Electrical System Cont'd.

"house use" battery bank. This #1 bank has two or more batteries wired in series and should be for general use. Battery bank #2 has one single battery and is reserved for starting the engine when bank #1 has an inadequate charge. In the event that neither bank #1 nor bank #2 has sufficient charge to start the engine, the battery select switch can be turned to "Both". This will combine the total available power output from both banks of batteries. In order to protect the two banks of batteries from each other and to prevent the inadvertent consumption of all power from them, we recommend minimal use of the "Both" position of the battery select switch. Remember - the engine will charge only the battery that is switched on at the selector switch.

110 Volt A.C. Shorepower System (Optional)

The 110 volt AC shorepower system is functional only when the vessel is plugged into suitable power from shore. The cord provided has the standard end for the amperage service. Depending on the wiring in your facility, various adaptors may be required to plug the shore end of the cord in. The vessel end of the cord plugs into the inlet located inside the cockpit. The cord should be inserted with the socket holes matching those in the inlet, and turned to lock the socket. The outside ring on the cord should then be screwed into the flange of the inlet to give the cord additional protection from pulling out.

The switch panel for the shorepower system is located next to the DC panel.

Functions of the panel are as follows:

A. Orange Light: Indicates that the shore power is hooked to an active shore system.

B. AC Voltmeter: Indicates line voltage being received from the shore circuit.

C. 110 VOLT A.C. SHOREPOWER SYSTEM CONT'D.

The line voltage will vary with the number of appliances operating on the same circuit. In large marinas there may be a large number of boats on the same circuit, causing fluctuations.

CAUTION: Operation of AC motors with less than 90 volts is likely to result in damage to the motors.

D. AC Normal/AC Reverse: The AC panel has a red light to show when the polarity is reversed. Care should be taken not to operate 110 AC systems on board with reversed polarity. Notify dockmaster of this problem so the shore plug can be repaired.

NOTE: Even though the switches are in the appropriate position, the shore power system in no way assures safety of personnel using electrical apparatus.

E. Water Heater: Supplies power to the water heater 110 AC element for hot water while dockside. Note the cautions regarding the use of electrical power to heat water are contained in the plumbing section of this manual.

F. Outlet: Supplies power to the outlets placed throughout the cabin.

CAUTION: These precautions should be taken to avoid shock and fire hazards:

1. Turn off the boat's shore connections switch before connecting or disconnecting shore cable.
2. Connect shore-power cable to the boat first.
3. Disconnect shore-power cable at shore-outlet first.

Reprinted from ABYC Safety Standard (E-8 5-1-77)

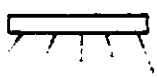
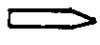
FREEDOM 36 BOAT WIRING COLOR CODES

WIRE SIZE	COLOR CODE	ITEM
#12/2	Black and White	Pumps
#14/2	Blue and Black	Cabin Lights
#16/2	Red and Black	Navigation Lights
#14	Tan	Propane Solenoid
#8	Green	Bonding System

MAST WIRING COLOR CODE

#14	Orange	Tricolor
#14	Red	Strobe
#14	Green	Anchor
#14	White	Steaming
#14	Black	D.C. Negative

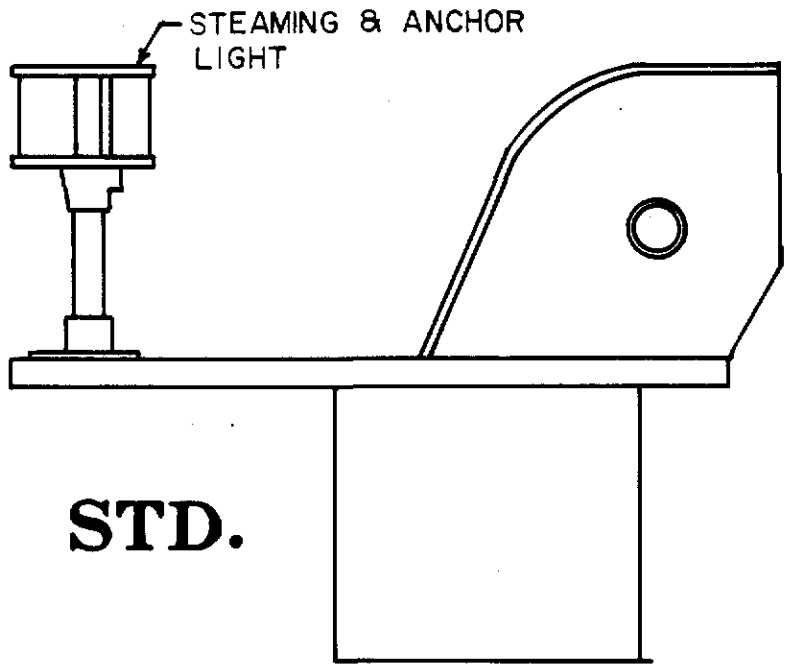
ELECTRICAL SYMBOLS

SYMBOL	ITEM	SYMBOL	ITEM
	Fluorescent Lights		Propane Solenoid
	Dome Light		Compass Light
	Brass Swivel Light		Starter
	Bow and Stern Light		
	Water Pressure Pump		

MAST HEAD WIRING

F-36, F-32 & F-30 (TYP.)

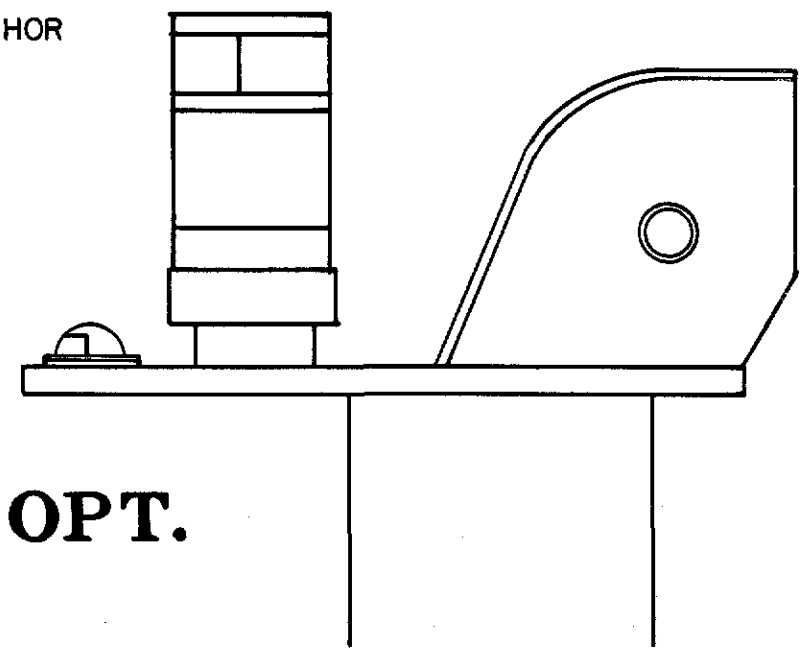
WIRING COLOR CODE	
ORANGE	TRICOLOR
RED	STROBE
GREEN	ANCHOR
WHITE	STEAMING
BLACK	D.C. NEG.



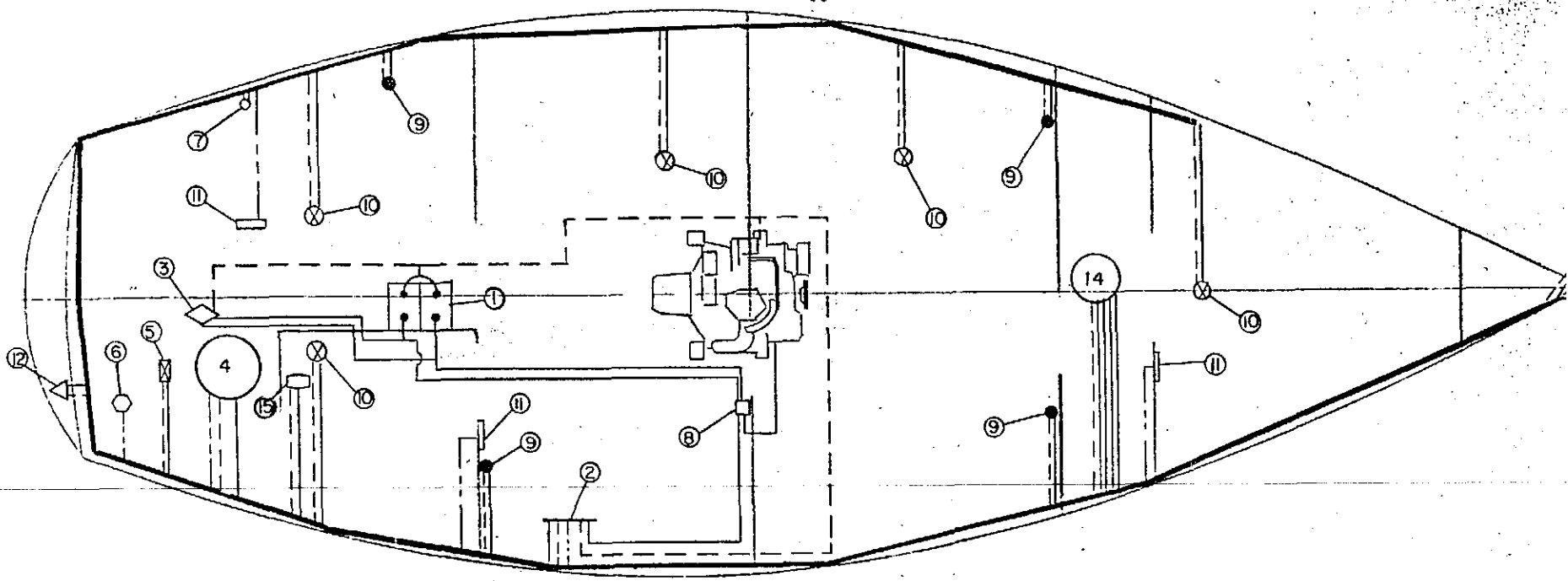
STD.

TRICOLOR, STROBE & ANCHOR LIGHT

STEAMING LIGHT



OPT.



ELECTRICAL SYSTEM	COLOR CODE	T.P.I. PART NO.
1. BATTERY (2)	1. BLACK, RED	15012
2. ELECTRICAL PANEL	2. MAIN HARNESS BEGINS	150175
3. BATTERY CHARGER	3. BLUE, BLACK, WHITE F-32	15067
4. WATER HEATER	4. WHITE, GREEN, BLACK	23025
5. WATER PUMP	5. BLACK, WHITE	23166
6. SHORE POWER (IN)	6. WHITE, GREEN, BLACK	96657
7. PROPANE TANK SOLENOID	7. BLACK, TAN	15034
8. GUEST POWER SWITCH	8. RED	15013
9. SWIVEL LIGHT	9. BLUE, BLACK	15043
10. 6" DOME LIGHT	10. BLUE, BLACK	15046
11. 120 VOLT OUTLET	11. GREEN, WHITE, BLACK	49075
12. STERN LIGHT	12. RED, BLACK	10351
13. BOW LIGHTS	13. RED, BLACK	10350
14. MAST HARNESS	14. BLACK (GND.), GREEN (STEAMING LT.), RED (OPT.), WHITE (OPT.), ORANGE (OPT.)	15072
15. SHOWER SUMP PUMP	15. BLACK, WHITE	23020

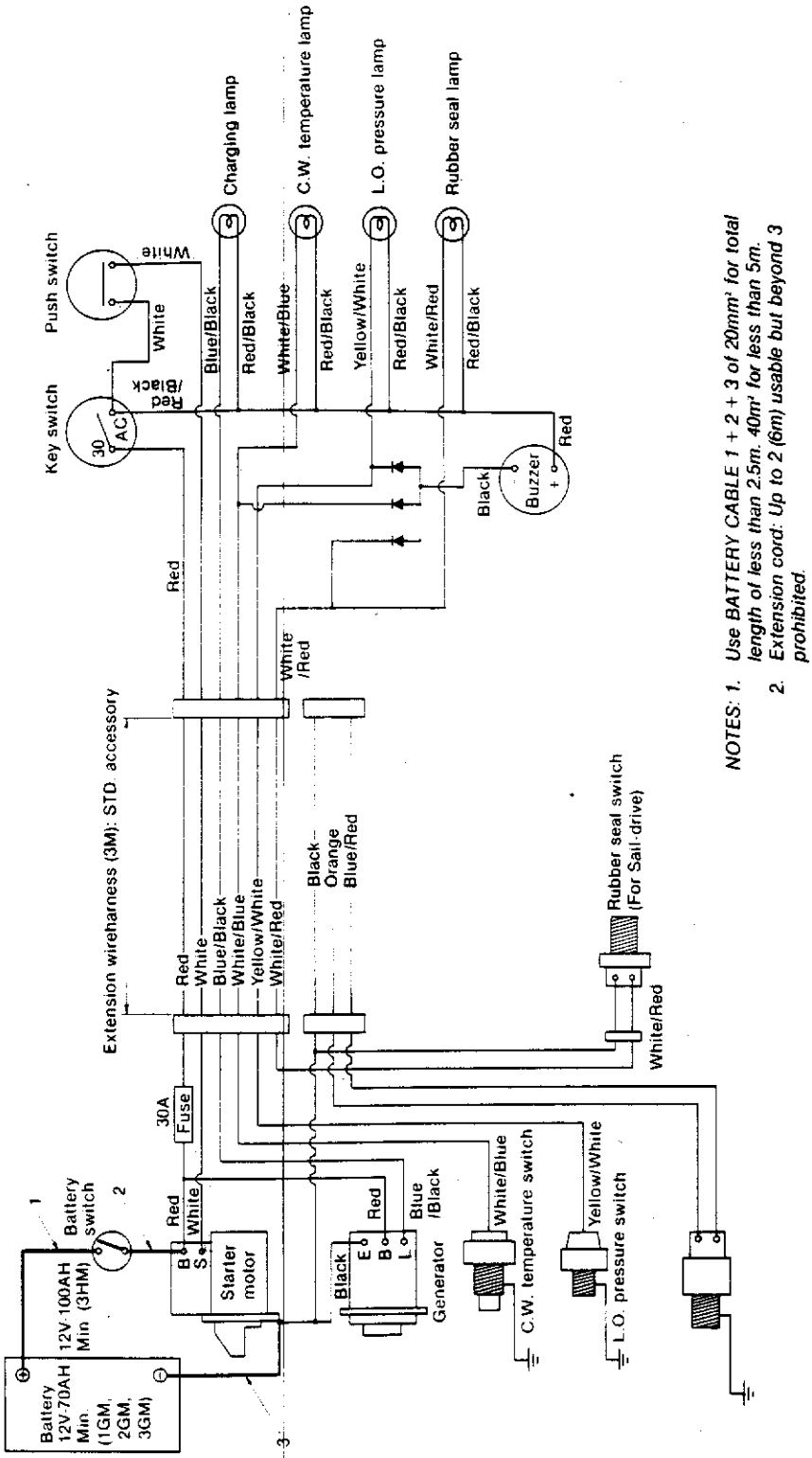
NOTE:

———— = POSITIVE

– – – – – = NEGATIVE

———·——— = 120 V

1-2.2 For the A-type (small) instrument board

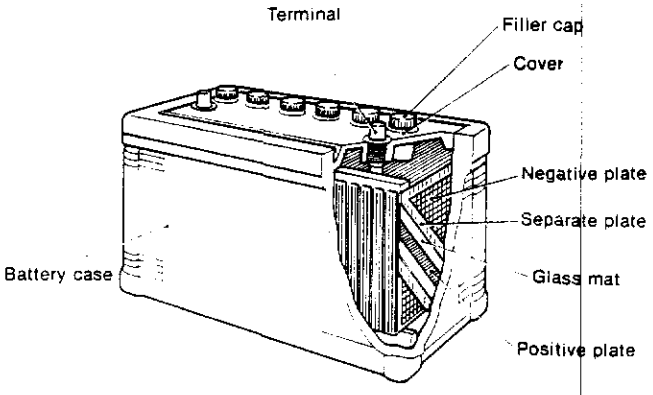


NOTES: 1. Use BATTERY CABLE 1 + 2 + 3 of 20mm² for total length of less than 2.5m. 40m² for less than 5m.
2. Extension cord: Up to 2 (6m) usable but beyond 3 prohibited.

Printed in Japan
F034A

2. Battery

2-1 Construction



The battery utilizes chemical action to convert chemical energy to electrical energy. This engine uses a lead acid battery which stores a fixed amount of power that can be used when required. After use, the battery can be recharged and used again.
As shown in the figure, a nonconductive container is filled with dilute sulfuric acid electrolyte. Lead dioxide positive plates and lead dioxide negative plates separated by glass mats are stacked alternately in the electrolyte. The positive and negative plates are connected to their respective terminals.
Power is removed from the battery by connecting the load across these two terminals.
When the battery is discharging, an electric current flows from the positive plates to the negative plates. When the battery is being charged, electric current is passed through the battery in the opposite direction by an external power source.

2-2 Battery capacity and battery cables

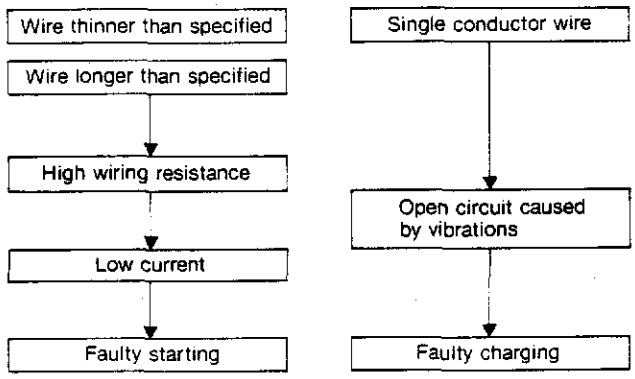
2-2.1 Battery capacity

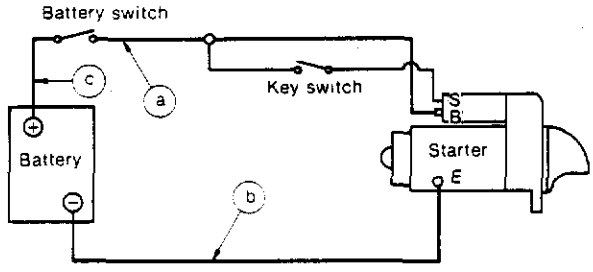
Since the battery has a minimum capacity of 12V, 70AH, it can be used for 100 ~ 150AH.

	1GM, 2GM 3GM(D)	3HM
Minimum battery capacity	12V 70AH	12V 100AH
Fully charged specific gravity	1.26	1.26

2-2.2 Battery cable

Wiring must be performed with the specified electric wire. Thick, short wiring should be used to connect the battery to the starter, (soft automotive low-voltage wire [AV wire]).
Using wire other than that specified may cause the following troubles:





The overall lengths of the wiring between the battery (+) terminal and the starter (B) terminal, and between the battery (−) terminal and the starter (E) terminal should be based on the following table.

Voltage system	Allowable wiring voltage drop	Conductor cross-section area	a + b + c allowable length
12V	0.2V or less/100A	20mm² (0.0311 in.²)	Up to 2.5m (98.43 in.)
		40mm² (0.062 in.²)	Up to 5m (196.87 in.)

NOTE: Excessive resistance in the key switch circuit (between battery and start (S) terminals) can cause improper pinion engagement. To prevent this, follow the wiring diagram exactly.

2-3 Inspection

The quality of the battery governs the starting performance of the engine. Therefore the battery must be routinely inspected to assure that it functions perfectly at all times.

2-3.1 Visual inspection

(1) Inspect the case for cracks, damage and electrolyte leakage.
(2) Inspect the battery holder for tightness, corrosion, and damage.
(3) Inspect the terminals for rusting and corrosion, and check the cables for damage.
(4) Inspect the caps for cracking, electrolyte leakage and clogged vent holes.
Correct any abnormal conditions found. Clean off rusted terminals with a wire brush before reconnecting the battery cable.

Printed in Japan
F034A

Batteries

Batteries will last longer if they are kept charged during periods when they are not used. Be sure to check the water level in the batteries at least every two weeks. Adding water to a partially charged battery will lower the charge in the battery. Never add water to a battery which is charging, either via the engine alternator or a separate charger. Be careful in adding water so that the battery acid does not splash. Never add salt water to a battery. Most boat batteries have a shortened life from improper storage during lay up periods, lack of water, and the use of "quick" chargers. Distilled water is preferable for batteries, if available.

Battery Chargers

A proper marine battery charger is strongly recommended. The use of inexpensive automotive type battery chargers which do not have built-in isolation transformers can cause electrolysis to the vessel. One safeguard is to disconnect the NEGATIVE battery lead from the engine when using any charger other than a high quality marine charger with a built-in isolation transformer.

Always ventilate the battery compartment when using a battery charger.

Electrical Leakage Analysis

A useful tool for checking your boat's electrical system is a Volt-Ohm-Milliameter (commonly abbreviated VOM). Various electronic stores (one large chain is Radio Shack) sell inexpensive VOMs in the realm of $9.00 to $40.00. A high quality meter is not required, and will corrode in the marine environment almost as fast as a less expensive model. Most meters will show a negative current if the leads are reversed. In making any tests, reverse the tester leads if the needle moves under zero.

To test the vessel for leakage of battery current to the ship's ground system, disconnect the negative battery cable from the engine. Turn the master switch to the 'OFF' posistion, and place all circuit breakers on the electrical panel in the 'OFF' position.

Set the VOM to the lowest DC voltage scale available. Place one test lead from the VOM on the engine at the location from which the negative battery cable was removed. Connect the other test lead to the end of the disconnected battery cable. An indication of current will indicate an electrical leak, probably in the wiring running from the batteries to the master switch.

Keep all circuit breakers on the electrical panel in the 'OFF' position and move the master switch selector to battery #1 then to battery #2 position. An indication of electrical current from either battery switch position is resultant from an electrical leak either the wiring running from the back of the battery switch to the engine starter motor or the wiring running from the switch (or wire connected to the same terminal of the engine starter motor as the large red battery cable) to the electrical panel.

Frequently the source of electrical leakage can be located by selectively wiggling the wiring having the possibility of causing the leak.

A further discussion of electrical leakage may be found in a book titled THE TWELVE VOLT DOCTOR, published by Spa Creek Development Corp., Third St., Annapolis, Md 21403. Mention that you own a Freedom and recieve a 10% discount.

LIGHTNING PROTECTION

The masts are grounded to the keel and engine in accordance with industry practice. In spite of this grounding, there can be no assurance that personnel or the boat will not suffer injury if the vessel is hit by lightning.

The following are adapted from the ABYC safety standards, are suggestions only, and in no way guarantee safety.

1. If possible, remain inside a closed boat during a lightning storm. Do not contact any metallic objects inside the vessel.
2. Avoid making contact with any items connected to the lightning conductive system (mast step support, etc.) and especially in a way to bridge between two of them.
3. No one should be in the water during a lightning storm.
4. If the boat has been struck by lightning, compasses and electrical gear should be checked to determine that no damage or change in calibration has taken place.

Plumbing System

Fresh Water System

The vents for the water tank(s) are located below deck to prevent seawater from entering the tanks while heeling. The overflow when the tanks are full will run into the bilge. The overflow when filling the tanks can be misconstrued to be indicative of a structural leak, since this water also ends up in the bilge. Tank(s) fill through separate fill fittings located on the deck. Each time a tank is filled, it is wise to wipe off the threads on the deck fitting to remove dirt which may prevent a good seal.

Please note that on boats which have more than one water tank, only one valve should be kept open at a time. This is especially important while sailing at significant angles of heel where the water from one tank will drain through the open valves to the tank on the low side and will overflow through the vent into the bilge. It is possible to lose an entire tank of water if this restriction is not observed.

When a tank has run dry, be sure to close the valve to the empty tank before opening the valve to the full tank. This will minimize the amount of air sucked in by the pressure water system when a tank has run dry; the pressure system may have difficulty overcoming the air in the water lines. After the valves have been changed so that there is water available to the pressure pump, and the pump is turned on at the electrical panel, open a water faucet to allow air to escape. Eventually, there will be a trickle of water. When this happens, close the faucet momentarily to allow the pump to build up pressure; then open the faucet until a steady stream of water issues from the faucet. It may be necessary to repeat the process several

Fresh Water System Cont'd.

times to bleed all the air from the system.

Read the caution regarding the hot water system, if the vessel is equipped with shorepower.

The water in your tanks may develop a taste after a period of time. This will happen to any water in any tanks, as it grows "flat". The addition of a commercial water preservation agent such as Sudbury Aqua Fresh crystals will greatly improve the taste of water stored for a long period.

Water Heater Caution

When the water heater is operating from shore power, a continuous supply of water must be available to the heater. Be certain that the pressure water pump is 'ON' and that the tank from which water is being withdrawn does contain water. If the electric element in the water heater is allowed to operate without water even for a few minutes, it WILL BURN OUT. Due to this potential risk, water heater elements are excluded from warranty.

Before taking a shower, check that the sump pump is operational so the shower drain water will not flood the bilge.

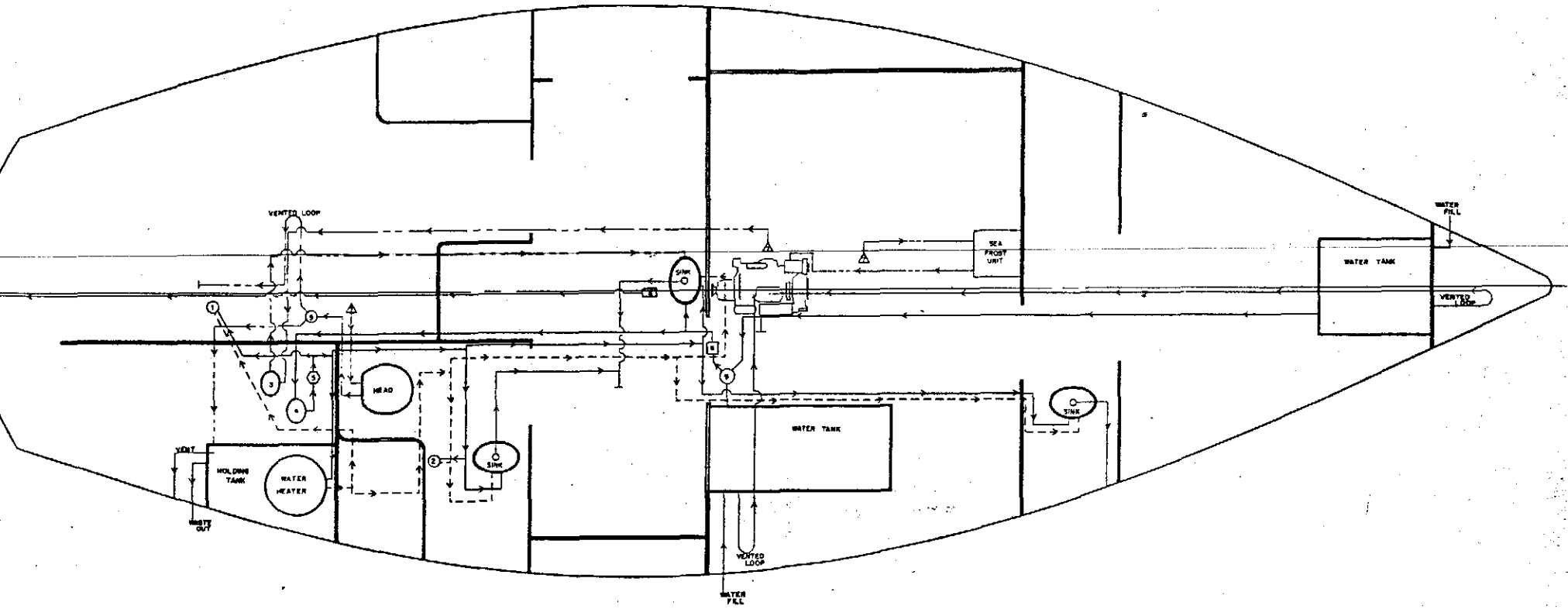
Head & Galley Sink Drains

The head and galley sink drains connect near a common seacock for overboard discharge. Because the Freedom 36 head sink is located outboard against the side of the boat, a valve is installed directly under the sink to prevent water from backing into the sink and spilling over onto the counter when the boat heels.

WATER TANK(S)

This tank is rotationally molded from polyethylene. Connected to this tank are the following hoses: (a) Fill hose; (b) Feed Hose; (c) Vent Hose. The vent hose is internal and any overflow ends up in the bilges.

(See Thru-Hull and Tank Location diagrams - 5.5-1 for the tank location.)



1. COCKPIT SHOWER
2. HEAD SHOWER
3. SALT WATER PUMP
4. FRESH WATER PUMP
5. ACCUMULATOR TANK
6. WATER FILTER
7. SALT WATER INTAKE
8. BILGE PUMP
9. Y VALVE

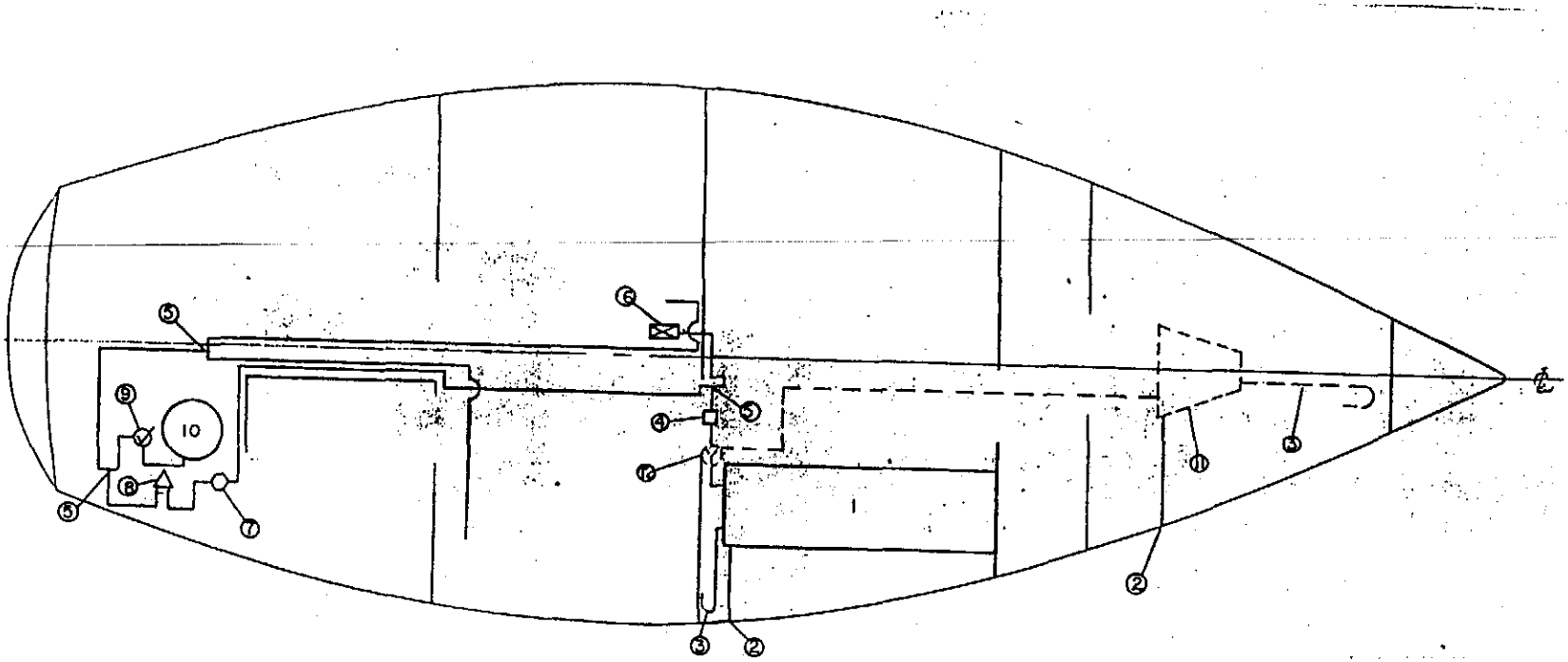
——— = FRESH WATER COLD
- - - - - = FRESH WATER HOT
—·—·— = SALT WATER
⊥ OR —|— = SEACOCK OUT

NOTE: THIS DRAWING IS A SCHEMATIC. LOCATIONS OF HOSES AND FIXTURES ARE NOT EXACT, BUT ARE LAYED OUT TO SHOW FLOW OF WATER ONLY.

F-32

REV	DESCRIPTION	DATE	BY	CHK
	F-32 PLUMBING DIAGRAM			
DWG. NO. F-32-40400				
T.R.L. PART NO.:			FOR:	
SCALE: 1" = 1'-0"		DATE	DO NOT SCALE DRAWING	
DRWN. BY: B.J.R.		10-28-85	PROD. CHK.:	
CHK'D. BY:		11/7/85	ISSUED:	
CHK'D. BY:			SHEET 1 OF 1	

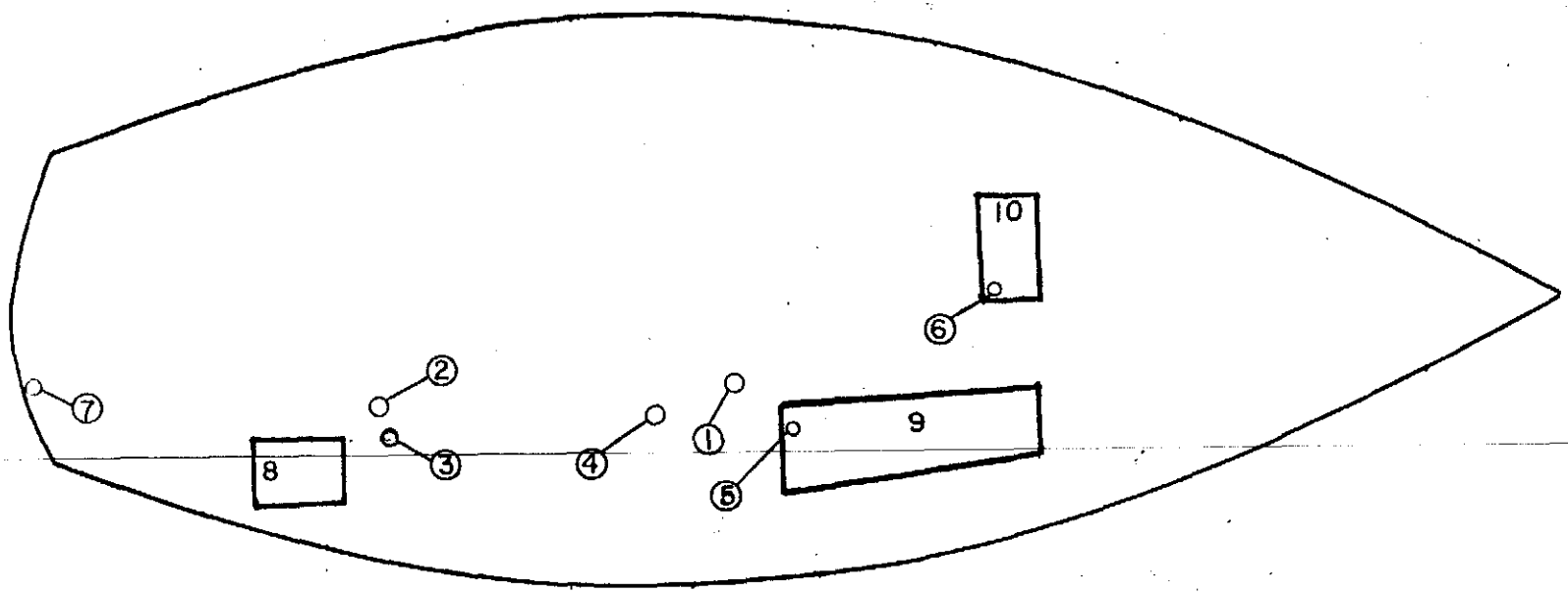
TILLOTSON-PEARSON, INC.
187 136, MARKET ST. WARWICK, R.I. 02886 TEL. (401) 246-1200
52ND BOAT BASIN MELVILLE-NEWPORT, RI 02840 TEL. (401) 682-2600



F-32

COLD WATER SYSTEM

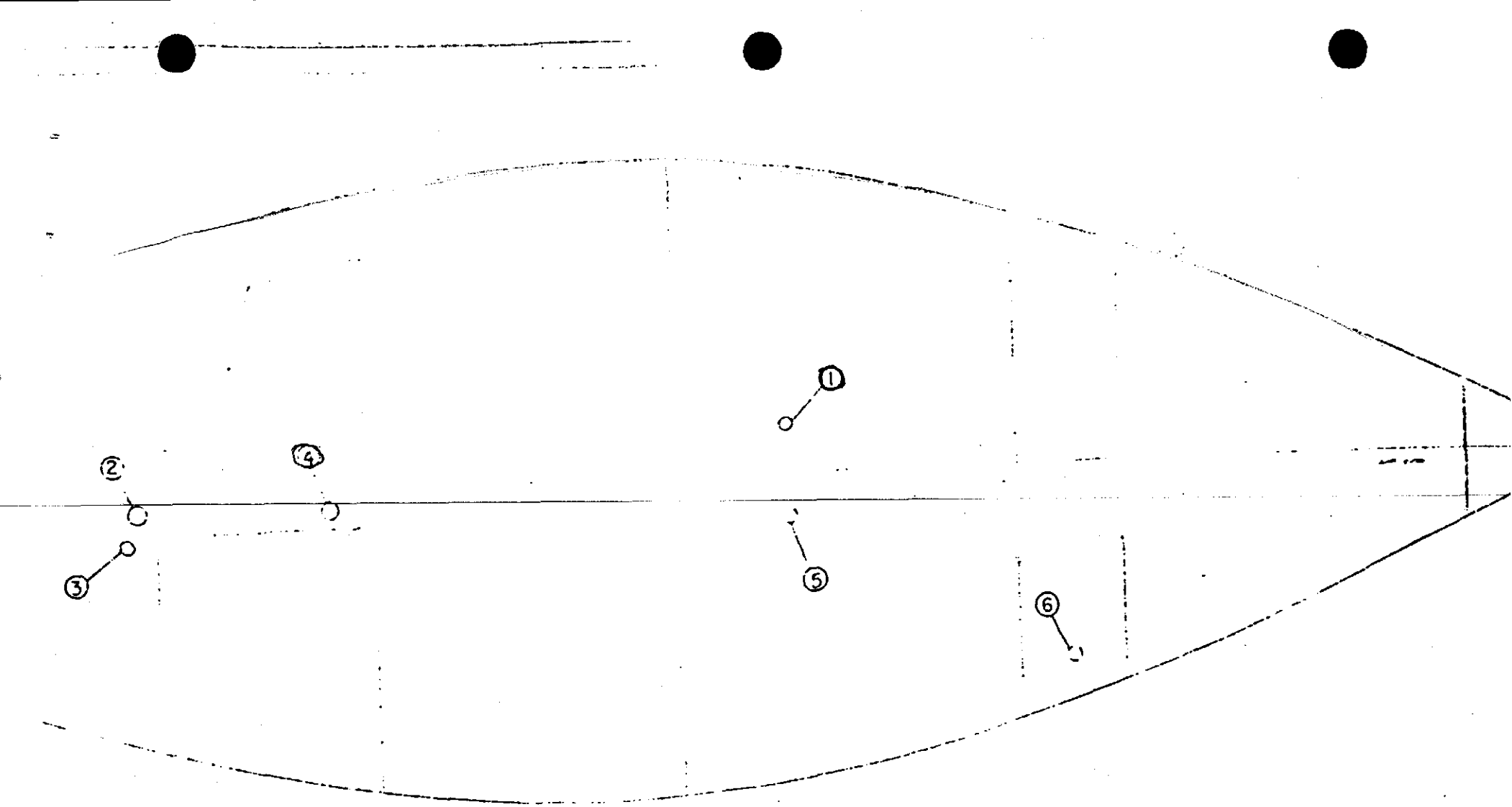
		T.P.I. PART NO.
1.	55 GAL. FRESH WATER	23157
2.	WATER FILL / DECK FITTING	10143
3.	VENTED LOOP	23162
4.	STRAINER	23148
5.	"T" FITTING	23018
6.	HAND PUMP	23006
7.	PRESSURE PUMP	23166
8.	ACCUMULATOR	23016
9.	CHECK VALVE	23026
10.	6 GAL. WATER HEATER	23025
11.	50 GAL. V-BERTH TANK (OPT.)	23216
12.	"Y" VALVE (OPT.)	



FREEDOM 32

TANK AND VALVE LOCATIONS

1. ENGINE INTAKE 3/4"
2. HEAD DISCHARE 1 1/2"
3. HEAD INTAKE 3/4"
4. SINK DISCHARGE 1 1/2"
5. WATER SHUT OFF
6. FUEL SHUT OFF
7. BILGE PUMP OUTLET
8. WASTE TANK, 12 GAL.
9. WATER TANK, 50 GAL.
10. FUEL TANK, 28 GAL.



THRU HULL LOCATIONS

1. 3/4" ENGINE INTAKE
2. 1 1/2" HEAD DISCHARGE
3. 3/4" HEAD INTAKE
4. 1 1/2" DISCHARGE FOR SINKS
5. 3/4" INTAKE GALLEY PUMP (OPTION)
6. 3/4" SINK DISCHARGE (OPTION)

T.P.I. PART NO.

19008 W/23043

23048 W/23041

23049 W/23043

23048 W/23194 & 23206

23049 W/23043

23062 W/23043

HEAD SYSTEM

HEAD

It is always good seamanship to close the intake and discharge seacock (if installed) for the head when leaving the vessel. Also, be certain, while sailing, that the flush control valve or lever on the head is not left in the flush position so as to prevent the head from filling with water which will spill as the boat heels.

Y VALVE - Opt.

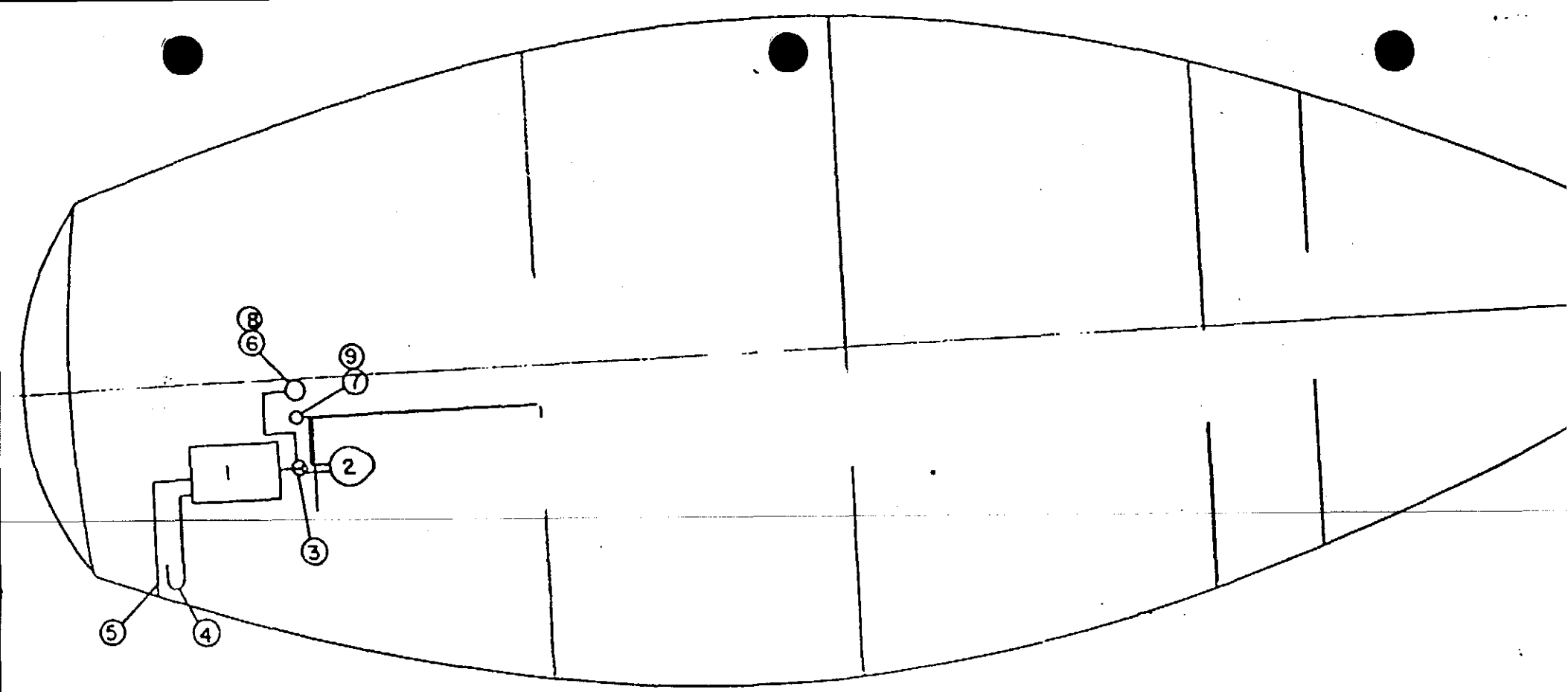
If your vessel is operated outside the territorial waters of the U.S., the "Y" valve may be shifted to pump toilet effluence directly overboard. Note that this practice is illegal in U.S. waters and will result in a substantial fine. Some waters prohibit the existence of a "Y" valve, so the device should be removed for navigation in these waters. Conformance with sanitation laws is an owner responsibility. Please see the diagram showing the direction of effluent flow to be sure the handle on the "Y" valve is properly positioned (see p. 7.3-1)

HOLDING TANK

Your vessel is equipped with a holding tank for retention of sewage. The holding tank, like the water tank, is also made from polyethylene and is connected to the following hoses: (a) Waste Discharge Hose from the Head; (b) Pump-out Hose leading to deck plate; (c) Vent hose. This tank vents overboard.

Sea water is used to flush the head, and the sea water and effluent are pumped into the holding tank by pumping the toilet. A deck fitting is provided through which the holding tank may be evacuated by a shoreside pump-out station.

With the standard holding tank, it is not necessary to "precharge" the tank by adding water before using the system. Be certain that the pump on

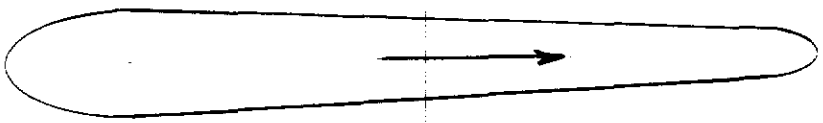


WASTE SYSTEM

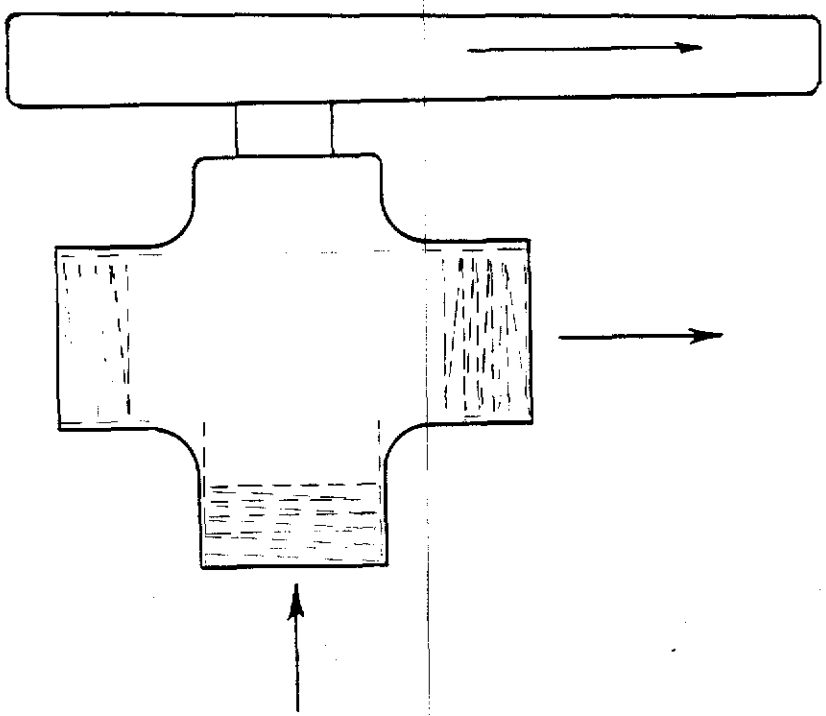
	T.P.I. PART NO.
1. 12 GAL. HOLDING TANK	23157
2. HEAD	23169
3. "Y" VALVE	23040
4. VENTED LOOP	23162
5. WASTE DECK FITTING	10145
6. 1 1/2" THRU HULL / WASTE OUT	23048
7. 3/4" THRU HULL / WATER IN	23049
8. 1 1/2" SEACOCK (WASTE OUT)	23041
9. 3/4" SEACOCK (WATER IN)	23043

Y VALVE POSITIONING

TO REDUCE CONFUSION WITH THE DIRECTION OF FLOW WITH THE HEAD DISCHARGE Y VALVE, THE LONG END OF THE HANDLE ON THE Y VALVE INDICATES THE DIRECTION OF FLOW.



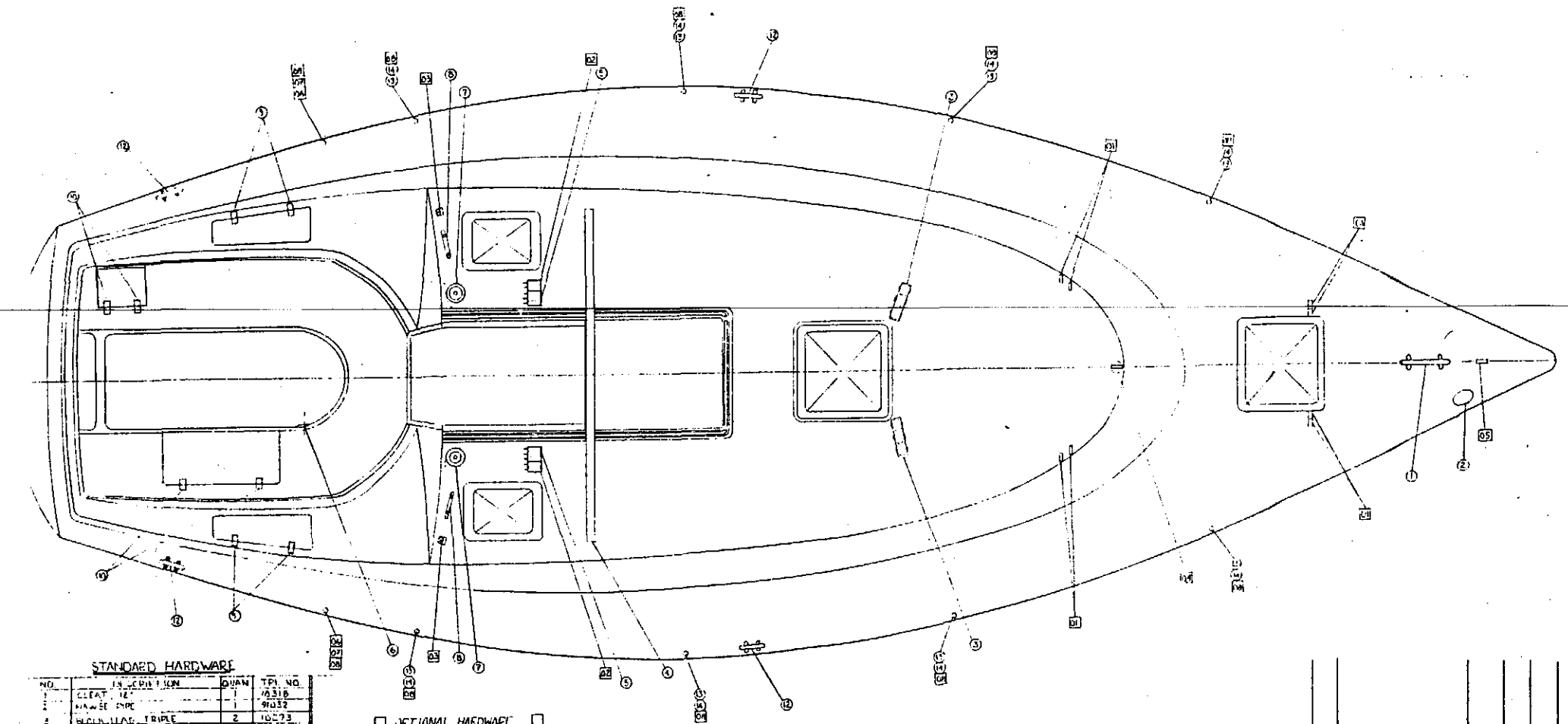
DIRECTION OF FLOW →



required. When the sail is up, adjust jib boom topping lift as required to allow for proper sheeting.

Use telltales to govern sheet trimming. When windward side telltale flutters up or down the boat is sailing too close to the wind. Disturbance of leeward telltale is resultant from the jib being trimmed in too far or the boat heading too much away from the wind. Perfect sail trim will be indicated by all telltales on both sides of the jib streaming aft horizontally.

Do not overtrim. To achieve proper leech tension and an even slot with the mainsail, the wire in the foot of the sail can be slacked to let the top of the sail fall off or be tightened for the reverse effect.



STANDARD HARDWARE

NO.	DESCRIPTION	QUAN	TPL NO.
1	CLEAT, 12"	1	10318
2	MAN SE PIPE	1	9M32
3	BLOCK, LEAD, TRIPLE	2	10073
4	TRAVELLER, 7' MAIN SHEET	1	10355
5	STOPPER, TRIPLE	2	10168
6	PUMP	1	23170
7	WINCH, 2A, PRIMARY	2	10087
8	CLEAT, 6" JAM	2	10094
9	FAIRLEAD, SINGLE, LEAD	4	10299
10	BLOCK, DOUBLE, LEAD	4	10093
12	CLEAT, 10"	4	10335
13	STANCHION, TUBE ONLY, 24" S&L	8	10359
14	STANCHION BASE, A-44, OCEAN	8	10330

☐ OPTIONAL HARDWARE ☐

01	BULLSEYE	2	10141
02	STOPPER, DOUBLE	2	10167
03	CLEAT, CAM, W/FAIRLEAD	4	10014
04	PEDESTAL SWIVEL, FOR 3/8	1	10353
05	CHAINPLATE	1	10005
06	STANCHION, TUBE ONLY 24" S&L	10 OR 12	10359
07	STANCHION BASE, A-44, OCEAN	10 OR 12	10330
08	STANCHION, TUBE ONLY, 24" DBL		10393

REV	DESCRIPTION	DATE	BY	CHK
A	ADDED STANCHIONS	9-14-84	BJN	MB

F-32 DECK HARDWARE

STANDARD & OPTIONAL HARDWARE

DRAWN BY BJN

CHK BY JHJ

DATE 3-2-83

DWG. F-32-20401

F.O.#

TILLOTSON-PEARSON INC.
WARREN, RHODE ISLAND
U.S.A. 02885

REV.

24-83

F32

FREEDOM YACHTS

FREEDOM 32

FACTORY INSTALLED OPTIONS*

****

[ ]	1.	Shoal keel	750.00
DECK			
[ ]	2.	Contrasting Deck Nonskid - Areas molded in a different color from smooth areas.	475.00
[ ]	3.	Cabin Side Accent Color - A band of contrasting color molded into sides of cabin house.	250.00
[ ]	4.	Stainless Steel Anchor Roller.	300.00
[ ]	5.	Double Lifelines - Second lifeline of 1/8" - 7 X 7 S.S. cable white vinyl coated to 1/4" run through stanchions to terminations on pulpits.	110.00
[ ]	6.	Lifeline Gate - Boarding gate installed with braced stanchions and pelican hook for upper lifeline. Specify port or starboard.	215.00
[ ]	7.	Stainless Steel Swim Ladder - Installed on transom.	240.00
[ ]	8.	Dodger - Choice of white, blue or red fabric. Must be ordered simultaneously to original boat order, and is not cancellable.	750.00
[ ]	9.	Cockpit Cushions - 2" thickness white vinyl covered.	275.00
[ ]	10.	Cockpit Bimini - White acrylic, with stainless steel bows and hardware.	1,000.00

* SPECIFICATIONS, OPTIONS & PRICES SUBJECT TO CHANGE WITHOUT NOTICE

FREEDOM YACHTS

[ ]	11.	Replacement of Standard Winches - Substitution of Barient #23 self tailing winches in lieu of standard #21 winches.	828.00
[ ]	12.	Jib Staysail Package - Includes custom mast halyard box, halyard, boom topping lift, reinforced chain plate, forestay, Schaefer blocks and sheets.	235.00
[ ]	13.	Hoyt Gun Mount - Includes patented swiveling gun mount fitting on reinforced bow pulpit. 18' custom spinnaker yard, all necessary lines and stoppers lead to cockpit.	2,200.00

MECHANICAL/PLUMBING

[ ]	14.	110 Volt Shore Power with Pro Mariner solid state battery charger - including panel with double main breaker and polarity indicator, three outlets, chrome inlet, 50' power cord, 30 amp service. The battery charger is fully automatic including disconnect if engine is started while charger is on.	900.00
[ ]	15.	Additional Battery - A duplicate 90 amp hr. battery wired in parallel to one of the ships two standard batteries to provide extra reserve for shipboard lights, navigation equipment, etc.	135.00
[ ]	16.	Masthead strobe light.	400.00
[ ]	17.	Masthead tricolor light.	230.00
[ ]	18.	Sea Water Hand Pump in Galley Area - with separate thru hull fitting and seacock.	255.00
[ ]	19.	Pressure salt water to galley with sprayer.	445.00
[ ]	20.	Sea Frost Refrigeration.	2,250.00

* SPECIFICATIONS, OPTIONS & PRICES SUBJECT TO CHANGE WITHOUT NOTICE

FREEDOM YACHTS

[ ] 21. Adler Barbour Cold Machine Refrigeration - including two (vertical) ice cube trays. Note: this option is only recommended for yachts spending a predominent amount of time connected to shore power and equipped with a suitable heavy duty battery charger. 995.00

[ ] 22. Oscillating fans, specify location. Cost per fan. 65.00

INTERIOR OPTIONS

[ ] 23. Sink in Forward Cabin - Vanity sink installed in counter starboard side forward cabin and mirror over. 275.00

[ ] 24. Built-in book shelf with removable fiddles installed between two cabinets with rattan faced doors in lieu of standard. Indicate port or starboard, ea. 470.00

[ ] 25. Overhead locker above galley sink, with sliding acrylic doors both forward and aft side for pass through storage. 315.00

[ ] 26. Additional Opening Port - Installed in aft cabin. 125.00

[ ] 27. 10" X 10" Bowmar wing hatch installed over Nav Station or over galley. Specify location. Cost per hatch. 375.00

MISCELLANEOUS

[ ] 28. Cradle - Wood construction. 650.00

27 September 1983

Freedom 32

Sail Plan Specifications

A) Main Sail

1) Area of Triangle = 273 sq. ft.
2) Recommended Total Area = 400 sq. ft.
3) P = 39.0 ft.
4) E = 14.0 ft.
5) Luff Slides for #8 Metal Mast Track
6) Foot Slugs ½" Rd. or Bolt Rope
7) Tack cut backs, cut ups, & reef cut backs per Dwg. #F-39-50300
8) There is no outhaul car. Sail should have heavy duty clew slug slide.

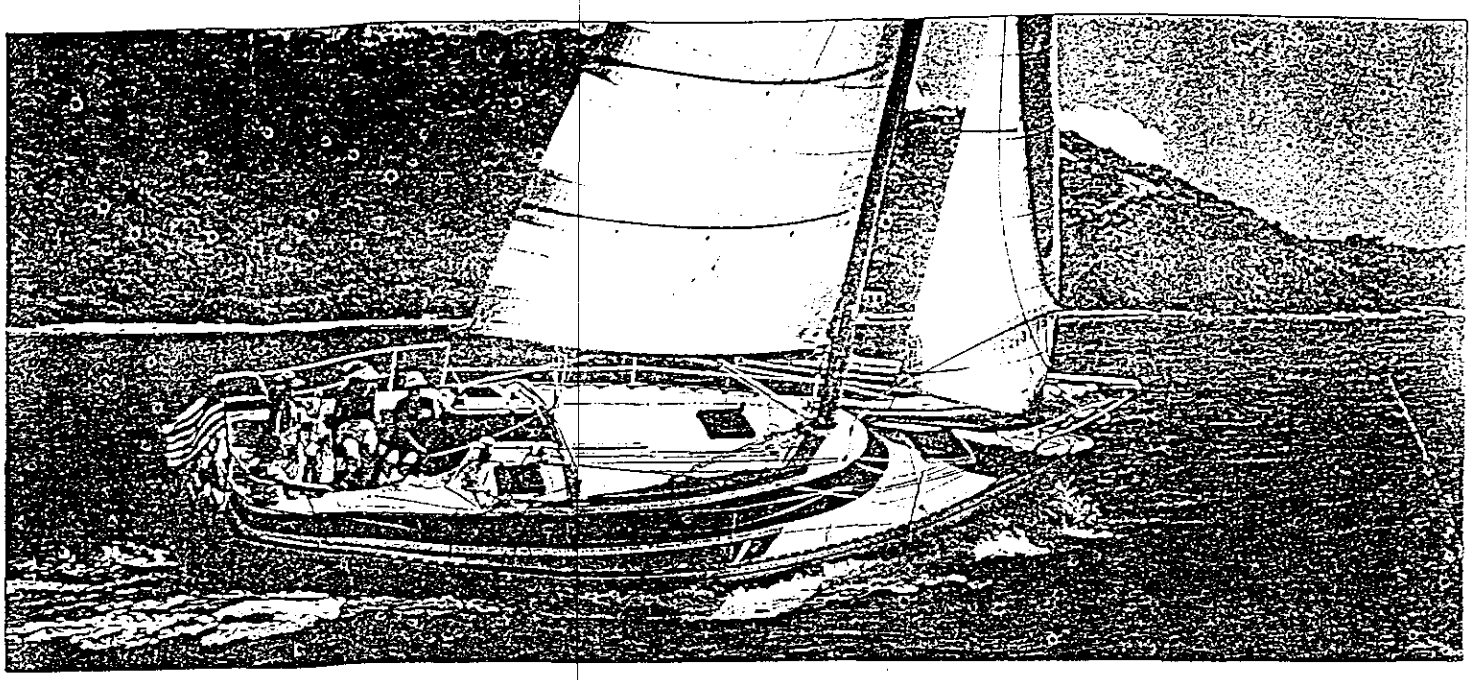
B) Spinnaker

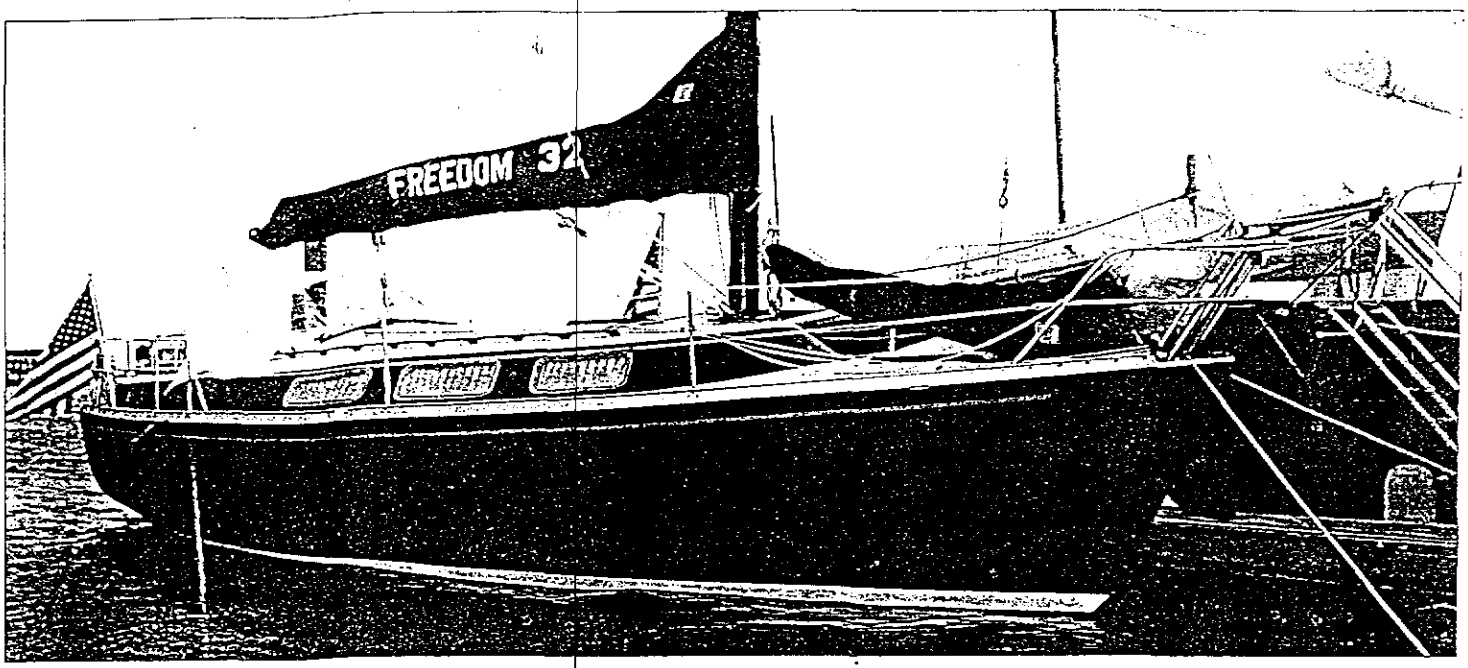
1) Recommended Area 502 sq. ft.
2) Vertical Height of Hoist above pole 31' 9"
3) Pole Length 18' 0"
4) Pole Pivots parallel to sheerline 10' 0" forward of mast face.

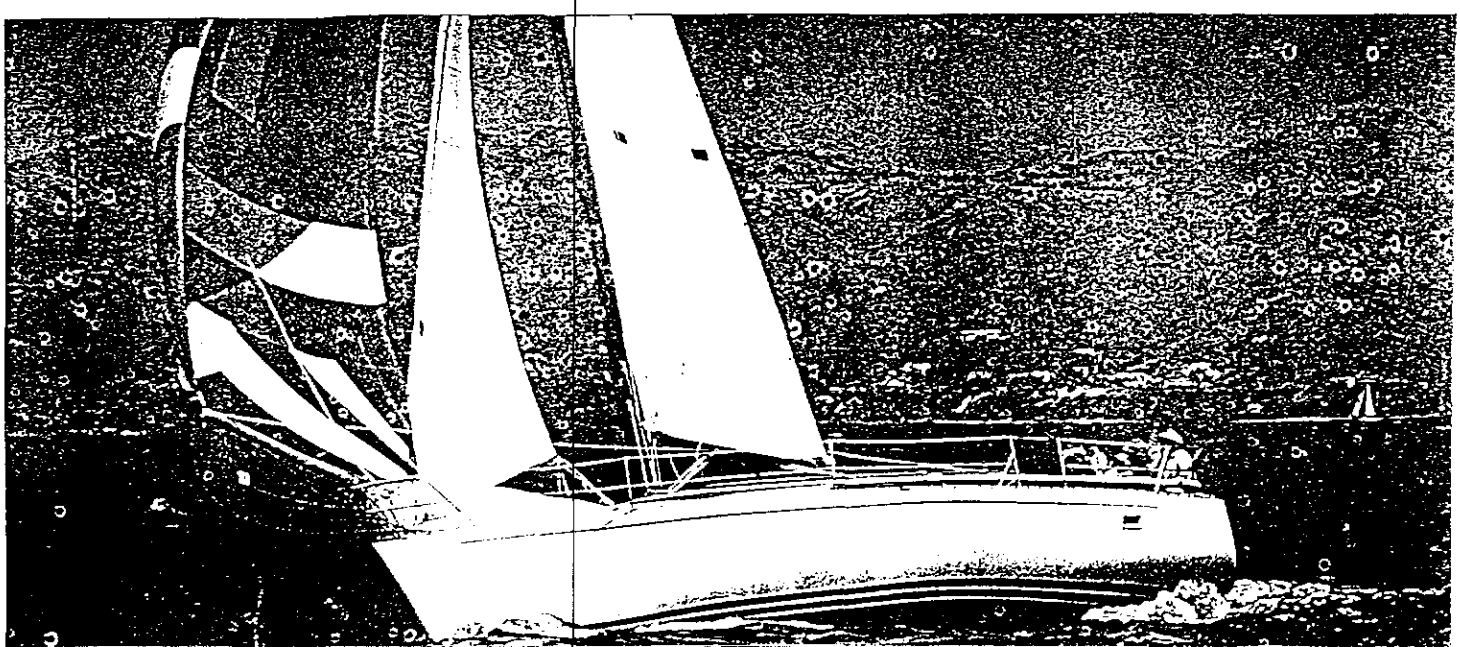
C) Self Tacking Jib

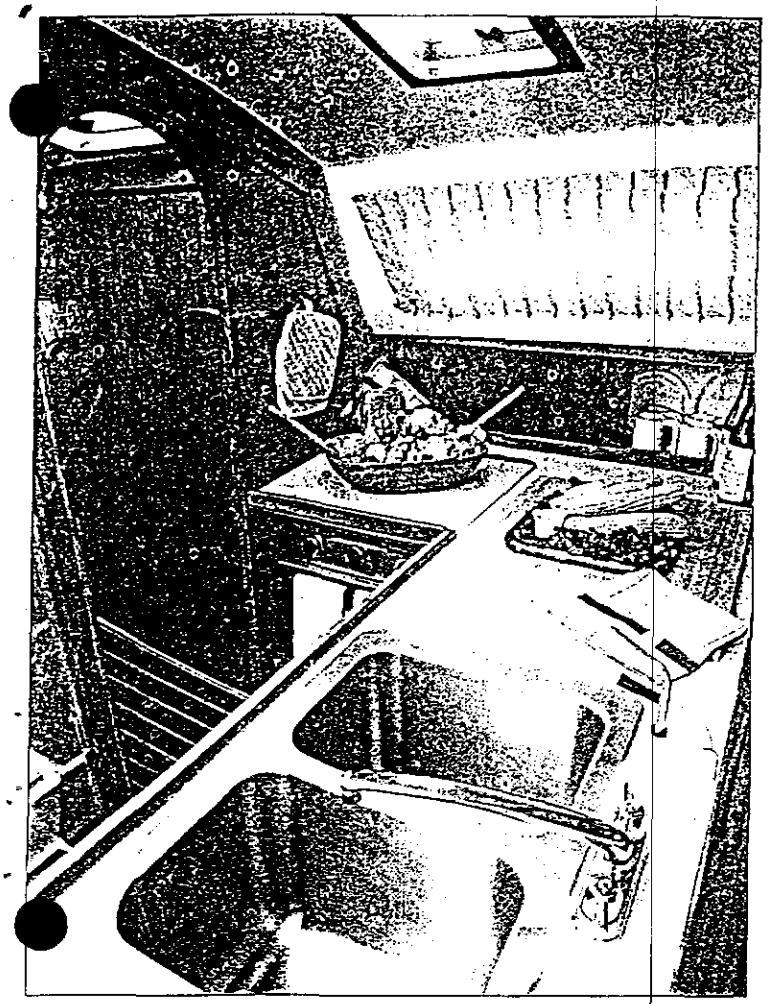
1) For information contact: David Bierig
Bierig Sailmakers
11092 Freeport Lane
NorthEast, PA 16428
(814) 459-8001

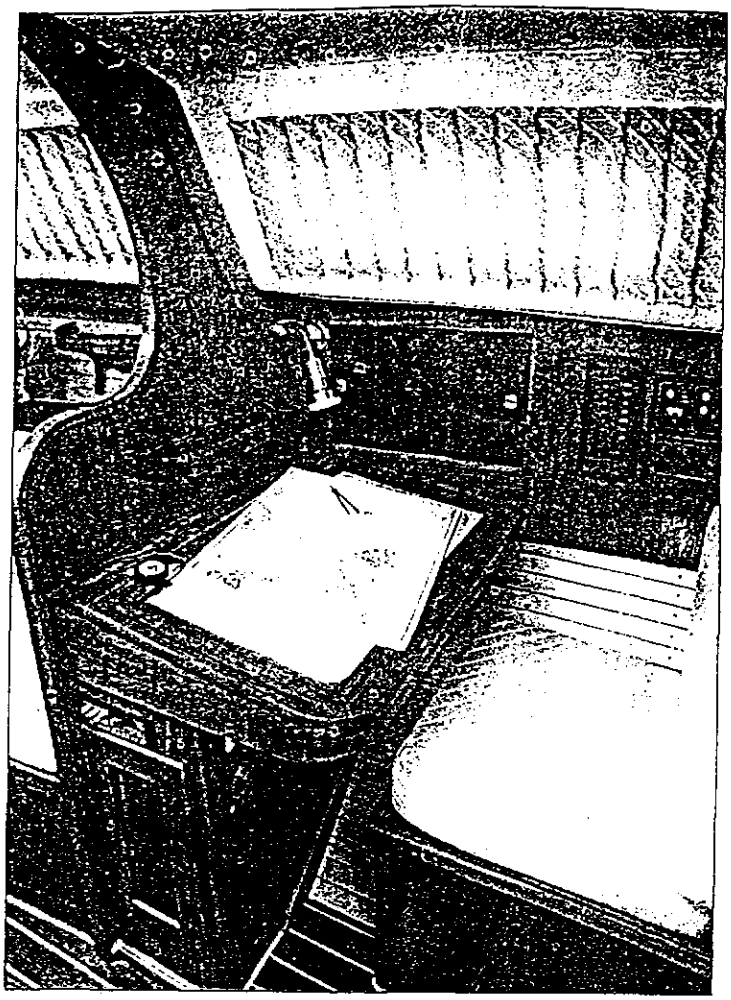
NOTE: All sails to be fully battened with two reef points.

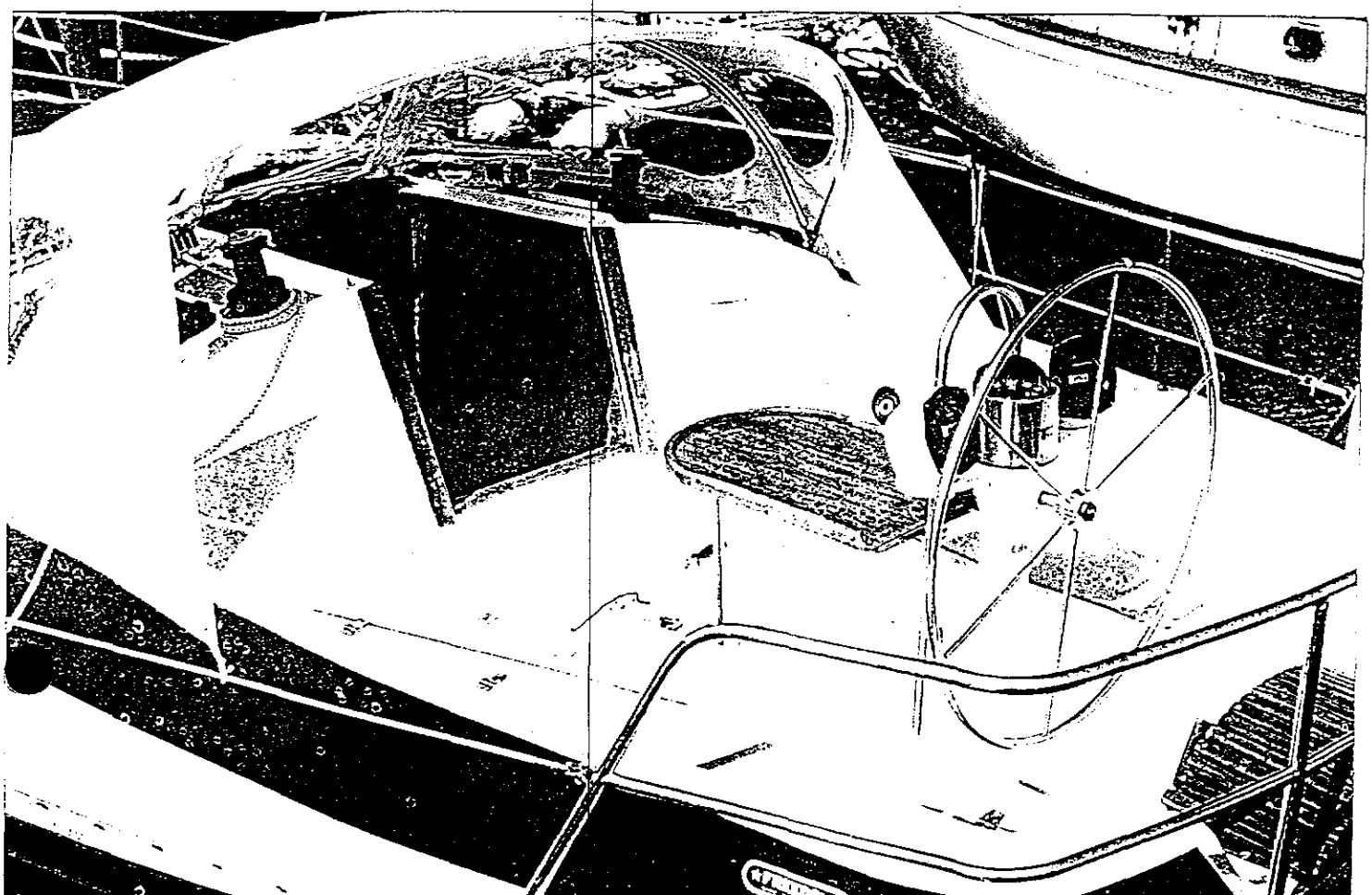



FREEDOM 32









BEHOLD THE CAT SLOOP

A long path of experimentation and development led me to the conviction that this is the best cruising rig for boats under 32 feet overall. The cat sloop rig is importantly different because it is designed to sail in good balance under just the mainsail—something the conventional sloop never manages. Yet the availability of the small self-tacking jib opens up a potential for windward performance that the straight cat boat can never manage. And ours is no ordinary jib—but a patented wishbone jib, employing a single curved wishbone boom enclosed in a sleeve. By ingenious design this boom automatically inverts itself in the sleeve each time you tack, providing self vanging, as well as self tending. So when you ease off on a reach or on a run the jib stays fully effective and does not twist off at the top the way a regular jib does. The wishbone jib will even wing itself out downwind just as if it had a built-in whisker pole. Like the main, the jib has full-length battens, so it never flogs, giving you a better behaved as well as a better shaped, sail. I believe the Cat Sloop combines the best of the Cat and Sloop rigs, and beyond that we have added some unique features.

The Best Reefing System Yet

Like most breakthroughs, this arrangement is astonishingly simple in the way it works. One continuous line accomplishes all the reefing. All you do is ease off the halyard to a pre-marked spot. Then start cranking on the reef line. First the continuous line pulls the new tack into place. Then it brings down the new clew. You never leave the cockpit and the process takes about 30 seconds. To shake out the reef you just ease the reef line and rehoist the halyard. It's simple, safe, and reliable, and we have a patent pending on the process.

The Hoyt Gun Mount™

You don't see spinnakers on cruising boats because most cruisers quite wisely fear its complexities. The sad result is that the cruisers end up desperately depowered downwind, because you can't escape the fact that a displacement hull must add extra sail to achieve satisfactory speed offwind. Most cruisers actually subtract sail area offwind, because their jibs become useless—just slatting about while the main hikes up and presses against the stays and spreaders. So offwind sailing—where the cruiser ideally wants to spend most of his time—is the course most cruisers are least suited for. To correct this, I've invented a way for one person to set, jibe and douse a spinnaker all from the cockpit. It works like a charm and it makes the spinnaker a practical cruising sail. The minute you try it, you'll want it—because it takes the terror out of the spinnaker and gives you supremely simple offwind sailpower.

A Three Cabin Interior

The interior is the heart of a successful cruiser—it must be a place you really enjoy being. We have managed to get two completely separate sleeping cabins plus an inviting circular social area, along with a complete galley, navigation station, and a particularly private head with shower. The pictures tell the story of space, privacy and elegance most 40-footers would envy.

A New Kind of Cruising Machine

The classic cruising choice is between stodgy comfortable boats that aren't fast, and complex boats that aren't comfortable. Nobody can be as fast as a stripped out racer, and still be as comfortable as a fitted out cruiser. But starting with no compromises on the comforts, I believe we've brought the Freedom 32 closer to the racer's speed than any cruiser on the market. Certainly I know of no similar size cruiser that can stay with us. We've done this with a modern underbody and rigging innovations that no one else has. And we've done it so one person or one couple can do virtually everything from the cockpit. If you'd like to sail more swiftly, safely and simply—step aboard.

Garry Hoyt

FREEDOM ★YACHTS★

FREEDOM YACHTS

— January

DESIGNER COMMENTS ON THE FREEDOM 32

The attached photos and interior layouts show the new Freedom 32 which is now available for orders. I have high hopes for this boat, because it represents an updating of my thinking about smaller cruising boats. I am convinced that the modern Cat Rig - supplemented by staysails and the Hoyt Gun Mount - represent a new and a better way. Because the rig starts with the simplicity of a balanced single sail, and lets you add or subtract sail easily to suit the extremes of lighter or heavier weather. And most importantly - the rougher it gets - the more condensed and simplified the sail handling becomes. Because in winds of over 12 knots you are dealing with just one sail and you never have to go forward since all the hoisting, reefing, etc. is done right from the cockpit.

Of course the 32 is inevitably going to be compared with the Freedom 33. But they are really two very different boats - with different rigs and interiors. There is no question that the divided rig has certain advantages for offshore cruising. But good competitors like the Nonsuch have been able to come in under the umbrella of our pioneer work with free standing spars - and successfully exploit the single sail concept. Now - with the Freedom 32 - we can meet them head-on, and beyond that go them one better in terms of interior and performance. And the more modern look of the Freedom 32 should also be able to successfully address the middle of the sailing market - which is the 30 foot fiberglass sloop.

I have sailed the first Freedom 32 extensively here in Newport over the past weeks, and can report that the boat is very responsive and in fact handles like a sports car. The 32 will be offered in two versions - fin keel (6'draft) and shallow keel (4 1/2' draft). The free standing carbon fiber mast requires no backstays, even with the chute up. An optional staysail will significantly improve windward speed in light airs, and the boat can also be equipped with a self tending - or a roller furler jib if so desired.

Best of all is the interior, where we have managed to get 3 separate cabins. There are two widely separated and completely private sleeping quarters. The central social area features a semi-circular table which can be extended to seat 8 people. A head with plenty of room and a proper chart table complete all the elements necessary for a complete cruiser.

Garry Hoyt

FREEDOM YACHTS

FREEDOM 32 SPECIFICATIONS*

****

LOA	32' 9"	Mast Height Above Water	49 ft.
LWL	25' 9"	Sail Area-Main	400 sq. ft.
Beam	12' 3"	Spinnaker	502 sq. ft.
Draft-Shoal keel	4' 11"	Headroom	6' 2"
Deep keel	6' 1"	Tankage-Water	55 gals.
Displacement	8,500 lbs.	Fuel	30 gals.
Lead Ballast	3,500 lbs.	Waste	12 gals.
Engine	Yanmar 3 GM 3 cyl., 22.5 hp.		

****

The Freedom 32 is a modern cat rig. It is exemplary of the innovative designs of Garry Hoyt and the Tillotson Pearson design group. The Freedom 32 utilizes the Tillotson Pearson high technology carbon fiber spar engineering with its ability to carry a spinnaker from its unstayed rig-unsupported by shrouds or running backstays. A fin keel and spade rudder are standard features. A shoal draft keel is offered as an option.

HULL

Gelcoat finished, hand laminated fiberglass with Contourkore reinforcement. Laminate is engineered to provide high strength in critical areas. The core adds strength, thermal and accoustical insulation without undue weight. The laminate has a minimum modulus of 1.0 X 10 million and a minimum tensile strength of 12,000 lbs. per square inch. Boot top and sheer stripe gelcoat colors are molded in.

DECK

A similar hand laminated, cored, fiberglass construction is used in the deck. Heavy reinforcing is built in for deck hardware. Molded in non-skid areas are available in several colors as an option. The cockpit is integral with the deck and is provided with large scuppers draining through the transom. Deck scuppers are molded in.

The cockpit features two coaming lockers on both port and starboard sides. The port coaming locker contains a propane regulator with wooden chocks for the propane tank. There is also room for additional stowage. An additional propane tank may be stowed in the starboard coaming locker which has wooden chocks as well as ample stowage space. Both lockers self drain overboard.

In addition there are two seat lockers. The port aft locker may be used for beverage stowage. This locker is especially handy for the helmsperson and drains overboard. The starboard seat locker is large enough to stow an inflatable life raft as well as docklines and fenders.

SAIL CONTROL

Two Barient #21 aluminum winches control the main halyard, main sheet, first and second reef lines and cunningham or flattening reef. Each line passes through a sheet stopper. A 6:1 Harken vang is provided as well as a 6:1 main sheet tackle on traveler and 3:1 traveler controls and cam cleats. The main halyard is 7/16 Kevlar dacron composite for minimum stretch. The custom fabricated boom provides internal 5:1 main sail outhaul as well as internal [redacted] single line slab reefing. Lazy jacks are also standard equipment.

STEERING

Edson pedestal steering, complete with 36" stainless steering wheel, pedestal guard wheel brake and 5" Ritchie stainless binnacle compass are standard.

Also part of the steering package is a custom designed steering quadrant which allows the helmsman the manuverability one would expect from a sports car.

An emergency tiller is standard.

TOE RAIL

Full length custom slotted aluminum extrusion. The toe rail and deck flange are thru-bolted to the hull flange using 5/16" stainless steel bolts at 4" intervals. The deck is further bonded to the hull using 3M #5200 flexible sealant.

VENTILATION

B[redacted]mar overhead hatches are provided for the fore cabin, the main cabin, the a[redacted] cabin and the head. Also standard is an opening port in the aft cabin which opens into the cockpit.

An optional port may be added from the aft cabin through the hull.

1[redacted]24-83

F32

FREEDOM YACHTS

BLOCKS, FITTINGS, RUNNING RIGGING

Blocks and fittings are predominately Harken, Schaefer, and Kenyon. Running rigging includes halyard, sheet, outhaul and reef lines.

MOORING CLEATS AND CHOCKS

10" forward with skein bow chocks and 8" midship cleats with chocks fitted into the toe rail. 8" mooring cleats aft with fitted toe rail chock.

PROPANE TANKS

A 6 lb. capacity tank is located in a vented compartment built into the cockpit.

C[redacted]MPANIONWAY HATCH

Formed translucent hatch slides into a fiberglass sea hood with water channels r drainage. A smoked polycarbonate weather board is provided for hatch closure.

LIFELINES AND PULPITS

Stainless steel bow and stern pulpits with lifelines run through 24" high stainless steel stanchions. Gates and lower lifelines are optional.

SPARS

The rig is "state of art" high technology carbon fiber engineering. The carbon mast is one piece tapered construction with integral gooseneck. The mast is capable of withstanding tremendous loads in normal operation including flying a spinnaker totally without support from shrouds, fixed or running backstays.

INTERIOR

[redacted]inery of teak wood is custom formed to graceful cold molded curves. Cabin [redacted]le is teak and holly. Hand rubbed oil finish is standard. Overheads are white, foam backed vinyl.

FREEDOM YACHTS

FORE CABIN

6'6" large double berth with standard 4" cushions. Storage is provided below the berth top. To port is a large hanging locker with a hand stretched cane door to provide extra ventilation. To starboard is a dresser with vanity top. A sliding privacy door separates the fore cabin from the rest of the vessel.

MAIN CABIN

To port is a unique U shaped dinette area which drops to make a large bunk. There is storage behind and under the dinette. Built in liquor storage is also found behind the unit. A built in bookshelf is above and outboard of the dinette area.

To starboard is a 6'6" long settee with storage under and behind. Built in bookshelves are above and outboard of the settee. Consult the option sheet for additional available cabinetry.

Overhead handrails down the centerline provide ease of movement underway.

NAVIGATION

The navigation area is located amidships to starboard. There are two choices for the layout of this area.

Navigation Area Choice A is a comfortable sit down area. The chart table provides chart storage under the hinged top. The ship's electrical panel is conveniently located in the navigation area. There is also a storage locker underneath the chart table. Outboard of the chart table is a locker with a sliding Lexan door. The fully upholstered navigation seat provides a comfortable working area as well as storage underneath.

Navigation Area Choice B is a convenient stand up chart table built against the starboard bulkhead. The chart table has a hinged top with chart storage underneath. Beneath the chart table are three drawers and a large locker with a double shelf. As in Navigation Area Choice A, the ship's electrical panel is located here. Outboard of the chart table is a locker with a sliding Lexan door. The stand-up navigation area provides extra galley counterspace when not in use as a chart table.

GALLEY

The galley is located on the port side amidships. A 10" deep double stainless steel sink with locker and three adjacent drawers underneath pressure hot and cold water and a manual back up pump are provided as standard. The gimballed stove is a two burner L.P.G., stainless steel with oven and safety bar mounte

inboard. The 7 cu. ft. ice box provides two level storage with a sliding acrylic shelf. Locker space with acrylic sliding doors and condiment shelf above run full length outboard of the galley. Check option sheet for additional cabinetry available.

HEAD

Located in the starboard quarter, with Groco Marine Toilet and overboard bypass for use offshore, plumbed to a 12 gallon holding tank. A molded sink drains overboard via a thru hull located well inboard to prevent flooding when heeled. Telephone type shower, teak grate and separate sump with electric pump are standard. Ventilation is provided by an overhead opening deck hatch. A storage locker is located over the sink vanity and a convenient wet gear locker is also provided in the head compartment.

AFT STATEROOM

Located in the port quarter, the aft stateroom has a large double berth. Outboard is a hanging locker with additional shelves. The hanging locker door is of hand stretched cane to provide extra ventilation. A storage locker is built in under the companionway stairs. There is also convenient access to the batteries via a built in locker under the companionway stairs.

MECHANICAL AND ELECTRICAL

Engine - Yanmar 22.5 hp. three cylinder diesel complete with fresh water engine cooling located amidships, provides superior weight distribution. The drive train includes flexcoupling, 1" diameter stainless steel shaft, interior adjustable stuffing box, and a 14" RH two blade bronze propellor. The removable settee end, which houses the engine, provides complete access to the engine area. Lead sandwich engine room insulation is standard. Exhaust is muffled with a water lift type silencer, exiting at the transom. Engine instrumentation is recessed into the cockpit and includes warning lights for temperature, oil pressure, and voltage with a gauge for a tachometer. Primary and secondary fuel filters are standard, as is a clean out port in the 30 gallon aluminum fuel tank located on centerline under the salon settee.

Hot water - A six gallon water heater operates either from optional shore power or standard engine fresh water cooling.

Electrical - Two 90 amp hour heavy duty batteries are standard with a selector switch which may be changed while the engine is running without damage to the amp alternator. 12V DC power distribution is through a Bass modular panel with battery condition meter and circuit breakers. All wiring is 14 gauge or larger stranded copper run through non-metallic conduits with junction boxes covered terminal block. Navigation lights conform to marine standards.

Four swivel brass reading lights, and five overhead domes, provide interior illumination.

PLUMBING

All apertures below water line are fitted with bronze flanged thru hull fittings installed in specially reinforced laminate, with bronze 90 degree throw sea cocks. Hoses below water line are double clamped with stainless worm drive clamps. Pressure fresh water system is standard with FDA approved fresh water tanks and polyethelene tubing.

LOOSE GEAR:

(2) two 1/2" X 40' docklines
(2) two inflatable fenders
(1) Barient lock-in winch handle

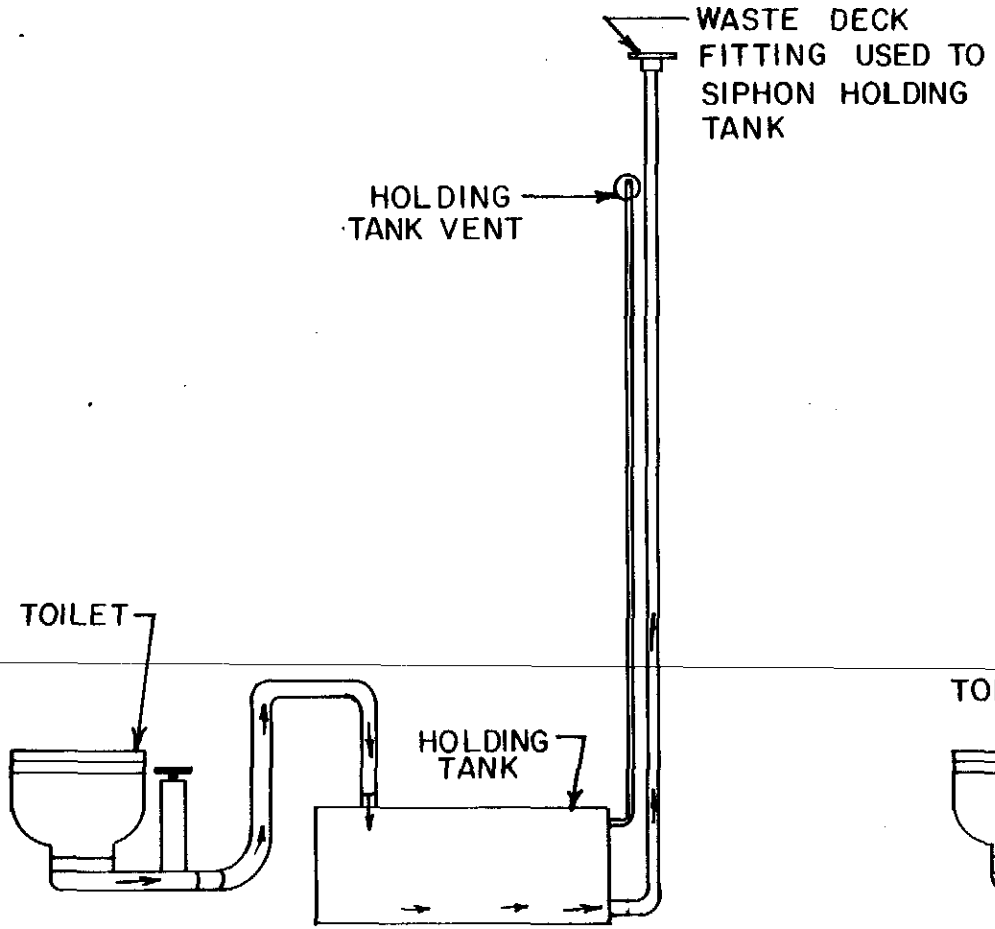
* SPECIFICATIONS, OPTIONS & PRICES SUBJECT TO CHANGE WITHOUT NOTICE

HOLDING TANK CONT'D

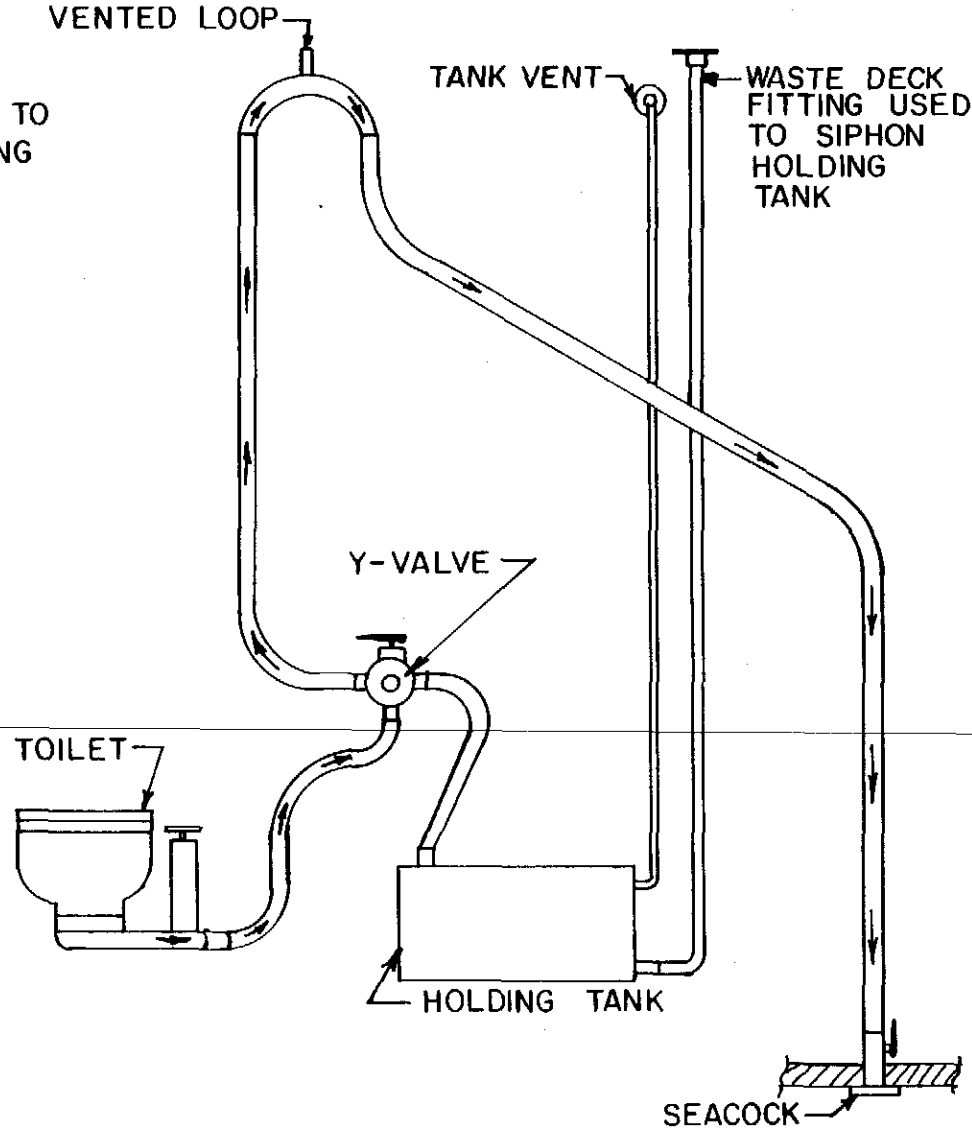
the toilet is pumped several additional strokes after waste has been evacuated from the bowl to insure that the effluence is pumped through the hoses and into the tank.

Care should be taken not to overfill the holding tank as effluent will block the vent hose and may damage the tank. If the toilet is difficult to pump, check to see if the holding tank is over filled. The holding tank must be pumped out before winter storage, and a small amount of potable anti-freeze added to the residual water.

STD. HEAD DISCHARGE



OPT. OVERBOARD DISCHARGE



EXTERIOR MAINTENANCE

Attention should be given regularly to the maintenance of the exterior of your boat to keep its appearance looking new. The following guide will be helpful.

Fiberglass

Even though fiberglass construction has vastly reduced upkeep, some attention to gelcoat surfaces is necessary to maintain the appearance of the finish. After a few years exposure with no protection, the finish may begin to fade or chalk. The twice annual application of a good commercially available wax containing an ultra-violet shield will preserve the appearance of this finish for many years. Be sure fiberglass surfaces are clean and free of salt before applying wax. Abrasive cleansers should not be used for general cleaning. A cleaner with no abrasive properties, such as Spic and Span, is preferred. On the non-skid areas which are difficult to wax, a coating such as Armor All, which is used for coating vinyl tops, will restore the finish.

In the fiberglass molding process, a wax is used on the mold to prevent the part from sticking to the mold. Some of this wax will end up on the fiberglass part. Especially during the first year, the residual wax on the deck may yellow a little, as it is affected by sunlight and airborne contaminants. Eventually, normal washings will remove this wax. If more rapid removal is required, a commercial wax stripper can be carefully applied.

Bottom Paint

One coat of bottom paint is applied at the factory. Generally, a second coat applied before launching will afford the best protection. Check with your dealer for a paint compatible with the factory applied paint. A non-compatible paint may lift the factory applied paint.

Bottom paint should be lightly sanded before recoating. Always

Bottom Paint Cont'd.

wear a respirator when sanding bottom paint - it is toxic. After several coats, it will be necessary to remove the accumulation of bottom paint, preferably by sanding with a rotary sponge-backed pad, or with paint remover designed for use with fiberglass.

Zincs

Every boat should have a shaft zinc installed as a sacrificial anode to protect the propellor and shaft from electrolysis. These zincs can deteriorate very quickly so frequent inspections should be made.

Exterior Teak

If left untreated, exterior teak will discolor rapidly, turning a dull grey color. Teak is relatively open grain wood, and eventually mildew may form in the grain, resulting in a very dark color.

If you wish to maintain the warm brown color, the teak must be kept clean and oiled. The grain of the teak will raise as the wood is wetted. The job of keeping up the teak will be much easier if the wood is sanded very smooth. Use sandpaper for this purpose, and be careful not to scratch the gelcoat. The best routine for bringing back discolored teak is to scrub thoroughly with a teak cleaner and water, allow to dry, and sand. Then apply multiple coats of a high grade teak oil. Some teak cleansers will stain the gelcoat, so be sure to hose off the deck and topsides thoroughly.

A good applicator for teak oil is a small piece of a sponge, perhaps 1" square by about 3" long, with one end tapered to allow application close to the deck without touching the gelcoat. Most teak oils will stain the gelcoat and are difficult to remove. Therefore, be careful and clean up drips promptly.

CAUTION: Some teak oils are extremely flammable. Be sure that

Exterior Teak Cont'd.

any rag used with teak oil is taken off the boat and disposed of in proper containers for rags with flammable substances. If left in open containers, rags may spontaneously combust. Many fires have been started through combustion of teak oil soaked rags.

Deck Hardware (Blocks, stoppers, etc. excluding winches)

As frequently as possibly, wash deck hardware with fresh water to remove accumulated salt and general grime. Lubricate sheaves, bearings, etc. with silicone spray (WD 40 is a popular brand). Avoid overspray on deck as it will get slippery.

Winches

Like all fine machinery, winches do require periodic maintenance to assure their proper operation. Failure to properly maintain winches may result in their malfunction, which may cause injury.

Specific instructions for the winches installed on your vessel are included with the other manufacturer's literature. At least twice a year, winches should be disassembled, cleaned, and lubricated. Note that the gears and bearings are lubricated with grease, but pawls and pawl springs should have only light oil applied. Kits of spare parts for winches are available and we recommend you obtain appropriate kits for your vessel.

Deck Hatches

Non-skid tape is a good idea on the translucent deck hatches as they become slippery when wet. The tops of the hatches are made from plastic, which will be scratched by ground-in sand, coral, etc. If more privacy is desired, sand the inside of the hatch cover with#120 sandpaper which will "frost " the surface.

INTERIOR MAINTENANCE

As on the deck, the interior gel coat surfaces should be cleaned periodically with non-abrasive cleansers and smooth areas should be waxed. Use a coating such as Armor All to maintain the non-skid areas.

All solid and plywood teak surfaces have been oiled prior to delivery. If more oil is desired, it can be easily applied with a foam brush or sponge. For an even finish the oil should be rubbed with a rag shortly after application. The factory applied oil finish on the teak makes a good base for varnish if so desired. (Be sure any rag having even a trace of teak oil is removed from boat.)

The bilges are painted with epoxy paints. They should be washed regularly to prevent the growth of mildew which can foul the bilge pumps.

The interior and exterior stainless steel surfaces can be treated with Neverdull or other light abrasive stainless steel cleansers. Toothpaste also works well as a cleanser for this purpose.

Portlights

The ports are glazed with "Plexiglass" or "Lexan", noted for their high impact resistance. Gritty cleaning agents with abrasives, such as cleanser, will scratch. Use only mild soap and water to clean the ports.

Some chemical solvents, notably Acetone, will also injure the port lights.

PROPANE STOVE - OPTIONAL

(Refer to Propane System Diagram)

The propane (LP) gas stove installed on your vessel will give heat comparable to a home gas stove.

In the interest of safety it is important that the properties of liquefied petroleum gases be understood and that safe practices for their use be followed. Under moderate pressure the gases liquefy; upon relief of the pressure they are readily converted in to the gaseous state. Advantage of this characteristic is taken in their usage, and for convenience they are shipped and stored under pressure as liquids. In their gaseous state they present a hazard comparable to any flammable natural or manufactured gas, except that they are heavier than air. Although the vapors tend to sink to the bottom of an enclosed compartment into which they are released, they will diffuse throughout, and are not readily dispelled by overhead ventilation. Safety requires the prevention of escape of any liquefied petroleum gases, for when mixed with air in certain proportions they will explode if ignited.

*Reprinted from A.B.Y.C. Safety Standard #A-1-70

In addition to the manual shut-off valve located on L.P. tanks, the vessel is equipped with an electrically operated solenoid valve which shuts off the flow of gas at the tank. This valve is a "normally closed" valve; therefore electrical power must be provided so gas can flow to the stove.

Typical Stove Operation Routine

1. Check that all burner (including oven) knobs are off.
2. Check manual valve on tank and open if necessary. Make sure selector valve is on full tank. (if so equipped)
3. Be sure battery switch is on and 12 volt power is available.
4. Turn on circuit breaker for solenoid valve, and separate control for stove (if provided).

Stove Operation Cont'd.

5. Open burner valve on stove slightly and light burner. Note - some stoves may have a device which shuts off the flow of gas until burner is hot. On these stoves, an override button is provided which must be held in until the burner is lighted and hot. Refer to stove manufacturer's instructions provided with the vessel.

6. Never, ever, leave a lighted burner unattended. A gust of wind may blow flame out and allow gas to continue to flow from burner. L.P. gas is heavier than air and may explode.

7. If gas odor is observed, immediately open floor boards and vacate vessel. Do not do anything which may cause a spark. Do close manual valve on tank. Open all hatches and seek aide immediately.

8. When cooking is completed:

   A. Turn off electrical power at switch for stove, and at panel (if separate).

   B. After flame of burner in use has gone out, turn off knob for burner. (This will purge gas from lines).

   C. If you are leaving vessel, good seamanship dictates also turning off manual valve on tank.

CAUTION:

1. Keep container valves closed when boat is unattended. Close them immediately in any emergency.

2. Be sure all appliance valves are closed before opening container valve.

3. Always apply lit match or other flame to burner before opening valve.

4. Close master valve on appliance whenever appliance is not in use.

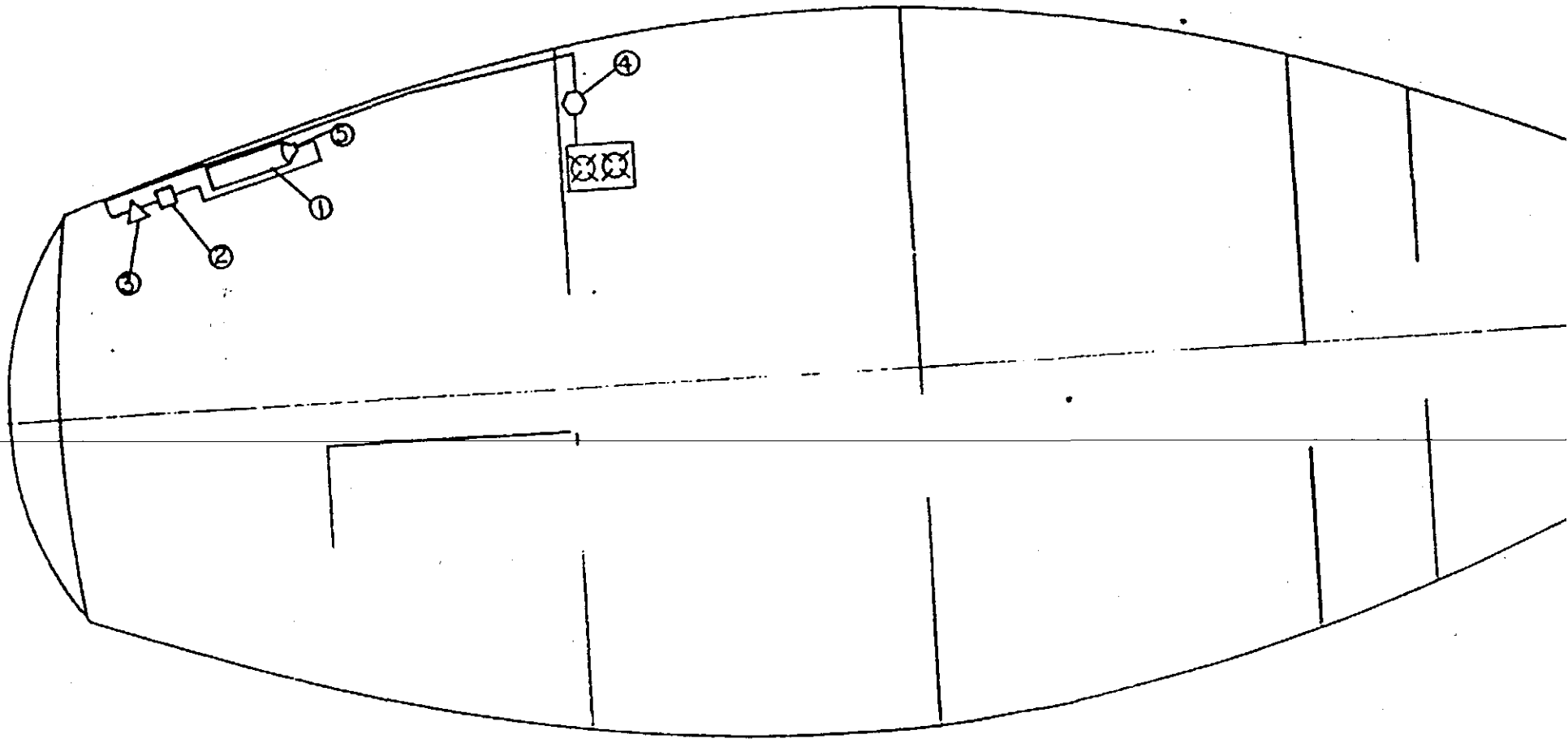
Propane Leak Test: All of the connections in the propane system should be checked during the initial commissioning, at least twice a month thereafter, and every time a bottle is refilled.

Locate leakage by the application of liquid detergent or a soapy water solution at the connections. Repeat the test for each container in a multi-container system.

Also check for leaks by watching the propane gauge. If the pressure drops while no one is cooking then retest all connections until the leak is discovered.

NEVER USE FLAME TO CHECK FOR LEAKS

*Reprinted from A.B.Y.C. Safety Standard A-1-70



PROPANE SYSTEM

	T.P.I. PART NO.
1. PROPANE TANK	17061
2. SOLENOID	15034
3. REGULATOR	17064
4. SHUT OFF	17070
5. PRESSURE GAGE	17074
6. STOVE	17069

WINTER STORAGE

Sails, Sheets and Lines

Sails and lines should be removed at the end of each season and stored in a warm, dry place. If it is possible to dry them thoroughly, they should be rinsed with fresh water before storage.

Engine and Fuel System

Check the engine manual for maintenance guidance during the season and for the specific haul out procedures necessary to winterize the engine. Fill fuel tank(s) to minimize condensation and add an anti-bacterial agent.

Batteries

If the vessel is equipped with an automatic battery charger and a reliable power source is available, batteries may be left on "Charge" onboard throughout the winter (in latitudes below 40 degrees North). Check batteries for electrolyte level at least once per month, but add water sparingly, as the water may freeze before going into solution with the existing electrolyte.

Preferred treatment is to remove the batteries from the vessel, and store in a heated area, recharging periodically to maintain full charge status. (Required treatment in latitudes above 40^{o} North.)

Head

As with the engine, the specific procedures for preparation for winter storage and recommissioning are contained in the manufacturer's manual.

Fresh Water System

Drain all tanks in preparation for winter storage. Be sure to drain the water between the heater and the check valve installed in

Fresh Water System Cont'd.

the supply line. Add an anti-freeze solution specifically designed for Marine/RV potable water systems to the residual water in the water tanks, and pump with both manual and pressure pumps until all lines are full of anti-freeze solution. DO NOT use automotive radiator-type anti-freeze, as most are poisonous and may damage the plumbing.

Bilges

Be sure to pump the bilge completely dry.

Ventilation

Leave the dorade vents in place and open so that the boat can get air during the winter. If a winter cover is used, it is recommended that the hatches be left partially open to enhance air circulation. This will help to prevent mildew. Also, it is recommended that boat cushions be removed and stored indoors for this same reason.

Winter Cover

If storing outdoors, a winter cover is recommended. It can be as simple as a rectangular piece of canvas forming a tent over the boat. A rige pole (formed by 2" x 4"'s along the centerline) several feet above the cabin top, well supported at several places along its length, is sufficient to support the center. The stanchions can be removed from their sockets, and ropes tied from the rige pole to the sockets to help support the cover. Use carpeting to pad any areas of chafe. Lash the cover tightly to the cradle, avoiding any grommets in contact with the gelcoat.

If at all possible, use a cover which does not extend partially over the gelcoat. Uneven covering with winter covers may cause color variation in topsides. Plastic covers may trap water in between the hull and the cover, causing premature failure of the gelcoat.

Winter Cover Cont'd.

Cradle

Make sure that the boat is adequately supported and that any suspected weakness has been reinforced. The keel of the boat must rest solidly on the main beam. The vertical risers are not intended to carry the load, merely to stabilize the boat.

Storing of Masts

While carbon fiber spars are exceedingly strong along their long axis, they can be damaged by crushing of the tubular section. Always store masts on well padded supports and do not place any weight on top of the mast(s). Do not use tape directly on the mast surface, or the paint may lift when the tape is removed. Plastic coverings can also abrade the paint coating and should be avoided. There is no harm in leaving carbon fiber spars installed in the boat through the winter providing the boat hull is adequately supported and a large build up of ice does not occur on the spar.

SAILING CHARACTERISTICS

Simplicity is one of the key ingredients in any Freedom Yacht. This is most obvious in the absence of stays. Consequently, there are no complex tuning instructions normally associated with the average stayed rig. There is only one place to put this mast--just place it in and forget it. The apparent confusion of lines in the cockpit quickly dissipates when you familiarize yourself with the function of each line. The purpose of so many lines is to give you complete and safe control from the cockpit. For your convenience rope hooks are installed so each line can be hung up out of the way.

TO HOIST SAIL

Remove the sail cover, untie the stops and hook up the halyard to the head board. Be sure the halyard is inside the two lazy jacks. Check batten tension - basically you want the battens to be tied in tightly for light to medium winds and looser for heavier winds. This does not mean that you have to adjust batten tension every time you go sailing. Set them only once for the most consistent weather in your sailing area. Release the main sheet and ease the boom vang. Haul the main halyard up by hand for at least two-thirds of the way, then switch to the winch. Care should be taken to maintain the sail, headboard and battens between the lazy jacks. This is best accomplished by keeping the bow of the boat head-to-wind. Winch the halyard up until the luff has the tension you desire. The top of the headboard should be about 3 inches below the mast top. Adjust outhaul tension (more tension in heavy winds, less tension in lighter winds).

Trimming Sails Cont'd.

in the sheets, in order to restrict the travel of the boom to 90°. Allowing the boom to travel further than 90° is not efficient, and will subject the boom gooseneck bracket to excessive strain, which after some time will cause a failure.

Reefing

We've made reefing just about as simple as it can be and it's all done from the cockpit. There are two reefing lines - one to port and one to starboard. The procedure is to ease the main sheet and vang to relieve pressure on the sail. Lower the main halyard to the first reef position (you can mark this on the halyard) and then simply winch in the reefing line. Being continuous, the reefing line will first bring the new tack down to the boom. Check that reef block drops into the proper position. Then the line will pull the new clew down. Because of the stabilizing influence of the batten, you should not have to lash the sail further.

Hoisting and Trimming the Jib

Remove the sail cover and sail ties, shackle jib halyard to head of sail and release the stopper on the jib sheet so that sail will luff when hoisted. Halyard tension should only be sufficient to flatten luff. The jib boom system is designed to automatically increase tension on the head stay in order to maintain an efficient leading edge. The headstay should not be pretensioned. Tighten turnbuckle only to remove slack in the wire. The rig will provide all the tension