SUN ODYSSEY 349

OWNER'S MANUAL

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INTRODUCTION

Welcome

You have just taken delivery of your new JEANNEAU boat and we thank you for the confidence you have shown us in ordering a vessel of our brand. The whole JEANNEAU team welcomes you aboard.

A JEANNEAU is made to last, in order to bring you all the pleasure you expect from a vessel over a period of many years. Each boat is subject to the utmost attention to detail from the design stage right through to launching.

This manual is meant to help you to enjoy your boat comfortably and safely. It includes the boat specifications, the equipment provided or installed, the systems and tips on her operation and maintenance. Some of the equipment described in this manual may be optional.

Your JEANNEAU dealer will be able to help and advise you in the use and maintenance of your boat.
A lot of skill and care is required to commission your boat. The proper working of all your boat's equipment is the result of the quality of the commissioning operations. This is why the initial launch must be overseen by your dealer.

Read this Owner's Manual carefully and take the time to get to know your boat before you use it.

The better you know your vessel the more pleasure you will get from being at the helm.

Keep this manual somewhere safe and should you sell your boat, hand it to the new owner.

You are advised to keep any user's guides supplied by the manufacturers of any equipment for your boat (accessories...),together with your manual.

For all the equipment on your boat,

please read the instruction manuals provided by the manufacturer.

- This manual has been produced to help you enjoy using your boat in all safety. It contains the details of the boat and of all the equipment provided and installed on your boat, as well as the instructions for their use. Read it carefully and really get to know your boat before using it.

- This owner's manual is not in any way a navigation or mariner's training manual. If this is your first boat or if you have changed to a type of boat with which you are not familiar, make sure that you learn how to use it and manoeuvre it safely and with ease, before taking the helm alone. Your dealer, or national sailing or motorboat association, or your yacht club will be very happy to tell you about the navigation schools or qualified instructors in your area.

- Make sure that the wind and sea conditions forecast are appropriate for the design category of your boat and that you and your crew are capable of manoeuvering the boat in these conditions.

- Even with a well-adapted boat, the wind and sea conditions which correspond to the design categories A,B and C range from storm force winds for category A to severe storm conditions at the upper end of category C and would put the boat at risk from massive waves and extreme gusts. These are dangerous conditions in which only an experienced, fit and well-trained crew, manoeuvering a well-maintained boat, could navigate sufficiently well.

- This owner's manual is not intended as a detailed maintenance or repairs manual. Should any problems arise please contact your dealer. If a maintenance manual is provided, please use it.

- Always use the services of an experienced professional for the maintenance of your boat, for fitting accessories and for any modifications. Any alterations which may affect the safety specifications of the boat must be assessed, carried out and recorded by persons qualified to do so. The boat manufacturer cannot be held responsible for any modifications not approved by them.

- Some countries require you to hold a Certificate of Competency or other qualifications, or other specific regulations may be in force.

- Always maintain your boat well and make note of any deterioration due to wear and tear or to heavy or inappropriate use.

- Any boat – no matter how well-built– could suffer serious damage if used recklessly. This is not compatible with safe navigation. Always adjust the speed and heading of your boat according to the sea conditions.

- If your boat is equipped with a life-raft, read the instruction manual carefully. The crew must have available onboard all the safety gear (lifejackets, harnesses etc) appropriate for the type of boat and for the weather conditions etc.. In some countries it is mandatory to have this safety equipment onboard. The crew must be fully familiarised with the use of the safety gear and with emergency manoeuvres (Man Overboard procedures, towing another vessel etc). Sailing schools and clubs regularly run training sessions for these.

- It is advised that, when on deck, everyone should wear the appropriate buoyancy aids (lifejackets, personal buoyancy aids) Be advised that in some countries, it is mandatory to wear a buoyancy aid which meets the national regulations at all times.

Notes on reading this manual

The various symbols used throughout the manual for crucial safety information are as follows:

DANGER

Indicates the existence of a serious inherent danger with a high risk of death or serious injury if the appropriate precautions are not taken.

WARNING

Indicates the existence of a danger which could lead to injury or death if the appropriate precautions are not taken.

WARNING

Indicates either a reminder of safety procedures or alerts you to dangerous manoeuvres or operations, which could result in injuries to those onboard or in damage to the boat or to components of it, or to the environment.

ADVICE-RECOMMENDATION

Indicates a recommendation or advice for carrying out manoeuvres appropriate for the planned manoeuvres.

- While some of the information and illustrations in this manual may show details which are slightly different from those found on your boat, the key information remains the same. Future versions of this manual will show any possible modifications as required.

- Due to the constant desire to improve the products, SPBI S.A. reserves the right to make any changes considered necessary to the design or to the equipment.
That is the reason why the specifications and information given are not contractual, they may be modified without prior notice or up dates.

- This owner's manual complies with the European Directive 94/25/CE of the 16 June 1994 amended by the European Directive 2003/44/CE of the 16 June 2003 ;
and with the standard NF EN ISO 10240 of February 2005 .

CE

- This owner's manual is written in several languages. French is the authentic reference language.

- This owner's manual was written and made up into pages by SPBI S.A.. Any reproduction of this manual, direct or indirect, provisional or permanent, by whatever means this may be, whether in whole or in part, and any modification of this manual by a third party for commercial reasons, are forbidden.

1 TECHNICAL SPECIFICATIONS

1.1 CONSTRUCTION

Model ..... SUN ODYSSEY 349
Architect / Interior design ..... Marc LOMBARD / Jeanneau Design
Builder ..... SPBI S.A
Principal means of propulsion ..... Sail
Deck construction material ..... Laminated sandwich glass / Polyester / Balsa wood
Hull construction material ..... Monolithic laminate / Glass / Polyester
Build material - Hull counter moulding ... Single skin laminated fibreglass / Polyester plywood floors with integrated
Application - Hull & Hull counter moulding ..... Wet laid fibre
Application - Deck ..... injection

1.2 GENERAL DIMENSIONS

L.O.A (L_{max})* ..... 10,02 m
(Including removable parts that can be dismantled (bow roller, pulpit, bowsprit), without affecting the structure of the boat)
Hull length (L_h)* ..... 9,98 m
(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)
Overall width (B_{max})* ..... 3,44 m
(Including: removable parts that can be dismantled, without affecting the structure of the boat)
Beam(B_h)* ..... 3,44 m
(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)
Air draught – Empty vessel ..... 15,42 m
Draught - Boat fully laden - Version Deep draught keel (Deep draught keel) ..... 2,09 m
Draught - Boat fully laden - Version Shallow draught keel (Shallow draught keel) ..... 1,60 m
Wetted surface area ..... Approximately 24 m²

1.3 ENGINE

Nominal maximum propulsion power ..... 15,3 Kw
Maximum recommended engine size ..... 130 kg

1.4 ELECTRICITY

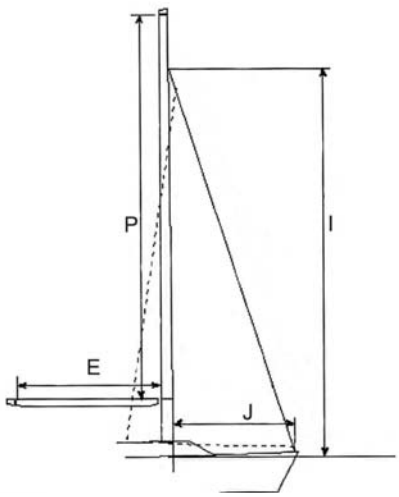
Circuit type - Direct current 12V
Circuit type - AC 220V
Circuit type - AC (US version) 110V

1.5 CAPACITIES

Total mass of the liquid content of fixed tanks when they are full ..... 396 kg
Fuel capacity: ..... 130 l
Fresh water capacity: ..... 206 l
Black water capacity (WC): ..... 80 l
It may not be possible to use these capacities fully depending on the trim and load of the boat.
It is recommended to keep a reserve of 20% in the fuel tanks.

1.6 SAILS

I ..... 13,29 m
J ..... 3,77 m
P ..... 12,40 m
E ..... 4,15 m
Classical mainsail ..... 30,6 m²
Mainsail (classic) - Performance ..... 33,9 m²
Mainsail (classic) (Mast with in-mast furling) ..... 23,6 m²
Genoa - Classic (Overlap 112%) ..... 24,6 m²
Genoa - Performance (Overlap 112%) ..... 24,6 m²
Genoa (Mast with in-mast furling) Overlap 109% ..... 24,0 m²
Tacking jib (Overlap 85%) ..... 18,0 m²
Tacking jib (Mast with in-mast furling) Overlap 84% ..... 17,8 m²
Code O ..... 43,7 m²
Planned sail area ..... 49,82 m²



2 DESIGN CATEGORIES AND DISPLACEMENT

- Some of the data is shown on the manufacturer's plate fixed to the boat. The explanation of the data is given in the appropriate chapters of this manual.

- The recommended maximum load includes the weight of all the people onboard, of provisions, personal belongings, of all equipment not included in the weight of the boat in ballast, of the cargo (if relevant) and of all liquids contained in fixed tanks when full (fuel, water, grey water, black water).

- The maximum recommended weight shown on the manufacturer's plate does not include the weight contained in the fixed tanks of liquid when full (fuel, water, grey water, black water).

2.1 VERSION - DEEP DRAUGHT KEEL (Deep draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	**6**	**8**	**10**	**12**
Light displacement	**5 339 kg**			
Recommended maximum load	**1 640 kg**	**1 740 kg**	**1 760 kg**	**1 880 kg**
Displacement with maximum load	**6 979 kg**	**7 079 kg**	**7 099 kg**	**7 219 kg**

2.2 VERSION - SHALLOW DRAUGHT KEEL (Shallow draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	**6**	**8**	**10**	**12**
Light displacement	**5 594 kg**			
Recommended maximum load	**1 640 kg**	**1 740 kg**	**1 760 kg**	**1 880 kg**
Displacement with maximum load	**7 234 kg**	**7 334 kg**	**7 354 kg**	**7 474 kg**

If some of those onboard are children, the total number of people allowed onboard may be increased, provided that::

- The total weight of the children does not exceed 37,5 kg ;

AND THAT

- the total weight of all allowed onboard (based on about 75 kg per adult) is not exceeded.

- Do not exceed the recommended maximum number of people onboard. However many people are onboard, the total, combined load of people and any gear or equipment must never exceed the recommended maximum load.
- Always use the seats or seating areas provided.

- When loading the boat, never exceed the recommended maximum load. Always load the boat with care and distribute the loads in order to maintain the theoretical trim (more or less horizontal).
- Avoid placing heavy loads high up in the boat.

2.3 DESIGN CATEGORIES

Category A: At high sea

This craft is designed to operate in winds that may exceed wind force 8 (Beaufort scale) and in significant wave heights of 4 m and above.
This craft is largely self-sufficient. Abnormal conditions such as hurricanes are excluded. Such conditions may be encountered on extended voyages, for example across oceans, or inshore when unsheltered from the wind and waves for several hundred nautical miles.

Category B: In open sea

This craft is designed to operate in winds up to Beaufort force 8 and the associated wave heights (significant wave height up to 4 m, see Note 1 below).
Such conditions may be encountered on offshore voyages of sufficient length, or on coastal waters when unsheltered from the wind and waves for several dozens of nautical miles.
These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated.

Category C: Near to the coast

This craft is designed to operate in winds up to Beaufort force 6 and the associated wave heights (significant wave height up to 2 m, see Note 1 below). You may meet with such conditions in exposed inland waters, in estuaries and in coastal waters with moderate weather conditions.

Category D: In sheltered waters

This craft is designed to operate in winds up to Beaufort force 4 and the associated wave heights (occasional maximum waves of 0,5 m height).
Such conditions may be encountered in sheltered inland waters, and in coastal waters in fine weather.

NOTE:

- The significant wave height is the mean height of the highest one-third of the waves, which approximately corresponds to the wave height estimated by an experienced observer. Some waves will be double this height.

- The creation of different design categories results from the need to distinguish between different levels of risk according to the construction of the boats.
The parameters for the characteristics are established to define the conditions of navigation which each category may encounter; they serve purely to evaluate the boat designs and are not to be used to limit the geographical areas in which these boats may operate.

- One boat may be classed in several design categories at the same time, each with their different maximum capabilities.

3 STABILITY AND BUOYANCY

3.1 STABILITY DATA

- Fully laden displacement was used to evaluate the stability and buoyancy of the boat. The value of this displacement can be found in paragraph ' Technical specifications ' at the beginning of this manual.

- Any changes in the distribution of loads onboard (for example by adding a raised structure for fishing, fitting a radar or in-mast furling, changing the engine etc.) can significantly affect the boat's stability, trim and its performance ;

- It is important to keep water in the bilges to a minimum ;

- The boat's stability is affected by adding to the weight of the superstructure ;

- In heavy weather it is important to close all the hatches, lockers and doors to minimise the risk of water pouring in ;

- The boat's stability can be reduced when towing a boat or when using a davit or boom to lift a heavy load ;

- Breaking waves are a serious threat to stability.

- Reduce speed in waves.

- Always adjust the speed and heading of your boat according to the sea conditions.

- All of the watertight hatches must remain closed when at sea.

3.2 ACCESS TO THE BOAT

Access to the cockpit

NOTE: It is essential that the guardrail is closed when sailing..

Access to the engine compartment

Side hatches

Companionway

Holding

Access to companionway

- It is imperative that both the cockpit and the engine compartment are kept closed when at sea.
- When at sea close the guardrail side-opening or openings.
- Slamming an access hatch may cause injury : always close the hatch gently and carefully.
- Do not allow children to open or close the hatches unsupervised.

- It is imperative that companionway access is kept closed when at sea.
- Close the deck hatches and portholes before each trip.
- Close all access doors and hatches in heavy weather or when the sea is rough.

ADVICE-RECOMMENDATION

- Keep the sea cocks, discharge and drainage points closed to minimise the risk of seawater pouring in.

4 MANOEUVRABILITY

- This boat was tested using the stability rating STIX, which is a worldwide safety measurement of stability and which takes account of the length of the vessel, its displacement, hull dimensions, stability characteristics and flooding proofness. This test produced the following results::

Shallow draught version (Shallow draught keel)

	Boat with minimal load Classical mast / Mast with in-mast furling / Cruising square top mainsail	Boat laden Classical mast / Mast with in-mast furling / Cruising square top mainsail
Angle of vanishing stability (in degrees)	**138,1 / 138,0 / 138,8**	**132,1 / 131,5 / 132,2**
STIX	**42,5 / 41,75 / 41,94**	**38,68 / 38,03 / 38,18**

Deep draught version (Deep draught keel)

	Boat with minimal load Classical mast / Mast with in-mast furling / Cruising square top mainsail	Boat laden Classical mast / Mast with in-mast furling / Cruising square top mainsail
Angle of vanishing stability (in degrees)	**139,2 / 138,5 / 139,2**	**132,5 / 131,8 / 132,5**
STIX	**43,0 / 42,26 / 42,43**	**39,09 / 38,4 / 38,54**

- This boat was found to be capable of carrying its crew, even when flooded.

- This boat is liable to capsize or to become flooded if carrying too much sail. In these circumstances it could sink. It is important to reduce the sail area if the wind exceeds force 3 on the scale of Beaufort. It is important to be especially vigilant in strong gusts of wind or in a squall.

- Take extra precautions if sailing downwind when you come round onto a beam reach, as both the apparent wind and the angle of heel will increase.. Such changes to the point of sail must not be made at speed and you should first consider reducing sail.

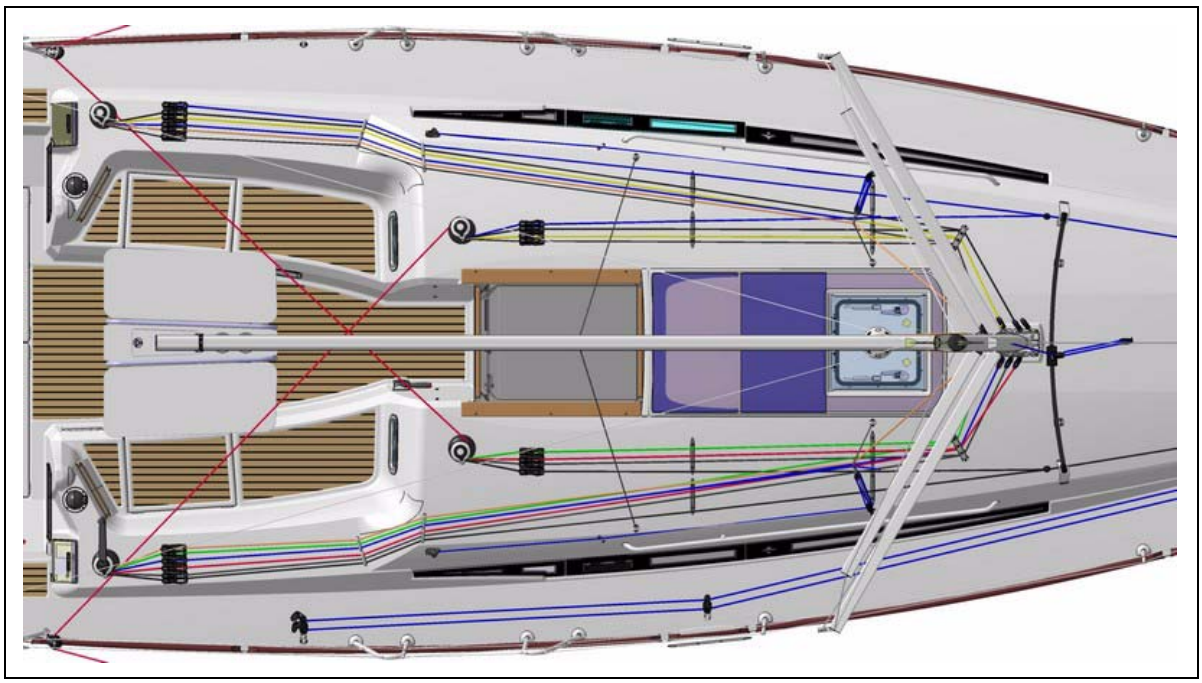
- If carrying too much sail, the boat could capsize.

- It is important to take additional precautions in very strong winds or in a confused sea or breaking waves.

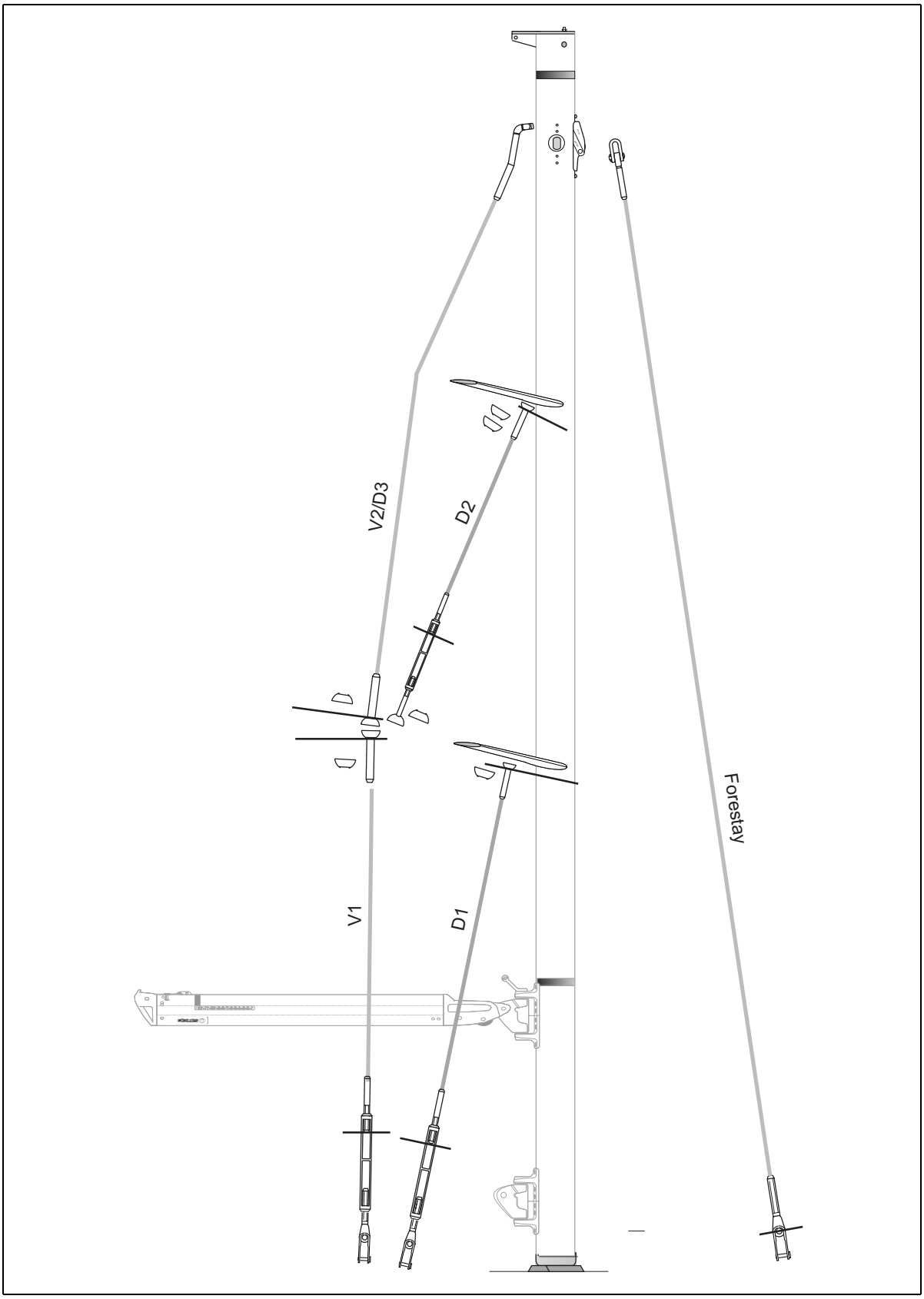
5 RIGGING AND SAILS

5.1 RIGGING DIAGRAM

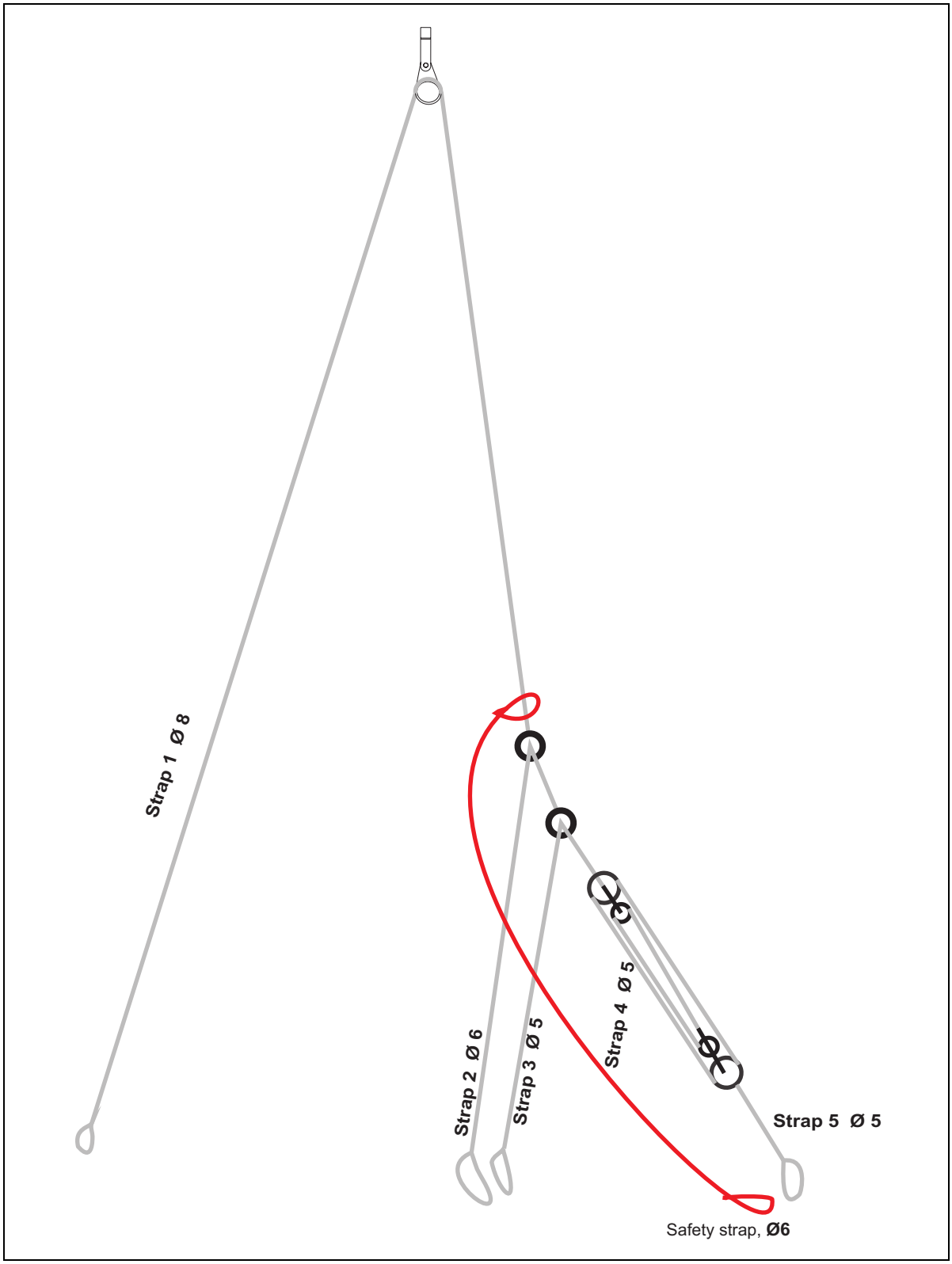
Classical mast



5.2 STANDING RIGGING



BACKSTAY



Note: Measurements are expressed in mm.

SAILS DIMENSIONS

Classic

Performance

Cruising square top mainsail

- To hoist a crew member up to the top of the mast, make a bowline with the halyard directly on the bosun's chair ring (never use the halyard snap shackle or shackle).
- Never hoist a crew member when sailing in heavy weather.

ADVICE-RECOMMENDATION

- A lot of skill and care is required to commission your boat. The proper working of all your boat's equipment is the result of the quality of the commissioning operations.
For this reason the stepping of the mast must be carried out under the responsibility of your dealer the first time the mast is stepped.
- Before each trip, carefully inspect the mast from top to bottom.
- Periodically check the rig tension and the tightness of the locknuts and bottle screw clevis pins.

5.3 RUNNING RIGGING

- Inspect the halyards for wear and condition.
- Regularly check the condition of the jam cleat jaws.
- Regularly clean the backstay blocks with fresh water.
- Avoid aggressive gybing in order to reduce premature wear on the sheets, attachment points and the gooseneck.
- If halyard tension (mainsail/genoa) is too great, this can lead to problems when hoisting/ furling.

- When not sailing, slacken the genoa halyard and keep it away from the forestay (risk of halyard becoming furled around the forestay, which can lead to the stay breaking and dismasting of the boat).

5.4 SAILS

General points

- The working life of a sail mainly depends on its being regularly maintained.

- When sailing, trim the sails properly in accordance with the stresses in order to reduce the harmful strains on the fabric.

- Avoid wear and tear: Protect against chafing on gear with rough/sharp surfaces (spreaders, stanchions, etc).

- Keep a sailmaker's kit and explanatory booklet onboard to carry our emergency repairs whilst waiting for a professional sail-maker.

- Rinse the sails in fresh water regularly and dry them quickly to avoid mildew. Avoid drying the sails on the mast in the wind: Flogging wears the seams and risks tearing the sails on the rigging.

- UV rays severely attack sails: If sails remain rigged, even for 24 hours, cover them with a sailcover or protective fabric.

- The genoa can be fitted with an anti-UV strip: Make sure that the furling direction on the furling drum is correct (the UV strip must appear on the outside).

- Never use force if the sail sticks when furling or unfurling. If this happens, check that a halyard is not rolled around the forestay.

Sail storage/folding

- Remove the sails if your boat is not to be used for a long time.

- Avoid storing a wet sail to prevent the appearance of mould and mildew.

- Flake the sail parallel to the foot, then roll it up to the bag dimensions.

ADVICE-RECOMMENDATION

When the sailing season is over and, if possible, before winter, take the suit of sails to a professional for an overhaul and effective repairs.

5.5 DECK FITTING

General points

- Inspect each piece of deck gear regularly (blocks, shackles, swivels, jam cleats, etc): Check that there are no cracks, corrosion or deformation.

- When replacing a piece of deck gear, make sure that you use a type with the same strength specifications.

- If careful, regular inspections are not carried out and damaged parts and/or worn ropes are not replaced, a block or tackle may suddenly break and cause an accident or serious injury and damage the boat.

Maintenance

- On return from sailing always rinse deck gear with fresh water.

- Wash deck gear regularly with non-abrasive soap by making the block sheaves turn. Rinse afterwards with fresh water.

- Never use grease on deck gear parts (apart from the winches).

- Never use caustic-based cleaning materials on deck gear parts (such as some teak cleaners).

5.6 WINCHES

Manual winches

- Do not leave loose ropes on the winches but make them fast on cleats.

Rinse winches regularly with fresh water

- Rinse winches regularly with fresh water.

- Dismantle, clean and lubricate each winch annually. Parts that have been damaged or worn may need replacing.

- Refer to the manufacturer's instructions for use and maintenance.

- Avoid bulky clothing, long hair and jewellery that might become caught in the winch when it is moving. Avoid riding turns when using the winches.

5.7 GENOA FURLER

Operation

- Leave several turns of the furling line around the drum.
- Furl/unfurl the genoa slowly so that the furling line is always under light tension thus avoiding any riding turns in the drum.
- Never slacken the genoa halyard when furling/unfurling the sail.
- When furling in light winds, it is recommended to keep the sheet under slight tension so that the genoa furls correctly.

Maintenance

- Rinse the furling drum regularly.
- It is recommended to rinse mechanical parts at least once a year in fresh water.

Refer to the manufacturer's instructions for use and maintenance.

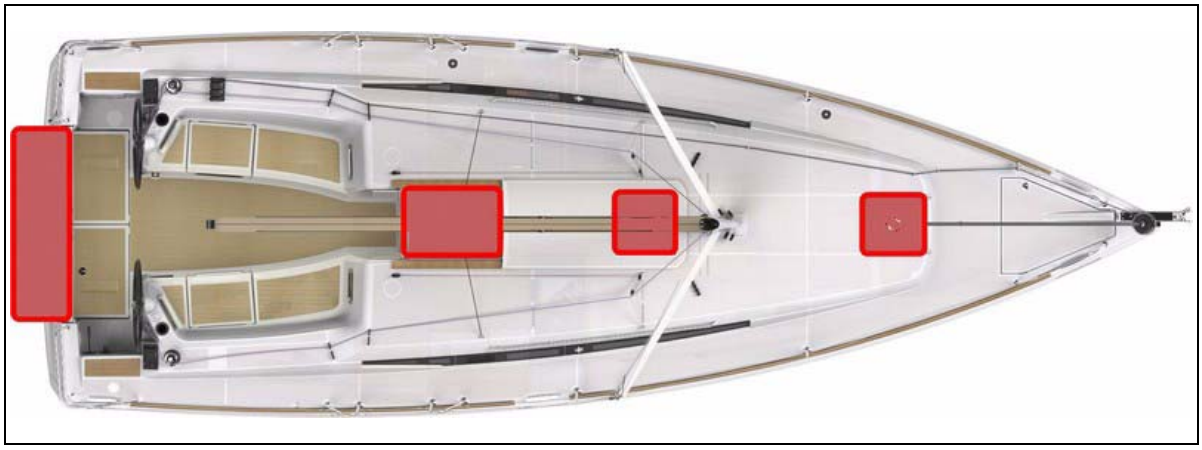
6 SAFETY

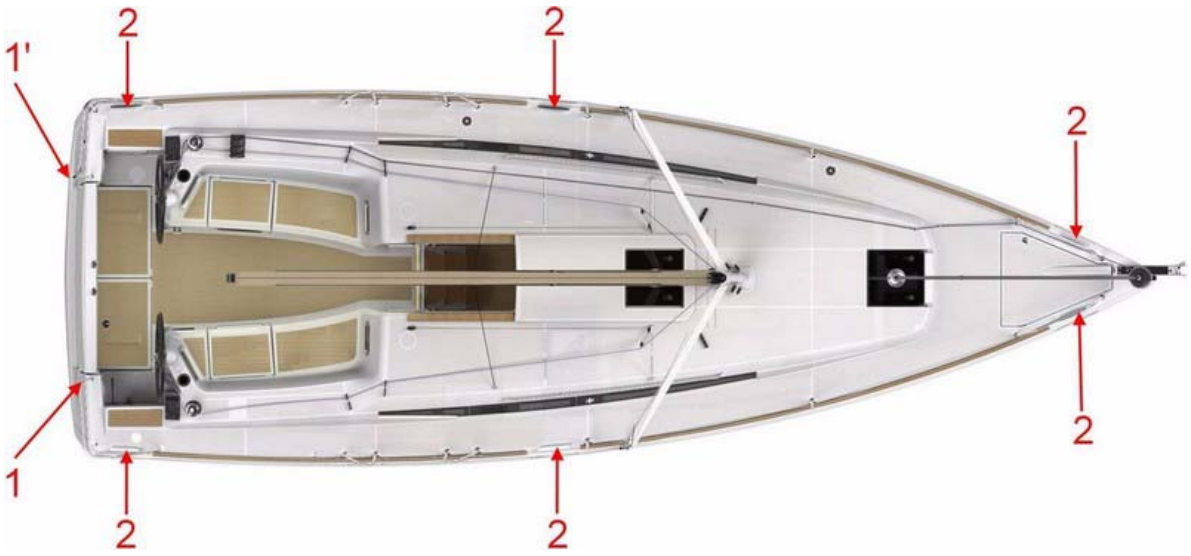
6.1 PREVENTING MAN OVERBOARD SITUATIONS AND THE MEANS OF GETTING SOMEONE BACK ONBOARD

6.1.1 Prevention of man overboard

- The zones outside the working deck area are the hatched areas below

- The ' working deck ' means those areas outside where people stand or walk during normal use of the boat.





Ref 1 & 1': Fitting a means of climbing back onboard.

Ref 2: Mooring cleats which correspond to the anchor points for the lifelines.

- Use the seats provided.

Regularly check the guard-rails:

- With metal guard-rails, watch for corrosion particularly at connecting points.

- With synthetic guard-rails, change them as soon as they show signs of wear due to chafing or UV.

6.1.2 Getting back onboard

The means for getting back onboard must be able to be deployed by one person alone in the water, with no other help.

Fitting a means of climbing back onboard:

Ref 1’

Location / Mechanism

Ref 1

- Some types of equipment for getting back onboard have a locking device when folded up: It is important to keep the means for getting back onboard deployed and ready to use once the boat is in use (at anchor, moored or at sea)..
- Make sure that the means for getting back onboard are readily accessible and easy to use by someone alone in the water.

6.2 STORING THE LIFE-RAFT

The life-raft(not supplied) must be stored in the space provided for it (Ref 1). A pictogram helps to locate it easily.

- Before putting to sea, carefully read the launching instructions shown on the liferaft.
- When at sea, never padlock or lock the stowage locker for the life-raft.

6.3 SECURING MOVEABLE ITEMS

- Ensure that movable items are firmly secured when the boat is under way.
- Don't store anything below the floorboards.

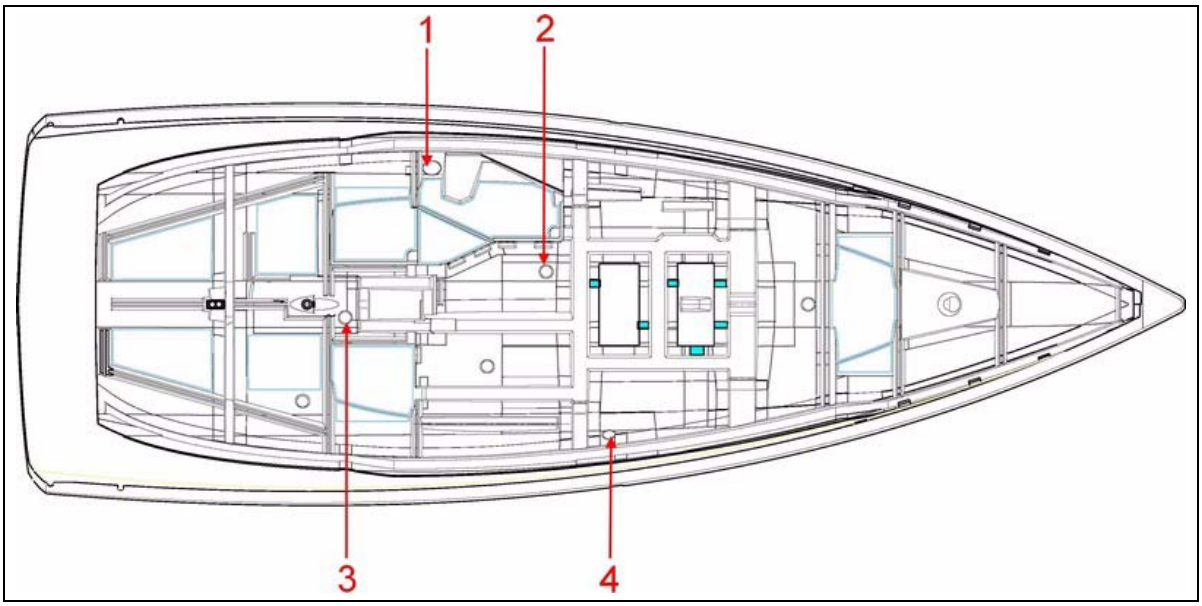
6.4 DECK LAYOUT

1. Lifebuoy support bracket (the ring lifebuoy is not supplied).

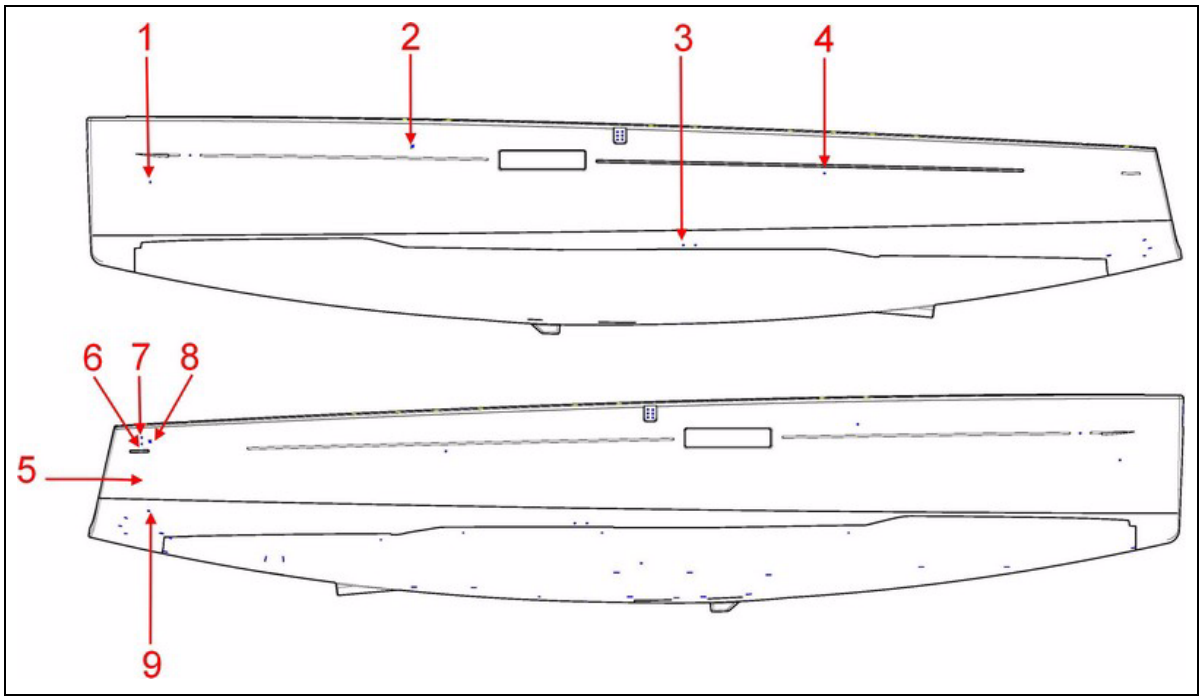
The maximum weight of the outboard engine on the pushpits must not exceed 20 kg (the outboard engine is not supplied).

6.5 INFORMATION ABOUT THE RISKS OF FLOODING AND ABOUT THE BOAT'S STABILITY

6.5.1 Openings in hull



Reference	Designation	Valve
1	WC evacuation to sea	Yes
2	Heads water intake	Yes
3	Sea water inlet valve for engine	Yes
4	Galley sink drain	Yes



Reference	Designation	Valve
1	Chain locker scupper	Not
2	Water tank vent	Not
3	Shower draining	Yes
4	Black water tank (WC)	Not
5	Heating exhaust	Not
6	Draining of manual bilge pump	Not
7	Electric bilge pump draining	Not
8	Vent hole - Fuel tank	Not
9	Engine exhaust	Not

6.5.2 Bilge pumps and drainage

General points

- The inner moulding of the hull has channelling: the drainage channels. The drainage channels allow the water to drain down to the lowest point in the boat, where it can be discharged.. So it is important to allow the water to flow freely down to this lowest point of the boat, which includes.

- Regularly cleaning the lowest point of the boat and the drainage channels.

Diagram of the layout - Bilge pumps

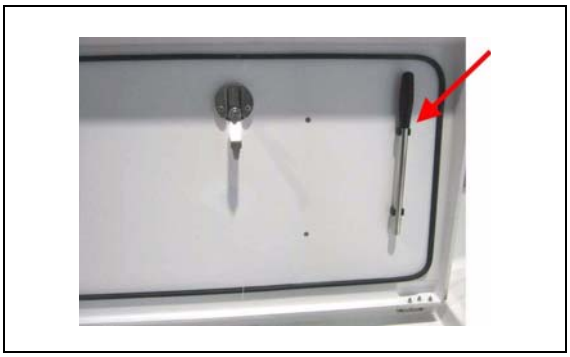
Reference	Designation	Rate
1	Manual bilge pump	32p/minute *(*)*
2	Manual bilge pump lever	
3	Electric bilge pump	53p/minute
4	Electric bilge pump switch	

(*) 45 strokes/minute
If 70 stroke/minute: rate 35p/minute

Manual bilge pump

The manual bilge pump is in the cockpit (Ref 1).

The bilge pump lever is located close to it (Ref 2).



(See the setting up diagram on the following page).

Operation:

I- Put the lever on the manual bilge pump.

II- Repeatedly work the lever up and down to its fullest extent.

The manual bilge pump lever must remain accessible at all times.

Electric bilge pumps

- The bilge pumps are powered by DC.
- Location of the electric bilge pumps: Ref 3.

The switch for the electric bilge pump is located on the switch panel (Ref 4).

- The electric bilge pump must only be used to discharge stagnant water at the bottom of the bilge. It must not be used to pump out any oil-based products (petrol, oil) or inflammable liquids.

Operation:

I- Turn on the battery switches.

II- Switch on the bilge pump (Ref 4).

If the boat is equipped with an automatic bilge pump, the switch has an always-on position.

Bilge pump maintenance

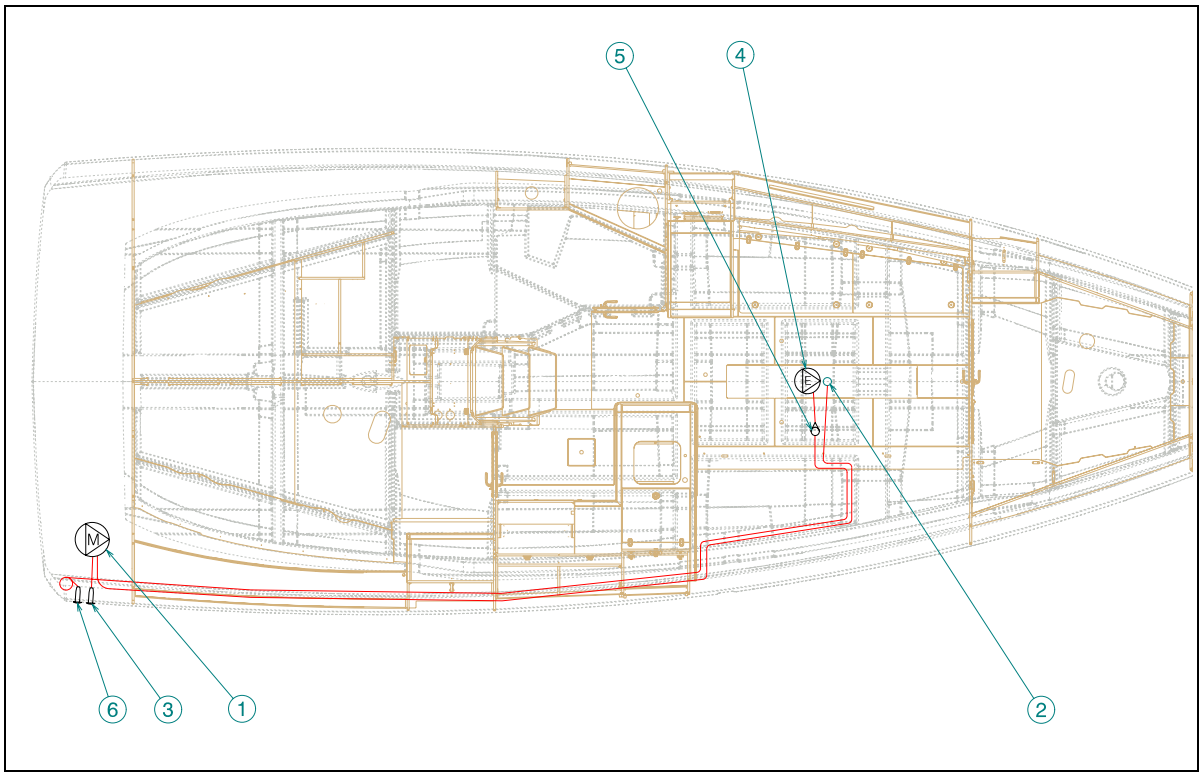
Please refer to the manufacturer's notes on the instructions for checking and maintaining the bilge pumps.

- The bilge pumps system is not designed to deal with water coming in through breaches in the hull.
- Keep the water level in the bilges to the minimum.
- Never store anything right at the bottom of the boat: Allow bilge water to flow freely down to the lowest point of the boat.

SAFETY PRECAUTIONS

- Check that each bilge pump is working at regular intervals.
- Clear the bilge pump points or strainers of any debris that could clog them.
- If the watertight partitions which seal off the fore and aft points are fitted with valves they must be closed at all times and only opened to drain water into the main bilge.

Diagram of the layout - Drying out the bilge



	Pipe - Bilge pump system - Ø 25mm

Reference	Designation
1	Manual bilge pump
2	Stuffing box
3	Draining of manual bilge pump
4	Electric bilge pump
5	Non-return valve
6	Electric bilge pump draining

6.6 EMERGENCY SYSTEMS IN CASE OF STEERING GEAR FAILURE

EMERGENCY TILLER

Emergency tiller

The emergency tiller is designed only to be able to continue underway at a reduced speed in case of steering gear failure.

location of components

Sector access port

Emergency tiller - in position

Instructions in the event of steering gear failure

I. Unscrew the securing fitting using a winch handle

II. Fit the emergency tiller in the square on the rudder post.

7 INFORMATION RELATING TO FIRE RISKS AND RISKS OF EXPLOSION

7.1 PROPULSION ENGINES AND OTHER FUEL-BURNING EQUIPMENT

The risks associated with motorisation are described in the MOTORISATION chapter.

The risks associated with other fuel-burning equipment are described in the OTHER FUEL-BURNING EQUIPMENT chapter.

7.2 ELECTRICAL SYSTEM

The risks associated with the electrical systems are described in the ELECTRICITY chapter.

7.3 GAS SYSTEM

The risks associated with the gas system are described in the GAS chapter.

7.4 FIRE-PREVENTION AND FIRE-FIGHTING EQUIPMENT

7.4.1 Fire-fighting equipment

Portable fire-extinguishers and fire blanket (not supplied)

- When in use, this boat must be equipped with portable fire extinguishers of the following extinguishing capacity and located in the following places:

The location of the portable fire extinguishers is shown by the pictogram below:

Reference	Designation	Location	Minimum extinguishing capacity
1	Portable fire extinguisher	Galley	5A / 34B
2	Portable fire extinguisher	Cockpit locker	5A / 34B

- When in use, this boat must be equipped wih a fire blanket to protect the cooking equipment and/or the galley, installed in the following place: near the cooking equipment.

Maintenance of the fire-fighting equipment

The owner/person operating the boat must:

- Get the fire-fighting equipment checked at the frequency shown on the equipment ;
- Replace portable fire extinguishers, if outdated or discharged, by extinguishing apparatus of equal capacity ;
- Provide at least one fire bucket with a lanyard, in a readily accessible place, for protection on deck ;
- Get the fixed fire extinguishing systems filled or replaced if they are discharged or have expired.

Responsibility of the owner/boat operator

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

- Ensure that the fire-fighting equipment (portable extinguishers, bucket and fire blanket) is readily accessible when there are people onboard ;
- Ensure that the engine compartment fire extinguisher discharge port is readily accessible ;
- Show the members of the crew:
    - The location and use of the fire-fighting equipment ;
    - Location of discharge ports in engine compartment ;
    - The location of evacuation routes and fire exits.

Notes for the attention of the boat user

General points

- Check that the bilges are clean and frequently check that there are no fuel/gas vapours or fuel leaks.
- In the case of replacement of components of the fire-fighting equipment, use only the appropriate components of the same code designation or having the equivalent technical capacity and fire resistance.
- Do not install free-hanging curtains or other fabrics near or above the cooking appliances or other equipment with a naked flame.
- Do not store combustible materials in the engine compartment. If non-combustible materials are stored in the engine compartment they must be secured so there is no danger of them falling on machinery and they do not obstruct access to and from the compartment.
- The fire exits other than the door or main companionway are identified by the following symbol:

7.4.2 Extinguisher access hole

A hole extinguisher is provided in the engine compartment to extinguish a fire without opening the usual access panels.

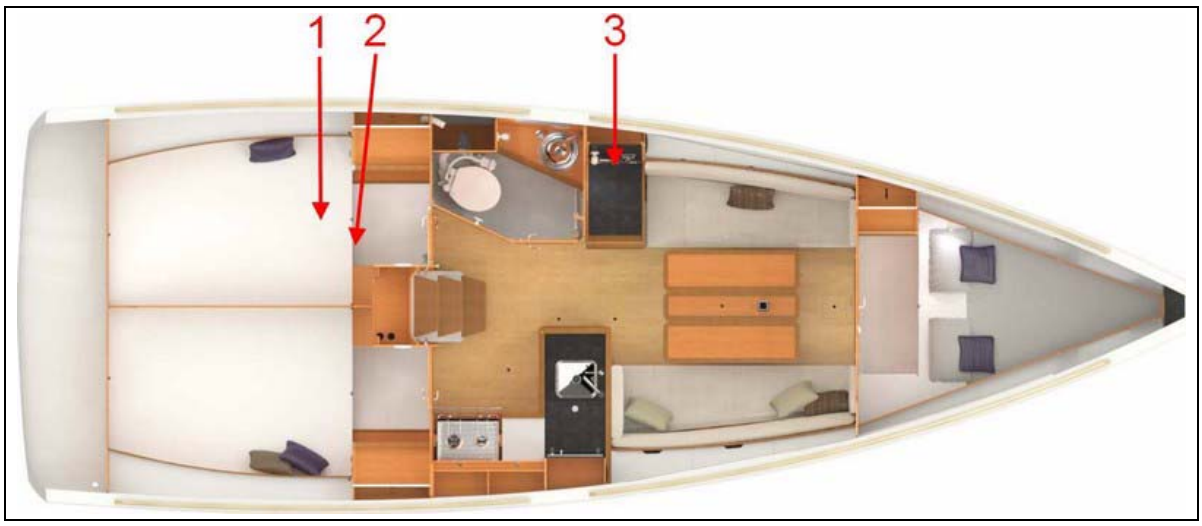
7.5 EMERGENCY EXITS IN CASE OF FIRE

NEVER:

- Obstruct the passages leading to the emergency exits and the hatches ;
- Obstruct or block safety controls, for instance fuel shut off valves, gas taps, electrical system circuit-breakers ;
- Obstruct the access to the portable extinguishers stored in lockers ;
- Leave the boat unsupervised when cooking equipment and/or heating equipment is in use ;
- Modify any of the boat's installations (especially the electrical, fuel or gas installations) or allow unqualified personnel to proceed with modifying these installations ;
- Fill the fuel tanks or replace gas bottles while the engine is running or while cooking or heating equipment is in use ;
- Use gas lamps in the boat ;
- Smoke when handling fuel or gas.

8 ELECTRICAL SYSTEM

8.1 GENERAL INFORMATION ABOUT THE ELECTRICAL SYSTEM



Reference	Designation
1	Service batteries & Engine battery, General fuse, Power distributor, Battery charger, Fuses
2	Battery switch & Circuit breakers
3	Electrical panel & Fuses

- The risks of fire or explosion may result from careless use of the DC and AC systems.
- The risks of electrocution may result from careless use of the AC system.

NEVER:

- work on a live electrical system ;
- modify the elecrical system of the vessel or the relevant diagrams: It is important that the installation, maintenance and any modifications be carried out by a technician qualified in marine electricity ;
- change or modify the strength of the safety devices protecting against power surges ;
- install or replace electrical equipment or materials with components which exceed the system's nominal electrical power capacity ;
- leave the boat unsupervised when the electrical system is live, apart from when the automatic bilge pump and the boat's fire protection and security systems are in use.

8.2 DC INSTALLATION (12 V OR 24 V)

8.2.1 Battery use and distribution

General points

The electricity onboard is direct current.

The boat's electrical system comprises service batteries and the engine battery or batteries. The service batteries serve as the power supply for all the boat's electrical components. The engine battery is used solely to power the engine's starter motor.

The boat may also be equipped with:

- a generator powered by its own battery ;
- a bow thruster, powered by its own battery bank.

the batteries are charged either by a load distributor or:

- by the alternator linked to the engine when the engine is running,
- by the battery charger (if the boat has one).

It is imperative that when the boat is first launched, a professional engineer connects the batteries.

Always check the condition of the batteries and charge system before putting to sea.

The battery banks are isolated from one another by a charge divider (see below).

Battery set

Engine battery: 1 x 80A

Service batteries: 1 x 80A

Spare service batteries: 1 x 80A

Maintenance

- Avoid charging batteries to a voltage greater than 14,6 V.
- Keep the batteries clean and dry.
- Regularly check that the terminals and connection cables are clean. If necessary, apply a thin coating of paraffin on the terminals, to prevent corrosion.
- Regularly recharge all of the batteries onboard.
- Continuously maintain the charged batteries: this determines their length of life.
- Avoid long periods of electrical inactivity (for example when wintering the boat).

- All work carried out on a battery must only be carried out by someone qualified to do so. Whenever working on a battery, wear safety goggles and protective clothing.
- Never smoke or produce a spark near a battery: risk of an explosion.
- If any acid accidentally splashes on your skin or in your eyes thoroughly rinse it off immediately with fresh water. See a doctor immediately.
- Never touch the battery terminals: danger of electric shock.
- Refer to manufacturer's instructions for use and maintenance.

- IT IS IMPERATIVE TO DISCONNECT THE BATTERY CHARGER BEFORE DISCONNECTING THE BATTERY TERMINALS FOR MAINTENANCE.

Maintenance of lead batteries

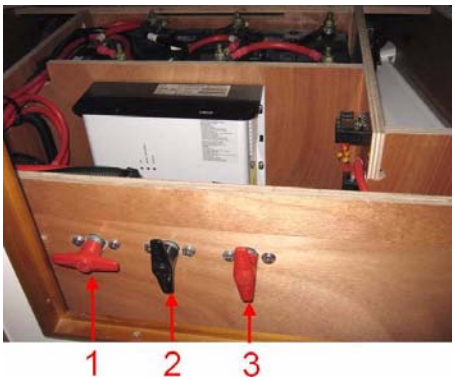
- Every year check the water levels in the batteries, and if they are low top them up with distilled water.
- Keep all metallic objects away from the batteries.
- Lead batteries contain sulphuric acid: Be careful not to knock them over whenever handling them.

8.2.2 Battery switch

- Manual battery switches: to make the system live, manually turn the positive and negative battery isolator switches.

Positive battery isolator switch	Battery switch of negative terminal
	

Location: Port aft cabin



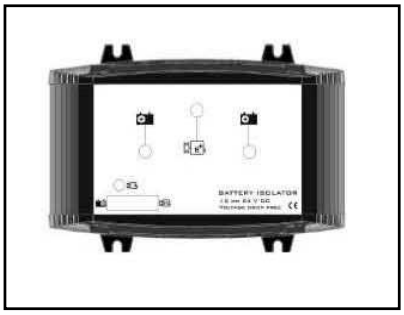
1. Battery breaker - "positive terminal - engine"
2. Battery switch "common negative"
3. Battery switch "service positive"

- Turn off all battery breakers before leaving the vessel: **risk of complete discharging of whole battery bank**.
- Avoid touching the battery breakers when they are live.
- Never switch off the battery breakers when the boat's engine is running (risk of serious damage to the charging circuit).

8.2.3 Power distributor

- The electronic charge dividers isolate the battery banks from each other and allow the charge to be directed automatically to the battery with the lowest charge. They give the advantage of preventing a drop in voltage.

- The charge divider is electronic. It is designed to distribute the charging current with a low voltage drop between the battery banks (engine and service batteries). It prevents the current from circulating from one battery to another. When the voltage of the charger or alternator is available, the charge divider's green indicator comes on.



Location: Port aft cabin

8.2.4 Battery charger

General points

- The battery charger runs on AC power.
- A breaker protects the electrical circuit.
- The battery charger charges all of the batteries onboard, while keeping the service battery bank isolated from the engine's battery bank.
- Within its power limits, the DC equipment can be supplied directly.

Capacity: 40A

Location: Port aft cabin

Operation

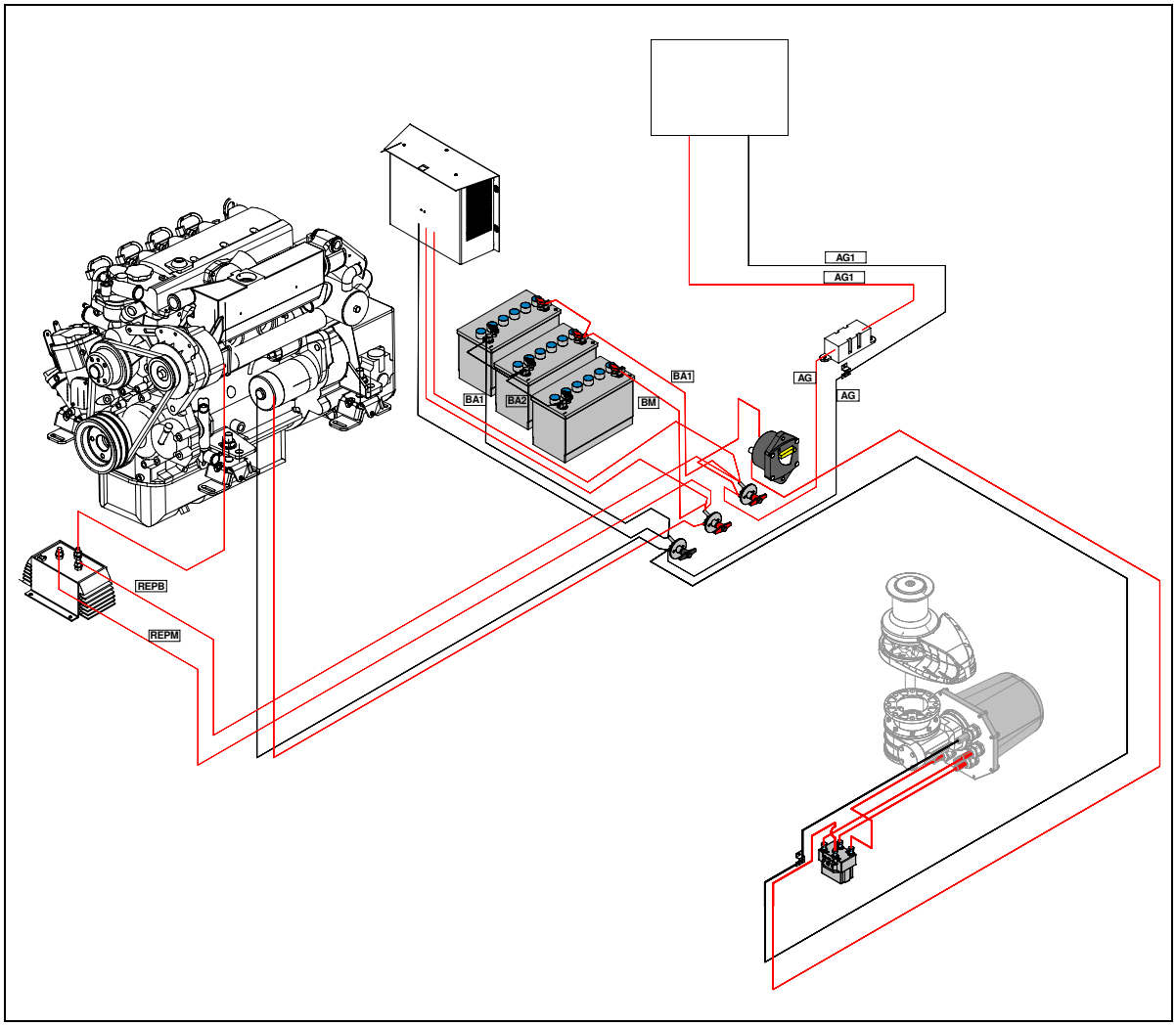
- The charger runs fully automatically. It can remain permanently connected to the batteries and does not need to be disconnected when starting the engine.
- In some electrical circuits, there may be battery chargers coupled in parallel.

Maintenance

- Before doing any maintenance, cut the AC supply.
- Regularly vacuum out any dust particles which may accumulate in the charger. An annual check of the tightness of the nuts and bolts is necessary to ensure the correct operation of the charger.

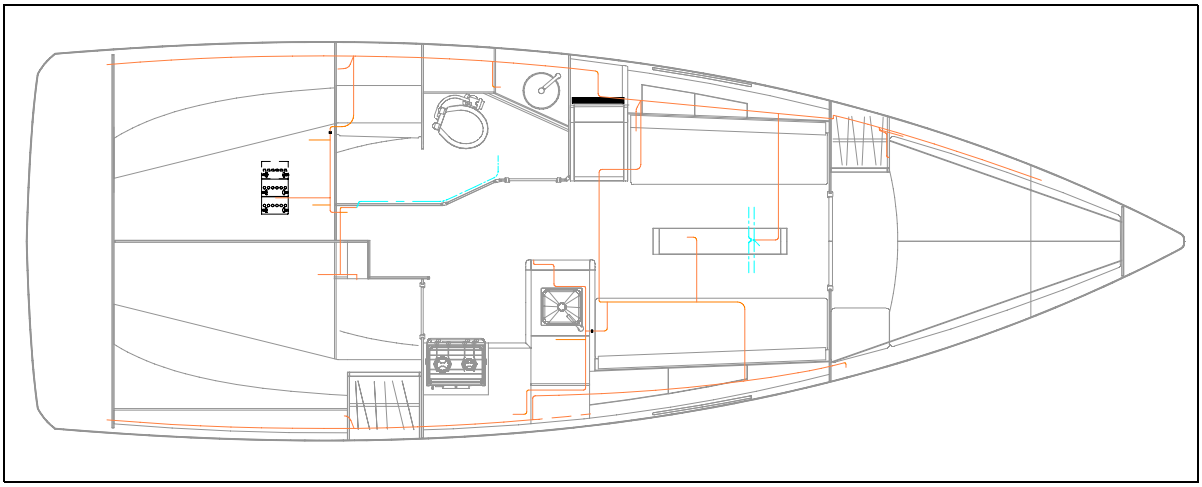
IT IS IMPERATIVE TO DISCONNECT THE BATTERY CHARGER BEFORE DISCONNECTING THE BATTERY TERMINALS FOR MAINTENANCE.

Layout diagram - Battery cables

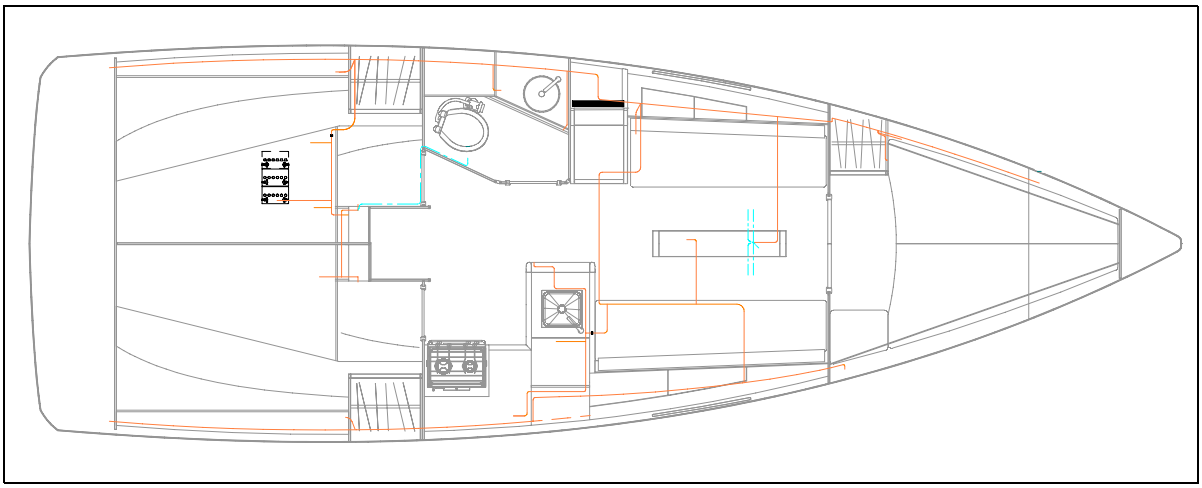


8.2.5 Layout of the wiring looms in the hull - DC circuit

Version 2 cabins

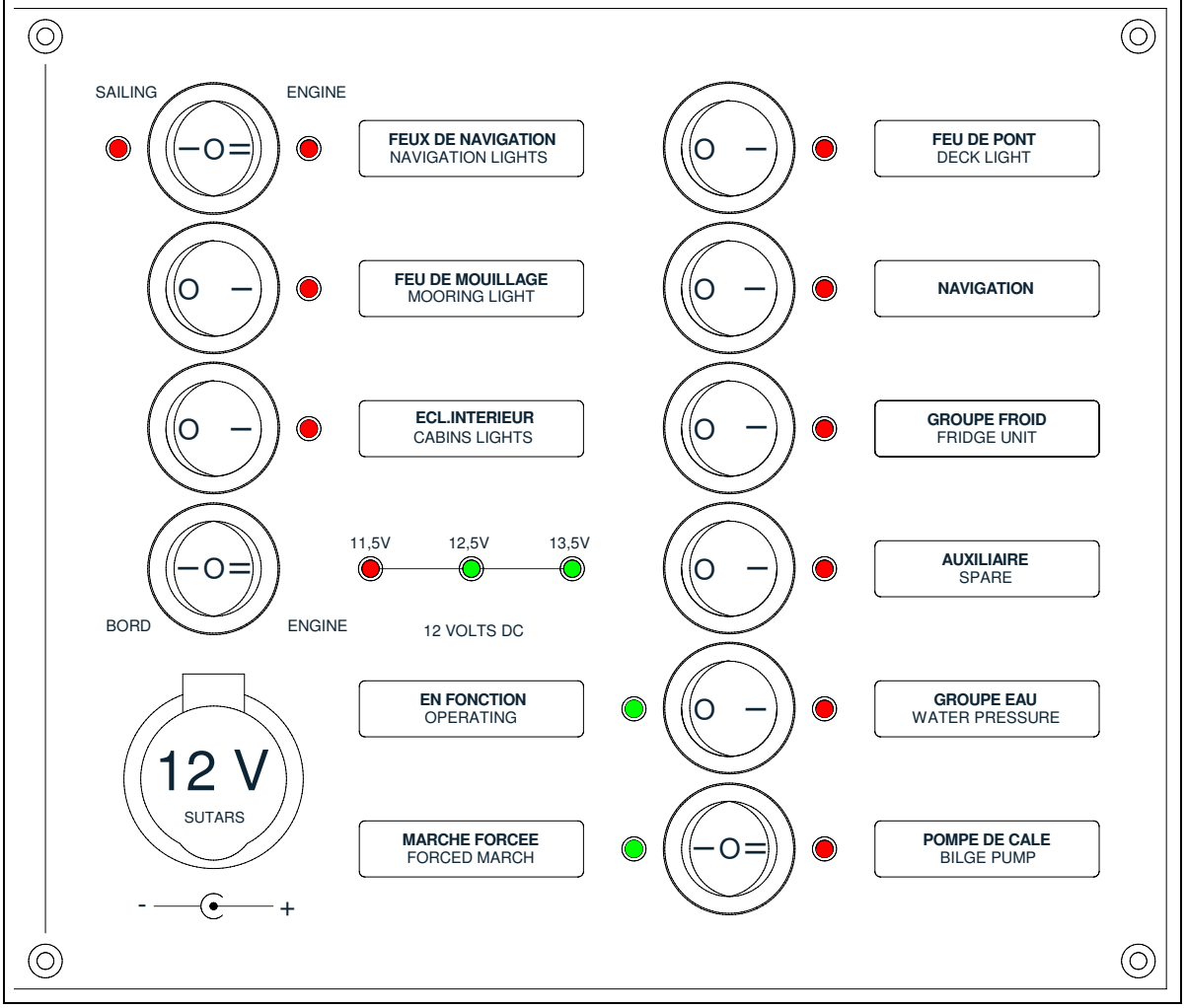


Version 3 cabins



8.2.6 Electrical panel

Location: Saloon



8.2.7 Circuit breakers

A circuit-breaker can be re-set (manually press the black button to restart it).

Location: Port aft cabin

1. Electric windlass
2. Retractable keel

8.2.8 Fuses

- A fuse protects an electrical circuit from a power surge. If it blows, you must replace it with another fuse of the same rating.

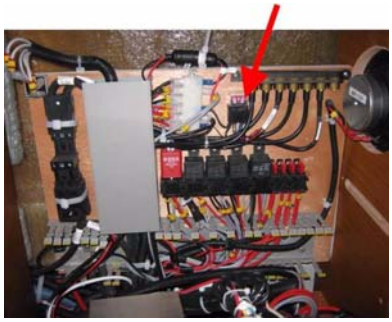
Location: Port aft cabin

Reference	Designation	Gauge
1	Service battery voltage	1A
2	Fuel gauge	1A
3	Plus after contact (Authorization windlass & Retractable keel)	7,5A

General fuse for 12 V circuit

Location:Chart table

Retractable keel (10A)

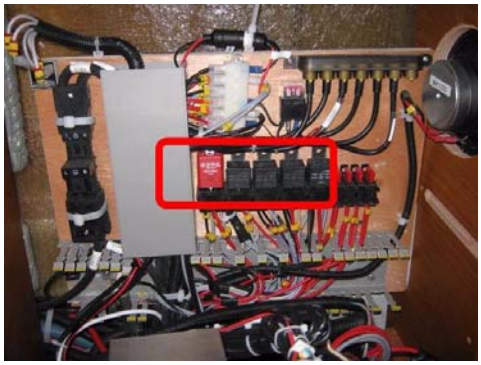


Designation	Gauge
Shower pump	10A
Hifi	10A
Ventilator - Cabins	10A
VHF	10A

When replacing fuses/circuit-breakers, always ensure replacements are of the right capacity (see the colour-codes)

8.2.9 Relay box

Location:Chart table



from left to right

- time delay - Shower pump
- Plus after contact (Retractable keel)
- Hydraulic steering (Retractable keel)
- Hydraulic pump (Retractable keel)
- Auto pilot

8.3 AC SYSTEM (110 V OR 220 V)

- Never let the end of the boat/shore supply cable hang in the water: The result may be an electric field liable to hurt or kill the swimmers nearby.
- There may be danger of electrocution if alternating current systems are incorrectly used.
- Do not work on a live AC system.

To reduce the risks of electric shock and of fire:

- Turn off the shore supply with the onboard cut-off switch before connecting or disconnecting the vessel/shore supply line.
- Connect the ship/shore power cable on the boat before plugging it into the socket onshore.
- Disconnect the ship/shore power cable at the shore socket first.
- If the reverse polarity indicator is activated immediately disconnect the cable.
- After using the socket onshore, close its protective cover tightly.
- Do not modify the connections of the ship/shore power cable: only use compatible connections.

DO NOT MODIFY THE CONNECTIONS ON THE SHIP/SHORE POWER CABLE.

- Do not modify the vessel's electrical installation nor its relating diagrams. The installation, maintenance and any modifications must be carried out by an electrician qualified in marine electricity. Check the system at least every two years.
- Disconnect the boat's shore power when the system is not in use.
- Connect the relay cans or metal casing of the electrical equipment installed to the boat's protective conductor (green or green with yellow stripe conductor).
- Use double insulated or earthed appliances.
- If the reverse polarity indicator is activated, do not use the electrical installation. Rectify the polarity fault before using the vessel's electrical installation (this applies only to polarised circuits with a polarity indicator).

8.3.1 AC shore socket

location of components

AC shore socket
(Ref 1)

Switch - AC
(Ref 2)

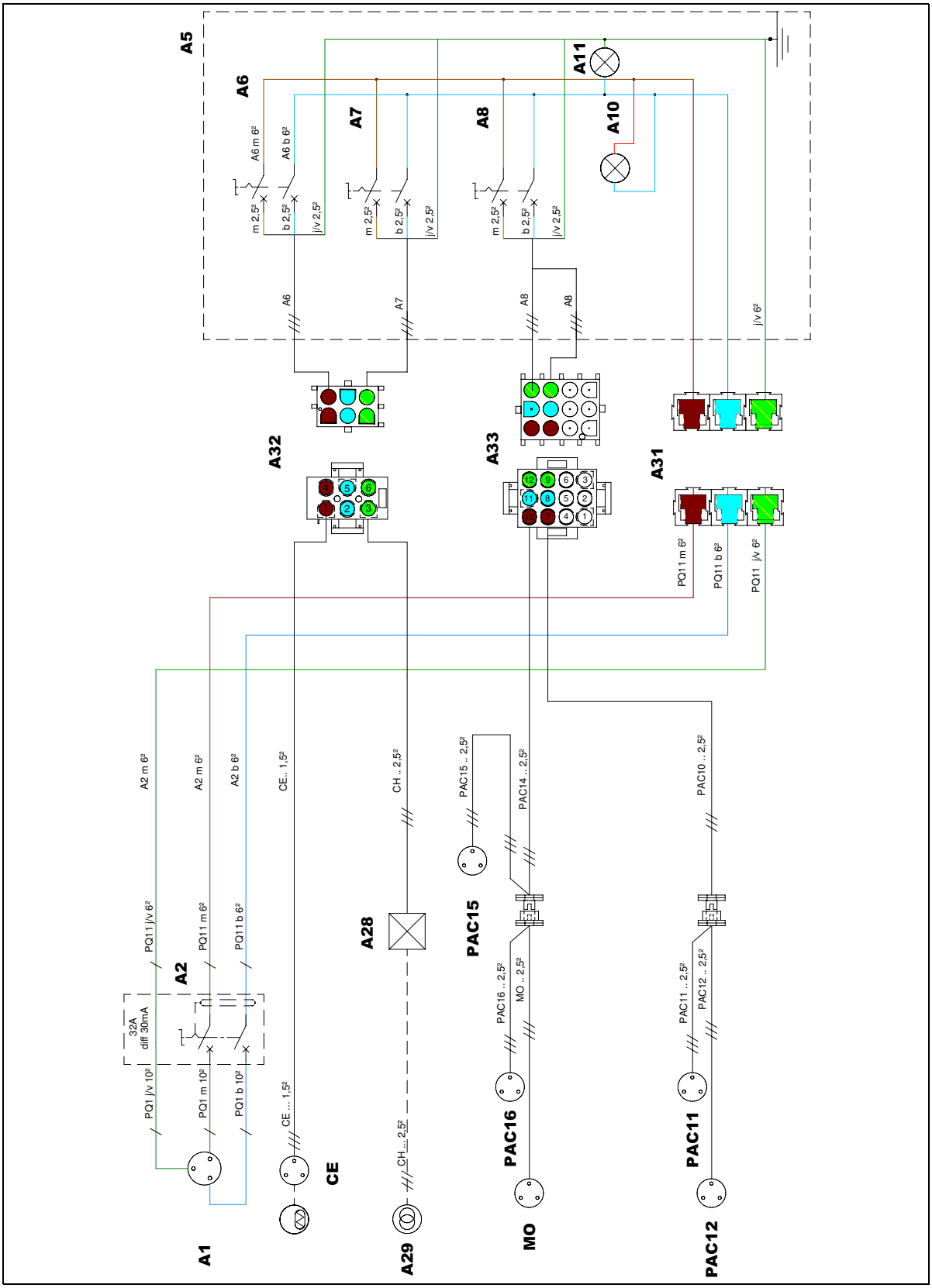
Operation

First plug the extension cable into the AC socket on the boat, then into the socket onshore.

First unplug the extension cable from the socket onshore, then from the AC socket on the boat.

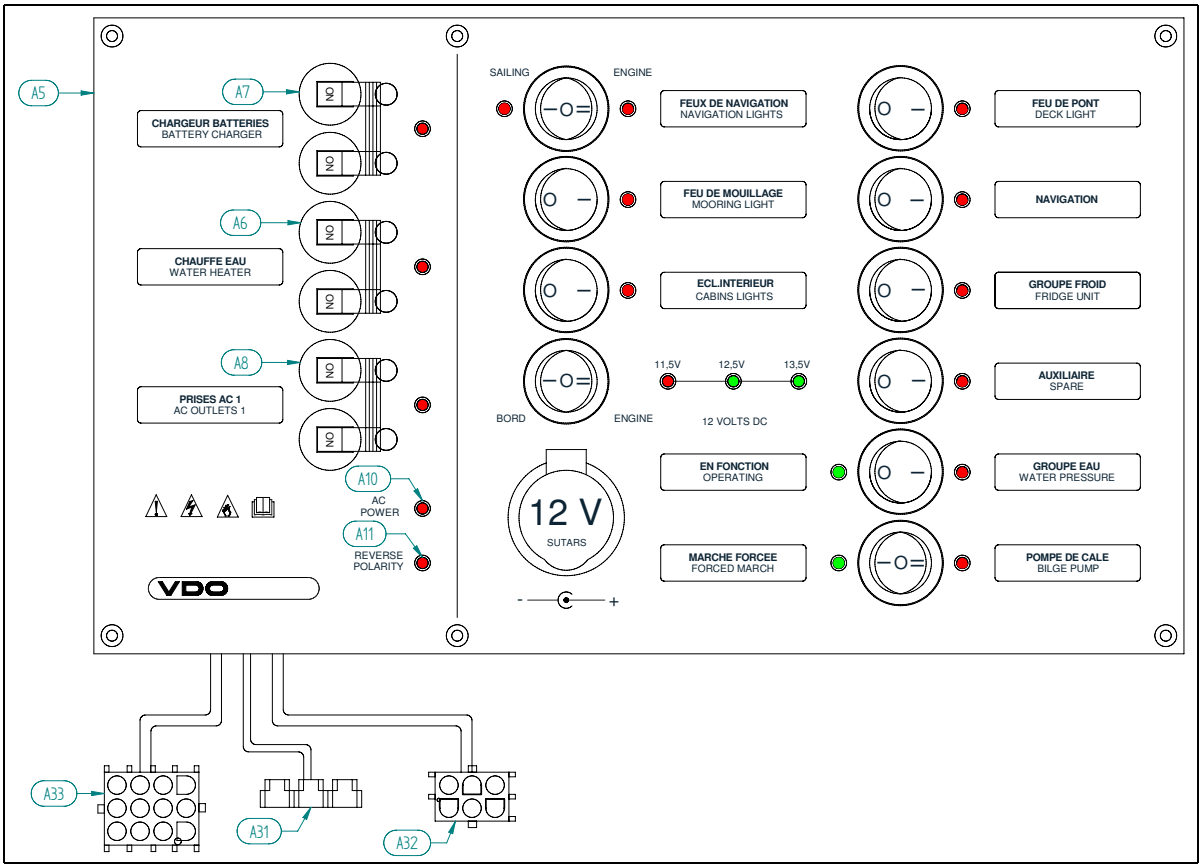
8.3.2 Layout diagram

AC electrical system



Reference	Designation
A1	Shore power socket
A2	Differential circuit breaker
A5	AC electrical panel
A6	Circuit breaker - water heater
A7	Circuit breaker of battery charger
A8	Shore power supply circuit breaker
A10	"Shore supply live" indicator light
A11	"Polarity inversion" warning light
PAC10	Port connector
PAC11	Socket - chart table
PAC12	Fore cabin socket
PAC14	Starboard connector
PAC15	Aft cabin socket
PAC16	Socket - galley
CH	Additional battery charger
MO	Microwave
A31	Connector - Power supply - electrical panel
A32	Connector - Water heater / Battery charger
A33	Connector - AC sockets

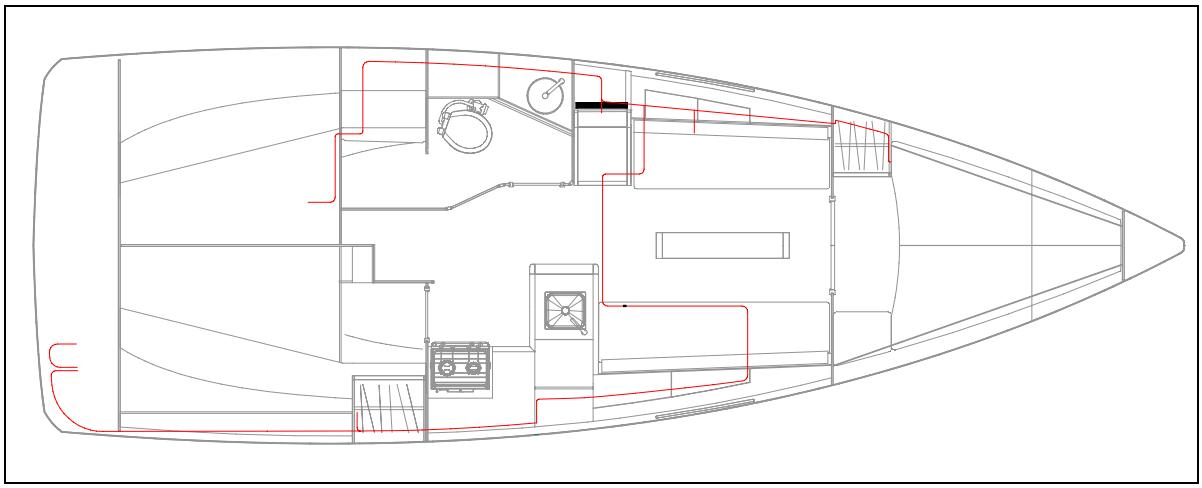
AC electrical panel



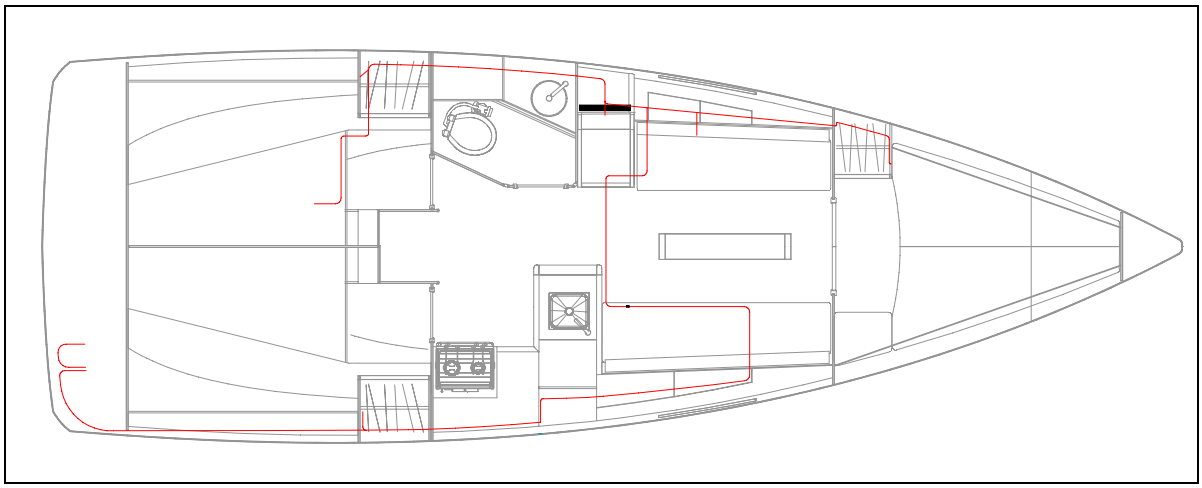
Reference	Designation
A5	AC electrical panel
A6	Circuit breaker - water heater
A7	Circuit breaker of battery charger
A8	Shore power supply circuit breaker
A10	"Shore supply live" indicator light
A11	"Polarity inversion" warning light
A31	Connector - Power supply - electrical panel
A32	Connector - Water heater / Battery charger
A33	Connector - AC sockets

Layout of AC hull bundles

Version 2 cabins



Version 3 cabins



8.3.3 Anodes

General points

- The sacrificial anodes protect the boat's metal components from electrolysis.

- A sacrificial anode is an expendable part, that by eroding (oxydisation), allows the current to flow. The anodes used are made of a metal that is more readily reductive than the metal they are protecting.

- On a new boat, all the underwater metallic components try to be at the same electric potential, which leads to the rapid deterioration of the anodes in the first few weeks in the water.

- You can put several anodes on the hull.

Maintenance

- At least 2 times a year, check the corrosion on all of the anodes. Change the anode if necessary (Before it lost 50% of its weight).

- Use the appropriate anodes for the cruising area: fresh water/magnesium anodes ; Sea water/zinc anodes.

- When the boat is stored at a dry dock, the corrosion protection is not as effective due to oxidation of the anodes: even the new anodes oxidize the surface. Before returning the boat into the water, clean the anodes.

Cleaning anodes

- Use sandpaper. Do not use metal brushes or steel tools to clean the boat, it may damage the galvanic protection.

Replacing the anodes

- The anodes are fastened with screws and nuts. First, remove the screws and nuts that hold the anode, then clean the contact surface. Press the new anode to obtain a good electrical contact.

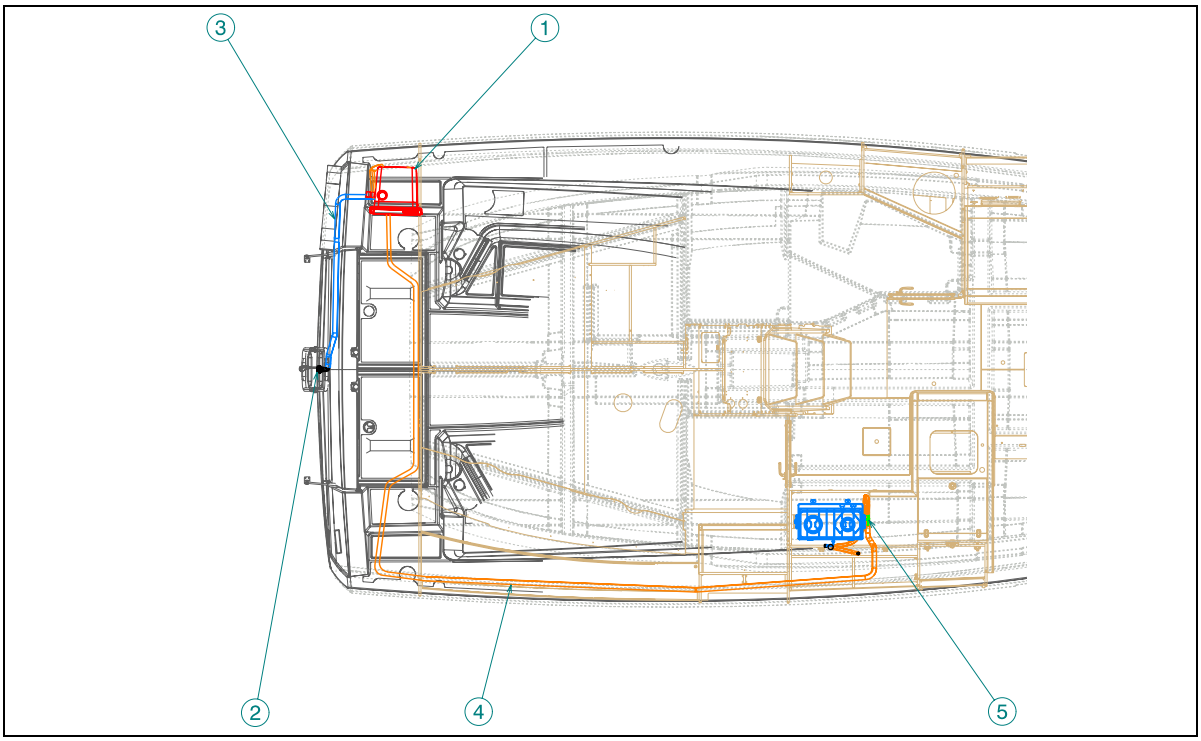
Propeller anode

- Never cover the anodes in antifoul.
- During the first few weeks that the boat is in the water, check the anodes and if necessary replace them: they erode very rapidly during this period.

9 LIQUEFIED PETROLEUM GAS(LPG)SYSTEM (LPG)

9.1 THE ONBOARD GAS SYSTEM

location of components



Reference	Designation
1	Gas cylinder locker   
2	Thru-hull fitting
3	Drain
4	Gas system
5	Gas supply valve 

- Systematically store the gas bottles only in the lockers or storage places provided for these.

- It is recommended that you ensure good ventilation when using gas powered equipment, to prevent asphyxiation.

Use and maintenance of the installation

- Please refer to the manufacturer's notes for the use and maintenance of the LPG cooker.

- When the equipment is not in use close the taps on the LPG hose and on the gas bottles. Close the taps before changing the bottles and immediately in an emergency.

- Make sure that the taps on the equipment are closed before opening the one on the bottle.

- Before using the LPG installation, check it thoroughly for gas leaks. Check that all of the connections are gas-tight in the following way:

    - Before each use, close the taps on the equipment ;

    - Open the tap of the LPG bottle ;

    - Allow the pressure of the pressure-gauge mentioned to stabilise ;

    - Close the tap on the LPG bottle ;

    - Watch the value shown on the pressure-gauge next to the tap on the bottle for 3 minutes. It is important that this value remains constant to establish the absence of leaks. **If the value shown on the pressure-gauge decreases, then there is a leak. Do not use any LPG powered equipment.**

    - Find and repair the leaks before any further use.

- Regularly observe the bubble leak detector (if there is one) ; or

- Carry out a manual search by applying a foaming solution, or soapy water or a detergent (with the taps of the burners closed and those of the installation and of the gas bottle staying open). The foaming solutions for detecting leaks in the gas installations conforming to the EN 14291 meet these requirements ;

- If there is a leak, close the tap on the bottle and get the installation repaired before using it again. The repairs must be carried out by someone proficient in this.

- Do not in any way block the access to the components of the gas-powered installation.

- Make sure that the taps on the empty bottles are closed and put out of circuit. Keep in place the protection devices, the caps or stoppers. Store the spare bottles in ventilated housing on deck or in the lockers provided for this, gas-tight and with an external vent.

- Do not use the housings or the LPG bottle lockers to store other equipment.

- The flexible pipes of the LPG powered installation must be regularly checked, at least once a year and replaced if they have deteriorated.

- Check the vent pipes at least once a year. Replace them if they have deteriorated or split.

- Do not use the hot plate if the regular roll angles or heeling angles are likely to be significant. (if the boat does not have a gimballed hotplate).

To change an LPG bottle

1. Close the tap on the LPG bottle
2. Detach the LPG bottle
3. Replace the LPG bottle
4. Attach the new LPG bottle
5. Open the tap on the LPG bottle

When the cooker is on, ventilate well to prevent any risk of asphyxiation.
Do not use the cooker as a means of heating.

- Never use a naked flame to check for leaks.
- Do not use a hotplate or an oven to heat the living areas.
- Equipment with a naked flame burning fuel consumes the oxygen in the cabin and gives out combustion residue in the boat. Ventilation is necessary when this equipment is used. Open the vents provided for this when using this equipment. Do not use a hotplate or an oven to heat the living areas. Never obstruct the vents provided for ventilation.
- Never leave the boat unsupervised when equipment using LPG with a naked flame is on.
- Do not smoke or use a naked flame when replacing LPG bottles. Close the tap on the empty bottle before detaching it to replace it.
- To ensure sufficient ventilation, make sure that you open the hatches or ports near the hotplate when using it.

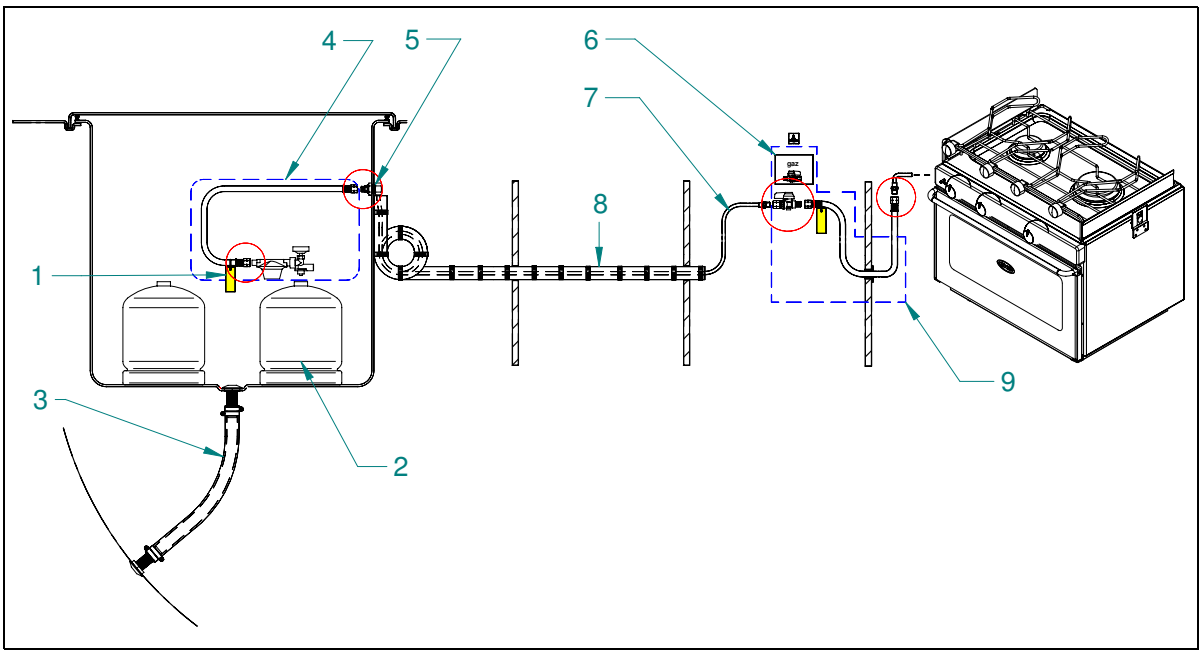
- Do not use solutions containing ammonia (ammonia, which is present in certain soaps and detergents, attacks brass connections. Although the damage may at first be impossible to detect, the cracks and leaks may appear several months after the contact with the ammonia)).

Cooker - Oven

Cooker

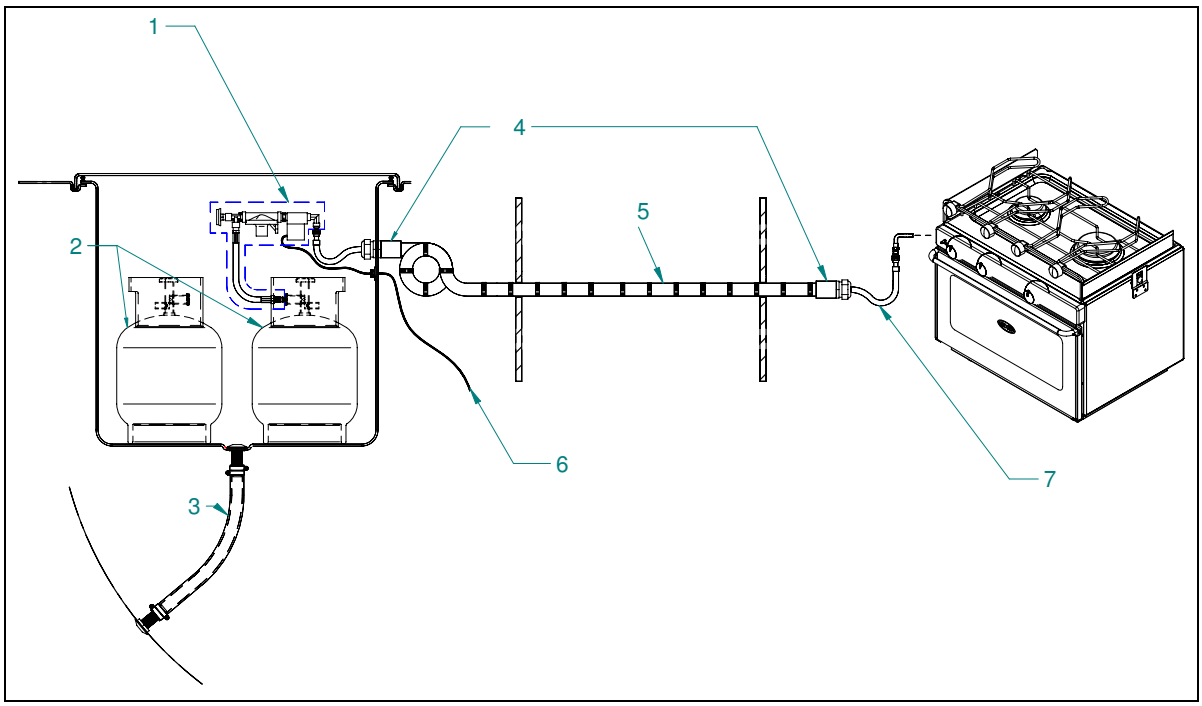
9.2 LAYOUT DIAGRAM

Version: Europe



Reference	Designation
1	Regulator valve
2	Gas cylinder
3	Drain
4	Connection kit - gas bottle
5	Rubber washers
6	Pictogram
7	Connection kit - gas copper
8	PVC girdled sleeve
9	Gas appliance connection kit

Version: US



Reference	Designation
1	Regulator valve - 12 V
2	Gas cylinder
3	Drain
4	Stuffing box
5	PVC girdled sleeve
6	Electromagnetic valve - 12 V
7	Plastic propane pipe

Gas cylinder locker

Electromagnetic valve

Location: Galley

10 DOMESTIC APPLIANCES

10.1 FRIDGE

General points

- The fridge is composed of 3 components: the compressor, the evaporator and the condenser. These components are connected by a closed circuit refrigerant gas circuit. The fridge is air-cooled.

- The fridge is DC powered. It is designed to chill food and drink. Any other use is dangerous and forbidden.

- A breaker protects the electrical circuit.

- The ON/OFF start button is located on the fridge.

- The thermostat is in the inside compartment of the fridge. It enables the selection of the desired temperature setting for the inside of the fridge.

- The refrigration power can be affected by:
    - The ambient temperature,
    - The quantity of food to chill,
    - The frequency of opening the door.

Maintenance

- Clean the evaporator with a damp cloth at least once a year. Never use cleaners which are abrasive, acid or which contain solvents for cleaning the evaporator.

- Clean the icebox door joint with a damp cloth.

- Regularly defrost the fridge.

- During winter leave the icebox lid opent to avoid dampness and smells.

ADVICE-RECOMMENDATION

- Refer to manufacturer's instructions for use and maintenance.

- Never heat or use tools to defrost the inside of the fridge more quickly (risk of damaging the interior surface).

- Never obstruct the heat exchanger of the fridge.

Location: Galley

10.2 MICROWAVE

General points

- The microwave is AC powered.
- A breaker protects the electrical circuit.
- The microwave is designed to reheat food and drink or to cook food. Any other use is dangerous and forbidden.
- The microwave must never be started when empty.
- Remove all foil or metallic elements of the packaging before putting food in the microwave.
- Remove hermetic coverings from the packaging before putting food in the microwave.

Starting up

- Put the microwave circuit-breaker in the ON position.

Maintenance

- Regularly check the door seals.
- Regularly clean the inside of the fridge with a damp sponge.

Location: Galley

11 ONBOARD COMFORT

11.1 ELECTRONIC EQUIPMENT

The onboard electronics are powered by direct current.

Control: Electrical panel

LEAD LINES

Transducer location:

Outside view / Inside view

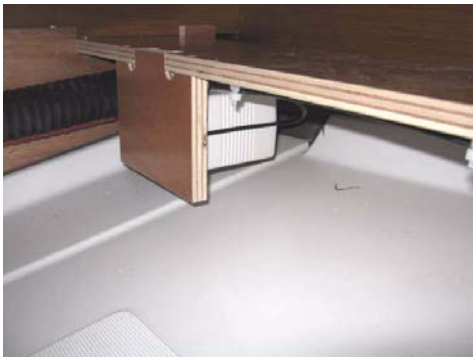
- Do not store material on top of the sensors.
- Do not cover the sensors in antifoul when antifouling the hull.
- Regularly clean the sensors.

Auto pilot

Layout of components

Hydraulic pump (Ref 1)

Gyrocompass (Ref 2)



Vessel Management Unit (Ref 3)

- To ensure optimum perfomance, keep all metallic objects away from the gyrocompass.

- Do not store material close to the calculator and electrical connections.

Control: Starboard cockpit

Fuses & Relay box

Location: Chart table

VHF

Layout of components: Chart table

ADVICE-RECOMMENDATION

- Place the protective covers on the repeaters when unused for long periods.
- When sailing store the protective covers inside the boat to avoid losing them.
- The various repeater displays are back-lit.
- Regularly clean the fascias of the repeaters with fresh water.
- Refer to manufacturer's instructions for use and maintenance.

11.2 EQUIPMENT OTHER THAN FOR PROPULSION, WHICH BURNS FUEL (HEATING)

11.2.1 General points

- Make sure that the ventilation openings in the engine (and generator, if installed) compartment are well cleared.
- Stop the engine and refrain from smoking during fuel tank filling.
- Get your fuel circuit checked regularly by a professional engineer.
- Avoid any contact between inflammable materials and the hot sections of the engine.
- Take all necessary precautions to avoid contact with naked flames and other hot areas.
- Do not obstruct or modify the ventilation system.
- Fuel stored outside the fuel tanks (jerrycans, spare cans) must be kept in a well-ventilated place.

11.2.2 Warm air heating system

General points

- The heating is powered by DC supply. The electrical supply is provided by the onboard battery bank.
- A fuse potects the circuit.
- The fluid used for the heating is a mixture of water and coolant.
- You are advised to run the heating system for about 15 minutes every month (to prevent the operating components from becoming blocked/to refresh the fuel in the pipeline).
- The warm air heating system, installed at the back of the boat draws in the air outside via an integrated ventilator.
- The air warmed in the heating system is blown through the warm air ducts to the living area of the boat.
- The fuel is supplied via a feed pump by the fuel tank.
- The combustion system is separate from the heating system: The air intake for combustion is separate from the warm air heating system.
- The exhaust gases are expelled outside by an exhaust pipe with a silencer.
- The heating system compares the actual temperature with the desired temperature and automatically adjusts the heating power required.

Annual maintenance

- Clean or replace the fuel filter.
- Check that the heating ducts are in good condition.

Layout of components

Manual control	Location: Chart table
	

Reference	Designation
1	Function selector (economy, normal, fast, ventilation)
2	ON/OFF
3	Temperature selector
4	Tell-tale

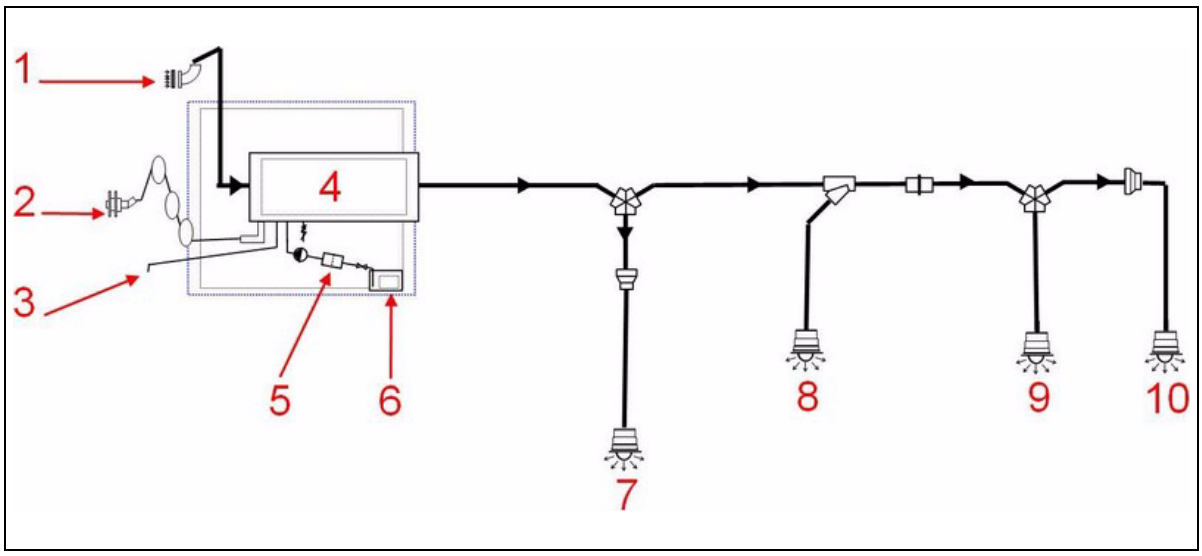
Heater

Access: Cockpit locker

1. Pump - Fuel
2. Supply - Fuel (Diesel connection)

- Please refer to the manufacturer's instructions for the use and maintenance of the heating system.
- A sudden cut in the electrical supply risks damaging the heater: REMEMBER TO SWITCH OFF THE HEATER BEFORE ISOLATING THE BATTERIES.
- It is imperative to disconnect the electrical supply and to allow the hot components to cool before doing any maintenance or work on the heater.

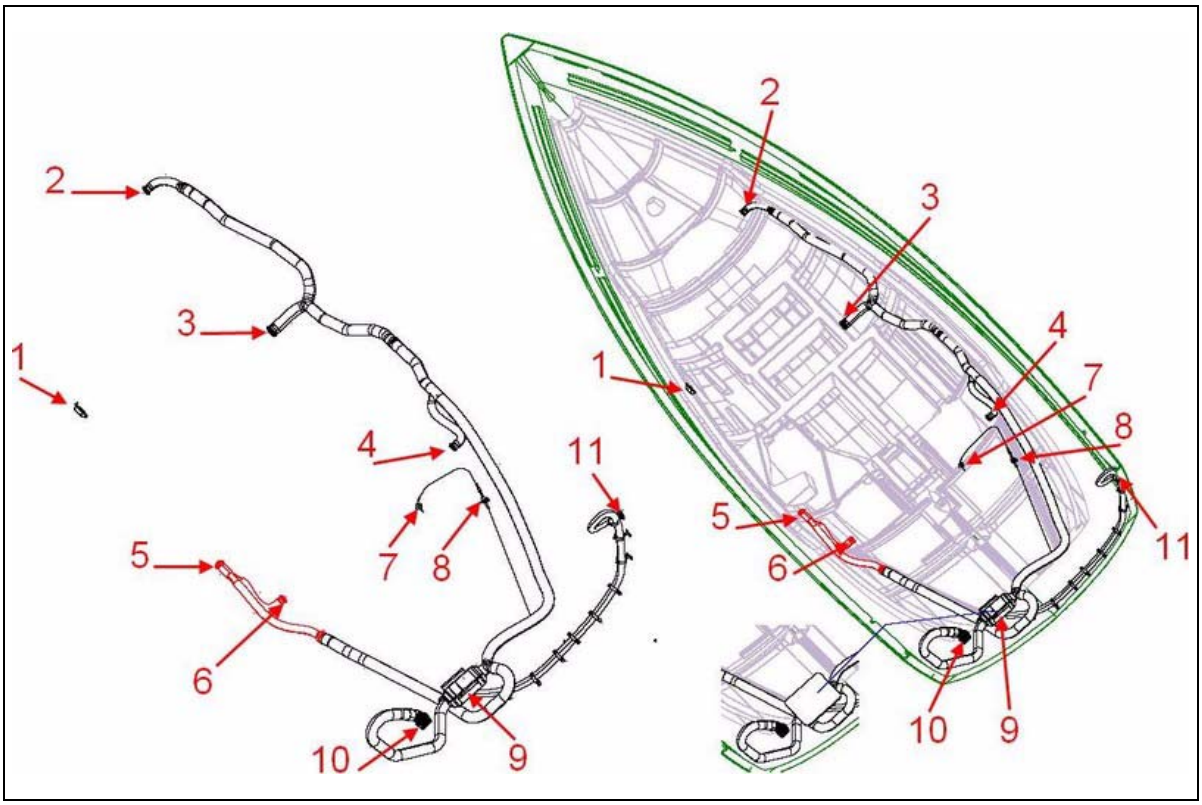
Layout diagram



Reference	Designation
1	Extraction - fresh air
2	Outlet
3	DC supply
4	Heater - 5000 W
5	Pump - Fuel
6	Fuel tank
7	Outlet - Heating - Port aft head compartment / Port aft cabin
8	Outlet - Heating - Starboard aft cabin
9	Outlet - Heating Saloon
10	Outlet - Heating - Forward cabin

- The heater must be switched off when refilling the fuel tank.
- The heater's exhaust gases are very hot: they risk burning the shock mounts or the cables running too close to the exhaust outlet skin fitting.

Diagram of the layout



Reference	Designation
1	Temperature sensor & Control
2	Outlet - Forward cabin
3	Outlet - Saloon
4	Outlet - Starboard aft cabin
5	Outlet - Head version (Version 3 cabins)
6	Outlet - Port aft cabin (Version 3 cabins)
7	Fuel spur
8	Diesel pump
9	Heater
10	Fresh air intake
11	Outlet

12 WATER SYSTEMS

12.1 GENERAL POINTS

- It is essential to rinse the entire on-board water system the first time the boat is used. (The water system is protected in the factory by a dietary anti-freeze).

- The water tanks may have had an anti-algae treatment using a copper sulphate based product. It is advisable to renew the treatment according to the area in which the boat is sailing.

- Drain all the water systems during winterisation (in particular the cockpit shower and water heater) to avoid damage from freezing.

- Clean/change the filters regularly.

- Regularly check water-tightness of joints in the water system installations. Check that screws and bolts are well tightened and replace them if they are worn or corroded.

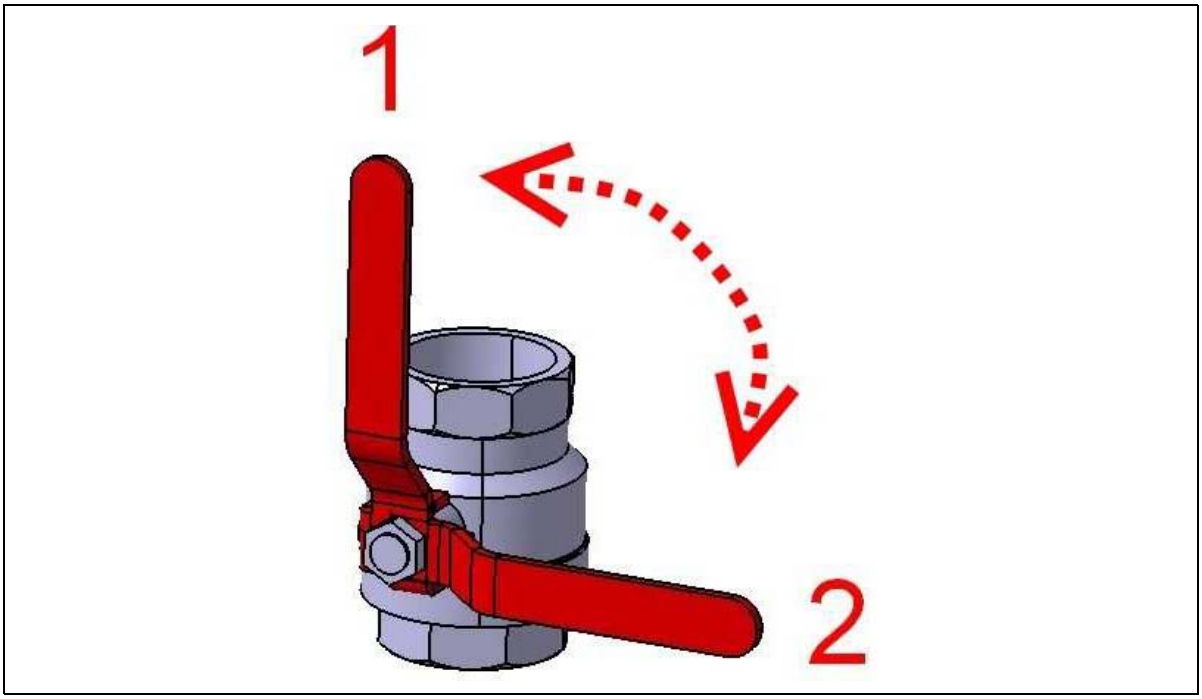
- Disconnect shore water supply before leaving the boat (if fitted).

- If the boat is sailing in temperatures below freezing, it is possible to use anti-freeze in the water systems: use a non-toxic anti-freeze marked for dietary use.

NEVER USE AUTOMOBILE ANTI-FREEZE: RISK OF POISONING.

12.2 USING A VALVE

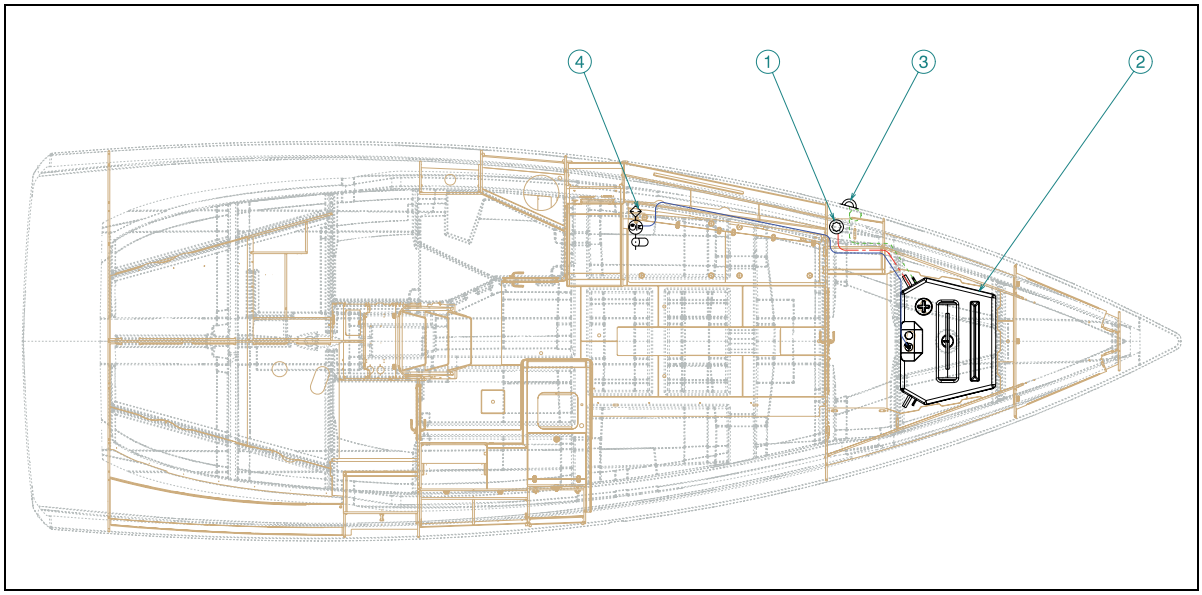
The valve is shut when the valve handle is at right angles to the pipe, the valve is open when the valve handle is in line with the pipe.



Reference	Designation
1	Open valve
2	Closed valve

- Valves have a lifespan of approximately 5 years. It is essential to have all valves on board checked by a professional every 5 years and possibly replace them.

12.3 FRESH WATER FILLING SYSTEM

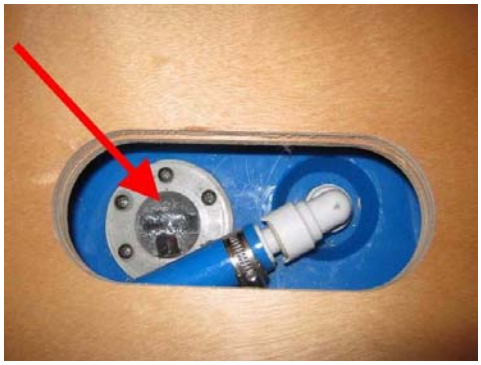


	Supply pipe - Ø 19mm
	Pipe - Vent hole - Ø 16mm
	Pipe filling - Ø 38mm

Reference	Designation
1	'WATER' deck filler
2	Water tank
3	Water tank vent
4	Water unit

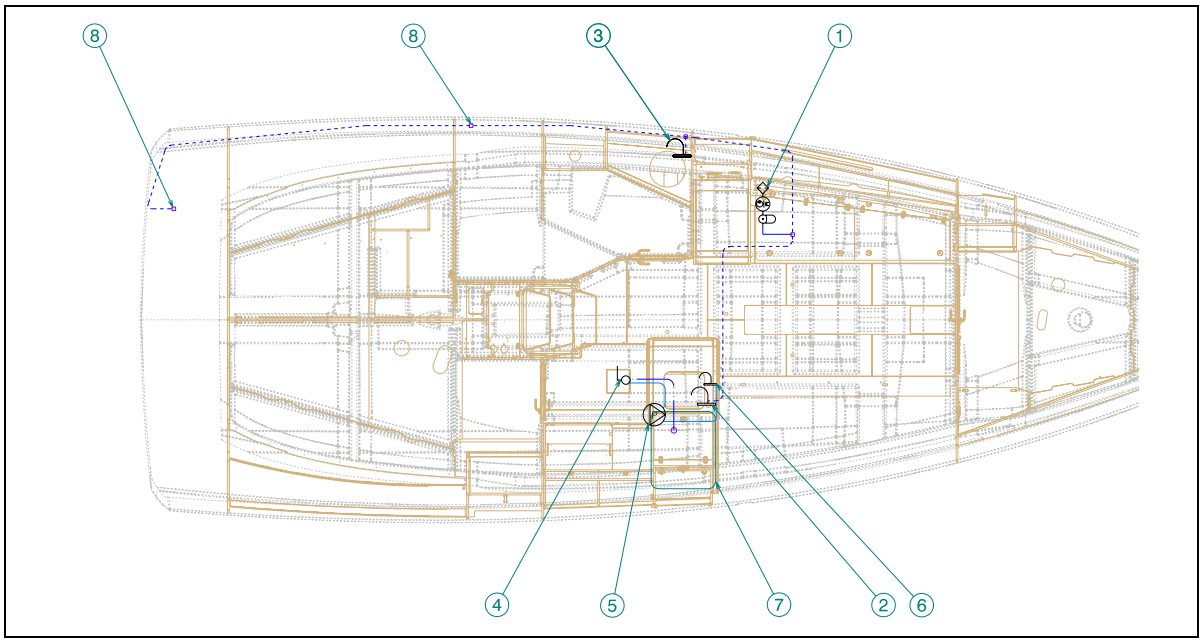
Water tank

Gauge
(located directly on the tank)



12.4 FRESH WATER DISTRIBUTION SYSTEM

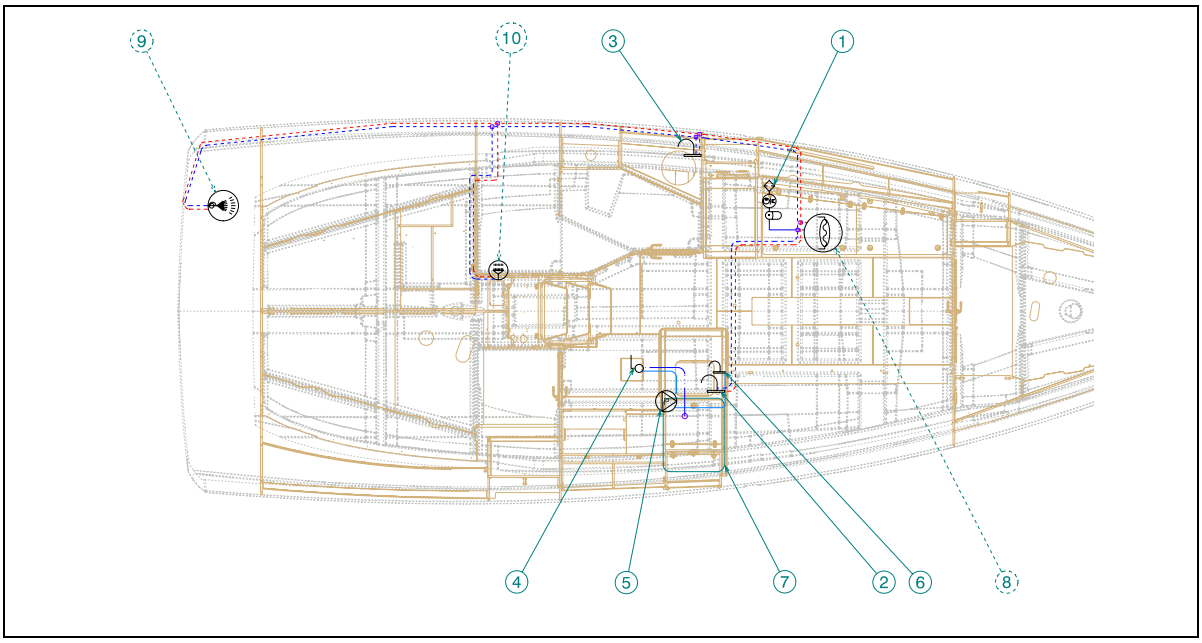
Version 2 cabins / 1 Toilet



	Connectors
	Pipe - Waste water - Ø 20mm
	Pipe - Sea water - Ø 20mm
	System - Cold water - Ø 19mm
	System - Cold water - Ø 12mm

Reference	Designation
1	Water unit
2	Galley sink
3	Washbasin - Head version
4	Sea water intake & Selection valve - Sea water / House water
5	Sea water foot pump
6	Spout
7	Cool box
8	Cap

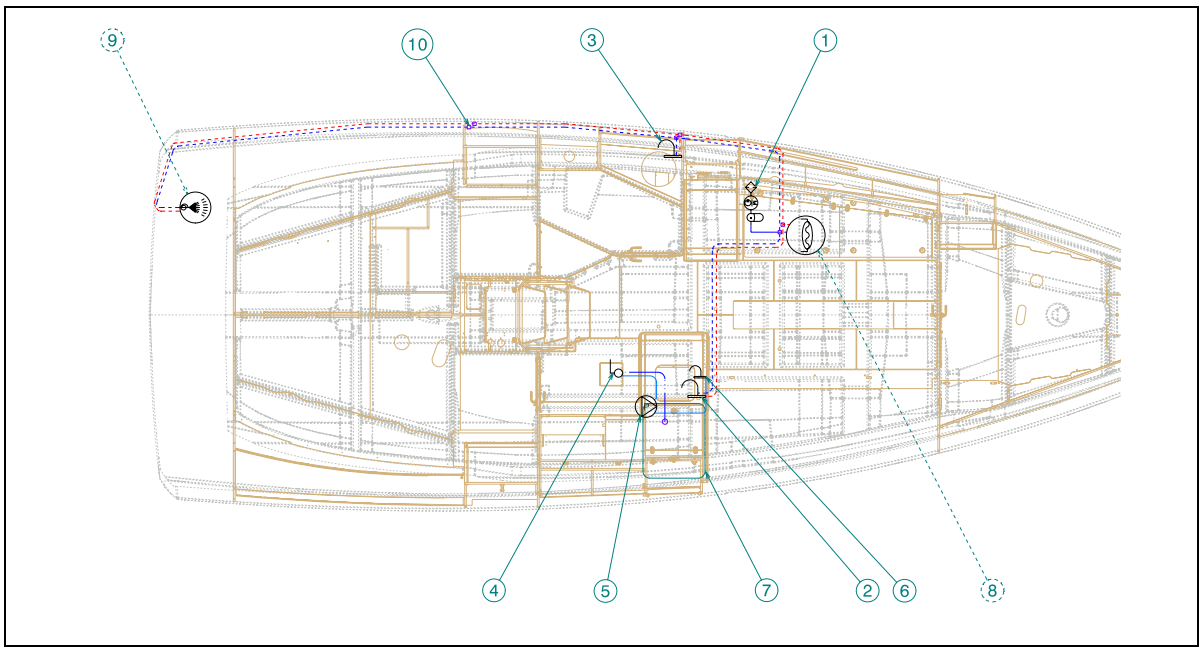
Version 2 cabins / 1 Toilet - with options



	Connectors
	Pipe - Waste water - Ø 20mm
	Pipe - Sea water - Ø 20mm
	System - Cold water - Ø 19mm
	System - hot water - Ø 12mm
	System - Cold water - Ø 12mm

Reference	Designation
1	Water unit
2	Galley sink
3	Washbasin - Head version
4	Sea water intake & Selection valve - Sea water / House water
5	Sea water foot pump
6	Spout
7	Cool box
8	Water heater
9	Cockpit shower
10	Shower

Version 3 cabins / 1 Toilet - with options



	Connectors
	Pipe - Waste water - Ø 20mm
	Pipe - Sea water - Ø 20mm
	System - Cold water - Ø 19mm
	System - hot water - Ø 12mm
	System - Cold water - Ø 12mm

Reference	Designation
1	Water unit
2	Galley sink
3	Washbasin - Head version
4	Sea water intake & Selection valve - Sea water / House water
5	Sea water foot pump
6	Spout
7	Cool box
8	Water heater
9	Cockpit shower
10	Cap

12.5 MAIN PLUMBING EQUIPMENT

12.5.1 Water unit

- The water unit is supplied by direct current.

- It serves to feed all the boat's plumbing equipment with fresh water. It is fitted with a pressure switch that activates the flow when the pressure in the water system falls.

- The water unit must only be used with the fresh water supply. All other use (with sea water or bilge water, with oil products) is prohibited.

- Make sure that the water unit is never run dry.

- The pressure and capacity of the water unit depend on the temperature of the stored fresh water supply.

- The water unit is switched on at the electrical panel.

Access: Port saloon

12.5.2 Cockpit shower

- The cockpit shower allows the use of fresh water for rinsing off.
- The shower is fitted with a mixer tap.

The tap has a dual function:

- It allows the water to be turned on/off ;
- It allows a choice of water temperature (hot water / Cold water).

Operation:

To use the shower, turn on the water by tipping the tap on its axis.

Then press the button on the top of the shower to allow the flow of water.

Choose the required temperature by turning the tap clockwise or anti-clockwise.

After using the shower, it is important to turn off the water by tipping the tap on its axix.

12.5.3 Water heater

- The water heater allows the use of hot water on board the boat.

- The water heater operates by recovering heat from the port/starboard engine cooling system or via the onboard AC electrical system.

- The water heater thermostat regulates the water temperature only when it is operating with electrical resistance. The thermostat is pre-set in the factory.

- The mixer tap allows the temperature leaving the water heater to be adjusted.

- Never switch on the water heater if it is not filled with water.

Access: Port saloon

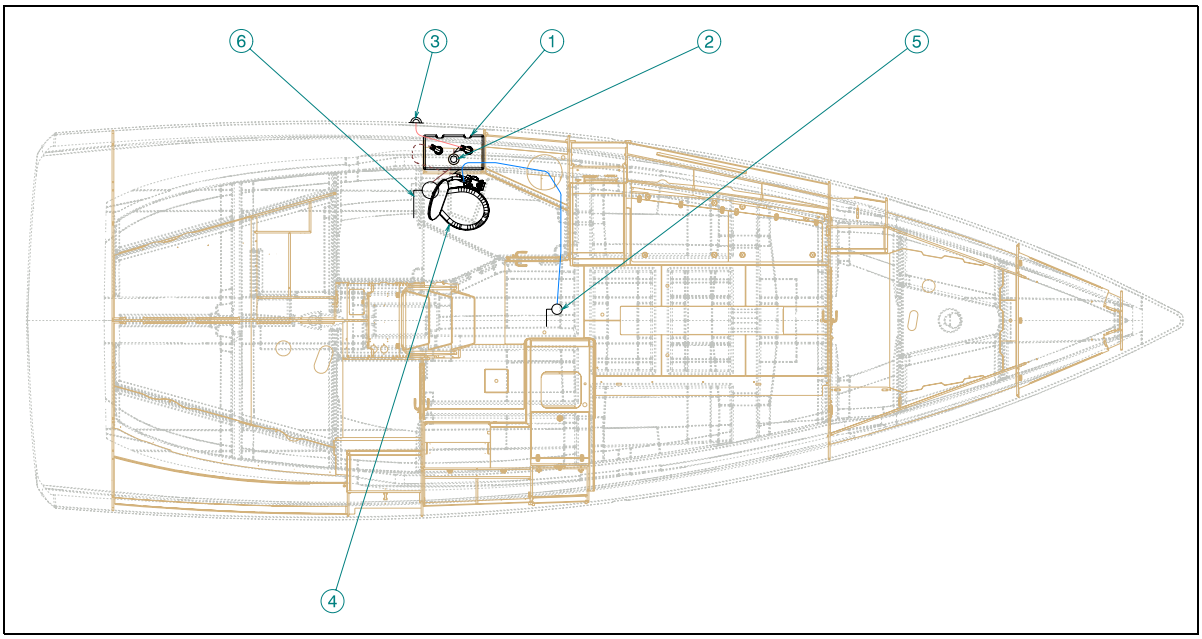
1. Thermostatic mixer valve
2. Water heater - 25 l

12.6 BLACK WATER SYSTEM (WC)

General points

- Black water is human waste including the flushing water from the toilets.
- Close the valves after each use and above all when the boat is unattended.
- Regularly check the valves and thru-hull seacocks for proper operation and watertightness.
- Regularly check the tightness of the flexible pipe clamps and connections.

12.6.1 Location diagram of black water system



	Seawater supply pipe - Ø 20mm
	Pipe - Vent hole - Ø 38mm
	Pipe - Drainage - Ø 38mm
	Pipe - Intake / Rejection - Ø 50mm

Reference	Designation
1	Black water tank
2	Drain outlet - WC - Deck
3	Black water tank
4	WC
5	Sea water intake
6	WC evacuation to sea

YOUR BOAT IS FITTED WITH A BLACK WATER TANK

To minimise the smells coming from this tank, we advise the following use and maintenance:

1) Holding tank

- A black water tank is used solely for the temporary collection of water coming from the toilets.
- The tank can be emptied in 2 ways:
    - By connection to a pumping system that empties the tank by suction. This system uses the 'WASTE' deck connection.
    - Via the thru-hull fitting emptying directly into the sea (on condition that this is allowed by law in the country where the boat is sailing).
- Only use water soluble toilet paper to avoid any blockage.

Note: Sanitary towels and other items (paper handkerchiefs, dressings etc) in the toilets and black water tank will inevitably lead to blockages.

- Faecal matter causes formation of unpleasant odours in the black water tanks, to which the use of salt water for flushing the toilets also contributes. Algae present in salt water also give off unpleasant odours.
- Completely empty the black water system before leaving the vessel unattended in temperatures below freezing.
- Ask for information about the laws in force in your country or your marina about discharging your waste waters into the sea.

2) Use of toilets

- Every time the toilets are used, flush afterwards with copious amounts of water in the bowl using the toilet pump (manual or electric).

- When you are leaving the boat for several days, flush with fresh water, using for example the head's shower. Sea water that stagnates in the bowl gives off bad smells.

Black water tank
Location: Head version
Capacity: 80A

WC evacuation gate valve to sea

3) Maintenance of black water tank

- The risk of unpleasant odours forming increases when the waste water remains in the tank for a long time.

- Whenever possible empty the tank regularly even before it is full.

- Every time the tank is emptied put in about 5 litres of fresh water and add an appropriate detergent additive (available from chandleries). A very simple method is soda salts, which clean and disinfect at the same time.

- Before winterising, flush the tank with copious amounts of fresh water filling it through the 'WASTE' deck connection. Leave at least 5 litres of fresh water mixed with a detergent additive.

- Disinfecting: Disinfect the tank once a year by filling it with a solution of Javel water (1 to 1000).

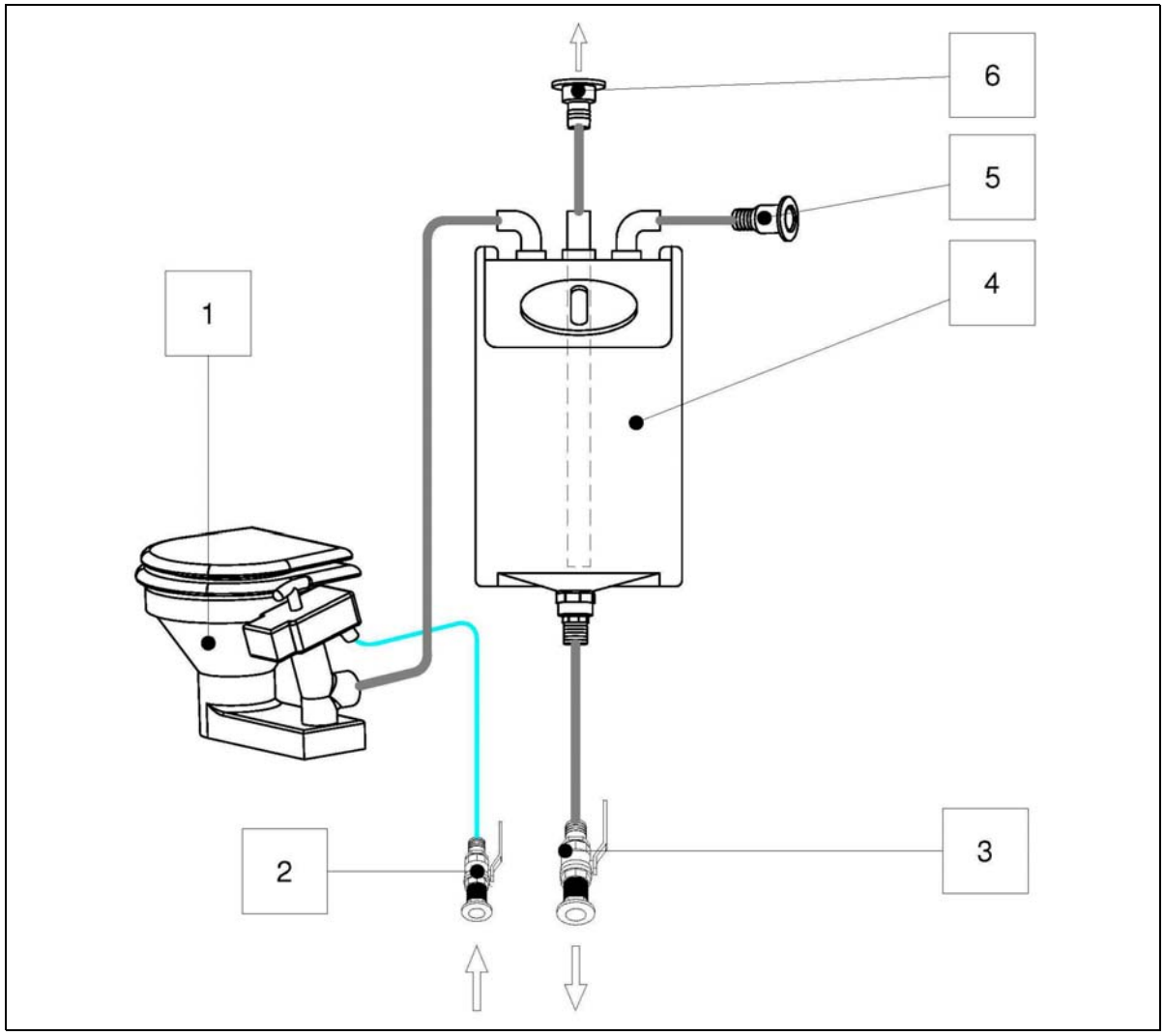
- Never use automobile anti-freeze in the black water system: risk of poisoning.

ADVICE-RECOMMENDATION

- Respect local regulations regarding the emptying of black water tanks.

Layout diagram of black water system

Emptying by gravity



Reference	Designation
1	WC
2	Seawater intake valve
3	Thru-hull seacock
4	Black water tank
5	Vent hole
6	'WASTE' deck connection

Using a marine toilet fitted with a tank emptied by gravity

I. Open the sea water intake valve (Ref 2).

II. Fill the bowl by using the manual toilet pump.

III. Using the toilet (Ref 1).

IV.a. To empty the organic waste in the tank:

- Make sure the thru-hull seacock (Ref 3) is closed.
- Empty the bowl using the manual toilet pump.

IV.b. In the case of a direct discharge into the sea:

- Open the thru-hull seacock (Ref 3).
- Empty the bowl using the manual toilet pump.

IV.c. To discharge through the deck:

- Open the deck connection marked 'WASTE' (Ref 6).
- Use the pump-out system where fitted at a port.

Using an DC electric WC fitted with a tank emptied by gravity

I. Open the sea water intake valve (Ref 2).

II. Fill the bowl by pressing the fill button.

III. Using the toilet (Ref 1).

IV.a. To empty the organic waste in the tank:

- Make sure the thru-hull seacock (Ref 3) is closed.
- Empty the bowl by pressing the empty button.

IV.b. In the case of a direct discharge into the sea:

- Open the thru-hull seacock (Ref 3).
- Empty the bowl by pressing the empty button.

IV.c. To discharge through the deck:

- Open the deck connection marked 'WASTE' (Ref 6).
- Use the pump-out system where fitted at a port.

Refer to manufacturer's instructions for use and maintenance.

12.7 WASTE WATER SYSTEM

General points

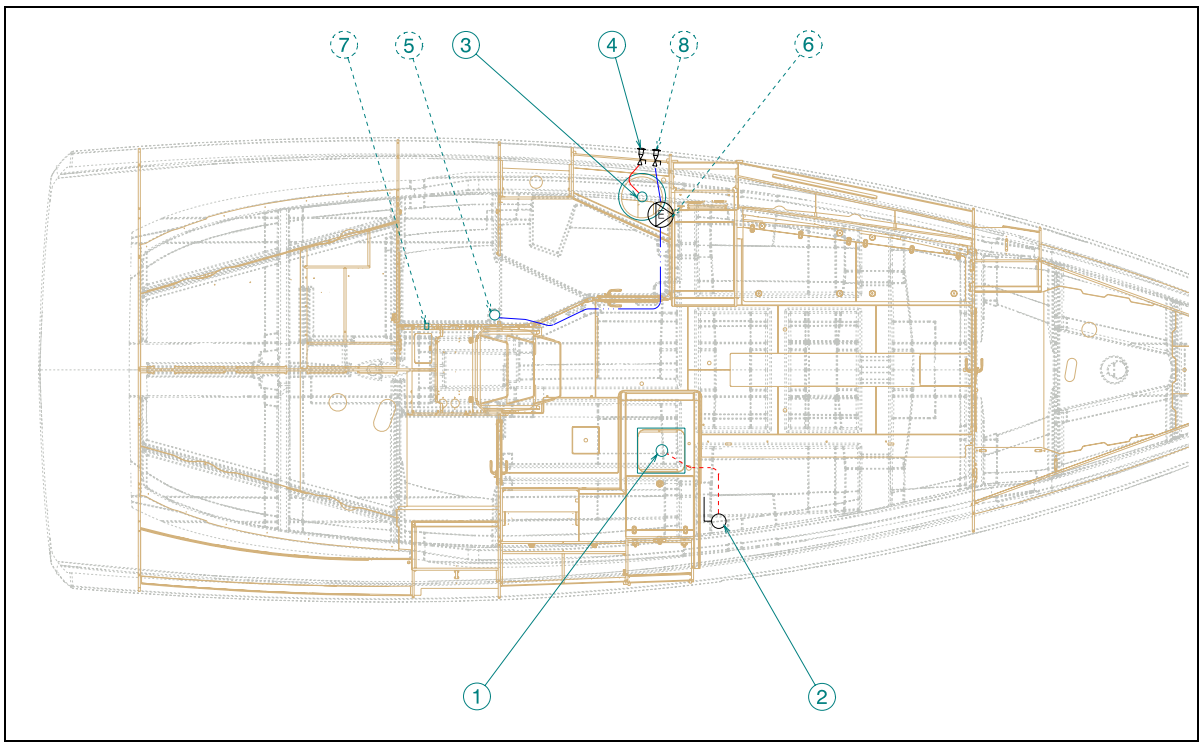
- The waste water system is the water coming from the sink, showers, air conditioning drains and washbasins.
- Close the valves after each use and above all when the boat is unattended.
- Regularly check the valves and thru-hull seacocks for proper operation and watertightness.
- Regularly check the tightness of the flexible pipe clamps and connections.

ADVICE-RECOMMENDATION

- Observe local regulations regarding the emptying of grey water tanks.

Diagram of the layout - Waste water system

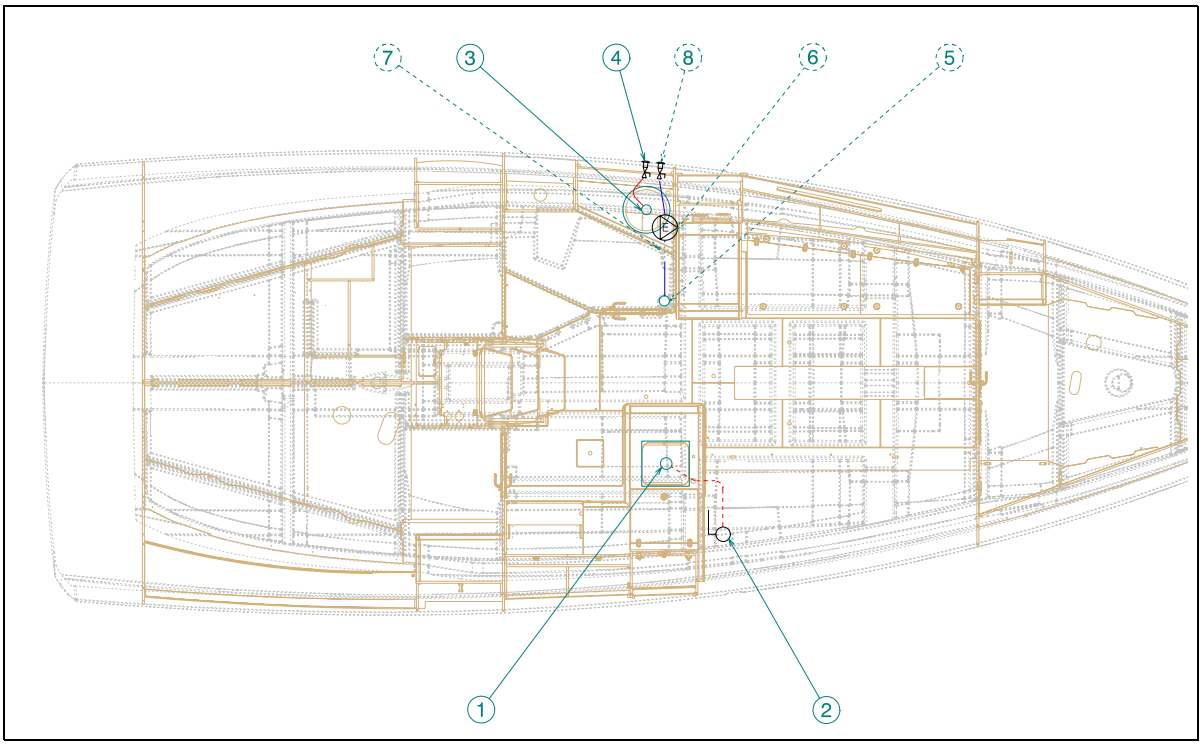
Version 2 cabins / 1 Toilet



	Pipe - Waste water - Ø 20mm
	Pipe - Waste water - Ø 25mm
	Pipe - Waste water - Ø 40mm

Reference	Designation
1	Galley sink
2	Sink draining
3	Washbasin - Head version
4	Washbasin draining
5	Shower
6	Shower draining
7	Ordering evacuation shower
8	Shower draining

Version 3 cabins / 1 Toilet



	Pipe - Waste water - Ø 20mm
	Pipe - Waste water - Ø 25mm
	Pipe - Waste water - Ø 40mm

Reference	Designation
1	Galley sink
2	Sink draining
3	Washbasin - Head version
4	Washbasin draining
5	Shower
6	Shower draining
7	Ordering evacuation shower
8	Shower draining

Shower

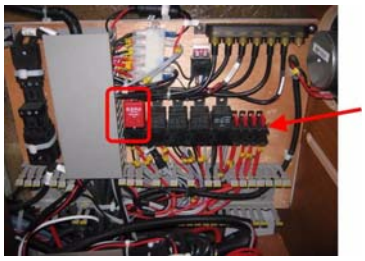
Shower plug hole

Shower screen

(Must be secured while sailing)

Shower pump

Delay relay & Fuse
Location: Chart table



13 ENGINE

13.1 INFORMATION ABOUT THE RISKS OF FIRE AND OF EXPLOSION OF ENGINES

- Make sure that the coolant is circulating properly.
- Ensure that the engine compartment ventilation air inlets are kept clear.
- Stop the engine and refrain from smoking during fuel tank filling.
- Get your fuel circuit checked regularly by a professional engineer.
- Avoid any contact between inflammable materials and the hot sections of the engine.
- Never switch off or de-energise the electric system when the engine is running.
- Never block the access of the fuel supply valve.
- Do not obstruct or modify the ventilation system.
- Never turn the engine over when the boat is on land.
- Fuel stored outside the fuel tanks (jerrycans, spare cans) must be kept in a well-ventilated place.
- Regularly check that the engine compartment is clean and dry.

Engine water intake valve:

Access: Engine compartment

Fuel supply valve:

located directly on the tank

13.2 DANGER FROM MOVING MECHANICAL PARTS

- Keep away from the moving parts of the engine (belts and moving parts or hot components) and the drive shafts etc..

- Be careful if you have long hair, bulky clothing, rings etc (at risk of being caught).

13.3 GENERAL POINTS

- Don't install an engine more powerful or heavier than recommended on this boat, this risks compromising the boat's stability.

- Make sure you have enough fuel before sailing.

- Stop the engine before opening the engine compartment.

- Don't close the fuel supply valve between each use of the engine (unless for a lengthy absence).

- Get the whole propulsion system checked at least once a year by a professional engineer.

see the chapter on "Manoeuvrability".

Always start the engine with the control lever in neutral.

ADVICE-RECOMMENDATION

- Regularly check that the O ring on the filler cap is in good condition, to prevent any water ingress.

- Keep the fuel tank as full as possible to prevent condensation.

- Be careful with any possible risk of oil and fuel spillage.

- Follow the engine manufacturer's instructions exactly.

- Never switch off the battery breakers when the boat's engine is running (risk of serious damage to the charging circuit).

13.4 STARTING THE ENGINE

Before starting the engine, it is imperative:

- to open the fuel supply valve ;
- to open the sea water intake valve of the engine ;
- to switch on the battery supply by using the battery isolator switches ;
- to put the control lever in neutral.

Make a habit of looking to see if sea water is pumped out with the exhaust gases as soon as you start the engine. If no water runs out, stop the engine immediately. Check the coolant flow.

As soon as the engine starts, the engine compartment bilge fan operates.

- Before using the engine, make sure you carefully read the handbook provided by the engine manufacturer.

- Always start the engine with the control lever in neutral.
- Learn how to judge the necessary distance of deceleration for the vessel to come to a complete stop (The reverse gear is not a brake).

Type of motorisation

Your vessel is fitted with an in-board diesel engine.

The transmission is of a shaftline type.

Filling up with fuel

- Fill the fuel tank by opening the cap marked "DIESEL", provided for this.
- Fuel capacity: 130 l.
- Reservoir location: Starboard aft cabin.
- Regularly check that the O ring on the filler cap is in good condition, to prevent any water ingress.

Gauge

- Some of the gauges must be calibrated when you first fill the tanks: please consult your dealer.

Gauge
Location: Chart table

1. Gauge dial
2. Control

Fuel tank

- The tanks' nominal capacity cannot be fully used due to the load and the need to maintain the correct trim. A 20% reserve should be kept.

13.5 ENGINE WATER INTAKE VALVE

The sea water intake valve plays a crucial role in ensuring that the engine runs well.

- Keep the strainer under the hull as clean as possible ;
- Brush the strainer whenever the boat is lifted out ;
- Don't cover the strainer in antifoul.

This valve must absolutely always be opened before starting the engine.

A sea water filter filters the water before it goes through the heat exchanger.

Regularly inspect the sea water filter and clean it if necessary. Screw/unscrew the cover of the filter by hand (never use tools for this).

For lengthy absences, close the engine's sea water intake valve.

Sea water intake
Access: Starboard aft cabin

Sea water filter
Location: Engine compartment

13.6 ANTI-SIPHON VALVE

- The function of the anti-siphon valve is to inhibit the siphoning action when the engine stops thus preventing a return of water.

- It is possible that on starting the engine or at certain engine speeds some drops of water may be seen escaping from the anti-siphon valve.
If so you need to clean the anti-siphon valve: dismantle the water collector at the top of the anti-siphon valve, then clean the valve with fresh water to remove any impurities.

- Then do the reverse procedure to refit the cleaned component, taking care not to refit the valve the wrong way round.

- This simple preventative maintenance procedure of the anti-siphon valve is recommended to be carried out once a year.

Anti-siphon valve

Location: Engine compartment

13.7 FUEL FILTER

Engine running problems may have different origins, including dirty fuel. The injection pump may wear out if there is water in the system. The water results either from the condensation resulting from an insufficiently filled tank, or from a filler cap either not closed properly or with a damaged seal.

In order to prevent any water infiltration, the fuel runs through two filters:

- One filter is an integral part of the engine, its role is to filter fuel very finely. Please refer to the engine manufacturer's notes for any maintenance and for the frequency of filter changes.

- The second filter is on the pipe that links the tank to the engine, it plays the role of a water decanter and prefilter.

Maintenance

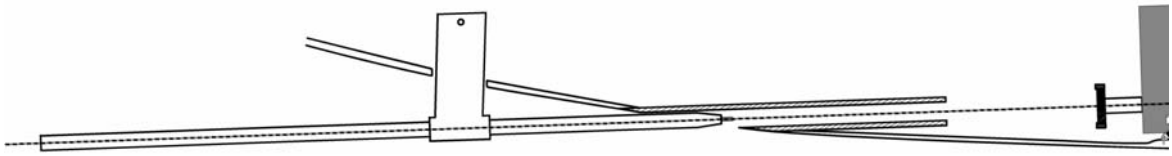
- Purge the impurities by unscrewing the screw located at the base of the decanting bowl(without removing it). Let the liquid run into a receptacle until the fuel runs clear. Do this several times a year.

- Change the pre-filter at least once a year.

13.8 ENGINE INSTALLATION

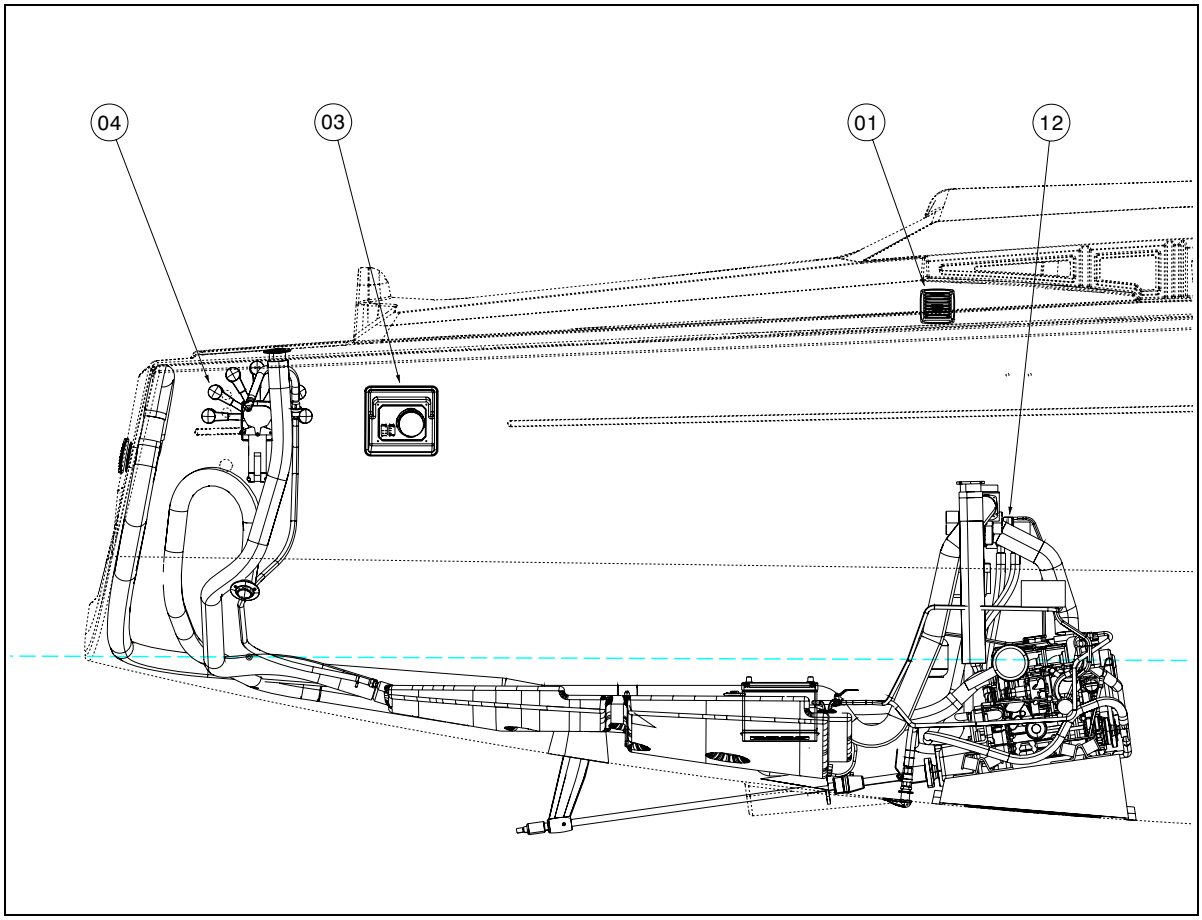
INSTALLATION OF SHAFT ENGINE WITH BRACKET

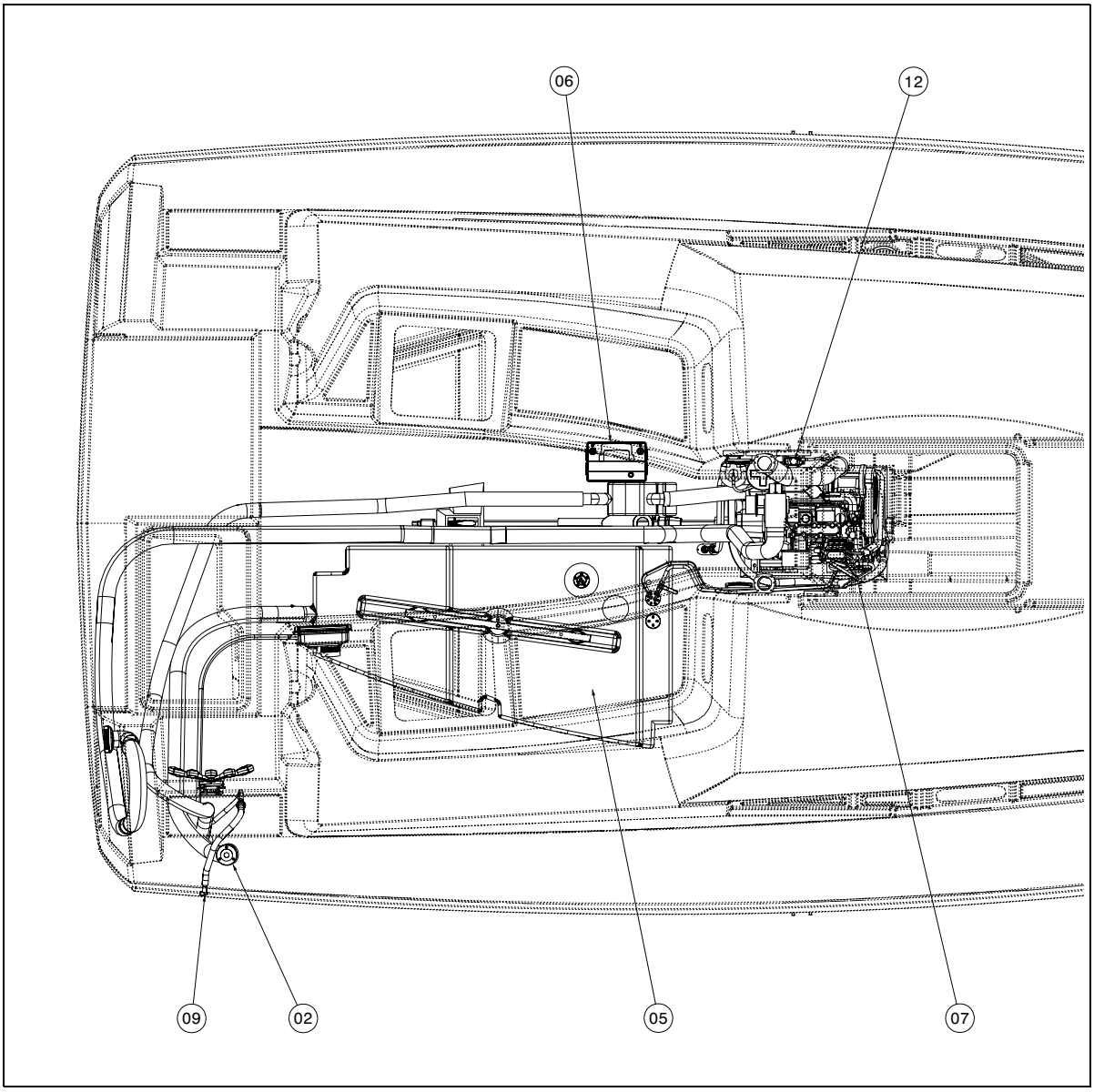
View - Propeller shaft



View of the engine

Diagram of the in-board engine layout

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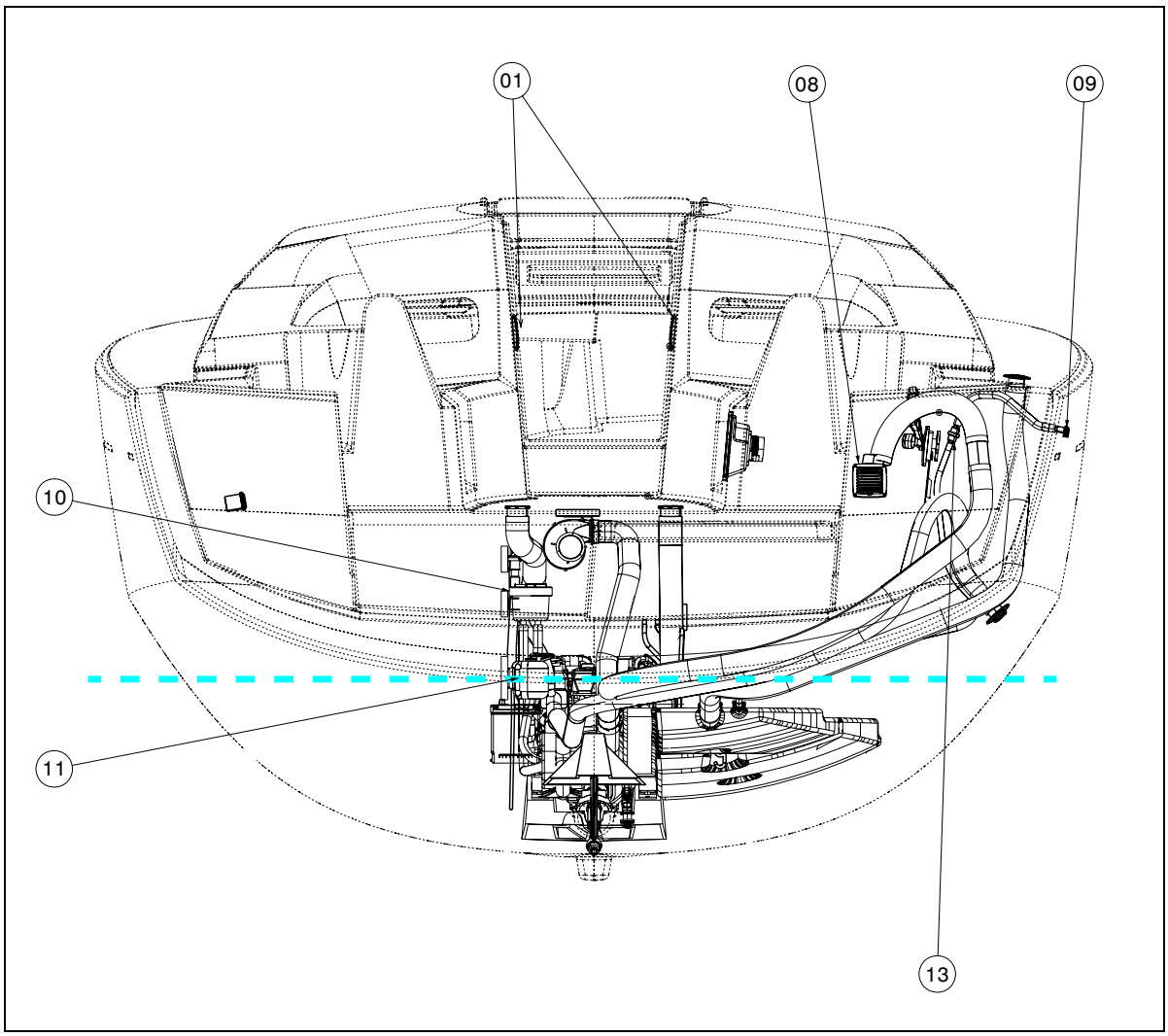


Reference	Designation
1	Fresh air inlet
2	Deck filler 'DIESEL'
3	Instrument panel - Engine
4	Engine control lever
5	Fuel tank 130 litres
6	Engine battery
7	Engine
8	Hot air extraction
9	Vent hole - Fuel tank
10	Sea water filter
11	Expansion tank
12	Anti-siphon valve
13	Non-return valve

13.9 ENGINE CONTROL

- The engine manufacturer's notes provide detailed explanations on how to operate the engine and keep it running well.

- Read the manufacturer's notes on use and maintenance of the engine.

1. Engine instrument panel
2. Engine control lever

13.10 ACCESS TO THE ENGINE

The access to the engine is via:

- Side hatches,

- the companionway,

All access hatches to the engine absolutely must be kept shut when at sea.

13.11 PROPELLER SHAFT

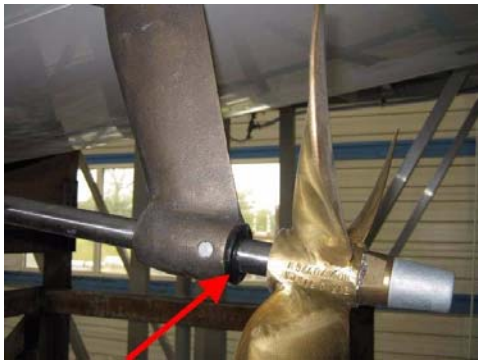
- The shaft is stainless steel.

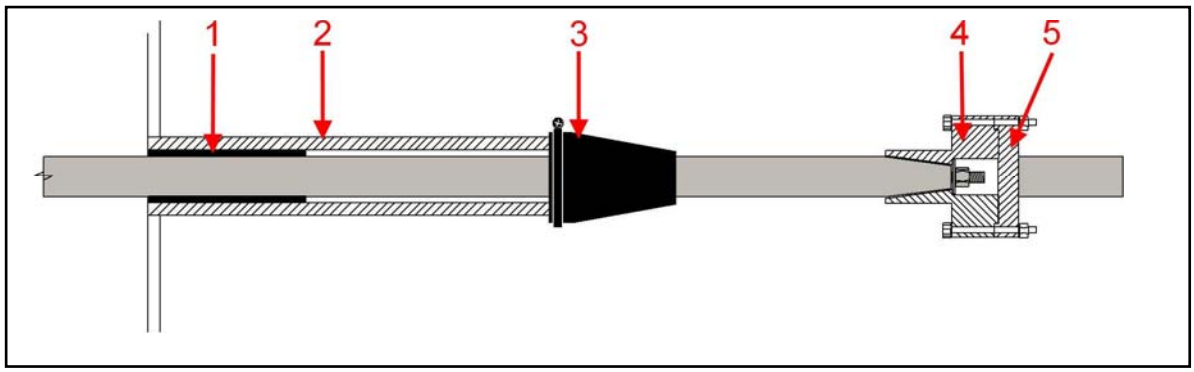
- The shaft is aligned in the factory. When the boat is launched, its re-adjustment must be carried out by a professional.

- A hydrolube bush holds the shaft in the bracket.

This is a wearing ring. Check the hydrolube bush every time the boat is slipped. Change the hydrolube bush if necessary.

Hydrolube bush





Reference	Designation
1	Hydrolube bush
2	Stern frame
3	Stuffing box
4	Connecting plate
5	Flange

13.12 STUFFING BOX

- The stern gland keeps the propeller shaft watertight.
- The stern gland is accessible through the engine compartment.
- Grease the watertight joint every 200 engine hours (or at least once a year). Apply grease as recommended by the mechanic.
- The stern gland is lubricated directly by the engine cooling water.
- After launching the boat, drive the air out from the sleeve pinching it with your fingers.

Access: Port aft cabin

13.13 PROPELLER

- The propeller delivered with the boat represents the end result of trials carried out in collaboration with the engine manufacturer. Never change the propeller without first consulting a professional engineer.
- Propeller efficiency will drop if the propeller blades are damaged in any way or dirty: regularly clean the blades carefully.
- During a lift-out, check the propellor: it should turn freely on its axis and there should be no play.
- Single-engined boats are equipped with a right-hand pitched propeller.

- Respect speed limits.
- If this boat is equipped with a fixed blade propeller, when sailing at speeds over 8 knots it is essential to leave the reverse gear control in neutral.

14 STEERING SYSTEM

14.1 GENERAL POINTS

- The steering operates by steering cables.

- The steering system is an important safety feature. For this reason, the annual inspection of the whole system must be carried out by a professional engineer.

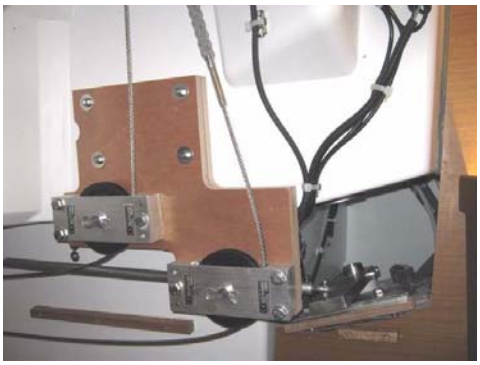
- Regularly check the tension of the steering cables and the tightness of the steering components. If need be, adjust the tension of the steering cables. Don't tighten the steering cables excessively. When properly adjusted the steering should work smoothly, with no play at all and no stiffness in the tiller or wheel (consult your dealer).

- Regularly grease the chains and pinions.

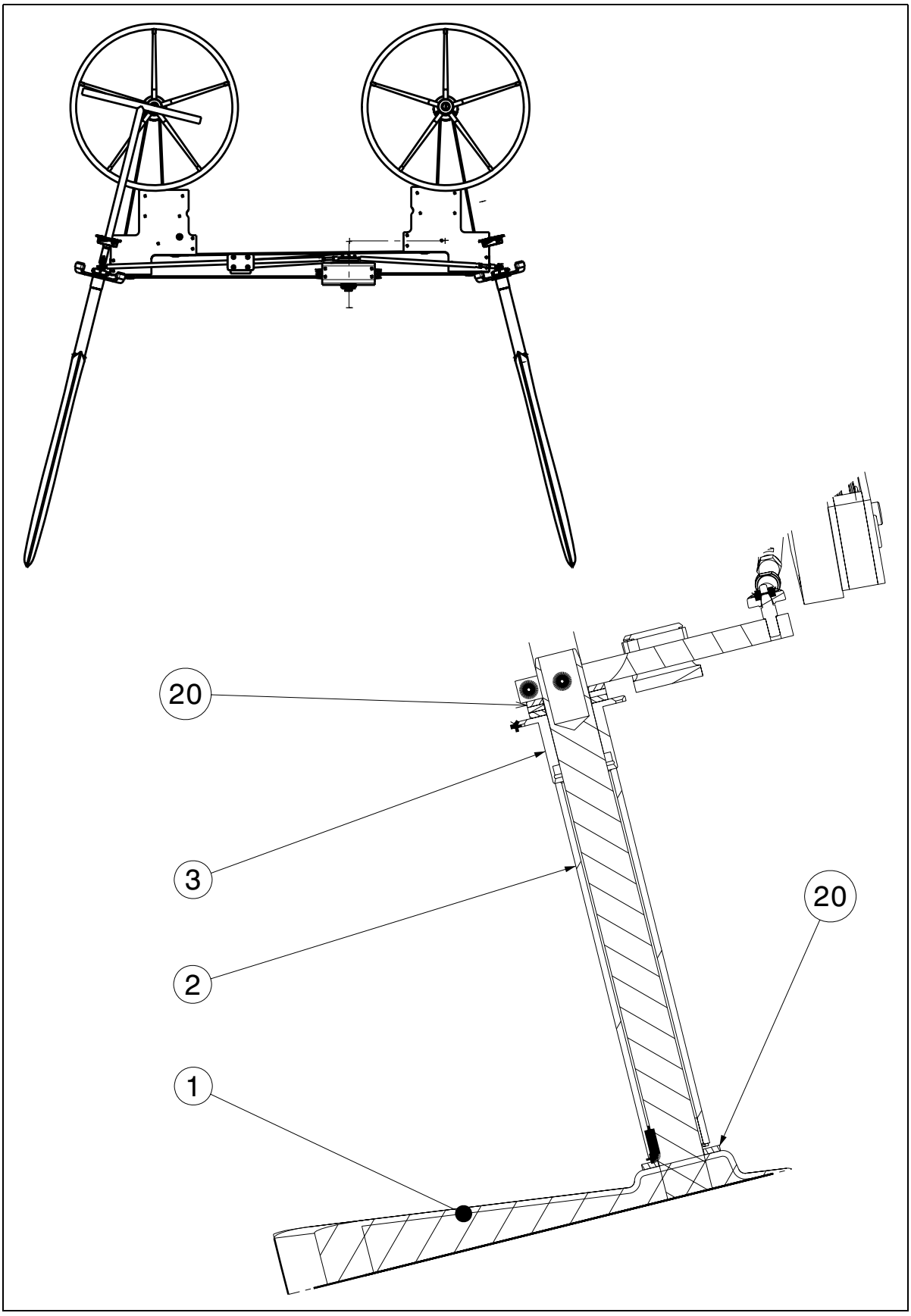
- Do not grease the steering cables or the pulleys.

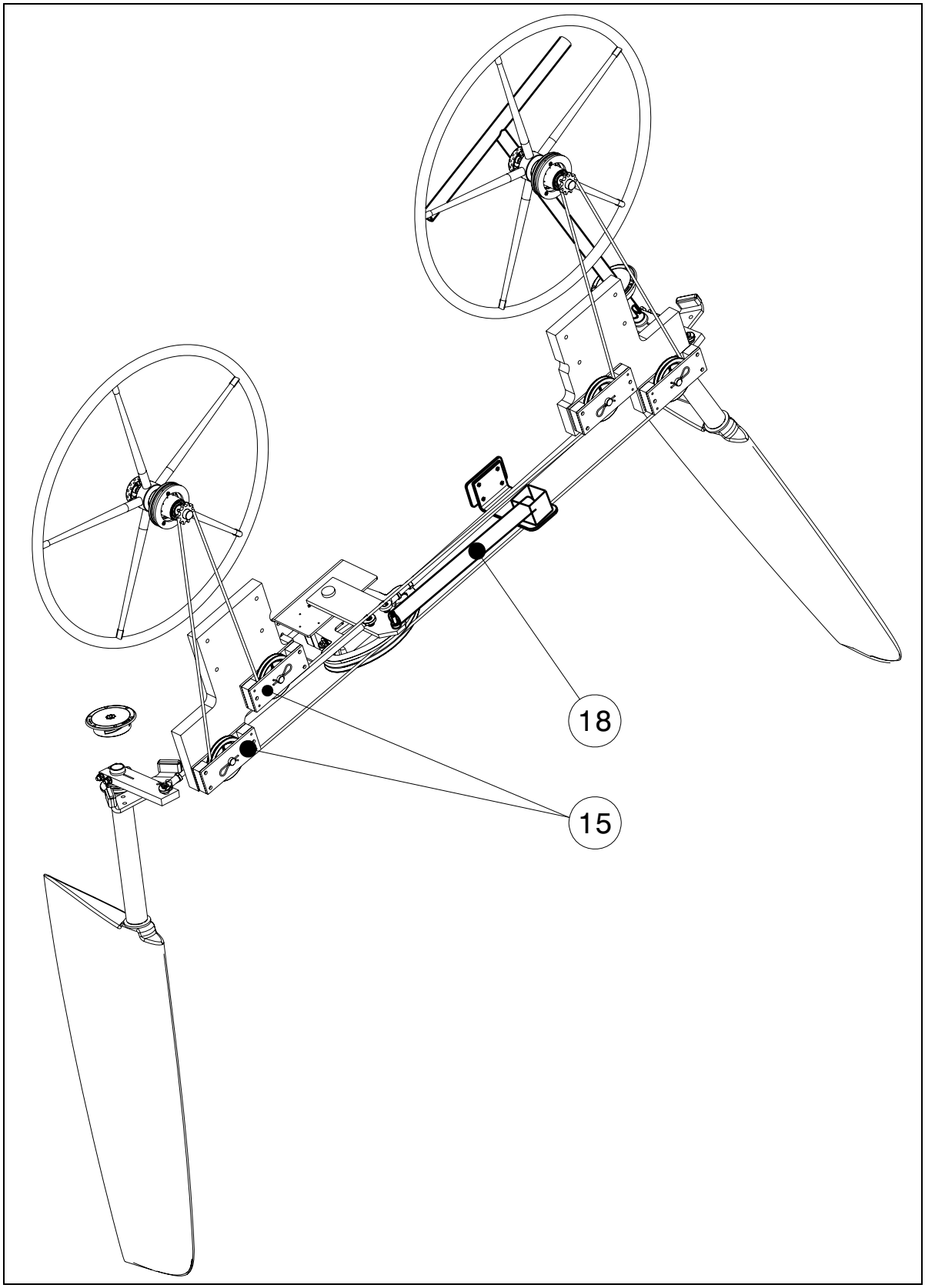
- Maintain the nylon, ertalon or teflon bushes with only a suitable lubricant.

Access: Aft cabin - Port and starboard



14.2 LAYOUT DIAGRAM

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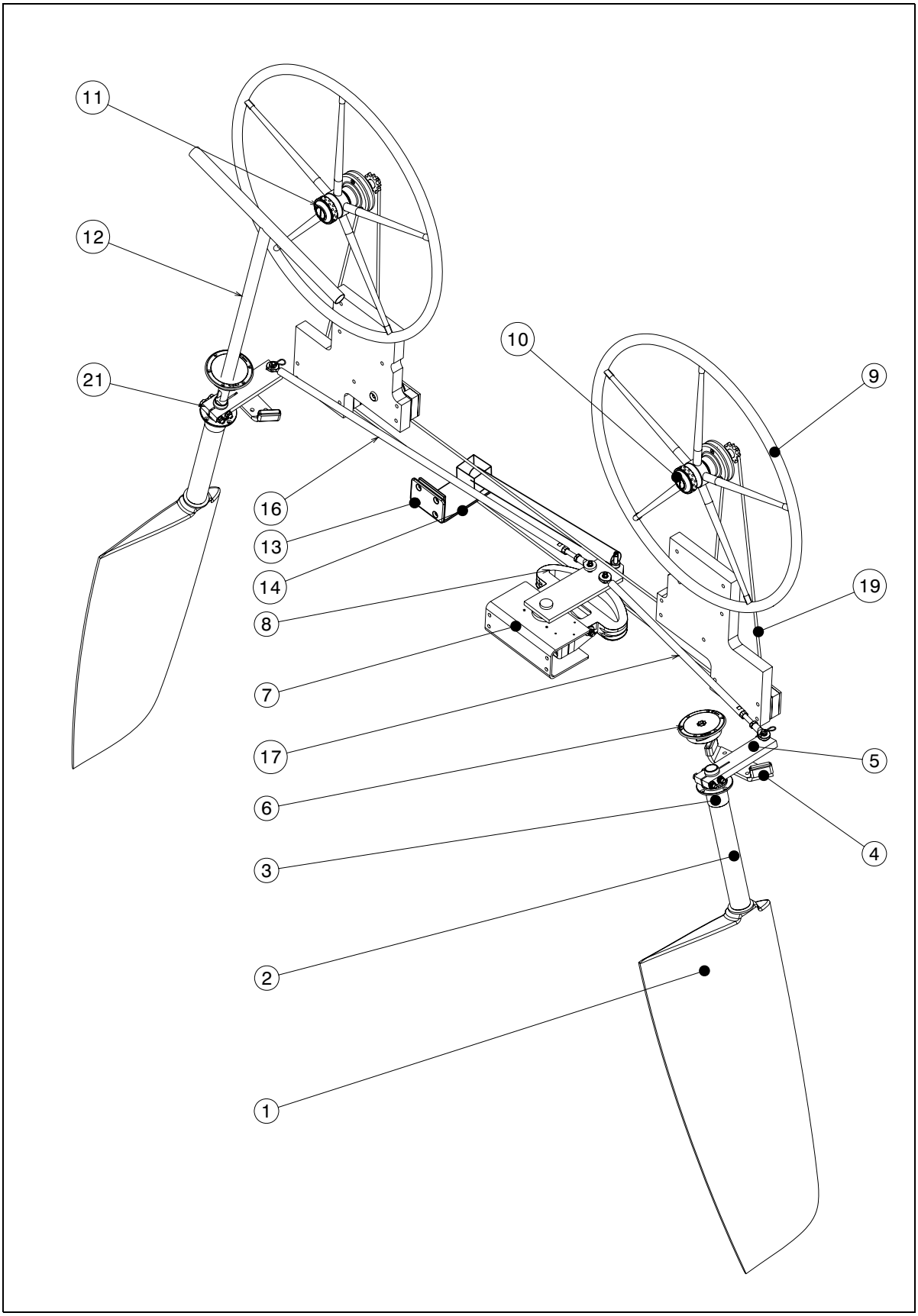
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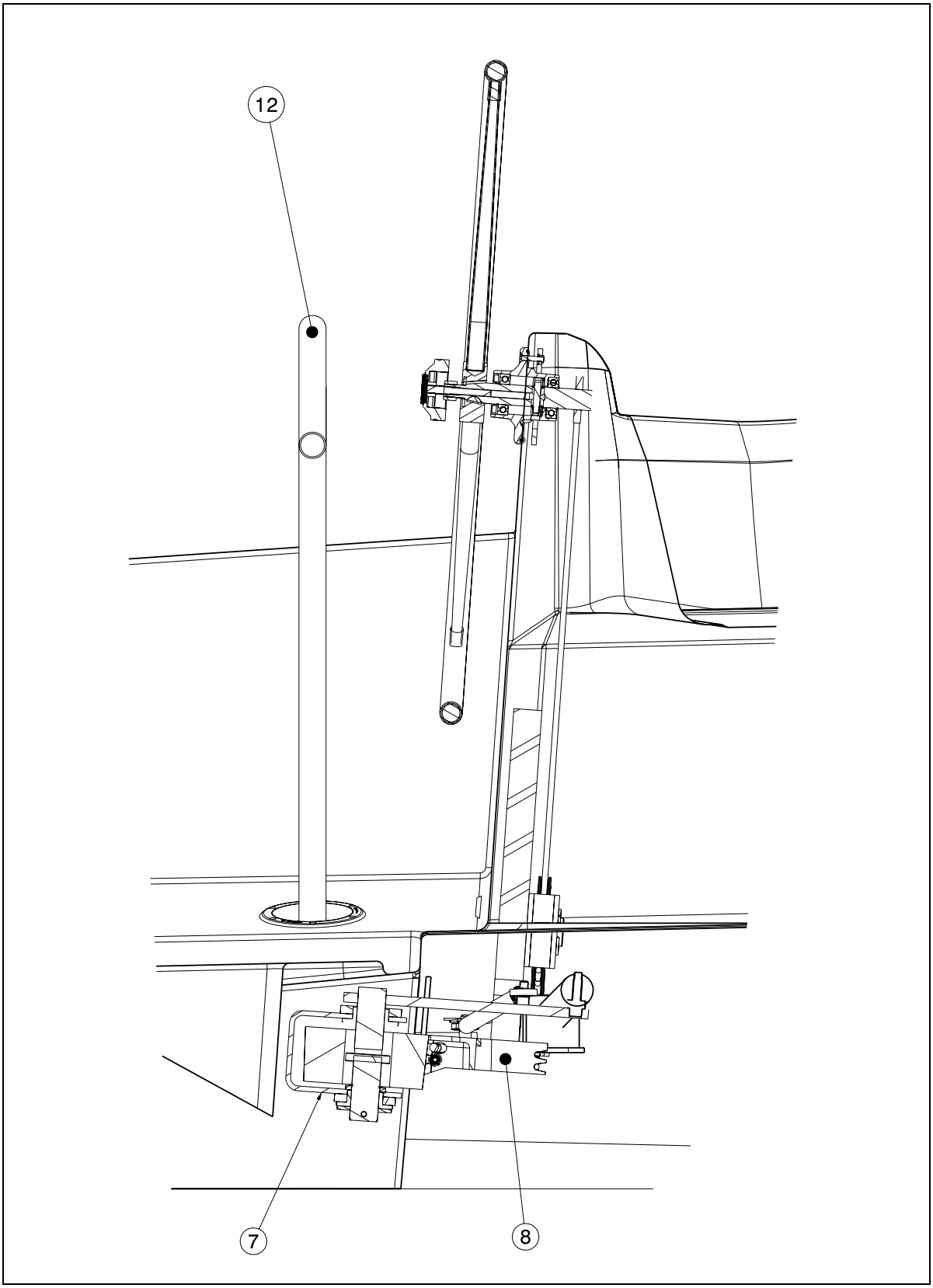
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Reference	Designation
1	Rudder
2	Rudder port tube
3	Flanged bush
4	Stock arm stop
5	Stock arm - Starboard
6	Sector access port
7	Sector support
8	Steering sector
9	Steering wheel
10	Steering Gear (+ Brake bar)
11	Steering Gear
12	Emergency tiller
13	Back plate - Stainless steel
14	Gas strut support
15	Sheaves
16	Connecting rod
17	Connecting rod
18	In-line piston
19	Tiller cable
20	Balance bush
21	Stock arm

14.3 KEEL

14.3.1 Keel - Deep draught keel

General view

Weight: 1 580 kg

Build material: Cast iron

14.3.2 Keel - Shallow draught keel

General view

Weight: 1 860 kg

Build material: Cast iron

15 DECK FITTINGS

15.1 GENERAL POINTS

15.1.1 Polyester

- Regularly brush the deck using a gentle de-greasing agent then rinse the deck with fresh water.
- Use as few cleaning agents as possible.
- Don't use solvents or aggressive detergent agents.
- Don't discharge cleaning agents into the water: Consult the harbourmaster's office to find out the conditions of water use and the maintenance area for cleaning your vessel.
- Don't use a pressure washer.

15.1.2 Plexiglas (PMMA)

- Rinse plexiglas with fresh water.
- Use a polish paste for thin scratches.
- Consult your dealer concerning deep scratches.

ADVICE-RECOMMENDATION

Never use solvents, alcohol, acetone or detergents on the plexiglass.

15.1.3 STAINLESS STEEL

Stainless steel is an alloy of iron and carbon (steel) with the addition of chromium. This chromium provokes the formation of a protective film which separates the steel from the atmosphere outside. This coating is usually invisible as it's so thin. So in spite of its name this steel is not stainless and requires a minimum of maintenance:

- The use of chrome tools is preferable whenever handling stainless steel ;
- Re-nourish the protective film regularly with passivation paste.

15.1.4 Solid wood on exterior wooden panelling

- Wood exposed to harsh conditions, such as salty air and UV rays tends to become whiter and to lose its natural colour. This phenomenon has no effect on the intrinsic qualities of the wood, but can spoil its aesthetic appeal.

- To maintain the colour of the wood, regularly wash the woodwork in fresh water using a sponge (if necessary, use a mild soap).

- It is recommended to oil the external woodwork regularly using teak oil to protect them from the harsh conditions.

ADVICE-RECOMMENDATION

Never use detergents, acetone or other harsh products on the wood.

15.1.5 Exterior cushions

- Bring the removable cushions inside (washed with soapy water then dried) when the vessel is unoccupied.

- Put canvas sheets/protective covering over the fixed upholstery.

Maintenance

To maintain the quality of the fabric, you are advised to spray it regularly with clarified water and to brush it with a soft brush (brush for clothes). It is advisable to clean thoroughly every 2 years.

Stain removal

Follow these steps for routine cleaning::

- Remove as much debris as possible using a soft brush ;
- Spray the fabric with water ;
- Prepare a cleaning solution using mild soap and water (Do not use detergent) ;
- Wash with a soft brush ;
- Wait for soapy solution to act ;
- Rinse thoroughly in fresh water ;
- Dry in the open air.

ADVICE-RECOMMENDATION

Never:

- Use a heat source (hairdryer/clothes dryer) ;
- Use detergent, silicone, acetone, chlorine-based products or hot water ;
- Use a high pressure cleaner.

15.1.6 Synthetic wood composite decking (imitation teak)

The product is UV resistant with no need for sanding or special cleaning products.

Normal cleaning:

- Rinse in fresh water, using a sponge or a soft brush.
- Clean with soap or a household product if necessary, then rinse in fresh water.

For stains/streaks:

- After normal cleaning, sand in the direction of the lines using a coarse sandpaper (50 to 24).
- Sweep the decking clean and rinse in fresh water.

ADVICE-RECOMMENDATION

Do not pour acetone on the decking.

15.2 EQUIPMENT

15.2.1 Rear skirt

General points

Manual control

Closed position

Open position

- Do not climb onto the platform while in motion.

- Do not use the rear platform while sailing.
- Maximum platform load = 300 Kg. (Load must be uniformly distributed).
- During platform opening or closure:
  - Beware of the system movements to avoid injuries.
  - Never leave children unattended when they are using the system.

ADVICE-RECOMMENDATION

- When not operating:
- In upper position: Make sure the helmsman bench is locked.

No one is to be onboard the tender while launching or retrieving it.

ADVICE-RECOMMENDATION

- Before heading out to sea, remove the outboard engine from the tender and store it on the boat.
- Secure the tender taking account of sea conditions.
- Secure the outboard engine to the tender once this is in the water.

15.3 BERTHING, ANCHORING, TOWING

15.3.1 Anchor points

Responsibility

It is the responsibility of the owner/user of the boat to ensure that the berthing lines, towing cables, chains and mooring lines and the anchors are adequate for the intended use of the boat, i.e. that the lines or chains do not exceed 80 % of the breaking strength of the corresponding anchor point.

	MOORING LINES	MOORING	TOWING
Reference	**A&B**	**B**	**B**
Anchor Point Breaking Strength	**23,2**	**33,3**	**33,3**
Mooring Line/Chain Breaking Strength	**18,5**	**26,6**	**26,6**

Note: Measurements are expressed in kN.

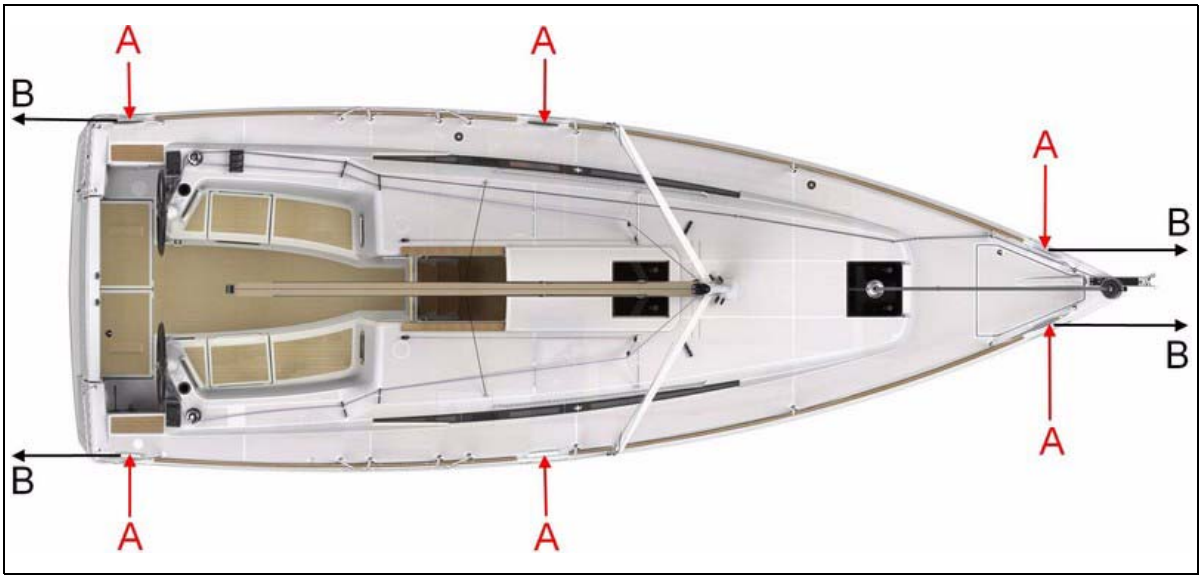
If non-metal anchor points are installed on the boat, their limited lifespan must be taken into account. They must be replaced as soon as they show signs of deterioration, visible surface cracks or permanent deformation.

Note: black components are less sensitive to UV radiation than light coloured ones.

15.3.2 Towing

Responsibility: It is important that the owner thinks through the actions required when securing a towing cable onboard.

Location of attachment points



A. Mooring cleats which correspond to the anchor points for the lifelines.

B. Towing:

- at the bow, to be towed
- at the stern, to tow

- Generally the breaking strength of lines/chains must not exceed 80% of the breaking strength of the anchor points.
- Always tow or be towed at low speed. Never exceed the maximum speed of a displacement hull during a tow.
- Be particularly vigilant when the end of a towing cable is being thrown or received (risk of the end becoming caught in the propeller).
- A towing cable must always be secured in such a way that it can be released under load.
- Do not try to stop the boat by using a boathook or your foot, hand or any other part of your body.

15.4 MAIN COMPONENTS OF THE ANCHOR WELL

1. Bow fitting
2. Mooring locker
3. Clinch
4. 1000 W Electric windlass
5. Chain rim - 10 mm diameter
6. Remote control
7. Handle

Refer to manufacturer's instructions for use and maintenance.

Windlass operations are dangerous:

- Always keep the anchor chain or rode free and unfouled ;
- Carry out manoeuvres carefully and always wear shoes ;
- Avoid wearing baggy clothing, long hair that's loose and jewellery that could get caught in the engine when it is running.

15.5 ELECTRIC WINDLASS

General points

- The windlass is DC powered.
- The windlass is designed for anchoring purposes: Any other use is dangerous and forbidden.
- An operation relay is fitted to the electrical circuit.
- A circuit-breaker protects the power supply to the windlass.
- The windlass operation is activated by an operational interlock relay which is powered by the engine's alternator: the windlass only works when the boat's engine is running.
- The controls to raise/lower the windlass are protected by a circuit-breaker positioned between the batteries and the windlass relay.
- Your boat may be equipped with a chain meter: this shows the length of chain let out.

Operation

- Before lowering the anchor, make sure that the chain or anchor rode is securely attached to the clinch.
- Activate the circuit-breaker then use the control to start the windlass.

- When at sea, secure the chain or anchor rode to secure points such as the chain stopper or the anchor rode to the belaying cleat (the windlass must not be used as the only method of securing the chain or rode).

- In the case of dual control, be careful to use just one control at a time.
- When raising the anchor, use the boat's engine to move towards the position of the anchor, until the boat is just over it: never use the windlass as a winch to move the boat forward.
- When out at sea, cut the electrical supply to the windlass.
- Cut the electrical supply when using the windlass manually.

Maintenance

- once a year, dismantle, carefully wash and grease all the moving parts of the windlass.
- Regularly grease the supply terminals of the electric motor of the windlass and of the relay control box.

Emergency anchoring procedure

In the event of an electrical fault, it is possible to lower the anchor manually: Put the handle in the space provided for this to release the chain grab. Then let the chain run out using the handle to control its speed as it runs.

The handle serves only to release the chain grab in order to lower the anchor manually should the electric windlass break down. The handle cannot be used to raise the anchor manually.

ADVICE-RECOMMENDATION

- Before anchoring check the depth of water, the power of the current and the nature of the sea bed.
- Check the swinging area once the boat is at anchor.
- After each trip rinse the windlass and anchor chain or rode with fresh water.

16 HULL FITTINGS

16.1 UPHOLSTERY

LEATHER

Maintenance

Leather must be regularly cleaned and waxed.

To do so, clean the leather surface with a damp rag. This operation will remove dust.

Every 6 months to a year depending on use, apply a leather shampoo on the leather then use a hydrating cream which will also protect it.

Stain removal

If the leather surface gets stained, clean immediatley using an absorbent piece of paper. Do not scour. Clean inwards to prevent the stain from spreading.

- Buffer applying denatured alcohol with a piece of cotton (ink and food stains).
- Apply absorbent powder (talcum) on grease stains.

Wait a couple of hours, then brush the excess of powder.

- Other: Apply white vinegar or acetic acid diluted in water.

ADVICE-RECOMMENDATION

- Test the product on a small hidden area of the surface before cleaning.
- Avoid excessive moisture.
- Do not scrub on leather surfaces.
- If you notice leather colour on the rag, immediately stop cleaning.

ALCANTARA (microfibre)

Stain removal

The fabric must be free from dust before removing. To do so, use a vacuum cleaner to achieve optimal cleanness.

Rub with a duster soaked in a solution containing ammonia diluted by 10%. Dilute to the strength appropriate for this fabric. Try it out first on a hidden corner, the hem for instance, if the appearance of the fabric changes, dilute accordingly.

Scrub the Alcantara fabric in all directions, particularly on the stains.

Rinse off the cleaning solution using a damp cloth.

Dry in the open air.

After taking the Alcantara fabric off, it's a good idea to use a soft brush on it to bring back its supersoft quality.

For difficult stains, dry-cleaning is recommended.

SYNTHETIC FABRIC

Stain removal

If you can remove the fabric:

- Clean in the washing machine (use the program for delicate fabric) at 30°.
- Do not iron.
- Never use Javel water.
- Do not dry-clean.
- Do not use a clothes drier.

If you cannot remove the fabric:

- Clean with the vacuum cleaner,
- Clean with a foam for synthetic fabrics (see foam use instructions).

COATED FABRIC (PVC)

Maintenance

- The PVC must be regularly cleaned with soapy water to maintain its appearance and avoid accumulation of debris. Try to avoid using the following products: lacqeurs, aggressive cleaning products, detergents, xylene or acetone-based products which can cause permanent damage or make the fabric deteriorate. The use of such products is at the owner's risk.

Stain removal

- All stains must be quickly removed to avoid formation of permanent stains.
- Use mild water to remove the stains found on the fabric surface. Use only clean, white, damp pieces of cloth.
- Difficult stains can be removed using a mixture of water (25%) and white spirit.
- Rinse with clean water.
- Dry with a soft piece of cloth.

ACRYLIC

Maintenance

To maintain the quality of the fabric, you are advised to spray it regularly with clarified water and to brush it with a soft brush (brush for clothes). It is advisable to clean thoroughly every 2 years.

Stain removal

Follow these steps for routine cleaning::

- Remove as much debris as possible using a soft brush ;
- Spray the fabric with water ;
- Prepare a cleaning solution using mild soap and water (Do not use detergent) ;
- Wash with a soft brush ;
- Wait for soapy solution to act ;
- Rinse thoroughly in fresh water ;
- Dry in the open air.

16.2 INTERIOR WOODWORK

- Clean the interior varnish using a de-greasing shampoo on a damp cloth.

- Polish the interior varnishing with a chamois leather.

- If there are any stains or light scratches, it is possible to polish the varnish. Doing this can give the polished area more of a shine than the rest of the varnishing onboard.

- If there are deeper scratches, it is possible to sand the scratched area lightly and then re-varnish it (consult your dealer).

16.3 INTERIOR MAINTENANCE

- Take advantage of fine weather to air the interior upholstery.

- Remove the cushions during lengthy periods of absence.

- Make sure the bilges are clean and dry.

- For lengthy periods of absence, leave the icebox and fridge doors open to prevent mould from developing.

- Install a dehumidifier in the saloon and leave open all the cabin doors and storage spaces (cupboards,iceboxes...).

ADVICE-RECOMMENDATION

If the stains persist or if in doubt, consult a cleaning specialist.

When winterising the boat, make sure the curtains are pulled to prevent the fabrics from being exposed to the sun's rays for a lengthy period (risk of fading).

NEVER:

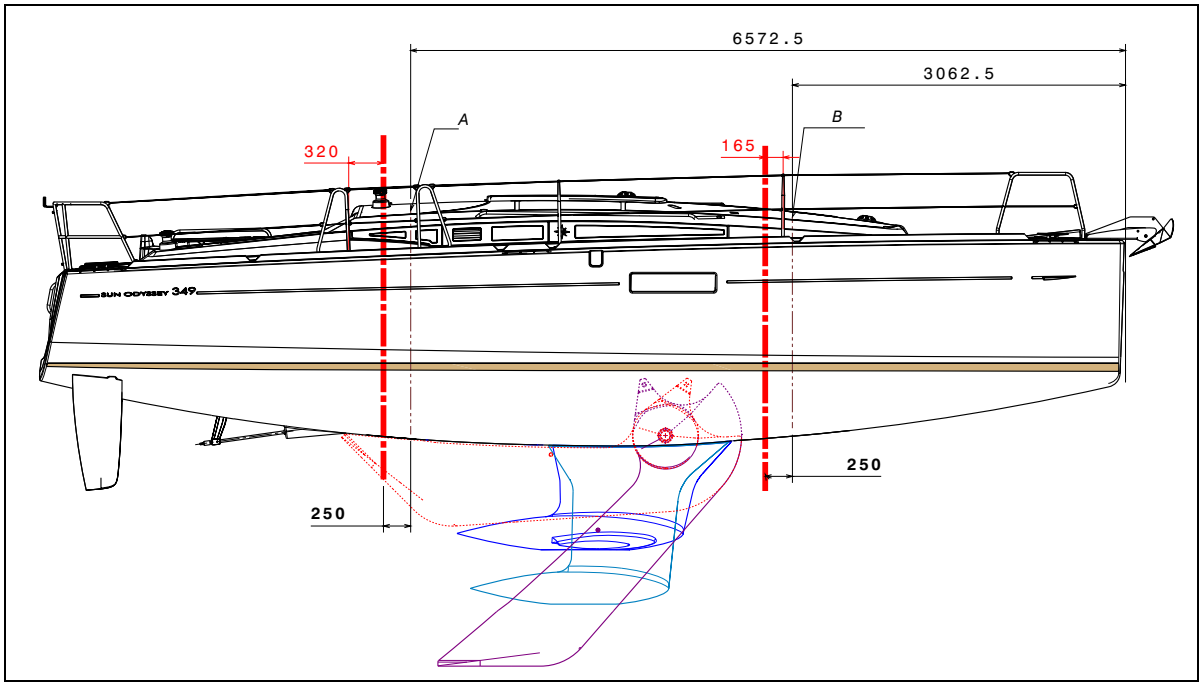
- Use a heat source (hairdryer/clothes dryer) ;

- Use detergent, silicone, acetone, chlorine-based products or hot water ;

- Use a high pressure cleaner.

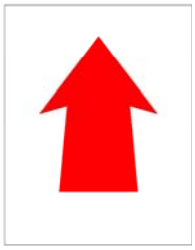
17 HANDLING, TRANSPORT

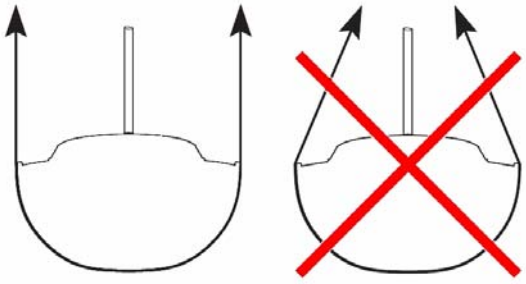
17.1 LIFTING PLAN



Note: Measurements are expressed in mm.

The position of the lifting slings is shown in the pictogram below:





ADVICE-RECOMMENDATION

Before handling operation, it is imperative to verify that the lifting keel is in lowered position or half down. Otherwise, lifting straps may damage the whole system of lifting keel.

17.2 LIFTING

- Before applying the first coat of antifouling on the hull, you can key the hull using wet sandpaper of 400 grade or higher.
- The lower hull of your boat should be covered with an anti-fouling paint which will prevent the adhesion of marine growth.
- The nature of the water where you keep your boat and the frequency of lifting it out determines the choice of antifouling.
- All bronze or steel surfaces, including the propellers, should be protected by a suitable antifoul paint.
- During lift-outs, check the anodes, cutlass bearing and propeller (see corresponding chapters).

Before applying the antifoul NEVER:

- Do any sandblasting ;
- Use any other solvents than ethylic alcohol ;
- Use detergents under pressure ;
- Use scrapers ;
- Use grinding tools.

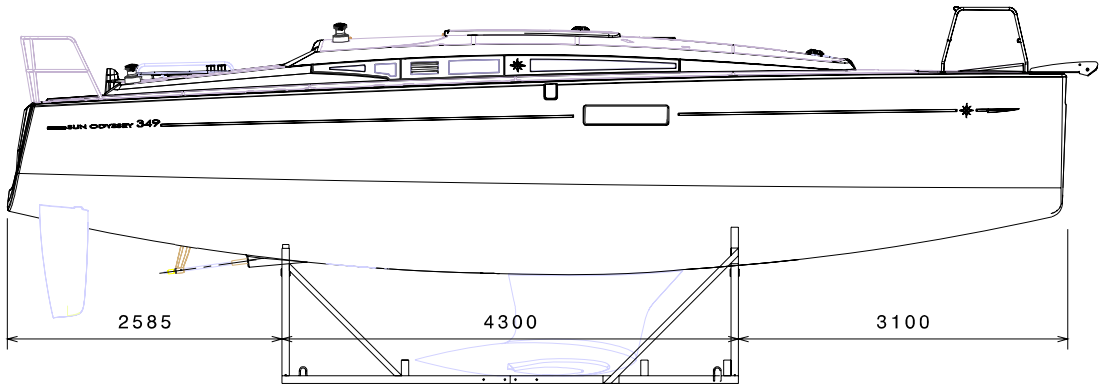
If cleaning off existing antifouling requires high pressure washing:

- Ensure the water temperature does not exceed 15 degrees ;
- The water pressure must not exceed 150 bars ;
- The distance between the hose nozzle and the hull must not be less than 10 centimetres.

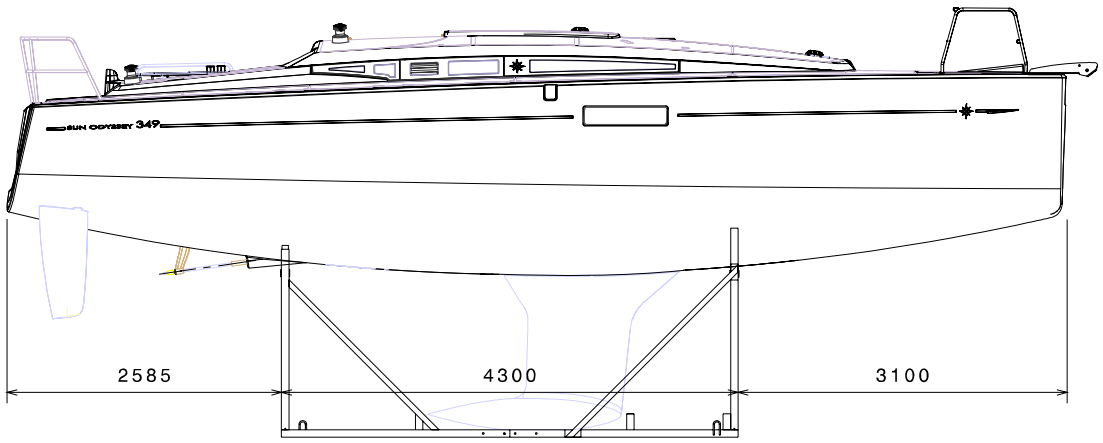
The wet surface area of the boat is about: 24 m².

Setting up cradles

Shallow draught version



Deep draught version

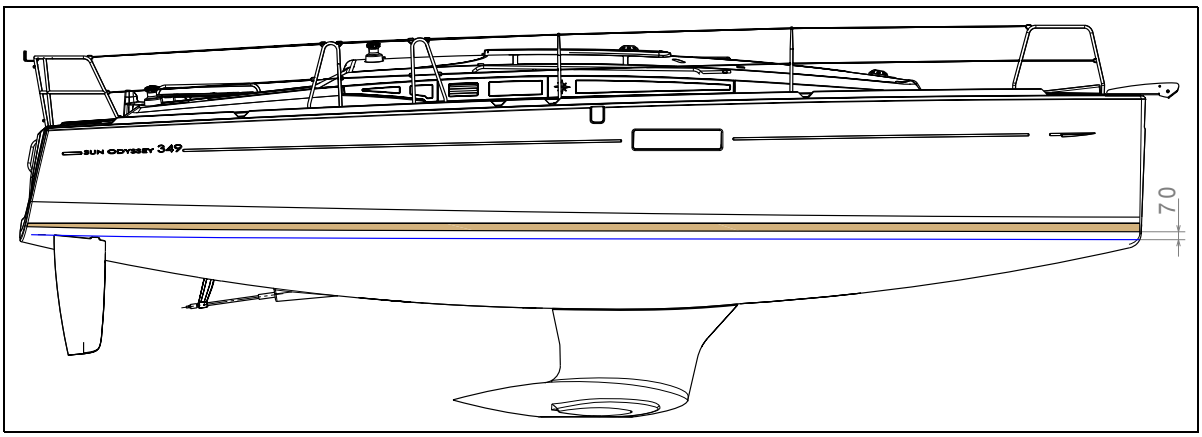


Note: Measurements are expressed in mm.

- Follow the manufacturer's recommendations scrupulously when applying antifouling.
- Never cover with antifouling:
  - the anodes ;
  - the sea water strainers ;
  - the sensors of the electronic instruments.
- Avoid using copper or tin-based antifouling: these are banned in some countries.

17.3 UPPER LIMIT OF ANTIFOUL

Measurements are expressed in millimetres.



17.4 LAUNCH/LIFT OUT

A lot of skill and care is required to commission your boat. The proper working of all your boat's equipment is the result of the quality of the commissioning operations. This is why the initial launch must be overseen by your dealer.

Before launching

- Replace the log in its housing.
- Check the cleanliness of the sea water strainers.
- Check the anodes (see the chapter on Electricity).
- Check the propeller/hydrolube bush.
- Prepare enough fenders and lines.
- Check the engine's sea water intake valve and the fuel feed valve (see the chapter on motorisation).

17.5 STEPPING/UNSTEPPING THE MAST

The stepping /unstepping operations require the skills of a professional rigger: please consult your dealer.

Do not remain onboard or beneath the boat during the handling operations.

- When placing the slings make sure that the positioning marks are still visible.
- Submerge the sling fully under the engine mounting.

17.6 WINTER STORAGE

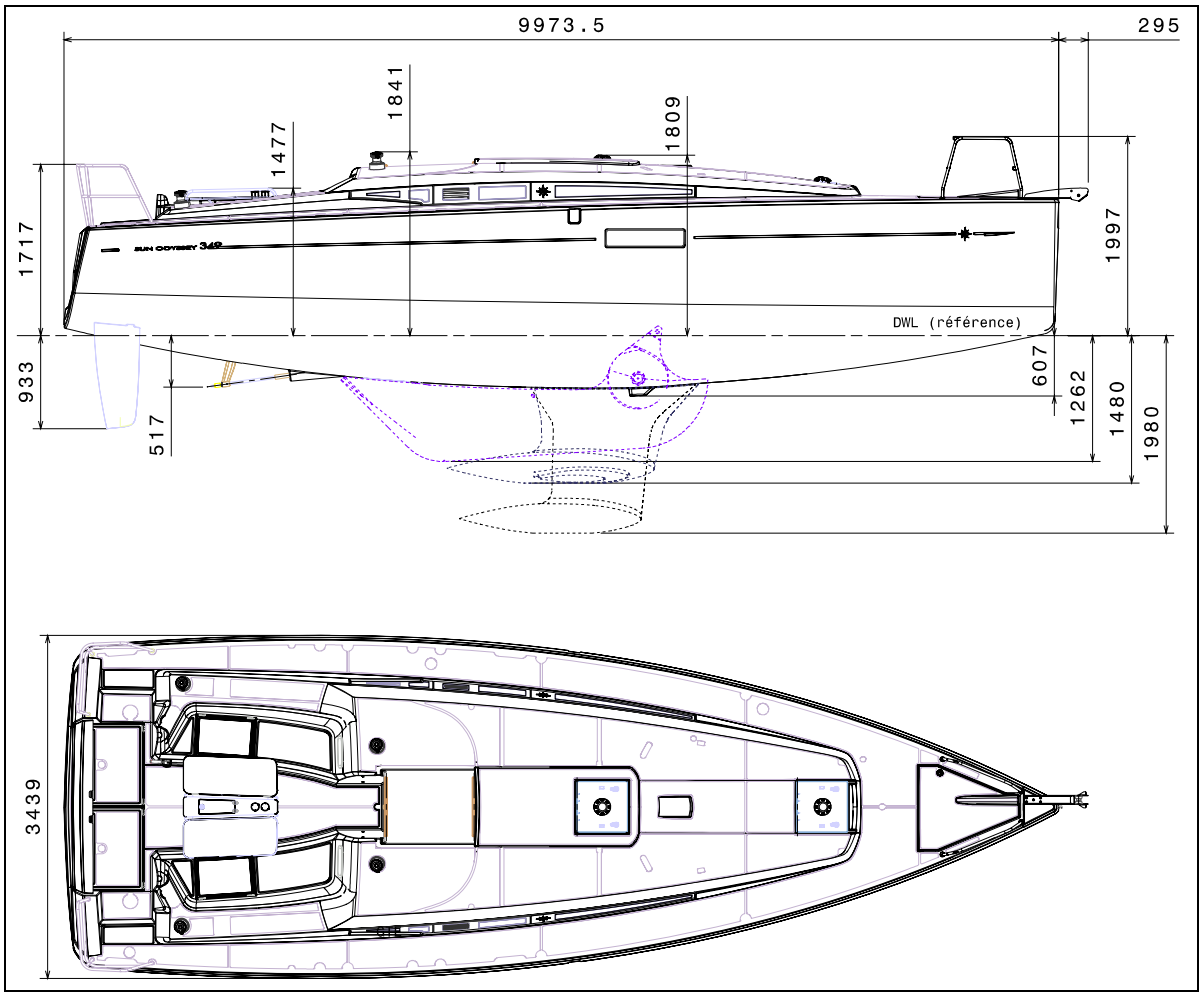
- Take advantage of laying up the boat to carry out a full inventory of the equipment.
- Check the expiry dates of the safety equipment.
- Have the liferaft overhauled.
- Empty the complete water system inside and outside and rinse it through with a mix of water and vinegar (do not use a chlorinated product).
- Empty and rinse the complete black water system.
- Dry out and clean the boat's bilges.
- Grease and close all the valves and through-hull fittings.
- Close all the boat's seacocks.
- Remove the depth sounder and log sensors.
- Put the covers back on the electronic screens.
- Install a dehumidifier in the saloon and leave open all the cabin doors and storage spaces.
- Air all of the cushions and upholstery for a good while before putting them back onboard and arranging them so as to limit the surface areas touching.
- Close the black-out curtains.
- Leave open the fridge/icebox doors to prevent mould and smells from developing.
- Protect the boat as well as possible with fenders.
- Make sure the boat is properly moored.
- Grease all mechanical and moving parts (bolts, hinges, locks...).
- Remove the sails and store them somewhere dry and well-ventilated.
- Remove the movable upholstery.
- Disconnect the batteries. Make sure you recharge them during the winter period if the boat is left inactive for too long.

ADVICE-RECOMMENDATION

- The winterisation of the engine requires the skills of a professional engineer: please consult your dealer.
- This is not an exhaustive list of recommendations: Your dealer will give you the advice you need and will carry out the technical maintenance of your boat.

17.7 TRANSPORT

Packing plan



Note: Measurements are expressed in mm.

18 ENVIRONMENT

Waste management:

- Throw all packaging in the recycling containers provided for this.

- Once a piece of equipment has completely stopped working, find out about the relevant recycling regulations from your nearest recycling centre or from your dealer.

- Make sure you follow the relevant local laws when you scrap it.

- Some onboard equipment can have a toxic effect on the environment and on human health, caused by the specific substances they contain: Do not throw any equipment in household waste containers and absolutely not in the sea.

- Dead batteries are toxic to health and to the environment. So, batteries must not be put in with household waste, but must be recycled separately. Contact the harbour master or a specialist company about recycling them.

- Make sure you know the local enviromental regulations and follow the codes of best practice.

- Do not pump out the toilets or the contents of the black water tank near the coast or in areas where it's forbidden. Use the pump-out facilities available in ports or marinas to empty the contents of the black water tank before leaving port.

- Make sure you know the international regulations to prevent pollution in the marine environment (Convention MARPOL) and follow these as much as possible.