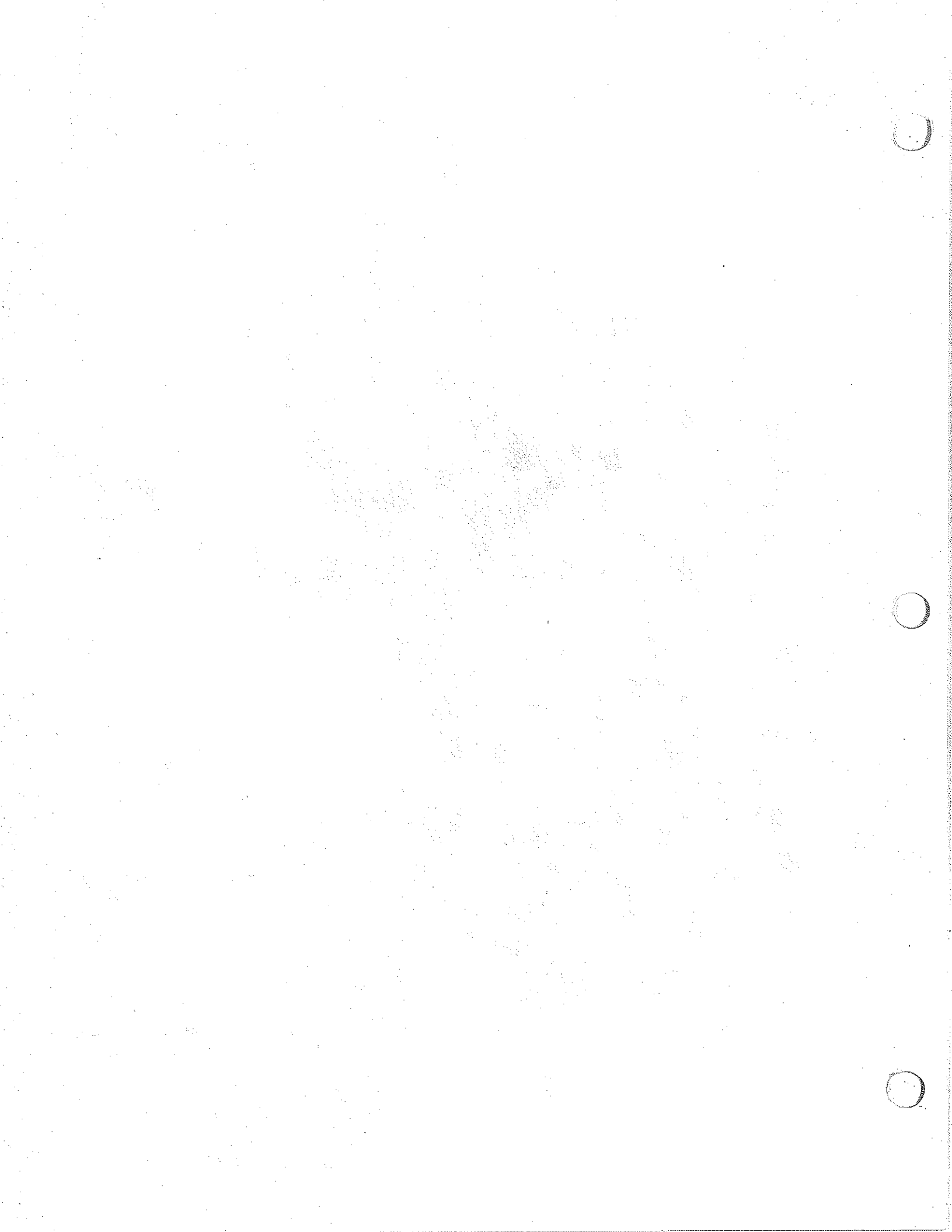


# **PDQ 36**

## **Owner's Manual**

**PDQ Yachts Inc.**  
**Whitby, Ontario**  
**Canada**



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## Introduction

This manual is the product of building some 48 PDQ 36's and 16 PDQ 32's. It reflects our experience of working with the boats and their owners and includes a great variety of the ideas, improvements and, inevitably, solutions that we have shared. We hope that as you settle in to your new 36, you will share your ideas and experiences with us so they can benefit others as others' experiences have benefited you.

We update this manual continually, and we are confident that it covers your vessel accurately. With the many possibilities of options and layouts, however, we have never yet built two boats exactly alike, so there may be points of difference in equipment and options. We hope that any confusion that results will be minor.

In addition, we've expended a conscientious effort to make this manual as complete and error-free as possible. Nevertheless, there is always room for improvement, and we ask that you let us know of any errors, ambiguities or weak areas you find.

### **Disclaimer**

*Although PDQ Yachts Inc. has reviewed this manual, the company makes no warranty or representation, either express or implied with respect to the accuracy of the contents of this manual. In no event will the company be liable for direct, indirect, special or consequential damages resulting from any defects or inaccuracy in this manual. No employee or agent of the company is authorized to make any modification or addition to this policy.*

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## Weights & measures - PDQ 36

Built for:

Hull Identification Number

(located on the inboard, aft side of the  
starboard hull at the hull/deck joint):

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### Basic dimensions

	Standard	Metric
LOA	36' 5"	11.1 m
LWL	34' 4"	10.5 m
BOA	18' 3"	5.6 m
Beam (hull centres)	13' 0"	4.0 m
Beam (waterline)	3' 0"	0.9 m
Draft	2' 10"	0.9 m
Weight	8,000 lb.	3,629 kg

Height of masthead above water 47' 0" 14.3 m

Sail area

Main	275 sq. ft.	25.5 m <sup>2</sup>
Genoa (135%)	325 sq. ft.	30.2 m <sup>2</sup>
Jib	190 sq. ft.	17.6 m <sup>2</sup>

Capacities

Fuel	55 US gal.	208 l.
Fresh water	85 US gal.	321 l.
Holding tank	35 US gal.	132 l.

Motors

Yamaha 9.9 HP, Model EXR, high-thrust electric start

Serial numbers

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Electrical Systems:

AC	115 volts, 60 cycle, 30 amps
DC	12 volts

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## **Location of safety items**

Please complete this section as a quick reference for others on board this vessel. Canadian and US Coast Guard requirements are listed on page 20.

- Please remember that distress signals and fire extinguisher charges expire and must be replaced or recharged.
- A strong bucket does double duty as a fire extinguisher and emergency bilge pump.
- Life jackets should be kept clean and dry; try them on periodically.
- From time to time, try your skill at throwing your life ring or other throwable device at someone in the water.

**Fire extinguishers:**

**Life Jackets:**

**Throwable device:**

**Visual distress signals:**

**Sound signalling devices:**



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### Preparation for departure checklist

- Open sea cocks as required (locations, page 51).
- Switch on "house" (general usage) batteries (switch locations, page 18 and 51, battery locations, page 51).
- Switch on main electrical system and required circuit breakers on the main electrical panel in the navigation area.
- Open valve on propane tank, if required (location, page 22, illustration, page 51).
- Secure any loose gear, above and below deck.
- Ensure that safety gear is aboard and correctly stowed.
- Instruct guests who are unfamiliar with the boat on safety procedures, location of safety gear and fitting of life jackets. Ensure that they are wearing or have brought appropriate clothes for anticipated and possible weather.
- Check sails and sail handling gear for correct operation.
- Check steering and motor controls for unencumbered operation. Please read carefully the notes on starting the motors, page 16, and operating under power, page 32.
- Open the motor hatches on the Classic, and check the fuel and electrical connections to the motors. Make sure that the motor mounts are tight and ties on the mounting screws are secure. Check fuel levels (fuel types, page 17).
- Lower motors, ensuring that each motor lowering line is taut and held clear of the motor when the motor is down, but not tight.
- Switch on the motor-starting battery (switch locations, page 18 and 51, battery locations, page 51) and start motors, allowing them to warm up until they have dropped back to a slow idle (see page 16).
- Cast off dock lines and manoeuvre away from the dock.
- Stow dock lines and fenders.
- Find a clear patch of water to raise the sails in, then shut down and raise the motors (see precautions on raising motors, page 32).
- Enjoy yourself.

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**Return to harbour - checklist**

- Switch on "ship's"(motor starting) batteries (switch locations, page 18 and 51, battery locations, page 51).
- Lower motors, ensuring that each motor lowering line is taut and held clear of the motor when the motor is down, but not tight.
- Start motors (see page 16).
- Lower sails in a clear patch of water.
- Remove dock lines, fenders and boat hook from lockers and place as required.
- Return to dock or mooring and secure.
- Shut down and raise motors.
- Close valve on propane tank if the boat will be left for a prolonged period (locations, page 50).
- Connect shore power and set required battery charging condition (page 18).
- Closing sea cocks when the boat is to be left for any length of time is recommended (locations, page 51).
- Switch off 12-volt power within the boat (page 18).

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## How to contact PDQ

The factory and head office are located at:

PDQ Yachts Inc.  
1710 Charles Street  
Whitby, Ontario  
Canada, L1N 1C2

Tel: (905) 430-2582  
Fax: (905) 430-8306

The USA sales and service office is:

PDQ Yachts USA  
309 Third Street  
Annapolis, Maryland 21403

Tel: (410) 268-3700  
Fax: (410) 268-3544

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## Your warranty

Your PDQ 36 has a 12-month warranty on parts and labour, starting on the date of departure from the factory.

The warranty against blistering is extended to five years when the optional Interprotect 2000 epoxy undercoat has been specified. This provides a sliding scale of coverage.

Year 1: 100% of costs to repair the affected area.

Year 2: 90%

Year 3: 80%

Year 4: 70%

Year 5: 60%

It is essential that you contact us before you start any work that you believe to be covered by the warranty. Prompt communication with us will speed your claim and ensure the best possible resolution, as we cannot consider any claim based on work already performed.

The equipment installed by PDQ is chosen because we believe it will give good and reliable service. The warranties for installed equipment are provided by the equipment manufacturer or distributor. Due to the nature of their products or the anticipated use, however, not all manufacturers provide the same warranty coverage. You should familiarize yourself with the warranty documentation relating to the equipment on your PDQ 36. Also, you should return any required registration cards as soon as possible after delivery to obtain the maximum coverage.

We cannot take any responsibility for equipment provided by you, whether installed by PDQ or not.

Should you encounter difficulties with any manufacturer's warranties, please contact us and we will assist you.

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## Your responsibilities

PDQ Yachts are a product of our experience, and of the thoughts and suggestions offered by people who have chosen and sailed our yachts. They are the boats we want to sail ourselves, and we believe that they are among the best multihulls built in the world. Our policy of continuous improvement ensures that each is better than the last.

In the end, however, your enjoyment of your PDQ yacht and your success in its operation are ultimately dependent on the care and quality of effort you devote to knowledge of vessel operation and the care of the yacht itself. e

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### Knowledge

Instruction in the safe operation of a large yacht cannot be taught in the confines of a manual. Parts can be taught in books and in classrooms, but much knowledge must be actively sought on the water by the conscientious operator. Courses in navigation and seamanship are taught by

Canadian Power & Sail Squadrons	US Power Squadrons
26 Golden Gate Court,	1-800-336-2628
Scarborough, Ontario,	In Va., 1-800-245-2628
M1P 3A5	
416/293-2438	

Advertisements with local contact addresses are frequently posted in yacht clubs, marine supply stores and marina bulletin boards. Boat owners in your area may have other suggestions.

These courses lay a firm foundation of knowledge in

- Seamanship and boathandling, basic to advanced
- Regulations for prevention of collision, international and inland
- Navigation - basic to advanced
- Radio communication
- Safety at sea
- First aid
- Dealing with serious storms
- Distress communication
- Weather prediction
- Pollution control
- Respect for others on the water

Please note the U.S. Coast Guard boating information line  
1-800-368-5647 or 1-202-267-0780

The Red Cross, St. John's Ambulance Corps and others offer courses in first aid and cardio-pulmonary resuscitation (CPR), which are reassuring to know when cruising far from home.

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### **Statutory requirements**

Depending on where you document or register your boat and where it is operated, you and the boat will be subject to a number of legal requirements. These requirements include, but are not limited to

- Complete and current documentation or registration certificates.
- Required safety equipment, in good condition (see page 20).
- Operating understanding and licence for VHF radio.
- Charts for the boat's operating area.
- Knowledge of federal, state or provincial and local regulation respecting
  - safety;
  - discharge of wastes (grey water and sewage);
  - speed and wake;
  - noise.
- Knowledge of accident reporting requirements (copies of the U.S. Coast Guard form are included with this manual).
- Understanding of the obligation to render assistance to persons in distress.

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## The PDQ 36

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### **General description**

Your PDQ 36 is a cruising catamaran which combines comfortable accommodation, good performance and pleasing appearance. It is intended primarily for coastal cruising and island hopping, and is capable of offshore passages.

This is a strong, safe boat, built by experienced boatbuilders, with best-quality materials, to the design of a professional engineer who is also an experienced multihull cruiser. There are six watertight compartments: 4 forward and 2 aft. The fin keels have a sacrificial section to allow the boat to stand up to a grounding at relatively high speed.

The PDQ 36 is, as far as possible, customized to the owner's requirements—giving a truly individual feel to each boat. The basic layout of the boat gives two double berths forward. A large open-plan saloon places the galley on the port side and navigation station on the starboard side. The large head is located in the starboard aft cabin. The port aft cabin is normally custom fitted to individual requirements.

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### **Propulsion**

#### ***Sails & rigging***

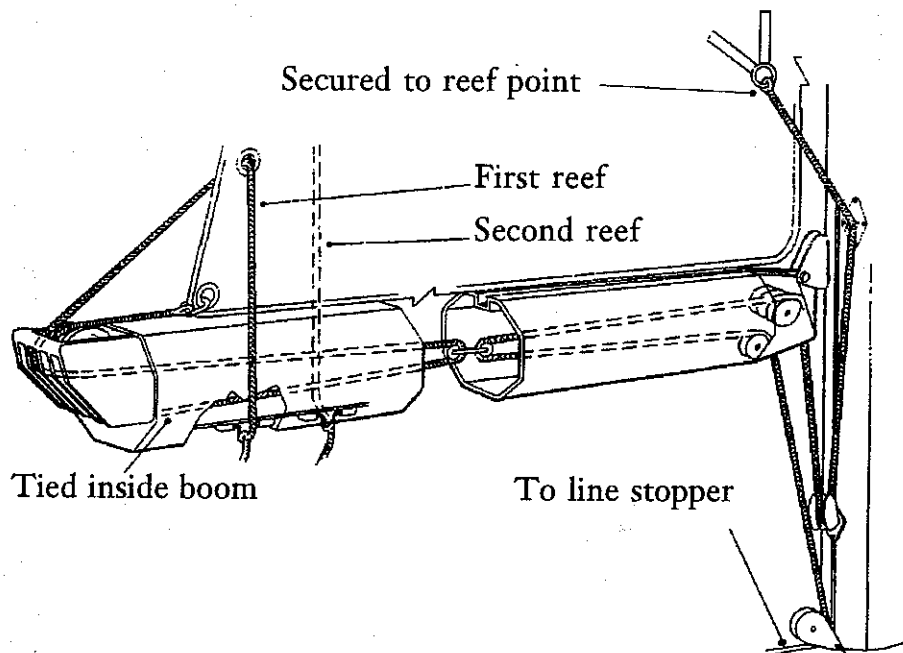
The PDQ 36 is a masthead sloop with anodized aluminum mast and boom. The mast is tapered.

The sails are of Dacron, with covers to protect the sailcloth from unnecessary degradation by the sun. The mainsail is fully-battened, with lazyjacks and two single-line, slab reefing positions (see page 55 for a detailed diagram of the reefing system). Roller furling is provided for the jib as an option.

The standing rigging is 1x19 stainless in appropriate gauges, with swaged terminals and open turnbuckles. See page 38 for recommendations on preparations for offshore passages.

All halyards are of rope. Two main halyards are provided. The spare one used as a topping lift.

- Maintenance suggestions are given on page 38.
- Running rigging specifications are given on page 38.



*The single-line reefing system. This diagram, also showing possible outhaul variations, is reproduced at a larger size on page 55.*

### **Rigging setup**

PDQ sets up boats for deliveries and for our own use according to the following procedure.

- Take up most of the adjustment in the furling gear, so that the mast is vertical or raked slightly aft.
- Take up the upper shrouds until an average man leaning on them hard can deflect them 4 to 6 inches.
- Take up the backstays until they deflect 6 to 9 inches.
- Take up the lower stays until they are snug and the mast is straight. They should have the lowest tension of all stays.
- The tautness of the baby stay should lie about midway between the uppers and the lower stays
- Install locking pins all around.
- Locking pins and rigging tensions should be checked on a regular basis.

### **Steering**

The steering consists of a stainless steel chain, pulling two stainless cables through flexible conduits, connected to a quadrant in the starboard hull. A cross-tube with ball joints connects to the port rudder. The rudders are balanced spade-type, with Schedule 40 316 stainless steel stocks. (Maintenance recommendations, page 39.)



An emergency tiller is provided in case of steering failure. It can be used with either rudder by removing the deck plate located on the centreline of the hull at the very aft end of the deck. We recommend that you try fitting and using this tiller while under sail and under power at the earliest opportunity.

### **Auxiliaries**

The "Classic" auxiliary engines are Yamaha 9.9 HP outboards, specially developed for auxiliary use. They are located under the cockpit lockers, and are raised and lowered by ropes in the cockpit. All controls for starting, gear-shifting and motor speed are located at the helm. Emergency stop is provided by a plastic key on a red lanyard at the controls.

The engines are 4-cycle, and oil is not added to the gasoline. Oil is carried in the engine sump, and the level should be checked, topped up and changed as recommended in the motor manual.

The engines for the LRC are twin Yanmar 18 HP Diesels equipped with saildrives.

### **Checklist for outboards**

Please read the manuals provided by the manufacturer before use of motors and prior to carrying out any maintenance. The motors will work better and last longer. *Incorrect operation or failure to perform required maintenance may jeopardize the manufacturer's warranty.*

Before starting the motors, make sure that the mounts are tight, and that the mounting screws are securely tied off. Check the electrical and fuel connections.

When inserting the starter keys, make sure that each key goes into its correct ignition lock. (You may simplify this by colour-coding the port and starboard keys with red and green tape or a key tag.) Do not try to force the key, as this may damage the ignition lock.

Ensure that the Yamaha outboards' green oil pressure lights are *on* when they are running. If the oil pressure light goes out, stop the motor as quickly as possible. Correct operation of the cooling system is shown by the small jet of water at the back of the engine.

Disconnect the batteries before removing the motors or performing any major maintenance.

### **Checklist for LRC inboards**

The Diesel's manual contains an excellent and concise summary entitled, *Basic rules...* Please read this two-page section as a guide to other information you may need from the manual. The motors will work better and last longer if you understand their needs. *Incorrect operation or failure to perform required maintenance may jeopardize the manufacturer's warranty.*

Please note the procedure for spreading lubricant through the engine before starting if it has been idle for more than a month.

When inserting the starter keys, make sure that each key goes into its correct ignition lock. (You may simplify this by colour-coding the port and starboard keys with red and green tape or a key tag.) Do not try and force the key, as this may damage the ignition lock.

### **Fuel tank**

The fuel tank is located under the cockpit sole. The fuel gauge is energized by one engine only.

Fuel pumps are mounted on the outboard motors, and these are connected to the tank via flexible lines. If the motors have not been run recently, fuel may drain from the hose back to the tank. The hoses can be refilled with fuel by squeezing the primer bulb.

The system is supplied with in-line filters on both fuel supply lines. On the PDQ 36, these are located close to the outboards. Check the condition of the filter regularly, changing when required. Suggested change intervals are given in the manual.

- The Yamaha outboards use unleaded gasoline. Regular grade is sufficient, but you will notice better performance with higher octane gas. Note that you can use gasohol containing up to 10% ethanol, but that you should not use gasohol made with methanol. No oil should be added to the gas.
- The LRC inboard engines use Diesel fuel. A minimum grade is specified in the manual; this is not a concern in North America.

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## **Ship's systems & safety**

### **AC electrical system**

A 30-amp, 115-volt shore power connection is located at the steering console. Outlets are provided in the galley, head and navigation area. All are protected by a Ground Fault Interrupter (GFI). Ground Fault Interrupters are also fitted for major appliances, such as a microwave.

Circuit breakers located on the main electrical panel control the system and its components. All items have individual breakers for easy use without over-taxing the battery bank and optional inverter.

The shore power system includes isolators to prevent galvanic erosion of underwater metal parts. The isolators are located in the locker under the helm.

Schematics of the electrical system and optional equipment are provided on page 56 and the following pages.

### **DC electrical system**

The 12-volt DC system is controlled by circuit breakers on the main electrical panel in the navigation station. Most switches and protective circuit breakers for the various circuits are located here, and are clearly labelled.

Battery switches are located close to their respective batteries.

The standard battery installation consists of four 6-volt batteries located under the starboard saloon seats and charged by the motors through isolators. Battery isolators, located in the locker under the helm, permit charging from multiple sources while preventing a charged battery from discharging into an exhausted one. Either motor will charge all batteries, regardless of the setting of the battery switches.

If you impose a heavy demand on the battery bank for a long time, you will exhaust the battery power. You should therefore make a habit of using only one set of batteries at a time. If one set is exhausted, another will always be available.

The electrical system uses a common ground. Where required, an optional Dynaplate is fitted for electronics and instruments. Schematics of the electrical system and optional equipment are provided on page 56 and the following pages.

### **AC/DC inverter**

The optional Freedom 1000 or Freedom 2000 converts DC battery power to AC power. Depending on which model is installed, the inverter will supply 1,000 or 2,000 watts of electrical power. This is a first-quality design, but by their nature, inverters are sensitive to improper operating conditions. Please read the manual carefully.

Both models sense the presence of shore power and will take up the load when shore power is unavailable. When this happens, you will see the AC indicator light on your electrical panel change from brightly lit to a dim glow.

Be alert for any condition that could cause shore power to cut out when appliances are in operation. A microwave oven drawing battery power from the inverter will exhaust a full set of batteries in a matter of minutes. Note the suggested precaution for protecting your battery power, in *DC electrical system*, above.

The inverters also provide three-stage automatic battery charging plus manual battery equalizing.

Fuse protection is provided between the batteries and inverter to protect both parts from surge damage. The fuses are T-class to give greater protection against spike and sustained overloads. They are located under the starboard settee next to the battery switch.

Fuses:

Freedom 1000: 150 amp. fuse

Freedom 2000: 300 amp. fuse

### **Bilge pump**

The PDQ 36 is supplied with a high-capacity manual bilge pump. The pump is operated from the cockpit by a removable handle stowed in the adjacent locker. This pump is connected to the bilges in each hull by means of a Y-valve, which selects one hull at a time (location, page 50).

### **Navigation & steaming lights**

Your PDQ 36 is shipped with navigation lights as required by the governments of Canada and the United States and by international law.

- Masthead anchor light: 360 degree - white.
- Mast steaming light: 180 degree forward - white.

- Mast deck light: flood white.
- Port running light: 120 degree port/forward - red.
- Starboard running light: 120 degrees starboard/forward - green.
- Stern running light: 120 degrees aft - white.

This conforms with the international regulations for a sailing boat under 20 meters (65'7 1/2") at the time of delivery. Note, however, the following points.

- You are responsible for ensuring that the vessel complies with regulations currently in force.
- If the regulations concerning navigation lights change, you must make the change unless the current arrangement is grandfathered.
- If you sail outside the United States or Canadian waters, you may encounter different safety requirements. You are responsible for meeting those requirements.
- This information is accurate at the time of publication. PDQ Yachts Inc. can take no responsibility for errors or omissions.

For safety information in the United States, contact  
 US Department of Transportation  
 U.S. Coast Guard information line  
 1-800-368-5647

or, for more information, contact your state boating agency or the local Coast Guard District and ask for the booklet, *Federal Requirements for Recreational Boats*. In Canada, ask for the Canadian Coast Guard's *Safe Boating Guide*. Keep an up-to-date copy of the booklet on board. Remember regulations may change from year to year so a regular check of all regulations is highly recommended.

### **Safety equipment (U.S. Regulations)**

To assist you in managing your safety equipment, we have provided a section for you to complete, *Location of safety items*, on page 7.

Fire extinguishers: two US Coast Guard approved B-I portable or one US Coast Guard approved B-II portable. Check that they are correctly charged once per month.

Life jackets: one type I, II, II, or V for each person aboard and one type IV throwable device

Visual distress signals: minimum three pyrotechnical devices for day or night use, or three pyrotechnical day devices and

three pyrotechnical night devices. These should be stowed in a water-tight container prominently marked *Distress Signals*. Remember, these should be tested on a regular basis.

Sound signalling devices: power whistle or power horn and a bell.

- Safety equipment is your responsibility.
- If you sail outside United States or Canadian waters, you may encounter different safety requirements. You are responsible for meeting those requirements.

For more information see, *Federal Requirements For Recreational Boats*.

### **Safety equipment (Canadian Regulations)**

To assist you in managing your safety equipment, we have provided a section for you to complete, *Location of safety items*, (page 7).

Fire extinguishers: two Canadian Coast Guard approved. Check that these are correctly charged once per month.

Life jackets or PFDs: One Canadian Coast Guard approved for each person aboard. One Canadian Coast Guard approved throwable device

Visual distress signals: Minimum three pyrotechnical devices for day or night use, or three pyrotechnical day devices and three pyrotechnical night devices. These should be stowed in a water-tight container prominently marked *Distress Signals*. Remember, these should be tested on a regular basis.

Sound signalling devices: Power whistle or power horn and a bell.

- Safety equipment is your responsibility.
- If you sail outside United States or Canadian waters, you may encounter different safety requirements. You are responsible for meeting those requirements.

For more information, contact the Canadian Coast Guard.

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## **Service systems**

### **Propane system**

The propane tanks are located in the aft locker on the port side. In addition to its manual valve, the tank in use is provided with an electrically operated solenoid valve. Supply lines feed the stove in the galley and the water heater in the starboard lazarette.

Before any propane appliance can be used, the manual valve must be opened fully. The solenoid may then be switched to *On* at the panel.

Note that the solenoid is an electrical device and will open only when there is DC electrical power available from the batteries and both the main switch and the solenoid switch are *On*. The solenoid draws a small but significant amount of power to keep open. To minimize the draw on the battery and for safety, the propane switch should be *off* unless propane devices are in use.

The manual valve on the tank should be closed when the boat is unoccupied for any length of time.

Check connections to the propane system periodically (at least quarterly) to ensure they do not leak. You can do this easily by turning off all appliances then turning on the tank and solenoid valve. Mix water and dish soap half-and-half, whip it up and apply a little to each connection. If the connection is leaking, bubbles will form.

### **Oven & stove**

The oven & stove normally fitted is a Force 10 propane unit. The propane supply must be turned on before the oven will light (see *Propane system*, above). If you have air in the propane line, it will not start straight away.

The burners, oven and broiler all are provided with flame-failure thermocouples to shut off gas if a burner goes out when the gas is flowing. Notwithstanding this valuable safety feature, note that propane build-up in the boat can be extremely dangerous, so ensure that the unit is correctly lit before leaving it unattended. Check all connections regularly to ensure that they are tight (see the suggestions for checking in *Propane system*, above).

### **Water heater**

When fitted, the water heater provides hot water on demand, at the sink in the head and the galley. The faucet outlet at the sink in the head can be extended for showers. There is also a dedicated shower area at the back of the head. Different systems are provided as standard on the LRC and as an option on the Classic.

Classic: The optional propane water heater is located in the starboard lazarette.

For the heater to work, electrical power must be available for these circuits:

- main battery switch;
- main 12-volt circuit breaker;
- pressure water circuit breaker;
- heater circuit breaker;
- propane solenoid circuit breaker.

Water must be flowing for the water heater to come on. When it does, you will hear a soft 'pop'. The water then takes only a moment to heat up. Learn to recognize this 'pop', as its non-appearance will alert you to changes.

If hot water is not quickly available, shut down the system. Check that the heater is being supplied with electricity (page 18), propane (page 22) and water (page 24). If one of these is not available, see the relevant section of this manual and also Troubleshooting (page 46).

Important operating precautions:

- **DANGER:** The vent on the deck must be open when the heater is set to operate. To avoid problems, it is best to keep it open at all times, closing it only in the most severe seas. Read the manual before using this water heater.
- Never put salt water through the water heater.
- If the boat is stored anywhere there is a chance of freezing temperatures, drain the water completely from the heater before cold weather sets in. These heaters are extremely susceptible to burst pipes in freezing conditions.

The heater has three safety features to prevent dangerous overheating when water is not flowing through the pipes: a gas solenoid, an overheat safety plug that will block the gas line if the unit overheats and a water flow sensor. This sensor may become clogged in time, and the heater will refuse the work.



The sensor cannot be repaired; it must be replaced. Do not try to defeat its purpose.

LRC: Water is heated by a heat exchanger that draws heat from the starboard Diesel's cooling systems. Heated water is held for later use in a six-gallon tank under the settee next to the navigation station. The temperature of water from this tank depends on whether the Diesels have been running long enough to heat water, or, if they are stopped, how recently they were run. You can expect hot water to last overnight.

### **Fresh water systems & tankage**

Hot and cold fresh water are provided under pressure in the galley and in the head. Cold water is provided at the starboard transom shower. The pump starts automatically when any tap is opened and the appropriate circuit breaker is *on* (see page 18).

Water is drained from the shower by a sump pump.

- The sump pump depends on a circuit breaker at the electrical panel.
- The shower sump's filter must be cleaned from time to time.

The water tank and water filter are located under the saloon centre seat. The pump is located in the locker on the inboard side of the shower (with the shower sump pump).

### **Holding tank**

The holding tank is located in the locker directly aft of the head and may be emptied to shore via a vacuum fitting on deck or pumped overboard, as selected by the Y-valve. Before emptying the holding tank overboard, check local regulations for discharge of waste.

Flushing water is drawn from the sea through a shut-off valve in the shower locker.

### **Refrigeration**

The optional refrigeration systems use a 12-volt compressor charged with Freon (HFC134A) to cool a plate and thus provide refrigeration. Whenever you have any problems with the system, this item must be checked out by a specialist.

Refrigeration requires considerable power to operate. As available power on a boat is limited, PDQ installs a unit with adequate capacity provided that you observe minor restrictions.

- The door should not be opened repeatedly or for long periods; think of what you will need for the next little while before you open the door.
- Keep the door seals clean and in good condition to retain cold air.

**WARNING:** Freon is a dangerous gas when released from the compressor. If at any time a pipe breaks, switch off the unit, vent the boat thoroughly and contact a refrigeration specialist, who will deal with the problem.

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## Operation

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### **Sailing**

If you are new to multihulls or to cruising, learn as much as you possibly can, from books, courses or by sailing with experienced people. If you live in the USA or Canada, find your local Power Squadron, who offer excellent courses on every aspect of navigation and seamanship (addresses, page 12). Your local community college or correspondence courses may be a good source of knowledge for you. Above all, read:

*Multihulls Magazine*  
421 Hancock Street,  
Quincy, MA, 02171,  
Telephone: (617) 328-8181  
(Highly recommended)

*The Cruising Catamaran Advantage*  
Rod Gibbons,  
Island Educational Publishing,  
Box 868,  
Manchester, Washington, 98353  
(Contains good information)

*The Cruising Multihull*  
Chris White,  
International Marine Publishing,  
P.O. Box 220, Camden, ME, USA, 04843  
(A most worthwhile recent addition)

There are many other books about multihulls. There are also dozens of books written about cruising and sailing monohulls which are relevant to any cruiser. Find and read as many as you can since these notes are only intended to highlight a few important points.

Additional information on rig setup for your PDQ (which is different from monohull setup) is found on page 15.

### **Safety for conditions**

Although we all love to switch off and put our trust in a nice, safe rule every once in a while, relying on rules is self-defeating on the water. It is, pardon the expression, too fluid out there, and there are too many variables.

Catamarans are inherently more sensitive both to weight and to

weight distribution. The PDQ 36 is designed to carry a load of people, their food and baggage of approximately 2,000 lb, evenly distributed through the vessel. Heavy engine options along with large quantities of personal effects and stores can seriously affect the gross weight. This is of no consequence while at the dock or making a Sunday afternoon trip around the harbour with a group on board. However, for longer passages, whether overloaded or not, the owner should balance weather conditions, crew experience and skill against aggressive sailing, in order not to exceed the bounds of good seamanship. In other words, overloading is a relative term, depending on a number of variables outside the control of PDQ Yachts.

### ***Sailing fast and safe***

With their small displacement to length ratios, catamarans can achieve quite high speeds, even with displacement hulls. For the PDQ 36, various references predict top speeds in the 15-knot to 17-knot range.

This speed capability tends to mislead new converts to the multihull world. To put things into perspective, the tough 1988 Around Australia race was won by the racing trimaran *Steinlager* at an average speed of 9 knots. Her maximum speed capability must be in the 30-knot range. The fastest monohull (of comparable length) averaged 6 knots. Perhaps then, for planning cruises, it is best to expect an average for your PDQ no more than 1/3 faster than an equivalent monohull.

While high speeds are possible under ideal conditions, such as an offshore wind with no waves, we consider achieving this to be a "stunt", and not necessarily good cruising seamanship. You should consider your PDQ 36 to be a good "10-Knot Boat". When the knotmeter goes to 12 knots, it's time to think about reducing sail. Above all, think about the quality of your seamanship. Proceeding at a comfortable, safe and efficient pace with a happy crew is good seamanship; scaring your crew or pounding the boat is not.

### ***Close-hauled***

One of the myths of multihull sailing is, "They won't point well to windward". This may be true of some poorly designed and indifferently constructed multihulls, but it is not true of your PDQ 36.

Each PDQ 36 hull is a symmetrical "torpedo" with a long keel. The hulls track beautifully and cut through surface chop, so we

are not surprised to find that we can sail alongside well-crewed monohulls of the same length at 30-33 degrees apparent wind angle (in other words, *hard* on the wind). But, if the PDQ's crew wants to increase its VMG (velocity made good) upwind, it will bear off, ease the sails slightly and increase speed by a third. Of course, while you leave the other boat behind, you will not appear to be pointing well...! Remember, then, don't pinch your PDQ 36—the traveller should never be above the centreline, unless the wind is light and the sheet is eased (to create twist. Relax, bear off, ease off and move!

You may also have heard that multihulls do not tack easily. Forget this one, and tack when you feel like it—or need to.

### **Spinnakers**

Spinnakers are generally not considered to be a cruising sail for a monohull because of the complexity caused by the pole and the high guy loads. On a catamaran, you can use one quite simply.

The gear is simple: turning blocks on the aft quarter of each hull and snatch blocks at each bow. Forget the pole. The sail is tacked to the guy (which is led from the windward bow) and sheeted to the opposite stern. The width of the boat makes control relatively easy. If you can, borrow a sail and try it. An asymmetric chute (often known as a "cruising chute") with a sock or snuffer is ideal.

### **Heavy weather & offshore safety**

One of the key factors to surviving bad conditions offshore is to keep your boatspeed down. In a monohull, this is generally done by lying ahull or heaving to. Neither of these techniques is recommended for the catamaran. With no heel angle to reduce the weight of wind on the mast and rigging, and to reduce the lateral resistance of the hull and keels, the full force of the storm bears on the boat. This puts unreasonable stresses on the boat and increases the likelihood of damage or capsize.

If sea room is available, running before the storm is appealing, providing speed can be controlled and the crew is not too tired. The problem is that in extreme conditions, even with no sails up, the surfing speed down larger waves may increase to dangerous levels. This is the time to use a drogue deployed on 300 feet of line from the stern, balanced with a small amount of sail to give a steady speed for control. The article, *Drogues and Sea Anchors* by Ian Johnston and Cathy Hawkins (*Multihulls*,

May-June 1989) provides more detail. If a drogue is not available, you can also trail the anchor line between the hulls, with the bight streaming aft in a huge U.

The ultimate choice for surviving the worst is the parachute sea anchor. This is deployed on a bridle from the bow. If you are considering a trip offshore, please read, *The Parachute Anchoring System*, published by Chiodi Advertising and Publishing Inc., Boston, MA, USA, and follow Charles Chiodi's advice—"Get the system and don't leave the dock without it."

All this talk of heavy weather and survival sounds alarming. Remember that all accounts show that yachts of any type are almost always tougher than the crew. Many have been abandoned by their crews, often with fatal results, and the yachts have been found later, afloat and intact. The infamous 1979 Fastnet Race was a good example of this phenomenon. Learn to trust your boat, and if the unthinkable happens, stay with it.

### ***The capsized canard***

"They do turn over, don't they?" is frequently heard from sailors with no experience of multihulls.

In the wrong combination of wind and sea, any sailboat can turn over. While a monohull's ballast may right it, it must do so before much water comes in or that ballast will take the boat to the bottom. Multihulls are stable when inverted; once they're over, they tend to stay that way. This sounds dreadful until you note that they can still float for weeks or months. With its combination of light weight, no ballast, closed cell foam hull sandwich and flotation compartments, the PDQ 36 resists sinking even when full of water.

Moreover, almost all multihull capsizes occur during racing, when the boat is running too fast, stuffs its bows into the back of a wave and pitchpoles end-over-end. These capsizes are considered newsworthy because monohull losses are much more frequent and taken for granted. Consider further that a capsized multihull with some racing superstar waving from atop a hull makes a better news photo than a photo of the patch of empty ocean where some poor monohull last saw the light. These capsized racing multihulls are often salvaged and race again.

In his book, Rod Gibbons tells us that Lloyd's of London rates are the same for production boats regardless of the number of

hulls. He also reports that the Catfisher (70 produced in ten years) has a 100% safety record. Catalac and Prout also have superb safety records.

Now that we have acknowledged that, however unlikely, any multihull can capsize, we should know what causes capsize, how to reduce the possibility of capsize and what to do if capsize should occur. Capsize should be regarded as a problem to be minimized, just as an offshore monohull cruiser minimizes the possibility which results in sinking.

Wind-induced capsize is rare indeed on cruising cats and would require gross negligence on the part of the skipper. Waves play a substantial part in the capsize of boats, particularly if any combination of shallow water or current combines with winds of gale force and above to produce breaking waves. There is a good discussion in Chris White's *The Cruising Multihull*.

In flat water, wind can capsize a catamaran. The theoretical danger level for the PDQ 36 is about 50 knots of wind on the beam with full sail sheeted fore and aft. This is clearly a ludicrous position; in fact the sails would probably rip before the boat went over.

If a capsize should occur, however, there is one rule and one rule only: stay with the boat. We mentioned earlier that multihull capsizes often attract press comment—if it's not because they were engaged in some prestigious race, it's because the crew have been living on the upturned boat. They are not normally very happy with their situation, but they are often in reasonable health, having had access to food and water from the boat's stores. (Compare that with what happens to monohull crews...)

The closest encounter with capsize experienced by a PDQ crew occurred when the boat was running at 22 knots under spinnaker in 30 knots of wind. The boat was dancing on its bows when the crew cut the sheet. This should not be regarded as conventional cruising behaviour and the company will not celebrate your attempts to produce a more lively anecdote.

### **Sailing in strong winds**

Sailing in strong winds in a well-built, well-equipped boat is one of life's greatest pleasures. There is, however, a point when strong winds become excessive. A major part of good seamanship is knowing when enough is enough.

It is not possible to be precise about when certain evolutions should be carried through; crew skill and attitude, the stability of the wind and the state of the sea will all affect your boathandling decisions. In dealing with a high or rapidly rising wind, the goal is to reduce the wind's power on your boat and, by responding to changes quickly and smoothly, maintain everyone's confidence in your collective ability to deal with the weather.

Changes should begin to happen early in a rising wind, and should be seen as a progressive response to rising wind speed. If changes are made in good time, no one becomes spooked, their confidence remains high and they cope better.

- De-power the main by flattening it with the outhaul.
- Raise the traveller and ease the sheet, so the main's upper section twists off to leeward.

When do you reef? An old rule of thumb that's still worth remembering says, "reef when it first occurs to you." Do it before people start getting worried and do it before it becomes a struggle.

As an *indication*, we have found that the boat is more comfortable when the first reef is taken in at 20 to 22 knots true wind in flat water. When reaching, the reef can be put off until true wind speed is 25 knots. With two reefs in, the boat will heel comfortably with the weather transom 1 to 2 feet above the water.

As the wind rises:

- Take the first reef
- Limit your boatspeed.
- Place a crew member on the traveller, ready to ease the main in gusts.
- Reef again to suit the gusts. (Sail loading rises with the square of the wind speed, so a 10-knot gust on top of a 25-knot wind will *double* the wind pressure.)
- Put a crew member on the jib sheet.
- Reduce sail to the absolute minimum.

We have found that this reefing combination maintains good balance.

- At 25 knots true wind: first reef in the main, jib rolled 4 to 6 turns.
- At 30 knots true wind: second reef in the main, jib rolled another 4 to 6 turns



- Over 40 knots: run off at 120° to 140° apparent wind angle under jib alone.

Be specially careful when travelling fast downwind as the boat speed can reduce a 30-knot blow to an apparently reasonable 18-knot breeze. If you are caught in squall while travelling downwind, use the main to blanket the foresails and get them down before rounding onto a reach. Speed is also discussed in the heavy-weather section, above

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### **Under Power**

The standard engine configuration for your PDQ 36 is twin Yamaha 9.9 horsepower four-stroke gas engines. Be sure to follow the maintenance schedule laid down in the motor handbook. This will help fuel efficiency and increase the lifespan of the engine.

These motors can and should be tilted up any time the boat is not under power. Retraction while sailing significantly reduces drag and strain on the motor mounts. Retraction at the dock reduces corrosion and clogging of the engine's cooling water passages by marine life.

Each motor is fitted with a lock to prevent it from kicking up when reverse gear is engaged. When you lower the motor prior to starting, you should hear this lock click into position when the motor is down.

To raise the motor, you must release this lock, either by pulling on the unlocking line or by pushing on the release lever on the front of the motor. A line extending through the side of the motor well to the lower part of the drive leg allows you to raise the motor without opening the cover.

This line should be held taut by a restraining knot when the motor is down. If it is allowed to hang slack, it may foul the prop and stop the motor or cause damage.

To raise a motor while sailing in excess of 3 knots, pull the unlocking line while the motor is still running and in gear. This eases the pressure on the unlocking lever, enabling it to operate smoothly. Alternatively, open the cover and press down hard on the motor while releasing it. If you try to release a motor without doing either, you risk damaging the unlocking lever.

### **Starting**

Before starting, check that the motor mounts are tight and make sure that the fuel, electrical and throttle connections are secure.

There are two controls for the motors, the key and a combined gear lever/throttle. The key operates the ignition and the electric starter. Its operation is identical to a car's—the first position switches the ignition *on* and the second, spring-loaded position engages the starter. A safety interlock allows you to start the engine only when the gear lever is in neutral.

If you are cold-starting the motors, move the lever all the way forward once or twice, then bring it back to the neutral position.

Be careful—engaging the starter on a running motor can cause damage and an idling motor is almost silent. Before you turn that key again, look at the green light below the key—if it's lit, the motor is running.

With the lever in the centre position, the motor is in neutral and is running at idle speed. When you push the lever forward, forward gear is selected. As you continue to push the lever forward, the speed and power of the motor increase. When you pull the lever aft, reverse gear is selected. Again, speed and power increase as the lever is moved aft.

### **Manoeuvring under power**

Once you have read the above and the engine manual supplied by the manufacturer, you are ready to go. Check the gas level, lower the motors, set the gearshift in neutral, with a little throttle if the motors are cold, and start up. If you ever handled a twin-screw power boat, the rest will be familiar—and if you've ever watched in frustration as they manoeuvre in a space that you wouldn't dare enter with a sailboat, it's your chance to turn faces green with envy—now you can rotate your boat under power without touching the wheel!

Away from the dock, put one motor in reverse and one in forward, both at low speed. You will find the boat rotates around a point just in front of where you are seated. After some practice, you will be able to impress all onlookers with docking manoeuvres. The boat will spin in its own length and you can back into slips against the wind and tide because the control is better.

### **Cruising under power**

Cruising under power, you will find that a single motor (it doesn't matter which one) is adequate and extremely economical for relaxed cruising. The single motor will carry you along at about 6 knots, depending on your cruising inventory and the state of your bottom. Together, both motors will push a lightly laden PDQ 36 at 7 to 8 knots in calm conditions. Forty knots of wind on the bow will slow progress to 3 to 4 knots over the ground. Fuel consumption should average 0.57 gallons of gasoline per engine hour.

If the motors are running at speeds that are close to one another, you will hear a resonant "beat" to the motor noise. Slowly adjust the speed of one motor upward or downward until the speeds match and the beat disappears.

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### **Anchoring**

Anchors are very much an item of personal preference and of course your choice will be profoundly swayed by the nature of the bottom you normally anchor over. This section offers general recommendations, and not hard-and-fast rules.

Several of our owners have had great success with the 12 or 19 lb. Fortress as an everyday anchor with 20 to 30 feet of  $5/16$ " chain. For heavier work, a 35 lb. CQR has been used successfully with 50 feet of  $5/16$ " chain.

All anchoring situations involve the use of a bridle system. To use the bridle, you let out anchor rode to the required scope. Using a spare piece of  $1/2$ " line, tie a rolling hitch around the anchor rode, then take the bitter end of this bridle line through the fairlead on the opposite bow and secure it. Tighten the bridle line until the anchor line and bridle line intersect amidships. Alternatively, secure the bridle line and pay out the anchor line to achieve the same end.

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### **Docking**

A catamaran can use its wide beam to tie up effectively. The secret is to tie the bow and stern lines to the hull furthest from the dock. The resulting length of line allows the cat to rise and fall freely to waves or tide, without snubbing. Spring lines also must be made as long as possible (illustration on page 52).

When docking with pilings, bow or stern-to, the same principle can be used (illustration on page 53).

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### **Handling, storing and transport on shore**

The hoisting diagram on page 54 shows the preferred locations for nylon slings, for lifting with a single crane hook or travel lift. Secure the slings to the toe rail to prevent slippage.

Make sure that the slings are clear of hull obstructions such as:

- speed sensor;
- rudders and skegs;
- saildrives (when fitted).

The PDQ 36 can be set on its keels for a few days. The ground must be level and some soft protective material must be placed under the keels (soft wood, rubber, carpet, or similar material). Secondary support should be placed under the hulls at the aft beam.

If the boat is to be ashore for more than a few days, it should be supported under the bridge deck in three places, as shown in the cradle diagram, page 54. Padding must be used on top of the three supports, to spread the load and prevent scoring of the gelcoat. Suitable materials are foam, rubber or thick carpet.

The PDQ 36 fits easily on a standard flat-bed fifth-wheel trailer, 8 feet wide and 40 feet long. Supports are required at three places, as show in the cradle diagram, page 54. These should be sufficiently high to raise the engine pods above the trailer and the keels above the road. The rudders should be removed.

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## Maintenance & repair

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### **The importance of preventive maintenance**

Your boat lives in a very harsh environment, comprising air (oxygen), salt water, and sunshine (heat, ultra-violet light). Some of the wear-and-tear occurs whether or not the boat is in use, while other wear depends on the frequency of use, and how hard it is used.

The presence of so many variables makes for unpredictable maintenance forecasting. The following list has been compiled as a guide, to be used in conjunction with the data provided by the manufacturers of engines and other mechanical and electrical apparatus. As always, there is no substitute for a sound knowledge of your boat, common sense and an observant eye.

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### **Suggested schedules**

This overall schedule should be combined with equipment manufacturers' recommendations. Maintenance for the auxiliaries is based on a combination of use and elapsed time, rather than on a rigid schedule, so you should develop a plan based on their manuals and the way you use your boat. Note particularly any checks or maintenance required for the break-in period.

#### **Weekly:**

- Check all fasteners on lifelines and nets. Replace any damaged items. Check that lifelines are tight (see page 42).
- Check running rigging as you use it for excessive wear (see page 38).
- Flush rope clutches, blocks etc., with fresh water (see page 39).
- Check batteries. Ensure that the electrolyte is topped up that and all connections are tight (see page 41).
- Check fuel, motor control and exhaust (LRC) systems (see page 40).
- Check that outboard motor mounts are tight and correctly tie-wrapped.

### **Quarterly**

- Check running rigging for wear.
- Clean rope clutches and winches with fresh water and re-grease where required (see page 39).
- Check lifelines for corrosion and tighten or replace as required (see page 42). Check the net for chafe.
- Check standing rigging, looking carefully for damaged or bent wire, and cracked swages or bent turnbuckles. Check and reset tensions as required (see page 38). Clean turnbuckle threads and oil lightly.
- Check steering cable tensions after the first month or two of use and adjust if required. Check steering fasteners (see page 39).
- Check propane supply lines, connections and fittings for leaks (see page 41). Make sure all fittings are tight and in good physical condition.
- Check that fresh water hose connections are not leaking. Check for signs of corrosion in hose clamps and fasteners. Clear foreign matter that could cause blockages (page 41).
- Check tightness of window fasteners. The screws should be snug, but do not over-tighten them (see page 43).
- Check all watertight compartments for signs of water entry. Move loose gear as required to get a clear view.
- Check operation of all sea cocks—open and shut them several times to ensure smooth operation (see page 41).

### **Annually**

- Overhaul steering cables (see page 39) and reset cable tensions. Check that all joints are secure. Inspect for corrosion and check for free running of all cables.
- Check rudder alignment. Make sure rudders are correctly positioned. Ensure that rudders are operating smoothly.
- Check Diesel mounting bolts on the LRC. Ensure that the external rubber fairing is secure.
- Check and lubricate turnbuckles. Replace any defective or corroded parts. Renew all tape over cotter pins.
- Check electrical wiring for loose connections and corrosion (see page 41). Check all fuses and their terminals for corrosion and signs of heat damage.
- Clean sea-cocks. Make sure that after clearing all sea-cocks they are tested ten times to prove smooth operation (see page 41).
- Check the condition of corrosion-protection zinc anodes on underwater parts of the auxiliaries.

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## **Rigging, deck hardware & steering**

### **Sails**

You can extend the life of the sails by doing the following:

- Protect them from the sun when not in use. The jib has a cover built in. Use the sail cover for the main sail.
- Dry them before storing them for more than a few days.
- Do not allow them to flap or flog unnecessarily, when drying them or when becalmed. This causes fatigue of the fabric and wear of the stitching, and is very harmful.

### **Standing rigging**

The rigging should be maintained at the tensions described in *Rigging setup*, page 15, for security and to maintain the sailing qualities of your boat. You will find that the standing rigging will stretch noticeably in the first weeks and again in the first strong blow.

At the beginning of the season or quarterly, all turnbuckles should be cleaned and checked for stress cracks. Oil them lightly with a fine machine oil. Make sure all turnbuckles are pinned. All cotter pins should be in place, bent back and properly taped. Cotter pins should not be re-used; replace them with new ones.

All swages should be inspected quarterly. To prepare for any voyage offshore, have the swages X-rayed or replaced with Norseman fittings.

### **Running rigging**

The PDQ 36 is supplied with the following lengths of line for sheets, halyards and other functions. We use a top-quality line in lengths that we have found correct for a variety of situations. These lengths may give you a long tail in everyday conditions, but we recommend that you keep these lengths when replacement is required.

When lines show signs of wear, remove them from their hardware and turn them end-for-end. This shifts the wear point to a different part of the line and it will last longer.

Whenever a line shows signs of wear, inspect its hardware to ensure that there is not a rough spot or a jammed sheave.

Replace any line that shows obviously broken strands.

<i>Function</i>	<i>Diameter (in.)</i>	<i>Length (ft.)</i>
Main halyard	1/2	95
Jib halyard	1/2	95
Main sheet	1/2	80
Jib sheet	1/2	45
Main traveller	5/16	35
Topping lift	3/8	95
Dock lines (nylon)	1/2	40

*(Dacron except as noted)*

### **Line handling gear**

Flush the mainsheet gear and travellers with water weekly.

The winches require regular maintenance at quarterly intervals or they will become difficult to use and may corrode.

- Strip the winch and de-grease it with a mild de-greasing agent (available from any auto supply store).
- Re-grease the bearings with a small amount of Teflon-based marine gel lubricant. Do not over-grease; the spaces in bearing races should be full of grease, but non-bearing areas should be clean.
- Make sure that the grease is fully worked into the working parts. Remove any excess grease after working in.

The clutches and line organisers do not require service as such, but should be kept clean. In salt water, they should be well hosed with fresh water weekly.

Approximately quarterly, grease the cam and sheave bearings lightly with a Teflon-based marine gel lubricant. Make sure the gel is fully worked into the working parts. Remove any excess.

### **Steering**

Inspect the steering system periodically for loosened locknuts and cables. Pay particular attention to the rod ends connecting the tiller arms to the rudder bar. Motor vibration tends to loosen fasteners, so the more you travel under power, the more frequently you should inspect this area.

Every year:

- Grease the ball joints with a small amount of Teflon-based gel lubricant.
- Remove the pull-pull cables, degrease them with a cleaning agent (available from any auto supply store), inspect them for chafe and splintered strands, re-grease them with a



Teflon-based marine gel lubricant, replace and readjust them. You can also accomplish the same end by pouring small quantities of SAE 90 oil on the cable at the sheaves on the floor of the helm locker. The oil will simply migrate down the cable.

### **Auxiliaries**

Many sailors tend to treat auxiliaries rather like Bic lighters—they just use them until they stop working. However, if you give your auxiliaries the attention worthy of a complex (and expensive) device, they will give a long and reliable life. Whether you have outboards and Diesels, whether you do the work yourself or have it done (by a qualified mechanic), follow the maintenance recommendations in the manuals. Pay particular attention to break-in requirements.

#### **Outboards:**

- Change the oil and clean the oil filters after 10 hours of break-in, then every 100 hours thereafter. You can change the oil in the outboards on the water by holding a 2-quart milk carton under the drain hole to catch the oil. Each fuel supply line has its own filter, so the motor's internal fuel filter will last well, but check it when you do oil changes.
- Flush the outboard's cooling systems periodically with fresh water. Hose attachments to supply fresh water to the intake are available at most marine supply stores.
- Do not be alarmed if the engines appear to idle at slightly different speeds. Resetting of the idle speed is a simple adjustment, covered completely in the engine manual.

#### **Diesels:**

- The Diesels have a closed-circuit cooling system that prevents sea water from contacting the engine proper. Check the coolant level periodically and replace it annually. Also check the cooling water seacocks. They should operate freely and be free of fouling.
- Check oil levels in the gear cases and the engine sump. Dipstick locations are shown in the manual. Change the oil and filter according to the schedule in the manual.
- The saildrive leg is faired into the hull by an external rubber boot. Loss of this boot has no effect on the hull's watertight integrity, but will allow marine growth to take up residence in an area not normally painted with antifouling. Check it annually and re-glue if required.

### **Electrical systems**

Although it may seem that there is little maintenance to be done on an electrical system, many electrical problems emanate from simple loose connections. You can therefore stave off many problems by developing a habit of checking connections whenever you enter a space where they are visible or reachable, then tightening any that are loose.

All wiring is tin-plated copper and therefore will be very corrosion resistant. However, all wires should be checked for corrosion and chafing and replaced if necessary. Preventive care consists of making sure that gear is not allowed to rest on or rub against any electrical wiring and preventing the exposure of wires to any unnecessary wetness.

If you notice that an electrical device is performing poorly or seems hot, check its connections. If connections or fasteners are tight, check the wire with a multimeter or call an electrician. If a device's circuit breaker trips repeatedly, inspect the wiring for an obvious short and have the unit inspected by a repair facility. Do not attempt to defeat the purpose of the circuit breaker or you could create a dangerous condition.

Check and top up the batteries' electrolyte with distilled water quarterly—more often if you find yourself adding significant amounts. Tap water may contain minerals harmful that will shorten a battery's life.

If any modifications or options are required, we suggest calling the factory or consulting an experienced marine electrician. If you are planning any changes or additions, even if you do not intend to do the work yourself, we recommend reading a book on marine electrical systems.

### **Water & propane systems**

Check the hose connections of the fresh water system quarterly. Hose clamps should be tight, but not so tight that the hose material appears crushed.

We recommend that you close seacocks any time you leave the boat. If you choose not to do this, the seacocks should be opened and closed at least quarterly, to ensure they will close if necessary. Annually, or whenever the boat is out of the water, you should inspect the seacocks for growths or blockages, then lubricate them with a Teflon lubricant or vegetable oil.

Connections to the propane system should be checked periodically, when changing tanks and at least quarterly to ensure they do not leak. You can do this easily by turning off all appliances, then turning on the tank and solenoid valve. Apply a little soapy water to each connection. If the connection is leaking, bubbles will form.

To use a pressure gauge to check the line, connect a full tank to the line. Turn on the manual valve and the propane solenoid, then turn off the manual valve. After 10 minutes, the line pressure should be within a few pounds of the original pressure.

### ***Lifelines, stanchions & nets***

You should inspect all lifelines weekly to ensure that turnbuckles, pelican hooks, stanchion bases, locknuts and other parts are properly tightened or secured. Motor vibration tends to loosen fasteners, so the more you travel under power, the more thoroughly you should inspect for loosened parts.

Every three months, you should inspect the lifelines for abrasion and corrosion. Watch out for the start of corrosion under plastic coverings. This may show initially as a swelling.

Check the forward nets weekly to ensure that securing bolts and rigging lines are firmly tightened. Check the net's stitching for chafe every quarter.

### ***Antifouling paint***

Our standard antifouling paint is International Trinidad. This is an exfoliation-style anti-fouling paint that will lose its effectiveness with exposure.

We strongly recommend that the majority of the paint is removed carefully with a sander before you repaint. Do this carefully with an orbital sander, never a disc sander. If you sand through or otherwise damage the optional Interprotect 2000 epoxy undercoat, the extended warranty becomes void.

Protect yourself when sanding and painting by wearing protective clothing, safety glasses and a breathing mask. Please dispose of toxic dust and leftover paint correctly.

### ***Topsides & deck***

The topsides and deck should be washed with non-abrasive cleaners. A small amount of ordinary dish soap in a pail of water is sufficient for normal use. If there are scuff marks on the hull or deck, these can often be removed with acetone. Acetone will

attack the windows and plastics, so use it cautiously—apply it and wipe it away. Never allow puddles of acetone to form.

To clean the windows, use Windex (or similar mild glass cleaner) and a soft cloth. Never use Soft Scrub or similar cleaners on the windows. These cleaners contain fine abrasives and chlorine bleach, both of which break down the outer layer of the plastic and make the windows permanently foggy. Marine stores have specialized cleaners that contain UV filters.

A NATO pilot once told us that they use aerosol shaving soap (such as Gillette Foamy) on their cockpit canopies because it's fine-milled soap that can't scratch and that leaves no residue. His windows (both plexiglass and the folding plastic on his dodger) were very clear.

Window fasteners should be checked quarterly. They should be snug, but be careful not to make them so tight that the material is distorted; this will cause leaks.

### **Hatches**

Check that all hatches are working correctly. Make sure that hinges are still tight, allowing the hatch to remain open, and adjust them if needed. Examine the seals for damage.

To clean hatches, follow the suggestions given for the windows, above. Clean gaskets only with mild soap and water, and be sure the soap is completely removed.

### **Graphics striping**

All the strips are a 3M vinyl product that can be serviced at any of the 3M franchises called Trim-line. These are an automotive supply company, but they are willing to help with any problem. A data sheet is provided with this manual.

### **Interior**

The woodwork is coated with Flecto Varathane "Professional" No. 1100 Clear Satin urethane varnish. It can be cleaned like normal domestic furniture.

If damaged, it can be sanded and touched up with a similar urethane varnish. Test for compatibility in an unseen area.

The interior fibreglass surfaces can be washed and waxed in the same way as a car body. Scratches can be removed by buffing with automotive products.

The white plastic doors and trim are made of King "Starboard".

The colour goes all the way through, so that scratches tend not to show. This material cannot be sanded successfully. Replacement is the only solution.

The headliner is a tough vinyl. It can be cleaned like the plastic inside a car, using Armor-All, Windex or similar products.

The melded fabric can be treated like carpet material, steam-cleaned or cleaned by brushing or vacuum. Household spot removers can be used on stains. Test the cleaner on an inconspicuous area and follow the directions.

Upholstery can be kept tidy with frequent brushing or vacuuming. Stains can be removed with household spot removers. Test the cleaner on an inconspicuous area and follow the directions.

Note the products to avoid or use with care, as described under *Topsides and deck*, above. Be very careful when using cleaners that contain bleach. Surfaces like countertops are unaffected by bleach, but many flexible or clear plastics are ruined by it.

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### **Recommended spare parts**

The following items should be considered a bare minimum of spares for running repairs. You will find more comprehensive lists in the books listed on page 26 and in many other cruising books.

- cotter pins
- crimp connectors, butt and terminal, 12G & 14G wire
- drive belts for Diesels
- fresh water flushing attachment for outboards
- fuel filters
- gasket compound
- heat-shrink tubing
- impellers for motor water pump
- miscellaneous fasteners
- miscellaneous line
- miscellaneous wire
- needle, sailmaker's palm and whipping twine
- penetrating oil
- sail tape
- shackles
- silicone sealant
- spare fuel can and funnel
- spark plugs, oil
- Teflon-based marine gel lubricant

## Recommended tools

<i>Tool</i>	<i>Sears Part No.</i>	<i>Use</i>
Vice Grips, 10"		
Crescent wrench, 8"	40133	
	12"	40135
Adjustable pliers, 2"	32484	
Wrenches, 17mm	41310	steering
	12mm	41306
	10mm	41304
	8mm	41302
	3/4"	steering
	9/16"	
	1/2"	40727 (set)
	7/16"	
	3/8"	
	5/16"	40602
Screwdrivers, Phillips - large	32216	hose clamp
	Phillips - #1	light fixtures
	Phillips - #2	32229
	Robertson #1	32247
	Robertson #2	32248
	Standard flat	32168
	Jeweller's flat	32283 (set)
	Jeweller's Phillips	
Hacksaw, blade holder	90337	
Scissors	22297	
Allen key set, metric	4193	
	standard	40193
Feeler gauges		motor
Multi-meter		electrical
Electrical repair kit (wire strippers, crimpers)		electrical

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## Troubleshooting

Boats, like the weather, are the nexus of many forces and possibilities, and as with forecasting the weather, troubleshooting a boat's ills may be as much art as science. This section is not a comprehensive guide to every difficulty you may encounter on or near the water. It deals only with some problems that have vexed other PDQ owners.

Motor won't start.

- Won't turn over.

Safety interlock engaged. Move the shift quadrant to neutral and re-try.

Battery power is off or insufficient. Check the battery switches. Change to another battery or use jumper cables to connect the house batteries to the motor battery (battery locations, page 51; electrical information, page 18).

Consult the more extensive troubleshooting sections of the motor manual.

- Turns over, won't run.

Check the fuel levels and fuel connections.

Ensure that the fuel filter is not blocked.

Consult the more extensive troubleshooting sections of motor manual.

Motor stops suddenly.

Turn off ignition. Raise motor and check prop for obstructions. The most common causes are crab-trap or other fishing lines, or a loose motor-raising line that has fouled the prop.

Difficulty in raising or lowering sails.

Check that the luff groove is not blocked and that the luff is not encrusted with dirt or salt. Clear it by hosing with fresh water.

Ensure that the halyard lead is fair (not around another halyard or a deck fitting).

Ensure that the sail is feeding correctly and has not pulled out of its luff groove or had a slide fitted upside down.

Run the halyard up and down with a light load (for instance, with a light load on a retrieval line) to ensure the masthead sheave is turning freely. If it is not, do not attempt to raise the sail; you may damage the halyard or further damage the sheave. Return to your mooring and hoist someone to the masthead to clear the problem.

(Difficulty in raising or lowering sails, cont'd) If the problem is persistent and minor, consider the use of a luff groove lubricant.

Genoa won't unfurl completely.

The optional roller furling headsail most often fails to unfurl because the furling line is jammed at the bottom of the furling drum. Keep a light tension on the furling line when you unfurl; the line will then wind smoothly onto the drum and the sail will unfurl completely.

Can't get rigging sorted out.

The procedure for setting up the standing rigging is described on page 15. A diagram of the reefing system is located on page 55.

Steering is heavy.

Make sure the autopilot is completely disengaged. Check the rudders to be sure you haven't picked up some obstruction, and the operation of the rudder for stiffness in the stocks.

Make sure that objects are not resting on the steering cables, that the cable sheaves turn freely and that nothing is blocking the steering quadrant or the quadrant connecting rod. Any object that could conceivably cause a problem should be firmly secured or removed from the space.

Lubricate sheaves and cables (see pages 15 and 39).

Can't get water out of the boat.

The manual pump is connected to intakes in each hull via a Y-valve. Make sure the Y-valve is set to pump the correct hull (description page 19, location, page 50).

No electricity.  
- no DC power

Check the main breaker for DC power at the electrical panel. Indicator light should be glowing brightly. If this light is not on, check the battery switch (location, page 51). Turn one or more batteries on.

Check the battery levels at electrical panel. If you are plugged into shore power, check your connections. A heavy load on the batteries can quickly exhaust them. Also, if the shore power fails, the optional inverter will take over supply of AC power by drawing from the batteries. This will quickly exhaust any connected battery. See battery precautions, page 18.



- no AC power (shore power)

Check the AC power switch at the main electrical panel in the navigation station. The AC indicator light should be brightly lit. If the light is dim, the shore power has failed or you are drawing AC power from the batteries via the optional inverter. Turn off AC devices and re-establish shore power or you will quickly exhaust your batteries.

Check connections at vessel and shore end. Plugs should be in and locked at both ends.

Check on/off switch or indicator lights (if any) at shore supply. If shore supply is a Ground Fault Interruptor (GFI), press the Test button. If the Reset button does not pop out, press the Reset button and try Test again. If this does not cause the Reset button to pop, there is no power available. Speak to the dock manager.

If there is power coming to the boat, and the circuit breakers are on, but there is no supply on board, check the circuits with a multimeter, or consult a competent electrician.

Switch on the electrical panel (circuit breaker) won't stay on.

Switches on the electrical panel are circuit breakers and are intended to trip (turn off) when there is a fault in the circuit. Don't defeat or circumvent them.

If a breaker trips only when one light or device is turned on, there is an electrical fault in that light or device. Have it repaired or replaced.

If a breaker trips continuously, and particularly if it trips when lights and appliances on that circuit are turned off, the problem is probably a shorted wire. Have it inspected by a good electrician.

Lights don't work.

If this is the only light that doesn't work, the bulb, the switch or the wiring may be faulty (in that order of probability).

If other lights also refuse to work, check the breaker for the lights and for DC power at the electrical panel in the navigation station. Indicator lights should be glowing brightly (see *No electricity - no DC power* in this section).

Water won't heat up.

You may not have a water heater (it's an option). If you do, and your boat is a Classic, see *Stove/oven won't light*, above, to be sure gas is available, and read the system description, page 23.

Check the main electrical panel in the navigation station to be sure the circuit breakers for the water heater, the water pump and the propane are turned on. Make sure DC power is available (see *No electricity - no DC power* in this section). Consult the water heater manual for further recommendations.

If water, gas and electricity are available, the most common cause of refusal to operate is a blocked flow sensor. This item cannot be repaired; it can only be replaced. See page 23.

If your boat is an LRC, water is heated by the starboard Diesel (the port Diesel is indifferent to your desire for hot water). The temperature of the water depends on whether the engine has been running long enough to heat water, or, if stopped, how recently it was run (see page 24).

Shower fills with water.

The main power switch and circuit breaker for the sump pump must be switched on (see page 24). The shower sump's filter must be cleaned from time to time (see page 24).

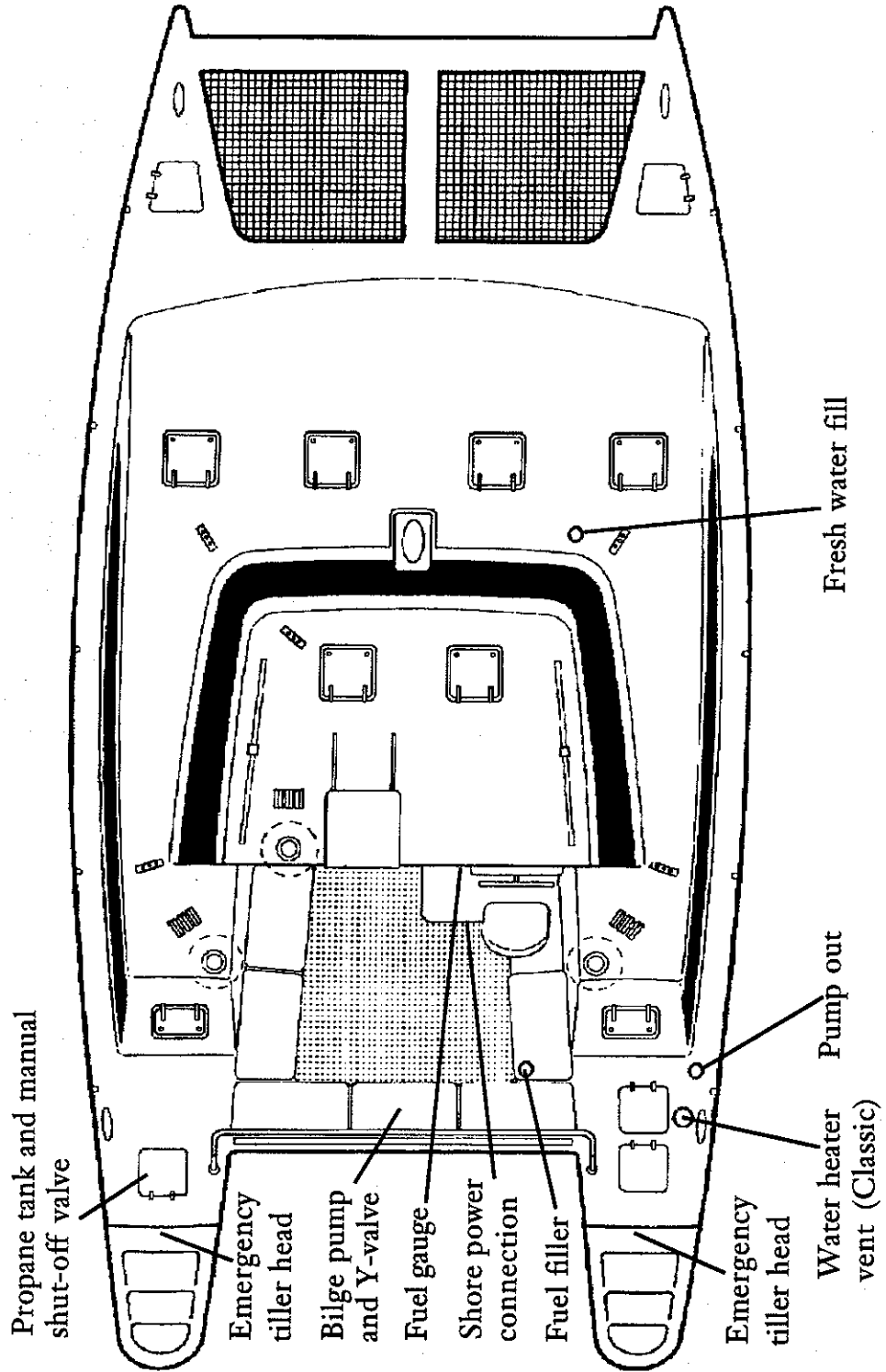
VHF is on but does not transmit.

Check connections at the base of the mast.

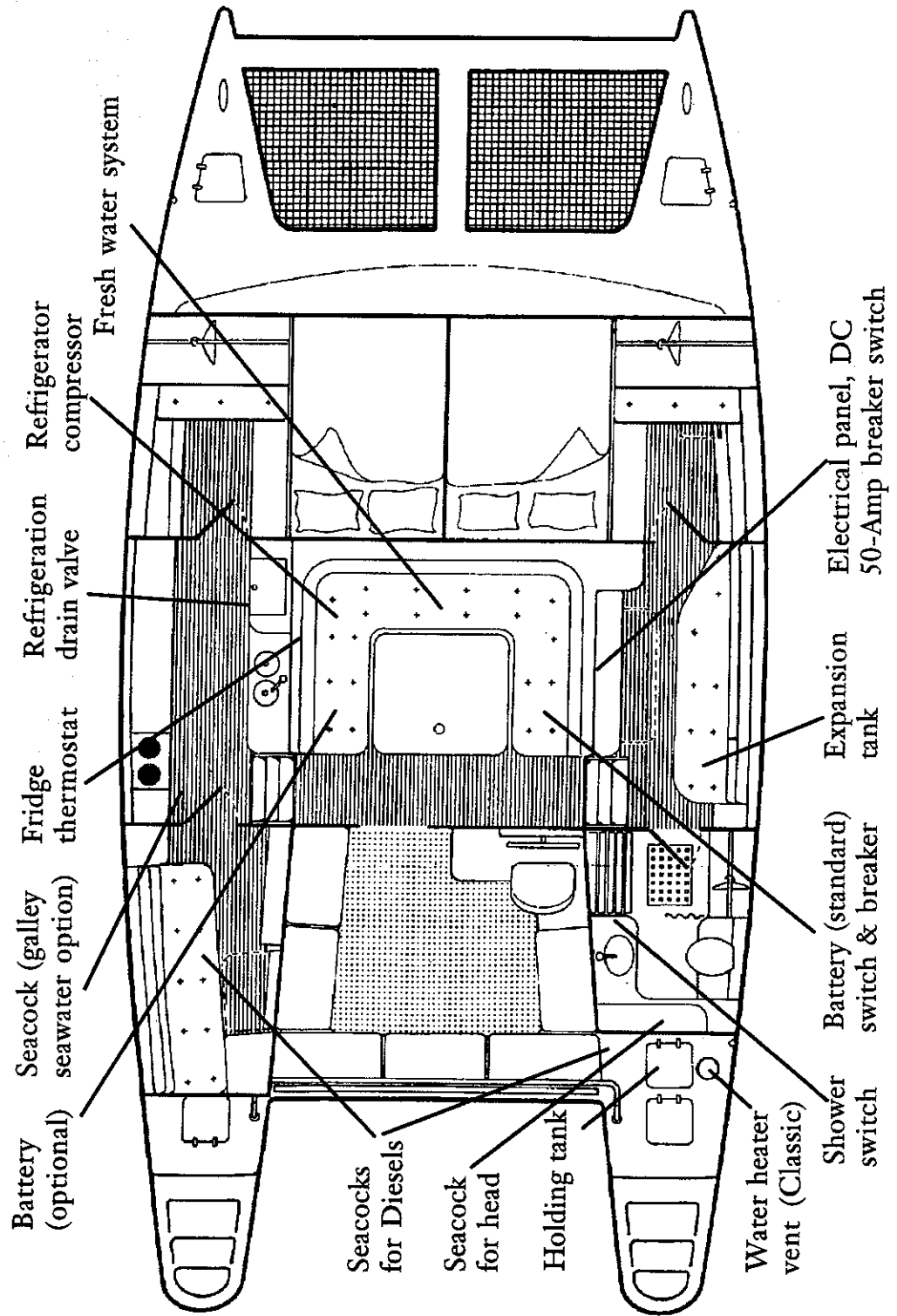
Wind instruments are on but don't give a reading

Check connections at the base of the mast.

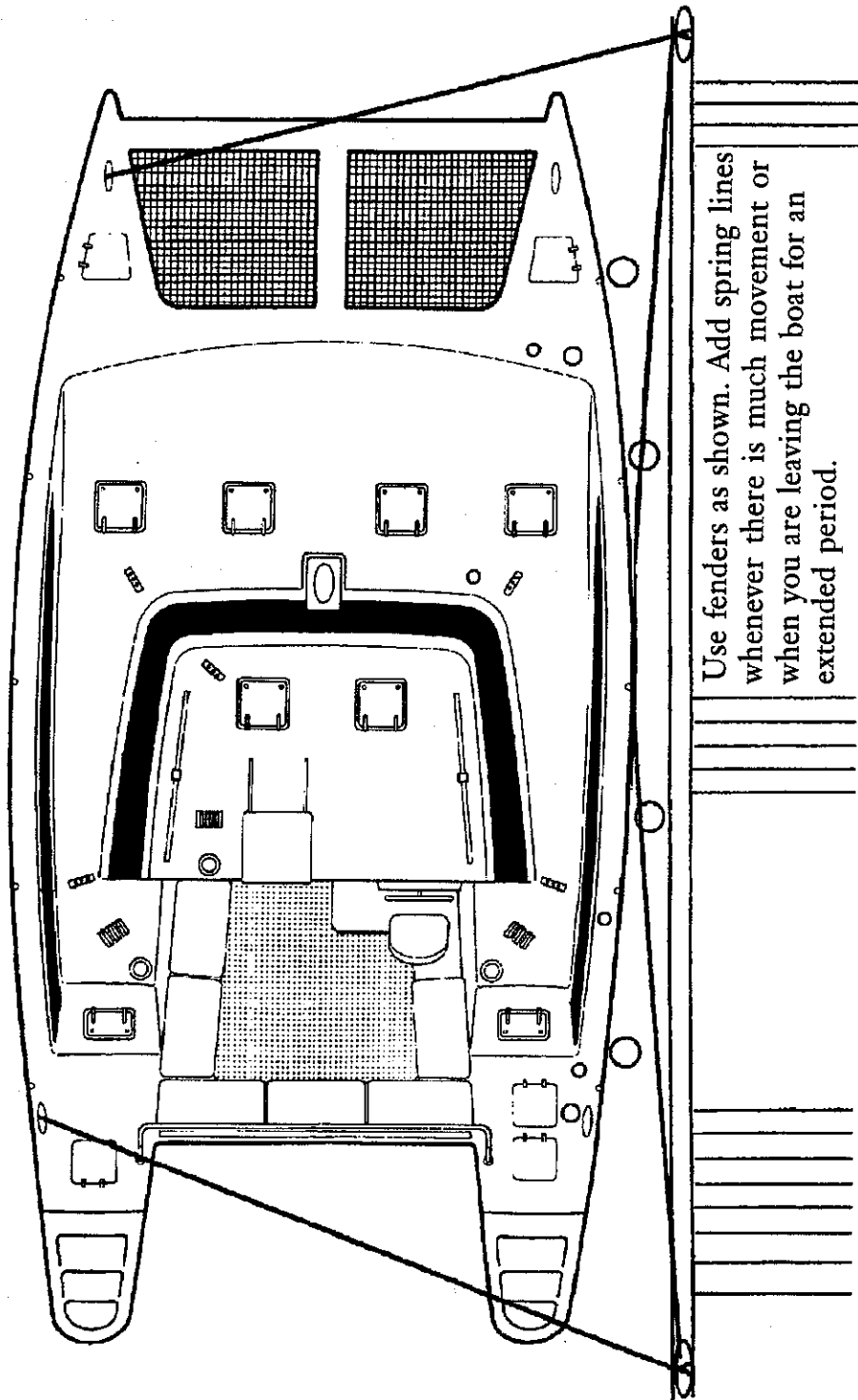
## Service locations on deck



## Service locations below decks

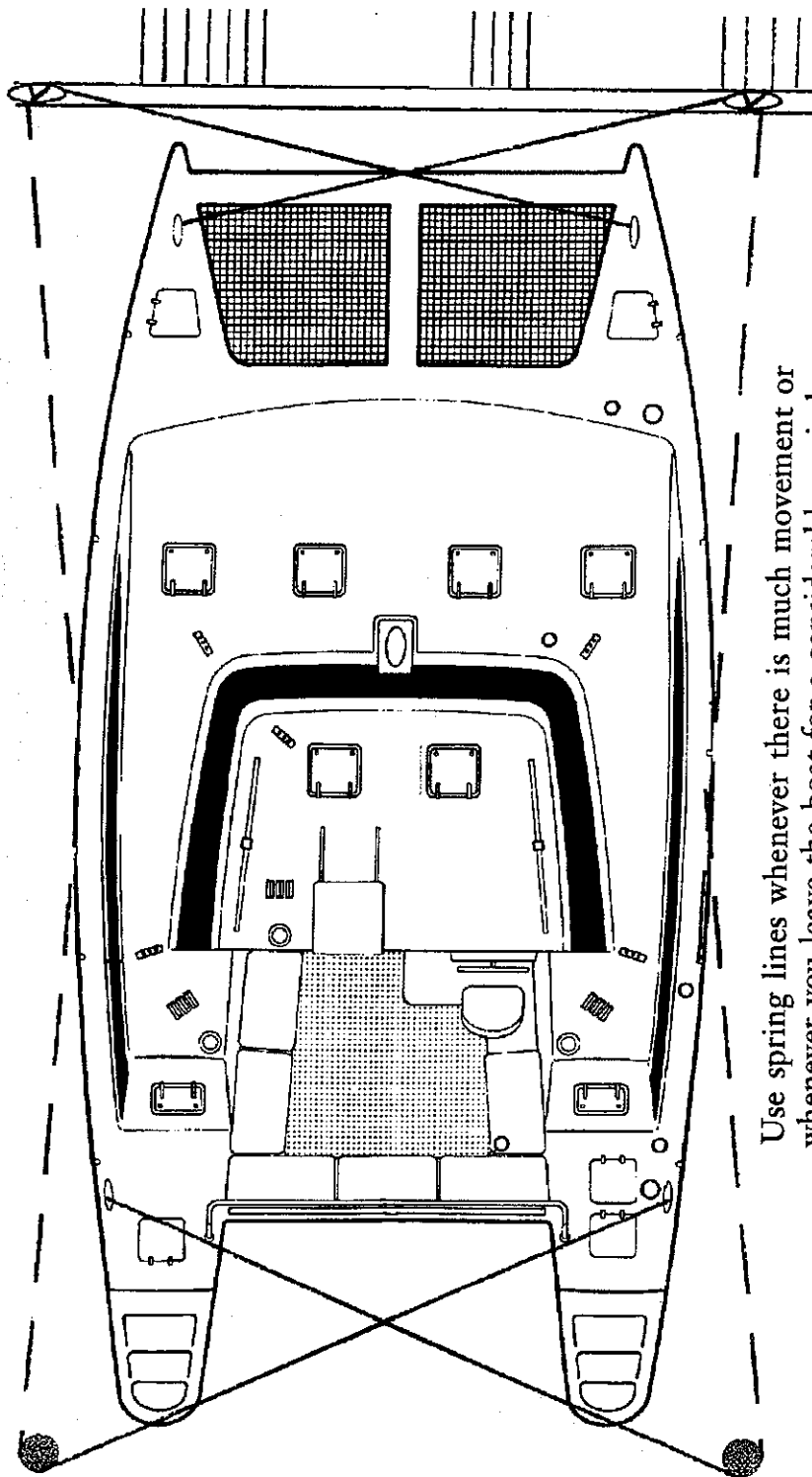


**Tying up alongside**



Use fenders as shown. Add spring lines whenever there is much movement or when you are leaving the boat for an extended period.

**Tying up fore-and-aft**



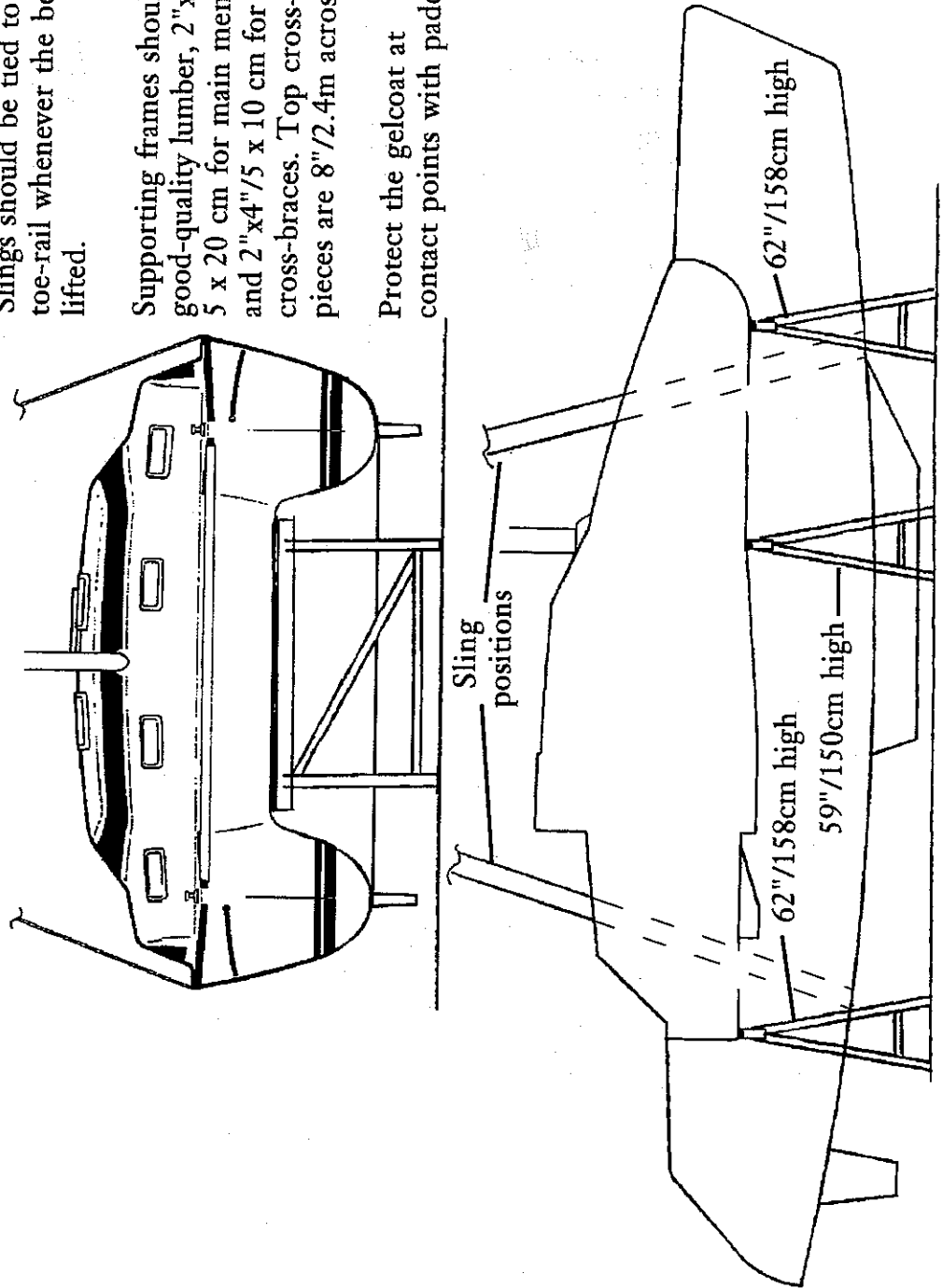
Use spring lines whenever there is much movement or whenever you leave the boat for a considerable period.

## Lifting and storage on shore

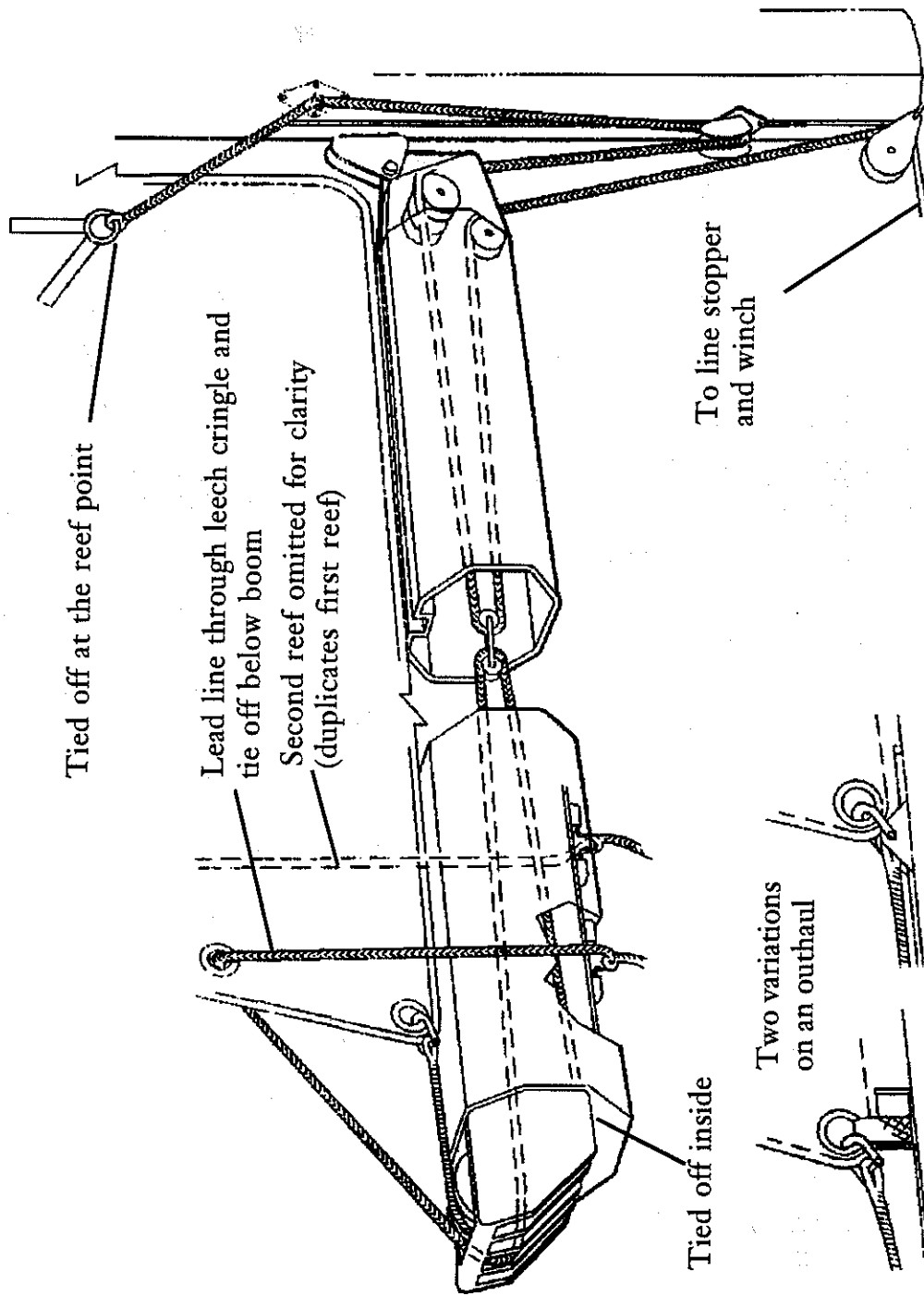
Slings should be tied to the toe-rail whenever the boat is lifted.

Supporting frames should be good-quality lumber, 2"x8" / 5 x 20 cm for main members and 2"x4"/5 x 10 cm for cross-braces. Top cross-pieces are 8"/2.4m across.

Protect the gelcoat at contact points with padding.

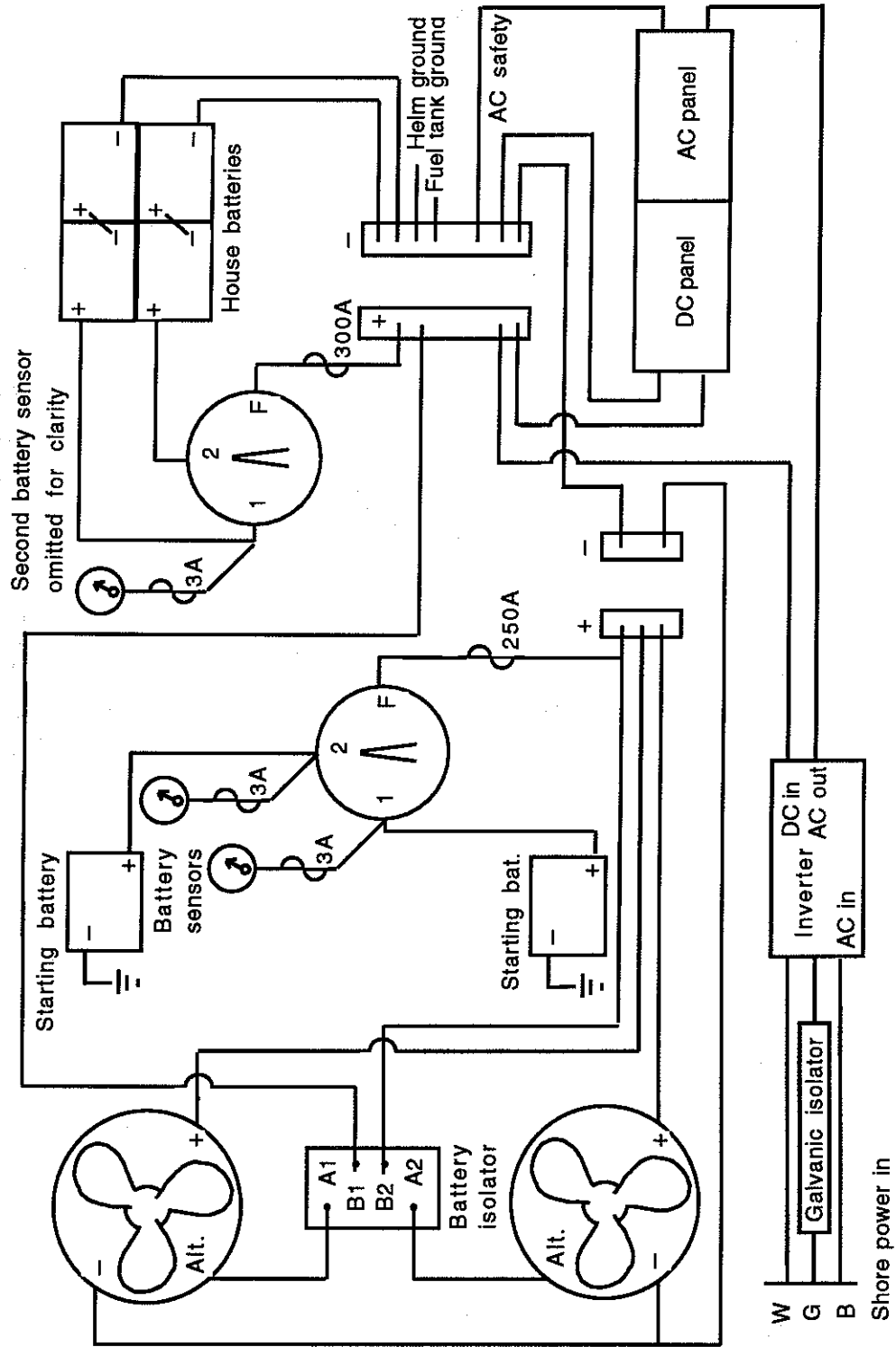


# Reefing gear

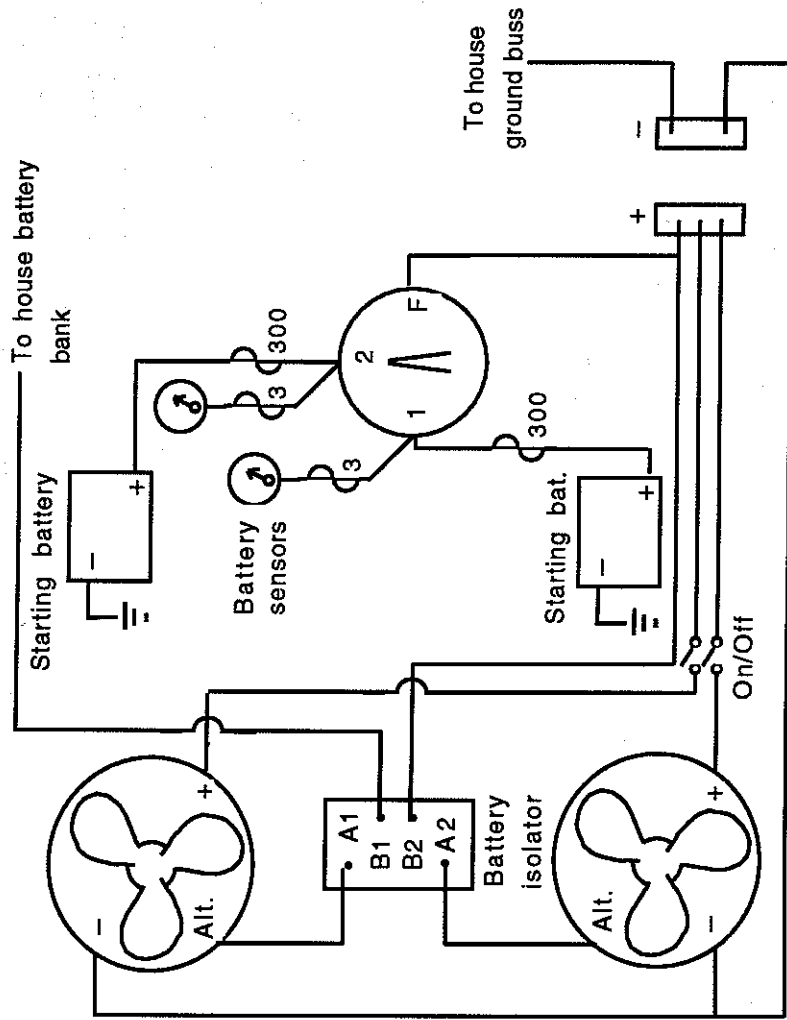




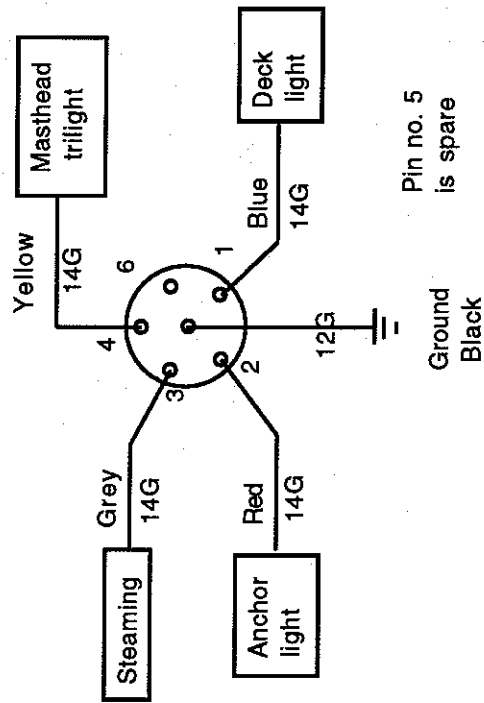
# Electrical wiring – outboards



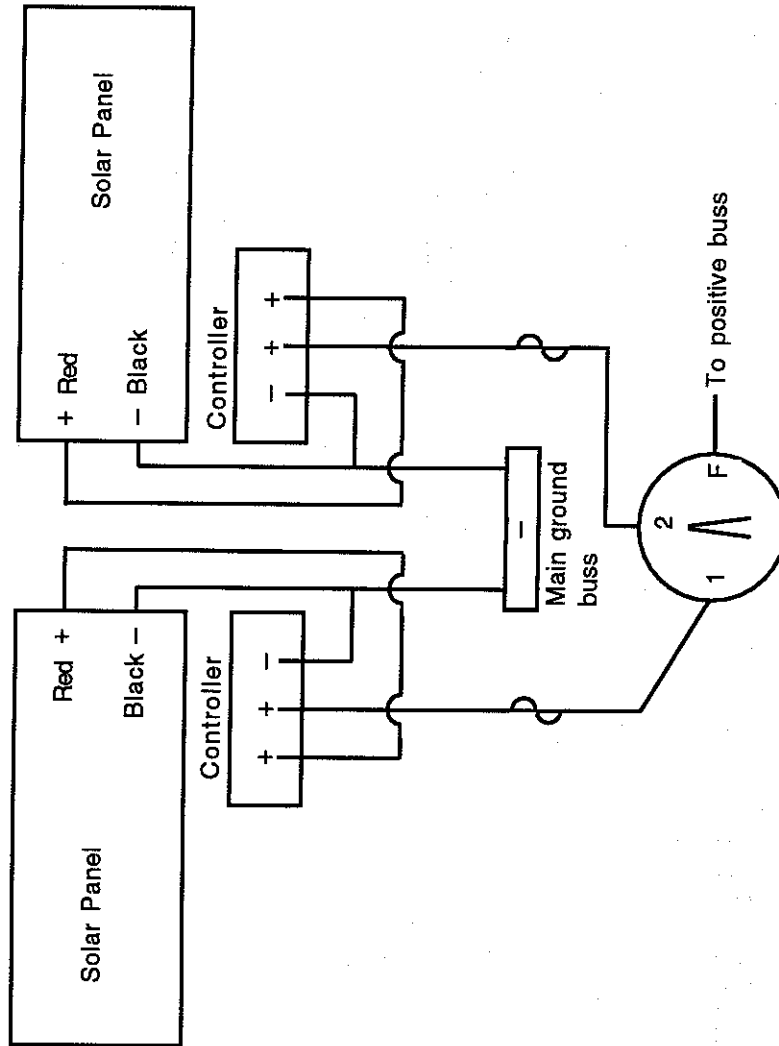
# Electrical wiring – Diesels



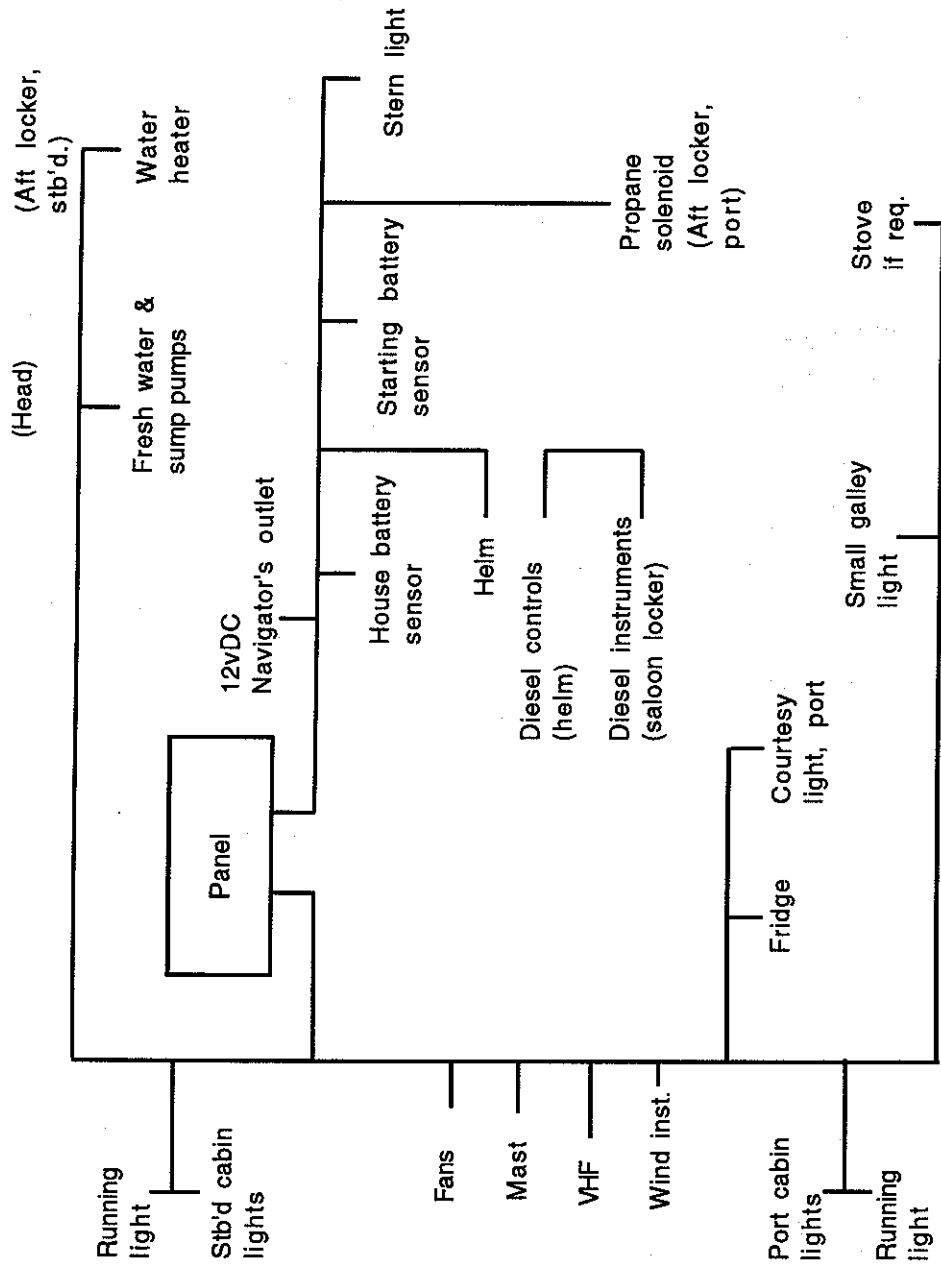
## Electrical wiring – mast



## Electrical wiring – solar panels



## Electrical wiring – harness layout



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