OCEANIS 45

OWNER'S MANUAL

BENETEAU

161724
Index D

CE

CONTENTS

INTRODUCTION

For all the equipment on your boat,please read the instruction manuals provided by the manufacturer.

Welcome

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

A BENETEAU 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 BENETEAU dealer will be able to help and advise you in the use and maintenance of your boat.
The initial commissioning of your boat will require a lot of skill and care. 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.

- 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.

TECHNICAL SPECIFICATIONS

1

1.1 CONSTRUCTION

Model ..... OCEANIS 45
Architect / Design ..... Finot-Conq / NAUTA design
Builder ..... SPBI S.A
Principal means of propulsion ..... Sail
Deck construction material & Hull ..... Single skin laminated fibreglass / GRP / Balsa wood
Application ..... Wet laid fiber
Keel construction material ..... Cast iron
Ballast weight - Deep draught keel ..... 2 808 kg
Ballast weight - Shallow draught keel ..... 3 036 kg

1.2 GENERAL DIMENSIONS

L.O.A (L_{max})* ..... 13,94 m
(Including removable parts that can be dismantled (bow roller, pulpit, bowsprit), without affecting the structure of the boat)
Hull length (L_h)* ..... 13,50 m
(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)
Overall width (B_{max})* ..... 4,49 m
(Including: removable parts that can be dismantled, without affecting the structure of the boat)
Beam(B_h)* ..... 4,49 m
(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)
Air draft – Empty vessel – Short mast ..... 19,35 m
Air draft – Empty vessel – Classical mast or Roller furling mast ..... 20,60 m
Draught - Boat fully laden - Version Deep draught keel (Deep draught keel) ..... 2,27 m
Draught - Boat fully laden - Version Shallow draught keel (Shallow draught keel) ..... 1,75 m
Wetted surface area ..... Approximately 46 m²

1.3 ENGINE

Nominal maximum propulsion power ..... 55,2 Kw
Maximum recommended engine size ..... 249 kg

1.4 ELECTRICITY

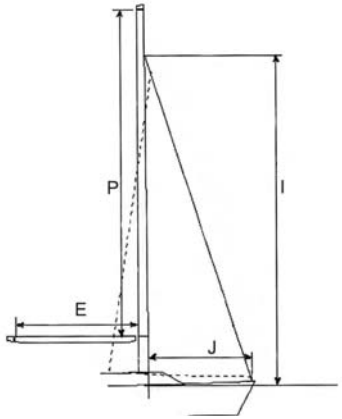
Circuit type - Direct current DC 12V
Circuit type - Alternating current AC 220V
Circuit type - AC (US version) 110V

1.5 CAPACITIES

Total mass of the liquid content of fixed tanks when they are full ..... 956 kg
Fuel capacity: ..... 200 L
Fresh water capacity: ..... 330 L
..... Extra tank: ..... 200 L
Black water capacity (WC): ..... 2 cabins 2 heads version: ..... 80 L (Aft head) / 64 L (Forward head)
..... Other versions: ..... 64 L (in each head)
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 ..... 17,43 m
J ..... 5,65 m
P - Classical mast ..... 16,56 m
P - Roller furling mast ..... 16,08 m
E ..... 5,43 m
Mainsail - Classical mast ..... 51 m²
Mainsail - Roller furling mast ..... 44,25 m²
Furling genoa ..... 49 m²
Asymmetrical spinnaker ..... 152 m²
Code O ..... 91 m²
Planned sail area ..... 88,35 m²



DESIGN CATEGORIES AND DISPLACEMENT

2

- 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	**10**	**11**	**12**	**12**
Light displacement	**10 549 kg**			
Recommended maximum load	**3 384 kg**	**3 294 kg**	**3 344 kg**	**3 274 kg**
Displacement with maximum load	**13 933 kg**	**13 843 kg**	**13 893 kg**	**13 823 kg**

2.2 VERSION - SHALLOW DRAUGHT KEEL (Shallow draught keel)

Design category	**A**	**B**	**C**	**D**
Maximum number of people to be allowed onboard	**10**	**11**	**12**	**12**
Light displacement	**10 754 kg**			
Recommended maximum load	**3 384 kg**	**3 294 kg**	**3 344 kg**	**3 274 kg**
Displacement with maximum load	**14 138 kg**	**14 048 kg**	**14 098 kg**	**14 028 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

The boat is designed to sail in winds that may exceed Beaufort force 8 and in waves of a significant height of 4 metres and more.
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

The boat is designed to sail in winds not exceeding Beaufort force 8 and in corresponding seas (waves of a significant height of less than or equal to 4 metres).
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

The boat is designed to sail in winds not exceeding Beaufort force 6 and in corresponding seas (waves of a significant height of less than or equal to 2 metres). 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

The boat is designed to sail in winds that may exceed Beaufort force 4 and in waves of a significant height of 0,5 metres and more.
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.

STABILITY AND BUOYANCY

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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

Access to the engine compartment

Companionway

Side hatches

- 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.

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

Access to companionway

Access to the crew cabin / Sail locker

MANOEUVRABILITY

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- 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 / Roller furling mast	Boat with maximum load - Classical mast / Roller furling mast
Angle of vanishing stability (in degrees)	**110° / 109°**	**107° / 106°**
STIX	**38.4 / 37.2**	**37.9 / 36.9**

Deep draught version (Deep draught keel)

	Boat with minimal load - Classical mast / Roller furling mast	Boat with maximum load - Classical mast / Roller furling mast
Angle of vanishing stability (in degrees)	**112° / 110°**	**109° / 108°**
STIX	**39.3 / 38.1**	**38.8 / 37.7**

- 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.

SAFETY

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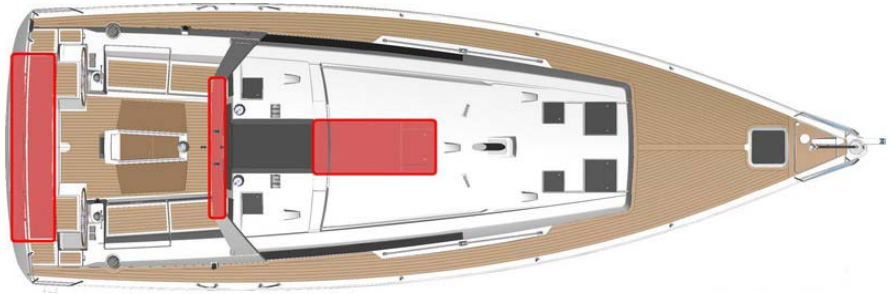
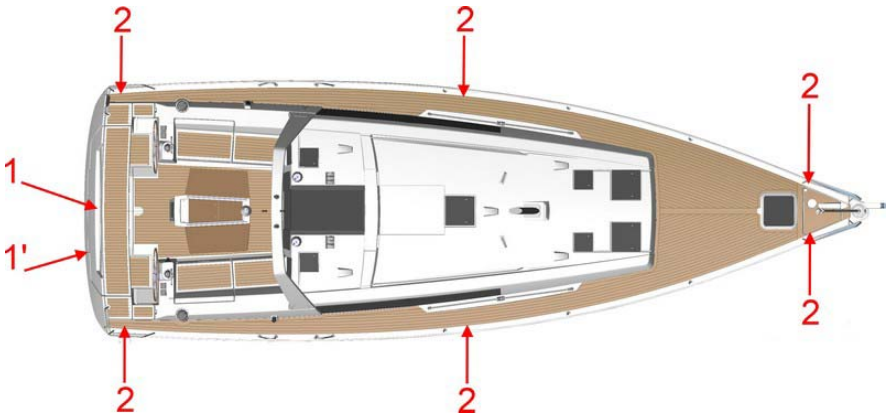
5.1 PREVENTING MAN OVERBOARD SITUATIONS AND THE MEANS OF GETTING SOMEONE BACK ONBOARD

5.1.1 Prevention of man overboard

- The off-limits areas of the working deck when the boat is under way are cross-hatched 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.

5.1.2 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:

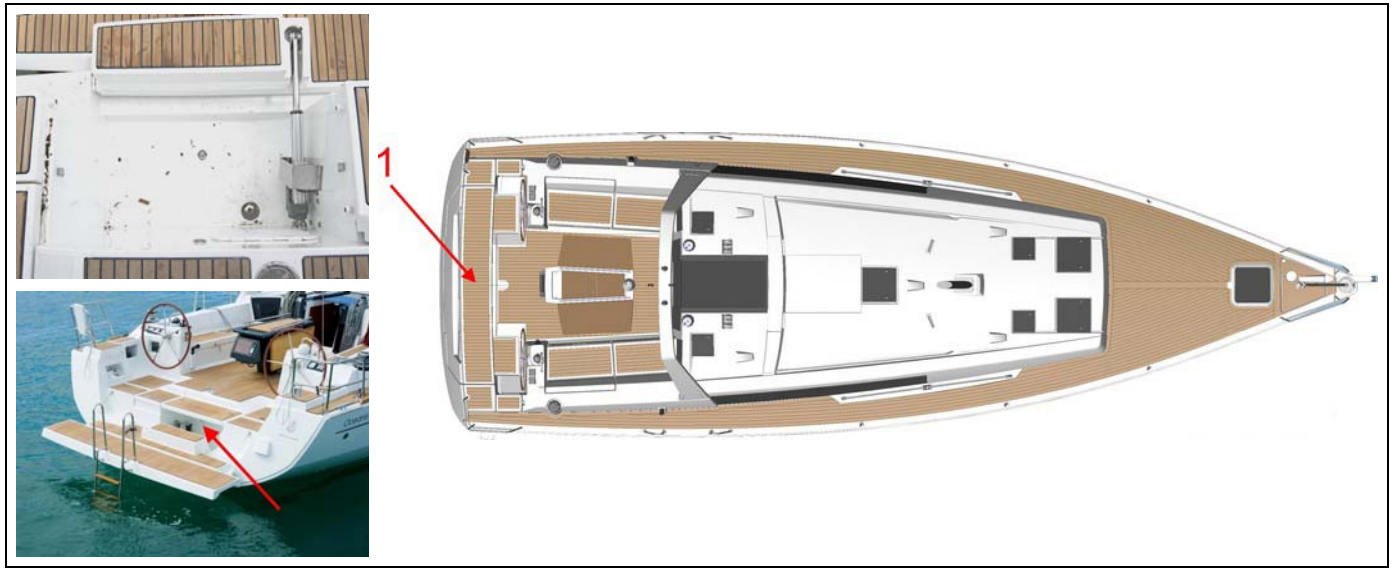
Ref 1’

Ref 2

- 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.

5.2 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.

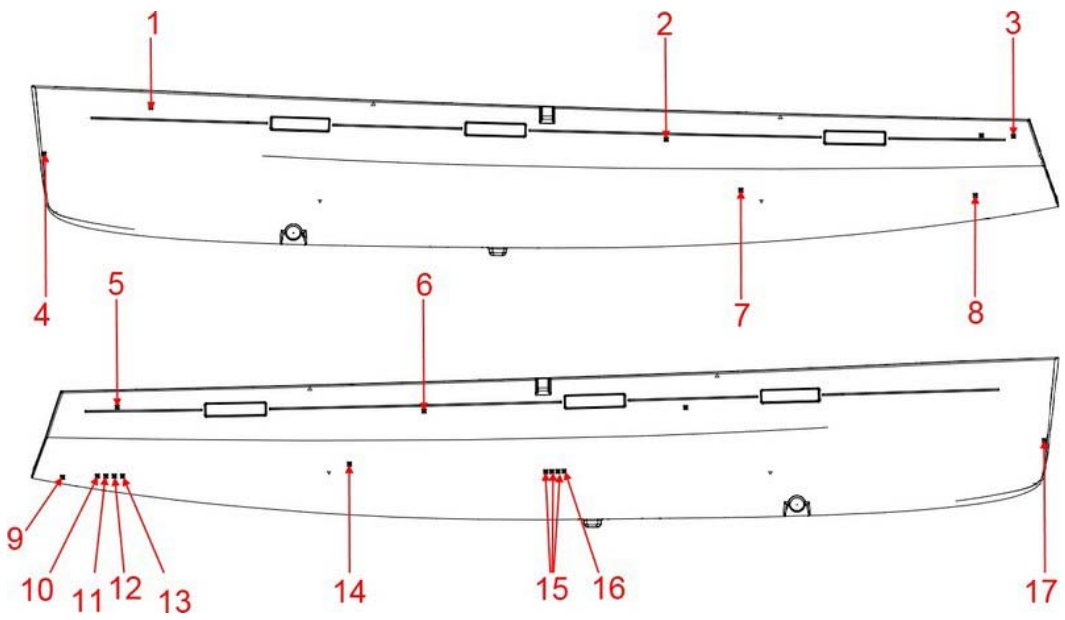
When at sea, never padlock or lock the stowage locker for the life-raft.

5.3 SECURING MOVEABLE ITEMS

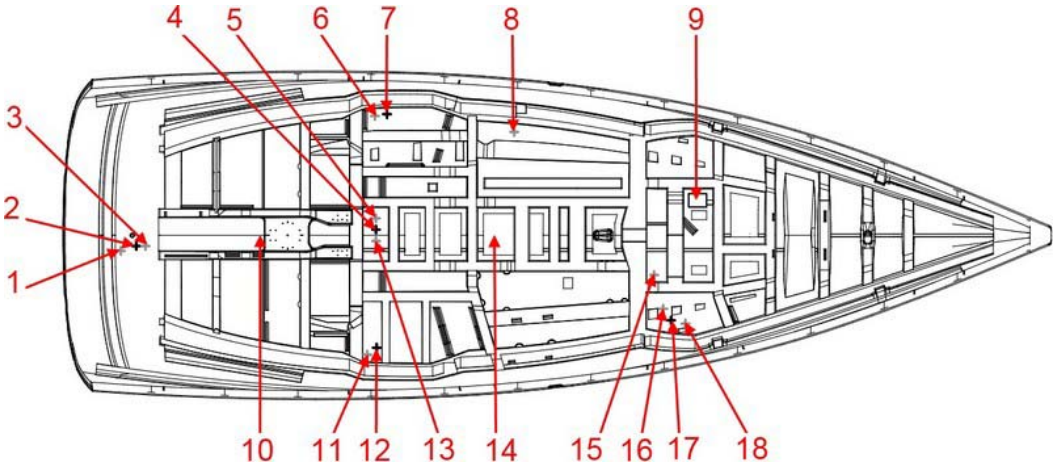
- Ensure that movable items are firmly secured when the boat is under way.
- Don't store anything below the floorboards.

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

5.4.1 Openings in hull



Reference	Designation	Valve
1	Water tank vent	Not
2	Black water tank (WC)	Not
3	Vent hole - Fuel tank	Not
4	Chain locker scupper	Not
5	Water tank vent	Not
6	Black water tank (WC)	Not
7	Washbasin draining	Yes
8	Engine exhaust	Not
9	Generator exhaust	Not
10	Drainage - Air conditioning	Yes
11	Drainage - Air conditioning	Yes
12	Draining of manual bilge pump	Yes
13	Electric bilge pump draining	Yes
14	Washbasin draining	Yes
15	Drainage - Air conditioning (x3)	Yes
16	Watermaker outlet	Yes
17	Chain locker scupper	Not



Reference	Designation	Valve
1	Seawater discharge - Generator	Yes
2	Drainage - Liferaft locker	Yes
3	Seawater inlet - Generator	Yes
4	Sea water intake - WC	Yes
5	Sea water intake - WC	Yes
6	WC evacuation to sea	Yes
7	Shower draining / Galley sink drain	Yes
8	Galley sink drain	Yes
9	Sensor	Not
10	Generator earthing plate	Not
11	WC evacuation to sea	Yes
12	Shower draining	Yes
13	Sea water intake - Air conditioning	Yes
14	Sea water intake - Foot pump	Yes
15	Sea water intake - WC	Yes
16	WC evacuation to sea	Yes
17	Washbasin draining	Yes
18	Shower draining	Yes

5.4.2 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.

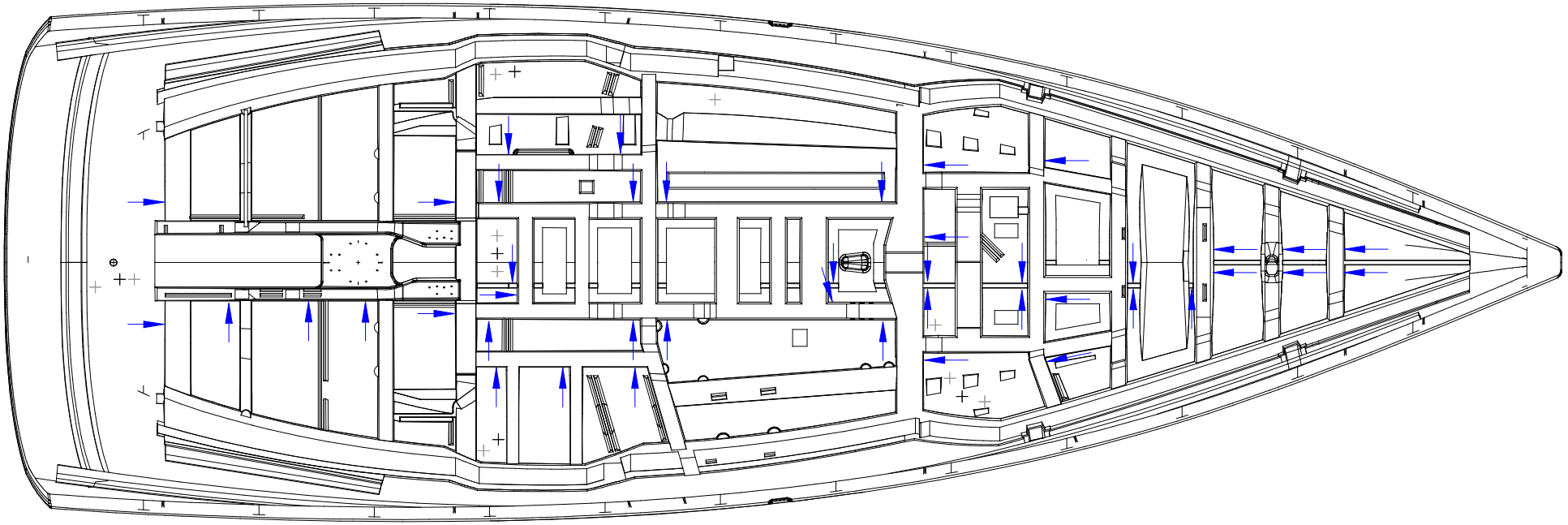
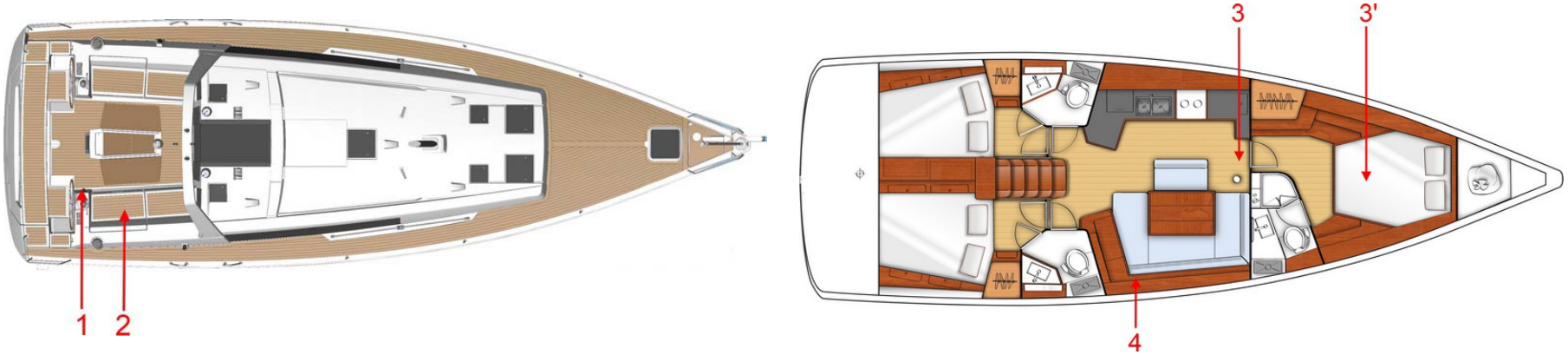


DIAGRAM OF THE LAYOUT - BILGE PUMPS



Reference	Designation	Rate
1	Manual bilge pump	32 L/minute *(*)*
2	Manual bilge pump lever	
3	Electric bilge pump	129 L/minute
3’	Electric bilge pump	30 L/minute
4	Electric bilge pump switch	

(*) 45 strokes/minute
If 70 stroke/minute: flow rate 35 L/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).

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

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- Open the draining valve. (Access: Starboard cockpit locker)

III- 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 drainage system is not designed to control water coming from breaches in the hull.

- Keep the water level in the bilges to the minimum.

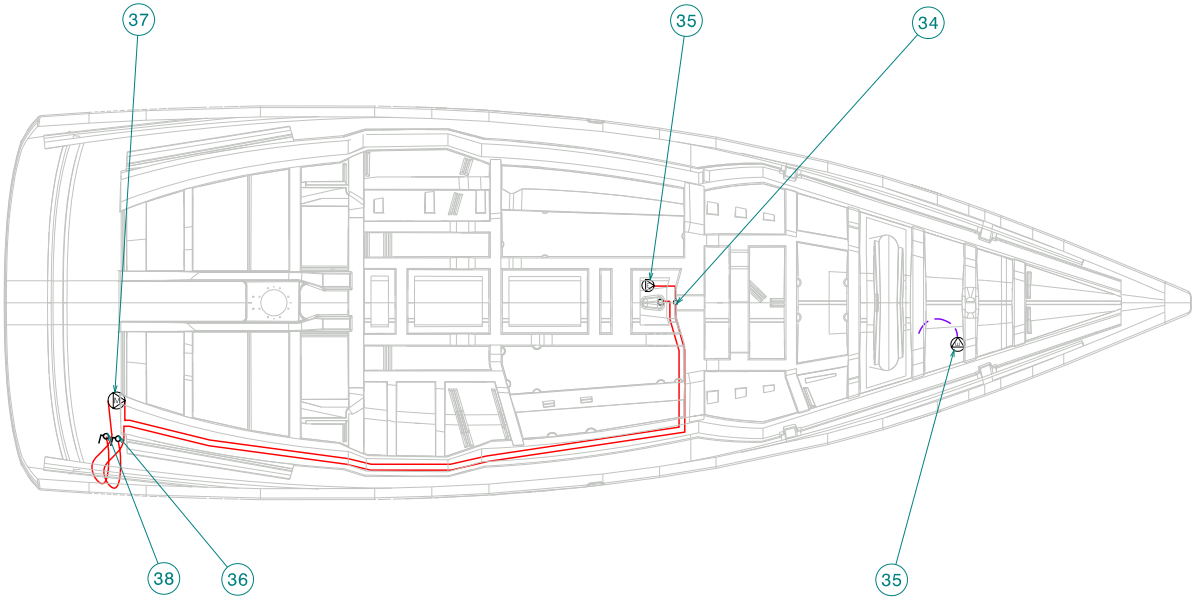
- Never store anything right at the bottom of the boat: Allow bilge water to flow freely down to the lowest point of the boat.

- 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



Reference	Designation
34	Non-return valve
35	Electric bilge pump
36	Electric bilge pump draining
37	Manual bilge pump
38	Draining of manual bilge pump

6 INFORMATION RELATING TO FIRE RISKS AND RISKS OF EXPLOSION

6.1 PROPULSION ENGINES AND OTHER FUEL-BURNING EQUIPMENT

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

The risks associated with other fuel-burning equipment are described in the EQUIPMENT OTHER THAN FOR PROPULSION, WHITH BURNS FUEL chapter.

6.2 ELECTRICAL SYSTEM

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

6.3 GAS SYSTEM

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

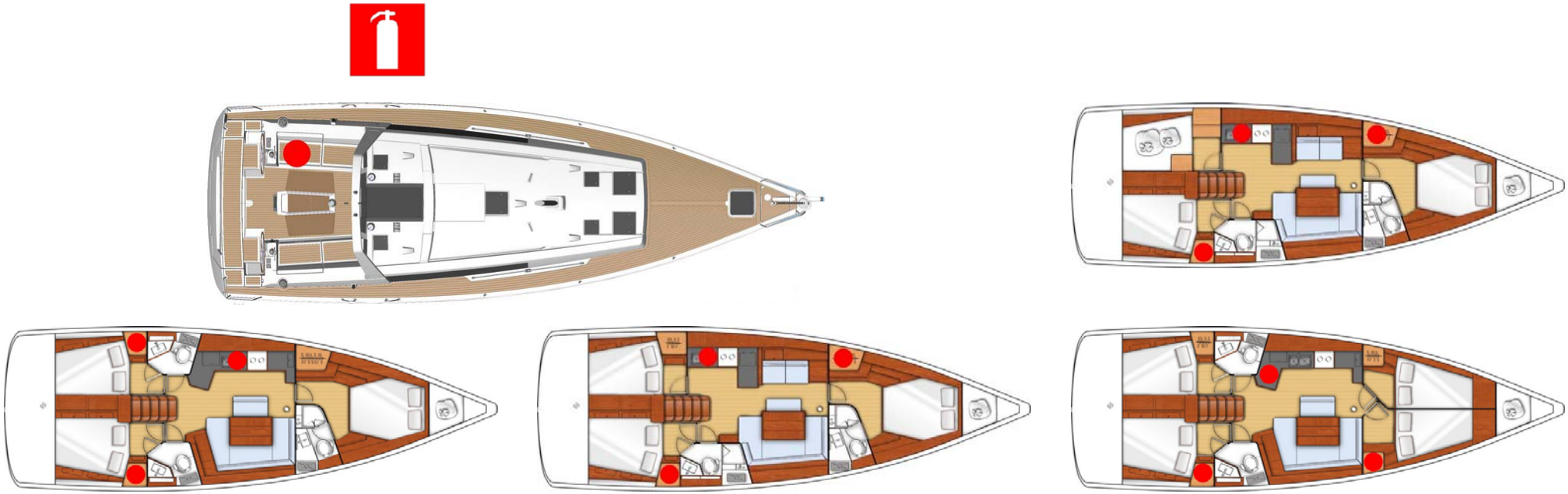
6.4 FIRE-PREVENTION AND FIRE-FIGHTING EQUIPMENT

6.4.1 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:



Location	Minimum extinguishing capacity
Cockpit locker	5A / 34B
Saloon seating	5A / 34B
Forward cabin closet	5A / 34B
Aft cabin closet	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

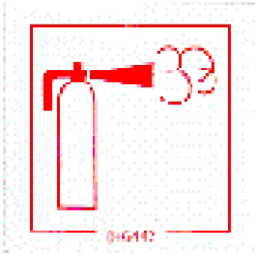
- Check that the bilges are clean and frequently check that there are no fuel/gas vapours or fuel leaks.
- In the case of replacement of components of the fire-fighting equipment, use only the appropriate components of the same code designation or having the equivalent technical capacity and fire resistance.
- 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:

6.4.2 Extinguisher access hole

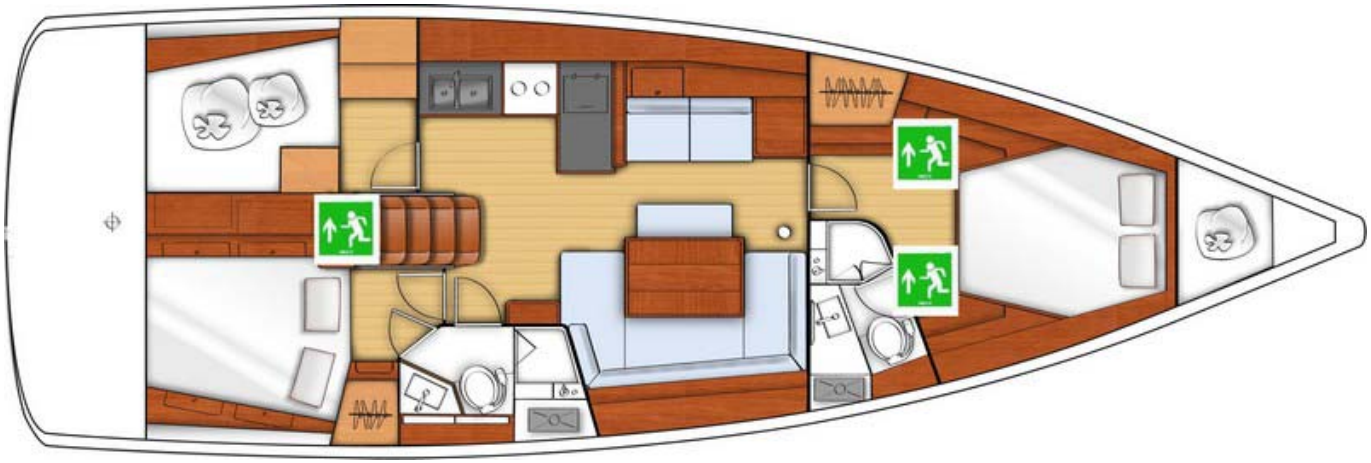
The engine compartment has a port that makes it possible to inject the extinguishing product inside without opening the usual access hatches.

Location of the fire extinguisher port: Companionway

A pictogram helps to locate it easily



6.5 EMERGENCY EXITS IN CASE OF FIRE



Designation	Location
Emergency exit	Companionway
Emergency exit	The forward cabin deck hatch

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.

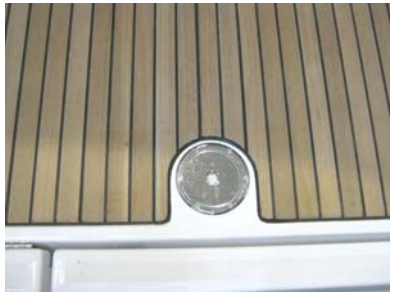
6.6 EMERGENCY SYSTEMS IN CASE OF STEERING GEAR FAILURE

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 (Ref 1)



Emergency tiller (Ref 2)

Instructions in the event of steering gear failure

I. Unscrew the securing fitting using a winch handle (Ref 1).

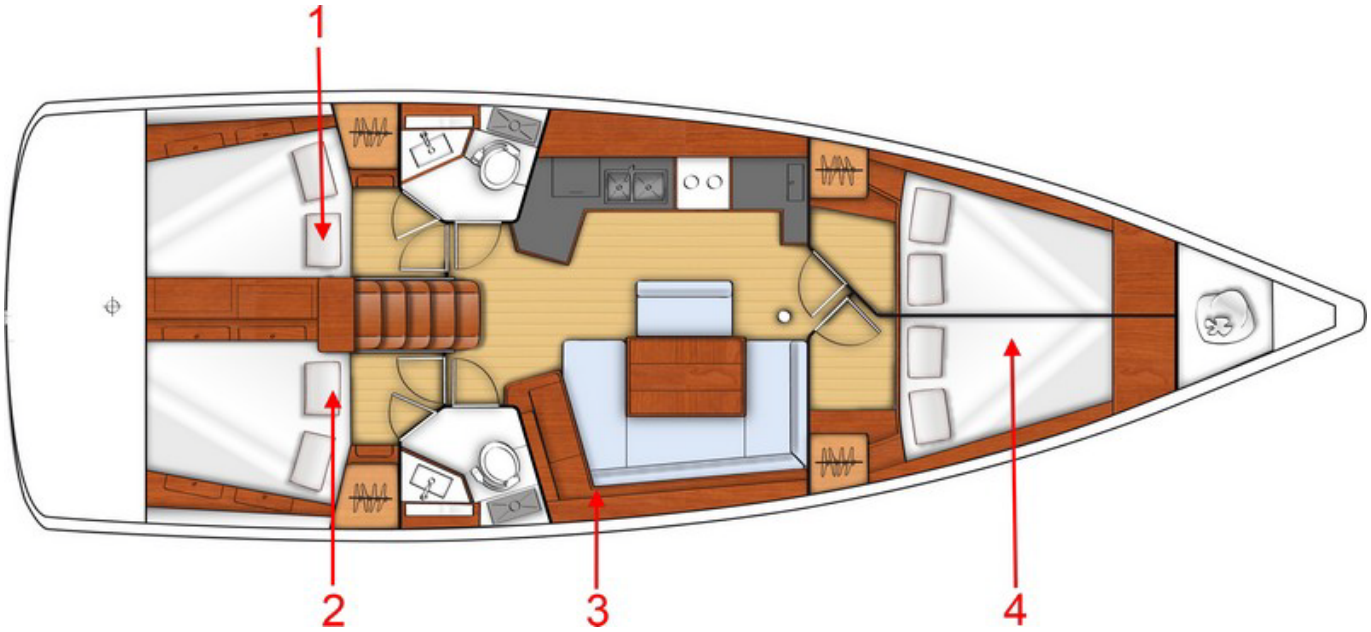
II. Fit the emergency tiller (Ref 2)in the square on the rudder post.

Emergency tiller + Tie bar

ELECTRICAL SYSTEM

7

7.1 GENERAL INFORMATION ABOUT THE ELECTRICAL SYSTEM



Reference	Designation
1	Engine battery, Service batteries (x2), Generator battery, Charger - Generator battery
2	Battery switch, DC breakers, Relay box, Fuses
3	Electrical panel
4	Bow thruster batteries

- 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.

7.2 DC INSTALLATION (12 V OR 24 V)

7.2.1 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 only for powering the electric starter of the propulsion engine.

The boat may also be equipped with:

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

Location: Port aft cabin

1. Engine battery - 110A
2. Service batteries - 2 x 115A

Location: Starboard aft cabin

Service batteries - 2 x 115A

Location: Forward cabin

Bow thruster batteries - 2 x 50A

Generator battery - 50A

Charger - Generator battery

7.2.2 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

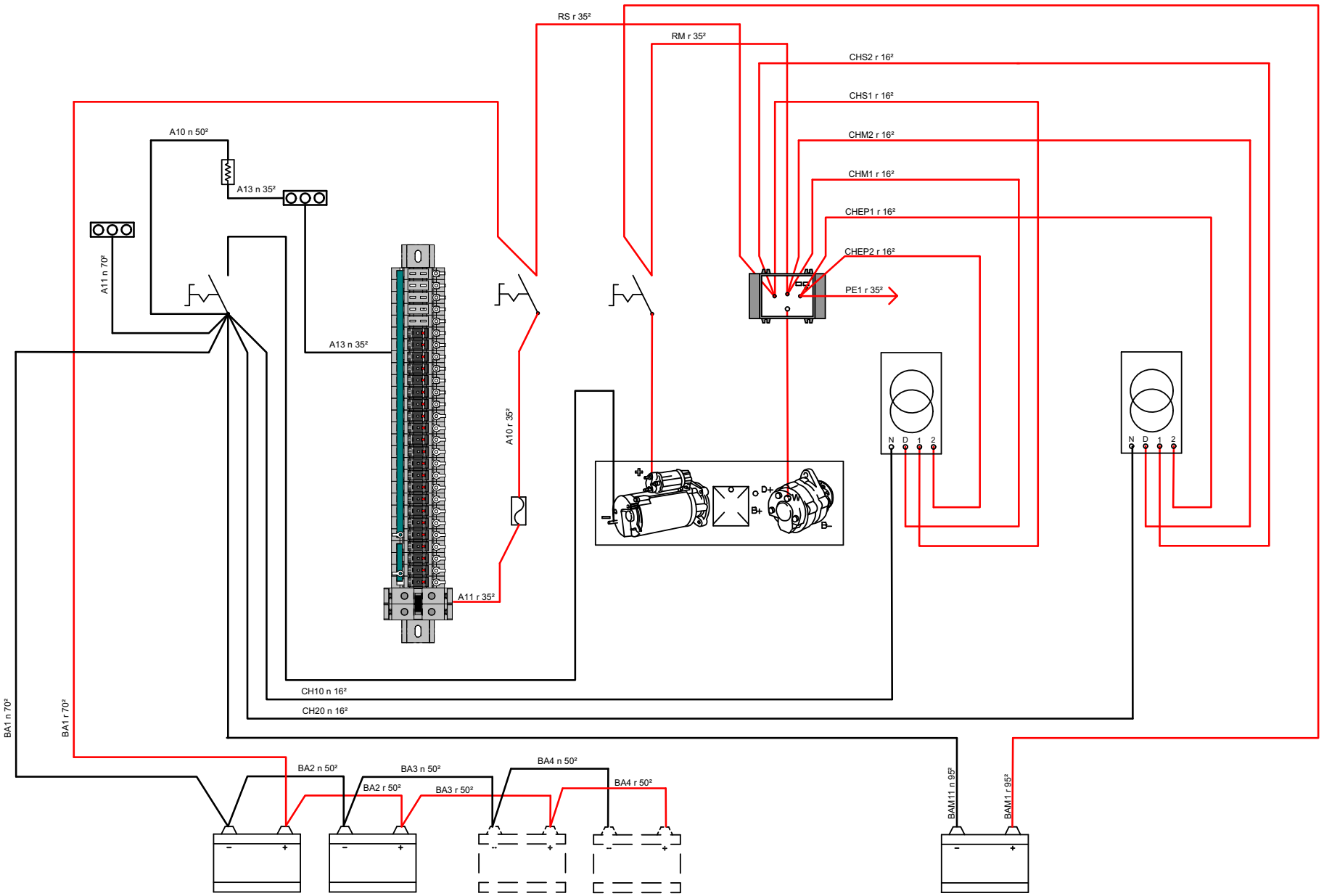
Location: Starboard aft cabin

from left to right:

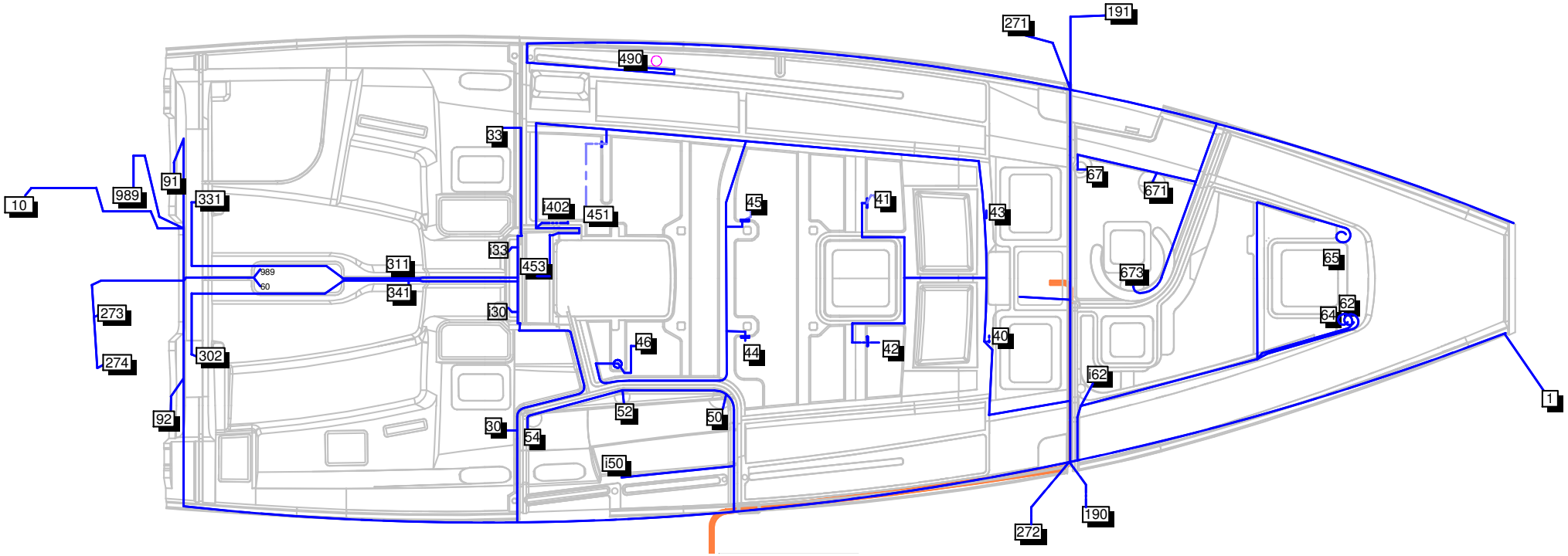
- Battery breaker - "positive terminal - engine"
- Battery switch "common negative"
- Battery switch "service positive"

- 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).

LAYOUT DIAGRAM - BATTERY CABLES

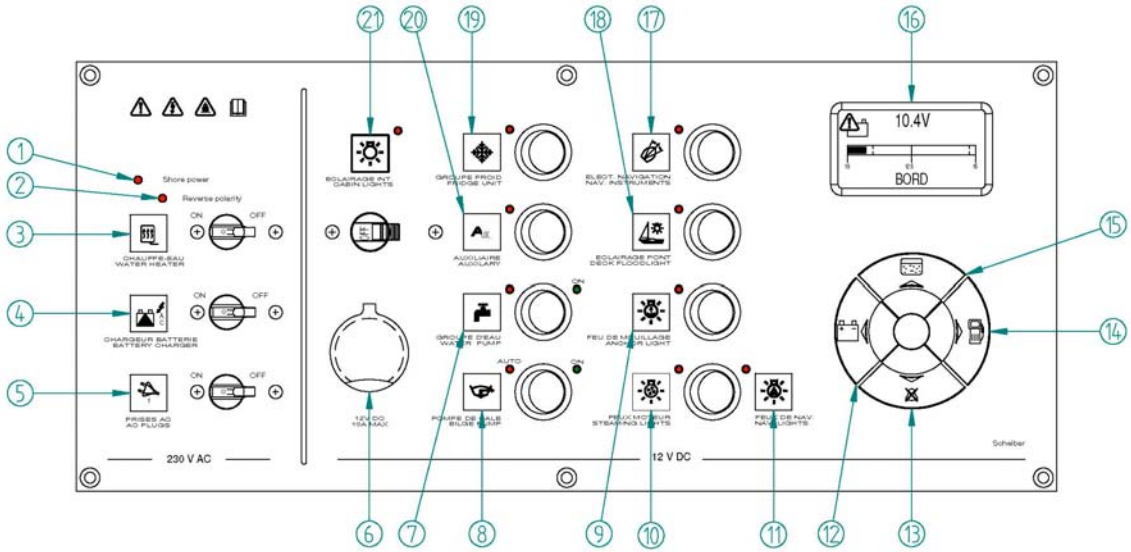


7.2.3 Layout of the deck wiring looms - DC circuit



7.2.4 Electrical panel

Location: Chart table

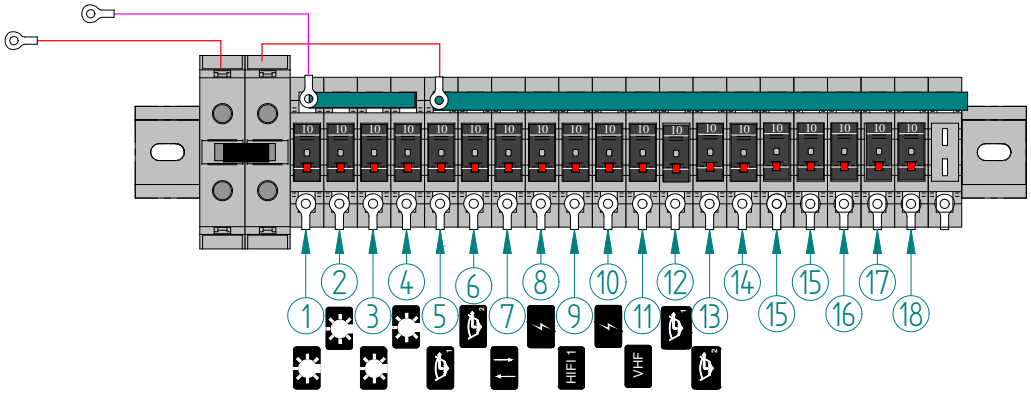


Reference	Designation
1	Indicator - common - Shore
2	Warning light - reversal of polarity
3	Control - Water heater - 220 V
4	Control - Battery charger - 220 V
5	Control - 220V Sockets
6	Socket 12V
7	Control - Water unit
8	Control - Bilge pump
9	Control - Mooring light
10	Control - Engine navigation light
11	Control - Navigation lights
12	Test batteries
13	Alarm disabling
14	Fuel gauge
15	Water gauge
16	Multi-function display
17	Electronic controls
18	Control - Deck light
19	Control - Refrigeration unit
20	Control - Auxiliary
21	Control - Interior lighting

7.2.5 Circuit breakers

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

Location: Back of electrical panel



Reference	Designation
2	Lighting
3	Lighting
4	Lighting
5	Shower pump
6	Shower pump
7	Motor (upward and downward motion) - TV
8	Gas solenoid
9	Hifi
10	Socket
11	VHF
12	Bilge pump
13	Icebox drain pump
14	Options
15	Options
16	Options
17	Options
18	Options

Location: Starboard aft cabin

Windlass circuit breaker - 80A

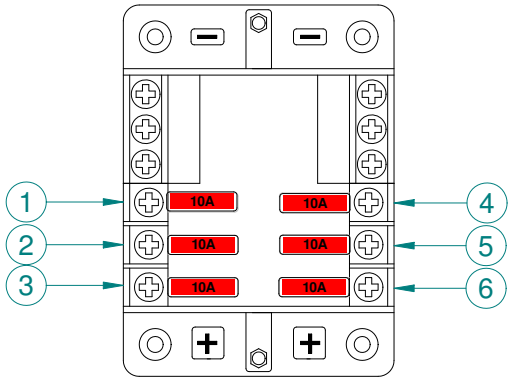
Breaker - Electric platform - 80A

7.2.6 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: Starboard aft cabin

General fuse DC system
Location: Starboard aft cabin



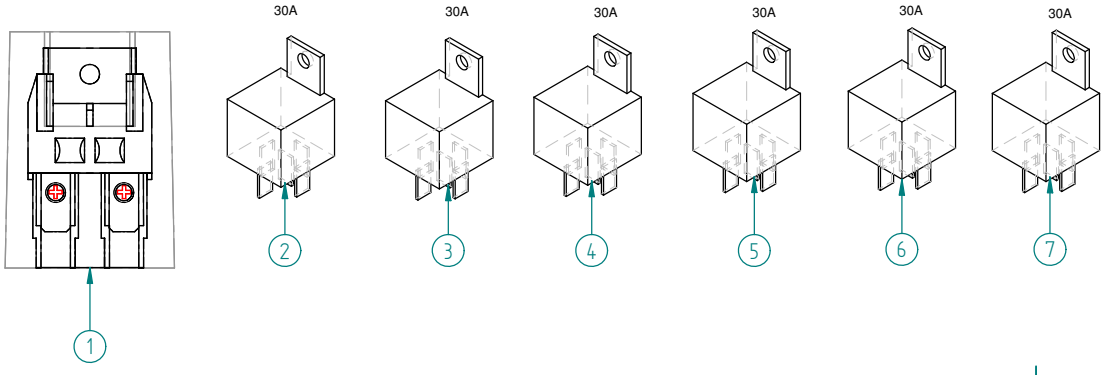
Reference	Designation
1	Fridge
2	Windlass
3	Thruster 1
4	Thruster 2
5	Fridge 3
6	Socket - 12V

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

20A 15A 10A 5A 3A

7.2.7 Relay box

Location: Starboard aft cabin



Reference	Designation
1	Fuse - Auto pilot
2	Relay box - Electronic
3	Bilge ventilator relay box
4	Windlass relay
5	Relay box - Thruster
6	Relay box - Fridge
7	Relay box - Fridge

7.3 AC SYSTEM (110 V OR 220 V)

- 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. Have all electrical installations checked (tightening and connections) every year.

- 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).

- 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.

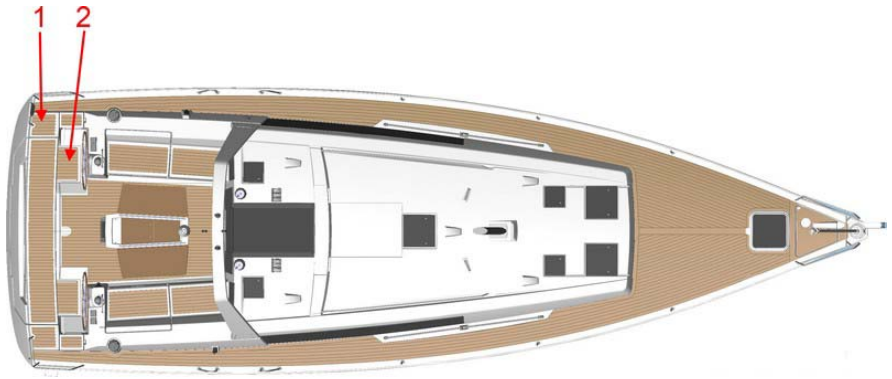
- Do not modify the connections of the ship/shore power cable: only use compatible connections.

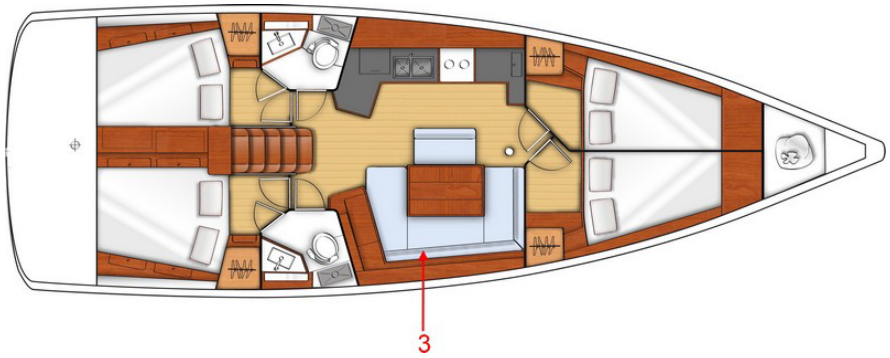
DO NOT MODIFY THE CONNECTIONS ON THE SHIP/SHORE POWER CABLE.

- If a DC/AC converter is fitted on board: it is essential to switch of the DC and AC circuits before working on the cabin AC sockets.

7.3.1 AC shore socket

location of components





Shore power socket (Ref 1)

Bipolar circuit breaker (Ref 2)

Differential circuit breaker (Ref 3)

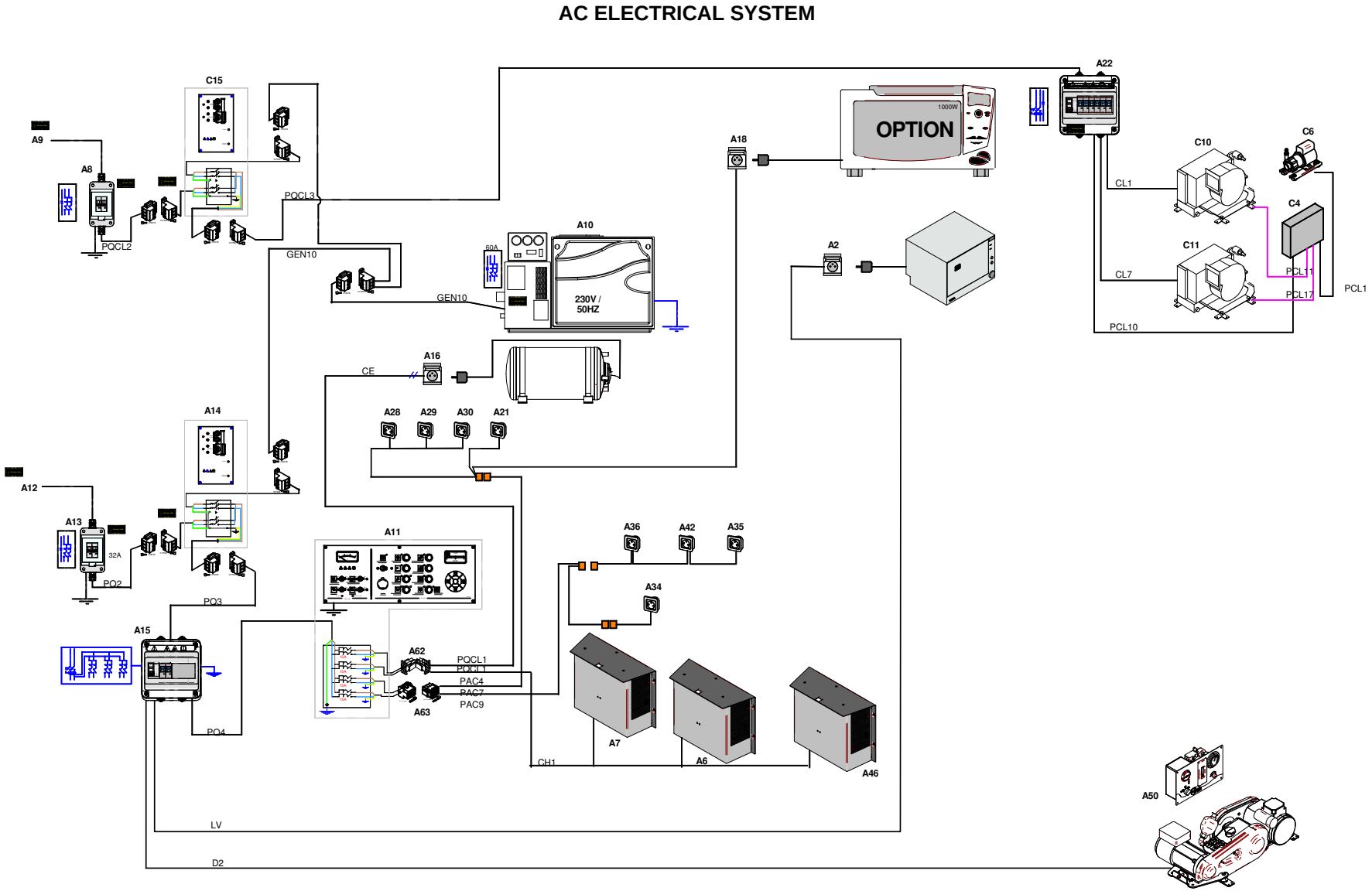
- On a standard boat: Empty breaker box (Pre-positioning).
- On a boat with AC options: Breaker box for options.

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.

7.3.2 Layout diagram



Reference	Designation
A2	Dishwasher socket
A6	1 battery charger
A7	2 battery charger
A8	Breaker
A9	230V shore power
A10	Generator (option)
A11	Electrical panel - 230V or 115V
A12	Shore power socket
A13	Bipolar circuit breaker
A14	Master switch
A15	Panel - Differential switch
A16	Water heater
A18	Socket for micro-wave oven
A21	Socket - Middle cabin - Port side
A22	Panel - Differential switch
A28	Socket - galley
A29	Socket - galley
A30	Socket - galley
A34	Forward starboard cabin socket
A35	Socket - chart table
A36	Socket - chart table
A42	Socket - chart table
A46	Charger - Group
A50	Water maker (option)
A62	6 way connector - Electrical panel
A63	12 way connector - Electrical panel
C4	Box trigger - Pump - Air conditioning - Starboard (option)
C6	Pump - Air conditioning - Starboard (option)
C10	Air conditioning - Starboard forward cabin (option)
C11	Air conditioning - Port forward cabin (option)
C15	Master switch

7.3.3 Anodes

General points

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

- A sacrificial anode is a consumable part that protects submerged metal parts by its dissolution (oxidation). 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.

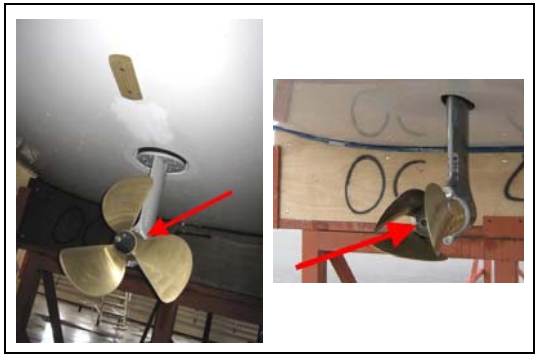
- When the boat is stored at a dry dock, the corrosion protection is not as effective due to oxidation of the anodes: even the new anodes oxidize the surface. Before returning the boat into the water, clean the anodes.

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.



- 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.

7.3.4 Earthing plates

- An earthing plate is a shot-peened plate mounted on the hull to recreate an earth neutral point on the electrical circuit of the equipment supplying AC power (generator and AC/DC convertor). The earthing plate earths this equipment.

The earthing plate is not an anode: it must not be allowed to deteriorate.

- If it deteriorates, consult a professional immediately to determine the cause. As the earthing plate is mounted across the hull below the waterline, if the earthing plate deteriorates the boat is at risk of sinking.

Outside view

- Never antifoul over the earthing plates.

ONBOARD COMFORT

8

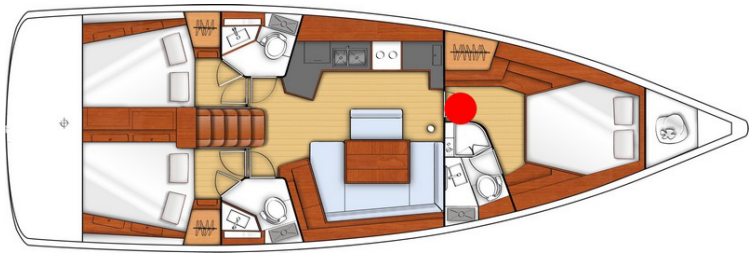
8.1 ELECTRONIC EQUIPMENT

The onboard electronics are powered by direct current.

Control: Electrical panel

LEAD LINES

Transducer location:



Inside view / Outside 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:

Ref 1:
Pump & Hydraulic piston

Ref 2:

1. Gyrocompass
2. Vessel Management Unit

- To ensure optimum perfomance, keep all metallic objects away from the gyrocompass.
- Do not store material close to the calculator and electrical connections.

Control: Electrical panel

GPS

Location of the aerial: Port cockpit

VHF

Layout of components: Saloon

- 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 the manufacturer's instructions for use and maintenance.

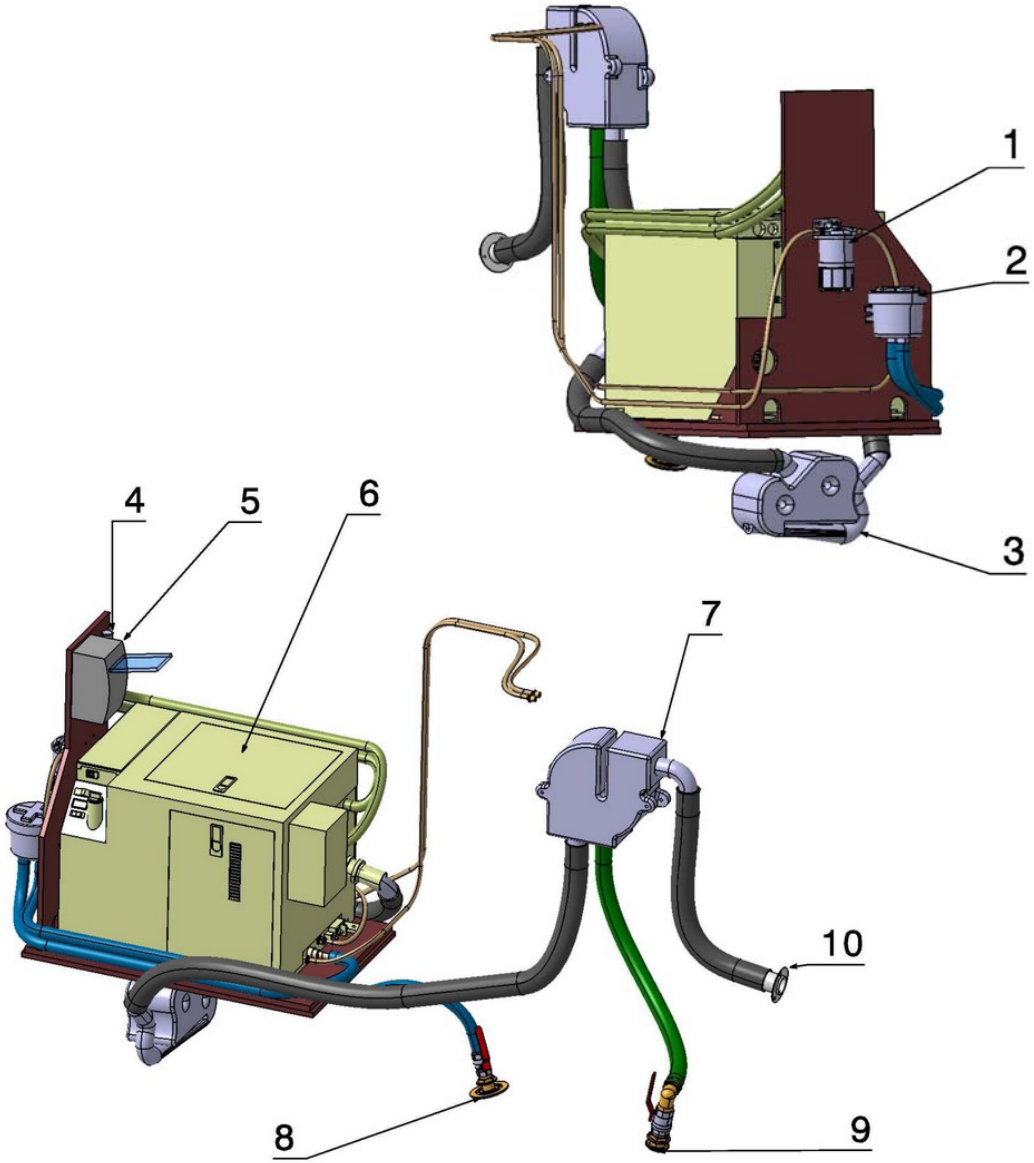
8.2 EQUIPMENT OTHER THAN FOR PROPULSION, WHICH BURNS FUEL (GENERATOR, HEATING)

8.2.1 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 tanks (jerrycans, portable fuel tanks, etc.) must be stowed on deck, protected from bad weather and mechanical damage.

8.2.2 Generator

LAYOUT DIAGRAM



Reference	Designation
1	Fuel filter
2	Sea water filter
3	Water trap
4	Anti-siphon valve
5	Differential circuit breaker
6	Generator
7	Water - Gas separator
8	Seawater inlet
9	Seawater discharge
10	Outlet

General points

- The generator is a machine which can produce AC electrical power using mechanical power (fuel). The generator will fed the onboard equipment operating at 220V or 110V, moored or sailing.

- The generator starts with its own battery (12 V circuit).

- Make sure that there is enough fuel in the fuel tank before using the generator. The generator is fed by fuel through the fuel tank port.

- The cooling water and exhaust gases are separated in the separator to avoid noise pollution. The seawater is discharged below the waterline. The exhaust- pipe is located above the waterline. Check visually that the exhaust gases are being expelled properly.
Make sure that the ventilator in the generator compartment is working.

- Check to see if any leaks appear (sea water, coolant, fuel, exhaust gases). If there is a leak, stop the generator at once and get the leak repaired.

- The generator is earthed by an earthing plate which is located under the hull (see earthing plate chapter).

- Maintenance of the generator must only be done by qualified and proficient personnel. Before working on the generator, it is imperative to isolate the generator's battery power, to prevent it from starting accidentally.

- The generator can be started by the switch on the generator or by the switch on the control panel.

Starting up

- Open the raw water intake valves and evacuation valves.

- Open the fuel supply valve.

- Turn the generator's battery switch to the ON position.

- Switch the generator's circuit-breaker to the ON position.

- Turn on the generator using the remote control.

or on the generator itself.

- Make sure that no AC equipment is running. Then set the shore power/ generator switch.

In the event of the generator catching fire

- Don't open it.
- Cut the supply (electrical and fuel) to the boat's engines, to the generator and to the ventilators.
- Use the extinguisher access port on the generator to discharge the contents of the portable extinguisher.

Extinguisher access hole

- Please refer to the manufacturer's instructions for using the generator.

- Never start the generator when the climate function is already on. Always turn off the air conditioning before turning off the generator.

- Never connect the shore power to the generator: danger of electric shock.

- An extinguisher access port is provided on the generator to put out a fire starting in the generator.

LAYOUT OF COMPONENTS

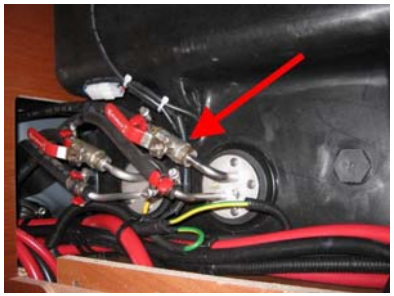
Access: Port aft cabin

Battery - 50A + Battery charger

Breaker - Generator

The control located on the equipment

Fuel supply valve



Access: Starboard aft cabin

1. Battery switch - Positive & Negative terminal (see Chapter: Electricity)
2. Remote control
3. Switch for shore power/air-conditioning

Fuel filter

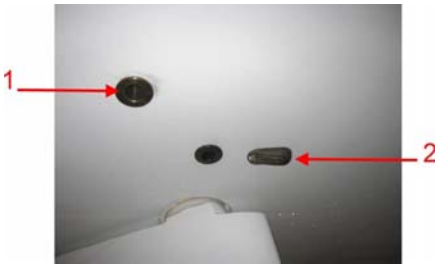
Sea water filter

Access: Starboard cockpit locker

Inside view

1. Seawater discharge
2. Sea water intake

Outside view



Water - Gas separator

WATER SYSTEMS

9

9.1 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.

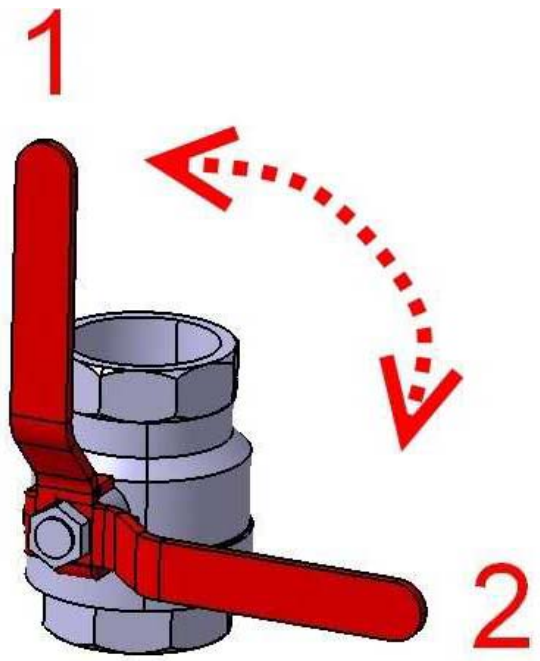
- Disconnect shore water supply before leaving the boat (if fitted).

- 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.

9.2 USING A VALVE

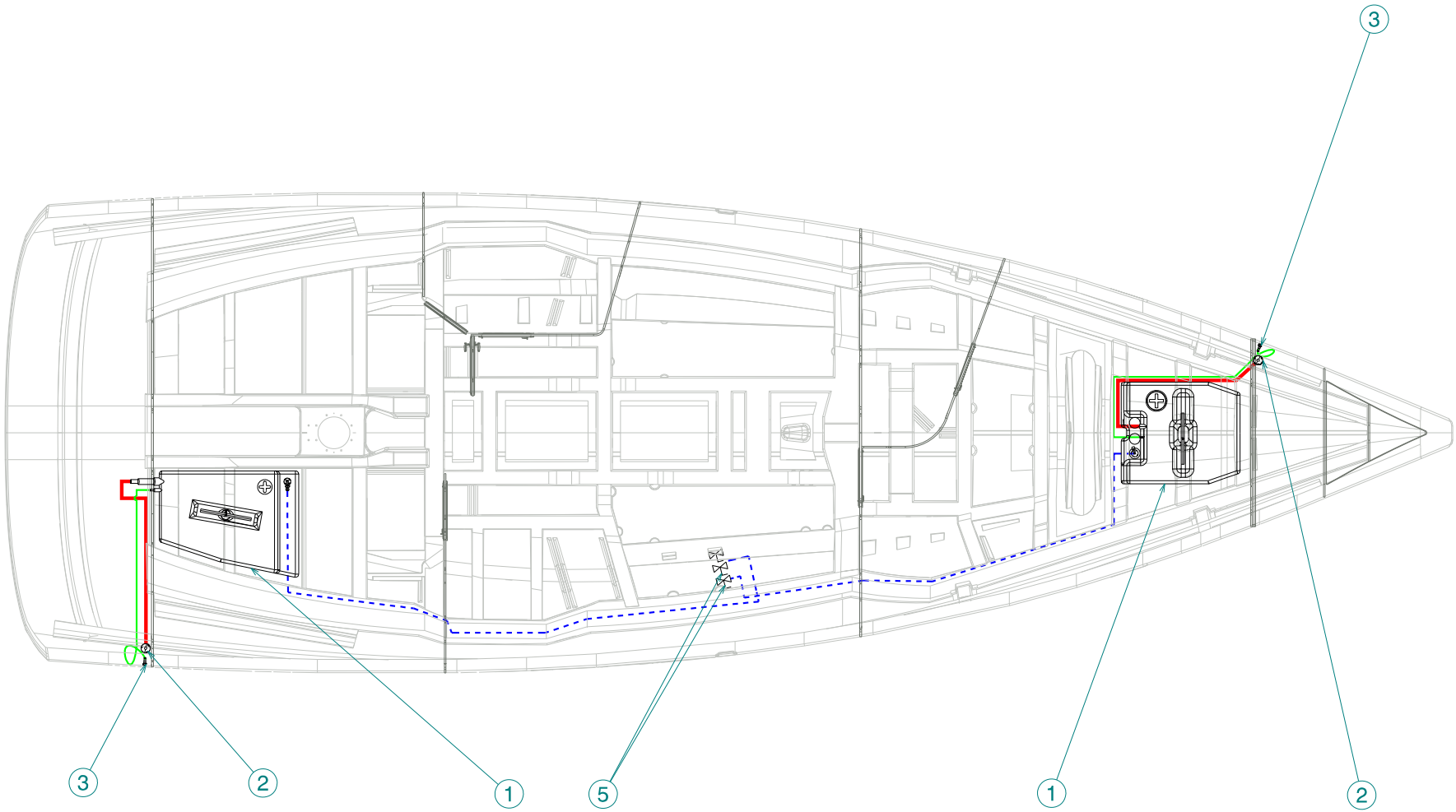
The valve is shut when the valve handle is at right angles to the pipe, the valve is open when the valve handle is in line with the pipe.



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.

9.3 FRESH WATER FILLING SYSTEM



Reference	Designation
1	Fresh water tank
2	"WATER" deck filler
3	Water tank vent
5	Valves - Water unit supply

Water tank

Location: Forward cabin
Capacity: 330 L

Location: Starboard aft cabin
Capacity: 200 L

Relationship between the tank number, its position and the gauge (on the electrical panel)

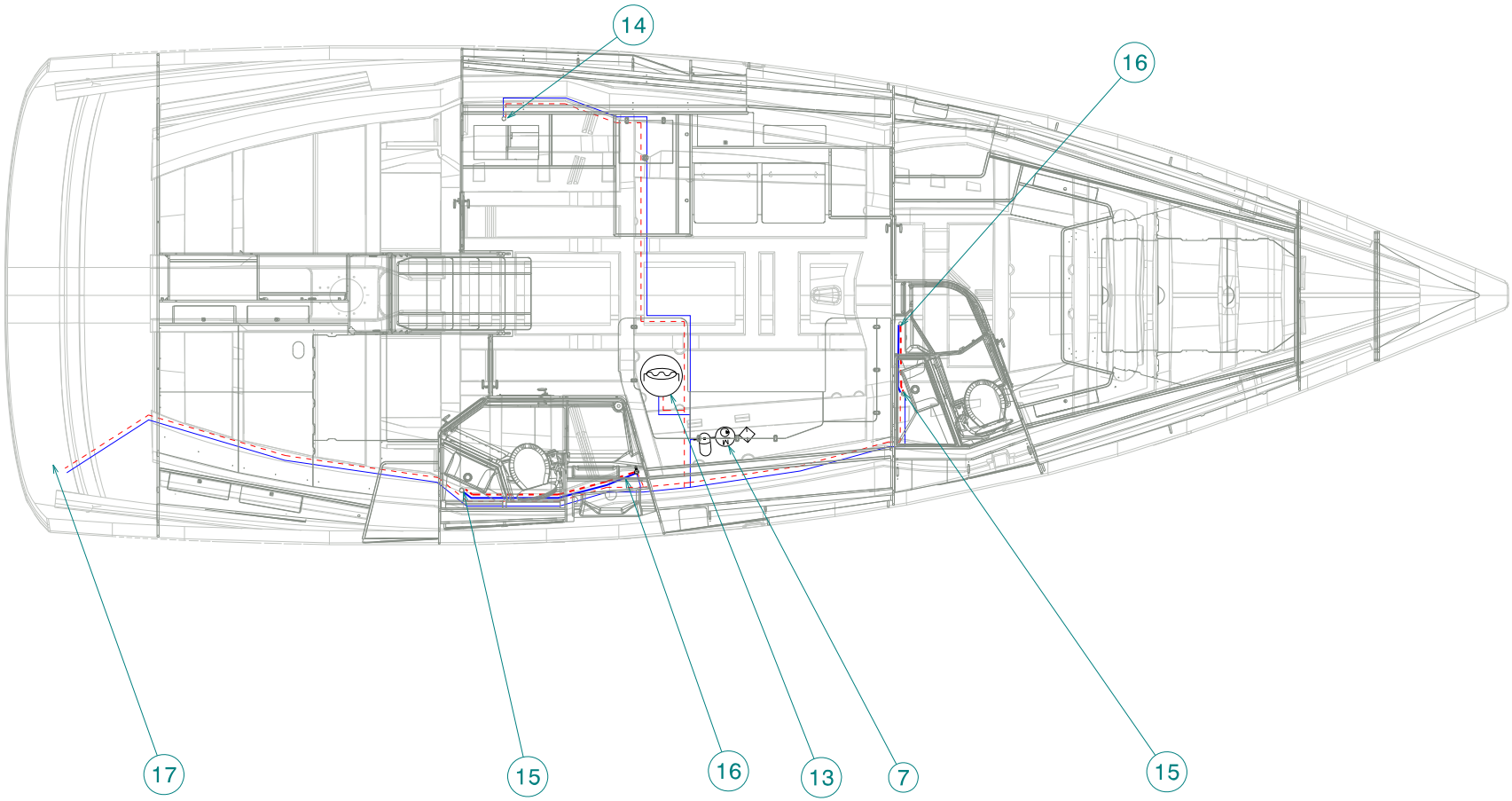
Tank no.1: Forward tank

Tank no.2: Aft tank

Water tank direction valves

Location: Starboard saloon

9.4 FRESH WATER DISTRIBUTION SYSTEM



Reference	Designation
7	Water unit
13	Water heater
14	Sink mixer tap
15	Washbasin mixer tap
16	Mixer shower
17	Cockpit shower mixer tap

9.5 MAIN PLUMBING EQUIPMENT

9.5.1 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.
- The water unit is switched on at the electrical panel.
- 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.

Location: Starboard saloon

1. Water unit
2. Expansion tank

9.5.2 Water heater

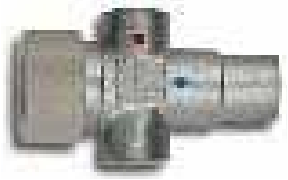
- The water heater allows the use of hot water on board the boat.
- The water heater operates by heat recovery from the engine cooling circuit or the on board AC electrical supply.
- The water heater thermostat regulates the water temperature only when it is operating with electrical resistance. The 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.

Location: Starboard saloon

1. Water heater
2. Thermostatic mixer valve

Water heater - 40 L

Thermostatic mixer valve



9.6 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.

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.

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).

Black water tank

Capacity: 64 L

Location: in each head

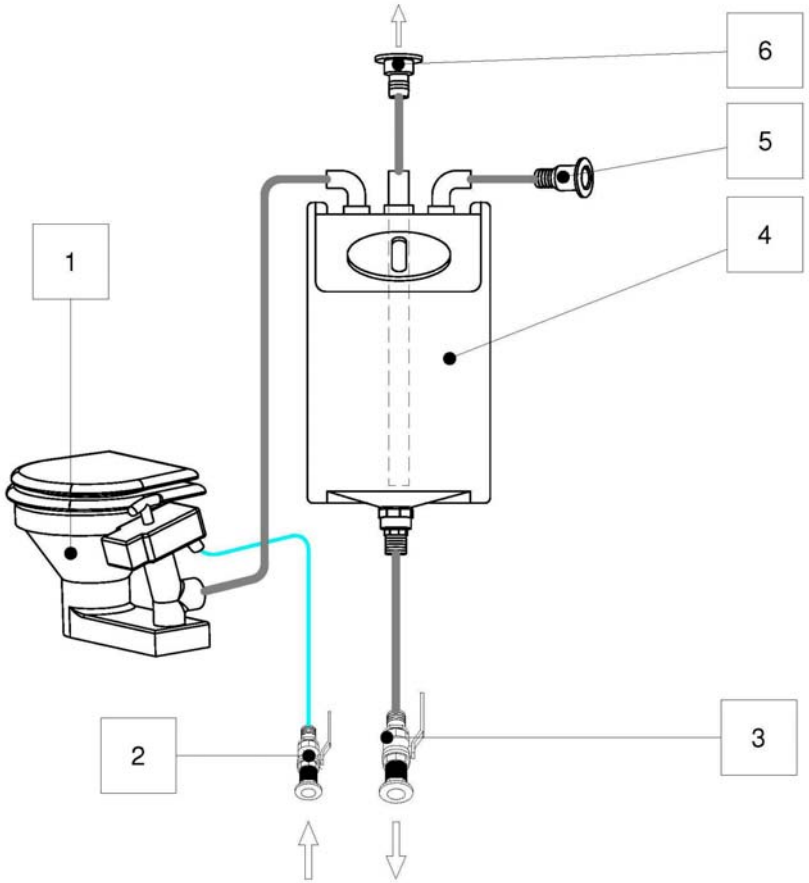
(except 2 cabins 2 heads version: Capacity of sewage tank - aft: 80 L)

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

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

9.6.1 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

9.7 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.

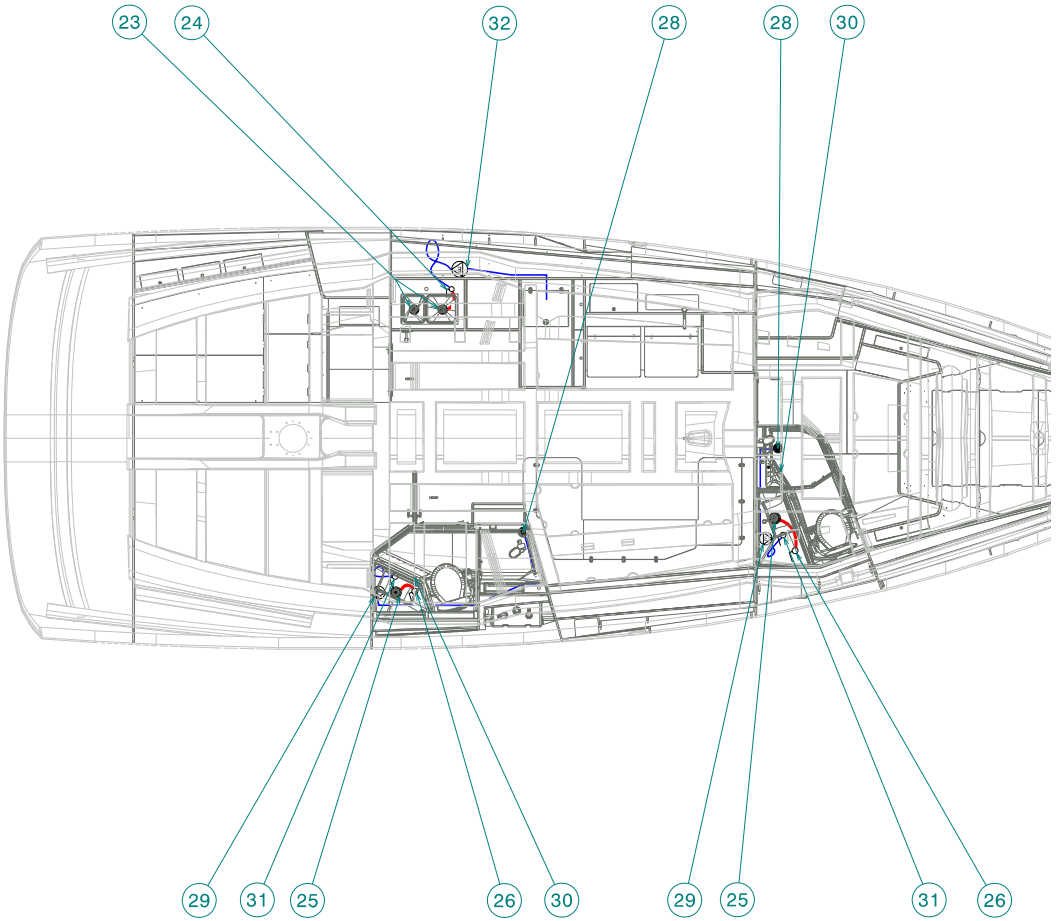
Drainage plug hole - Shower

Control - Draining pump for shower

Control - Icebox drainage (see Chapter : Domestic appliances)

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

Layout diagram waste water



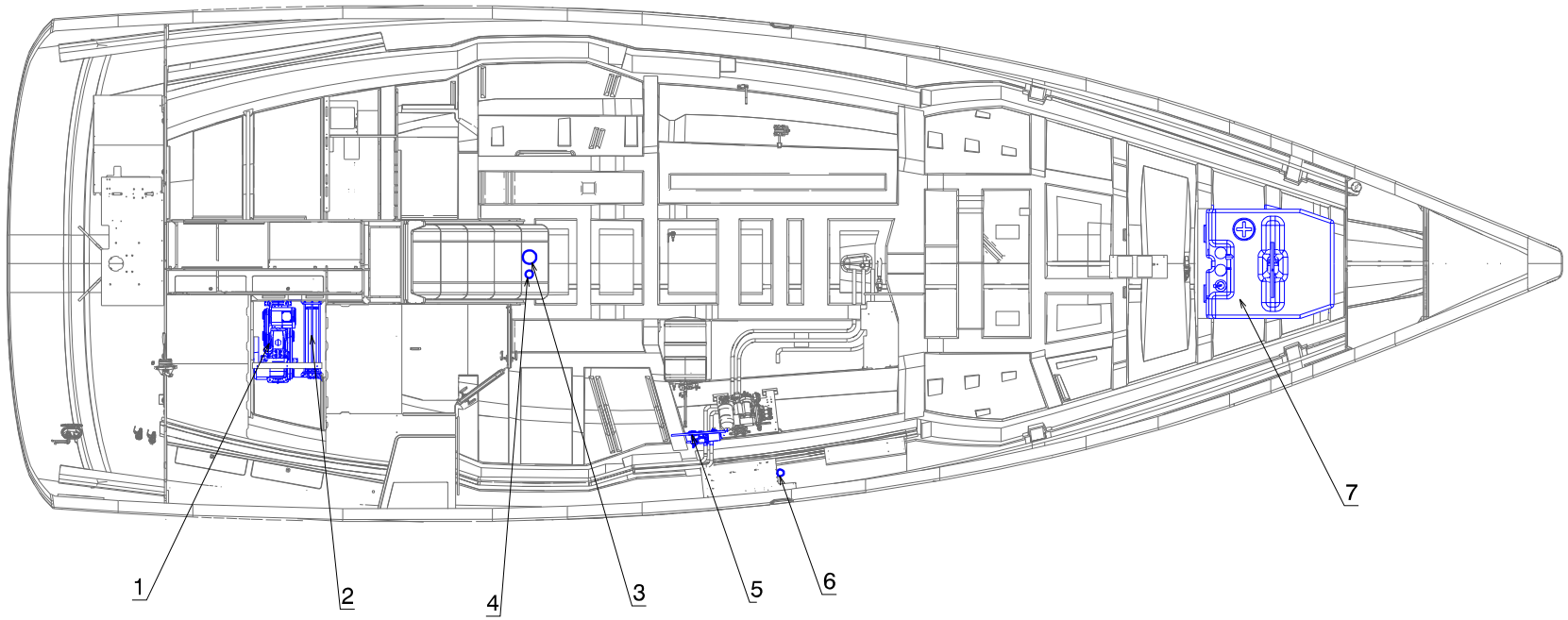
Reference	Designation
23	Sink plug hole
24	Sink drainage valve
25	Washbasin drain plug
26	Draining valve - Washbasin
28	Shower plug hole
29	Draining pump for shower
30	Control - Shower pump
31	Hand spray evacuation valve
32	Draining valve - Cooler

9.8 WATER MAKER

Operation

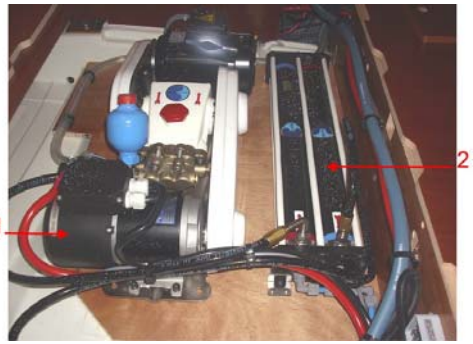
- Water any dessalinisateur am arriving directly at the reservoir of water.
- There is no gate of slection.

DIAGRAM OF THE LAYOUT

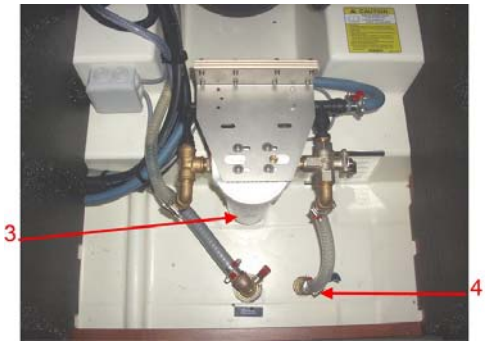


Reference	Designation
1	Water maker
2	Membranes
3	Sea water filter
4	Sea water intake
5	Control panel
6	Watermaker outlet
7	Supply - Fresh water tanks

LAYOUT OF COMPONENTS



1. Water maker
2. Membranes



3. Filter
4. Sea water intake

5. Control panel

Watermaker outlet (Ref 6)

ENGINE

10

10.1 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 tanks (jerrycans, portable fuel tanks, etc.) must be stowed on deck, protected from bad weather and mechanical damage.
- Regularly check that the engine compartment is clean and dry.

Engine water intake valve:
Located directly on the saildrive

Fuel supply valve:
located directly on the tank

10.2 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).

10.3 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.

- 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).**

10.4 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.

Transmission type is: Sail-drive / Dock and Go.

Filling up with fuel

- Fill the fuel tank by opening the cap marked "DIESEL", provided for this.
- Fuel capacity: 200 L
- Reservoir location: Port aft cabin.
- Regularly check that the O ring on the filler cap is in good condition, to prevent any water ingress.
- The generator has its own fuel supply valve.

Gauge

- The fuel level is transmitted from the dipstick to the indicator located on the electrical panel.
- Some of the gauges must be calibrated when you first fill the tanks: please consult your dealer.

- 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.

Deck filler

Gauge

Fuel tank

10.5 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

Inside view

Stuffing box

Sea water filter

Location: Engine compartment

10.6 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

10.7 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.

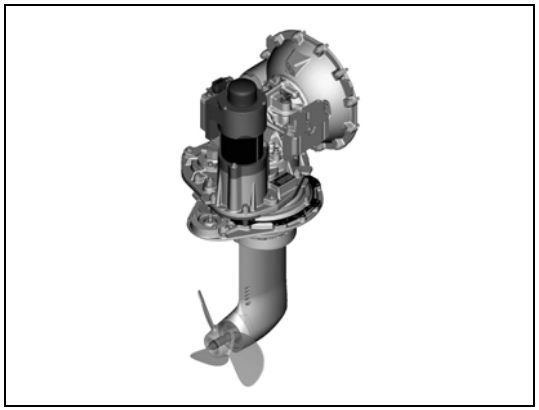
Maintenance

- 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.

Access: Aft cabin - Starboard / Port side

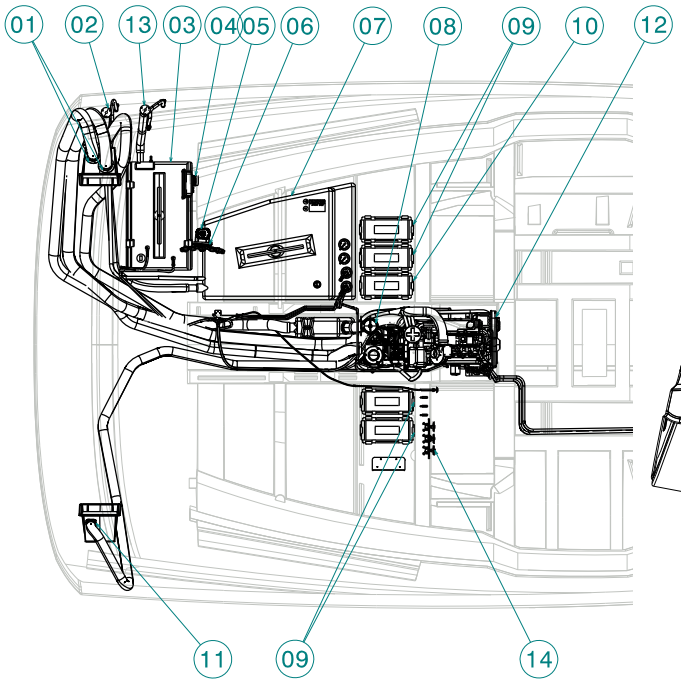
10.8 ENGINE INSTALLATION

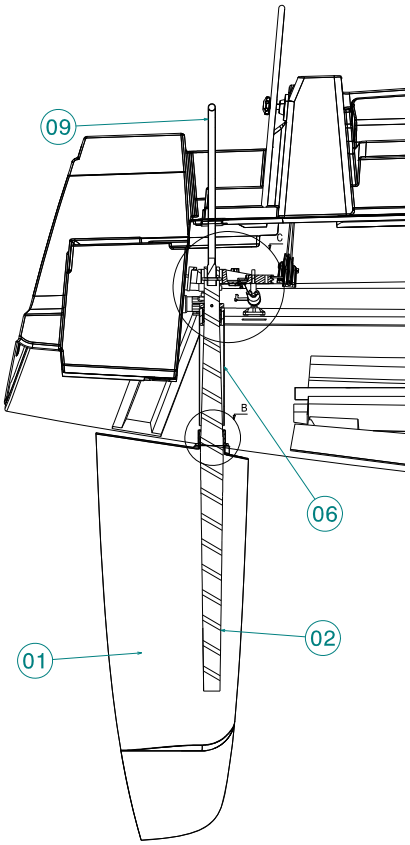
Engine installation: Dock and Go

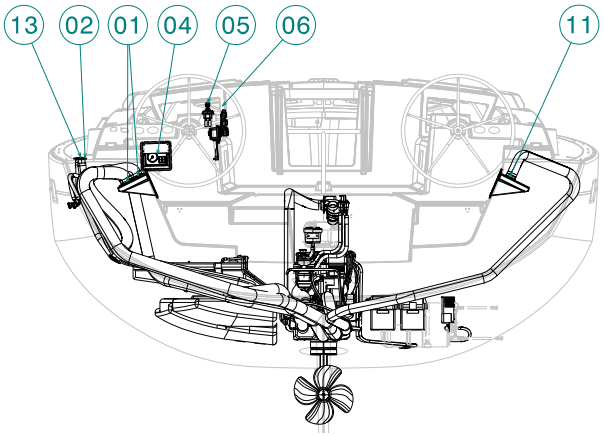


Sail Drive engine installation

Diagram of the in-board engine layout







Reference	Designation
1	Fresh air inlet
2	Deck filler Tank standard
3	Auxiliary fuel tank
4	Instrument panel Motor
5	Joystick Dock and Go
6	Control Reverser
7	Tank standard
8	Diesel filter
9	Service battery
10	Engine battery
11	Hot air extraction
12	Motor
13	Deck filler Tank - Options
14	Battery switch

10.9 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

10.10 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.

10.11 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.
- Pitch of the propeller: to the left.

- 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.

STEERING SYSTEM

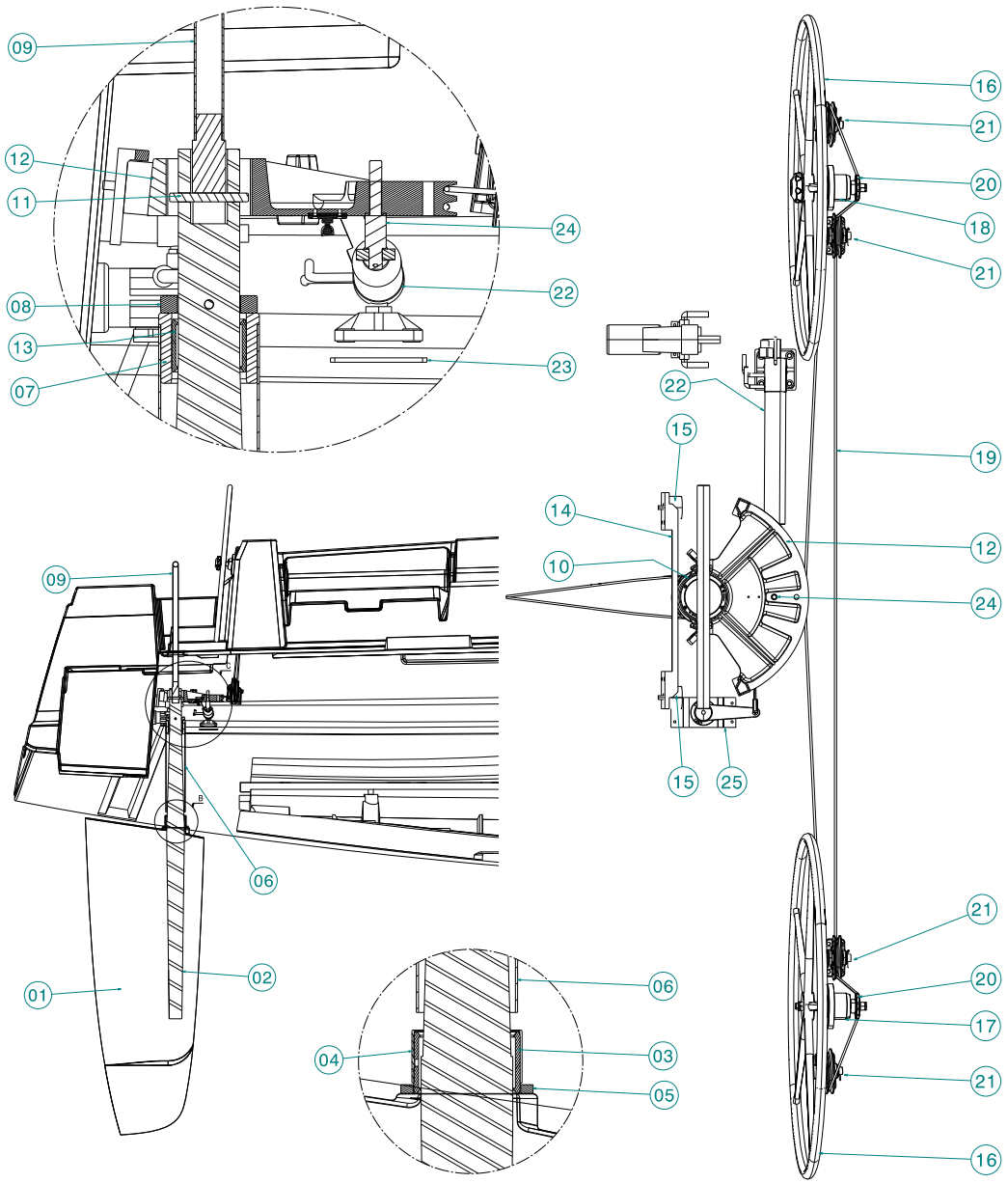
11

11.1 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.

11.2 LAYOUT DIAGRAM

Sailing boat steering system



Reference	Designation
1	Rudder
2	Stock
3	Upper stainless steel fret
4	Bronze bush
5	Balance bush
6	Rudder port tube
7	Bearing Rudder port tube
8	Flange - Bichromatic
9	Emergency tiller
10	Access hatch to emergency tiller
11	Pin
12	Sector
13	Lower stainless steel fret
14	Sector stopper
15	Rubber stop
16	Steering wheel
17	Column Steering
18	Column Steering with brake
19	Line
20	Chain
21	Panel + Sheave
22	Piston Tiller
23	Mount Piston
24	Axis cylinder
25	Pilot angle indicator support

11.3 BOW THRUSTER

General points

- The bow-thruster's motor is DC powered.
- The bow-thruster assists with steering the boat when manoeuvering at low speed (picking up a mooring buoy or berthing on a pontoon for instance).
- An operating relay is installed in the circuit.
- A fuse protects the electrical circuit.
- The bow-thruster motor has its own battery bank.

Operation

- Turn on the bow thruster battery switches.
- The engine's positive battery isolator automatically comes on and goes off when the engine is started/stopped. The thruster circuit negative is connected to the boat's general negative.
- The bow-thruster motor must operate with the boat's engine running.
- A control panel is located in the cockpit.
- To switch the bow-thruster motor on or off, press and hold in the red and green button simultaneously for several seconds.
- When the bow-thruster motor is not in use, switch off the electrical supply both:
    - to the control panel,
    - and to the switches of the motor's batteries.

Maintenance

- The bow-thruster's motor:
    - is lubricated for life and the oil does not require draining ;
    - must not be dismantled, even partially.
- Regularly check the charge state of the motor's batteries: a loss of voltage will cause premature wearing of the motor's relay contacts and brushes.

During lift-out

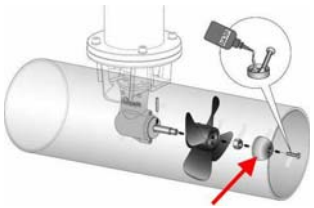
- Check that the propellers turn properly, with neither play nor stiffness.
- Clean the blades carefully.
- Remove the propeller, clean the shaft support, smear the shaft with silicone-based grease before refitting the propeller.
- After cleaning and applying a primer, antifoul the housing and the propellers.

Location: Forward cabin

1. Battery - 2x50A
2. Fuse
3. Motor
4. Positive battery isolator switch

Control: Cockpit

Anode / Nozzle



- Refer to the manufacturer's instructions for use and maintenance.
- Never run the motor when the propeller is out of the water.
- In the case of dual control, be careful to use just one control at a time.
- The motor must not run for longer than 3 minutes (risk of overheating).

DECK FITTINGS

12

12.1 GENERAL POINTS

12.1.1 GRP

- 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.

12.1.2 Plexiglas (PMMA)

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

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

12.1.3 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.

12.2 BERTHING, ANCHORING, TOWING

12.2.1 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	**32,3**	**46,4**	**46,4**
Mooring Line/Chain Breaking Strength	**25,9**	**37,1**	**37,1**

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.

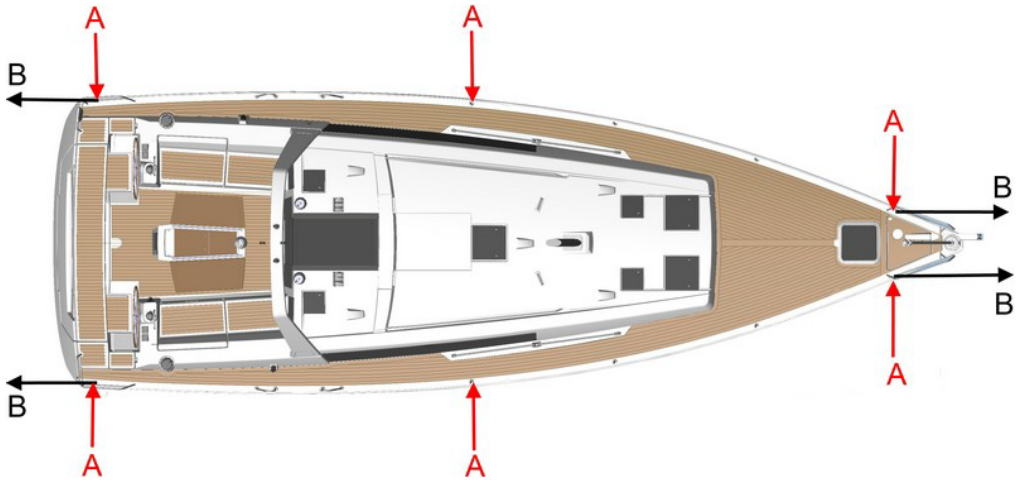
Note: black components are less sensitive to UV radiation than light coloured ones.

Pass warps through the fairleads provided for this purpose.

12.2.2 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.

12.3 MAIN ELEMENTS OF THE CHAIN LOCKER

1. Chain locker
2. 1 000 W Electric windlass

3. Clinch
4. Remote control

5. Handle
6. Chain rim - 10 mm diameter

Refer to the 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.

12.4 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.

Operation relay
Location: Sail locker

Access

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

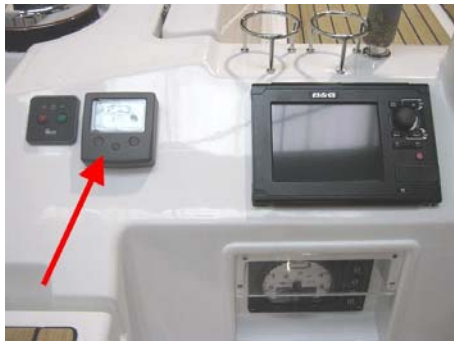
In the event of an electrical fault, it is possible to lower the anchor manually: Put the handle in the space provided for this to release the chain grab. Then let the chain run out using the handle to control its speed as it runs.

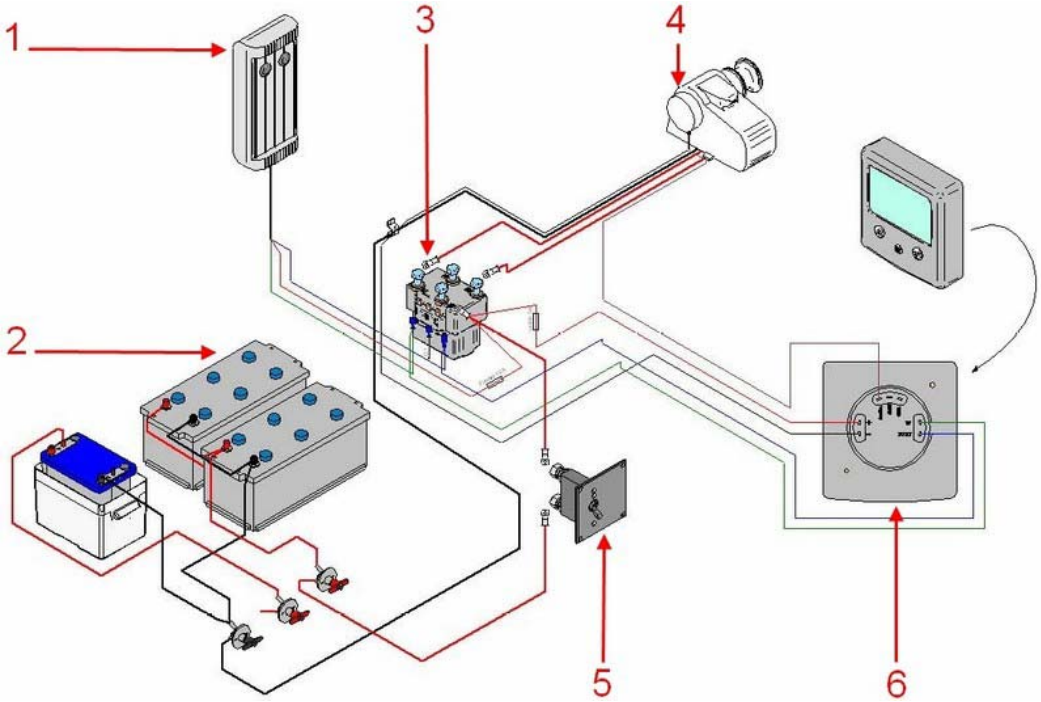
The handle serves only to release the chain grab in order to lower the anchor manually should the electric windlass break down. The handle cannot be used to raise the anchor manually.

- 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.

LAYOUT DIAGRAM - CHAIN METER

Control: Cockpit



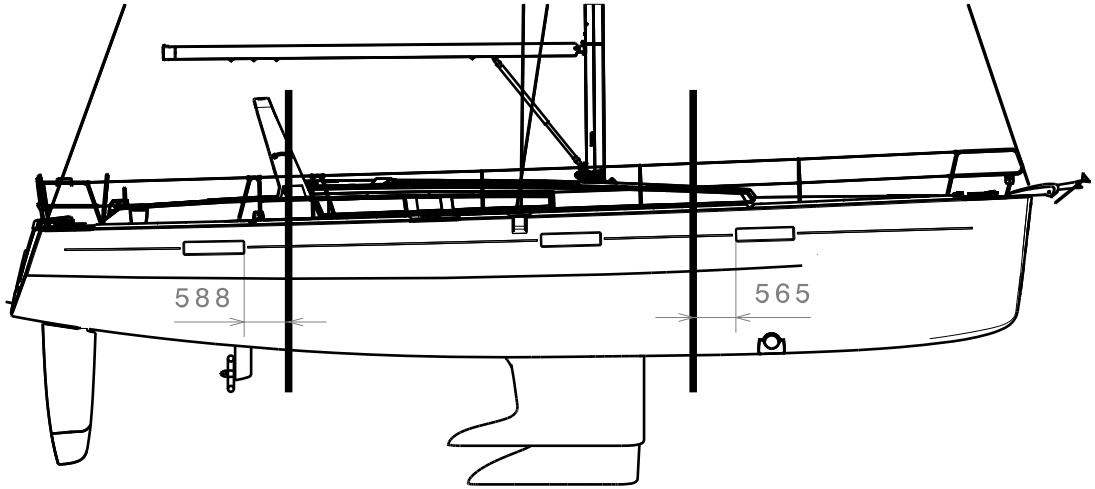


Reference	Designation
1	Remote control for the windlass
2	Service batteries
3	Operation relay
4	Windlass
5	Breaker
6	Chain meter

HANDLING, TRANSPORT

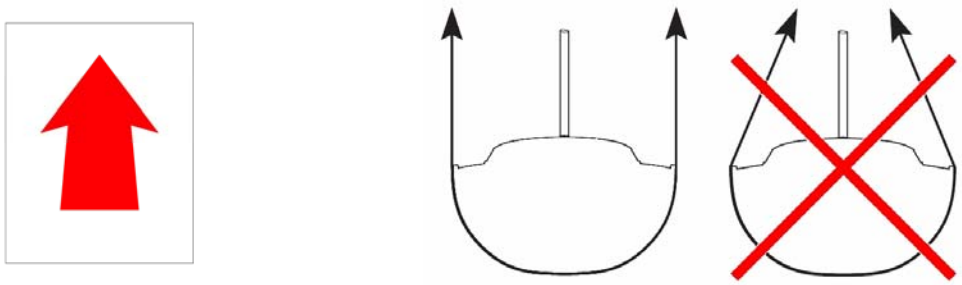
13

13.1 LIFTING PLAN



Note: Measurements are expressed in mm.

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



13.2 LIFTING

- Before the first application of antifouling to the hull, you can lightly sand the hull using 400 µm or more wet and dry sandpaper.
- 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: 46 m²

- Follow the manufacturer's recommendations scrupulously when applying antifouling.
- Never cover with antifouling:
  - the anodes ;
  - the earthing plates (Generator / DC/AC converter) ;
  - the refrigeration unit condenser ;
  - the sea water strainers ;
  - the sensors of the electronic instruments.
- Avoid using copper or tin-based antifouling: these are banned in some countries.

13.3 UPPER LIMIT OF ANTIFOUL

The boat's hull has a shallow indent moulded along its length: the upper marking corresponds to the upper limit of antifoul on the hull.

13.4 LAUNCH/LIFT OUT

The initial commissioning of your boat will require a lot of skill and care. 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 Chapter: Electricity).
- Check the propeller (see Chapter: Steering).
- Prepare enough fenders and lines.
- Check the engine's sea water intake valve and the fuel feed valve (see Chapter: Engine).

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

- Before any handling, make sure that the gear lever is in the forward position (Dock and Go version).

- When placing the slings make sure that the positioning marks are still visible.

- Submerge the sling fully under the engine mounting.