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WELCOME ABOARD

This manual

This manual has been compiled to help you to operate your craft with safety and pleasure. It contains details of the craft, the equipment supplied or fitted, its systems, and information on its operation and maintenance. Please read it carefully, and familiarize yourself with the craft before using it.

If this is your first craft, or you are changing to a type of craft you are not familiar with, for your own comfort and safety, please ensure that you obtain handling and operating experience before assuming command of the craft. Your dealer or national sailing federation or yacht club will be pleased to advise you of local sea schools, or competent instructors

PLEASE KEEP THIS MANUAL IN A SECURE PLACE, AND HAND IT OVER TO THE NEW OWNER WHEN YOU SELL THE CRAFT.

Safety

Owner/operator should read and understand all contents of this manual with respect to all the cautions and warnings implied.

It is the responsibility of the owner/operator to ensure that all the craft's safety equipment is present and working as well as it is the duty of the owner/operator to inform his crew of the usage of this equipment and other emergency procedures.

In order to obtain the best possible safety level we recommend that the safety equipment aboard meets the requirements from "Offshore Racing Council - Special Regulations", which can be ordered from:

Offshore Racing Council Ltd., London, UK.

Phone: +44 (0) 171 629 8701 Fax: +44 (0) 171 629 3220

Always ensure that all escape routes and companionways are clear and escape hatches are unlocked when people are aboard.

Electronic navigational devices such as GPS, chart plotter and radar do not substitute basic navigational knowledge and proper watch keeping. Electronic charts should be updated as well as regular charts. Every craft should carry a minimum of traditional navigational aids as a backup in case of electrical blackout.

Safety precautions

This manual contains a number of safety precautions for you, your crew and the craft's safety. They are divided into three categories i.e. degrees of danger which are defined and emphasized as shown below:

DANGER

Denotes an extreme intrinsic hazard exists which would result in high probability of death or irreparable injury if proper precautions are not taken.

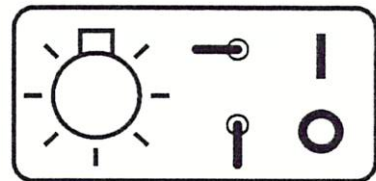
WARNING

Denotes a hazard exists which can result in injury or death if proper precautions are not taken.

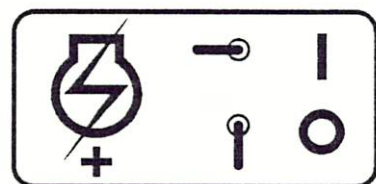
CAUTION

Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components.

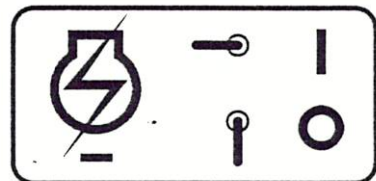
Symbols used in craft



Main switch for light and service circuit.



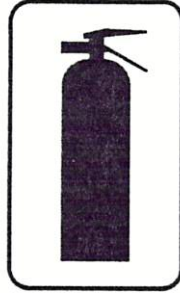
Main switch for main engine, positive conductor.



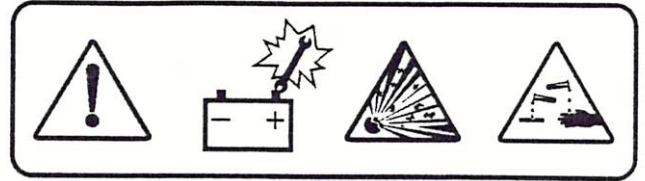
Main switch for main engine, negative conductor.



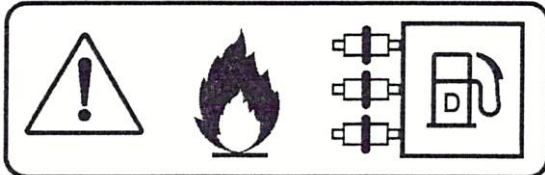
Fire escape hatch.



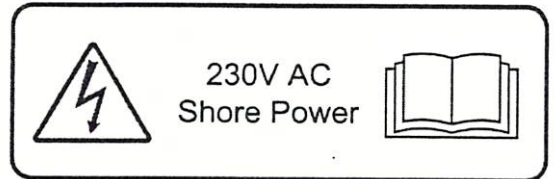
Portable fire extinguisher.



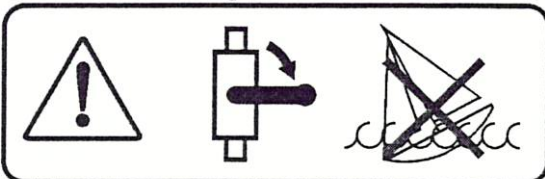
Warning, risk of explosion and leaking of caustic fluid if batteries are short-circuited between battery poles or from batteries to other conducting material i.e. the engine block.



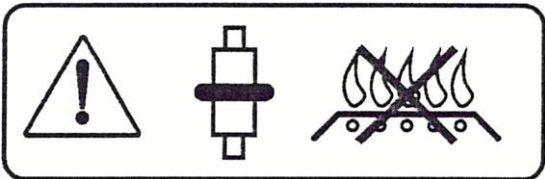
In case of fire close all shut off valves on fuel tank.



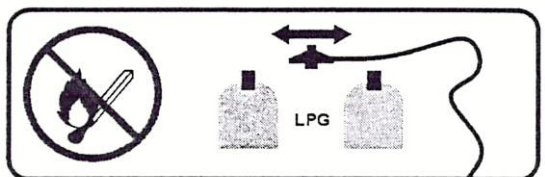
Warning, risk of electrical hazard. Refer to manual before using the shore power inlet.



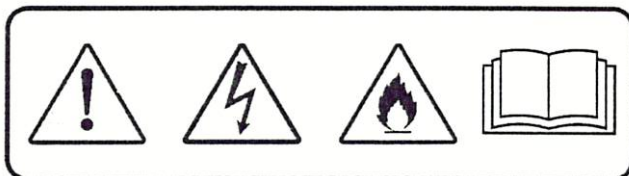
Close all seacocks not in use to minimize risk of flooding.



Shut off valve on gas line to cooking unit.



No open flame and no smoking when changing gas cylinders.



Warning, risk of electrical hazard and fire if proper precautions are not taken. Refer to manual.

Design category

X-99 is designed and built to meet the requirements of category B - "offshore", which is defined as:

A boat given category B is designed to operate in waves up to 4 m significant height and a wind of Beaufort force 8 or less. Such conditions may be encountered on offshore voyages of sufficient length or on coasts where shelter may not always be immediately available. These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated. Winds are assumed to gust to 21 m/s.

Environmental considerations

Careful consideration to the environment must be given at all times. Use of solvents should be kept to a minimum and wherever possible only used when the craft is laid-up and suitable drainage is provided. Discharge from marine toilets must be in accordance with local and international laws, and domestic and galley waste should at no time be disposed of overboard when the craft is in inshore waters. In some areas operable direct overboard waste discharge systems are prohibited. Discharge seacocks are sealable and should be sealed if required. Discharge of fuel and oily waste in navigable waters is prohibited. Consult your marine dealer about environmental regulations when purchasing cleaning agents, paint and other products of this kind.

Before departure

DO THIS:

- Open gas shut off valve in the gas box, and ensure there are no leaks.

- turn on main switches on for engine and light installations.
- open inlet seacock for engine cooling water.
- close discharge seacocks for waste water.
- close windows and hatches.

CHECK THAT:

- present weather and weather forecast provides safe sailing conditions.
- all necessary equipment is on board. Pay special attention to safety equipment.
- passengers and crew are instructed in emergency procedures and use of safety equipment.
- emergency exits are accessible and unlocked.
- the draining system is working and clean.
- the fuel system is not leaking and inspect fuel filter for clogs.
- the craft carries sufficient fuel (with a safety margin). We encourage you to keep a log on fuel consumption and not rely entirely on the level gauge.
- shut off valves on fuel tank are open.
- the engine compartment is free for fumes of any kind.
- battery and charging system is in good condition.
- navigation lights is working and replacement bulbs are available.
- the steering system is working smoothly and properly.
- navigation instruments and devices are fully functional and calibrated.

During sailing

Always ensure that all actions on board the craft are carried out in the safest possible way. Remember that when at sea medical assistance and assistance in general is usually far away.

Pay attention to the present weather and weather forecast. In rough weather always use safety harness, both on deck and in the cockpit. Use hooking points placed in various positions on the craft e.g. pad eyes on the steering pedestal. Place companionway door sections in the slides and secure them.

It is recommendable that all persons aboard wear life jackets.

Before disembarking

DO THIS:

- turn off main switches for engine and light installations.
- close all inlet seacocks.
- close gas shut off valve in gas box.
- lock all doors, hatches etc.
- place all safety equipment beyond reach of thieves and vandals.

CHECK THAT:

- the bilge is clean and dry (no signs of leaks).
- the electric bilge pump is working and in automatic activation mode.

Engine basics

The engine operating and maintenance manual delivered with your craft describes everything concerning the engine. The following notes are basic reminders, and are not intended to cover every detail of operating the engine. We urge you to thoroughly read and understand the manual. Remember that you need to have an authorized Yanmar or Volvo dealer (depending on the make of the engine) do a 20 hour service check in order to uphold the warranty.

Before starting the engine, always ensure that the cooling water intake seacock is open. Turn on the engine main switch. Declutch the gear (pull out the throttle control lever or press the red clutch button depending on the model) and push the throttle control lever approx. 45° forward. The engine is now in neutral with some throttle and the engine is ready to be started on the instrument panel. Turn on the ignition. Warning lights for oil pressure and battery charge turns on together with a buzzer. Press the start button or turn the ignition key a bit further (depending on model) and let go when the engine starts. After a few seconds the warning lights and the buzzer turns off. Now pull the throttle control lever back to neutral and then push it forward or pull it back depending on the direction you want the craft to move.

When stopping the engine, pull the throttle control lever to neutral and stop the engine by pulling the stop handle or pressing the stop button (depending on model). When the engine stops turn off the ignition. If you continue by sail pull the throttle control lever into reverse position allowing the propeller blades to adjust into sail position.

CAUTION

When shifting from forward to reverse or visa versa wait a few seconds in neutral till the engine runs idle.

Keep both hands on steering wheel or tiller and hold on tight when engine is running in reverse.

Refer to engine manual concerning running in a new engine with respect to max. revolutions and load etc.

The engine is fitted with a vacuum valve to prevent sea water from siphoning into the engine block. This valve must be taken apart at least twice a season in order to function properly. Refer to separate manual.

Warranty conditions

On receipt of the goods the buyer is obliged to check the goods. Warranty claims must be at X-Yachts A/S' hand 8 days after receipt of the goods in order to make claims on missing items valid. In case of any warranty the item bought must be returned to X-Yachts A/S right after the claim has been put forward, without expenses for X-Yachts A/S.

Item can only be returned to X-Yachts A/S in case of written agreement in advance. Items returned must be found in same good condition as when delivered from X-Yachts A/S.

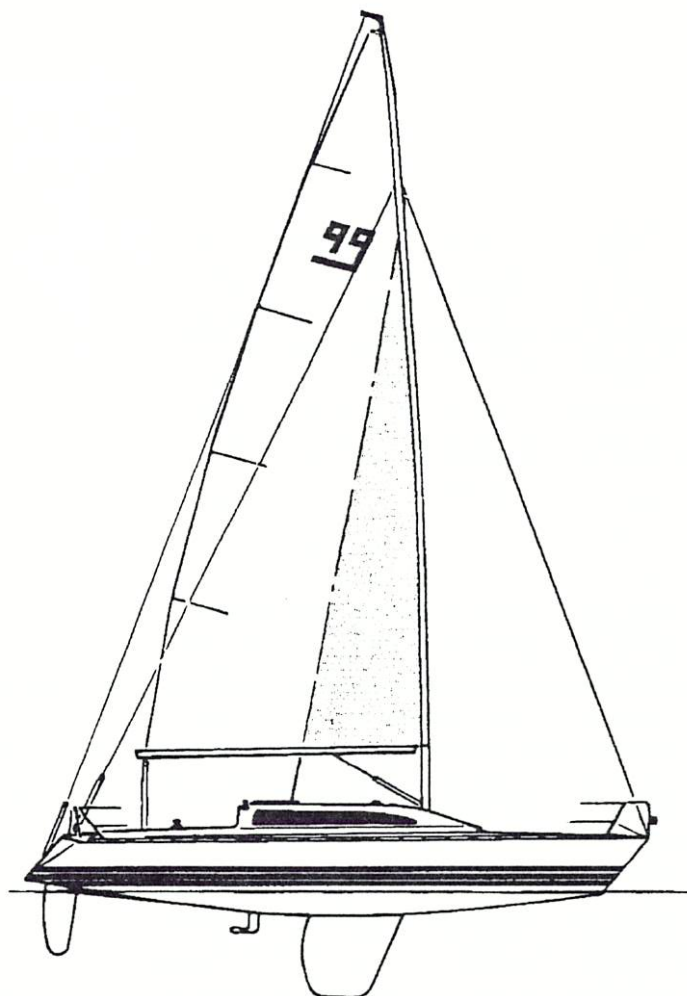
Defective delivery can only be advanced towards X-Yachts A/S within 12 month from date of delivery and only within the extent of which X-Yachts A/S' sub suppliers are responsible to X-Yachts A/S. Defects beyond this are without responsibility on X-Yachts A/S' part. To the extent of which X-Yachts A/S is responsible, X-Yachts A/S can choose to correct the defect either by remedy such as replacement, repair, additional supply, or credit. If X-Yachts A/S chooses to remedy the defect, the time spent for this cannot be pleaded delay.

X-Yachts A/S is only responsible for the damage caused by the goods bought, if it can be proved that the damage is due to fault made by X-Yachts A/S. X-Yachts A/S' responsibility for damage on items/persons can never extend 1 million DKK. X-Yachts A/S is only liable 12 month from the hand over to the buyer, for damages caused by the goods delivered.

Description of yacht

Model:	X-99
Version:	N/A
Design category:	"B" (offshore)
Designer:	Niels Jeppesen

Yard:	X-Yachts A/S
Address:	Fjordagervej 21 DK-6100 Haderslev, Denmark
Phone:	+45 74521022



Main dimensions

L _{HULL} :	10.000 m
L _{WL} :	8.500 m
B _{MAX} :	3.000 m
Draft fully loaded:	1.850 m
Air draft (excl. windex etc.):	15.35 m
Displacement fully loaded:	3,937 kg
Ballast:	1,300 kg
Engine, standard:	7.1 kW
Engine, max.:	7.1 kW

Sail areas

Main:	32.2 m ²
Furling genoa:	N/A
Genoa 1 150%:	29.8 m ²
Genoa 2 137%:	N/A
Genoa 3 97%:	19.8 m ²
Genoa 4 80%:	N/A
Stormjib:	N/A
Spinnaker, triradiate max.:	78.0 m ²
Gennaker:	N/A

Tank capacities

Diesel tank:	23 liters
Fresh water tank:	50 liters
Holding tank:	N/A
Gas cylinders, butane:	1×3 kg

Misc. Capacities

Service/engine battery:	1×12 V 70 Ah
Engine start battery (extra):	1×12 V 70 Ah
Max. no. of people:	8 people
Max. load (cargo and/or people):	884 kg

SYSTEMS AND CIRCUITS

- Water tank system
- Fresh water circuit
- Seacocks and through-hull fittings
- Draining system
- Fuel system
- Gas system
- Electrical installations
- Fire-extinguishing

Water tank system

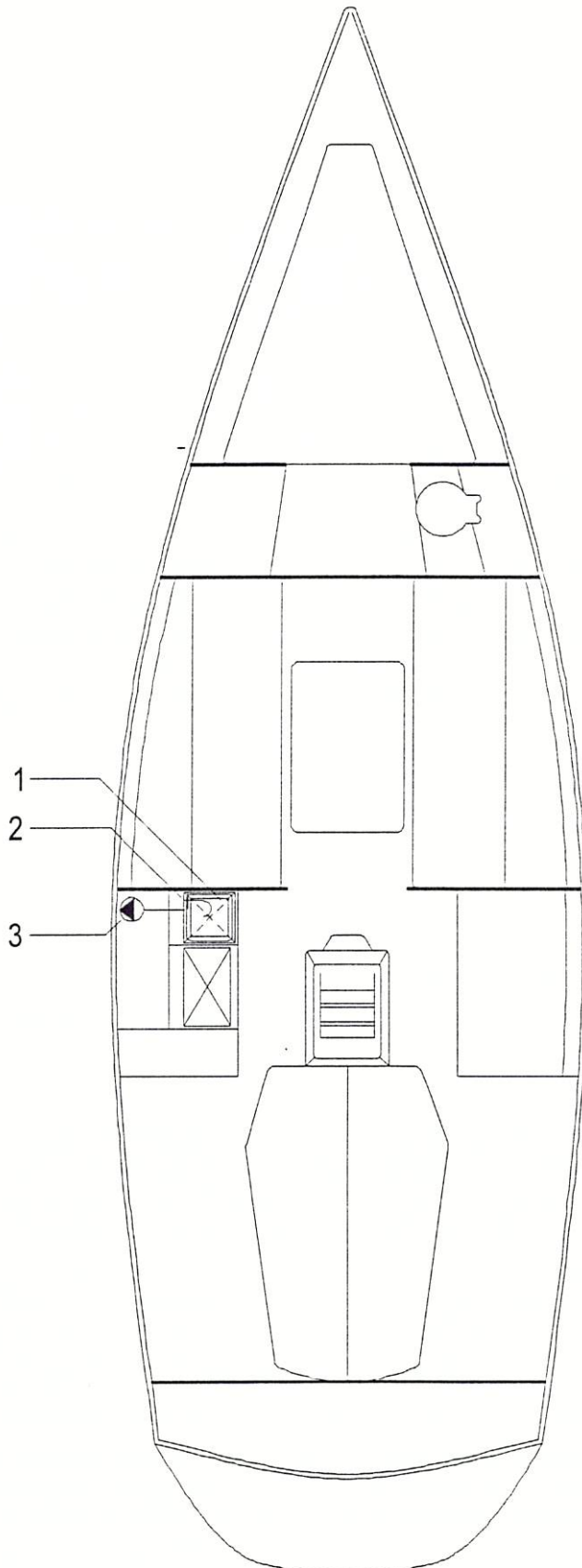
1. Fresh water tank.
2. Vent. line.
3. Deck fill.

The standard 50 l fresh water tank, (item #1) is filled through the deck fill (item #3). The tank is full, when a steady stream of water comes out of the vent. line end fitting.

The tank can be sterilized by adding chlorine tablets (available from chemists), but read and follow instructions carefully.

CAUTION

After filling the tank make sure that the deck fill cap is closed tight. This will prevent sea water from entering the tank and polluting the fresh water.



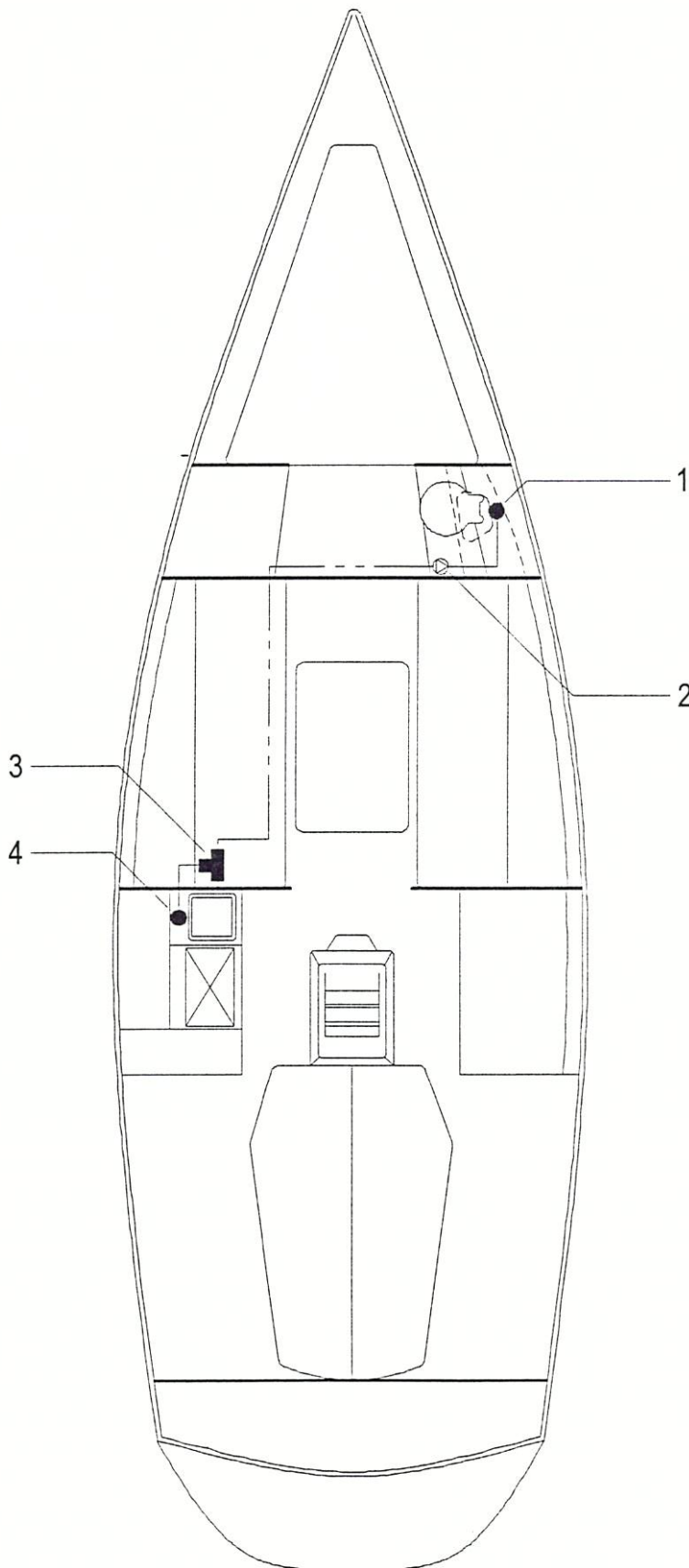
Fresh water circuit

1. Toilet cold water tap.
2. Manual foot pump.
3. T-fitting.
4. Pantry cold water tap.

The fresh water is distributed from the 50 l water tank placed under the pantry.

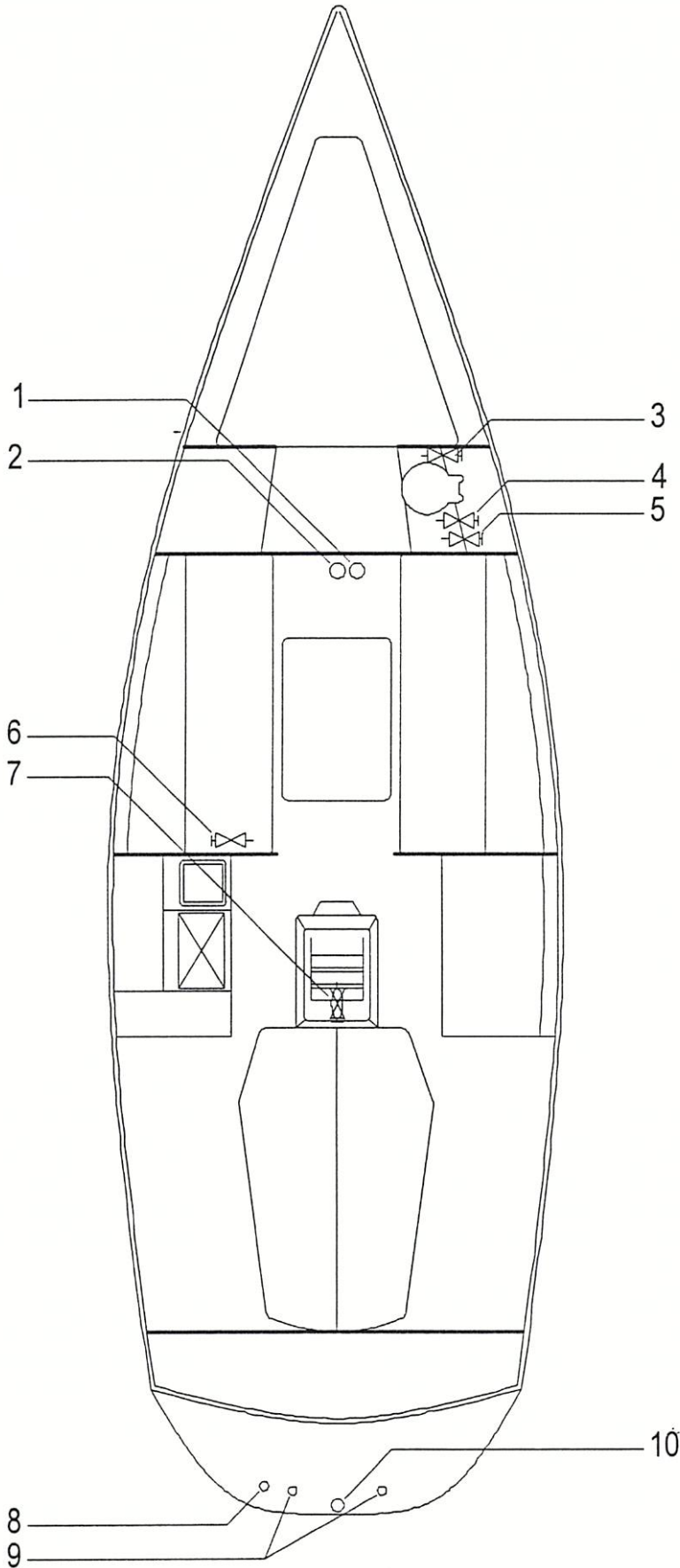
CAUTION

Always ensure that there is sufficient fresh water content for your anticipated usage.



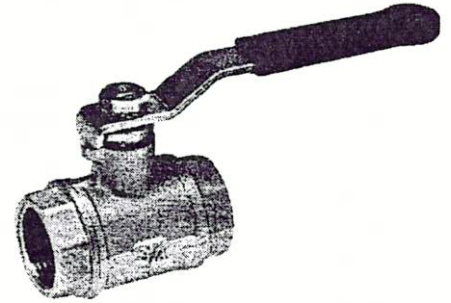
Seacocks and through hull fittings

1. Echo sounder transducer.
2. Log transducer.
3. Toilet sink outlet (grey water).
4. Toilet waste water outlet (black water).
5. Toilet flush water inlet.
6. Pantry sink outlet (grey water).
7. Build-in engine cooling water inlet in sail-drive.
8. Gas box drain.
9. Cockpit drain.
10. Engine exhaust.



-To open a seacock turn the lever to a position parallel to the direction of flow.

-To close a seacock turn the lever to a position perpendicular to the direction of flow.



seacock in open position

CAUTION

All seacocks must be shut off when not in use to minimize risk of flooding

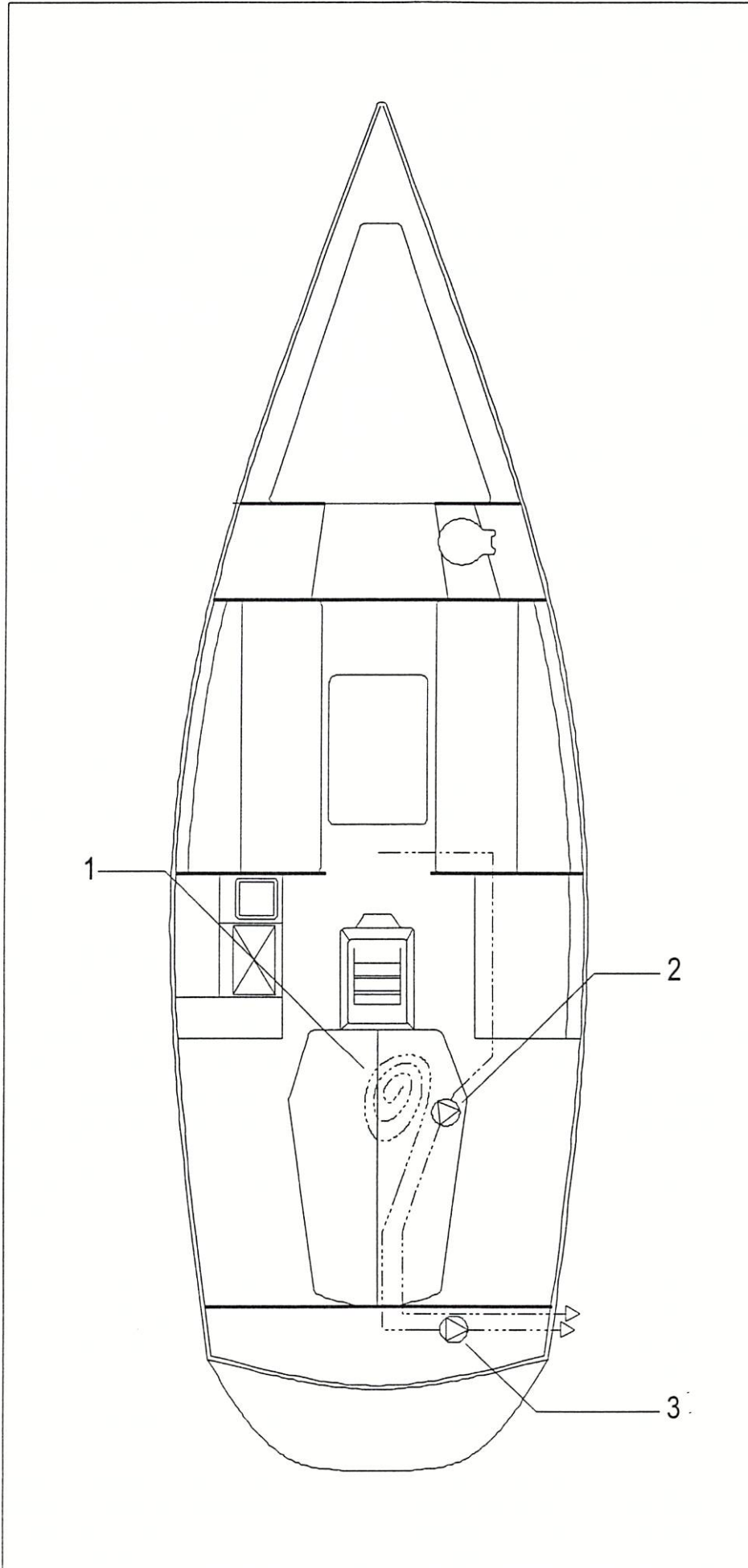
Draining system

1. Loose hose for manual draining system.
2. Electric bilge pump.
3. Manual bilge pump.

The bilge sump is drained through either an electric bilge pump or a manual bilge pump. The electric bilge pump (item #2) is placed under the SB aft berth and manually activated from the switch panel. The manual bilge pump (item #3) is placed on the aft bulkhead in the cockpit and is operated with the supplied handle. Inspect the draining system regularly for clogs etc. to ensure maximum efficiency.

Pumping capacities:

Electric bilge pump:	12.6 l/min.
Manual bilge pump:	28.1 l/min. at 45 strokes



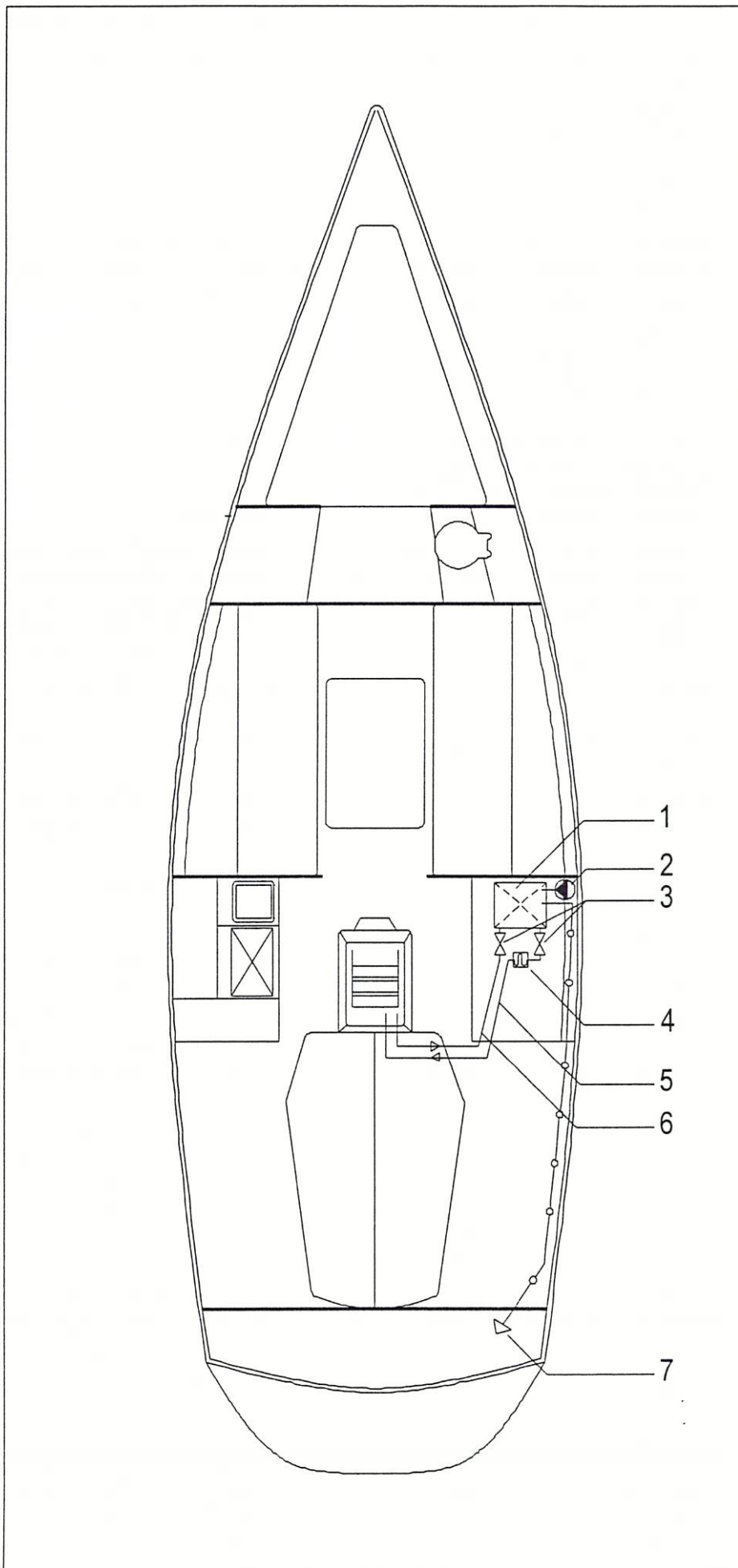
Fuel system

1. Fuel tank.
2. Deck fill.
3. Shut off valves on fuel lines.
4. Water separator.
5. Fuel distribution line.
6. Fuel return line.
7. Vent. line.

The main engine fitted to your craft uses standard diesel fuel which is stored in one main 23 liter fuel tank. The diesel deck fill is placed in the starboard side deck. Before taking on fuel wet the deck with water around the deck fill to avoid permanent stains from fuel. When tanking fuel close all windows, hatches, etc. adjacent to the deck fill to prevent ingress of fumes into the accommodation. Avoid overfilling and fill slowly to avoid splashing. Close the deck fill cap tight to prevent water from entering the tank. Wash off any spilt fuel immediately with detergent and running water.

DANGER

In case of fire shut off valves on the fuel tank.
Do not smoke when tanking fuel and do not tank near naked fire or with engine running.



Gas system

1. Cooking unit.
2. Shut off valve and flexible hose.
3. Shut off valve.
4. Gas bottle (butane, ADR class 2.2F, UN 1965) with pressure reduction unit.
5. Vent. line.

The gas cylinder is located in the port side aft chest in the cockpit. Ensure that appliances are shut off when applying pressure to the system (opening shut off valve at cylinder). Shut off the valves in the system when appliances are not in use. Never leave appliances burning unattended. Do not obstruct access to gas system components in any way. Always use CE approved cylinders and components.

Keep valves on empty cylinders closed and disconnected. Keep protective covers, caps or plugs in place. Store reserve or empty cylinders on open deck or in the gas box. Do not use gas box for storage of any other equipment.

Regularly test the gas system for leaks. Shut off the appliance valve (item #2) and apply pressure. Then check for leaks either using a leak testing device (extra) or soapy water on hoses, connections and piping.

Specification:

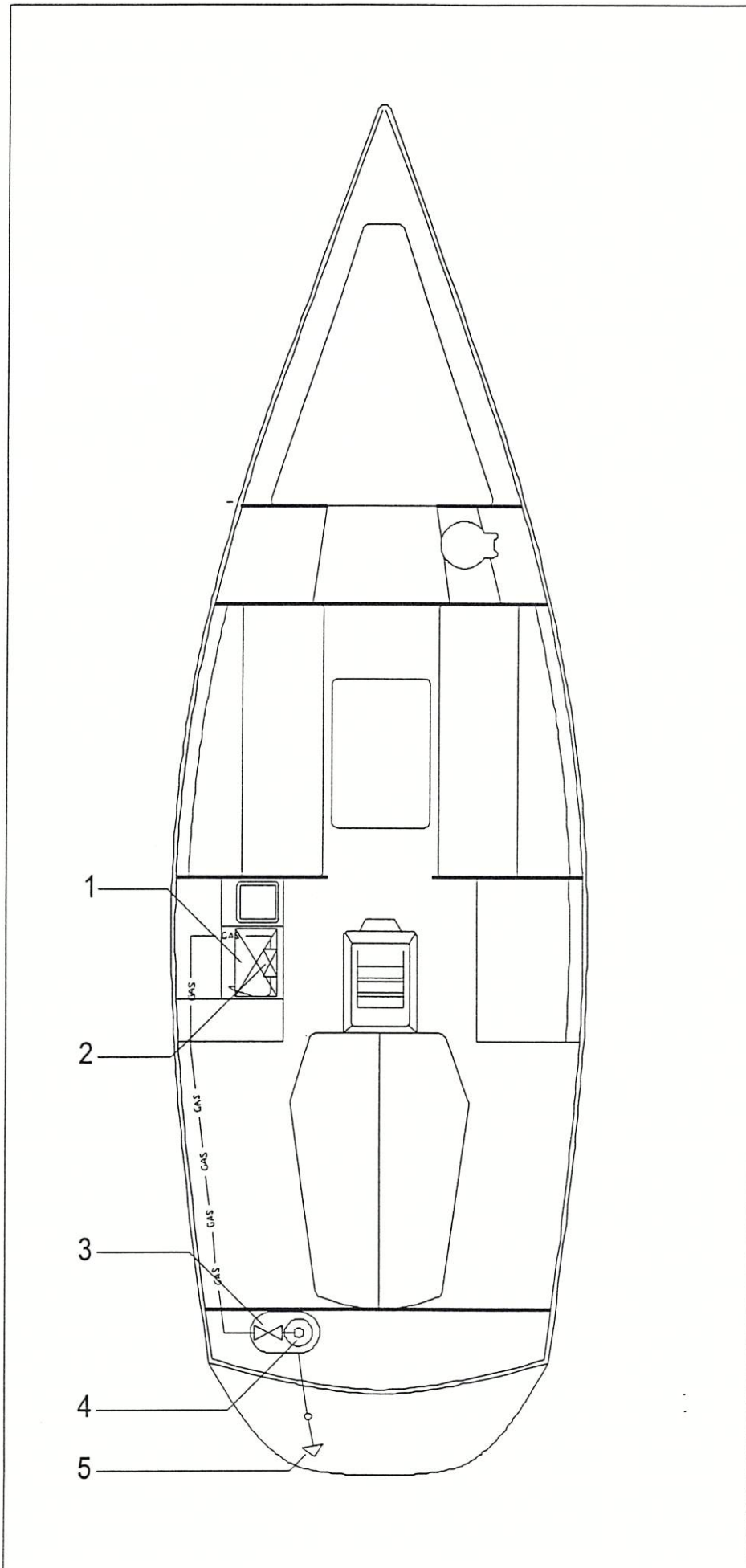
Gas type: The gas system is designed for use of butane ADR class 2.2F, UN 1965 gas only (blue cylinders).

Operating temp.: The ambient operating temperature of the system is -10 to +40°C.

Working pressure: The working pressure of the appliances is 30 mbar.

Capacity: The capacity of the pressure reduction system is max. 1,5 kg/h.

We recommend that the gas system is pressure tested by a professional once a year. The test pressure should be five



times the working pressure i.e. 150 mbar.

DANGER

Avoid asphyxiation. Provide ventilation Through windows and hatches in the cabin when the cooking unit is in use. Do not use for space heating.

In case of a gas leak or when replacing gas cylinder(s) ensure that cigarettes and naked flames etc. are extinguished immediately and all electrical systems are switched off.

Never use flame to check for leaks.

WARNING

If a gas leak is suspected following precautions must be taken:

- Turn off the gas supply.
- Disconnect the gas cylinder(s).
- Open all hatches and portlights to ensure maximum air circulation and operate the manual bilge pump.
- Employ a qualified plumber to undertake repairs.

CAUTION

Do not use solutions containing ammonia on the gas piping and appliances.

Electrical installations

1. Engine battery with main switch (extra).
2. Light/engine battery.
3. Main switch and fuse.
4. Main switch panel.

The following specification has been made as a general specification for the electrical system on board. Thus, the specification does not describe all technical details. As regards troubleshooting, changes or additional information we refer to the electrical diagrams and manuals.

The electrical system on board is a 12 V DC system. The system is controlled and monitored from the main switch panel (item #4) located by the chart table. Each group contains a switch and a fuse. Each group is clearly labeled with function.

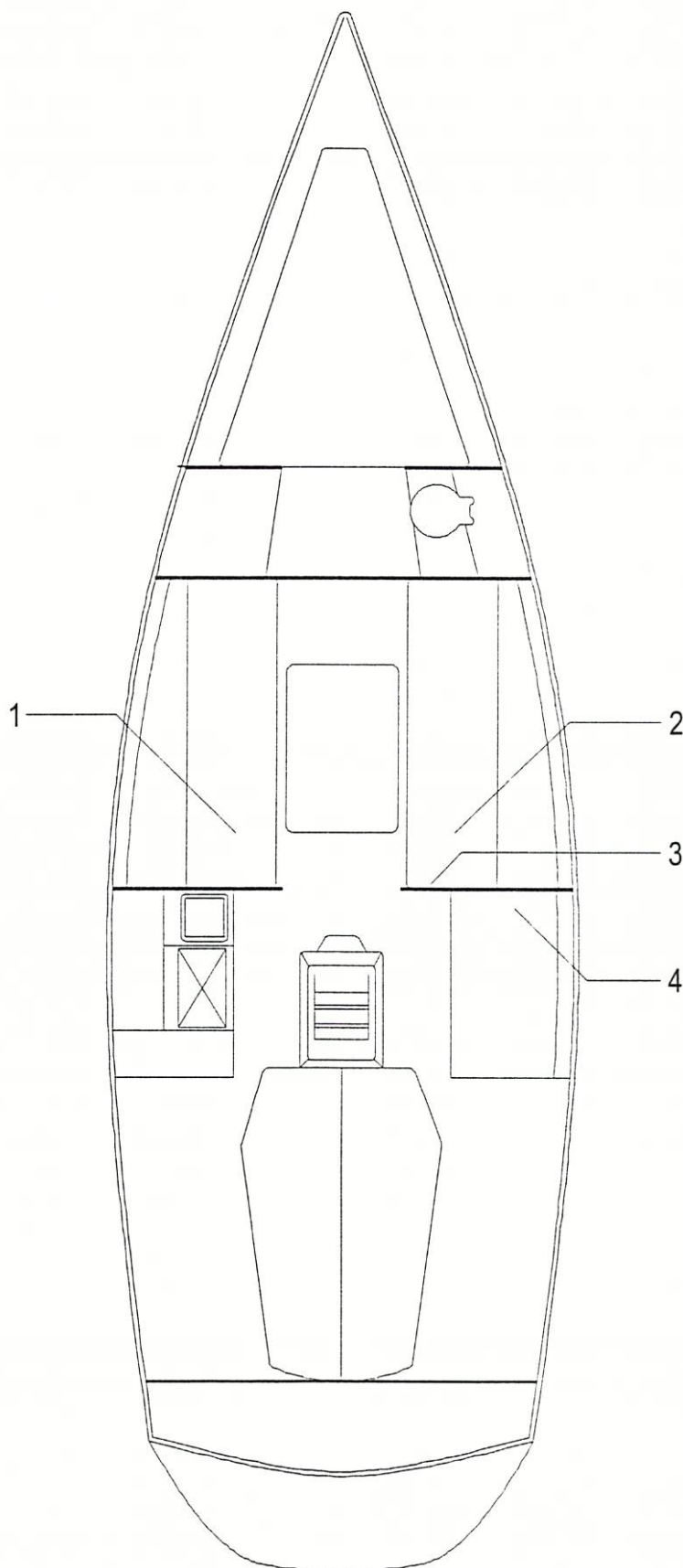
A 12 V 70 A engine/light battery (item #2) is located in SB side of salon under the berth. The battery is charged by a standard 12 V, 55 A generator on the main engine.

If the boat is equipped with an extra battery, then this battery is located in the port side of the salon under the berth. This battery serves as engine battery and the battery in the starboard side serves as light battery. The batteries are separated with a relay. A common fuse for light battery is located close to the light main switch.

The light/engine battery supplies the following equipment:

1. 12 V electric board and 12 V plugs.
2. Light installations, bulkhead lights, light at the chart table.
3. Nav. lights, windex light, steaming light, deck light and compass light.
4. Nav. instruments (VHF, log, echosounder, wind- and multi instruments (extra)).
5. GPS navigator (extra).
6. AM/FM radio (extra).

The batteries are charged from the



generator on the main engine. Start- and light batteries are separated through a 70 A relay. Thus the light batteries will not be used to start the engine.

Lights:

All bulkhead lights are turned on directly by the light.

WARNING

To minimize shock and fire hazards:

- Turn off craft's shore power connection switch before connecting or disconnecting shore power cable.
- Connect shore power cable to craft inlet before connecting to shore power source.
- Disconnect shore power cable at shore source first.
- If reverse polarity indicator is activated, disconnect cable immediately.
- Close shore power inlet cover tightly.
- Do not alter shore power cable connectors, use only compatible.
- Never work on the electrical installation while the system is energized.
- Never alter or modify the rated current amperage of overcurrent protective devices.
- Never install or replace electrical appliances or devices with components exceeding the rated current amperage of the circuit.

WARNING

Do not allow shore power cable end to hang in the water. An electrical field can be caused which can cause injury or death to nearby swimmers.

CAUTION

All main switches should be shut off when the boat is left unattended.

Do not modify the craft's electrical systems or relevant drawings.

Installation, alterations and maintenance should be performed by a competent marine electrical technician. Inspect the system at least biennially.

Disconnect shore power connections when not in use.

Connect metallic housings or enclosures of installed electrical appliances to the protective conductor system in the craft (green or green with yellow stripe conductor).

Use double insulated or grounded (earthed) electrical appliances.

If reverse polarity indicator is activated, do not use electrical system. Correct polarity fault before activating the electrical system on the craft.

Fire-extinguishing

1. Escape hatch.
2. 2 kg. 5 A34B
3. 2 kg. 5A34B

This craft when in service shall be equipped with portable fire extinguishers of the above extinguishing capacities and in the following locations (see sketch).

Item #2 is located under table in saloon.

Item #3 is located in the SB cockpit locker.

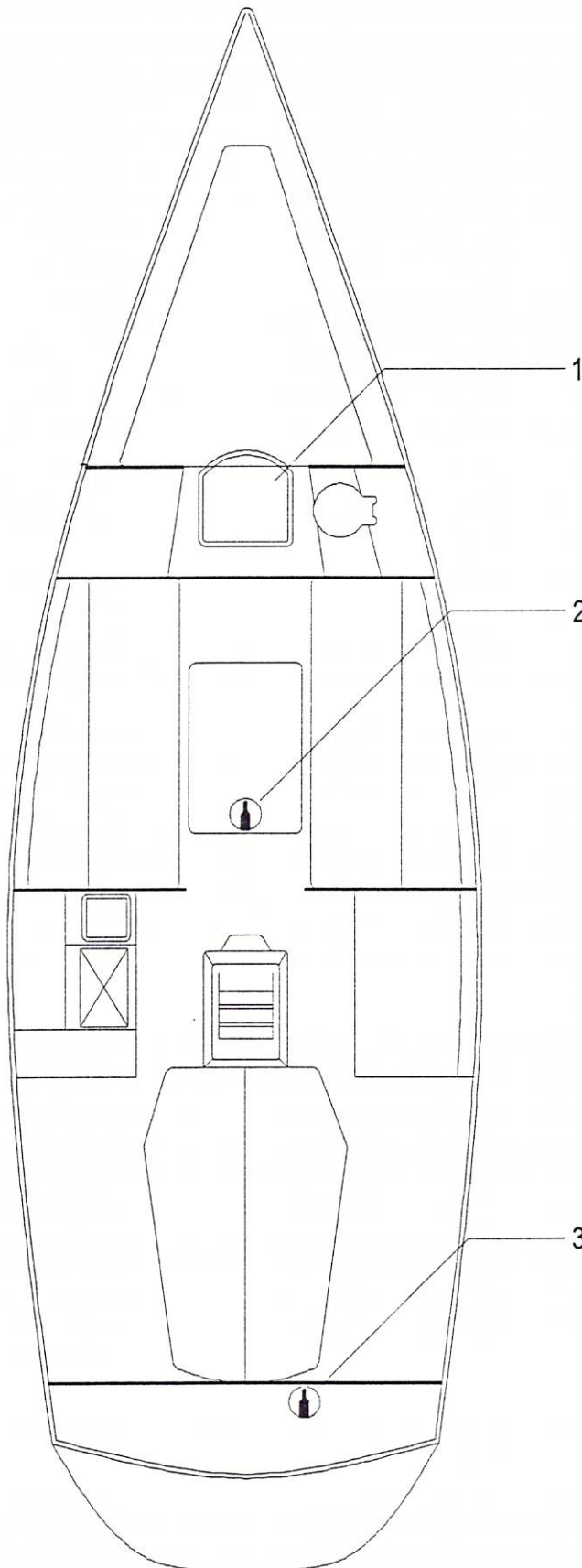
It is the responsibility of the craft owner/operator to:

- have fire fighting equipment checked at intervals indicated on the equipment.
- replace fire fighting equipment, if expired or discharged, by devices of identical or greater fire fighting capacity.
- inform members of the crew about the location and operation of fire fighting equipment and the location of escape hatches.
- ensure that fire fighting equipment is readily accessible when the craft is occupied.

Keep the bilges clean and check for fuel and gas vapors at regular intervals. When replacing parts of the fire fighting installation only matching components shall be used, bearing the same designation or being equivalent in their technical and fire resistant capabilities.

Do not fit free hanging curtains or other fabrics in the vicinity of or above cookers or other open flame devices. Combustible material shall not be stowed in the engine space. If non-combustible materials are stowed in the engine space they shall be secured against falling into machinery and shall cause no obstruction to access in or from the space.

Escape facilities other than the main companionway is the forward hatch



and it is identified by the appropriate ISO symbol.

CAUTION

Never

- obstruct passage ways to exits and hatches.
- obstruct safety controls, e.g. fuel valves, gas valves, switches of the electrical system.
- obstruct portable fire extinguishers stowed in lockers.
- leave the craft unattended when cooking and/or heating appliances are in use.
- use gas lights in the craft.
- modify any of the craft's systems (especially electrical, fuel and gas).
- fill any fuel tank or replace gas bottles when machinery is running or when cooking or heating appliances are in use.
- smoke while handling fuel or gas.

GENERAL MAINTENANCE

Hull and deck

General maintenance

The general maintenance of the gelcoated surfaces of the boat corresponds to the care that you would normally give your car. We do though recommend to use maritime detergent and wax products.

All the NORPOL® products mentioned below is manufactured by JOTUN POLYMER and should be available at your local boat equipment dealer.

Cleaning

Periodic cleaning with soft detergents is necessary to remove normal dirt. This dirt has been caused by regular use together with the environmental pollution sources like carbon, smog etc. A regular washing - when necessary - will avoid the building up of dirt and discolorations. To maintain the sparkling finish of the boat, it is important often to wash down the deck and hull by plenty of fresh water and some boat shampoo to remove salt and grime from the surface. At least three times a season the boat should have an UV-protective wax treatment.

CAUTION

Do not use caustic and very alkaline detergents or detergents containing chlorine or ammonium chloride on the gelcoat, as this will cause the surface to fade.

Waxing

As a gelcoat will start losing its brilliance by constant exposure from the natural environment and pollution sources, it would demand a particular effort to regain the original brilliance and color. A waxing in either autumn or spring is all it takes to maintain the original appearance. If the surface has been bad affected from wind and weather a cleaning and treatment with wax certainly will not re-establish the finish to your satisfaction, and therefore a polish would be necessary.

WARNING

Use care in waxing to ensure walkways are not made dangerously slippery.

Polish

Use NORPOL® R10 grind and polish paste to remove scratches, discolorations or other seriously damaged

surfaces. NORPOL® R10 grind and polish paste can be applied either manual or mechanical. After the weather-beaten surface has been removed it has to be waxed in order to reinforce the brilliance and color, and at the same time it gives sealing to the surface that delays discoloration or new dirt accumulation.

Removal of discoloring

Discoloring of the gelcoated fiber glass surface may occur if regular washing and waxing has been neglected. Discolored areas are really just in the surface. They can be removed easily with soft wet grinding in the affected areas with 800-1,200 grade wet grinding paper for removal of the slight blemishes. Always grind in one direction only. All areas, including curves, have to be grinded in the same direction. Use plenty of water. After the grinding the areas have to dry, and one must make sure that all the discoloring have been removed. If not, the procedure has to be repeated. Subsequently, the gelcoat surface has to be polished with NORPOL® R10 by hand or machine.

For machine polish one has to use a machine with approx. 2,000 rpm. to recreate the brilliance on the grinded surface. Use a soft wool cushion like Oskar's polish disc A880 and apply plenty of NORPOL® R10 with rotatory movements. Once the polish has been finished the grind paste has to be washed off with clean water. After the washing one has to use NORPOL® W50 for removal of possible remnants of NORPOL® R10.

Subsequently the subject has to be treated with the hard wax NORPOL® W70.

Damages

The hull and deck of your boat is made of handlaid fiber glass with an outer surface of gelcoat. The gelcoat is in general very resistant against strokes and scratches, but the boat will unavoidably get some minor scratches during its lifetime due to wear. These scratches should be attended to in their early stages.

Scratches

If the scratch is at the surface of the NORPOL® gelcoat and has not penetrated to the fiber glass one may use NORPOL® R10 polish paste to "rub it off". The paste has to be applied with a polish disc such as Oskar's A880 by machine or by hand with a wet cloth using a lot of "elbow grease". Probably the scratch will not disappear completely, but it will definitely be less visible.

Repairs of the surface has to be made with NORPOL® filler in the right color. The mend procedure recommended is as follows:

- The spot for repair has to be degreased with acetone to remove all signs of wax and oil.
- Carefully mix 1 tablespoonful of NORPOL® stopping with two or three drops of catalyst on a piece of cardboard.
- Apply the mixture on hole, broken fragment or groove with a single shaped razor blade fitting to the surface and contour of the area to be repaired. It is better to apply just a little more mend mixture than needed to avoid having to fill up the damaged part again.
- Let it harden well and truly in one to two days and nights.
- Use 800-1,200 grade wet grinding paper on a grind block. Water grind the mended down to level.
- Finish with NORPOL® R10 polish paste.

If a damage goes through to the laminate or it covers a large area of the hull or deck, it should be repaired by a professional.

It is good practice to use fabric fender protectors to avoid scratching the freeboard.

CAUTION

If stress cracks occurs or delamination is suspected contact GRP laminate specialist immediately. Rubbing the hull with abrasive compounds or sandpaper removes the gelcoat. As this is only a thin layer, great care should be taken. If in doubt, consult a professional.

Bottom treatment

If the boat is delivered with the bottom treatment from X-Yachts, 3 coats of epoxy barrier and 2 coats of antifouling are applied to the degreased and sanded gelcoat bottom. The epoxy barrier is applied to seal the hull and to reduce the risk of gelcoat blistering. It is therefore of vital importance that this barrier is kept intact.

Antifouling should be checked on a regular basis and replaced at least once a year.

CAUTION

Some types of antifouling are incompatible, so it is advisable to keep a record of used antifouling and to consult a professional, if you want to change antifouling type.

Be careful not to cover zinc anodes, grounding plates or transducers.

Cathodic protection

The zinc anodes mounted on the hull and saildrive or propeller shaft must be replaced when approx. 2/3 eroded in order to maintain cathodic protection.

WARNING

Failure to insure cathodic protection may result in leakage and serious damage to metal parts.

Deck hardware and rigging

Deck gear and hardware

Regularly wash all deck gear and hardware in fresh water and soap and inspect the deck gear for defects and damages. Lubricate all moving parts with grease or teflon spray in accordance with the specific manual. A glass cleaner is usually safe for stainless. Remove rust spots as soon as possible with a brass, silver or chrome cleaner. Never use an abrasive like sandpaper or steel wool on stainless.

Running rigging

Check regularly all sheets, halyards, hauls etc. for wear and damages that reduces their strength and replace them if necessary.

Standing rigging

Check regularly all shackles, pins, blocks, rigging screws etc. If they show any signs of cracking or deformities they should be replaced. Check also that all of the rigging is properly fastened and in the right positions. Regularly wash rigging close to the deck in fresh water.

WARNING

Do not raise any halyards or tension the rigging before deck tie rods are attached to the mast collar and the mast. Failure to do this could result in severe damage to the deck structure.

Sails

Check regularly for wear and tear, and turn them in to your sailmaker if necessary. If they need cleaning ask your sailmaker for advice or let the sailmaker do the job. Always ensure that your sails are as dry as possible before packing and storing them.

Mast, boom and spinnaker pole

Regularly wash the spars and fittings with fresh water and soap to remove salt and grime. The anodized parts can be polished if required to protect them from staining.

Make sure that all sharp edges are fully taped for protection. Lubricate fittings as required. Secure all rigging away from the surface of the spars as there could be corrosion between the different materials or chafe caused by the wind. Check regularly for sign of stress crack around joins and halyard exits. Keep alu/stainless-connections isolated to avoid corrosion especially tipcup/spreader-connections. We recommend to use mounting paste e.g. Klüber lubrication / ALTEMP Q NB 50.

It will be necessary at times to work aloft to carry out maintenance. If you are uncomfortable aloft get an experienced crew member or a professional to undertake the work.

DANGER

Mast and other rigging components conduct electricity. Contact with over head electrical wires could be fatal!

Please exercise extreme caution when rigging or sailing.

WARNING

To ensure safety follow this procedure when preparing and carrying out a personnel hoist.

- 1) Procure and check the necessary equipment, starting with the flake and halyard. The halyard must be in good condition particularly around the shackle. A second halyard must always be connected for safety. Never rely on snap shackles as these can snag and release.
- 2) Use a deep bag for your tools, remembering that any tool dropped may injure persons below or do damage to the deck. A messenger line can be used to raise and lower tools.
- 3) Use an experienced assistant who is familiar with winches. Climb with your feet and hands as your assistant winches with at least three turns on the drum. Make sure that your assistant fastens the halyard end to a secure cleat or ties it to the winch. Tie yourself to the mast with a short line to lock yourself in position.
- 4) When lowering make sure that the halyard tail is clear and ease the halyard slowly around the winch. The assistant must ensure good foothold and steady grip on the halyard at all times.

Personnel hoist is safest if carried out in harbor under calm wind and sea conditions with proper distance to other masts and riggings.

Canvases

Sprayhood and cockpit covers

The canvas consists of 100% dyed in polyacryl (Dralon Dorcolor), coated with polyurethane and impregnated with Baygard. Sprayhoods and cockpit covers endures ordinary washing at max. 30°C, but should not be dry-cleaned nor washed down with high pressure.

Sprayhoods or cockpit covers should only be machine or laundry washed if extremely dirty, such washing being very hard on the canvas. The canvas is not guaranteed waterproof if machine washed. Washing is recommended at least once a season in order to avoid mold. The cover should be soaked for 6-8 hours in a mild detergent and thereafter rinsed with a brush while unfolded on floor or a table or mounted on the craft - if possible after rainy weather when the canvas is already soaked. The canvas is mold proof from the factory, but should be re-impregnated after washing. A silicosis-impregnation for textiles is recommended.

Sprayhoods or cockpit covers must be impregnated while mounted on the craft. The canvas must be clean and absolutely dry before treatment. The impregnator is applied with a soft brush, normally only on the outer side. After treatment the canvas should not be folded if still wet. The impregnation is only effective if the material is absolutely dry. When treated with impregnation the canvas is water proof and protected against mold.

Mold arises due to condensation of humidity. Condensation can be reduced considerably if proper ventilation is provided.

Interior

Lacquered wooden surfaces

When cleaning the wooden surfaces of the interior use a soft rag wetted in water and dishwashing detergent.

Scratches should be repaired by rubbing the area lightly with a 240 grade sandpaper. Apply a thick layer of lacquer and let it dry. Again rub the area lightly with a 240 grade sandpaper before applying the final layer of lacquer.

If the damage comes from an impact to the surface and a permanent compression mark shows the lacquer should be rubbed off by sandpaper and the naked wood wetted by water. Use an electrical iron to carefully apply heat to the surface through a paper coffee filter bag until the compression mark "grows out" and disappears. When the surface is dry proceed with the same lacquer procedure as described for repairing scratches.

Lacquer products applied from X-Yachts:

Floors: lacquer: SUPER DUR GL 40, 1416
catalyst: Super Dur catalyst, 1406
thinner: Super Dur thinner, 1112
Interior: lacquer: DANTOP Extra GL 25, 8462
catalyst: 1399
thinner: NICO, 1183

All lacquer products are supplied by:

A/S HYGÆA

Gasværksvej 30, Box 582, DK-9100, Denmark
Phone: +45 98133100

CAUTION

Extensive heat may result in dark areas on the wooden surface. If you are unfamiliar with woodwork or in doubt about a specific task, please consult or employ a professional before undertaking the repair.

When repairing lacquered surfaces the used lacquer products should be similar and compatible to the product applied from X-Yachts.

LAING-UP AND WINTER STORAGE

Lifting

Lifting of the craft can be done either with slings or by single-point lift.

Lifting with slings

Position of aft sling should be 0-400 mm aft of stanchion no. 1 (counting from aft most stanchion and forward). Position of forward sling should be 700-1000 mm aft of stanchion no. 3.

Single-point lift

Single-point lift is carried out by using the lifting strap and shackle (extra).

Lifting procedure:

1. Remove floor plate behind salon table and both inside and outside caps on lifting hole in the cabin roof.
2. Attach shackle to the lifting bracket on the steel floor frame.
3. Check lifting strap thoroughly for possible injuries. If there is any sign of weakness do not use the lifting strap.
4. Lead the lifting strap trough the hole in the cabin roof. Ensure that the lifting strap is not twisted or kinks in any way.
5. Attach crane shackle to the lifting strap.
6. Attach control lines in forward and aft mooring cleats.
7. Lift the craft slowly out of the water while controlling the swaying movement of the craft by the control lines.

CAUTION

Always ensure that lifting material meets appropriate safety standards and is not damaged in any way. Always ensure that slings are clear of rudder, keel, sail drive, transducers etc. Never lift craft with people aboard, and never allow people standing under the lifted craft.

Cradle

A foldable galvanized steel cradle is available from the yard as optional equipment. We recommend that this cradle is used for winter storage of the craft.

Always ensure that the cradle is placed on solid and horizontally aligned ground. Also ensure that the craft is

safe against likely wind direction and protected against vandals.

If the craft is stored under open sky it should be covered. Ensure that the cover is secured in such a manner that it doesn't catch wind and damages the craft due to chafing.

Hull and deck

Cleaning

Right after the boat is lifted out of the water wash off the bottom with a high-pressure cleaner or a brush to avoid possible fouling from drying in and fix itself more firmly to the bottom.

Wash down the deck and hull by plenty of fresh and preferably warm water together with some boat shampoo, and give the boat an UV-protective wax treatment.

CAUTION

Do not use detergent containing chlorine or ammonium chloride on the gelcoat, as this will cause the surface to fade.

General winterisation

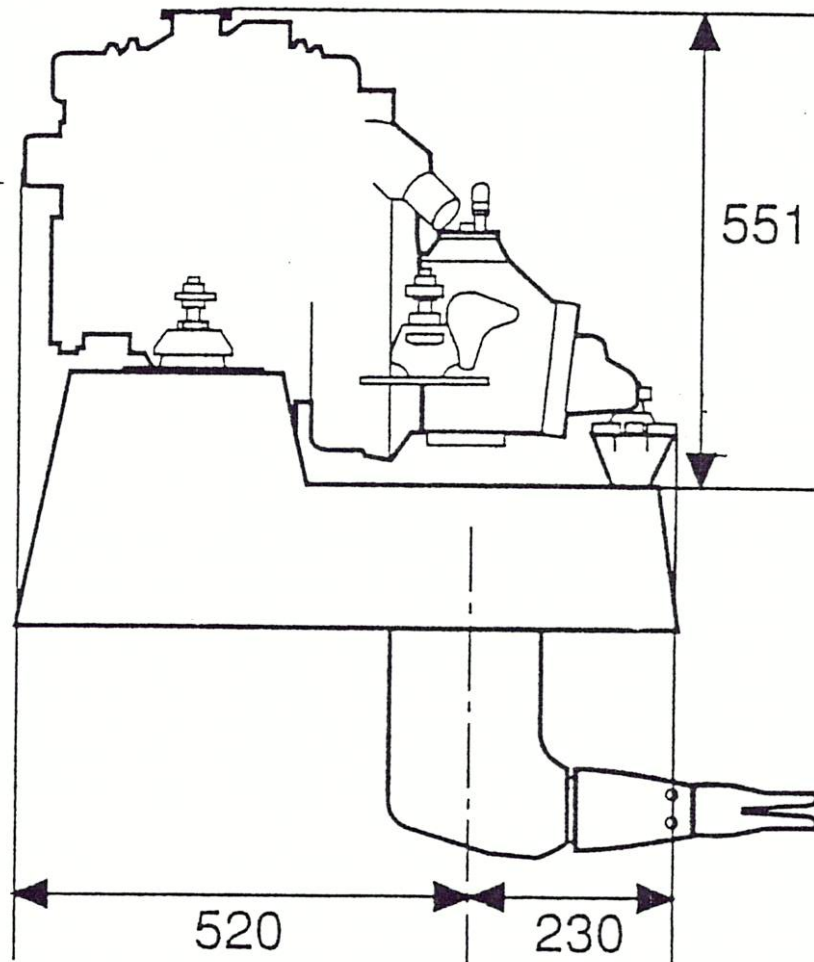
- Ensure the craft is adequately ventilated. Open all lockers and cabin doors to allow air to circulate.
- Arrange heating if possible for periods of extreme cold.
- Remove all cushions for cleaning and storage in a dry and preferably heated place.
- Remove all portable equipment liable to corrode from craft.
- Drain tanks and piping to avoid damages from frost swells. Except for the fuel tank which should be filled completely to reduce risk of damages due to corrosion.
- Remove batteries for cleaning, charging and storage.
- Refer to engine manual for proper winterisation of engine.
- Remove sails for storage in a dry place. If necessary have them cleaned, checked and repaired by a sailmaker.
- Clean and check all running rigging. Replace damaged or perished items.
- Check all standing rigging for possible damages and excessive wear. Replace items as needed.
- Check mast fittings including tracks sheaves spreaders and electrical cables and gear. Pay special attention to items that are difficult to check when the mast is on the craft.

- Dismount all deck block etc. and wash them in warm fresh water. Check for damages and replace if needed. Remount again just before launching.
- Remove all sheets and mooring lines etc. and wash them in fresh water. Ensure they are absolutely dry before storing them.
- Remove old or loose antifouling and apply a new coat. Be sure that the new coat is of same type or at least a compatible type of antifouling. We encourage you to keep a log of these things.

APPENDIX

- Deck layout, Accommodation and Sail plan
- Propulsion arrangement
- Electrical installation diagrams

Propulsion arrangement



Care and maintenance of the folding propeller

After each season the propeller should be dismantled from the boat, taken apart and well cleaned, after which grease should be applied on all cogs and bearing surfaces. Check that the propeller blade folds easily. If necessary fit a new zinc ring. Replace the zinc ring if it is more than half corroded. **IMPORTANT!** Make sure that the zinc ring has good metallic contact with the drive. Never paint the zinc ring. Use sandpaper when cleaning the the zinc anode. **Never use a steel brush.**

NOTE! When driving in fresh water a **magnesium anode** should be used.
Before the propeller is fitted the painting of the drive should be checked.

Assembly

An Allan key, grease pad 828250-1 and assembly instructions (in plastic bag) are included with the delivery of the propeller. **Note** that the Allan key (1) and folding washer (5), see diagram, should be replaced every four years. Only Volvo Penta original lock screws (4) should be used.

Save the assembly instructions for future assembly work on the propeller.

Assemble the propeller as follows:

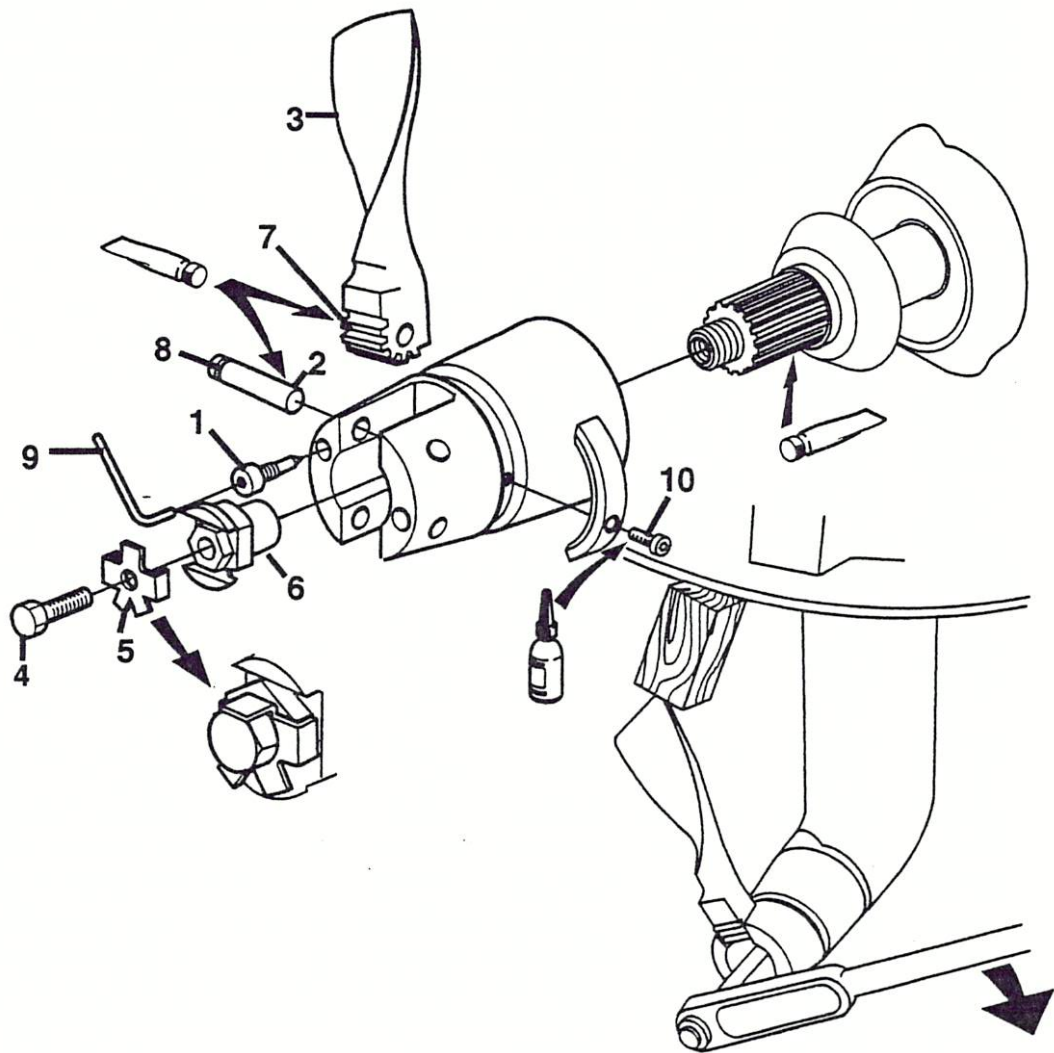
1. Unscrew the lock screws (1) completely and press out the shaft journals (2) and remove the propeller blade (3).
2. Dismantle the lock screw (4), folding washer (5), and the nut (6) from the propeller hub.
3. Cut off a corner of the grease pad and press out grease onto the propeller shaft. Lubricate the propeller shaft well, and then push the propeller hub of the shaft. Place a propeller blade in the propeller hub and brace with a wooden block between the propeller blade and the bottom of the boat. Now tighten the lock nut (6). Tightening torque = 70 Nm (7.0 kpm) (53 lbf.ft). Wrench size = 24 mm.
4. Place the folding washer (5) on the nut so as to have easy access to the flaps which are to be folded.
5. Fit blockscrew (4). Tightening torque = 20 Nm (2.0 kpm) (15 lbf.ft.)
6. Fold the flap which best fits to the screw head.
7. Apply waterproof grease to the shaft journals (2) and the propeller blade's cogs (7).
8. Fit a propeller blade in the propeller hub and push in the shaft journal to a position where the milled recess (8) comes opposite the lock screw hole.
9. Screw in and tighten the lock screw (1) with a 6 mm Alan key (9). Tightening torque = 20 Nm (2.0 kpm) (15 lbf.ft.).
10. Repeat this procedure for the other propeller blade and check that the blade forms the same angle to the propeller shaft.
11. When protective anodes are replaced, thread locking fluid part no. 1161053-6 must be used on the screws (10) which hold the anodes.

Painting instructions for folding propellers in bronze

On shaft installations where sacrificial anodes can not be used, it is recommended to paint the folding propeller.

To avoid biological growth and to avoid corrosion on the propeller when the boat is used in harbours/ waters with corrosive environment, it is recommended to paint the folding propeller.

1. Grind the parts and hub with a 150-300 grinding paper.
2. Clean the parts with thinner or similar degrease liquid.
3. Mask the surfaces which should not be painted.
4. Spray 2 layers with Volvo Penta primer 1141593. Follow the instructions on the spray can.
5. Spray at least 3 layers with Volvo Penta anti-fouling 1141594. Follow the instructions on the spray can.



Electrical installation diagrams

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Projekt titel: X-99

Kunde:

Filnavn: X-99

Sidst udskrevet: 21-03-00 07: 20: 52

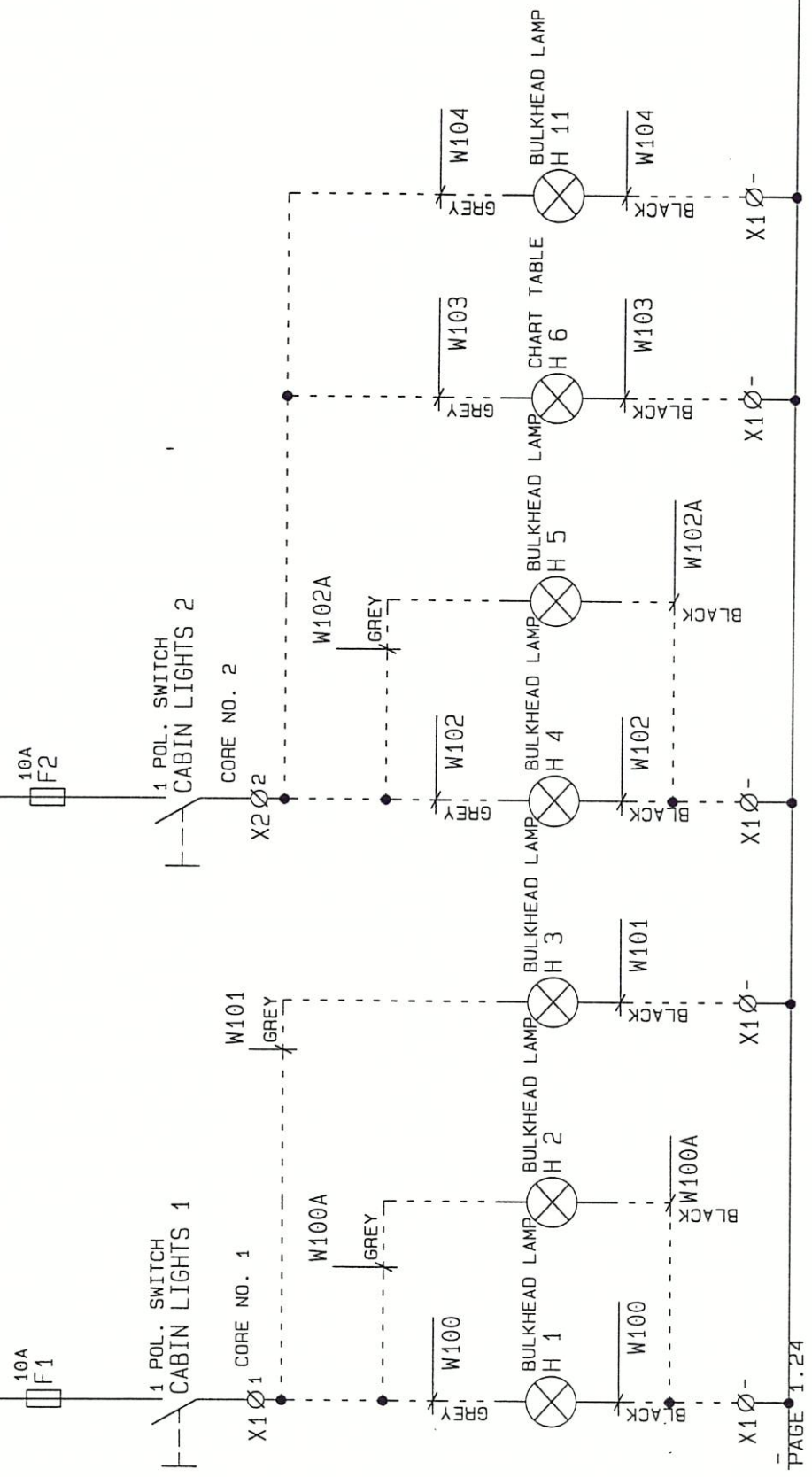
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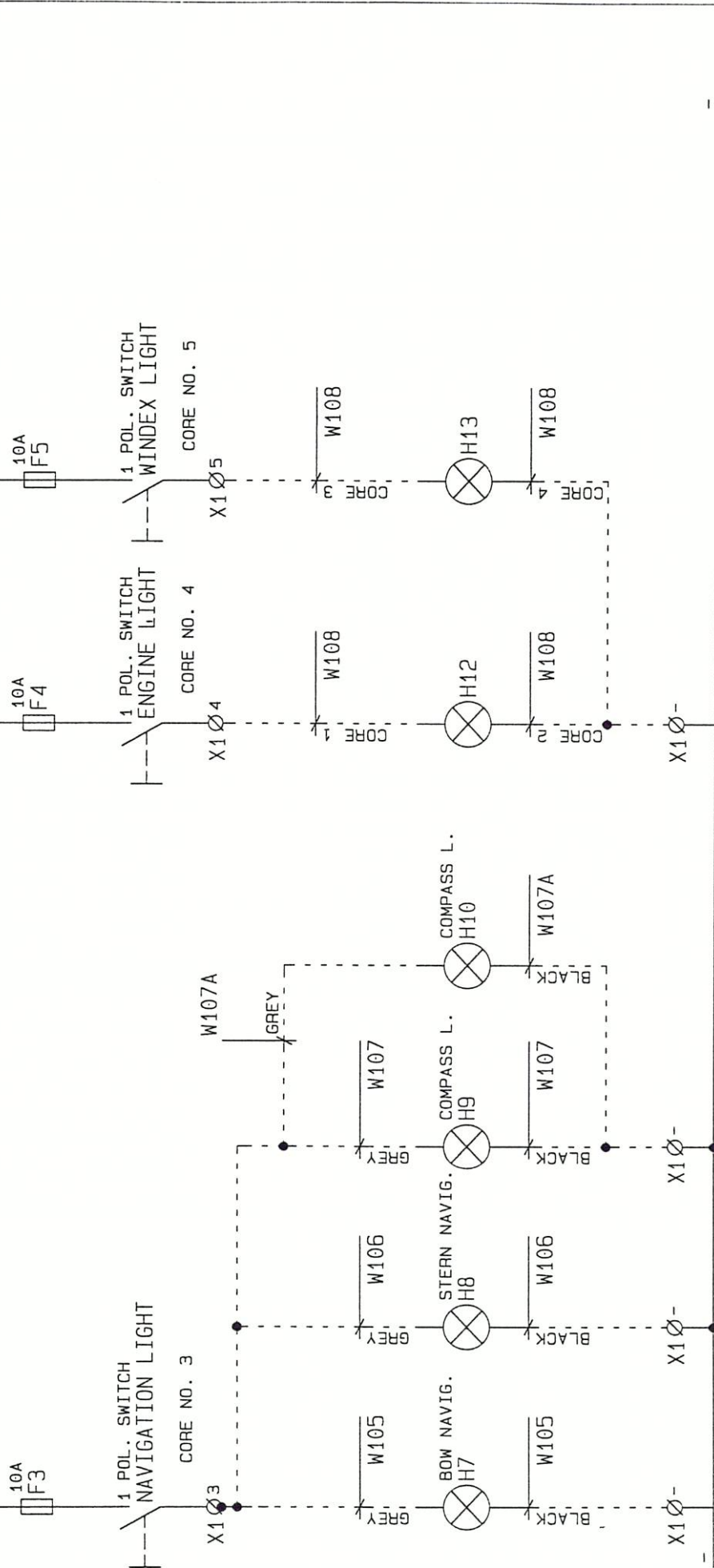
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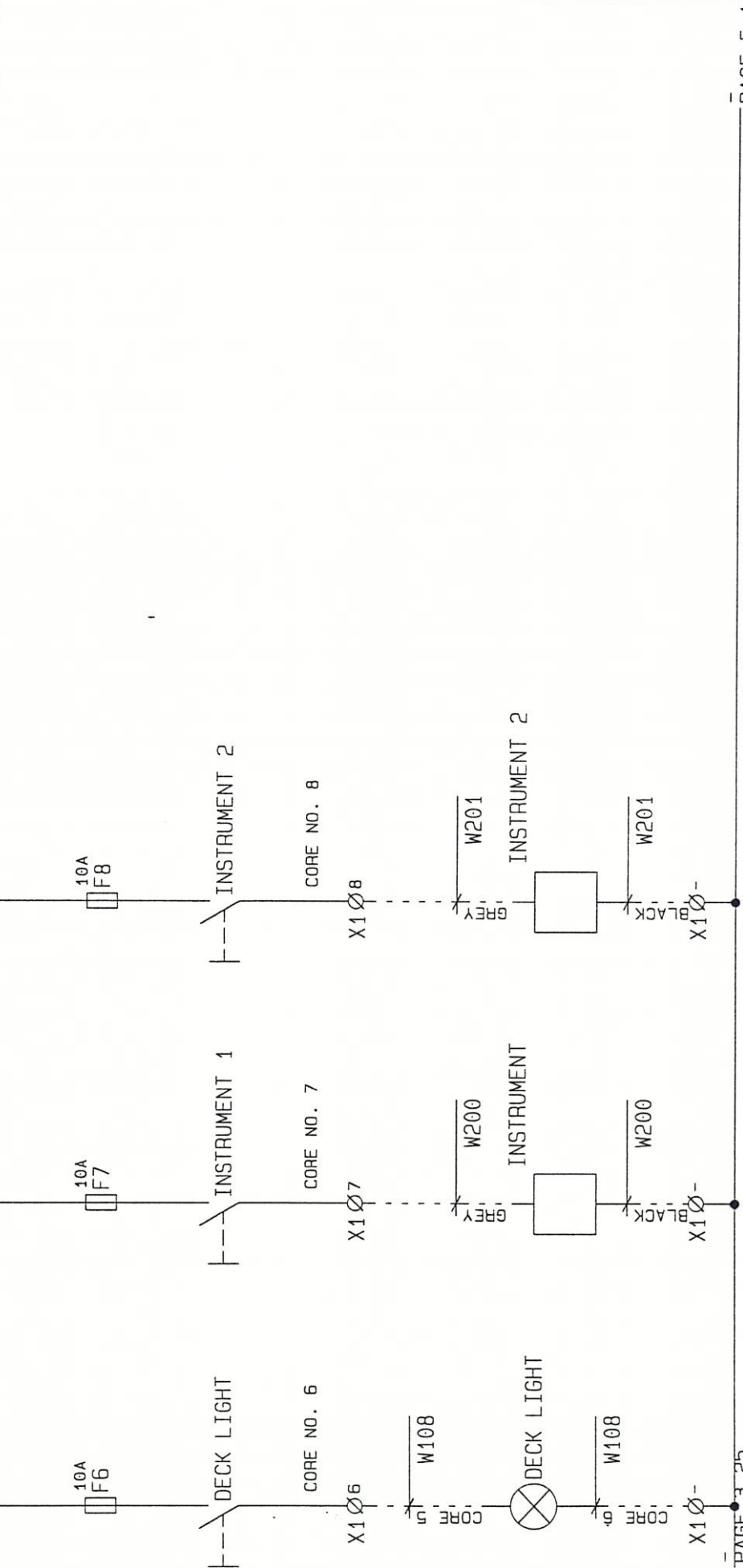
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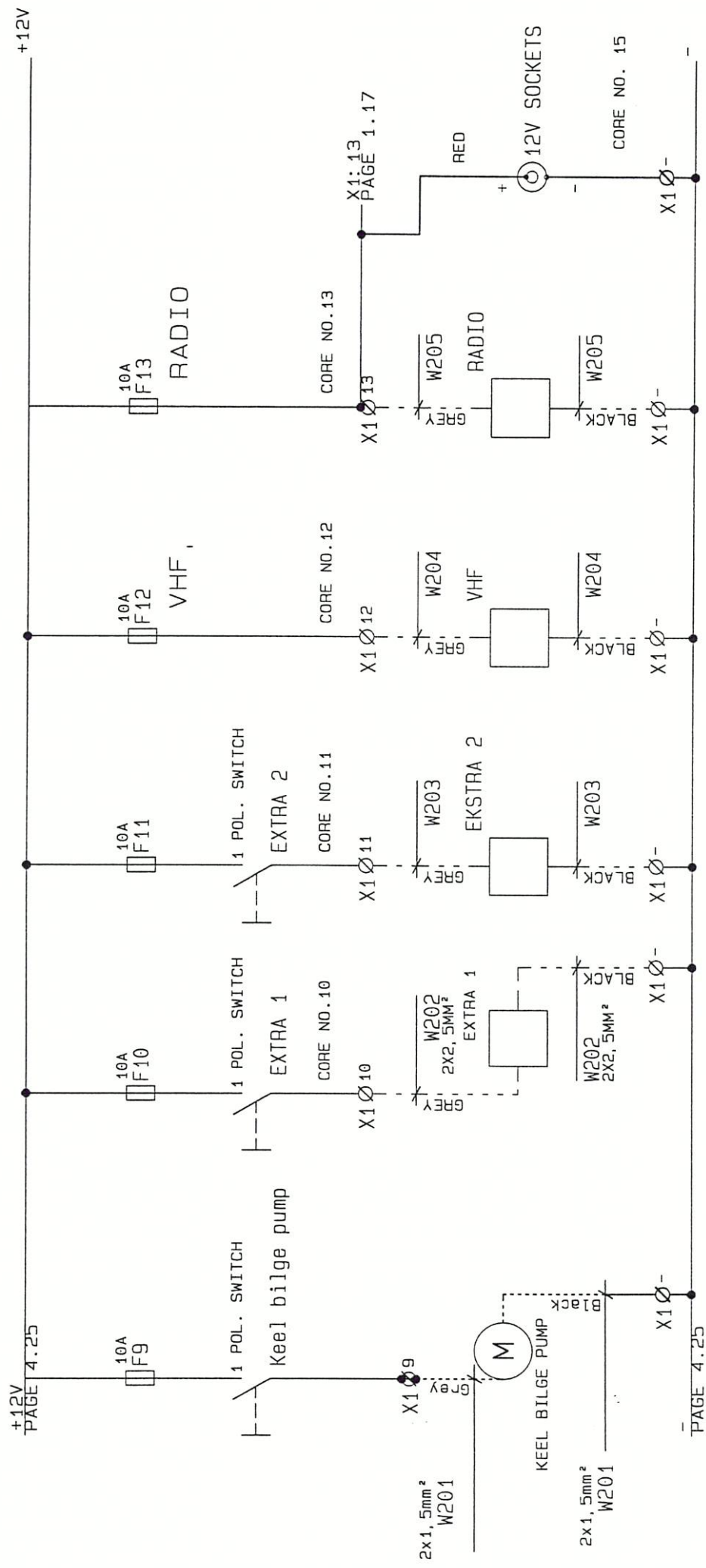
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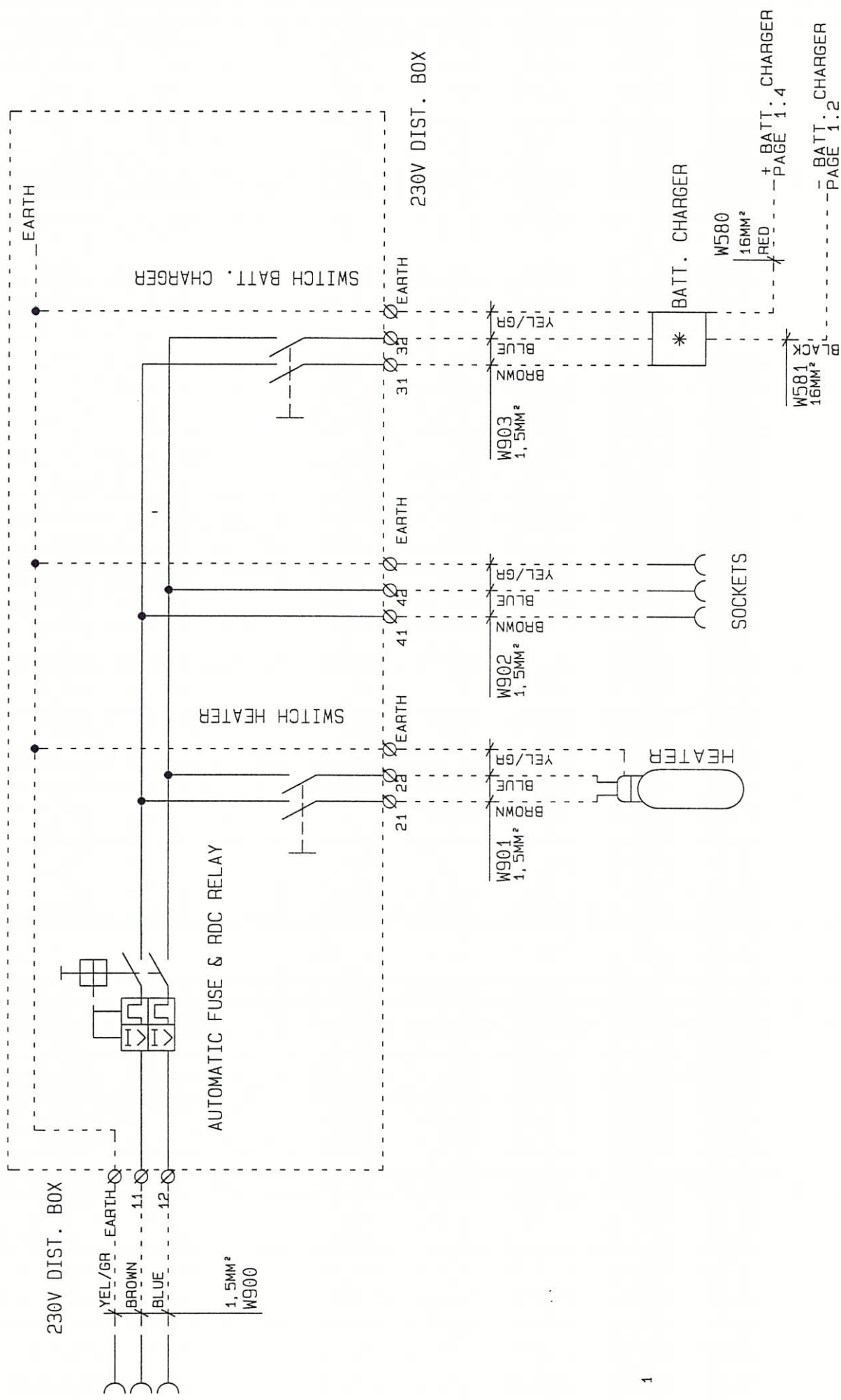
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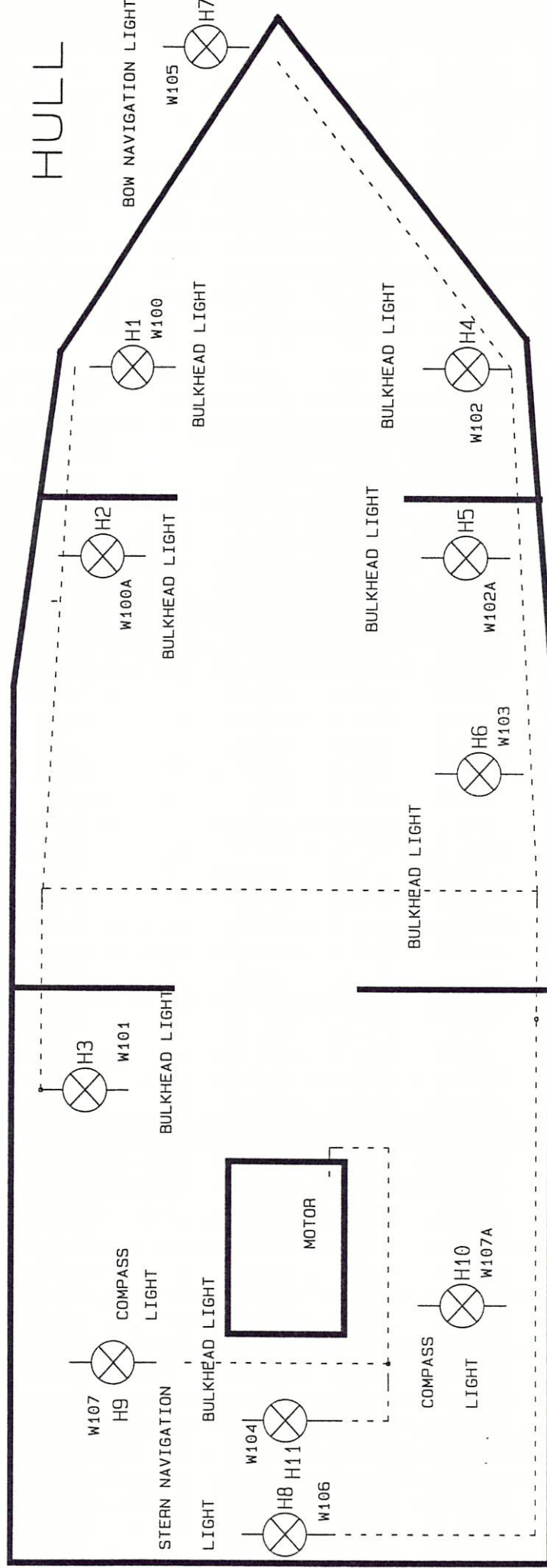
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X-YACHTS



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