

Oceanis 55

OWNER'S MANUAL



146876
Index F



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INTRODUCTION

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.



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 manoeuvring 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, manoeuvring 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 .



- 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

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■ General dimensions	10
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■ Sails	11

1.1 CONSTRUCTION

Model.....	OCEANIS 55
Architect / Interior design.....	Berret Raccoupeau / Nauta design
Builder	SPBI S.A
Principal means of propulsion	Sail
Hull and deck construction material	Laminated sandwich glass / Polyester / Balsa wood
Application.....	infusion

1.2 GENERAL DIMENSIONS

L.O.A (L_{max})*	16,78 m
<i>(Including removable parts that can be dismantled (bow roller, pulpit, bowsprit), without affecting the structure of the boat)</i>	
Hull length (L_H)*	15,99 m
<i>(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)</i>	
Overall width (B_{max})*	4,96 m
<i>(Including: removable parts that can be dismantled, without affecting the structure of the boat)</i>	
Beam(B_H)*	4,96 m
<i>(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)</i>	
Air draught - Empty vessel: – Classical mast / Roller furling mast.....	23,95 m
Draught - Boat fully laden: Deep draught version (Deep draught keel).....	2,30 m
Shallow draught version (Shallow draught keel).....	1,91 m
Very shallow draught keel version (Short draught keel)	1,56 m
Wetted surface area	Approximately 55 m ²

1.3 ENGINE

Nominal maximum propulsion power (at the propeller output).....	58,8 Kw
Maximum recommended engine size.....	269 kg

1.4 ELECTRICITY

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

1.5 CAPACITIES

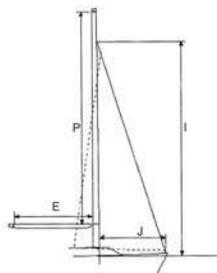
Total mass of the liquid content of fixed tanks when they are full	1 688 kg
Fuel capacity: Tank 1 (*)	200 l
Tank 2 (*)	200 l
Extra tank	200 l
Fresh water capacity: Tank 1 (*)	330 l
Tank 2 (*)	324 l
Extra tank	324 l
Black water capacity (WC): in each bathroom	80 l
Skipper's cabin	50 l

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.

(*): Refer to the corresponding chapter to locate the position of the tank (relationship between the tank number and its position on board).

1.6 SAILS

I	20,93 m
J	6,60 m
P	19,85 m
E	5,90 m
Mainsail (classic) - standard	67 m ²
Mainsail (classic) - hydranet	67 m ²
Furling mainsail	53 m ²
Laminated genoa mylar / taffetas	66 m ²
Genoa - hydranet	66 m ²
Genoa - standard	66 m ²
Jib	53 m ²
Staysail	35 m ²
Asymmetrical spinnaker	200 m ²
Code O	116 m ²
Planned sail area	135,50 m ²



DESIGN CATEGORIES AND DISPLACEMENT

■ Boats n°1 to n°4.....	14
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- 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 BOATS N°1 TO N°4

2.1.1 Deep draught version (Deep draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	12	14	16	16
Light displacement (kg)	17 030			
Recommended maximum load (kg)	5 500			
Displacement with maximum load (kg)	22 530			

2.1.2 Shallow draught version (Shallow draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	12	14	16	16
Light displacement (kg)	17 612			
Recommended maximum load (kg)	5 500			
Displacement with maximum load (kg)	23 112			

2.2 BOATS FROM THE HULL N°5

2.2.1 Deep draught version (Deep draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	12	14	16	16
Light displacement	16 803 kg			
Recommended maximum load	5 500 kg			
Displacement with maximum load	22 303 kg			

2.2.2 Shallow draught version (Shallow draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	12	14	16	16
Light displacement	17 133 kg			
Recommended maximum load	5 500 kg			
Displacement with maximum load	22 633 kg			

2.2.3 Very shallow draught keel version (Short draught keel)

Design category	A	B	C	D
Maximum number of people to be allowed onboard	12	14	16	16
Light displacement	17 428 kg			
Recommended maximum load	5 500 kg			
Displacement with maximum load	22 928 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

- Stability data 18
- Access to the boat..... 19

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.
- Think unlock the hatch (located in the front cabin) before using the boat. This should allow opening of the hatch by a person from the outside.

3.2 ACCESS TO THE BOAT

Access to the cockpit



Access to the engine compartment

Steps - Companionway



Side hatches (Port aft cabin & Starboard)



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.
- Think unlock the hatch (located in the front cabin) before using the boat. This should allow opening of the hatch by a person from the outside.

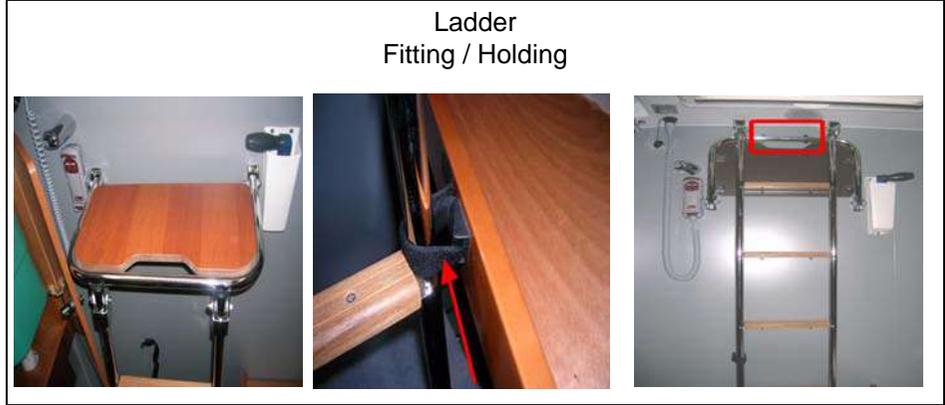


- It is imperative that companionway access is kept closed when at sea.
- Close the deck hatches and portholes before each trip.
- Close all access doors and hatches in heavy weather or when the sea is rough.



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

Access to the crew cabin



MANOEUVRABILITY

- Shallow draught version (Shallow draught keel) 22
- Deep draught version (Deep draught keel) 22
- Very shallow draught keel version (Short draught keel) 22

- 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:

Deep draught version (Deep draught keel) - Classical mast / Roller furling mast

	Boat with minimal load	Boat laden
Angle of vanishing stability (in degrees)	116° / 114°	112° / 111°
STIX	49.85 / 48.14	50.21 / 48.70

Shallow draught version (Shallow draught keel) - Classical mast / Roller furling mast

	Boat with minimal load	Boat laden
Angle of vanishing stability (in degrees)	115° / 113°	111° / 110°
STIX	48.81 / 47.14	49.31 / 47.86

Very shallow draught keel version (Short draught keel) - Classical mast / Roller furling mast

	Boat with minimal load	Boat laden
Angle of vanishing stability (in degrees)	114° / 112°	111° / 110°
STIX	48.21 / 46.58	48.79 / 47.34

- 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.



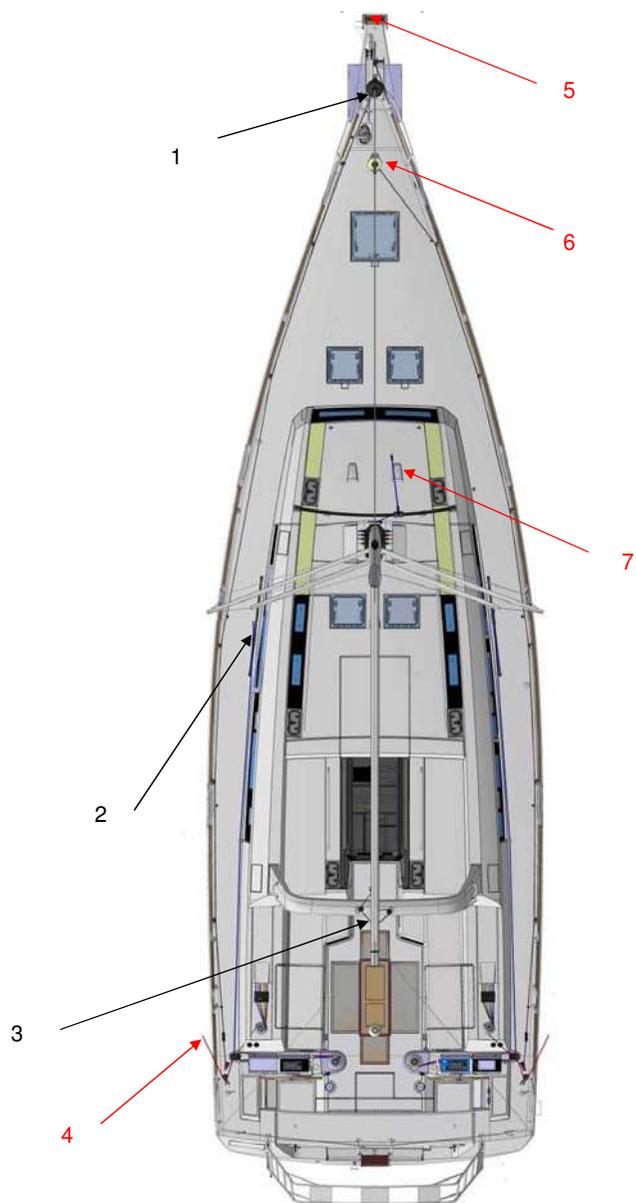
- If carrying too much sail, the boat could capsize.
- It is important to take additional precautions in very strong winds or in a confused sea or breaking waves.

RIGGING AND SAILS

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5.1 RIGGING DIAGRAM

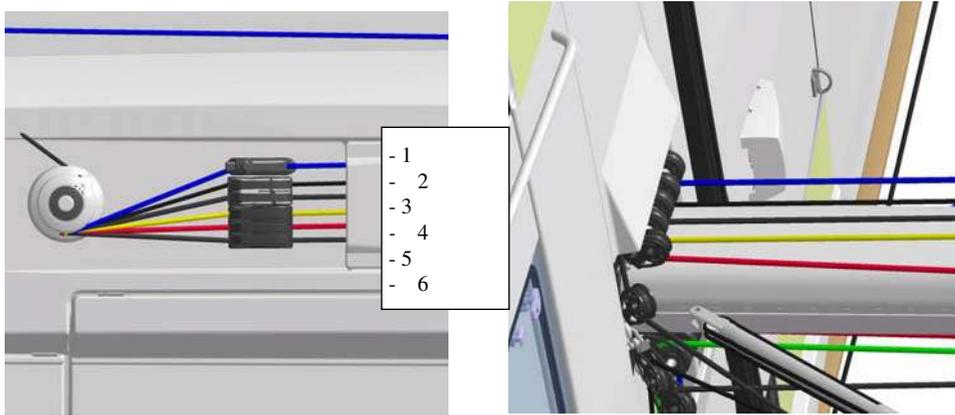
5.1.1 Classical mast



Reference	Designation
1	Genoa furler
2	Genoa sheet
3	Mainsail sheet
4	SHEET - Asymmetrical spinnaker / Code 0
5	Asymmetric spinnaker tack point / Code 0
6	Fore stay sail furler
7	Self-tacking jib sheet

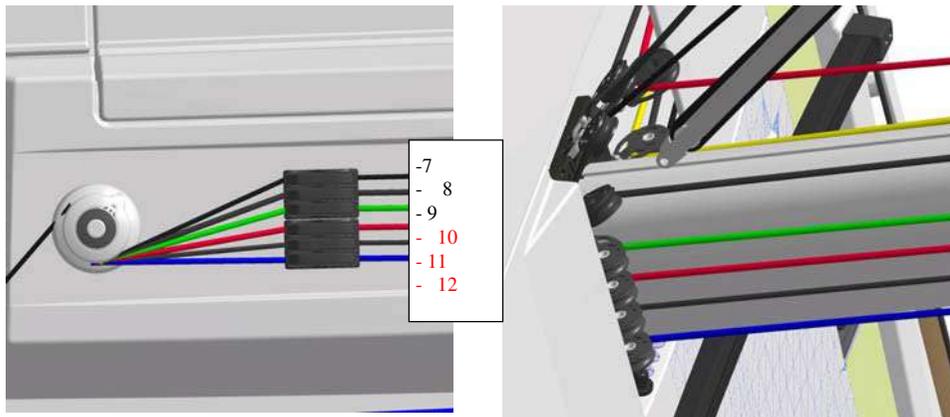
5.1.2 System - Mast step (Classical mast)

Port side



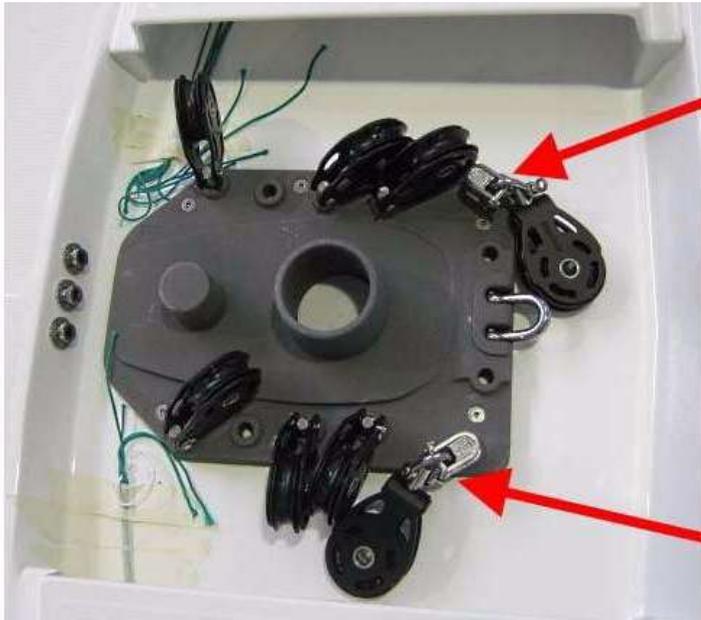
Reference	Designation
1	Genoa halyard
2	Main halyard
3	Boom topping lift
4	Reef 1
5	Mainsail foot
6	Mainsail sheet

Starboard



Reference	Designation
7	Kicking strap
8	Reef 3
9	Reef 2
10	Spinnaker halyard
11	Fore stay sail halyard
12	Self-tacking jib sheet

STEP



NO

NO

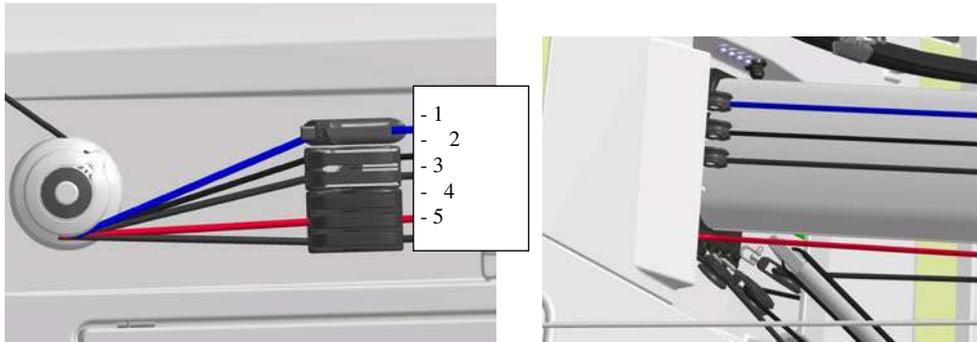


YES

YES

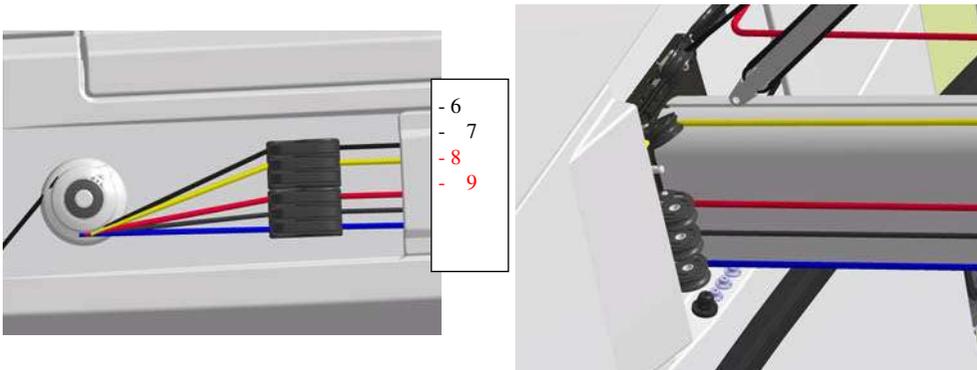
5.1.3 System - Mast step (Roller furling mast)

Port side



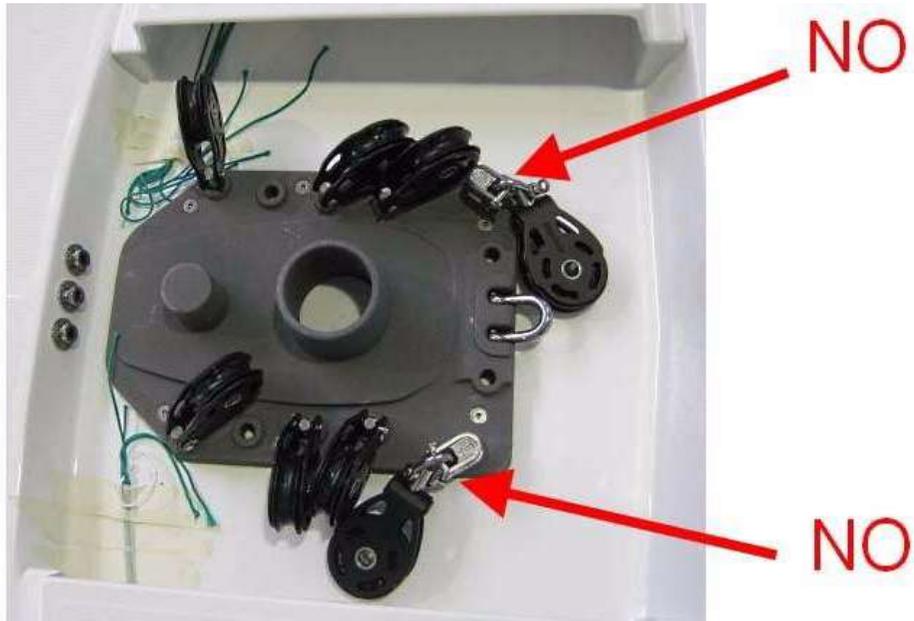
Reference	Designation
1	Genoa halyard
2	Main halyard
3	Boom topping lift
4	Mainsail foot
5	Mainsail sheet

Starboard

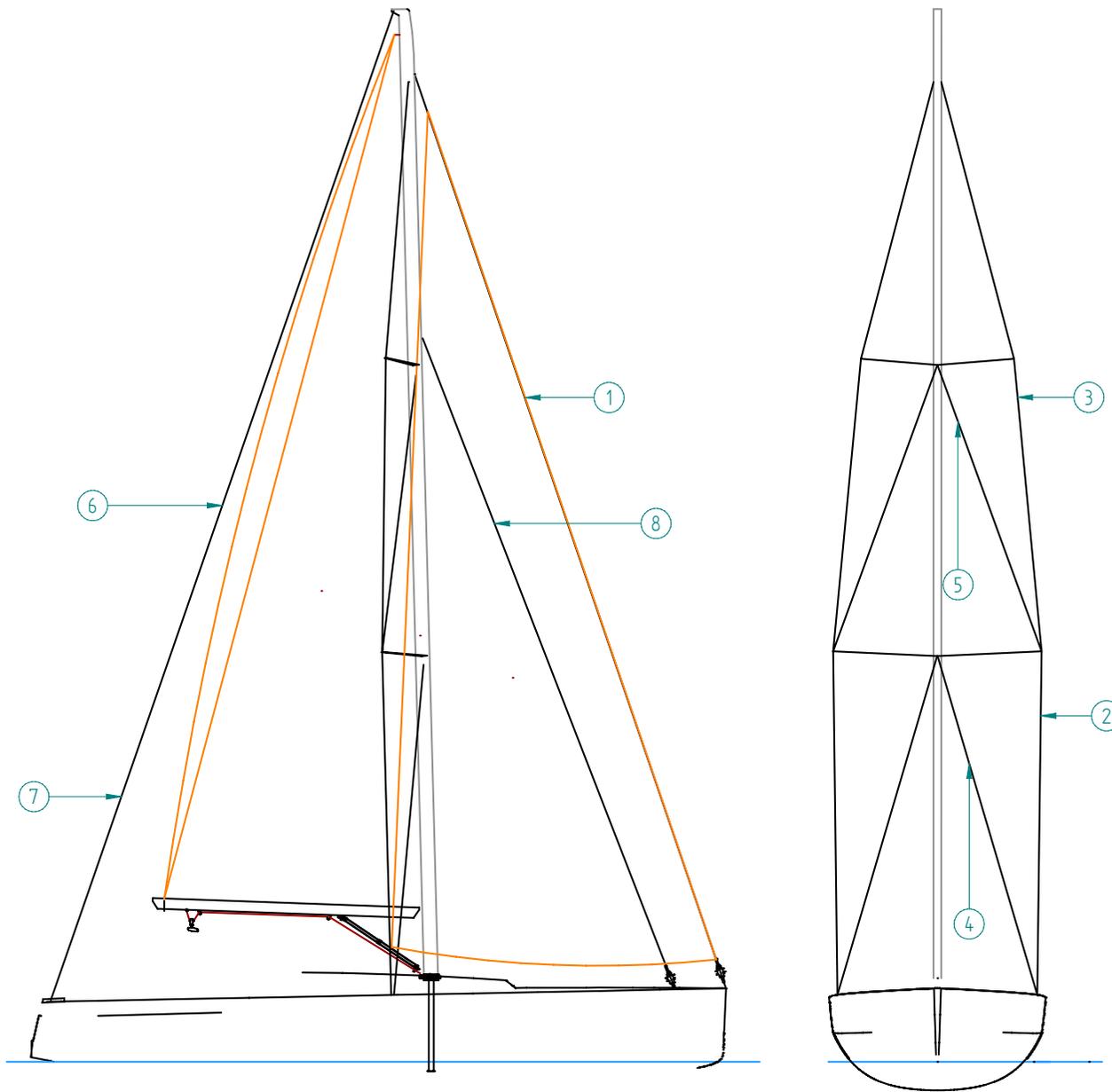


Reference	Designation
6	Kicking strap
7	Main furling line
8	Spinnaker halyard
9	Fore stay sail halyard
10	Self-tacking jib sheet

STEP



5.2 STANDING RIGGING



- 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.



- 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. 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.

Reference	Designation	Quantity
1	Forestay	1
2	V1	2
3	V2D3	2
4	D1	2
5	D2	2
6	Backstay	1
7	Fixed bridle	2
OR		
7	Adjustable bridle	1
8	Lower - Forestay	1



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 out 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

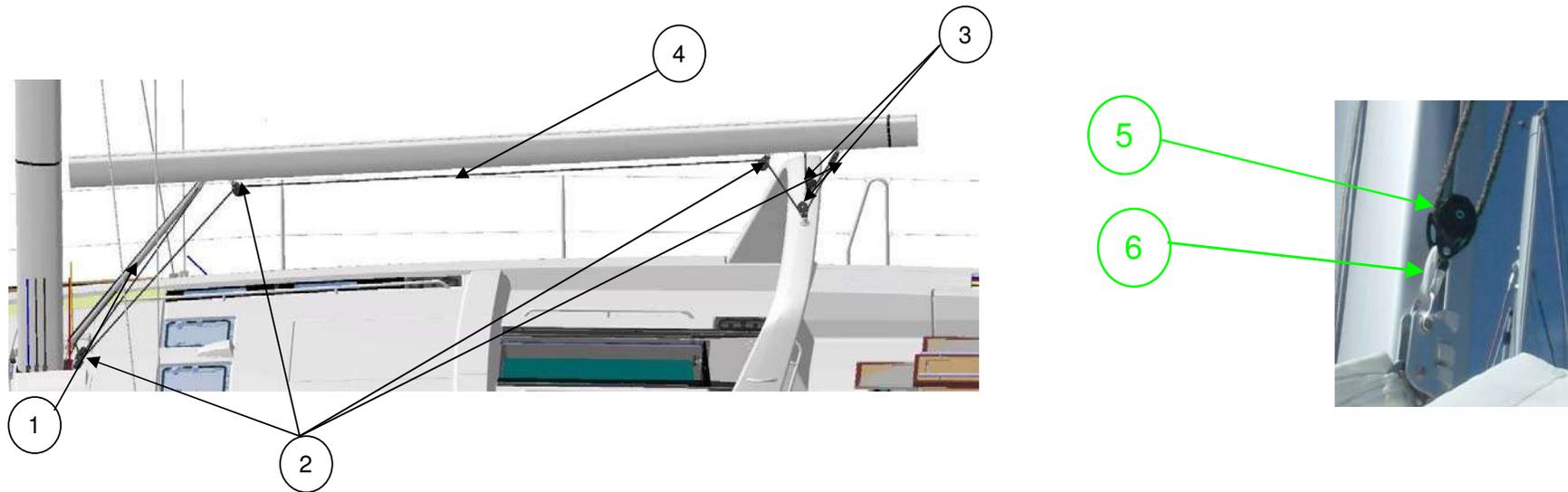
- Remove the sails if your boat is not to be used for a long time.
- Avoid storing a wet sail to prevent the appearance of mould and mildew.
- Flake the sail parallel to the foot, then roll it up to the bag dimensions.



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.

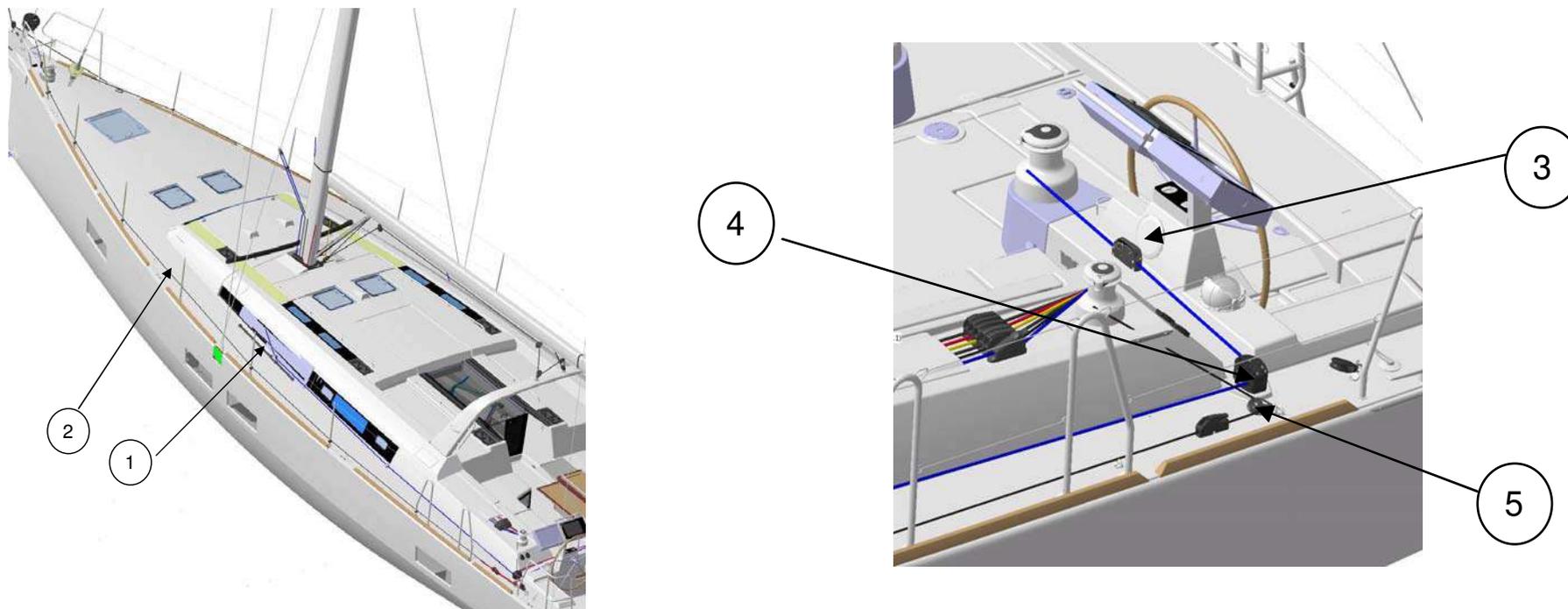
5.5 SETTING THE SAILS

5.5.1 Mainsheet system



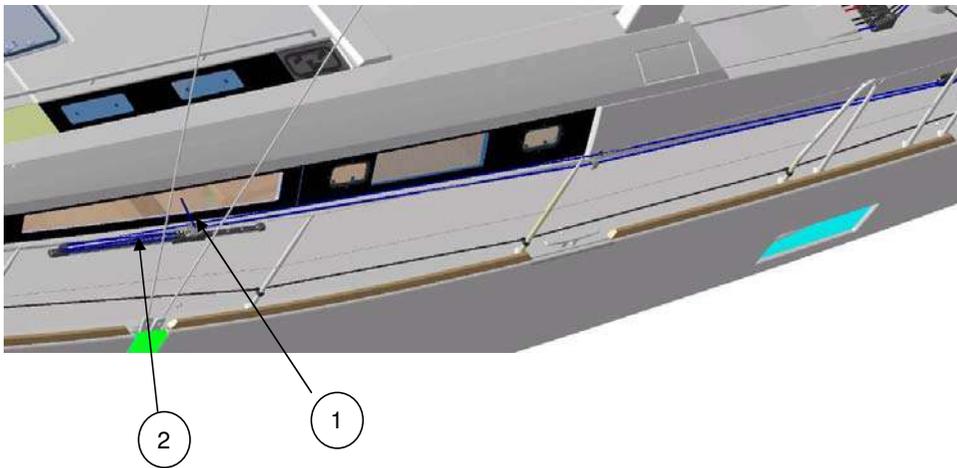
Reference	Designation
1	Kicking strap
2	Swivel single pulley
3	Pulley
4	Mainsail sheet
5	Single frame pulley
6	Reeving loop

5.5.2 System - Genoa



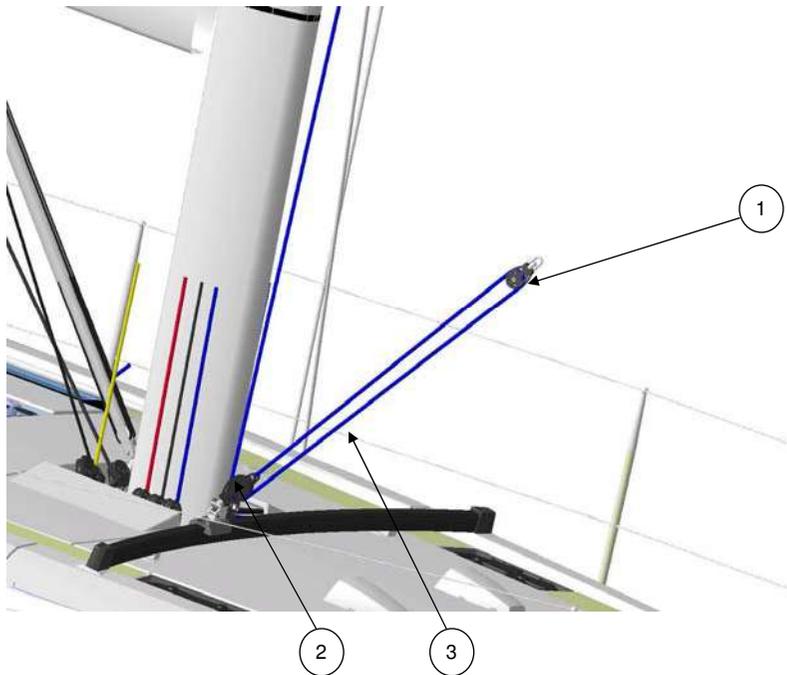
Reference	Designation
1	Genoa sheet
2	Genoa furler line
3	Single clutch
4	Single block returns
5	Swivel single pulley

5.5.3 System - Easy Sail



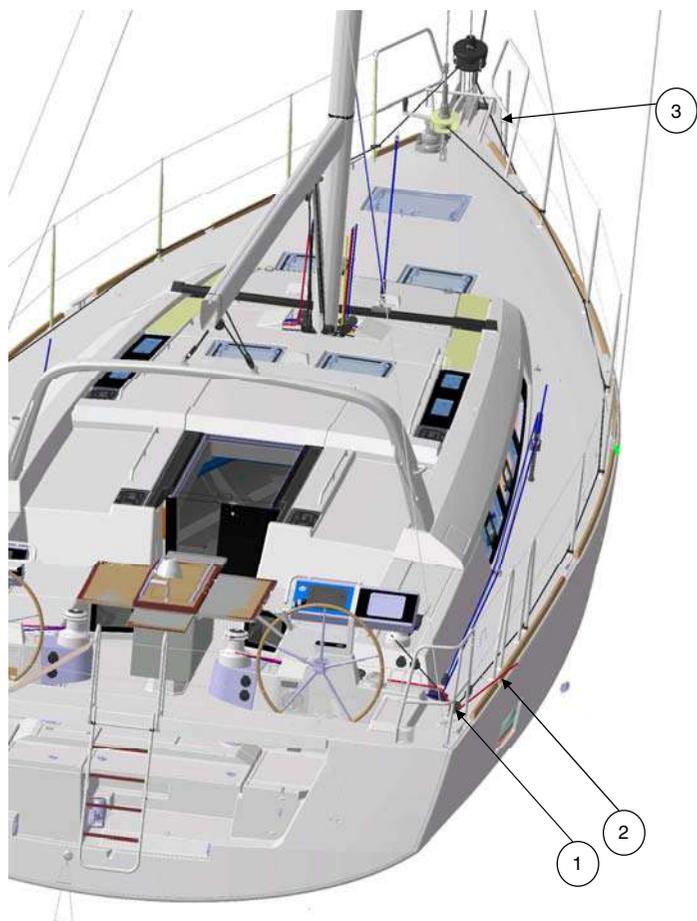
Reference	Designation
1	Genoa sheet
2	genoa car adjustment

5.5.4 System - Tacking jib



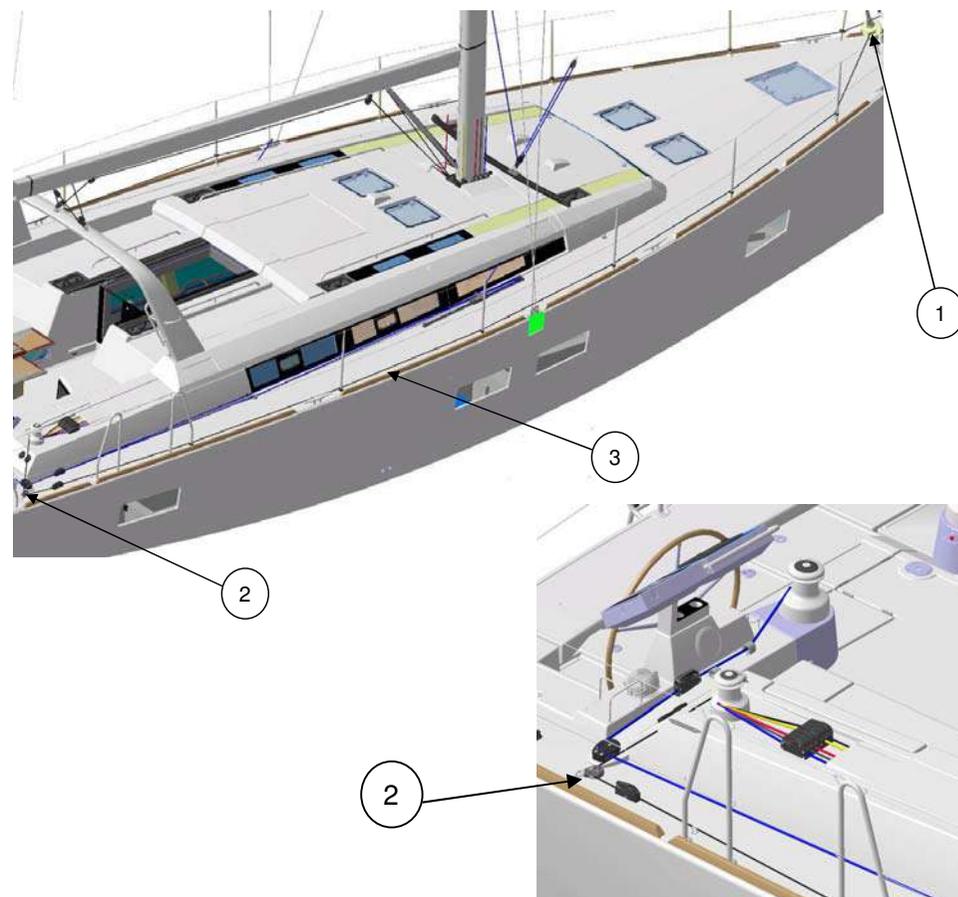
Reference	Designation
1	Swivel single pulley
2	Swivel single pulley
3	SHEET - Staysail

5.5.5 System - Code 0 / Asymmetrical spinnaker



Reference	Designation
1	Swivel single pulley
2	Spinnaker sheet
3	Spinnaker tack

5.5.6 System - Fore stay sail furler



Reference	Designation
1	Fore stay sail furler
2	Swivel single pulley
3	Furling line

5.6 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).

5.7 WINCHES

Manual winches

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

Electric winches

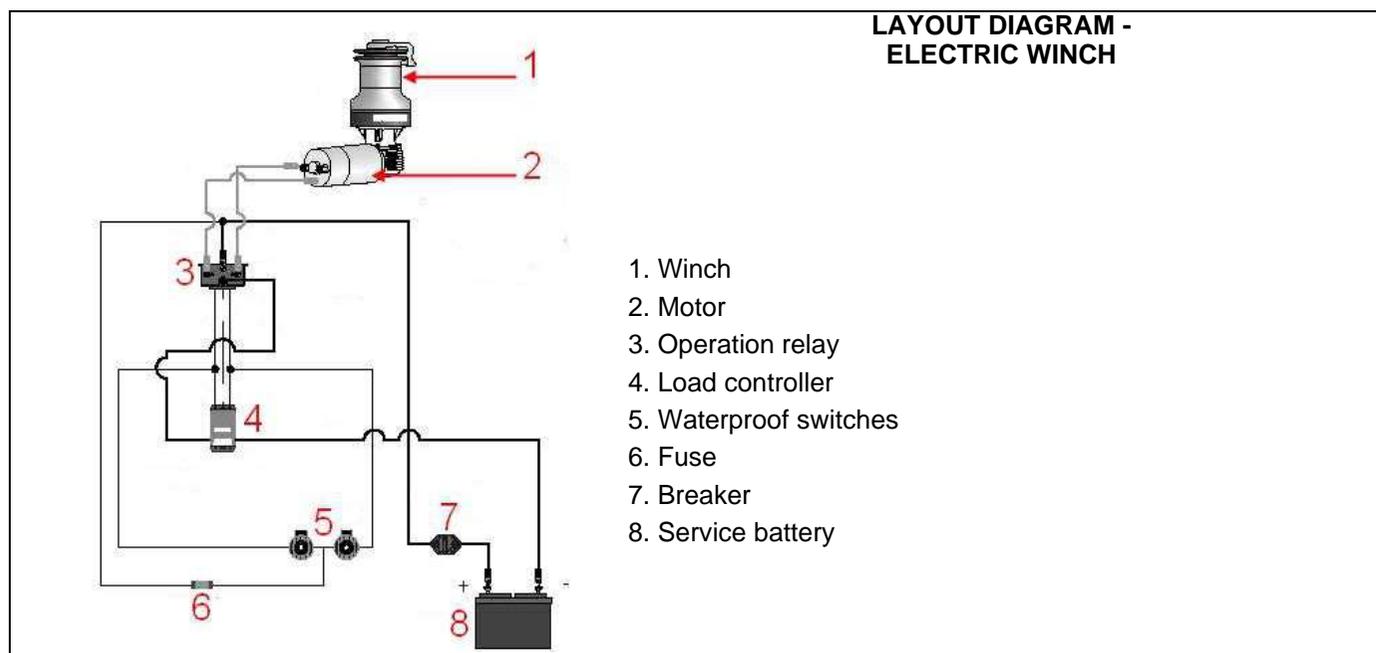
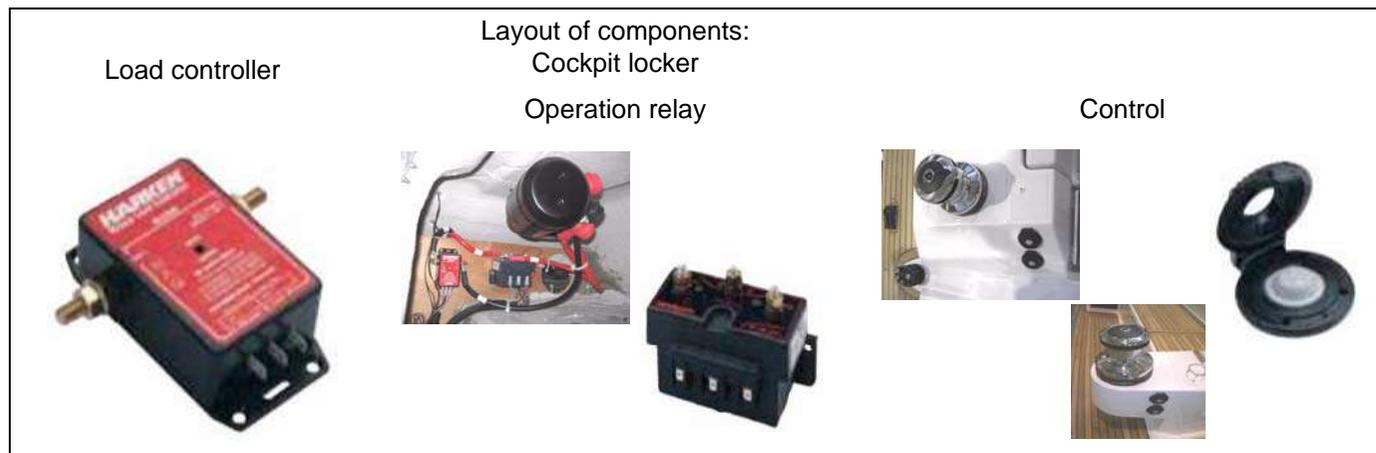
- The electric winches are supplied by direct current.
- A breaker protects the electrical circuit.
- An operation relay is fitted to the electrical circuit.
- Two waterproof foot switches control a winch.
- A load controller is fitted to the electrical circuit: This system protects the winches against overload by temporarily interrupting the electrical supply. The load controller is programmed in the factory.
- Inserting a winch handle into an unloaded winch automatically disconnects the motor transmission and allows it to be used manually.

NOTE:

- Heavy use is made of the batteries when operating the electrical winches: Make sure the battery bank is systematically recharged after a day's sailing.

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.

5.8 GENOA FURLER

5.8.1 Manual 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.

5.8.2 Electric genoa furling system

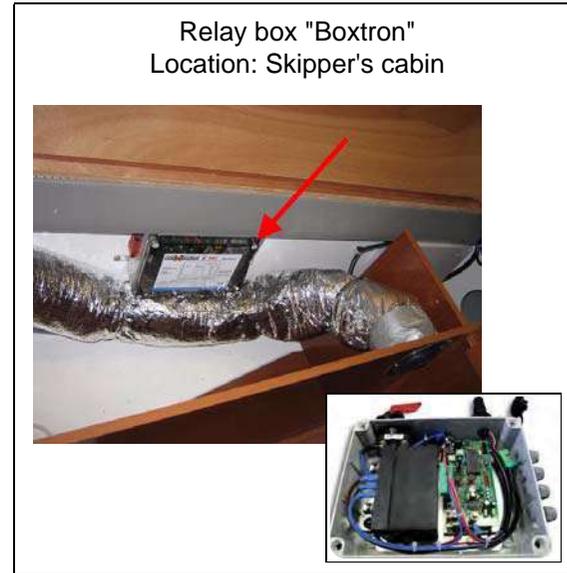
General points

The electric genoa furler is supplied by direct current.

A circuit-breaker protects the circuit.

The control is located in the cockpit.

It is comprised of the following elements:



SAFETY

- Preventing man overboard situations and the means of getting someone back onboard 42
- Storing the life-raft 44
- Securing moveable items 44
- Deck Layout 45
- Information about the risks of flooding and about the boat's stability 46
- Emergency systems in case of steering gear failure..... 60

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: Fitting a means of climbing back onboard.

Ref 2: Chain plate which correspond to the anchor points for the lifelines.

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.



- Use the seats provided.

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.

Installation of means to get back on board in the event of an accidental fall (Ref 1):



Description of the stages of use:



1. Pull the retractable ladder out of its stowage.

2. Let the ladder unfold in the water.

3. Climb back on board by using the bars of the ladder.

Installation of means to get back on board when swimming:
Swimming ladder (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



Locker open



Locker closed



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



6.3 SECURING MOVEABLE ITEMS



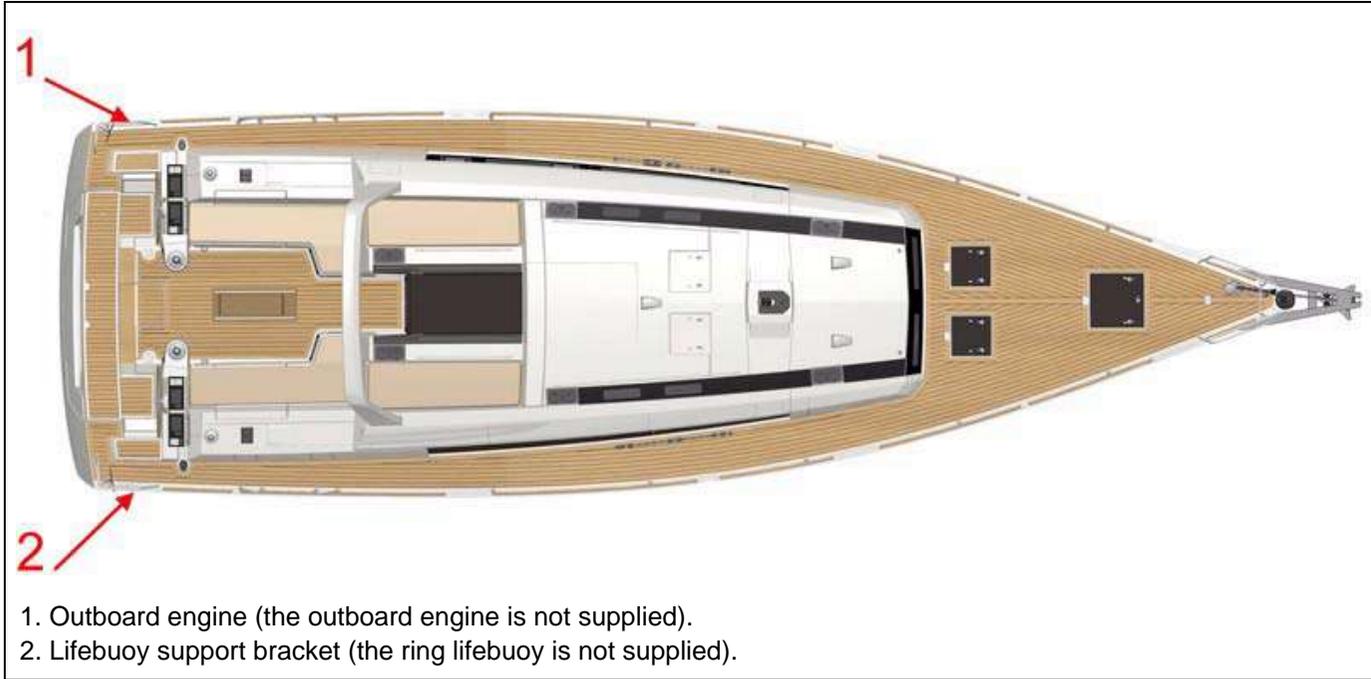
- Ensure that movable items are firmly secured when the boat is under way.
- Don't store anything below the floorboards.



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.

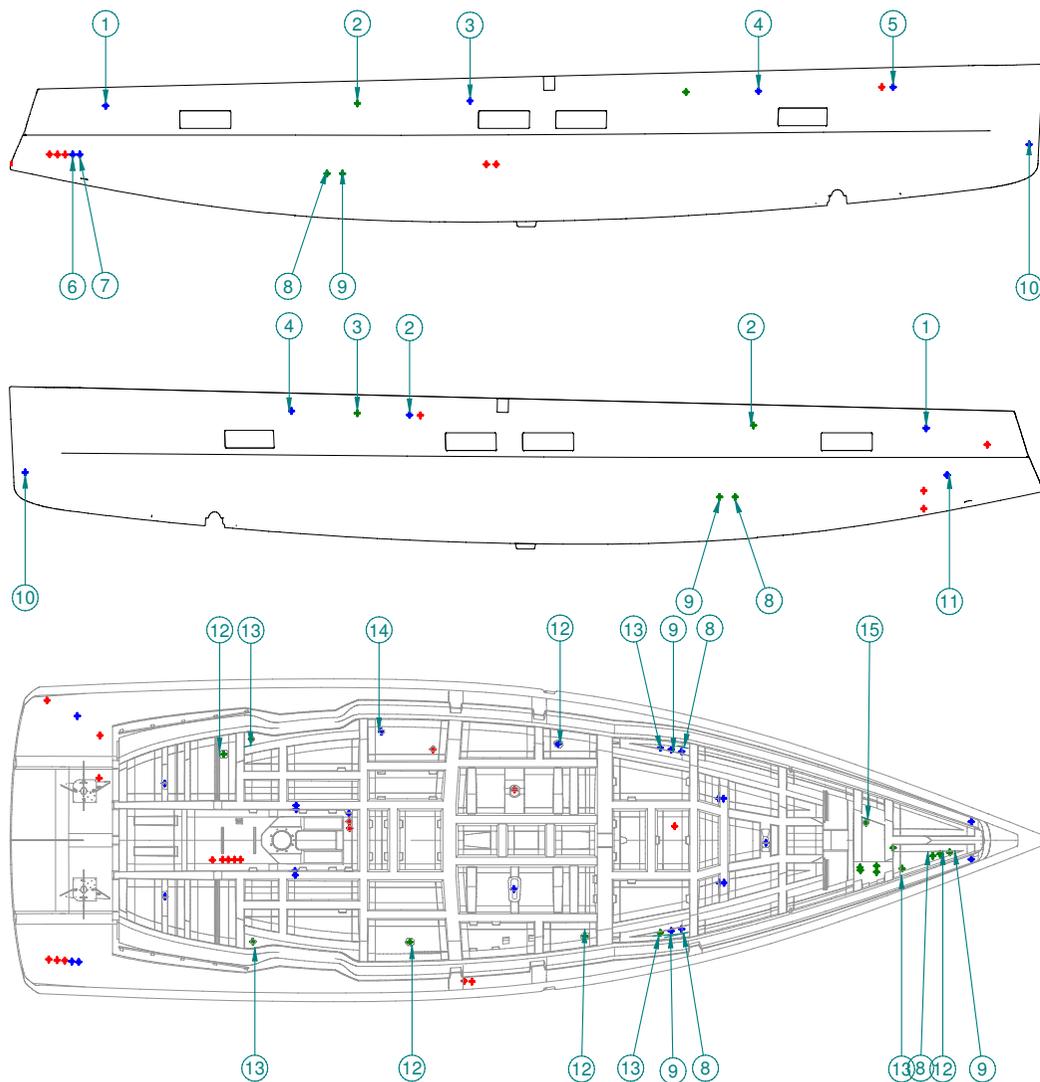
6.4 DECK LAYOUT



 The maximum weight of the outboard engine on the pushpits must not exceed 20 kg.

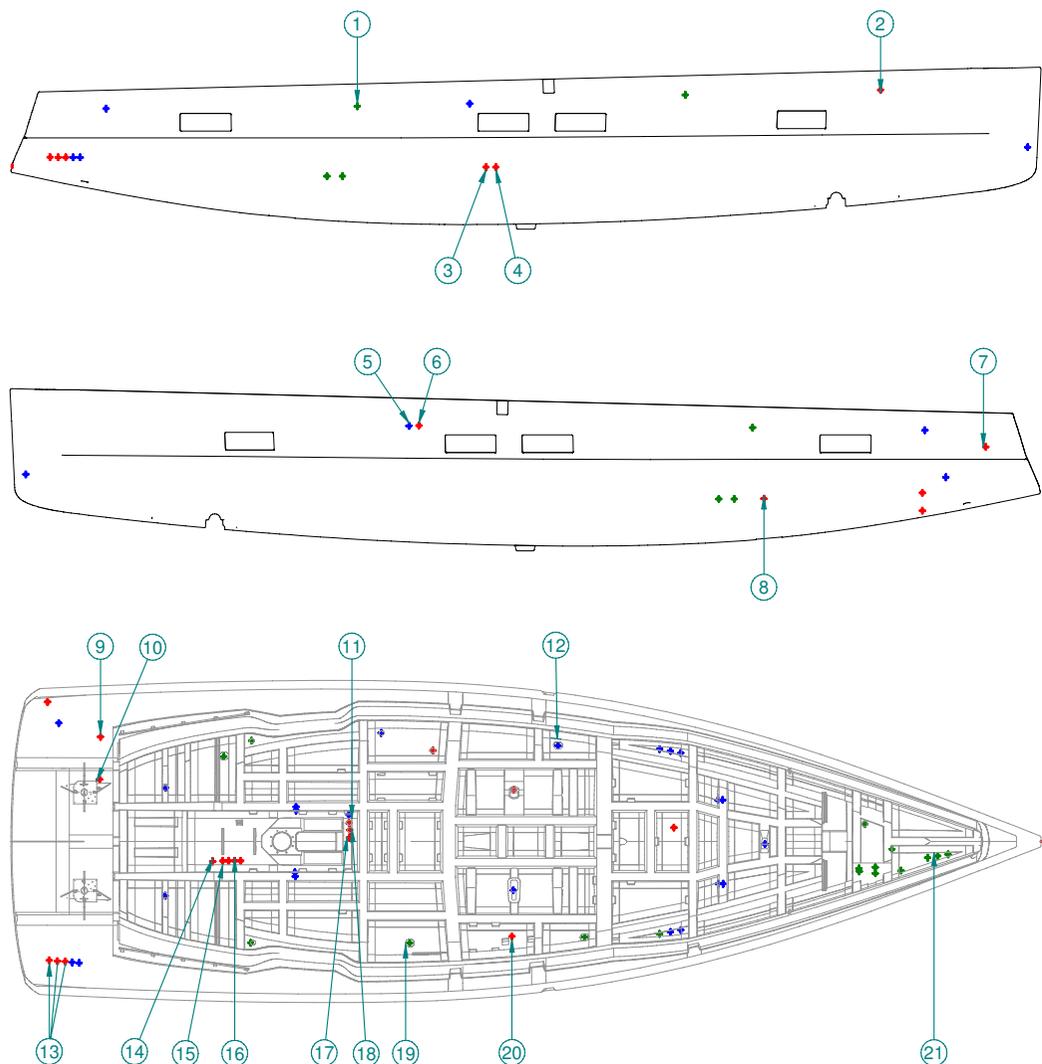
6.5 INFORMATION ABOUT THE RISKS OF FLOODING AND ABOUT THE BOAT'S STABILITY

6.5.1 Openings in hull



Reference	Designation	Valve
1	Vent hole - Fuel tank	Not
2	Black water tank	Not
3	Water tank vent	Not
4	Drainage - Deck hatch - Forward cabin	Not
5	Drainage - Deck hatch - Skipper's cabin	Not
6	Draining of manual bilge pump	Yes
7	Electric bilge pump draining	Yes
8	Washbasin draining - Head	Yes
9	Shower draining - Head	Yes
10	Chain locker scupper	Not
11	Engine exhaust	Not
12	WC evacuation to sea	Yes
13	Sea water intake - WC	Yes
14	Galley sink drain	Yes
15	Drainage - Sail locker	???

OPTIONS



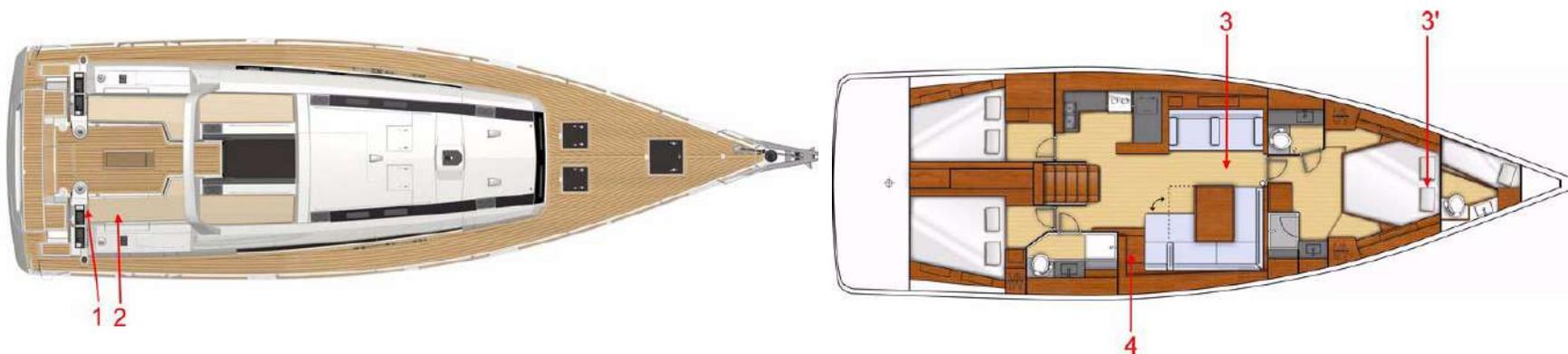
Reference	Designation	Valve
1	Black water tank (Version 3 cabins / 2 head compartments)	Not
2	Black water tank (Skipper's cabin)	Not
3	Drainage - Air conditioning - Condenser	Not
4	Drain - Water maker	Yes
5	Black water tank (VacuFlush System)	Not
6	Vent hole - Auxiliary fuel tank / Extra water tank	Not
7	Drain scupper - Gangway	Not
8	Washing machine outlet	Yes
9	Generator exhaust	Not
10	Drainage - Generator	Yes
11	Sea water intake - Air conditioning	Yes
12	WC evacuation to sea (VacuFlush)	Yes
13	Drainage - Air conditioning - Condenser	Yes
14	Condenser - Refrigeration unit	Not
15	Earthing plate - Inverter	Not
16	Earthing plate - Generator	Not
17	Sea water intake - Deck wash pump	Yes
18	Sea water intake - Generator	Yes
19	WC evacuation to sea (VacuFlush)	Yes
20	Sea water intake - Water maker	Yes
21	WC evacuation to sea (Skipper's cabin)	Yes

6.5.2 Drainage system

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

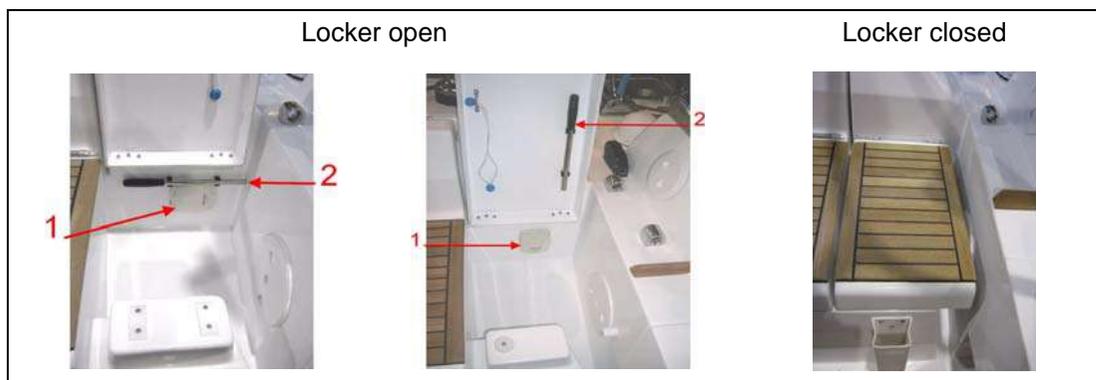


Reference	Designation	Rate
1	Manual bilge pump	32p/minute (*)
2	Manual bilge pump lever	
3	Electric bilge pump	46p/minute
3'	Electric bilge pump	30p/minute
4	Electric bilge pump switch	

(*) 45 strokes/minute

If 70 stroke/minute: rate 35p/minute

Secondary drainage system 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.

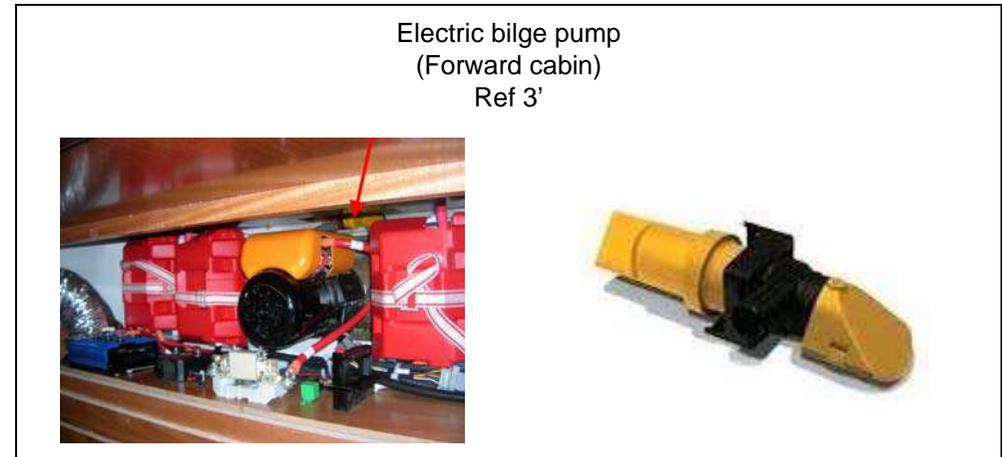
II- Repeatedly work the lever up and down to its fullest extent.

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



Main drainage system
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.

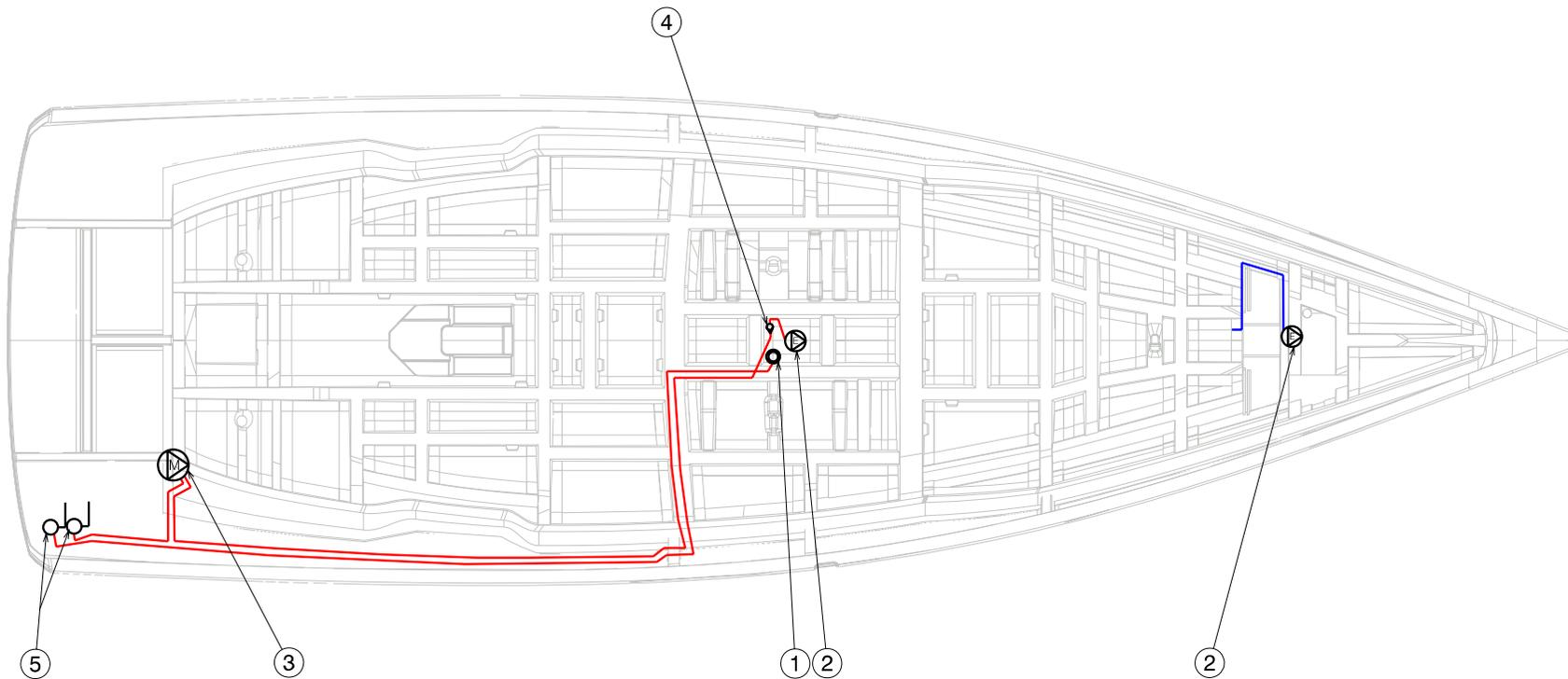


- The drainage system is not designed to control water coming from breaches in the hull.
- Keep the water level in the bilges to the minimum.
- Never store anything right at the bottom of the boat: Allow bilge water to flow freely down to the lowest point of the boat.



- 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



	Pipe - Bilge pump system - Ø 20mm
	Pipe - Bilge pump system - Ø 25mm

Reference	Designation
1	Intake strainer
2	Electric bilge pump
3	Manual bilge pump
4	Non-return valve
5	Bilge pump draining

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



Reference	Designation
1	Emergency tiller hole
2	Emergency tiller

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.

Access plug-hole - Steering sector



Filler cap - Open



Emergency tiller storage:
Starboard cockpit locker



Tiller - in position



INFORMATION RELATING TO FIRE RISKS AND RISKS OF EXPLOSION

- Propulsion engines and other fuel-burning equipment..... 56
- Electrical system 56
- Gas system 56
- Fire-prevention and fire-fighting equipment..... 56
- Emergency exits in case of fire 59
- Extinguisher access hole..... 60

7.1 PROPULSION ENGINES AND OTHER FUEL-BURNING EQUIPMENT

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

Note concerning the boat's tender:

- If the tender is fitted with a more powerful outboard motor than 25 Kw, it must have on board a portable extinguisher with a rating equal to or greater than 8A / 68B.

 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

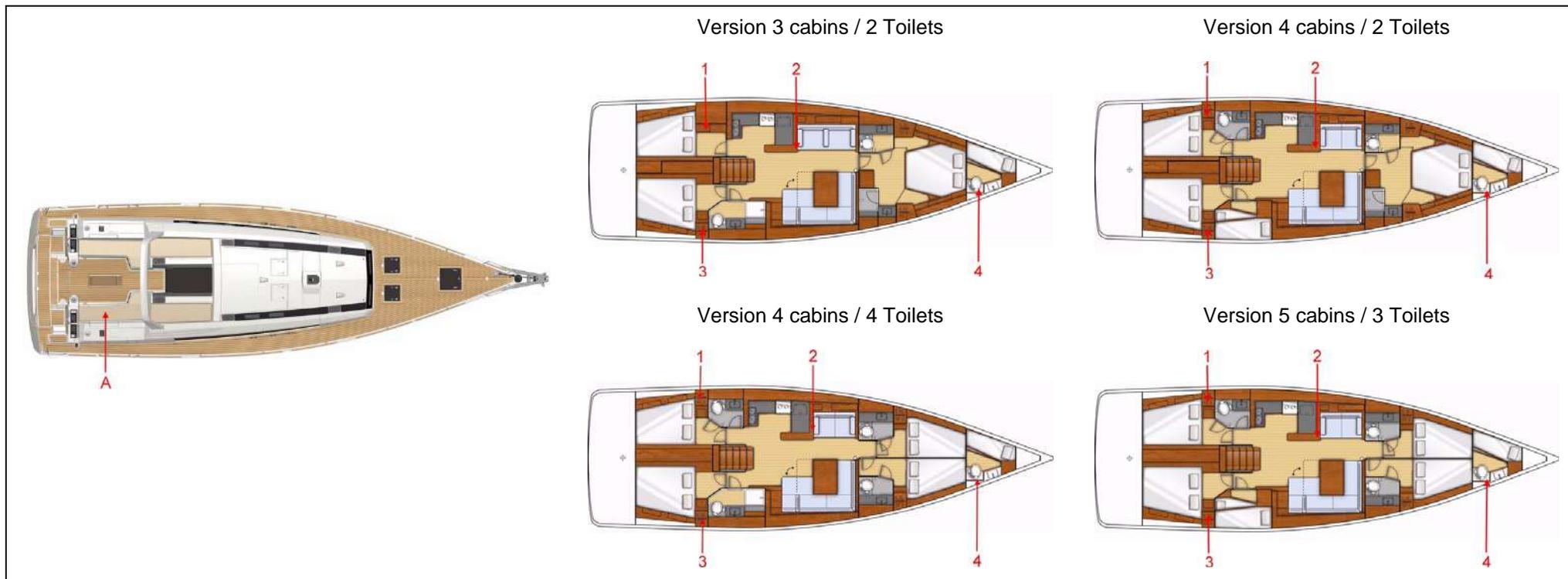
7.4.1 Fire-fighting equipment

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	Minimum extinguishing capacity
A	5A / 34B
1	5A / 34B
2	5A / 34B
3	5A / 34B
4	5A / 34B
5	1 kg

- When in use, this boat must be equipped with 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:

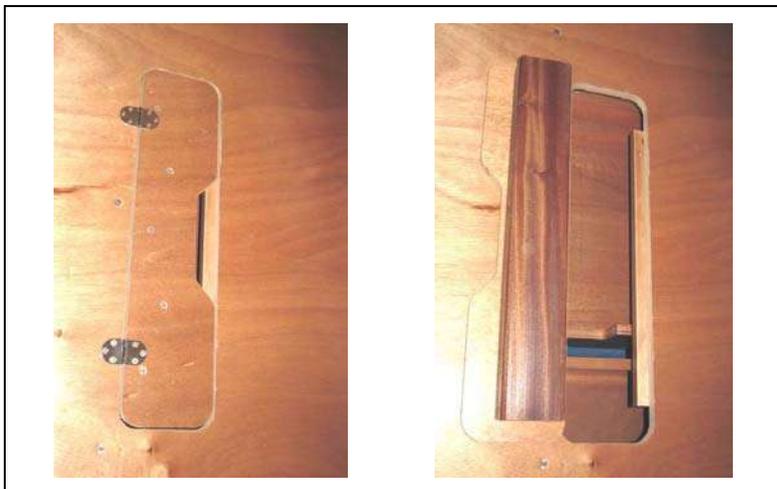


7.5 EMERGENCY EXITS IN CASE OF FIRE



Location
Companionway
The forward cabin deck hatch
Deck hatch - Skipper's cabin

Deployment of the steps for the forward cabin's emergency exit



Think unlock the hatch (located in the front cabin) before using the boat. This should allow opening of the hatch by a person from the outside.



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.

7.6 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.



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 (Engine compartment)
Port aft cabin



Extinguisher access hole 'Generator'
Access: Starboard aft cabin

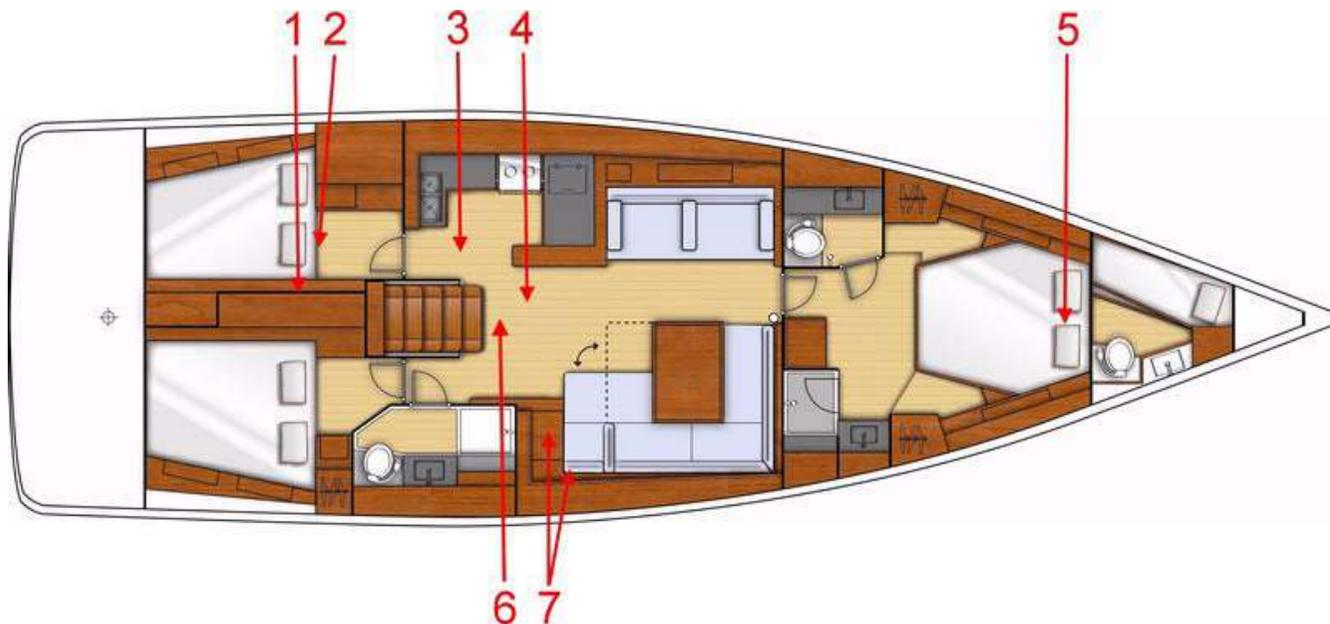


- Please refer to the manufacturer's instructions for using the generator.
 - Never start the generator when the climate function is already on. Always turn off the air conditioning before turning off the generator.
 - Never connect the shore power to the generator: danger of electric shock.
 - An extinguisher access port is provided on the generator to put out a fire starting in the generator.

ELECTRICAL SYSTEM

■ General information about the electrical system	62
■ DC installation	63
■ AC system	78

8.1 GENERAL INFORMATION ABOUT THE ELECTRICAL SYSTEM



Reference	Designation
1	Battery chargers
2	Battery switch, Fuses, Power distributor, DC breakers
3	Service batteries - additional
4	Service batteries
5	Bow thruster batteries
6	Engine batteries & Generator
7	Electrical panel, DC breakers

- ✘ - 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 electrical 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 boat is equipped with a direct current electrical system.

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 - standard

Location: Galley & Saloon

- Engine battery: 110A (Ref 3)
- Service batteries: 4 x 140A (Ref 1)
- Spare service batteries: 2 x 140A
- Generator battery: 110A (Ref 2)



Location: Forward cabin

- Propeller battery: 4 x 50A (Ref 4)



Battery set - gel

- Engine battery: 85A
- Service batteries: 6 x 120A

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).

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.



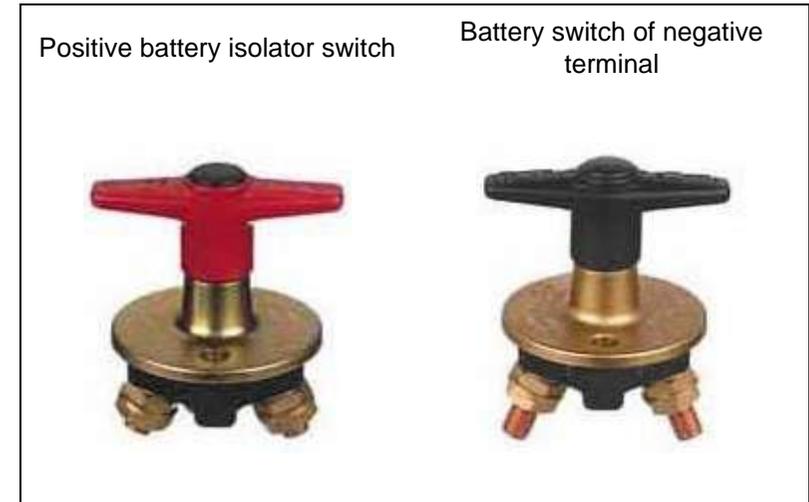
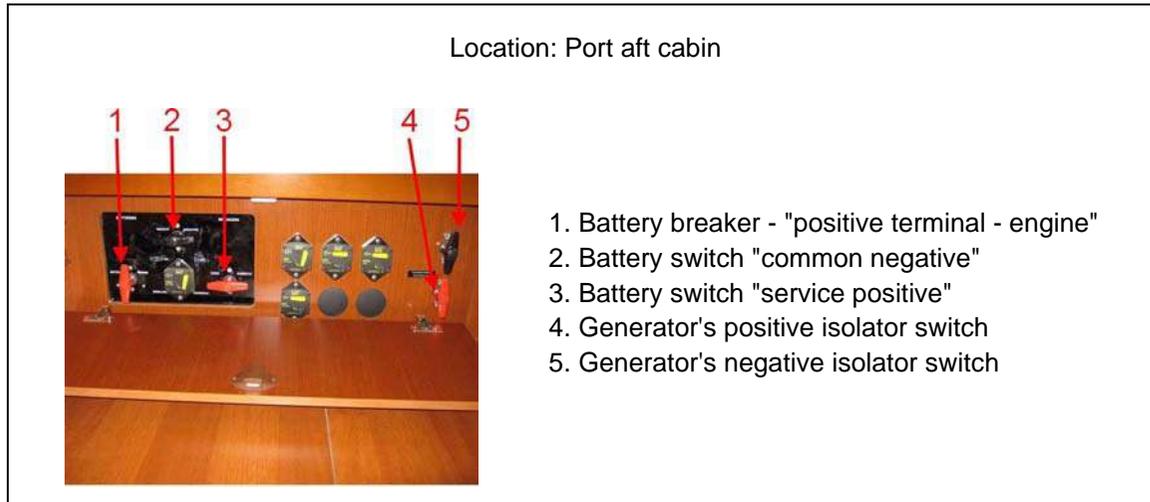
- All work carried out on a battery must only be carried out by someone qualified to do so. Whenever working on a battery, wear safety goggles and protective clothing.
- Never smoke or produce a spark near a battery: risk of an explosion.
- If any acid accidentally splashes on your skin or in your eyes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

Maintenance of watertight batteries

- This type of battery needs no maintenance and does not produce any gas during normal use. No ventilation is needed.
- The optimum temperature for use is between 10 degree C and 30 degrees C. Lower temperatures will reduce the available capacity. Higher temperatures will increase the batteries' self-discharge rate.
- Never open watertight batteries.
- Never add acid or distilled water.
- The pressure valves are used to seal the batteries and cannot be opened without being destroyed.
- If the batteries overheat, a build-up of gas may develop: Keep away from the batteries.

8.2.2 Battery switch

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



- Electrically controlled battery breakers: press the switches on the breaker control panel. In the event of electrical failure, it is possible to press down the button on top of the battery breaker manually to activate it.

The electrically-controlled battery breakers use very little electricity when they are on: **It is imperative to turn off all the battery breakers during lengthy absences, to prevent the batteries from slowly and irreversibly discharging.**

The engine's positive battery isolator automatically comes on and goes off when the engine is started/stopped.

The DC negative supply is connected to the main earthing point.

Bow thruster battery switch



- ! - 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.

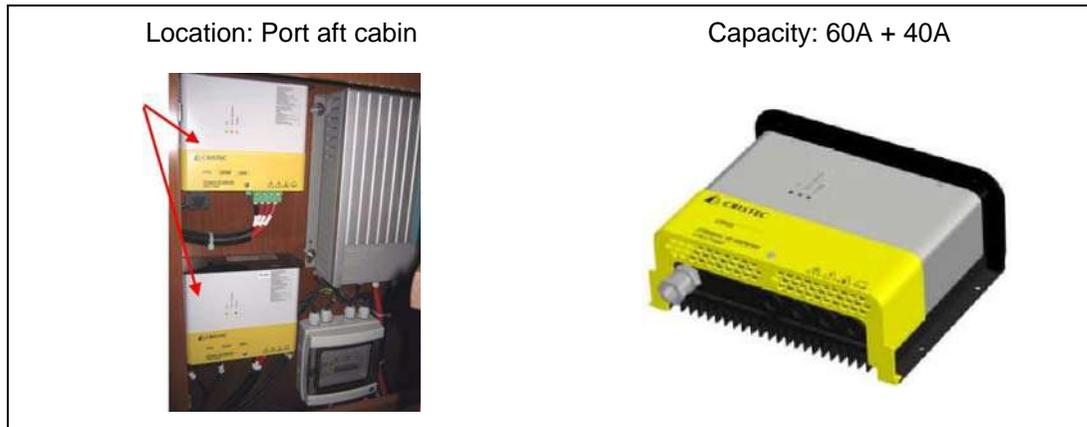
Location: Port aft cabin



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.



Operation

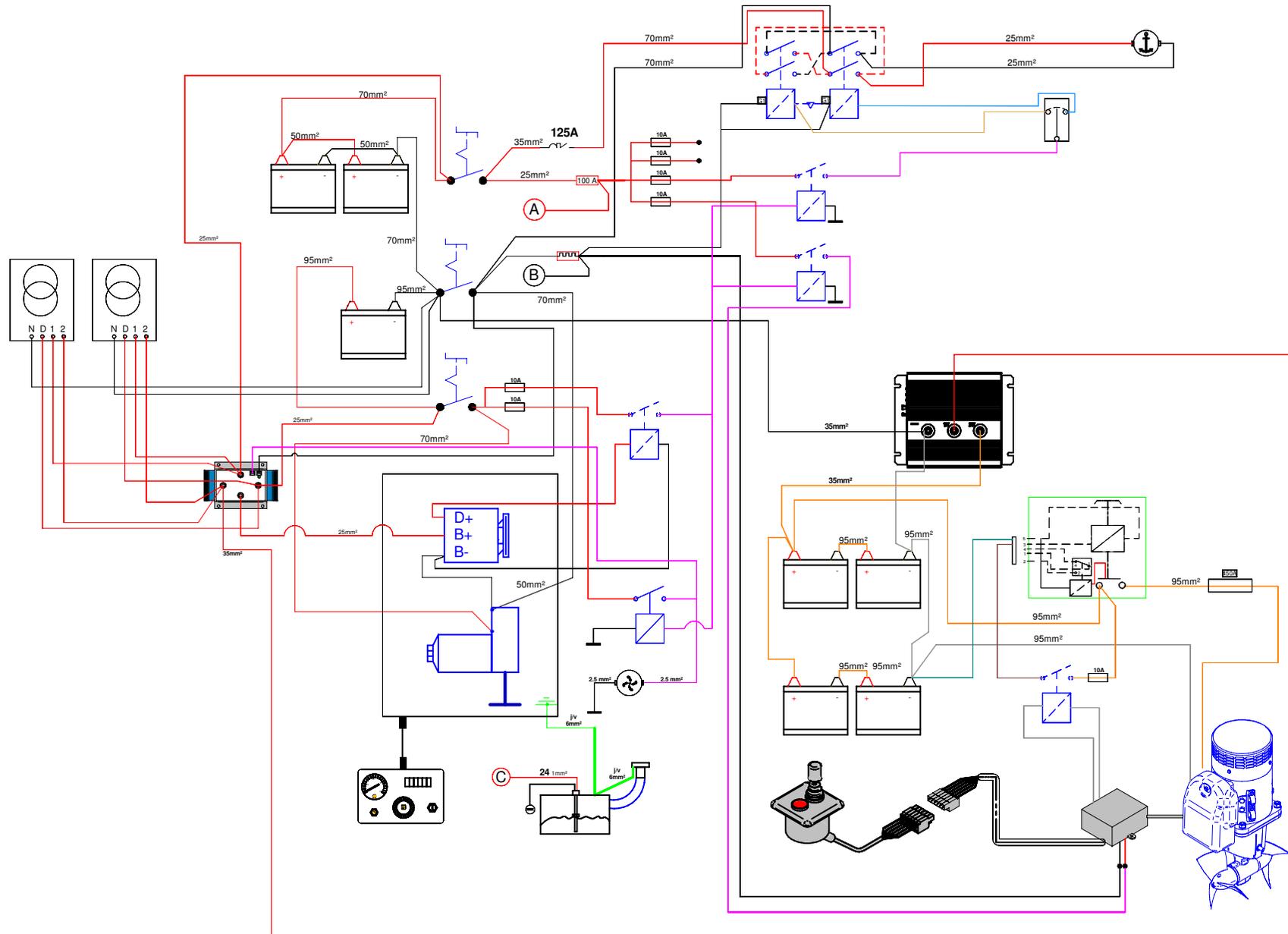
- The charger runs fully automatically. It can remain permanently connected to the batteries and does not need to be disconnected when starting the engine.
- In some electrical circuits, there may be battery chargers coupled in parallel.

Maintenance

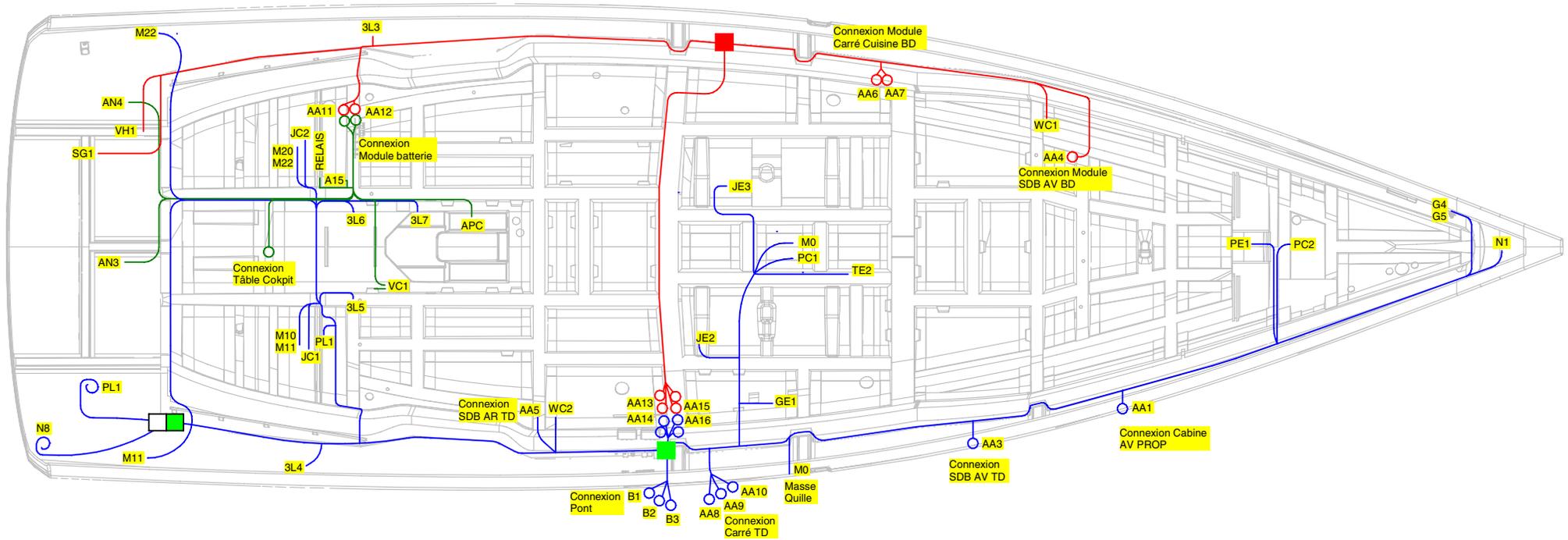
- Before doing any maintenance, cut the AC supply.
- Regularly vacuum out any dust particles which may accumulate in the charger. An annual check of the tightness of the nuts and bolts is necessary to ensure the correct operation of the charger.

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

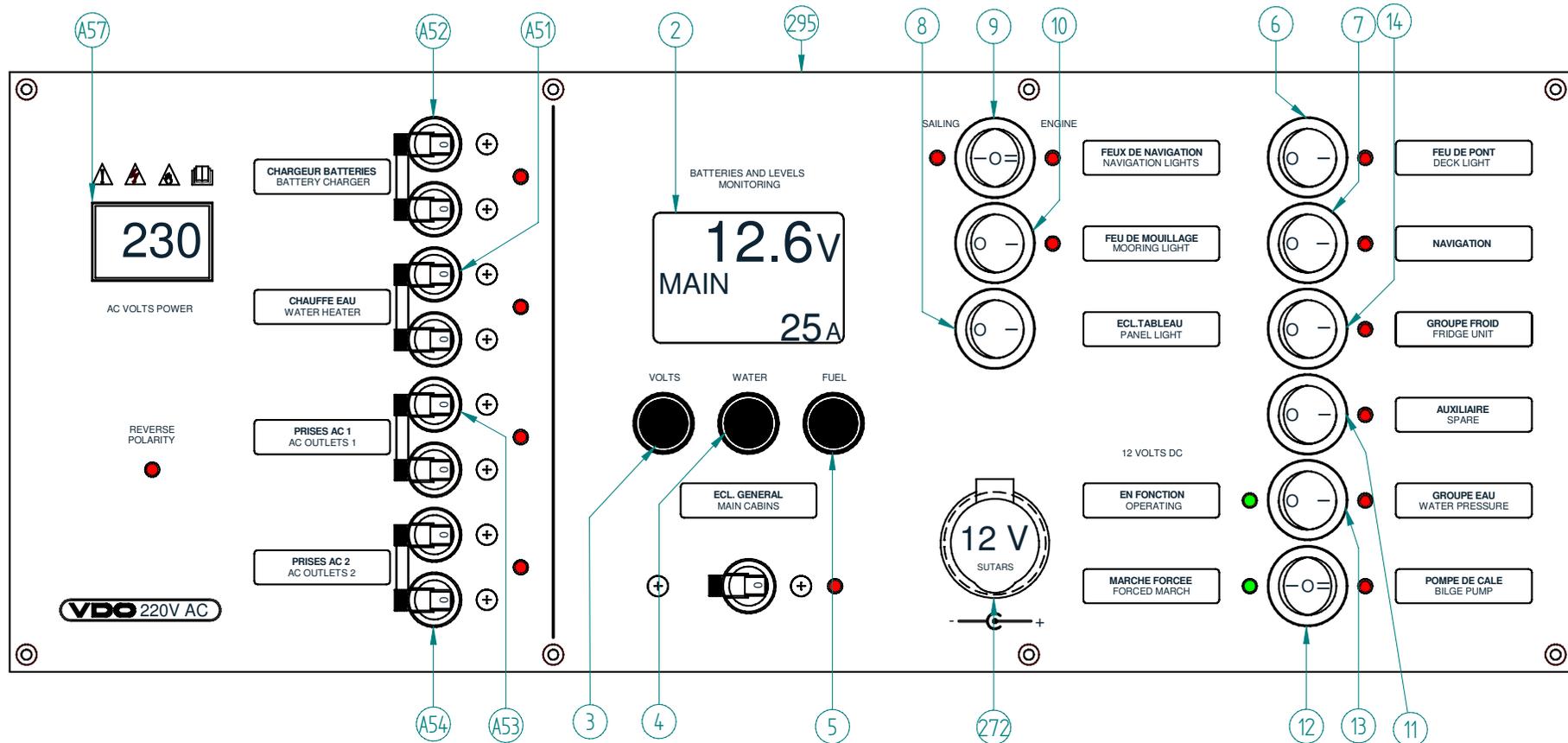
LAYOUT DIAGRAM - BATTERY CABLES



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



8.2.7 Electrical panel

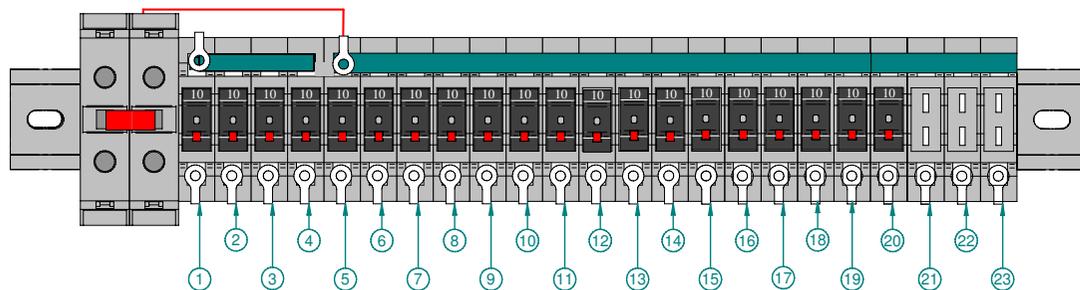
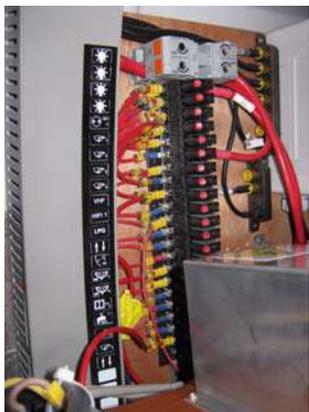


References on diagrams	Functions
2	Multi-function display
3	Push button - Volts
4	Push button - Water
5	Push button - Fuel
6	Breaker "Deck light"
7	Breaker "Navigation electronics"
8	General circuit breaker "Interior lighting"
9	Switch "Navigation lights"
10	Switch "Mooring light"
11	Switch "Auxiliary"
12	Switch "Bilge pump"
13	Switch "Water unit"
14	Switch "Refrigeration unit"
272	12V socket - Panel
295	Panel - 12V
A51	Bipolar circuit breaker "Water heater"
A52	Bipolar circuit breaker "Battery charger"
A53	Bipolar circuit breaker "AC 1 sockets"
A54	Bipolar circuit breaker "AC 2 sockets"
A56	Warning light - reversal of polarity
A57	Voltmeter

8.2.8 Circuit breakers

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

Location: Back of electrical panel



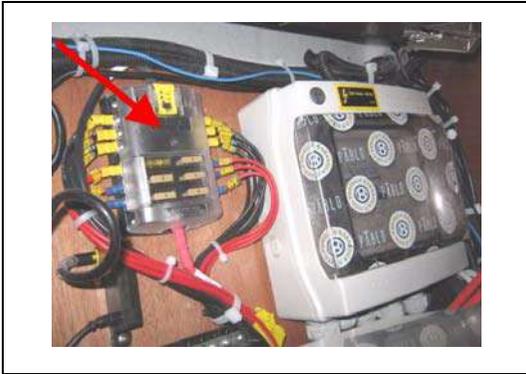
Reference	Designation
1	Lighting
2	Lighting
3	Lighting
4	Lighting
5	12 V socket
6	Electric bilge pump
7	Shower pump
8	Shower pump
9	Shower pump
10	VHF
11	Hifi
12	Gas solenoid (Version: US)
13	Electric blind
14	TV Antenna
15	Electric toilet
16	Electric toilet
17	Mechanism for raising/lowering the TV
18	Deck wash pump
19	Ventilator
20	Drain pump - Waste water
21	Available
22	Available
23	Available

8.2.9 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: Back of electrical panel.

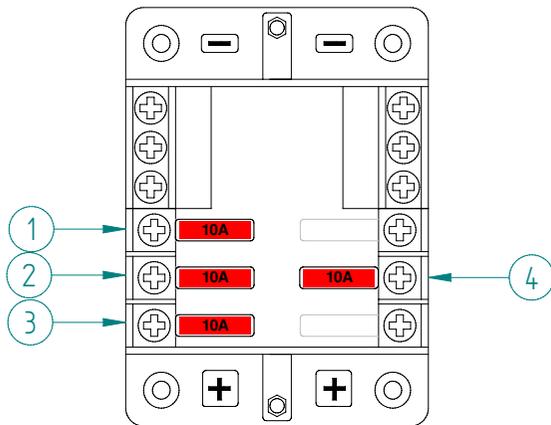
Heating fuses (See Heating chapter).



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

20A **15A** **10A** **5A** **3A**

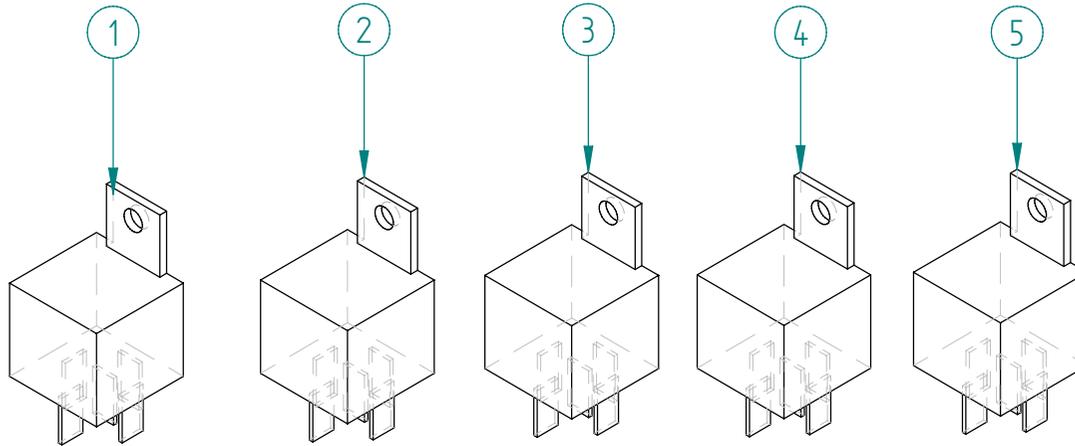
Location: Port aft cabin



- 1. Fridge 2
- 2. Windlass
- 3. Bow thruster
- 4. Fridge 3

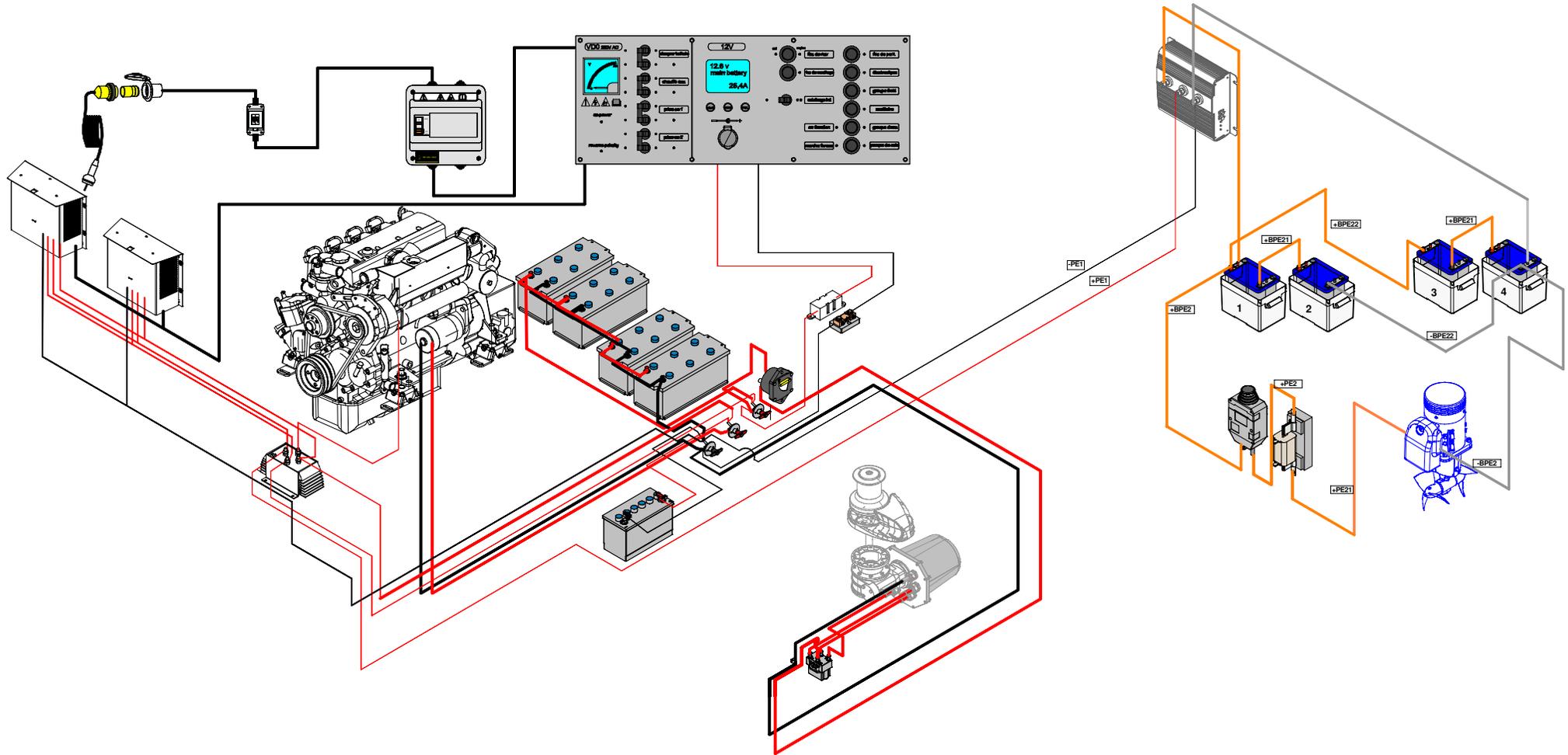
8.2.10 Relay board

Location: Port aft cabin



Reference	Designation
1	Engine compartment ventilator
2	Windlass
3	Bow thruster
4	Fridge 2
5	Fridge 3

8.2.11 Layout diagram - DC circuit



8.3 AC SYSTEM (110 V OR 220 V)

8.3.1 General points

- The boat is equipped with an alternating current electrical system.
- The electrical system of the boat consists of an AC shore socket and if appropriate:
 - 1 Generator,
 - 1 DC/AC converter.
- The AC electrical system is used to power the following components (if the boat has one):
 - Air conditioning,
 - Household appliances,
 - Water heater,
 - Interior AC sockets.

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.

Recommendations for using the AC electrical system correctly

- 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).



- 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.



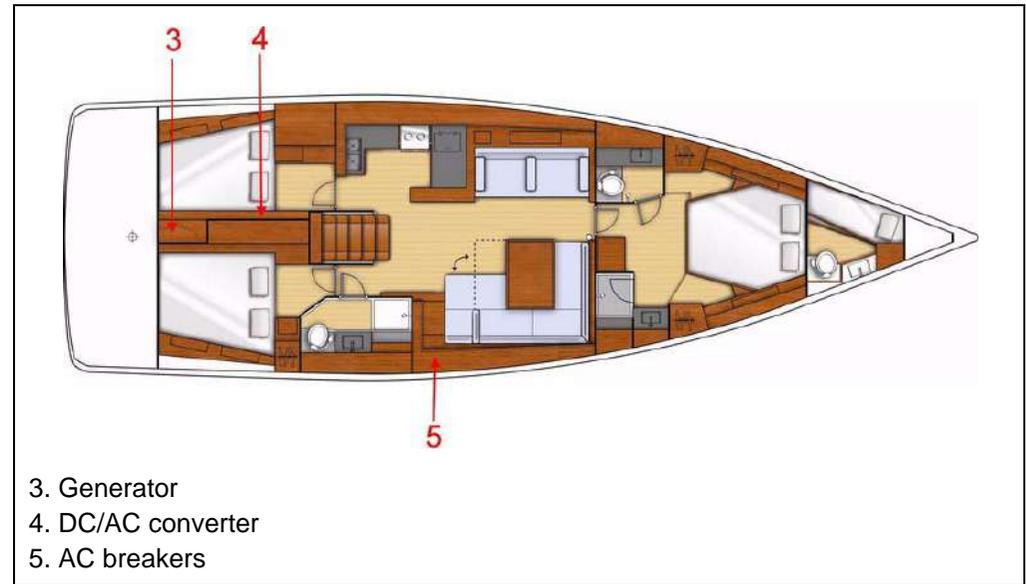
- To reduce the risks of electric shock and of fire:
- Turn off the shore supply with the onboard cut-off switch before connecting or disconnecting the vessel/shore supply line.
 - Connect the ship/shore power cable on the boat before plugging it into the socket onshore.
 - Disconnect the ship/shore 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.

8.3.2 AC shore socket

location of components



- 3. Generator
- 4. DC/AC converter
- 5. AC breakers

AC shore socket
Ref 1



Bipolar circuit breaker
Ref 2



Differential circuit breaker
Ref 2



- 1. Shore
- 2. Generator
- 3. Air conditioning

8.3.4 Transformer - 220V / 115V (US version)

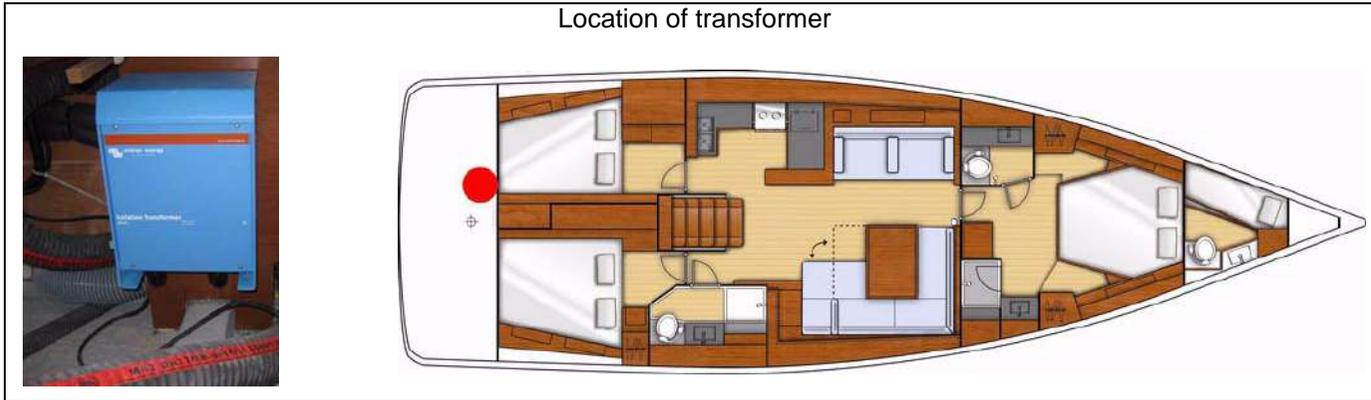
The transformer allows the current to be transformed from 220V to 115V to supply the sockets for the electrical domestic equipment.

The other on-board AC equipment operates on 220V (Air conditioning, Battery chargers, Water heater).

The transformer operates completely automatically.

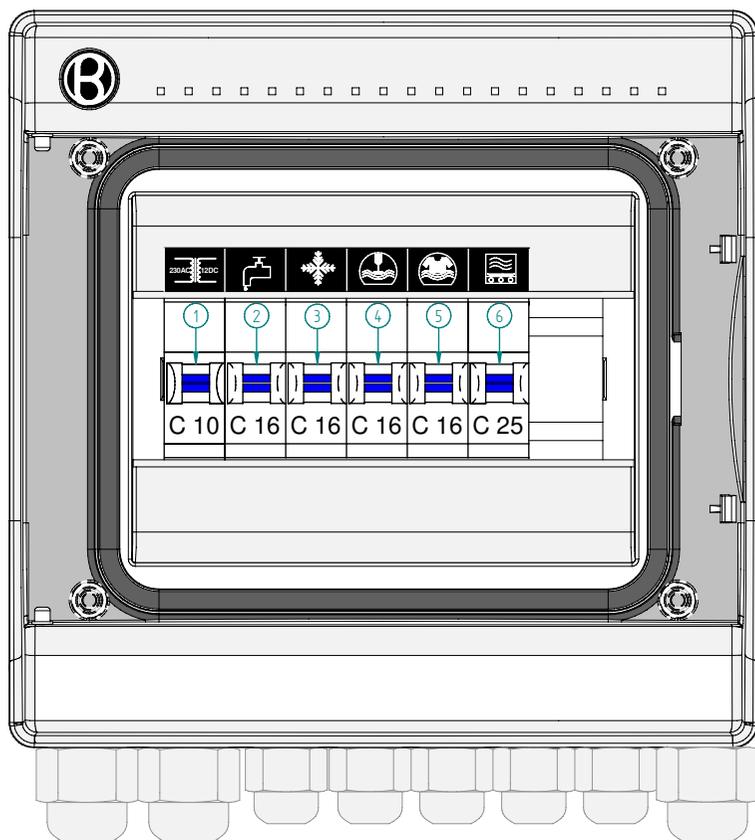
The transformer does not need any special maintenance.

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



AC breakers

Location: Back of electrical panel



AC ELEMENTS

Reference	Designation
1	DC/AC converter
2	Water maker
3	Ice maker
4	Dishwasher
5	Washer
6	Dryer

8.3.5 DC/AC converter

Description

- The inverter converts the DC voltage of the service battery bank to AC voltage. The circuit between the inverter and the batteries is protected by a fuse or a circuit-breaker.
- The inverter is earthed by an earthing plate located under the hull (see earthing plate chapter).

Operation

Power supply for the AC electric sockets 220 V in the cabins:

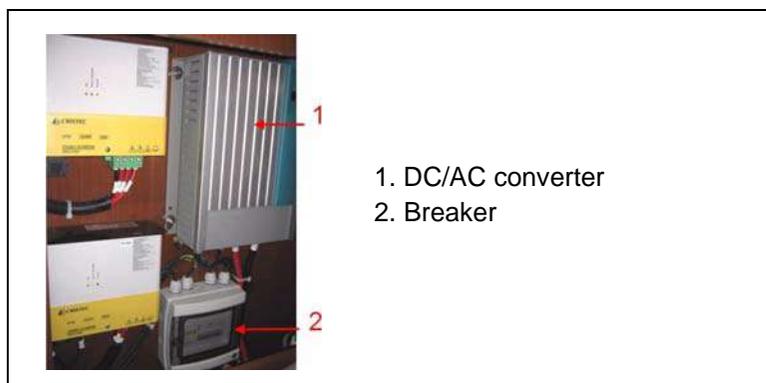
Once there is sufficient nominal voltage coming from the AC switch panel, AC power is supplied by the socket onshore or by the generator.

If there is insufficient nominal voltage coming from the AC switch panel, the AC power supply automatically switches over to the inverter. In this way, the power for the 220 V sockets in the cabins can be supplied by the inverter, itself being supplied by the service battery bank. Be careful to disconnect the inverter circuit, to prevent the AC power supply automatic switching over and to prevent the accidental discharge of the service battery bank:

- either by putting the inverter's circuit-breaker in the OFF position,
- or by putting the switch located on the inverter in the OFF position.

Simply cutting the AC power supply at the switch panel does not cut the AC power supply to the cabins: it is also necessary to disconnect the DC supply.

Location of inverter: Port aft cabin.



Operation

- The inverter is fully automatic.
- A remote control is located near the boat's switch panel. To start the converter put the switch on the inverter in the "REMOTE" position then put the switch located on the remote control in the "ON" position.
- If the switch on the inverter is in the "OFF" position, you cannot use the remote control to start it.

Maintenance

- Check at least once a year that the inverter cables and connections are properly bundled.
- Clean the inverter by removing any accumulated dust to ensure good ventilation.

The control located on the equipment
'REMOTE'



Remote control (Chart table)
'ON / OFF'



Earth
(see earthing plate chapter)



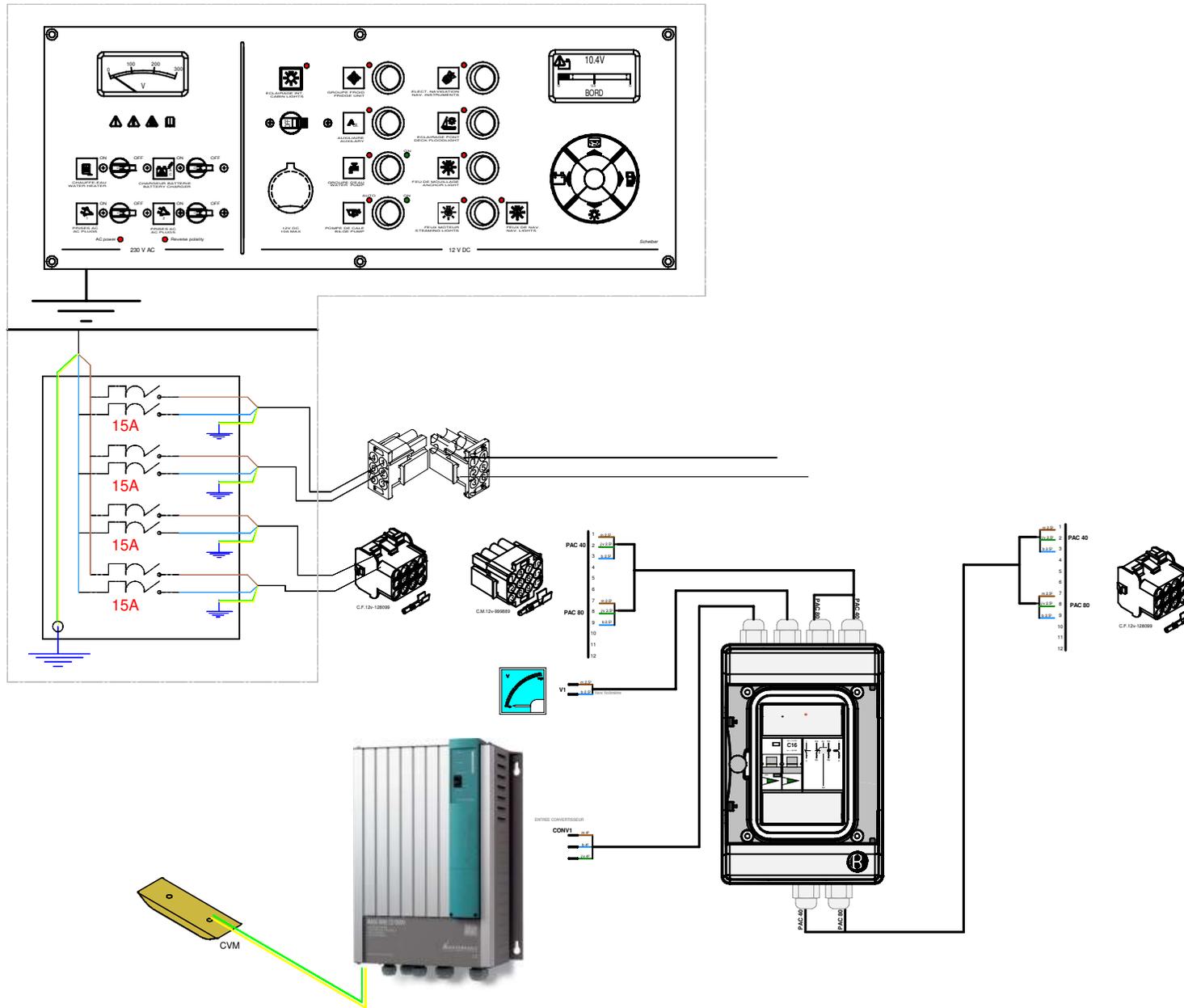
The power to the inverter must only be supplied by lead batteries.

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

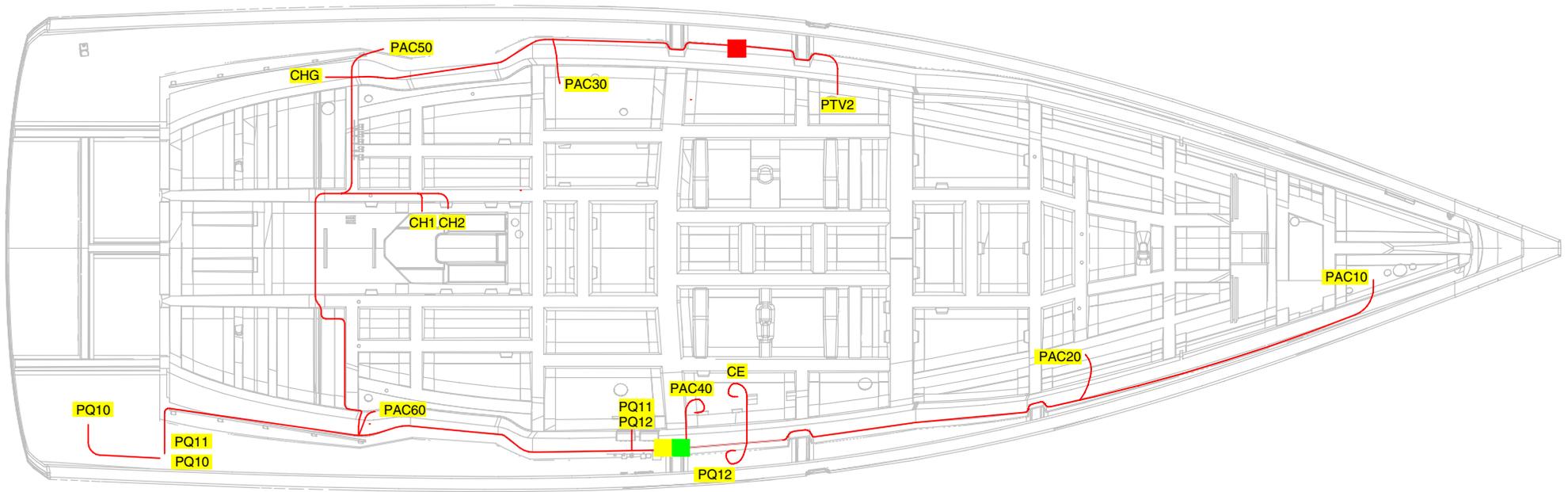
NEVER:

- connect the inverter AC lead to an AC terminal or to the generator onboard.
- disconnect the wiring from the inverter when in use.
- open the inverter.

Layout diagram - DC/AC converter



8.3.6 Installation of hull AC wiring loom



8.3.7 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.
- If the motor mountings are raised, the anodes are out of the water: in this case the anodes can no longer protect the sterndrive: take note of the skipper's recommendations.
- When the boat is kept in a dry dock, a light deposit of dust will settle on the anodes: 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.

8.3.8 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 DC/AC converter). The earthing plate earths this equipment.

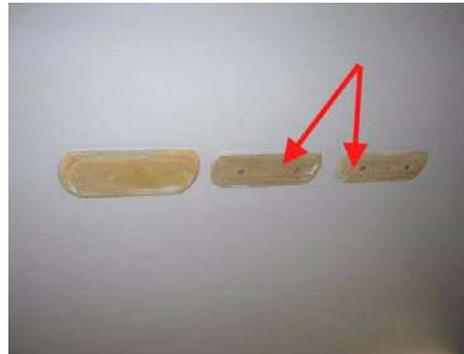
The earthing plate is not an anode: it must not be allowed to deteriorate.

- 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.

 - Never antifoul over the earthing plates.



Earthing plate (Outside view)
Generator & DC/AC converter



Earthing plate (Inside view)
Access: Starboard aft cabin

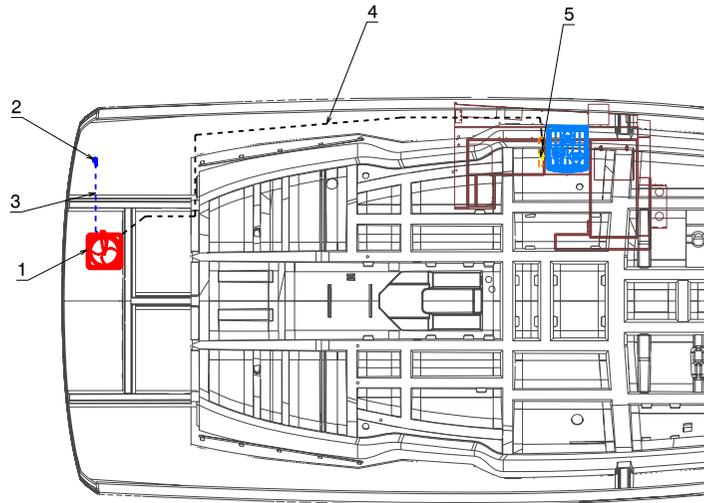


LIQUEFIED PETROLEUM GAS(LPG)SYSTEM (LPG)

- The onboard gas system 90
- Layout diagram..... 93

9.1 THE ONBOARD GAS SYSTEM

location of components



Reference	Designation
1	Gas cylinder locker
2	Kitchen sink evacuation through-hull
3	Gas locker drain
4	Gas system
5	Supply valve - Gas

Cooker



Gas cylinder locker
Locker closed / Locker open



Supply valve - Gas



- 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 gimbaled 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.



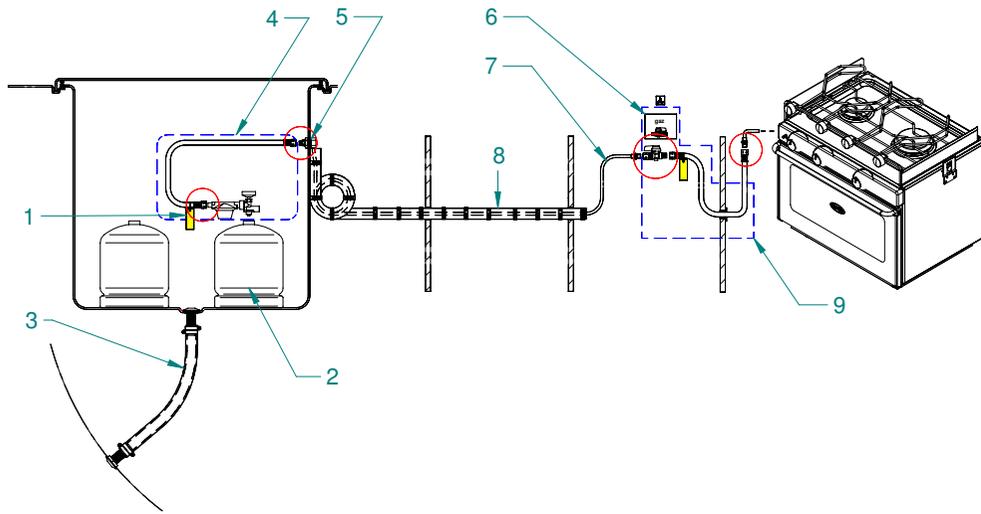
- Never use a naked flame to check for leaks.
- Do not use a hotplate or an oven to heat the living areas.
- Equipment with a naked flame burning fuel consumes the oxygen in the cabin and gives out combustion residue in the boat. Ventilation is necessary when this equipment is used. Open the vents provided 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)).

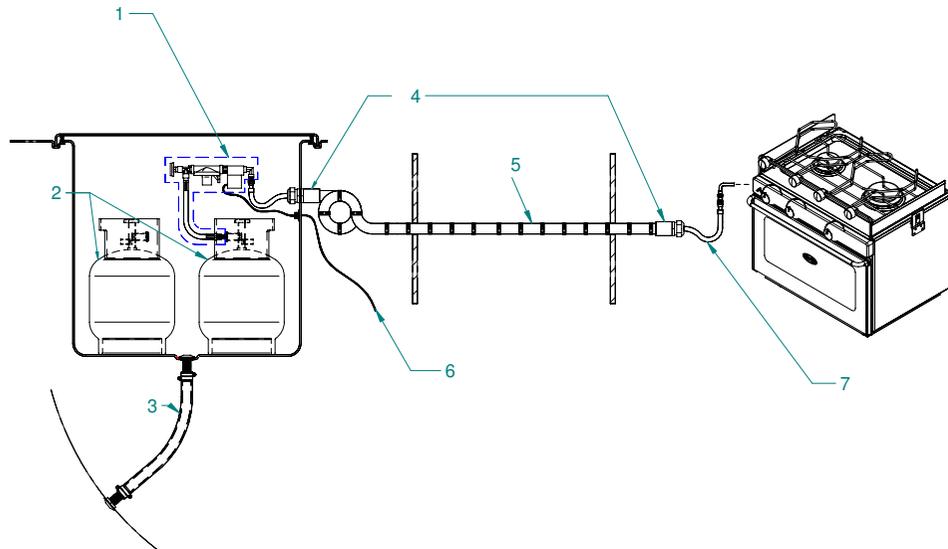
9.2 LAYOUT DIAGRAM

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

DOMESTIC APPLIANCES

■ Fridge.....	96
■ Water-cooled refrigeration unit	98
■ Microwave	100
■ Extractor hood.....	101
■ Washer.....	102
■ Dishwasher	103

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 refrigeration 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.
- Regularly clean the fridge/icebox door seal with a damp cloth.
- Regularly defrost the fridge.
- When winterising the boat, leave the fridge door/icebox cover open to prevent mould and smells from developing.



- Refer to the 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.

Fridge / Control
Capacity: 130 litre



Cooler / Thermostat
Capacity: 100 litre



Refrigeration unit for icebox
Location: Galley

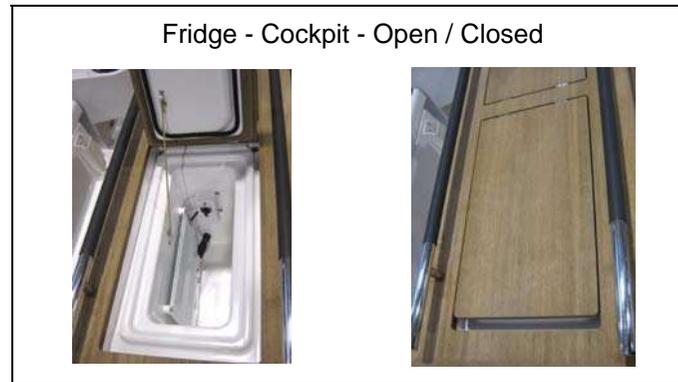
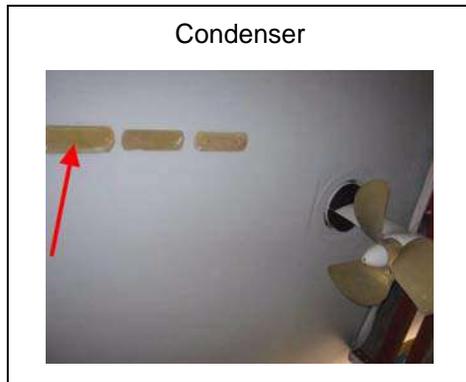


10.2 WATER-COOLED REFRIGERATION UNIT

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 refrigerator is water-cooled.

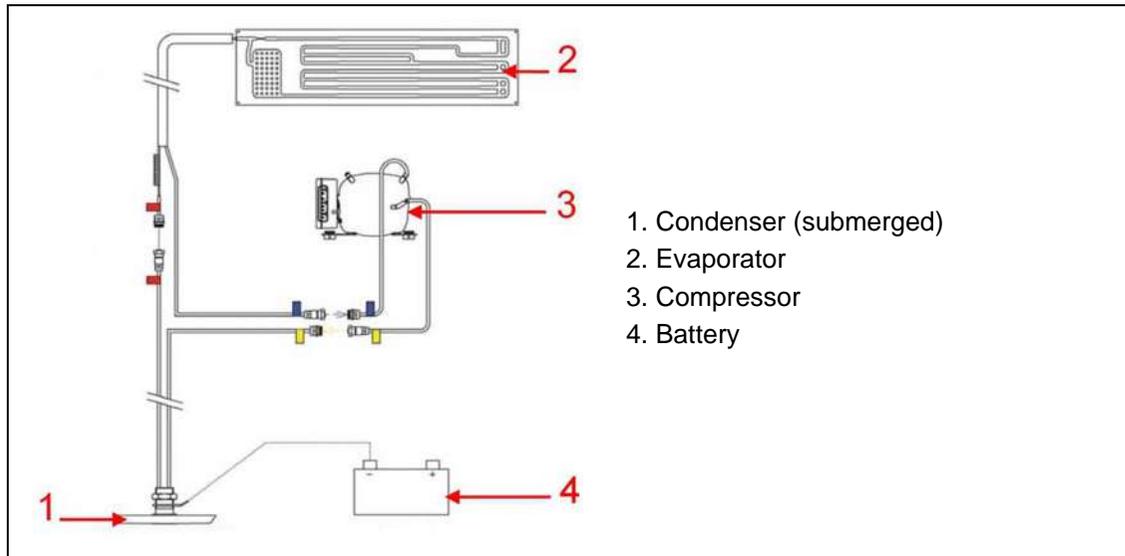
- The refrigeration unit is supplied by direct current.
- A breaker protects the electrical circuit.
- The condenser located beneath the hull is a microbead plate. This allows optimal temperature exchange between the sea water and the coolant liquid.



- Refer to the manufacturer's instructions for use and maintenance.
- Never cover the condenser with antifouling paint.

Maintenance

Clean the refrigeration unit annually using a vacuum cleaner or a dry brush.



Condenser (Microbead plate)



Refrigeration unit



10.3 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

- On the switch select the chosen source of current (shore power or generator).
- 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.



10.4 EXTRACTOR HOOD

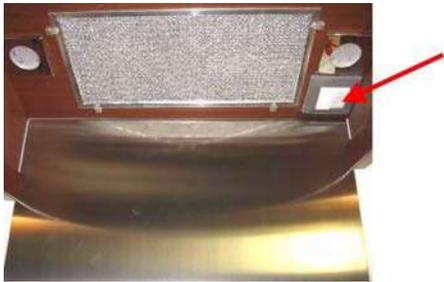
General points

- The cooker hood runs on an AC power supply.
- A breaker protects the electrical circuit.

Starting up

- On the switch select the chosen source of current (shore power or generator).
- Turn the cooker hood circuit breaker to ON.

Extractor hood + Control



 Never allow children to use the domestic electrical equipment unsupervised.

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

 - Refer to the manufacturer's instructions for use and maintenance.
- Do not operate the washing machine when sailing.

10.5 WASHER

General points

- The washing machine runs on an AC power supply.
- A breaker protects the electrical circuit.
- The washing machine is supplied with water from the onboard tanks via a supply valve.
- Washing machine outlet: Thru-hull fitting.

Starting up

- Check the level in the water tanks and switch on the water system.
- Open the water supply valve/washing machine.
- Open the draining valve.
- Turn on the AC circuit (shore or generator) and actuate the washing machine circuit breaker.
- Start the washing machine.



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

Location:
Port aft cabin



Supply valve - House water
Location: Under the sink



Washing machine outlet
Location: Port aft cabin



10.6 DISHWASHER

General points

- The dishwasher is AC powered.
- A breaker protects the electrical circuit.
- The dishwasher takes the water from the tanks onboard via a water feed valve.
- Dishwasher drainage: located under the sink.

Starting up

- Check the level in the water tanks and switch on the water system.
- Open the valve of the water supply onboard / dishwasher.
- Open the dishwasher drainage valve.
- Turn on the AC power (shore or generator) and actuate the dishwasher's circuit-breaker.
- Turn on the dishwasher.

Dishwasher



Supply valve - House water
Dishwasher



Dishwasher drainage



- Refer to the manufacturer's instructions for use and maintenance.
- Do not use the dishwasher when underway.

AUDIO-VISUAL EQUIPMENT

■ Television	106
■ Hifi.....	107
■ Layout diagram.....	108

11.1 TELEVISION

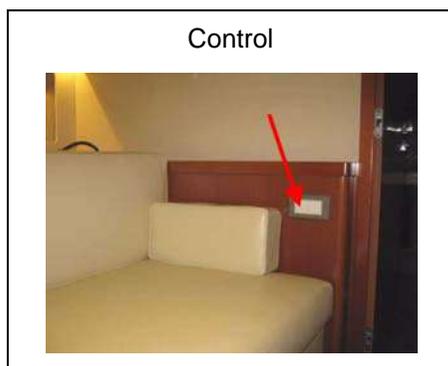
General points

- The television is powered by AC provided by the DC/AC inverter which is powered by the service batteries. The inverter has an ON / OFF button.
- A circuit-breaker protects the circuit.
- Pre-cabling for the aerial is already installed on the boat.

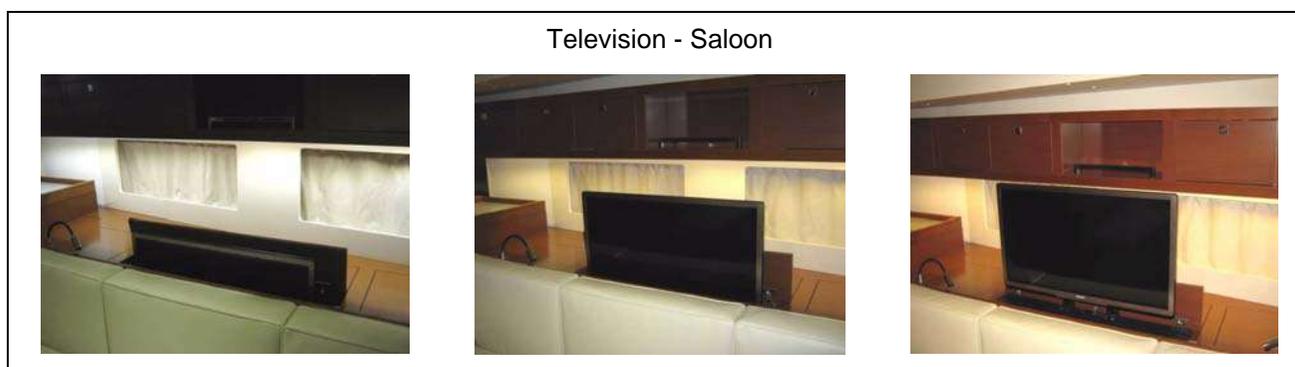
Starting up

- First turn on the circuit breaker, then switch on the TV.
- The transformer is switched on and off automatically when you turn on or off the breaker.

Mechanism for raising/lowering the TV



- The equipment can be activated while underway.



- 
- The stowage unit opening and closing mechanism motor is very powerful. Please do not obstruct the movement of the TV, especially when stowing it in its compartment. Beware of the risk of trapping a part of your body, especially the hands.
 - Keep children away when handling mechanisms.

11.2 HIFI

- The sound system is DC powered.
- The sound from the TV or from the DVD player is amplified by the boom box and the speakers.
- The sound from the TV comes out of the integral speakers.
- The sound from the TV can come from the speakers if AUX is selected on the DVD player.
- The sound from the DVD player comes from the speakers.
- The sound from the radio comes from the inside and outside speakers. It is possible to select either outside or inside speakers by adjusting the balance control.



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

ONBOARD COMFORT

■ Chilled water air conditioning	110
■ Electronic equipment	120
■ Equipment other than for propulsion, which burns fuel	123

11.4 CHILLED WATER AIR CONDITIONING

General points

- The air-conditioning is powered by alternating current.
- The air-conditioning cools the air temperature inside the boat (only when the boat is floating in water).
- The cooling circuit consists of one or more compressors that operate independently. A compressor is called "reversible" because it can heat the boat if the sea water temperature exceeds 10°C.
- In winter, you can programme the dehumidifier function on the airconditioning controls.
- The compressor/s is/are cooled by one/two raw water pumps. These pumps are run on AC voltage and are master controlled by one or two can relays.
- Sea water is evacuated through a through-hull fitting equipped with a valve, located above the waterline. Each compressor has its own through-hull evacuation fitting. It is advisable to check the flow of water visually once the air conditioning starts running.

Operation

Before starting the engine:

- Open the raw water intake valves and evacuation valves;
- Use the switch on the chart table to select the power source (shore power or generator).
 - If using shore power: plug into the shore power socket;
 - If using the generator: before turning on the air conditioning, leave the generator running for about 3 minutes.

The air conditioning is running:

- Switch the air-conditioning circuit-breakers ON.
- Select the temperature of each compressor using the control units.

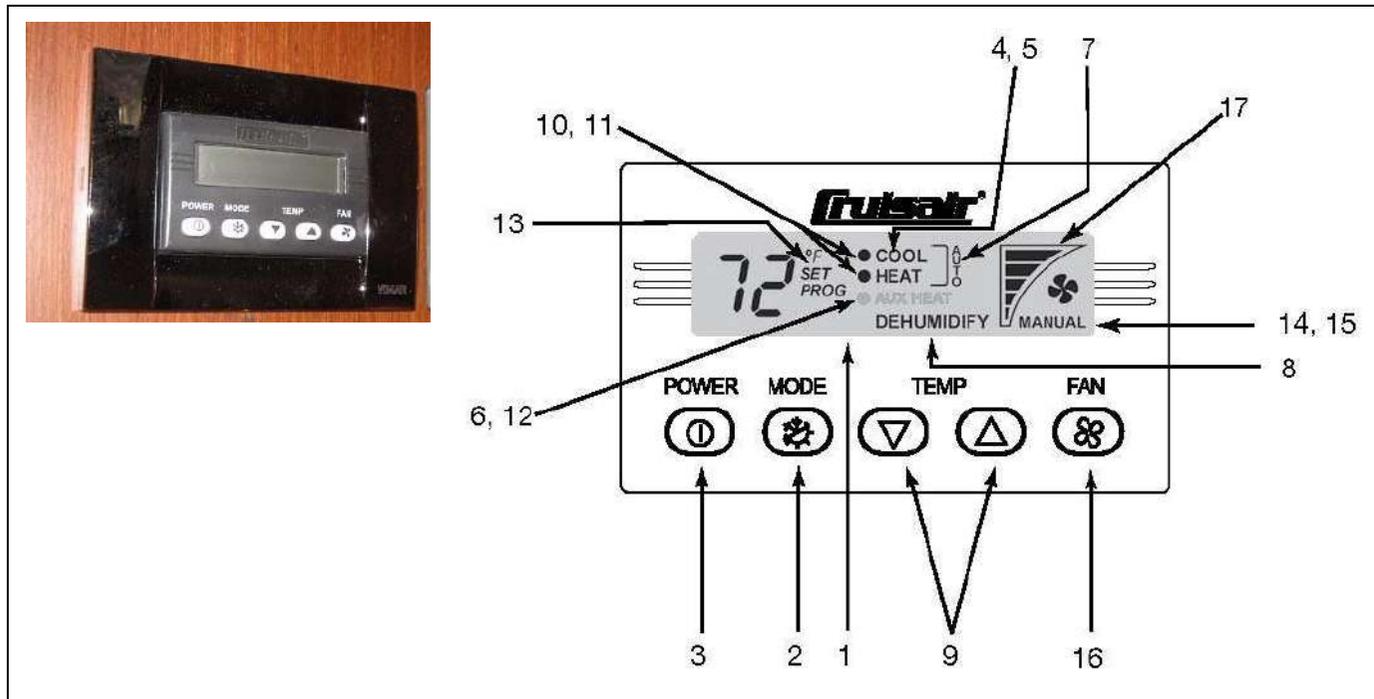
Winter Storage:

- Protection of sea water system: drain the whole sea water system.
- Protection of the chilled water system: The chilled water in the air conditioning piping is made up of a mixture of water and glycol at a level of 15%.
- This glycol present in the water protects the pipes against freezing to a temperature of about -7° C. If the boat is sailed or wintered below the lowest temperatures, it is necessary to increase this proportion of glycol to a level of 40%. The air conditioning must never be operated with this mixture containing a greater proportion of glycol.
- When wintering, before bringing the air conditioning system back into operation in milder temperatures, it is essential to bring the proportion of glycol back to a level of 15% to use the air conditioning.

NOTE: These two maintenance operations (wintering/unwintering) owing to negative temperatures must be carried out by a professional.

Air-conditioning controls

Please refer to the key on the following page



- ! - Refer to the manufacturer's instructions for use and maintenance.
- When the air-conditioning is running, check visually that the sea water has been fully drained.
- Never start the generator when the climate function is already on.
- Always turn off the air conditioning before turning off the generator.
- Regularly check and clean the sea water filter placed on the sea water intake through-hull fitting.
 - Close the sea water intake valve;
 - Unscrew the top of the filter;
 - Clean the strainer;
 - Put everything back in place.
- Regularly clean the filters with compressed air (located on the fan-convectors) for maximum efficiency of the installation.
- To prevent the air-conditioning circuit from freezing: never run the system when the seawater temperature drops below 5 degrees C.
 - The cooling gas circuit needs no maintenance.

Manual control of the air-conditioning

1. Data display

Screen which displays the desired temperature, the programmed values and the error messages.

2. MODE

Enables you to navigate between the different operating modes.

3. POWER/OFF

Comes on when the system is switched off. The manual ventilator may continue to run.

4. COOL

Indicates that the compressor is activated when cooling.

5. HEAT

Indicates that the compressor is activated when heating.

6. Optional equipment (Auxiliary heating).

7. AUTOMATIC

Comes on when the system is in AUTO mode.

8. DEHUMIDIFY

Comes on when the system is in dehumidifying mode.

9. Keys + and -

Allow you to raise or lower the desired temperature.

10. Cooling indicator

This indicates that the compressor is in COOLING mode.

11. Heating indicator

This indicates that the compressor is in HEATING mode.

12. Optional equipment (Auxiliary heating).

13. temperature control indicator

This indicates the temperature control adjustment (the desired ambient temperature).

14. Indicator for the manual ventilator

This comes on when the manual ventilator is running.

15. Indicator for the automatic ventilator

This comes on when the ventilator is running in automatic mode.

16. Ventilator key

Allows you to select manual or automatic mode for the ventilator.

17. Ventilator speed indicator

Shows the ventilator speed.

NOTES

- When the system is programmed in dehumidifying mode, the system's safety devices remain active: if there is an interruption in the flow of sea water or a drop in AC voltage, the system automatically stops.
- In cooling mode, the system works efficiently when the sea water temperature is below 30 degree C.
- In heating mode, the system works efficiently when the sea water temperature is above 13 degree C.
- It is important to switch the system to HEATING mode at least once a month, to prevent the crossover cock becoming stuck in COOLING mode.

LOCKING METHOD

- It is possible to lock the control buttons to avoid any accidental handling: Press the three buttons at once: MODE, UP (arrow pointing up), FAN. LC appears on the screen, which signifies "LOCK".

- To unlock and resume use of the buttons, press the three buttons at the same time: MODE, UP (arrow pointing up), FAN. UL appears on the screen, which signifies "UNLOCK".

SCREEN LIGHTING

- If the control box is switched off by a fault (in the cabins for example), just touching a button automatically lights up the screen in a blue colour instantly.

To alter the light intensity of the screen, press the two buttons simultaneously: MODE, UP (arrow pointing up) until the required intensity is reached.

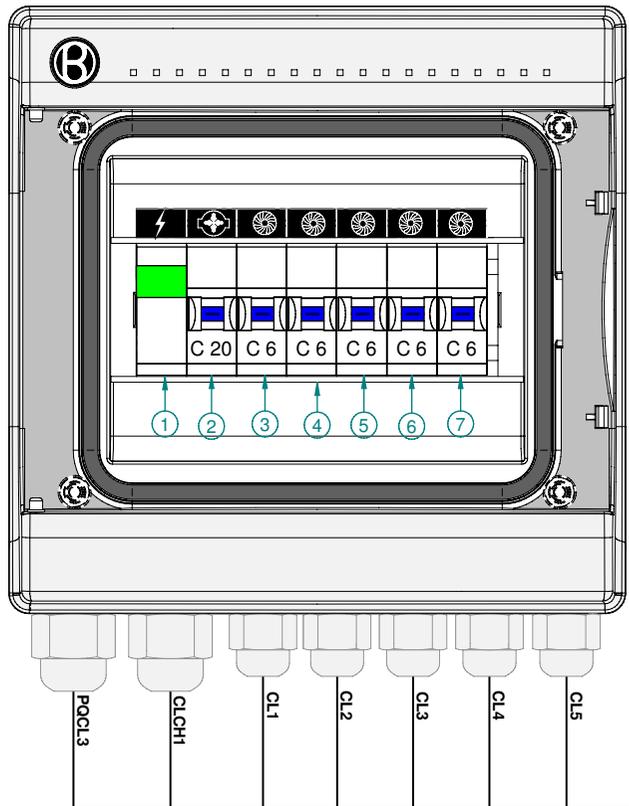
- It is possible to programme whether or not a box is illuminated by default: In this case mode ON must be selected for a permanently illuminated box or mode SLEEP for a permanently unilluminated box.

Procedure:

- Simultaneously press the 2 buttons: MODE and DOWN (arrow pointing down).
- With the arrows select n°18 on the menu, then confirm by pressing MODE.
- With the arrows select either ON for illumination by default or SL (SLEEP) to turn the box off.
- The press 2 times on FAN to confirm the selection.

Circuit breakers - Air conditioning

Location: Chart table



Reference	Designation
1	General
2	Pump sea water
3	Compressor
4	Compressor
5	Compressor
6	Compressor
7	Compressor

Draining the chilled water system

- The first time you switch on the air-conditioning: Run the air-conditioning in full operating mode for about ten hours then drain the chilled water system (please consult your dealer).
- Regularly check the pressure of the chilled water in the circuit using a pressure gauge: the system works best between 12 and 15 PSI. Below 12 PSI you are advised to drain the chilled water system (please consult your dealer).

LAYOUT OF COMPONENTS

Control - hot/cold
Location: Chart table



Compressor
Access: Starboard aft cabin



Chilled water pump
Access: Starboard aft cabin



Access: Companionway

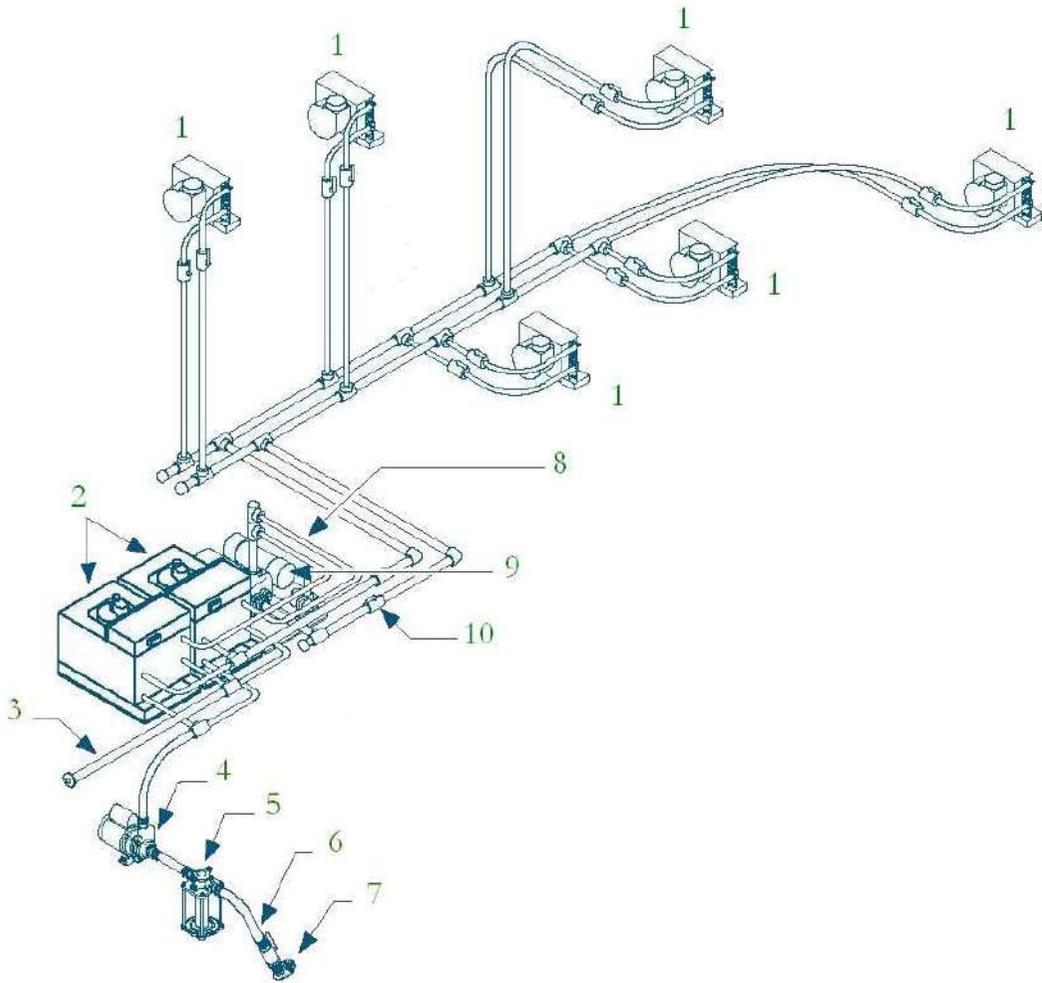


1. Pump sea water
2. Sea water intake
3. Sea water filter



- Refer to the manufacturer's instructions for use and maintenance.
- When the air-conditioning is running, check visually that the sea water has been fully drained.
- Never start the generator when the climate function is already on.
- Always turn off the air conditioning before turning off the generator.
- Regularly check and clean the sea water filter placed on the sea water intake through-hull fitting.
- Close the sea water intake valve;
- Unscrew the top of the filter;
- Clean the strainer;
- Put everything back in place.
- Clean the air filter (located in the compressor) regularly for maximum performance of the installation.
- Clean the cooling coil at least once a year.
- To prevent the air-conditioning circuit from freezing: never run the system when the seawater temperature drops below 5 degrees C.
- The cooling gas circuit needs no maintenance.

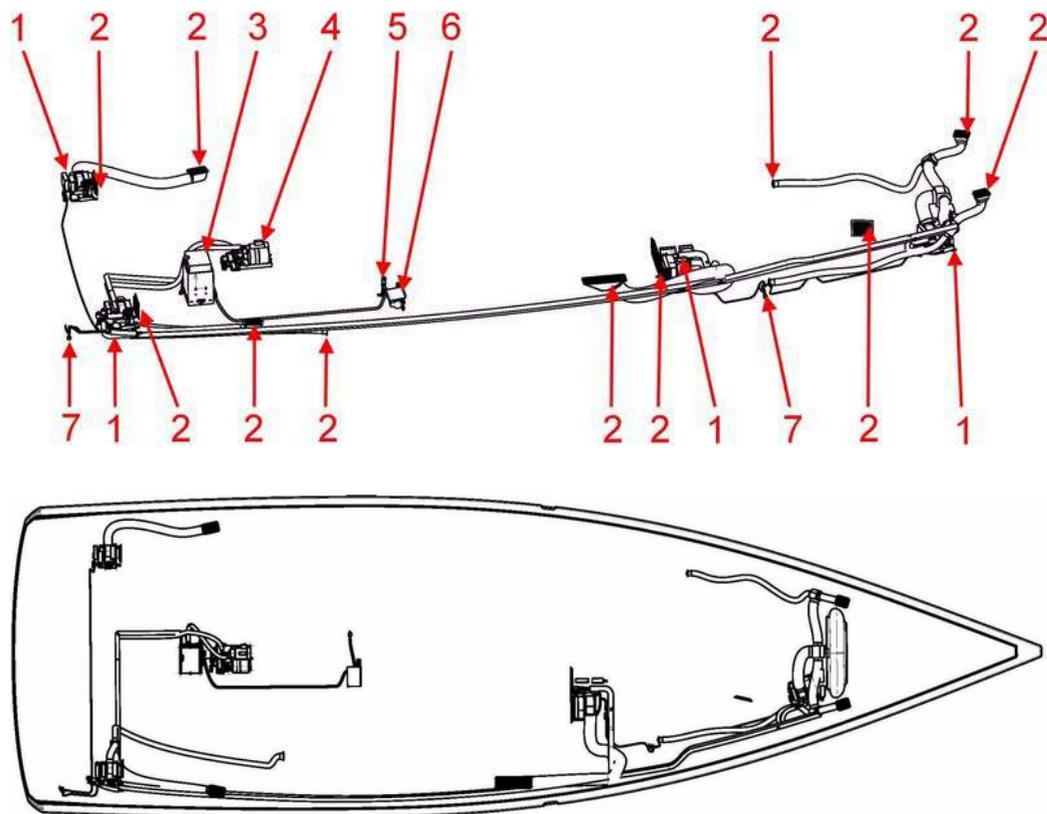
LAYOUT - CHILLED WATER AIR CONDITIONING



Reference	Designation
1	Fan-convector
2	Cooling unit
3	Seawater discharge
4	Pump sea water
5	Filter
6	Seawater supply valve
7	Thru-hull fitting
8	Insulated pipes
9	Chilled water pump
10	System cut-off valve

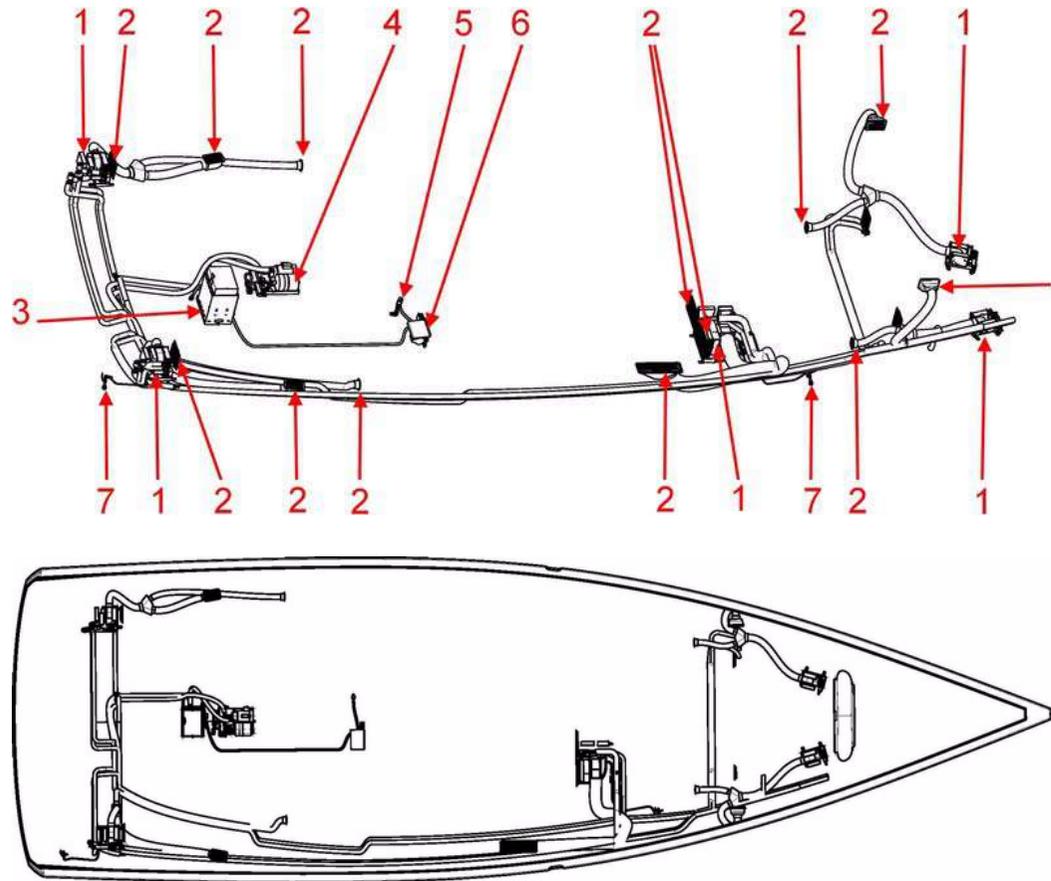
DIAGRAM OF THE LAYOUT - AIR CONDITIONING

Version 3 cabins / 2 head compartments



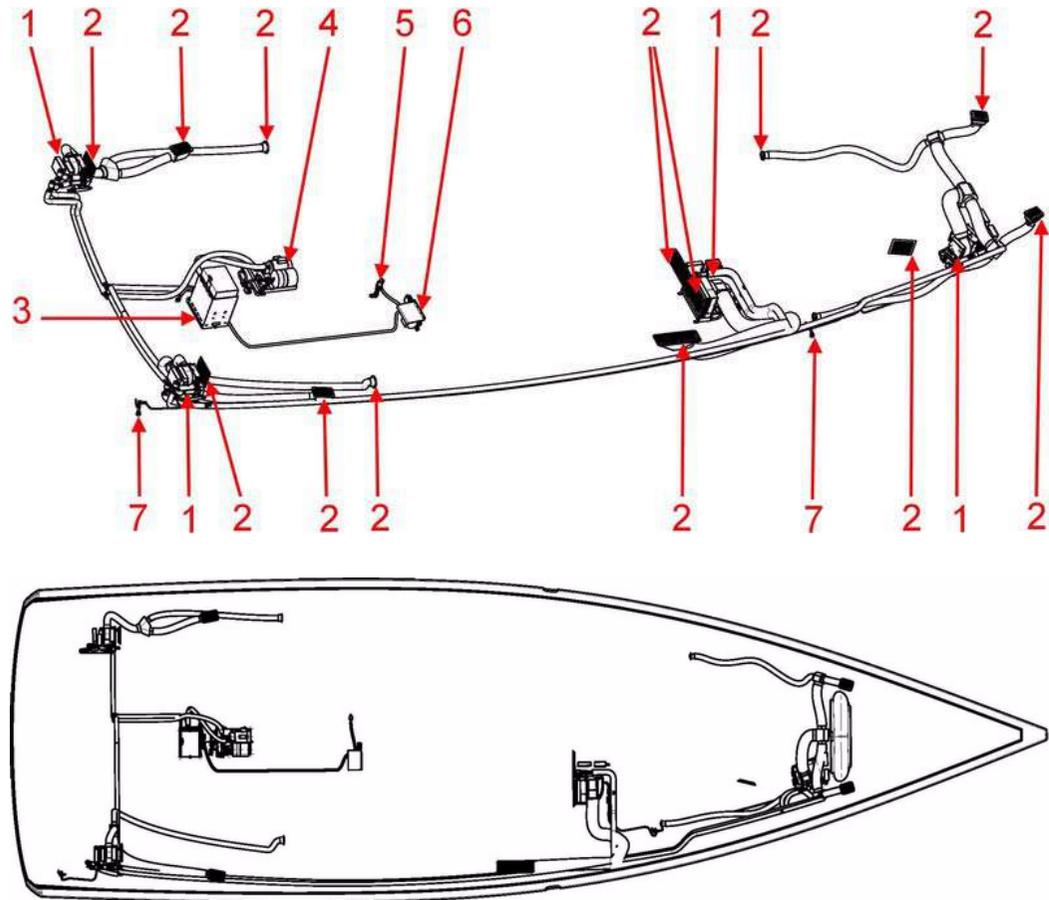
Reference	Designation
1	Fan-convector
2	Grid
3	Cooling unit
4	Chilled water pump
5	Sea water intake
6	Pump sea water
7	Condensation drain

Version 4 cabins / 4 head compartments



Reference	Designation
1	Fan-convector
2	Grid
3	Cooling unit
4	Chilled water pump
5	Sea water intake
6	Pump sea water
7	Condensation drain

Version 4 cabins / 2 head compartments

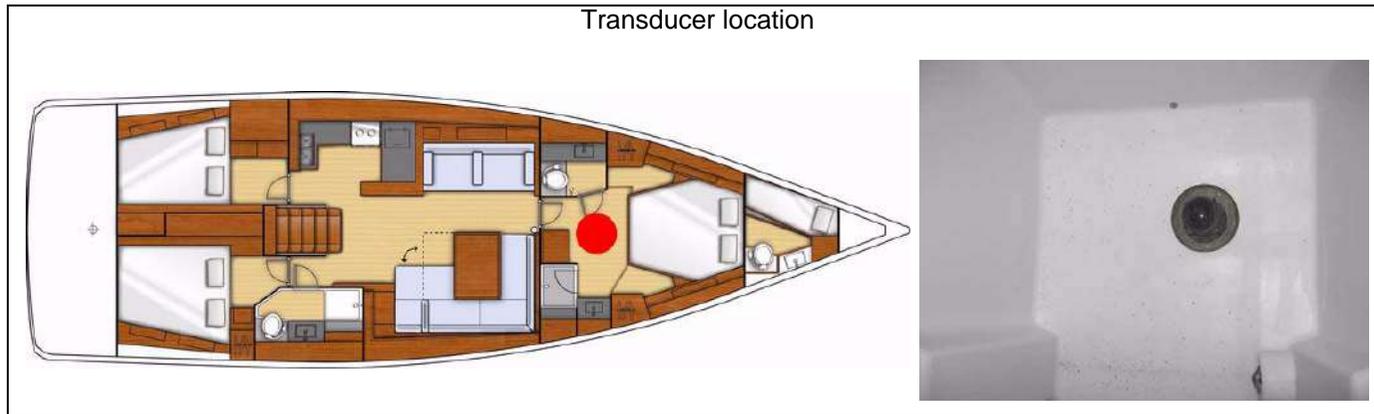


Reference	Designation
1	Fan-convector
2	Grid
3	Cooling unit
4	Chilled water pump
5	Sea water intake
6	Pump sea water
7	Condensation drain

11.5 ELECTRONIC EQUIPMENT

The onboard electronics are powered by direct current.

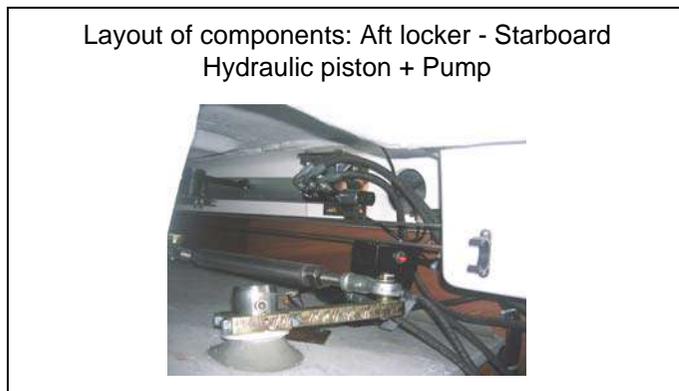
LEAD LINES



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

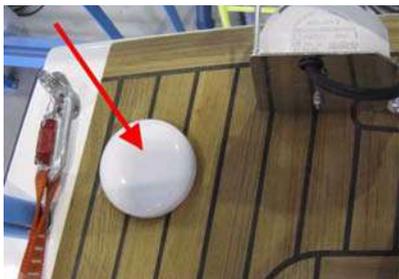
Auto pilot

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



GPS

Location of the aerial: Starboard cockpit



VHF

Layout of components:

Chart table

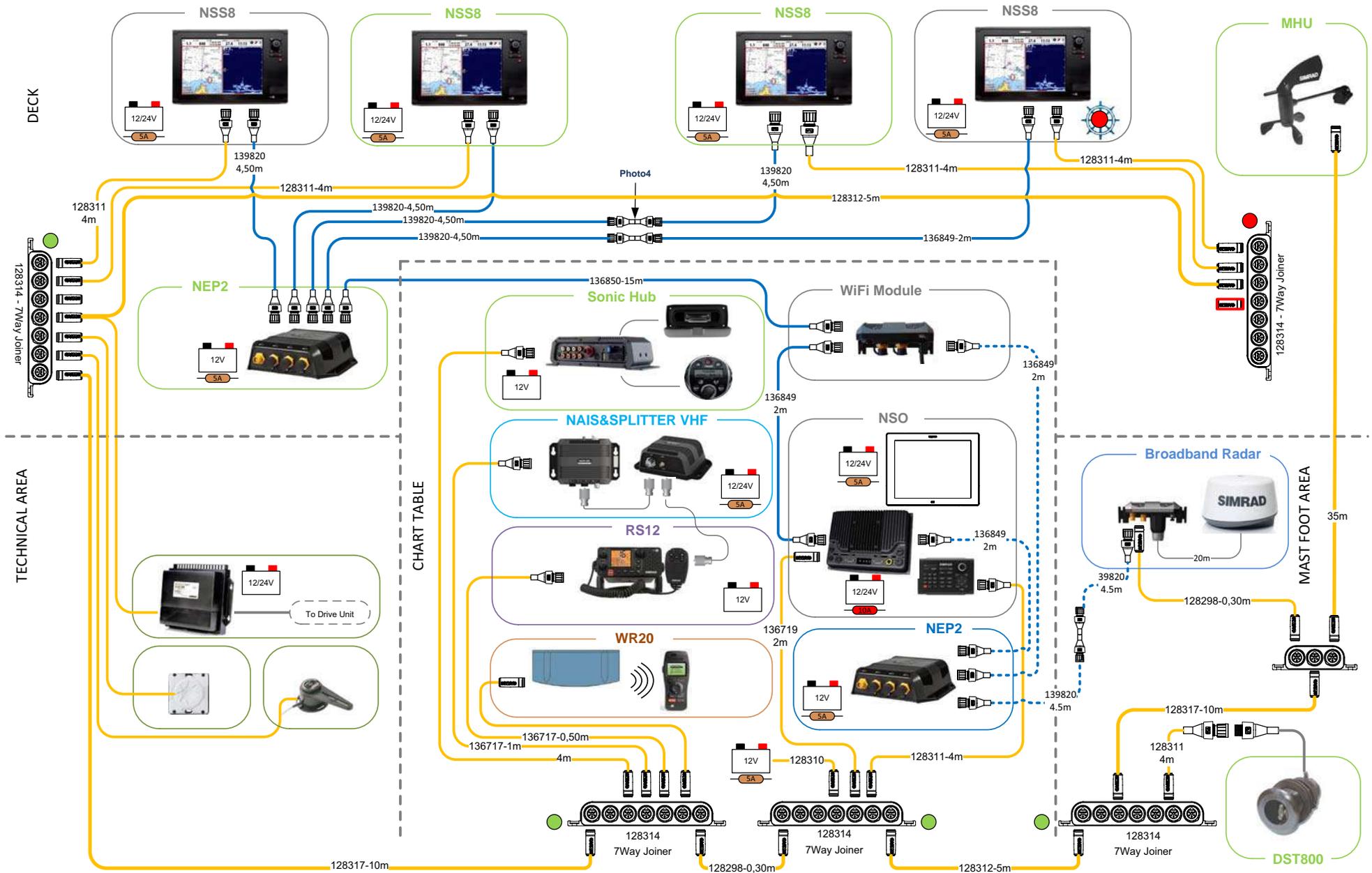


Aerial amplifier



- 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.

LAYOUT DIAGRAM - ELECTRONIC PARTS



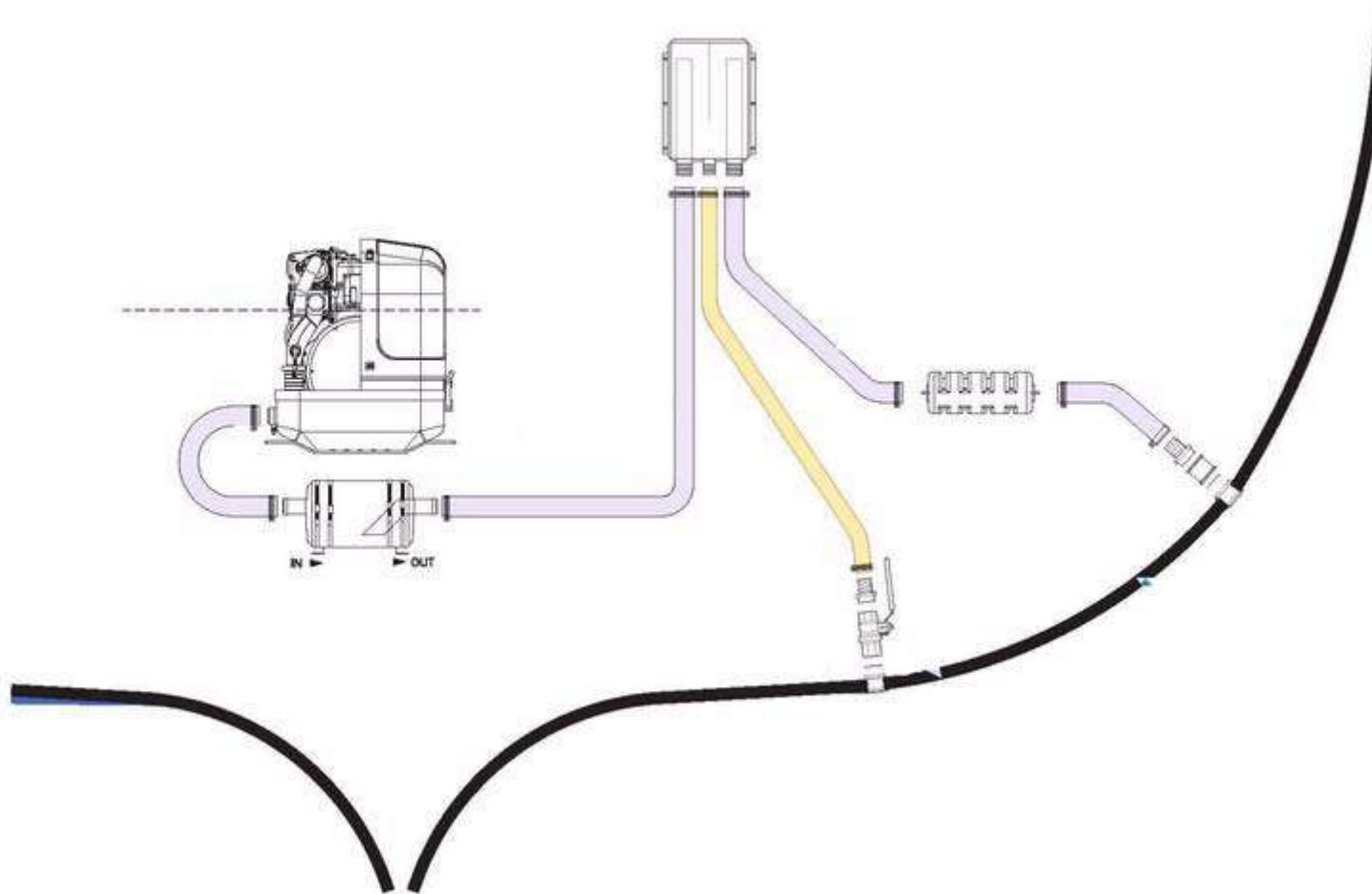
11.6 EQUIPMENT OTHER THAN FOR PROPULSION, WHICH BURNS FUEL (GENERATOR, HEATING)

11.6.1 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 (jerry cans, spare cans) must be kept in a well-ventilated place.

11.6.2 Generator

LAYOUT DIAGRAM



General points

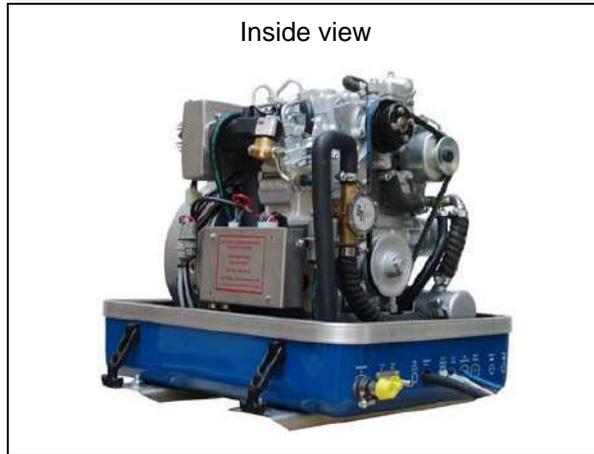
- The generator is a machine which can produce AC electrical power using mechanical power (fuel). The generator will feed the onboard equipment operating at 220V or 110V, moored or sailing.
- The generator starts with its own battery (12 V circuit).
- Make sure that there is enough fuel in the fuel tank before using the generator. The generator is supplied with fuel from the starboard tank.
- 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 (located near the main switch panel).
or on the generator itself.
- Make sure that no AC equipment is running. Then set the shore power/ generator switch (located on the chart table).

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.



- !
- 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

Remote control
Location: Chart table



Anti-siphon valve
Location: Port aft cabin



Battery charger - 25A
Location: Port aft cabin
(see the chapter on Electricity: Battery charger)



Battery switch
Location: Port aft cabin
(see the chapter on Electricity: Battery switch)



Access: Port aft locker



1. Outlet
2. Seawater discharge

Access: Port aft cabin



3. Fuel filter

Access: Companionway

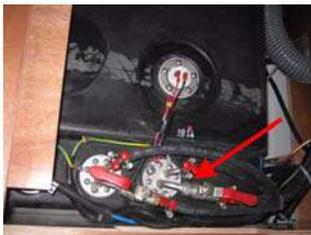


4. Sea water filter
5. Expansion tank

Seawater inlet



Fuel supply valve
Location: Diesel tank - Starboard



General view



Expansion tank
Access: Port aft cabin



11.6.3 Water heating

The water pump and the diesel pump are built into the heater. The cabins and saloon are fitted with heating units to which the water piping is connected.



- 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.



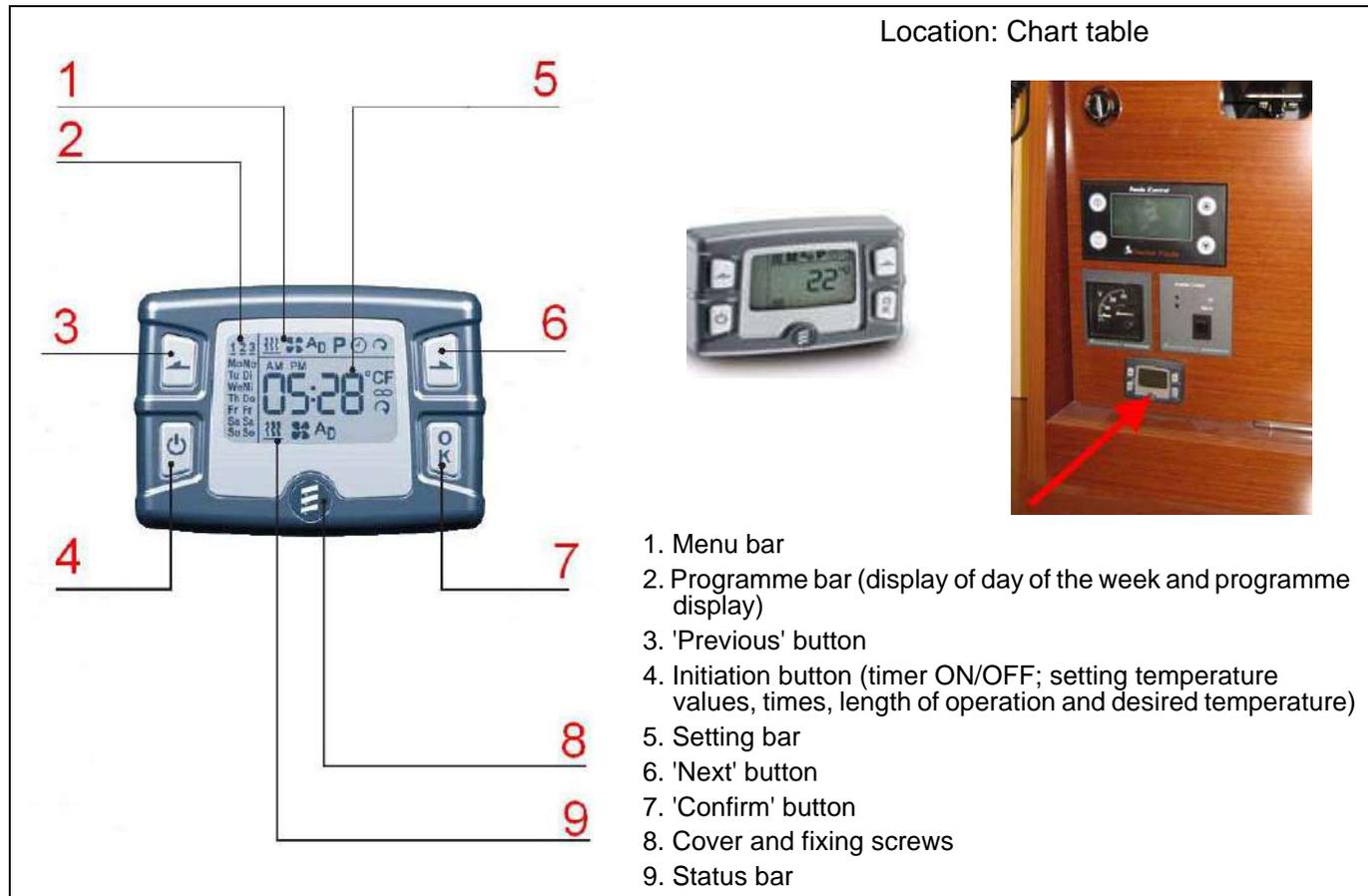
- The heater must be switched off when refilling the fuel tank.
- The heater's exhaust gases are very hot: they risk burning the shock mounts or the cables running too close to the exhaust outlet skin fitting.

Control Easystart

- The water heating operates on direct current.
- The Easystart timer serves to turn the heater on and off, as well as to choose its operating time, the length of time and how the heater should operate.
- The Easystart timer allows the setting of the temperature unit(°C or °F), the operating language (English or German) and the time.



- Please refer to the manufacturer's instructions for the use and maintenance of the heating system.





1. Heating unit
2. Supply valve - hot water
(This valve allows you to isolate a faulty circuit)

Control
Heating unit & Thermostat



Heater
Access: Starboard cockpit locker



Fuses
Access: Chart table - Heating unit x5
Heater



Fuel spur:
Starboard tank



WATER SYSTEMS

■ General points	132
■ Using a valve.....	133
■ Fresh water filling system	134
■ Fresh water distribution system	136
■ Main plumbing equipment.....	139
■ Black water system (WC).....	148
■ Waste water system	161

13.1 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.

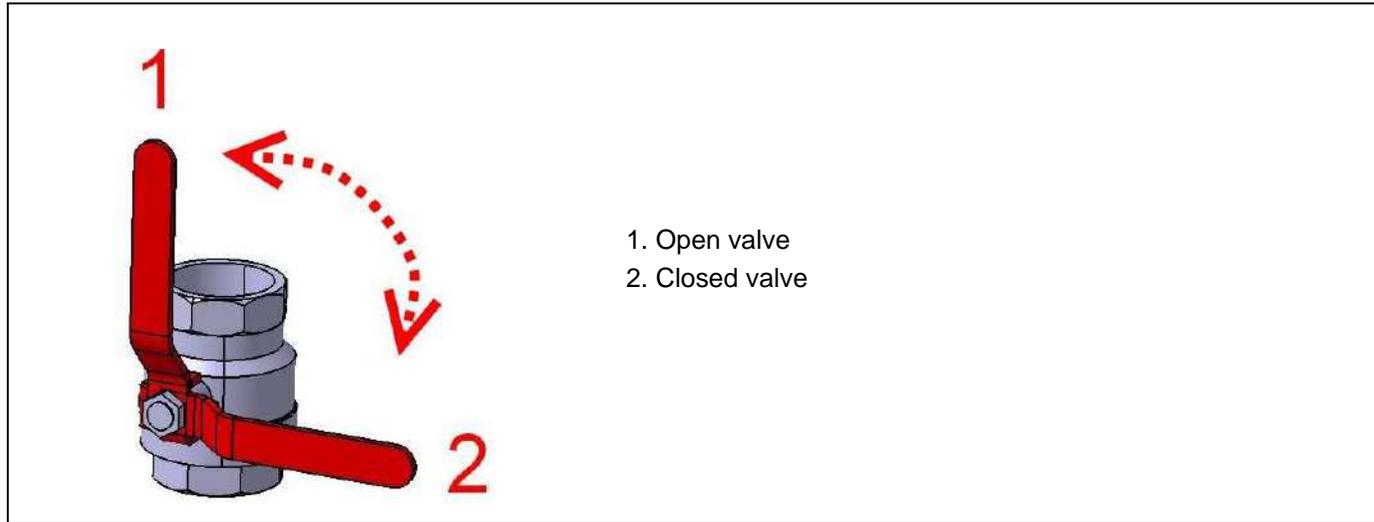


- Regularly check water-tightness of joints in the water system installations. Check that screws and bolts are well tightened and replace them if they are worn or corroded.
- Disconnect shore water supply before leaving the boat (if fitted).
- If the boat is sailing in temperatures below freezing, it 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.**

13.2 USING A VALVE

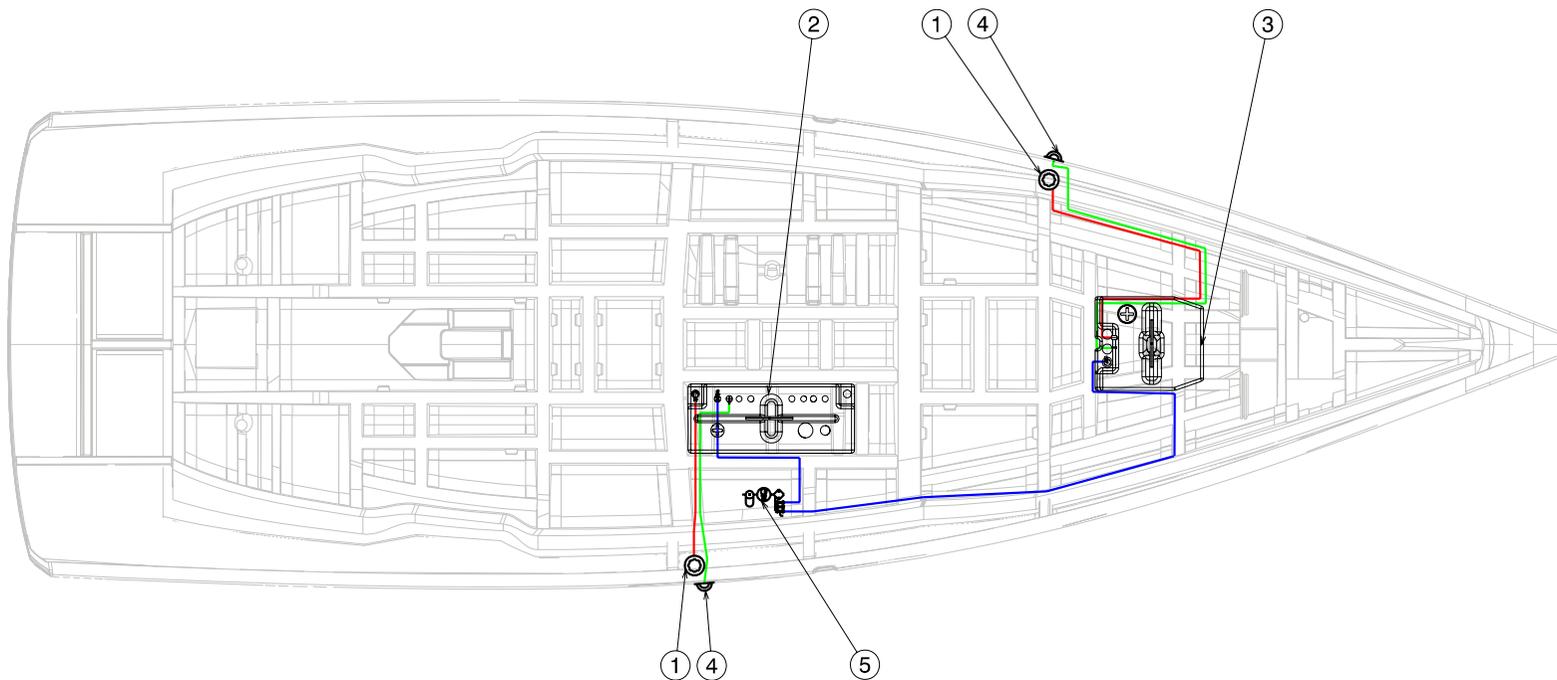
The valve is shut when the valve handle is at right angles to the pipe, the valve is open when the valve handle is in line with the pipe.



! - 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.

13.3 FRESH WATER FILLING SYSTEM

All versions



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

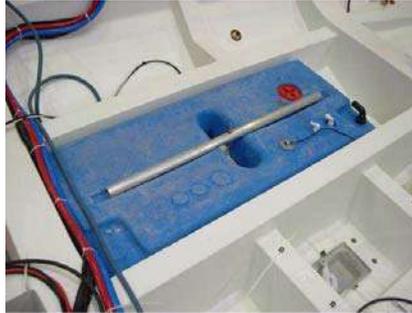
Reference	Designation
1	Deck filler
2	Fresh water tank - 325 litre
3	Fresh water tank - 330 litre
4	Tank vent
5	Water unit

Water tank

Forward tank:
330 litre

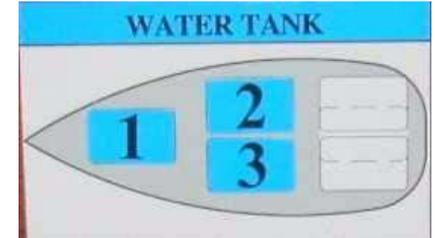


Tank - Saloon (Starboard):
324 litre



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

- Tank no.1: Forward tank
- Tank no.2: Tank - Saloon (Starboard)
- Tank no.3: Extra tank (Port side)



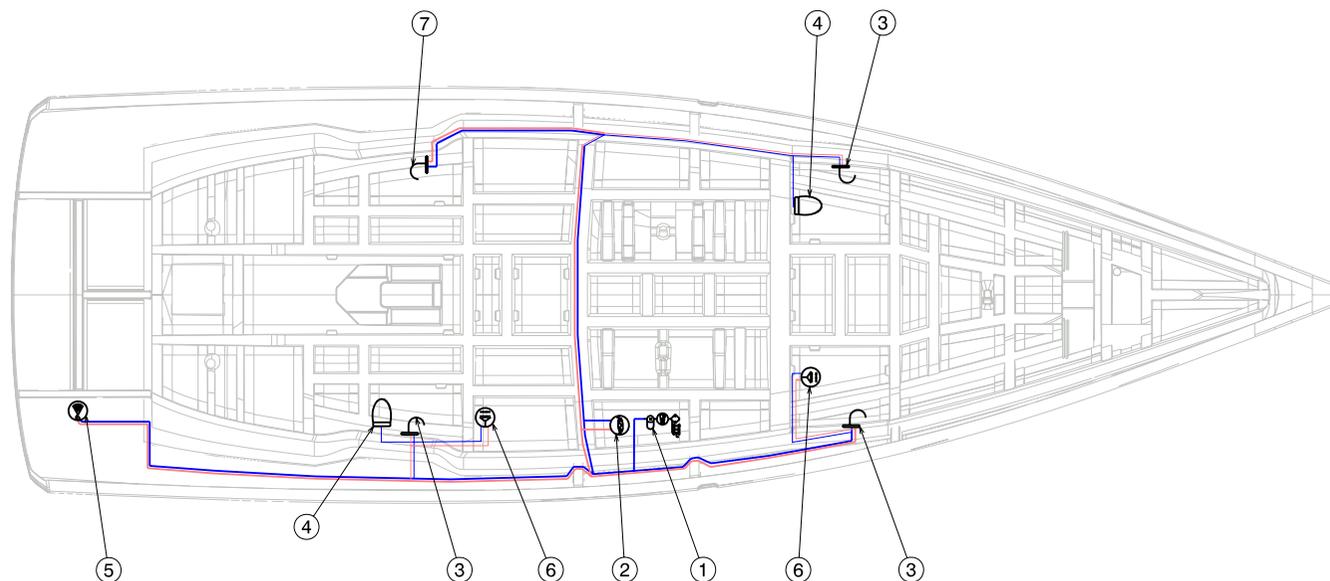
Water tank direction valves Location: Starboard saloon



- 1. Supply - Forward tank
- 2. Supply - Aft tank
- 3. Supply - Extra tank

13.4 FRESH WATER DISTRIBUTION SYSTEM

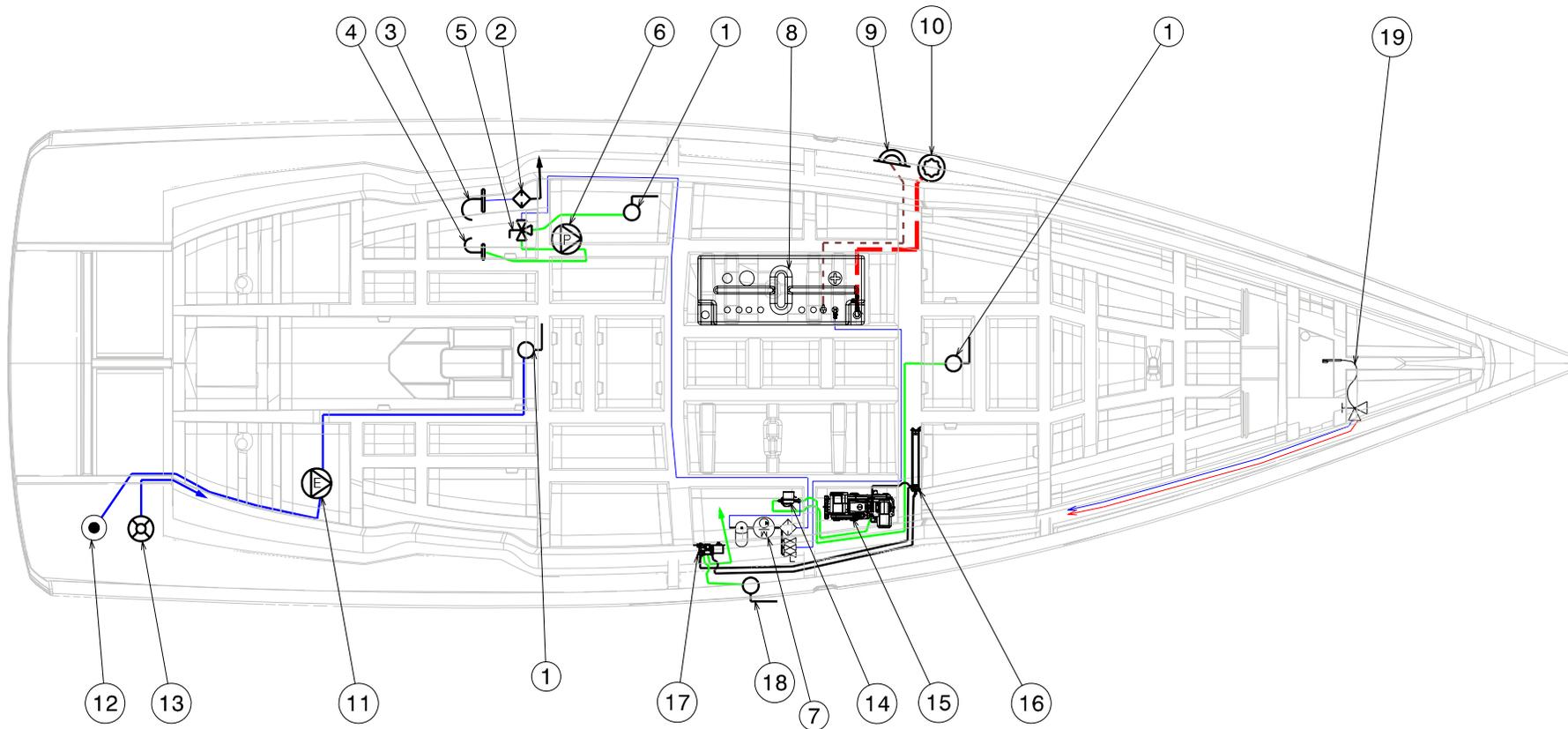
Version 3 cabins / 2 head compartments



	Pipe - cold water - Ø 19mm
	Pipe - hot water - Ø 19mm
	Pipe - cold water - Ø 12mm
	Pipe - hot water - Ø 12mm

Reference	Designation
1	Water unit
2	Water heater - 40 litre
3	Washbasin mixer tap
4	WC
5	Cockpit shower
6	Mixer shower
7	Sink mixer tap

Fresh water distribution system (Options)



	Pipe - Fresh water - Ø 19mm
	Pipe - Fresh water - Ø 12mm
	Pipe - hot water - Ø 12mm
	Pipe - Sea water - Ø 16mm
	Pipe filling - Ø 38mm
	Pipe - Vent hole - Ø 16mm

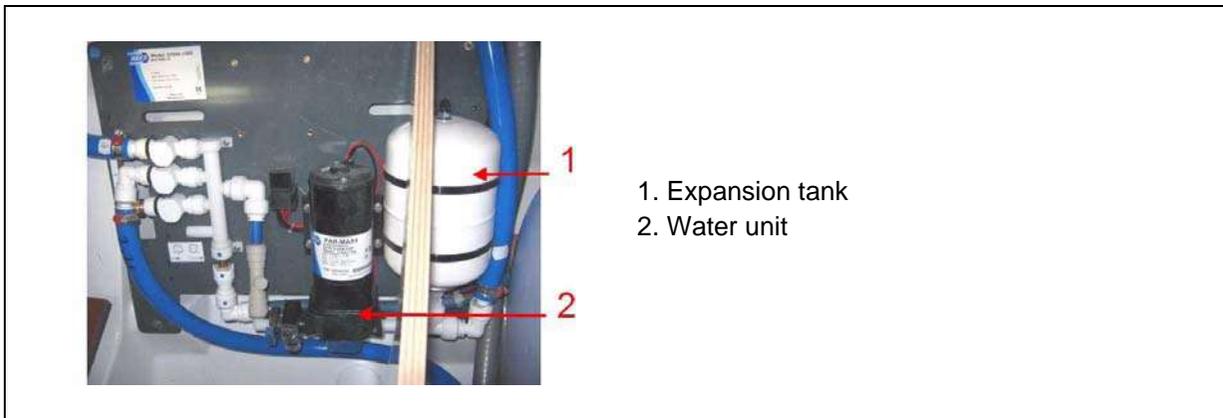
Reference	Designation
1	Thru-hull fitting - Intake - with valve
2	Carbon filter
3	Sink mixer tap
4	Valve - Spout
5	Selection valve - 3 way
6	Foot pump
7	Water unit
8	Fresh water tank - 325 litre
9	Tank vent
10	Deck filler
11	Electric pump
12	Connector - deck washer
13	Fresh water shore supply
14	Sea water filter
15	Motor unit - Water maker
16	Membranes - Water maker
17	Control panel - Water maker
18	Through-hull discharge - with valve
19	Washbasin mixer tap - Shower

13.5 MAIN PLUMBING EQUIPMENT

13.5.1 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.

NOTE: The water pump can be fed either by the tanks or directly from the fresh water shore supply.

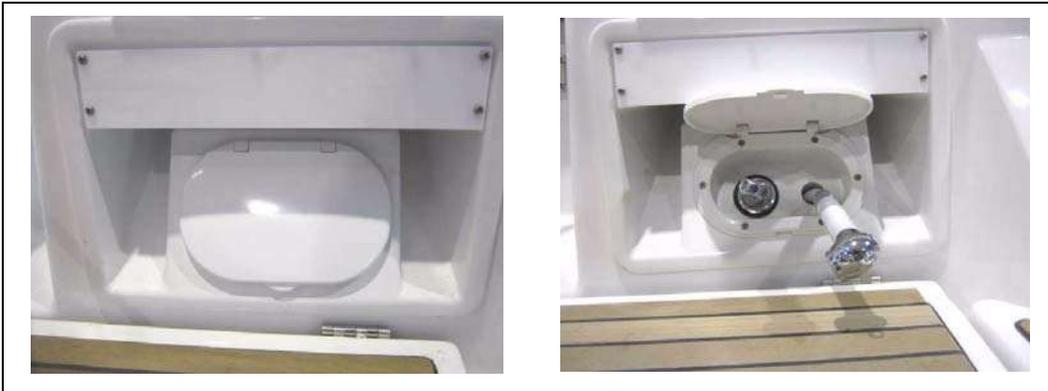


13.5.2 Cockpit shower

- 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 axis.

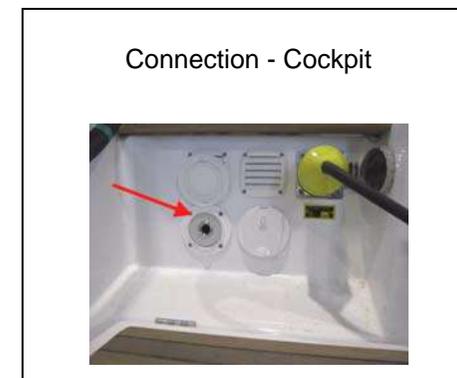
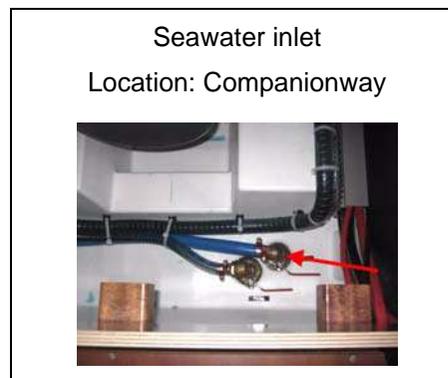
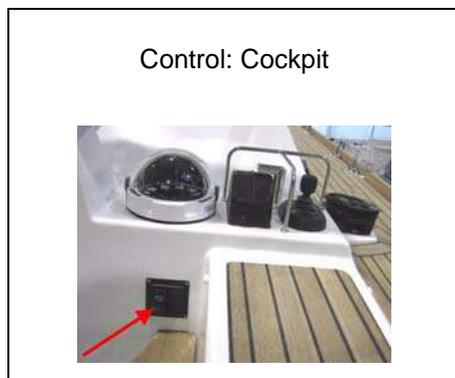
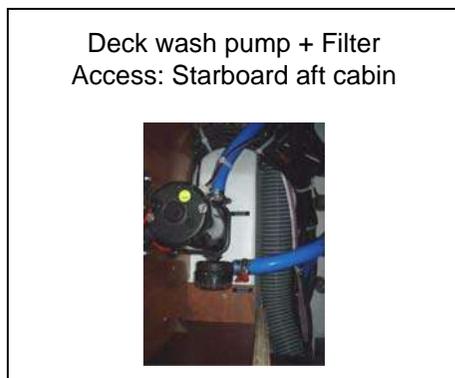


13.5.3 Deck wash pump (Sea water)

- The deck wash pump is supplied by direct current.
- The deck wash pump allows the deck or the boat's tender to be washed.
- The deck wash pump is switched on at the electric panel.

Operation

- Open the sea water intake valve.
- Attach a hose to the connector provided in the cockpit.
- Start the pump.



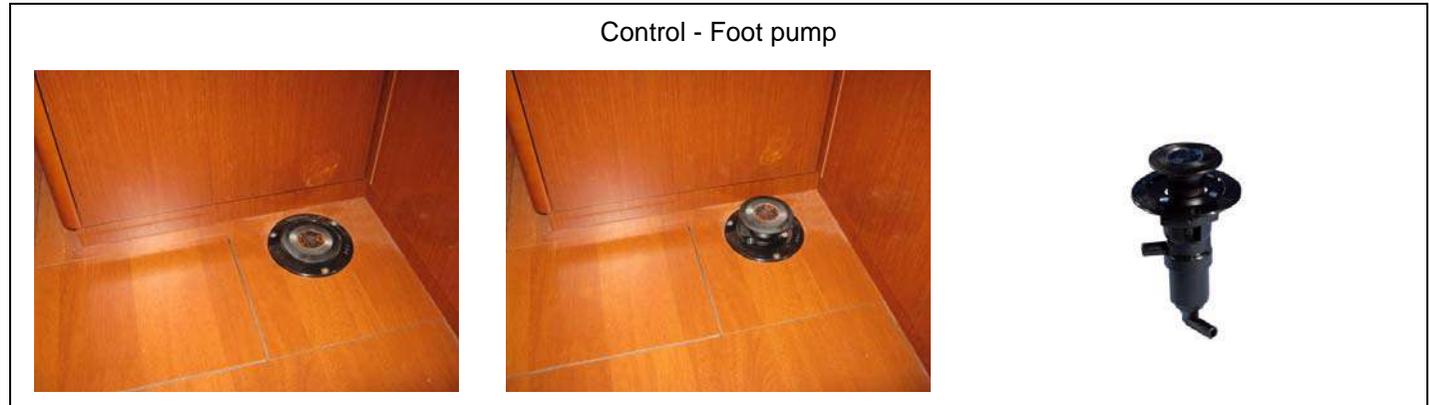
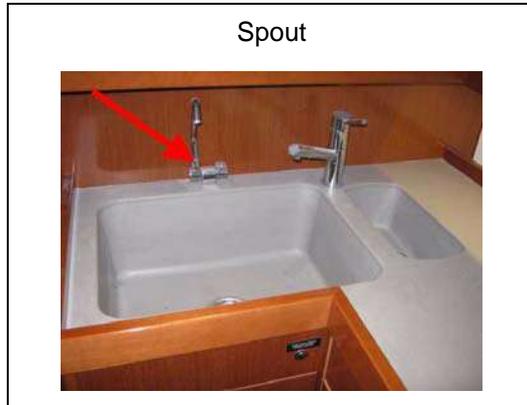
13.5.4 Shore freshwater supply



- The shore fresh water supply arrives directly into the fresh water plumbing system via the water unit, without passing through the tanks.
- A non-return valve in the distribution circuit allows the shore supply water to be used without opening the valve.
- The connection of the water intake is located in the cockpit.
- **Disconnect shore water supply before leaving the boat.**

13.5.5 Sea water/fresh water foot pump

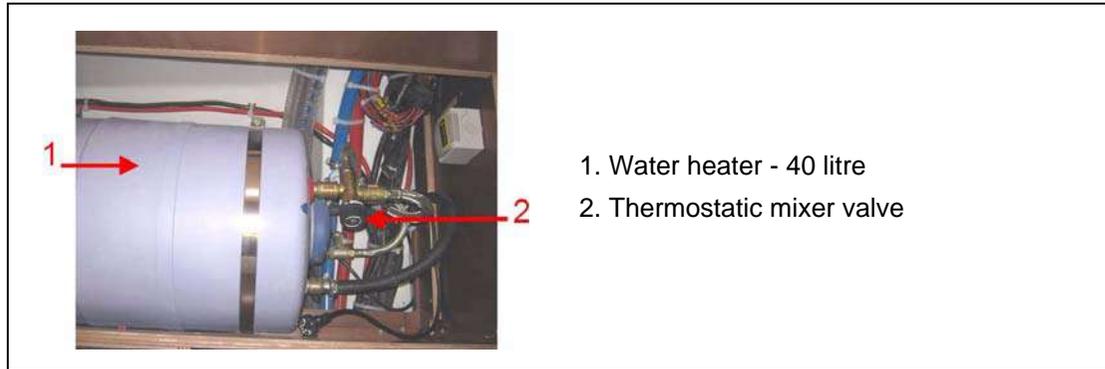
- The foot pump allows the use of sea water/fresh water without needing electricity.
- Siting of the sea water/fresh water selector valve: Under the sink.
- Water from the foot pump comes out at the spout located at the sink.



13.5.6 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.



13.5.7 Ice maker (Ice maker)

General points

- The ice maker provides a supply of ice from the onboard water system.
- The ice maker runs on the AC power supply.
- A circuit-breaker protects the circuit.

Operation

- The ice maker is supplied with water from the tanks via a supply valve.
- Turn on the water unit to supply the ice maker.
- Open the supply valve onboard water / ice maker.
- Turn on the AC power (shore or generator) and actuate the ice maker circuit-breaker.
- Start the ice maker using the control on the appliance.

Maintenance

- A carbon filter is installed in the ice maker water system. Change the filter regularly.
- 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 hinge of the ice maker door regularly with a damp cloth.
- Clean and defrost the ice maker regularly.
- During overwintering, leave the ice maker door open to avoid mould and odour formation.
- During prolonged absences, drain the ice maker system to avoid damage caused by freezing.

Ice maker / Control



Carbon filter / Supply valve
Location: Saloon



- Refer to the manufacturer's instructions for use and maintenance.
- Never heat or use tools to defrost the inside of the fridge more quickly.
- Never obstruct the heat exchanger of the fridge.

13.5.8 Water maker

General points

- The watermaker allows fresh water to be produced from the sea water.
- The watermaker can be supplied either:
 - by DC direct current,
 - by AC alternating current.
- A circuit-breaker protects the circuit.
- Several elements make up the watermaker circuit:
 - sea water intake,
 - sea water filter(s),
 - circulation pump,
 - electric valve for automated rinsing,
 - manual rinsing valve,
 - motor block and high-pressure pump,
 - membrane block,
 - control panel,
 - sea water discharge valve.

Operation

- Sea water enters the membrane block under pressure, which allows only pure water to pass out.
- A sensor at the membrane block exit allows the measurement of the salt content of the water filtered in this manner. A three-way valve allows drinking water to be directed automatically to the tanks or water that is too salty to be discharged to the sea.
- The drinking water filtered by the membranes is sterile; it is advisable to treat it with a weak dose of chlorine from time to time and to mineralise it if consumption is prolonged.
- Fresh water production depends on the temperature of the sea water used and the cleanliness of the filter.

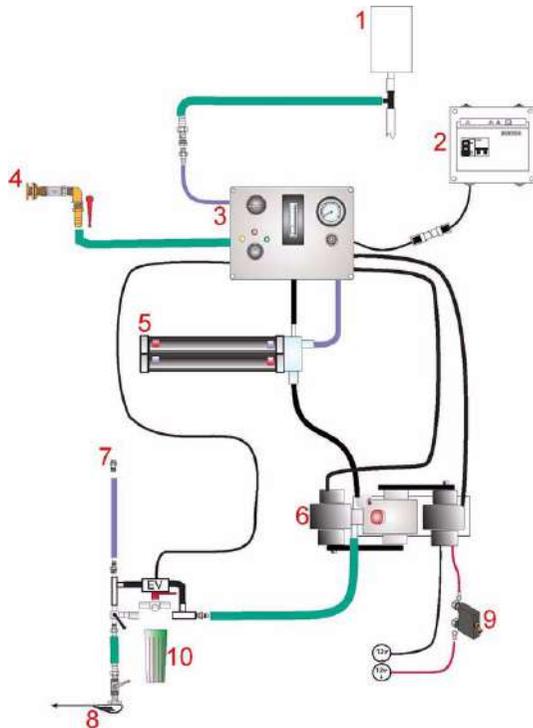
Operation

- Before starting the watermaker circuit, check that the supply and discharge valves are open.
- Using the watermaker with DC supply needs a lot from the battery bank: make sure to recharge them regularly by running the boat's engine.
- The different quality and salinity of the sea water used affect the production of fresh water; it is advised not to use the watermaker in navigation areas or where the water is muddy, polluted or brackish.
- The membranes are temperature-sensitive; in the event of negative (0°C and less) or too hot (60°C and over) temperatures, the membranes are likely to tear.

Maintenance

- Every week, rinse the system with fresh water. Two methods can be used according to choice: one manual, the other automatic. The fresh water used for rinsing the circuit must not be under pressure to avoid damaging the membranes.
- Every 6 months, the sea water filter must be changed.
- When the watermaker is not being used for a long period, rinse the system every month or sterilise the membranes.

Layout diagram



Reference	Designation
1	Fresh water tank
2	Differential circuit breaker
3	Control panel
4	Drainage - Rinsing water
5	Water maker (Membrane unit)
6	Water maker (Motor unit)
7	Fresh water intake for rinsing
8	Sea water intake
9	Breaker - 50A
10	Filter

Layout of components: Starboard saloon

Control panel
(Ref 3)



Membrane unit
(Ref 5)



Motor unit
(Ref 6)



1. Seawater supply valve
2. Sea water filter (Ref 10)



Sea water intake
(Ref 8)



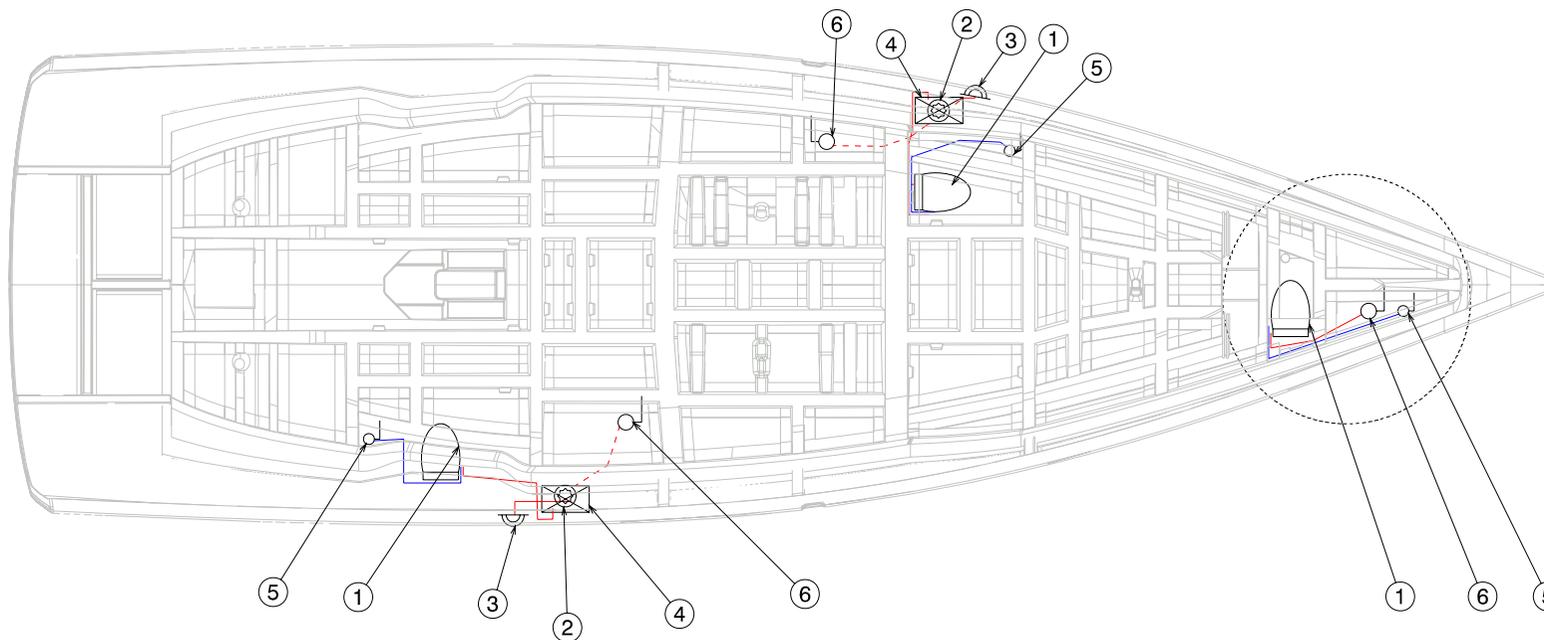
13.6 BLACK WATER SYSTEM (WC)

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.

13.6.1 Location diagram of black water system

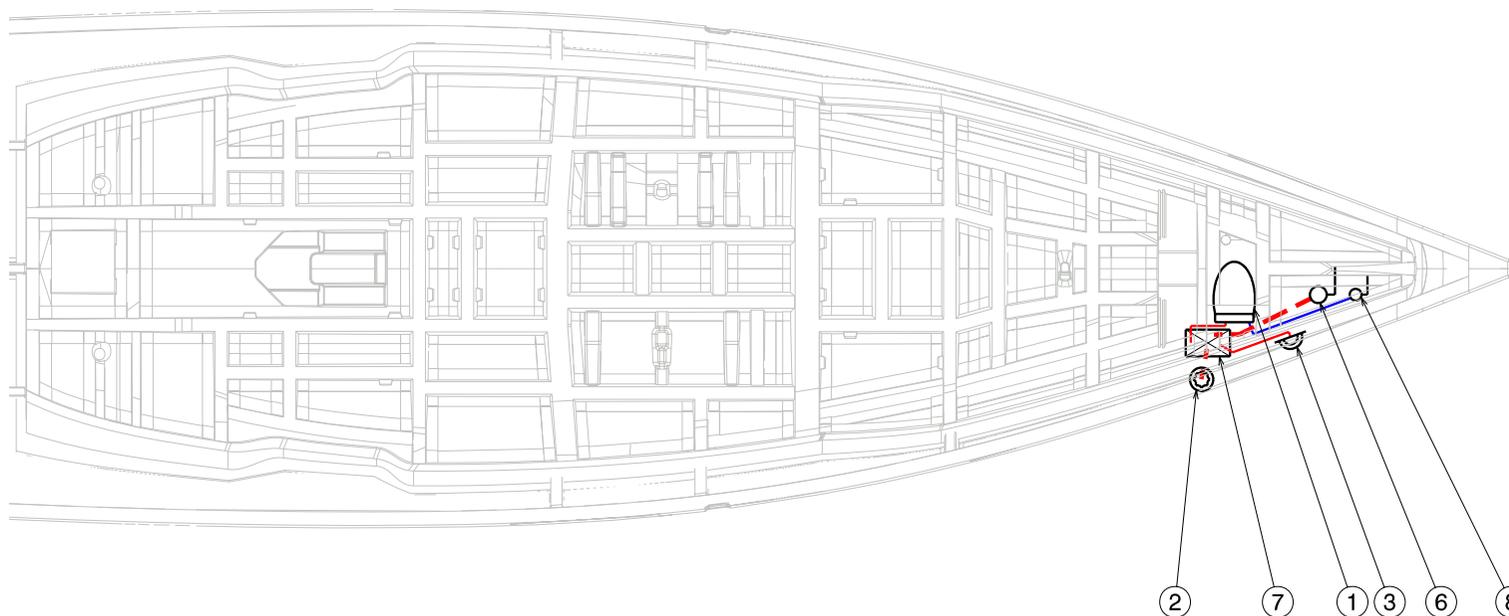
Version 3 cabins / 2 head compartments



	Pipe - Waste water - Ø 20mm
	Pipe - Sea water - Ø 16mm
	Pipe - Sewage - Ø 38mm
	Pipe - Sewage - Ø 50mm

Reference	Designation
1	WC
2	WC evacuation - Deck
3	Tank vent
4	Sewage tank - 80 litre
5	Sea water intake - WC
6	WC evacuation to sea

Location diagram of black water system (Skipper's cabin)



	Pipe - Waste water - Ø 20mm
	Pipe - Sea water - Ø 16mm
	Pipe - Sewage - Ø 38mm
	Pipe - Sewage - Ø 50mm

Reference	Designation
1	WC
2	WC evacuation - Deck
3	Tank vent
6	WC evacuation to sea
7	Sewage tank - 50 litre
8	Thru-hull fitting - Intake

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: 80 litre



Black water tank
(Skipper's cabin)
Capacity: 50 litre

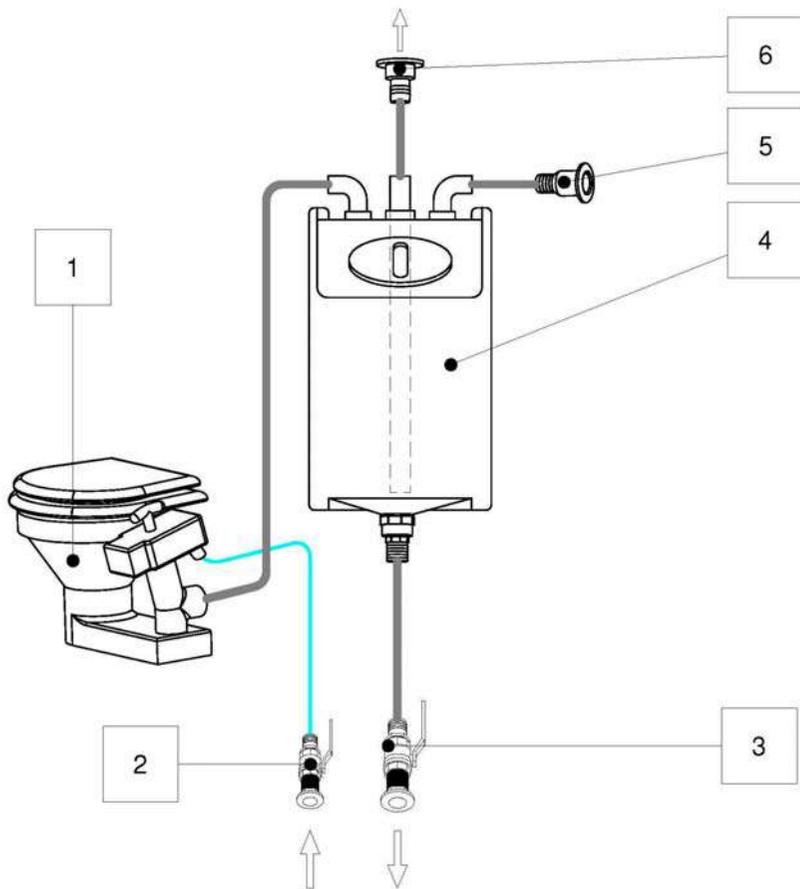


- Never use automobile anti-freeze in the black water system: risk of poisoning.



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

**Layout diagram of black water system
Emptying by gravity (Skipper's cabin)**



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.

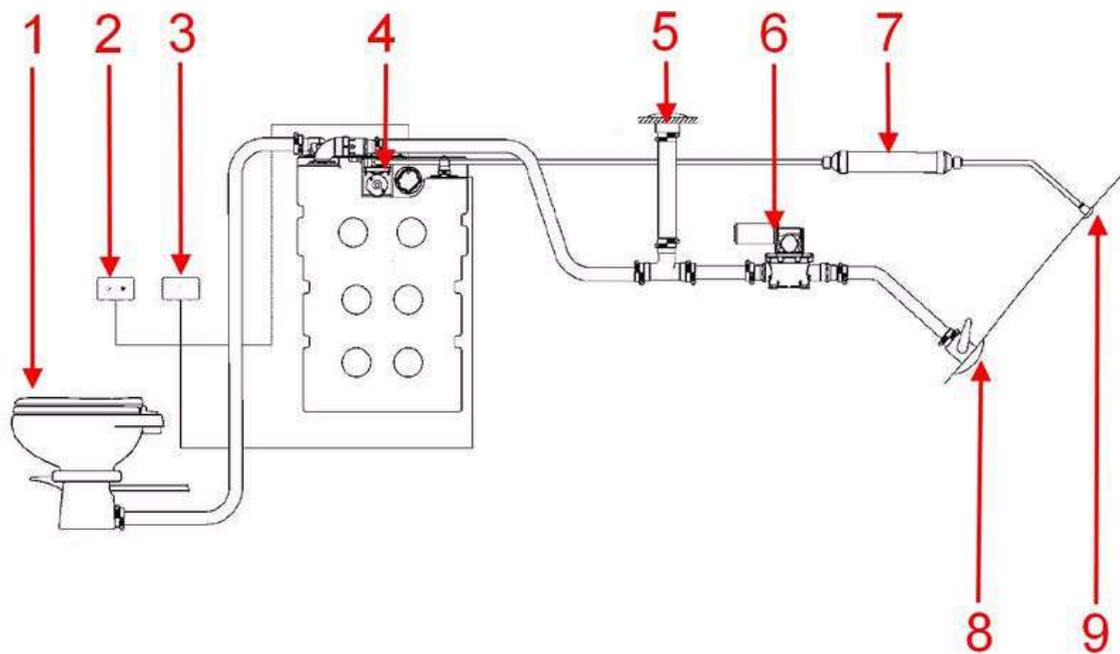
Using an DC electric WC fitted with a tank emptied by gravity

- 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.



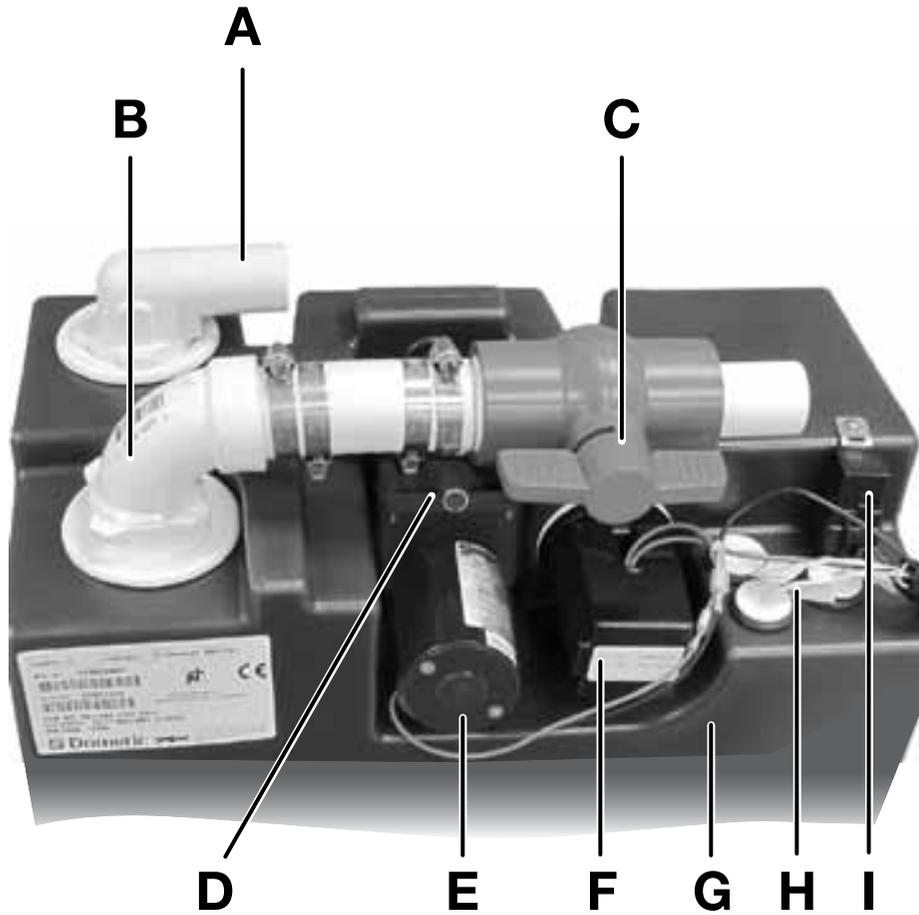
Refer to the manufacturer's instructions for use and maintenance.

VacuFlush System (pressurised black water system)



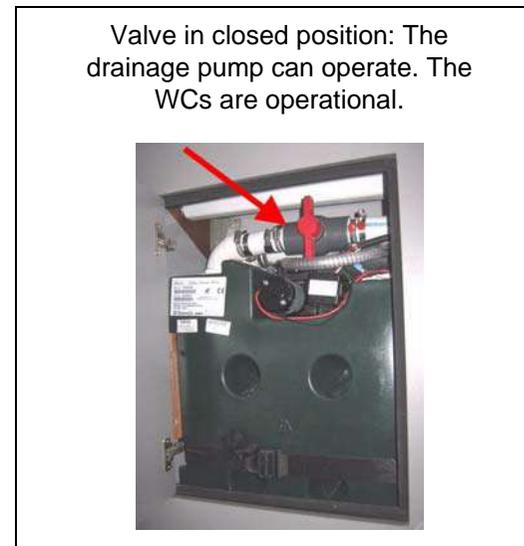
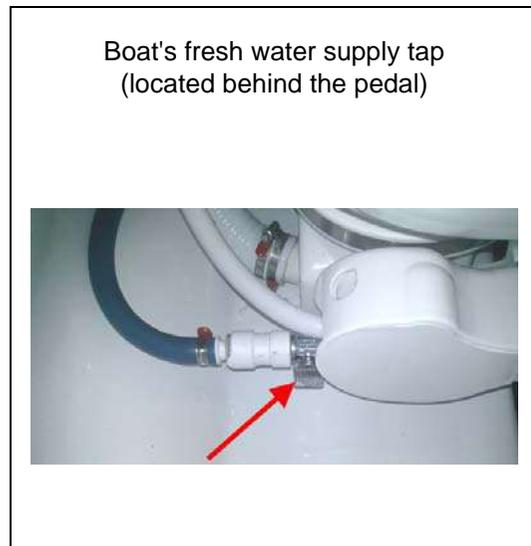
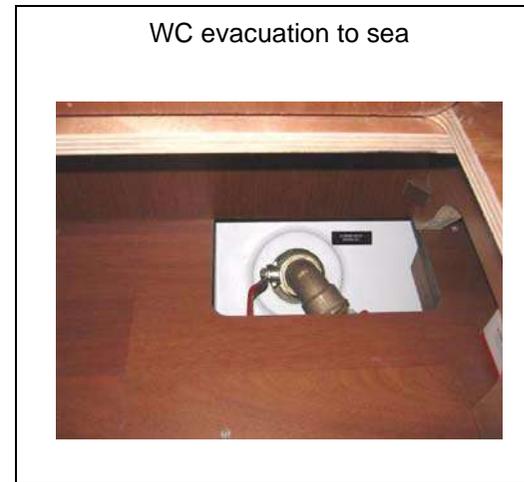
- !**
- Refer to the manufacturer's instructions for use and maintenance.
 - Check that the seat of each toilet is properly closed to allow the pressurised black water system to operate.
 - Use rapidly dissolving toilet paper. (To determine the dissolving capacity of a toilet paper, immerse a square of the paper in a container and shake between 5 and 10 times. Paper sample must be torn in several pieces.)
 - If the black water tank is full, the WC system cannot be operated.

Reference	Designation
1	WC
2	Control
3	Black water tank gauge
4	Black water tank (See detailed diagram below)
5	Drain outlet - Deck
6	Drainage pump - WC
7	Anti-odour filter
8	Thru-hull seacock
9	Vent hole (Black water tank)



Reference	Designation
A	Inlet pipe for faecal matter
B	Tank drainage hose
C	Drainage system isolation valve (shown here in the 'open' position)
D	Tank vent hole
E	Vacuum pump
F	Drainage pump electrical circuit
G	Black water tank
H	Gauge transmitter
I	Safety relay (allows the electrical supply to be cut off when the tank is full)

LAYOUT OF COMPONENTS



General points

- The electric toilets work off the house water system.
- The WCs are supplied by direct current.
- The valve located on top of the tank (the drainage system isolation valve) must be closed to enable the WCs to be operated. When the valve is in the open position, it allows the black water tank to be emptied, either through the deck fitting, or through the drainage pump (WC evacuation to sea).

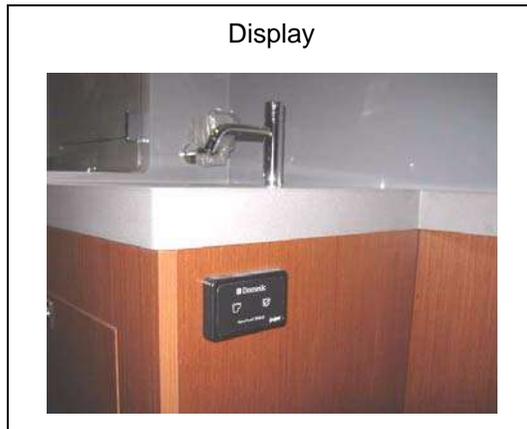
Flushing operation

- Filling the bowl: Raise the pedal up to the desired level of water in the bowl.

Note: if the pedal remains raised for too long, the water will overflow the bowl.

- Emptying the bowl: Press firmly on the pedal until the bowl is completely empty. Keep the pedal pressed for 3 seconds, then let the pedal return to its initial position.

Note: If the pedal is released by mistake during the emptying cycle, wait until the drainage pump finishes operating before pressing the pedal again (green indicator light that appears on the display).



- LED green: The pressurised WC system operates. The WCs are operational.

- LED red: The WC system is not pressurised. The WCs are not operational.

Possible causes:

- The black water tank is full ;
- An emptying cycle is in progress ;
- The drainage pump is running.

Gauge

- When the tank is full (red indicator lamp lit on the gauge indicator), a relay located near the tank cuts off the electrical supply to the system. That prevents the use of the toilets. The tank must be emptied so that the WCs may be operated again.



Gauge indicator light:

- Indicator light showing green: Black water tank empty
- No indicator light: Level low
- Orange indicator light: Level $\frac{3}{4}$ full
- Red and orange indicator lights showing: Black water tank full

NOTE: IT IS ESSENTIAL TO OPEN THE TOILET DISCHARGE VALVE AT SEA BEFORE ACTIVATING THE DISCHARGE PUMP.

Emptying the black water tank

- Shut off the water supply by means of the tap location near the pedal ;
- Block the pedal in the low position by means of the small locking button located on the pedal ;
- Open the vacuum system isolation valve ;

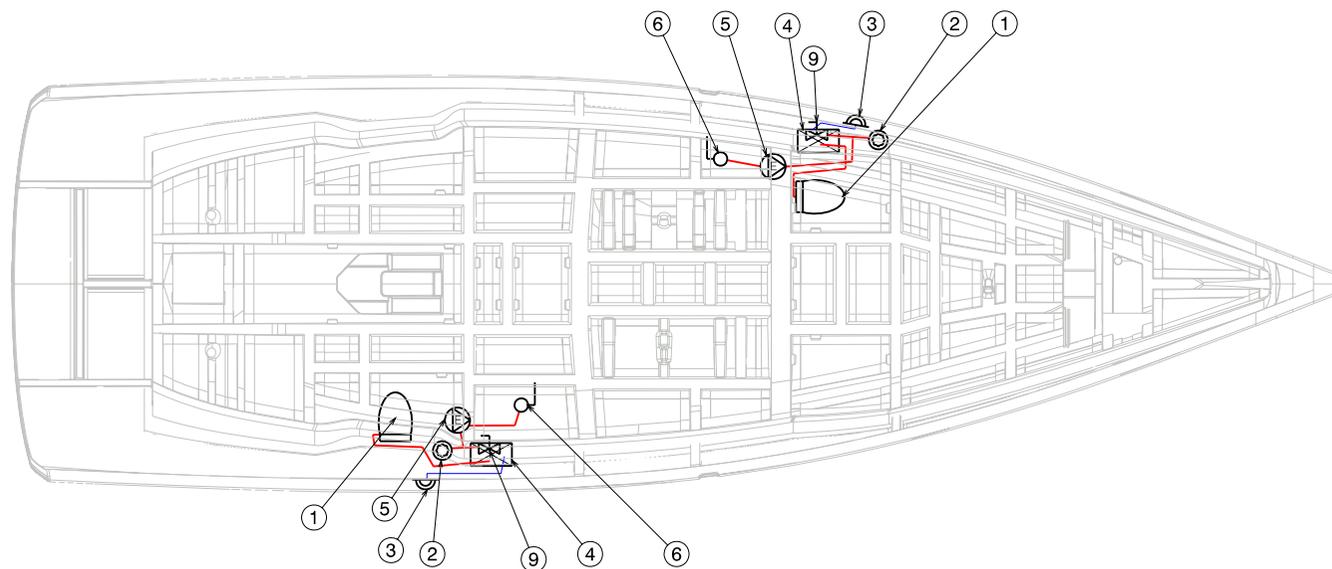
Deck drainage:

- Open the WASTE plug on the deck and attach it to pump-out equipment outside the boat.

Thru-hull seacock:

- Open the valve located on the drainage seacock ;
- Insert the key in the gauge indicator position ;
- Control tank emptying by the switch located on the gauge indicator (An emptying cycle lasts about 4-5 minutes).
- Once the tank is empty:
 - Close the WASTE plug again or the valve located on the drainage seacock ;
 - Close the isolation valve again ;
 - Unlock the pedal ;
 - Open the water supply tap.

Diagram of the layout - VacuFlush System
Version 3 cabins / 2 head compartments



	Pipe - Waste water - Ø 20mm
	Pipe - Sea water - Ø 16mm
	Pipe - Sewage - Ø 38mm
	Pipe - Sewage - Ø 50mm

Reference	Designation
1	WC
2	WC evacuation - Deck
3	Tank vent
4	Sewage tank
5	Pump - Masher
6	WC evacuation to sea
9	2 way valve

13.7 WASTE WATER SYSTEM

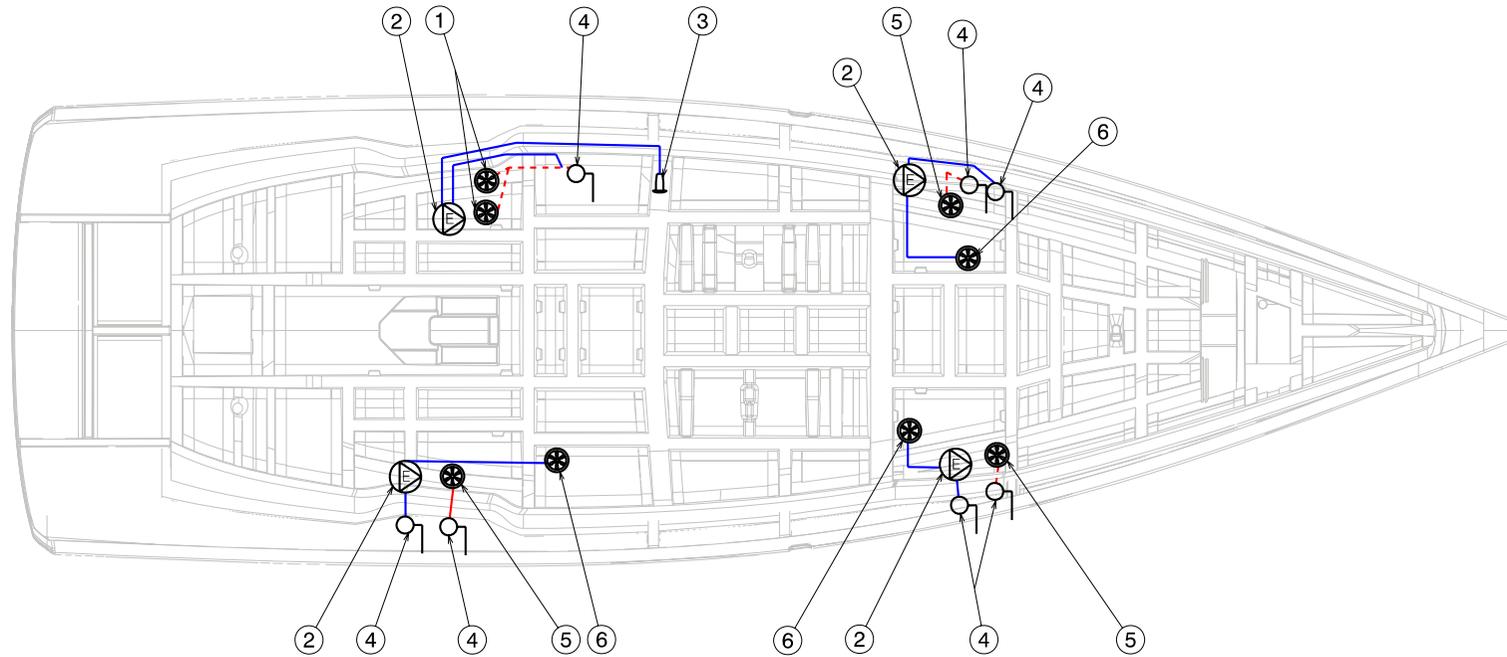
General points

- The waste water system is the water coming from the sink, showers, air conditioning drains and washbasins. All this water is collected in the grey water tank, drained via a discharge pump controlled by a float switch.
- 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.



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

Layout diagram waste water



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

Reference	Designation
1	Sink plug hole
2	Pump discharge - Cooler
3	Drain plug - Cooler
4	Icebox drainage
5	Washbasin drain plug
6	Shower plug hole

Layout of components:

SHOWER

Shower plug hole



Draining pump for shower + Delay relay



The shower pump control



COOLER

Control - Icebox drainage



ENGINE

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14.1 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:
Located directly on the saildrive
(Dock and Go version)



Fuel supply valve
located directly on the tank



14.2 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).

14.3 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.

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 litre x 2
- Position of tanks: Port aft cabin & Starboard aft cabin.
- Auxiliary fuel tank: 200 litre. Location: Port saloon.
- 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.

Choice of tank

- A pull control enables you to select which fuel tank to use to supply the engine.
 - Lever pushed: fuel supply from the port tank.
 - Lever pulled: fuel supply from the starboard tank.



- 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).**



- 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.

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.

<p>Deck filler</p> 	<p>Electrical panel (Refer to the instructions for use)</p> 	<p>Gauge</p> <p>Tank no.1: Port tank Tank no.2: Starboard tank</p> 	
<p>Fuel tank</p> 	<p>Choice of tank Tank selection device Access: Starboard aft cabin / Port side</p> 		<p>Selector pull handle Location: Port aft cabin</p> 

14.4 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).

14.5 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.

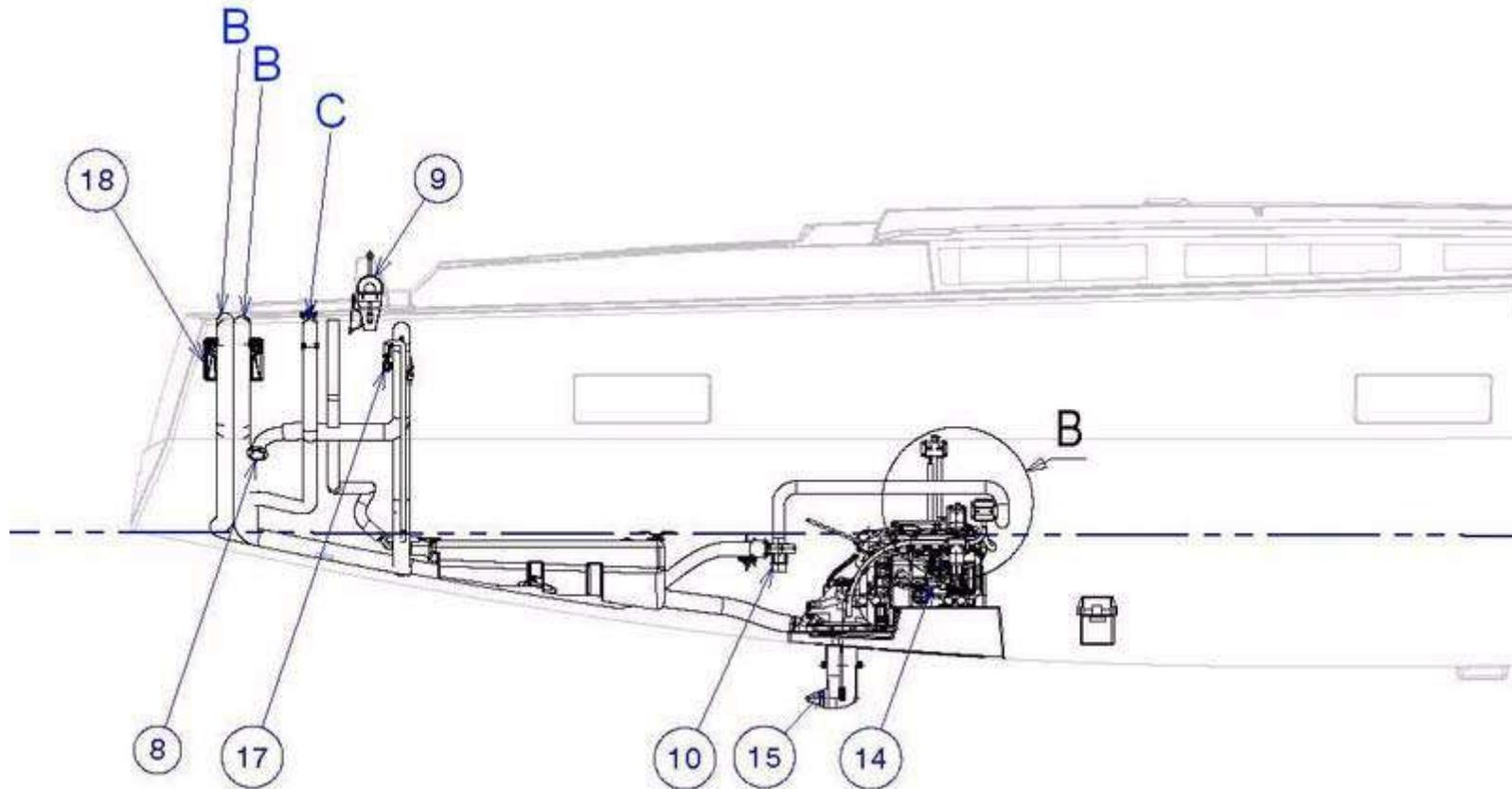
Sea water intake
(Version: Sail Drive)

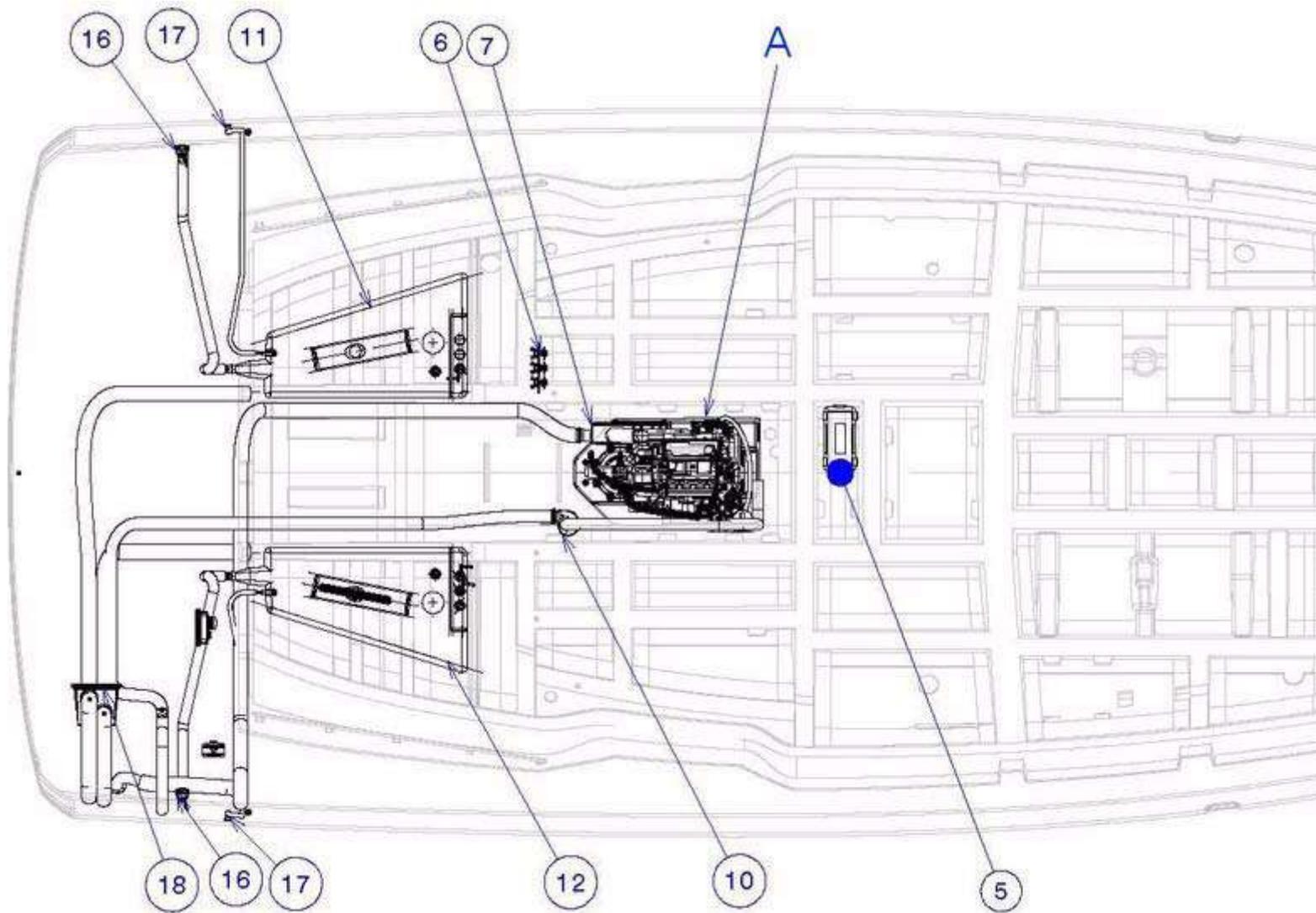


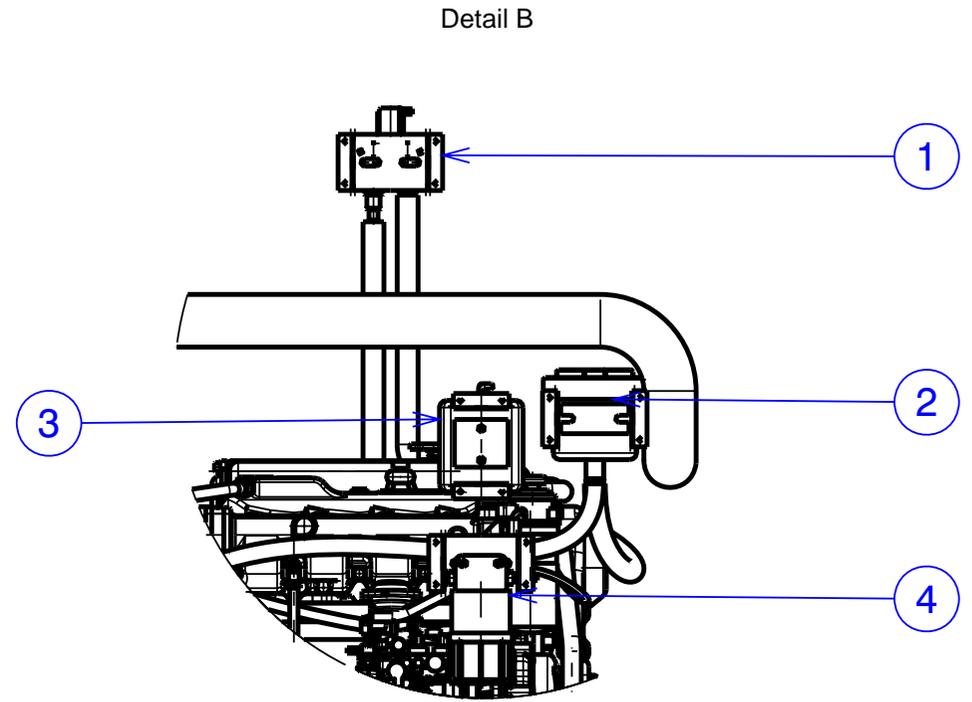
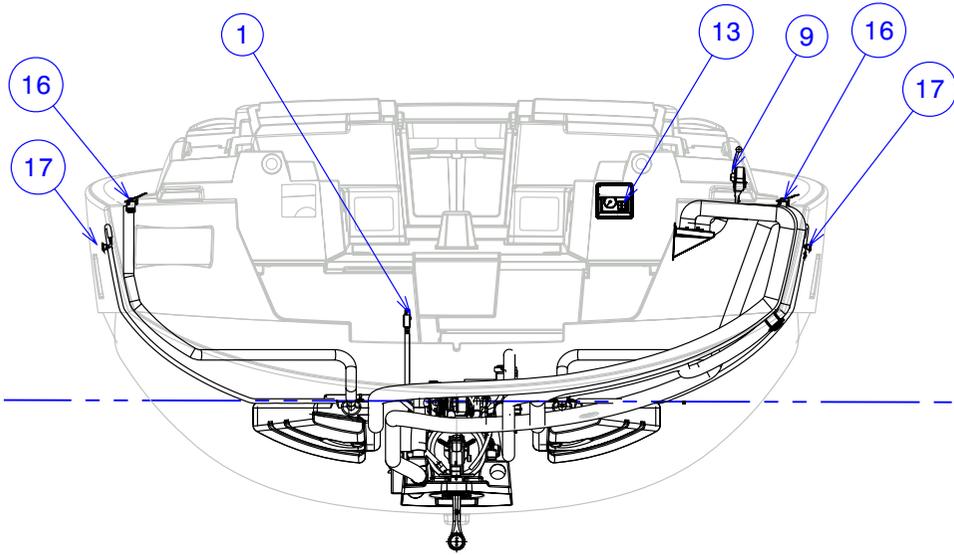
Sea water filter
Location: Engine compartment



DIAGRAM OF THE LAYOUT







Reference	Designation
1	Anti-siphon valve
2	Sea water filter
3	Expansion tank
4	Fuel filter
5	Engine battery
6	Battery switch
7	Water trap
8	Outlet
9	Engine control lever
10	Ventilator
11	Fuel tank
12	Fuel tank
13	Engine instrument panel
14	Motor
15	Sail Drive
16	Fuel filler
17	Vent hole - Fuel tank
18	Fresh air inlet
A	Extinguisher access hole
B	Fresh air inlet
C	Hot air outlet

14.6 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



14.7 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.

Location: Engine compartment



14.8 ENGINE INSTALLATION

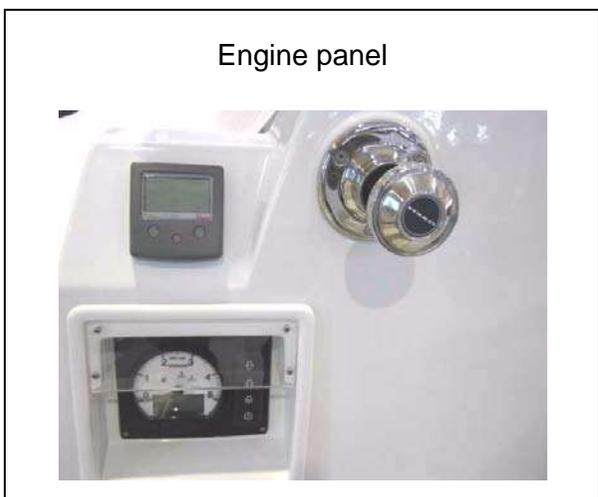
Sail Drive engine installation



14.9 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.

Location: Starboard cockpit.



14.10 ACCESS TO THE ENGINE

The access to the engine is via:

- Side hatches,
- the companionway.

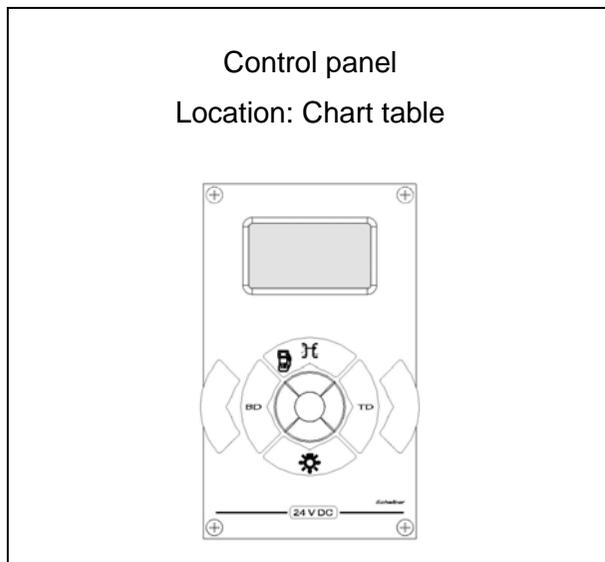
All access hatches to the engine absolutely must be kept shut when at sea.

14.11 DIESEL TRANSFER PUMP

- The transfer pump allows fuel to pass from one tank to the other.
 - The boat's engine is supplied by the aft tank. When it is empty, a pump allows the transfer of fuel from the forward tank to the aft tank.
- The switch located on the pump must be permanently in the ON position: the pump control is located separately.

Control panel

- The central round button lights/switches off the panel and the transfer circuit.
- The top button starts/stops the fuel transfer.
- A sound alarm indicates the end of the transfer (when the aft tank is full or when the forward tank is empty).



14.12 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 propeller: it should turn freely on its axis and there should be no play.

Pitch of the propeller (Sail drive version): 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.

14.13 DOCK & GO VERSION

General points

- The Dock & Go transmission is an electronically controlled mechanical transmission.
- This type of transmission operates without a reverse gear, reversing is achieved by rotating the POD 180 degrees.
- The Dock and Go system is powered by the service batteries circuit onboard: the battery bank must be sufficiently charged to enable the system to run well. An insufficiently charged battery bank (at the start of a new season, for example) risks damaging the onboard electrical system.
- The forward and reverse travel of the boat are controlled by the engine control lever. In passing from forward into reverse POD rotates 180°.
- The POD's orientation in all directions is carried out by the joystick.
- The joystick controls the propeller and the bow-thruster. By moving the joystick on the X and Y axes, the boat moves on these axes.
- Rotating the joystick makes the boat rotate around its centre.



It is imperative to change the transmission oil after the 250 first hours of use (please consult your dealer).



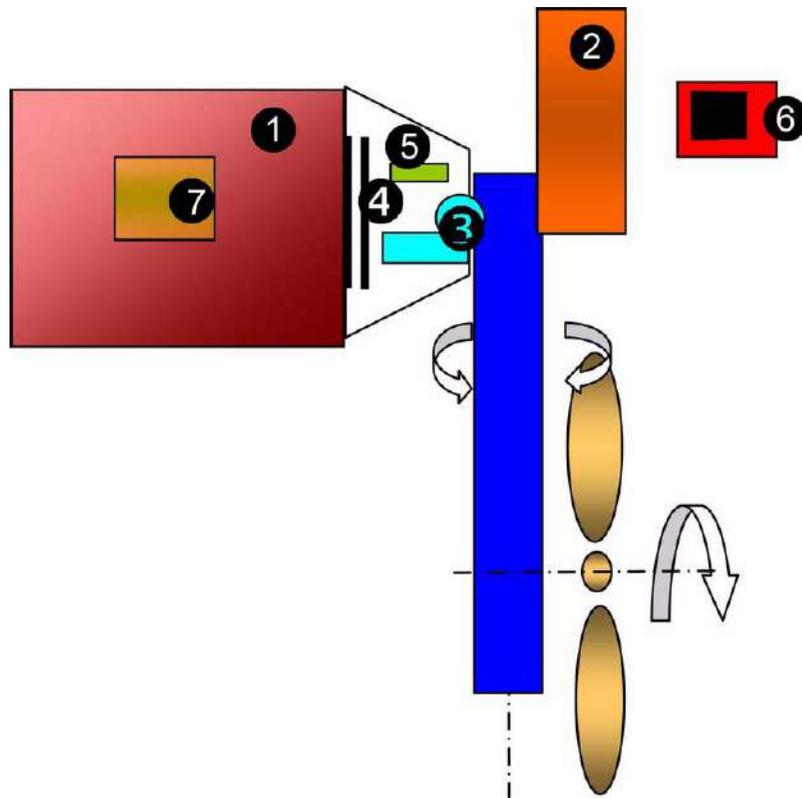
14.13.1 Start Quick Guide

Start the engine using the control lever (forward and reverse)		
1	Turn on all battery switches.	
2	Start the engine.	
3	(if necessary) Activate the bow thruster manually: Steady green light on the control panel.	
4	The lever is operational.	

Start the engine, using the joystick to move sideways (Dock & Go)		
1	Turn on all battery switches.	
2	Turn on power to the navigation electronics at the electrical panel.	
3	If necessary according to auto pilot model, put into STAND-BY mode at the exterior helm station.	
4	Start the engine.	
5	Activate the bow thruster manually: Steady green light on the control panel.	
6	Activate the joystick of the Dock & Go by pressing the joystick button (Hold the button down for a long time and the 2 indicator lights will changed to steady green).	
7	The joystick is operational.	

Deactivate the joystick to take control of the engine with the lever		
1	Hold the joystick button down for a long time (1 red indicator light).	
2	The engine control lever is operational.	

14.13.2 Diagrammatic view



Reference	Designation
1	Heat engine
2	POD rotary motor: Make the POD under the waterline turn 270 to starboard
3	Clutch actuator: enables gear engagement and disengagement
4	Clutch: Mechanical linkage between the engine and the propeller shaft
5	TCU: (Transmission and Clutch Management) interface between the clutch activator and the VMU
6	VMU (Vessel Management Unit): the brains of the system, it gathers all the info from the system(joystick, control lever, TCU, POD..) and tells it what to do
7	Throttle actuator: electric accelerator interface between the electric control and the fuel pump

LAYOUT OF COMPONENTS

Rotating motor
(Ref 2)



Clutch actuator
(Ref 3)



TCU housing (Transmission and Clutch Management)
(Ref 5)



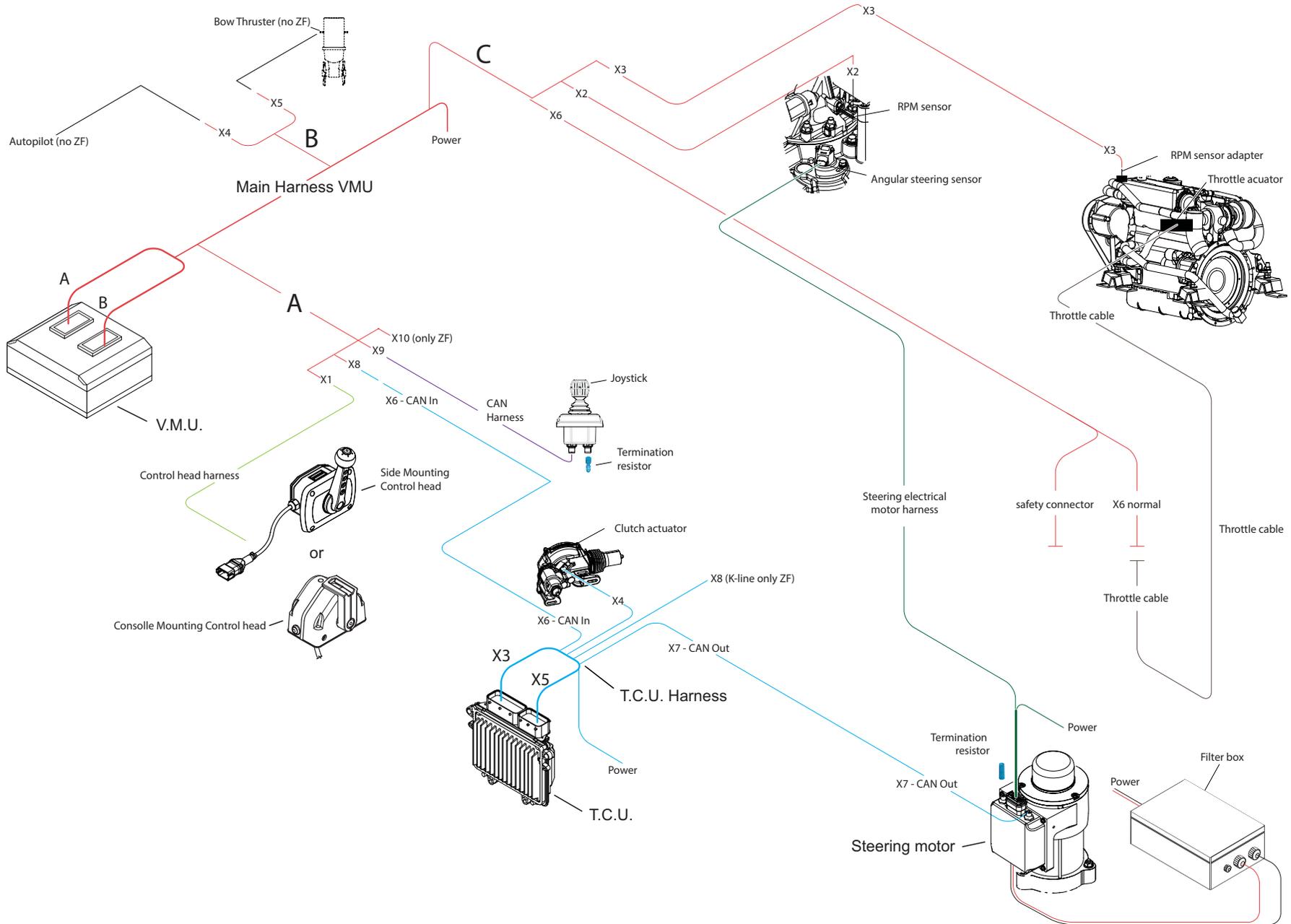
VMU housing (Vessel Management Unit)
(Ref 6)



Throttle actuator
(Ref 7)



LAYOUT



14.18.2 Operation

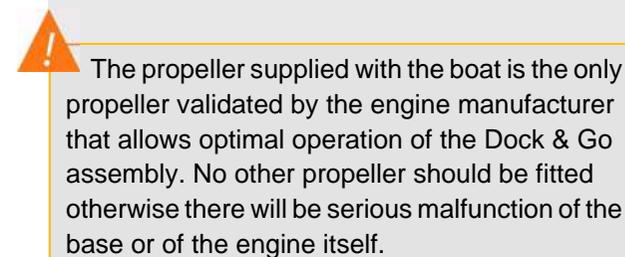
1. General points

- The Dock and Go system is a manoeuvring aid to facilitate coming alongside and leaving the dock. This system must not in any circumstances be used as a means of navigation, even during approach manoeuvres in port.
- In some use modes of the system, especially sideways movement, the bow thruster has to work very hard. This leads to a significant power draw on the bow thruster battery bank and raises the temperature of the bow thruster motor.
- For its protection, the bow thruster is equipped with a temperature alarm which gives 5 short beeps 10 seconds before cutting off the power to the bow thruster. When the bow thruster cuts out, keep your hand on the joystick with the bow thruster out of operation. You need to wait until it has cooled sufficiently before restarting it manually by pressing both buttons on the bow thruster control simultaneously.
- To avoid this inconvenience and to protect the bow thruster we advise you not to use the bow thruster for more than 30 seconds at a time and to allow it to cool between each use.

NOTE: Once the bow thruster has cut out due to overheating you should allow around 4 hours for it to return to ambient temperature. If it does overheat you can start using it again without waiting 4 hours but the possible usage time will be reduced.

- After each manoeuvre using the bow thruster, be sure to maintain the charge of the bow thruster battery bank: either by connecting your boat to the mains socket on the dock, or by keeping the engine at a cruising speed of at least 1700 rpm (engaged or disengaged) for at least 30 minutes after the last manoeuvre.

2. Propeller



3. Operation

- Turn on all battery switches. The bow thruster battery master switches will turn on automatically when the bow thruster control is picked up.
- Open the fuel supply valve(s) from the fuel tank(s).
- Open the engine water inlet valve.
- Switch on the navigation electronics (Electrical panel).
- According to the auto pilot model and screen model, it may be necessary to touch the POWER button on the screen at the helm station to activate the auto pilot in "MOTORISED HELM" mode or POWER
- Check that the engine control lever is in neutral.
- Switch on the engine.
- Start the engine.
- Activate the bow thruster manually using the control push button. A steady light illuminates on the bow thruster control panel: The system is operating.
- Press the joystick button and hold down for 2 seconds before activating the joystick. When the button is released, the 2 LEDs on the joystick will change to steady green.

4. Joystick operation

REMINDER: Before using the system, ensure that the bow thruster light is illuminated (see above) once the boat's engine is started. Check that the bow thruster indicator light is showing steady green when the joystick is in operation.



- The joystick is on "STAND-BY": This means that it is ready for use.
- The "Ready" LED is a steady red: The engine is controlled by the engine control lever.
- Place a hand on the joystick and press the button for 1 second: The green LEDs illuminate when the button is released.



- The 2 LEDs are illuminated as steady green lights (not flashing).
- The joystick is operational, the control lever is out of action.
- The wheel turns to lock the helm and rudder along the longitudinal axis of the boat.

Be careful to keep arms clear of wheel as it turns.

The pilot display shows:

- "MOTORISED HELM" version RAYMARINE.
- "POWER" version SIMRAD.

The indicator light on the bow thruster control panel is showing steady green.



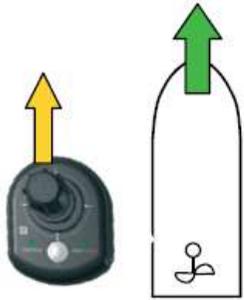
- Whenever an instruction is given to the joystick (here in forward) the LED "Control" illuminates red.

 If you activate the joystick while the rudder blade is not in the same position as the boat's axis, it will automatically move itself to the correct position.

 The wheel will spin quickly and may catch your arm, clothes, hands as it does so: keep away from the wheel when the system is running.

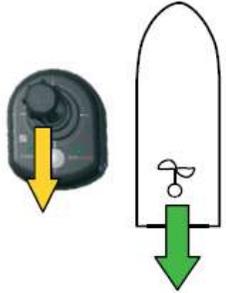
 The joystick button must be released to operate the joystick.

USING THE JOYSTICK



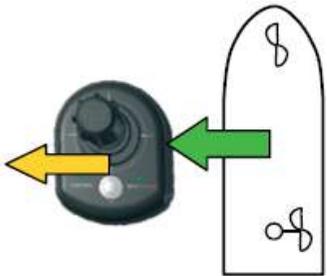
Push the joystick forwards:

- The boat moves forwards.
- The acceleration is proportional to the position of the joystick.



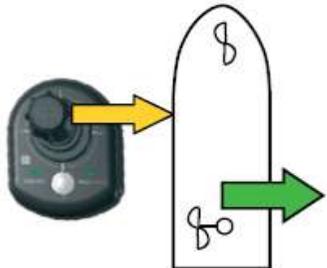
Push the joystick back:

- The boat moves backwards.
- The acceleration is proportional to the position of the joystick.



Push the joystick to port:

- The boat moves to port.
- Acceleration can be altered by turning the joystick (clockwise: boat accelerates, anti-clockwise: boat decelerates) and the bow thruster operates.



Push the joystick to starboard:

- The boat moves to starboard.
- Acceleration can be altered by turning the joystick (clockwise: boat accelerates, anti-clockwise: boat decelerates) and the bow thruster operates.



Several movements can be combined

Push the joystick to starboard + Turn the joystick clockwise:

- The boat moves to starboard but the bow swings more quickly than the stern.

Push the joystick to starboard + Turn the joystick anti-clockwise:

- The boat moves to starboard but the stern swings more quickly than the bow.

You can do the same to port:

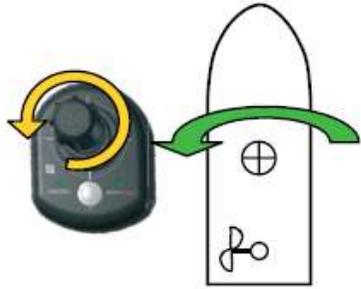
Push the joystick to port + Turn the joystick anti-clockwise:

- The boat moves to port but the bow swings more quickly than the stern.

Push the joystick to port + Turn the joystick clockwise:

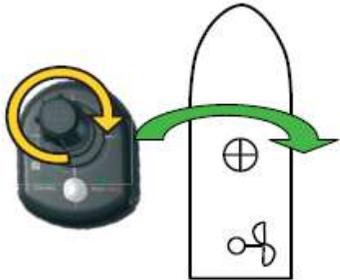
- The boat moves to port but the stern swings more quickly than the bow.

! The effects of the Dock & Go system's rotation will be noticeable to a greater or lesser extent depending on the boat's way.



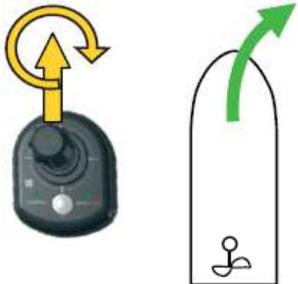
Turn the joystick anti-clockwise:

- The boat turns to port (virtually pivoting around its keel). Forward or reverse acceleration is proportional to the position of the joystick.



Turn the joystick clockwise:

- The boat turns to starboard (virtually pivoting around its keel). Forward or reverse acceleration is proportional to the position of the joystick.

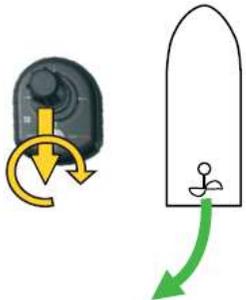


Push the joystick forwards + turn clockwise:

- The boat moves forward and turns to starboard.
- The acceleration is proportional to the position of the joystick.

Do the same manoeuvre turning anti-clockwise:

- The boat moves forwards and turns to port.
- The acceleration is proportional to the position of the joystick.



Push the joystick back + turn clockwise:

- The boat moves backwards and turns to port.
- The acceleration is proportional to the position of the joystick.

Do the same manoeuvre turning anti-clockwise:

- The boat moves backwards and turns to starboard.
- The acceleration is proportional to the position of the joystick.

QUIT JOYSTICK MODE



Press the button for 1 second.

- RAYMARINE version: The auto pilot comes out of "MOTORISED HELM" mode and goes into "STAND-BY" mode.
- SIMRAD version: The auto pilot comes out of "POWER" mode and goes into "STAND-BY" mode.



- The joystick goes into "STAND-BY".
- The "Ready" LED is a steady red.
- The system switches automatically to control lever function.

If the lever is not in the neutral position it must be put into neutral before using.

Explanatory note regarding the joystick in flashing red "Ready" LED mode:

When the red "Ready" LED is flashing, this indicates that a malfunction has been detected in the system. This malfunction may occur when the engine is started or the joystick is used.

In some cases, this fault may be resolved by completely restarting the system (Recommence starting procedure set out above).

If after restarting the joystick is still not working, use the engine control lever and bow thruster manually.

If control lever is not working, apply emergency procedure "SAFETY" set out in owner's manual ZF.

 To retake control with the engine control lever, it is essential to disengage the joystick by pressing the button behind the joystick.

5. MODE "WARM UP" (warming up the engine)

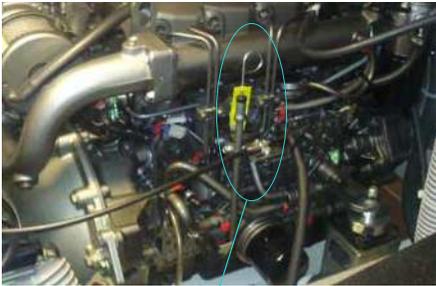
- "WARM UP" mode is a mode in which the engine is disengaged and accelerated.
- To engage the "WARM UP" position, press the button and keep it pressed whilst moving the throttle to the first forward notch, then release the button. "WARM UP" is only possible in forward gear.
- To come out of "WARM UP" mode, return the lever to neutral.

6. Procedure for shutting down the engine:

Put the control lever in neutral AFTER ENGAGING FORWARD GEAR FOR A FEW SECONDS, so the POD is properly located in the ahead position.

Wait 10 seconds before switching off the engine.

7. Maintenance



Check engine oil level:

- The level must be between the 2 marks on the gauge (see engine manual).



Check POD base oil level:

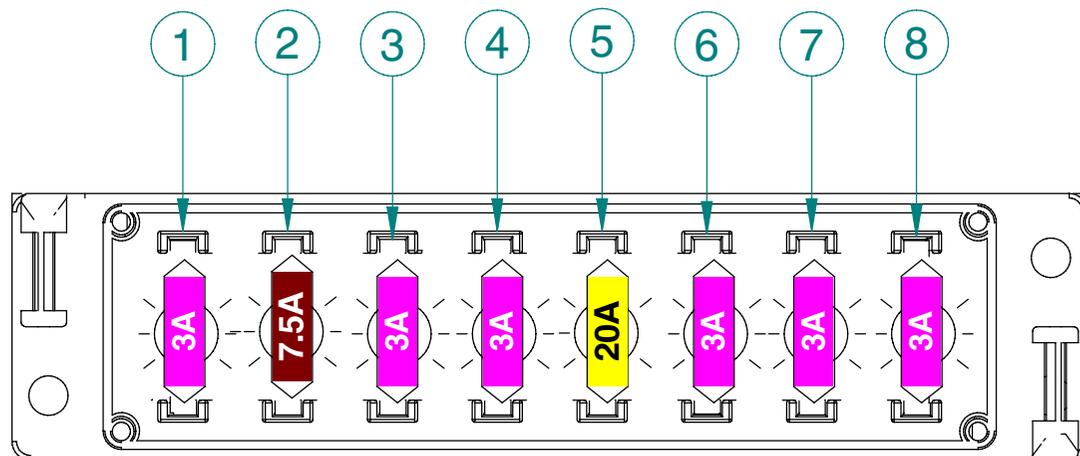
- The level must be taken by inserting the dipstick in the hole (without screwing it down).
- The level must be between the 2 marks on the gauge (see ZF manual).



- After every 250-hours of use, or once a year depending on the level of use, the boat must be lifted out to change the POD oil.
- During crantage: it is imperative to engage forward gear for several seconds to position the engine base of the boat correctly under the crane before stopping the boat's engine (see the chapter Handling).
- Every 7 years, replace the POD's packing.

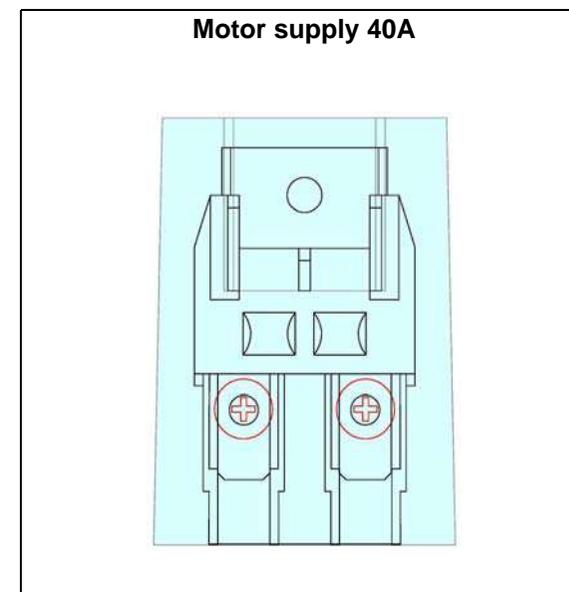
8. Dock & Go circuit protection

Lighted safety fuses



Reference	Designation
1	Supply VHS 1 after engine contact
2	Supply VHS 2 after engine contact
3	VMU power supply VMU
4	VMU power supply TCU 1
5	VMU power supply TCU 2
6	Supply VMU after engine contact
7	Supply TCU after engine contact
8	Supply pod after engine contact

NOTE: If a safety fuse illuminates, this means that it is faulty. In this case the safety fuse must be replaced with a safety fuse of the same rating (see colour codes below).

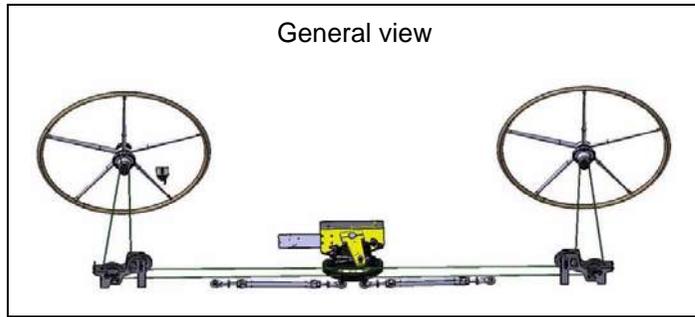


STEERING SYSTEM

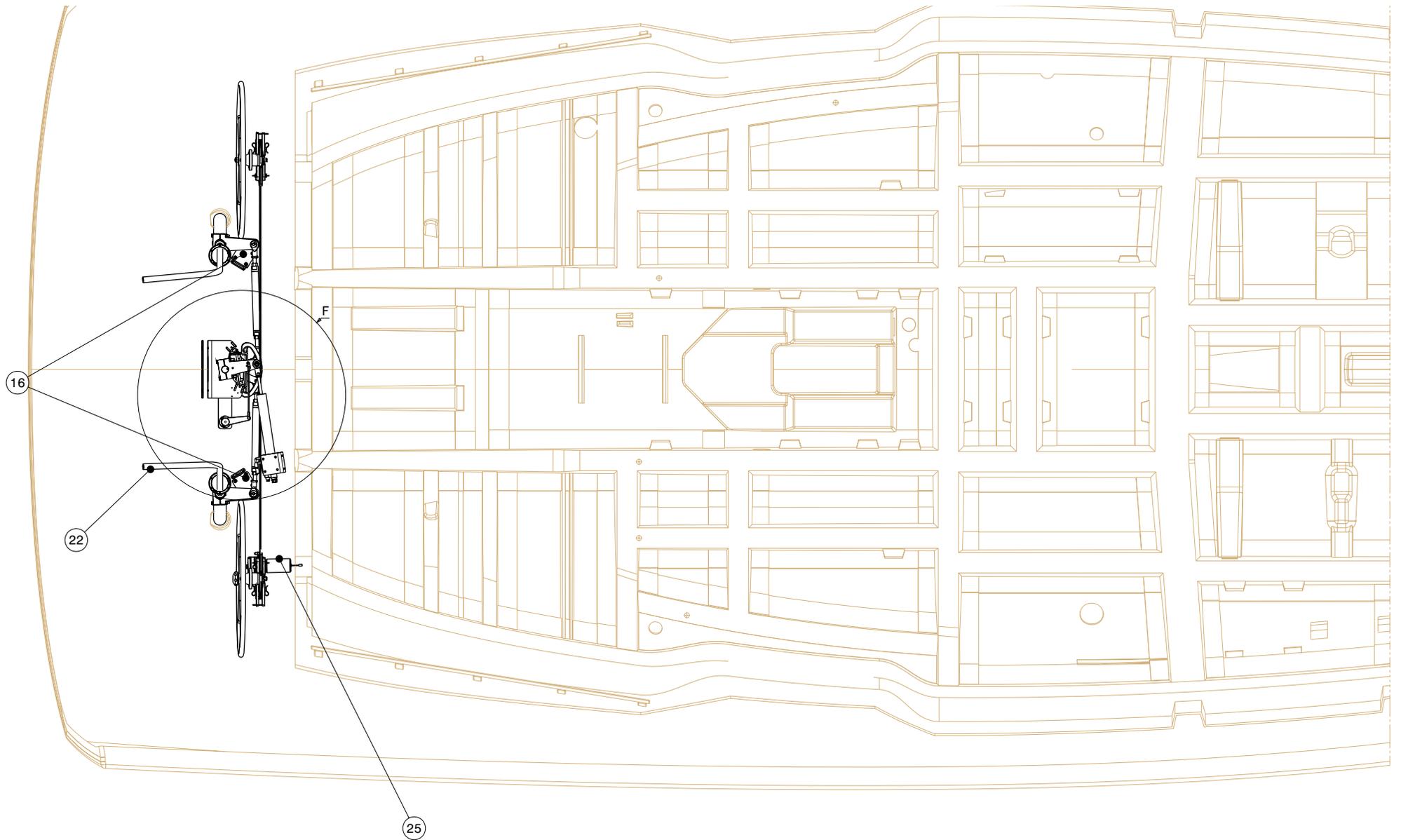
■ General points	198
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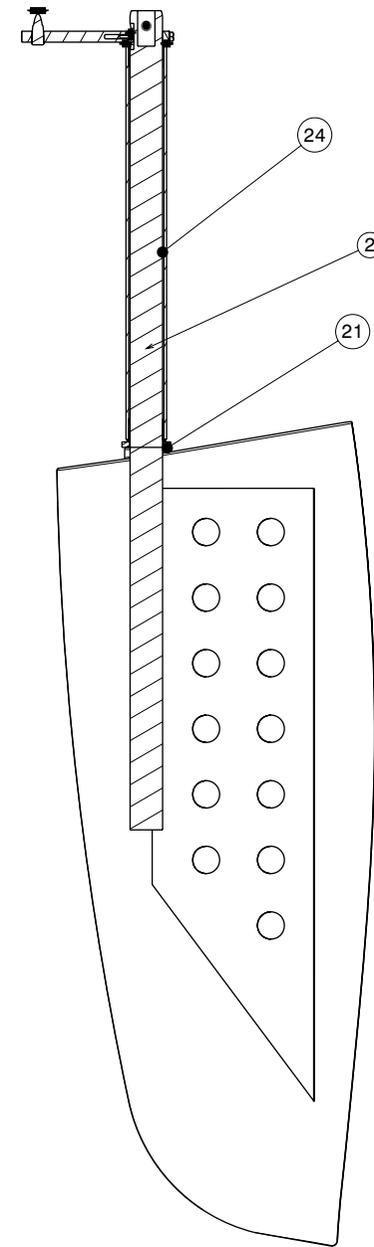
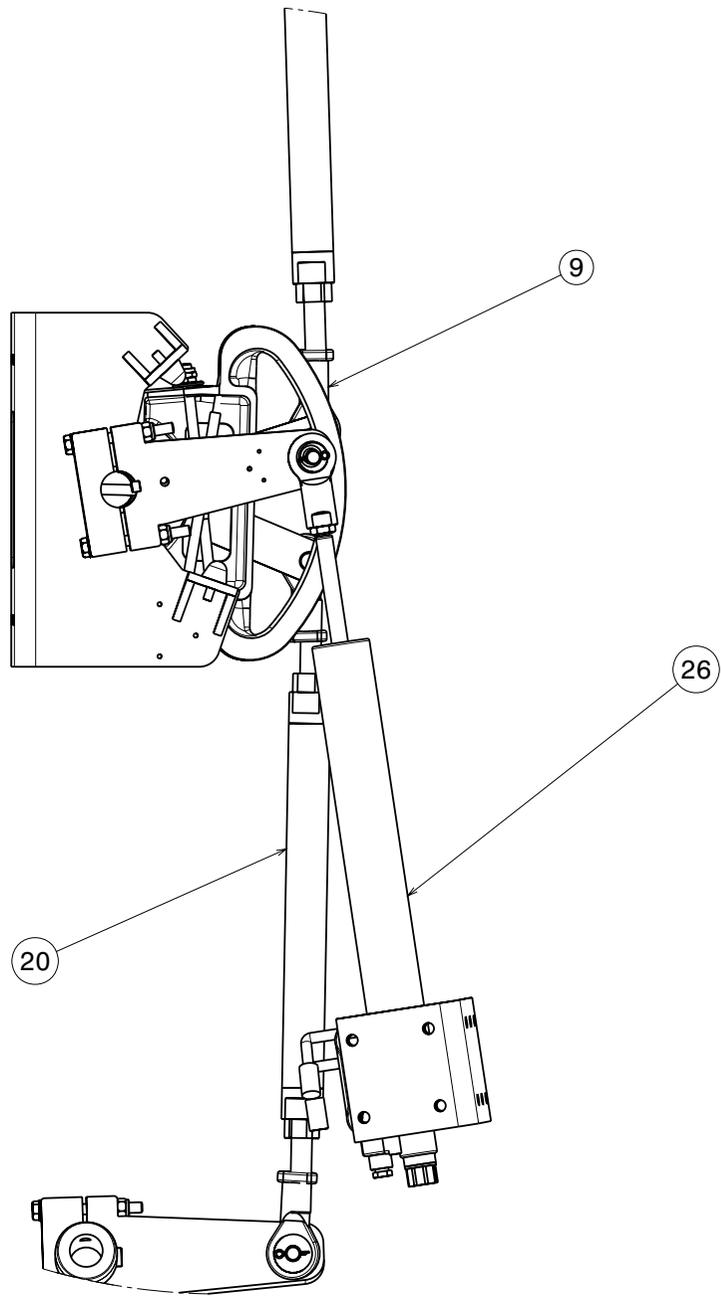
15.1 GENERAL POINTS

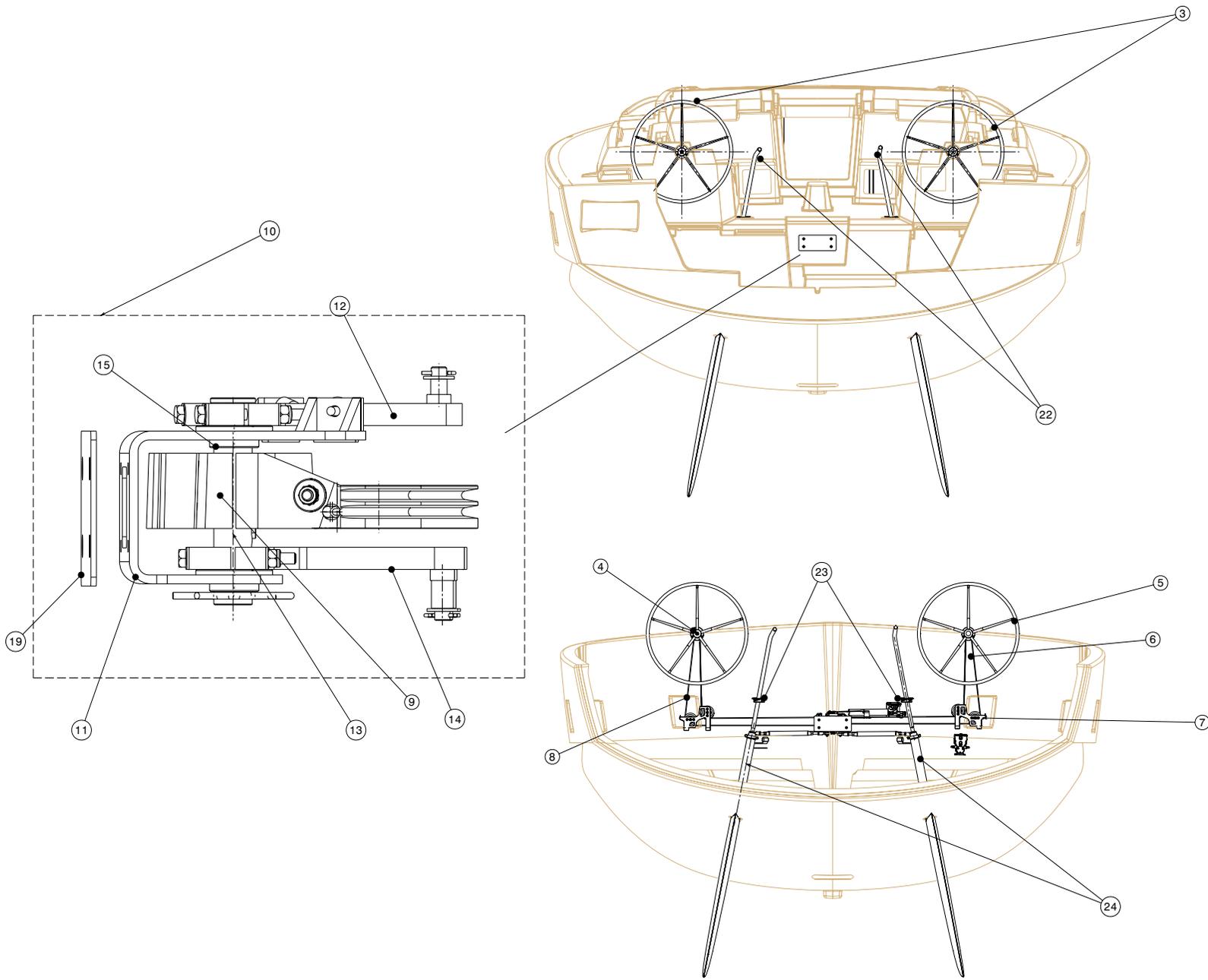
- The steering operates by steering cables.
- The steering system is an important safety feature. For this reason, the annual inspection of the whole system must be carried out by a professional engineer.
- Regularly check the tension of the steering cables and the tightness of the steering components. 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.

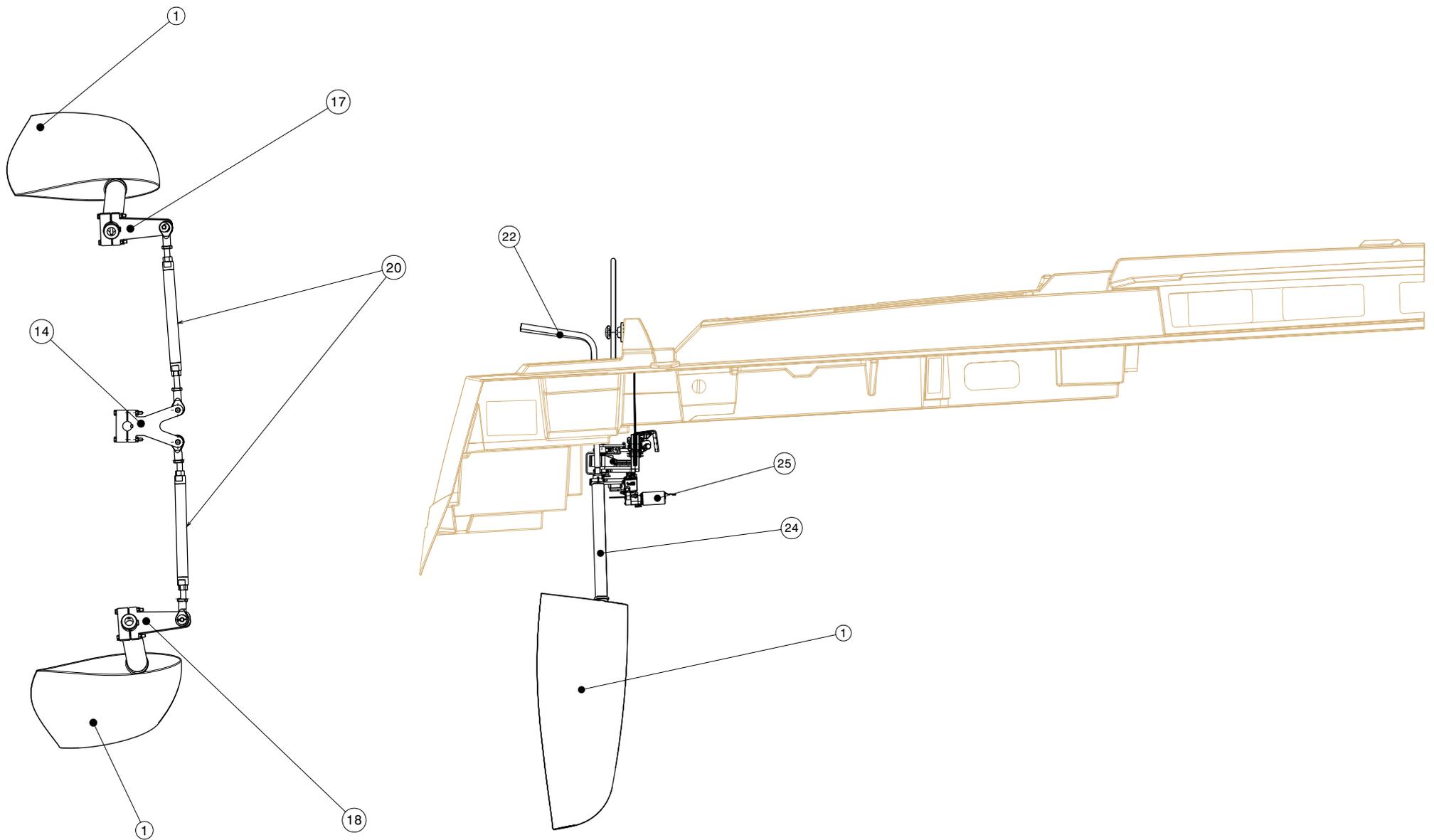


15.2 LAYOUT DIAGRAM









Reference	Designation
1	Rudder
2	Rudder stock
3	Steering wheel
4	Steering Gear + brake
5	Steering Gear
6	Chain
7	Sheave
8	Line
9	Steering sector
10	Set - Sector support
11	Sector support
12	Stock arm (Single)
13	Sector axle
14	Stock arm (double)
15	Flanged bush
16	Stock arm stop
17	Stock arm - Port side
18	Stock arm - Starboard
19	Backing plate
20	Connecting rod
21	Balance bush
22	Emergency tiller
23	Deck hole for access to emergency tiller system
24	Rudder port tube
25	Hydraulic pump - Auto pilot
26	Autopilot ram

15.3 BOW THRUSTER

General points

- The bow-thruster's motor is DC powered.
- The bow-thruster assists with steering the boat when manoeuvring 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

- The engine's positive battery isolator automatically comes on and goes off when the engine is started/stopped. The negative supply of the bow-thruster motor is connected to the main earthing point of the boat.
- 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.



- 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).

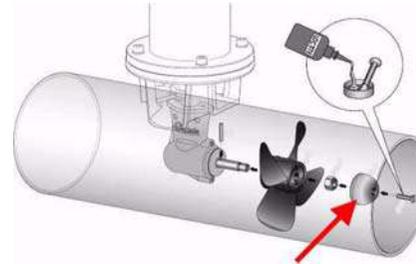
Control



General view



Anode



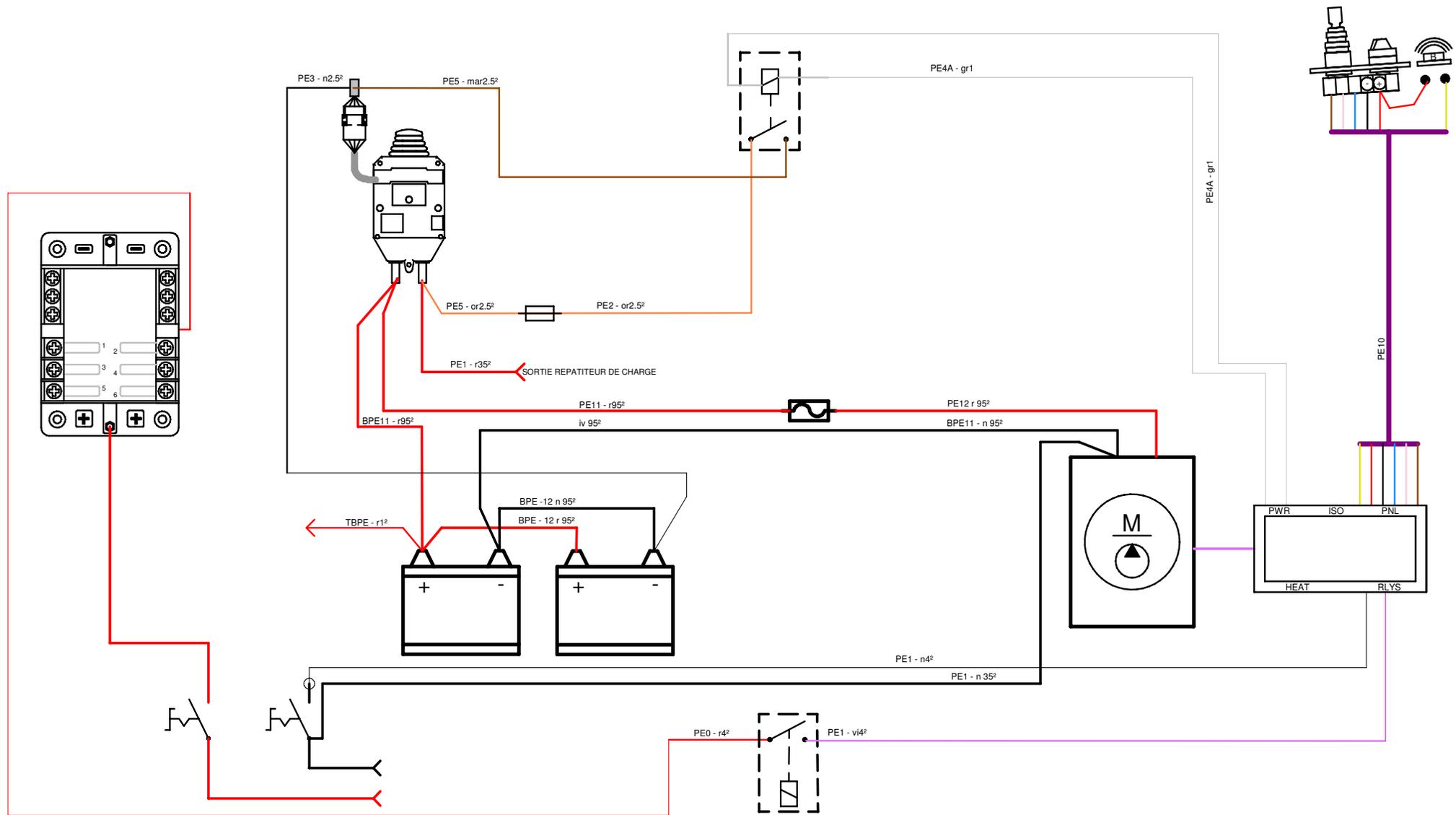
Elements

Access: Forward cabin



1. Battery set - 4 x 50A
2. Motor - 24V
3. Fuse - 200A
4. Coupler - 12/24V
5. Positive battery isolator switch

Layout diagram - Bow thruster



DECK FITTINGS

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■ Main elements of the chain locker	218
■ Electric windlass	219

16.1 GENERAL POINTS

16.1.1 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.

16.1.2 Plexiglas (PMMA)

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

16.1.3 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.



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

16.1.4 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.

16.1.5 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.



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



Never:

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

16.1.6 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 with fresh water.



Do not pour acetone on the decking.

16.2 EQUIPMENT

16.2.1 Gangway

Description

- The gangway allows you to embark/disembark easily when the boat is moored stern on to the pontoon.
- The gangway is hydraulic; telescopic (adjustable length)/ removable.
- The gangway control is situated in the cockpit.
- The gangway is comprised of the external part and a hydraulic unit situated in the engine compartment.
- A control box situated on the hydraulic unit prevents accidental operation of the control panel. As a precaution it is advised to leave it on the "AUTO" setting.
- The hydraulic pump controlled by the electric motor is situated under the hydraulic unit reservoir. The motor has a speed regulator: it controls the speed at which the gangway moves.
- The gangway can also serve as a davit for lifting out the tender.

Operation

- The gangway runs on DC power.
- A breaker protects the electrical circuit.
- The gangway motor is designed to run continuously for a maximum of 4 minutes. After this the motor will cut out automatically (risk of overheating).

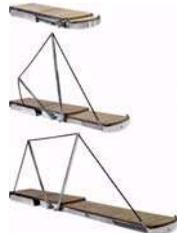
Maintenance

- Wash the gangway off regularly with clean water.
- Its location at the stern of the boat makes the gangway particularly prone to fouling due to the exhaust gases: clean the fouled areas regularly with a non-abrasive detergent.
- Check the oil level in the hydraulic unit once a year.
- Regularly check the connections which could loosen with vibration.

Outlet: Rear skirt (Port side)



General view



Stowage
Access: Port aft cabin

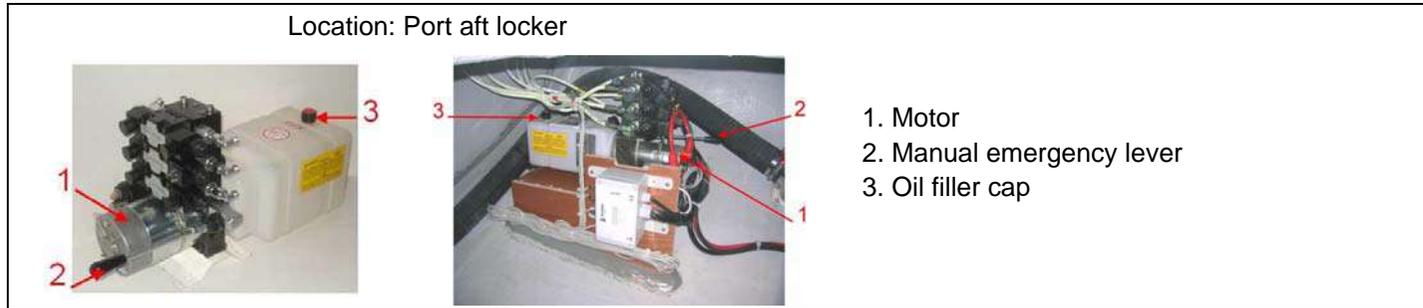


- Do not use the gangway when at sea.
- Never manoeuvre the gangway with anyone on it, below it or within its arc of movement.
- Do not use the gangway as a diving board.



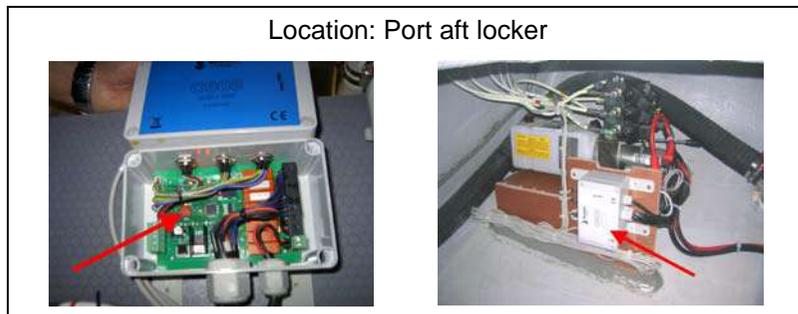
- Refer to the manufacturer's instructions for use and maintenance.
- Maximum load permitted on gangway: 110 kg.
- Telescopic gangway: Ensure that the stanchions are correctly seated in their sockets before recovering the gangway.
- Manual operation prevents the position sensors from working: the electronics are no longer able to correct the alignment of the gangway if it is not retracting correctly into its housing. Use this procedure with caution.

Hydraulic unit

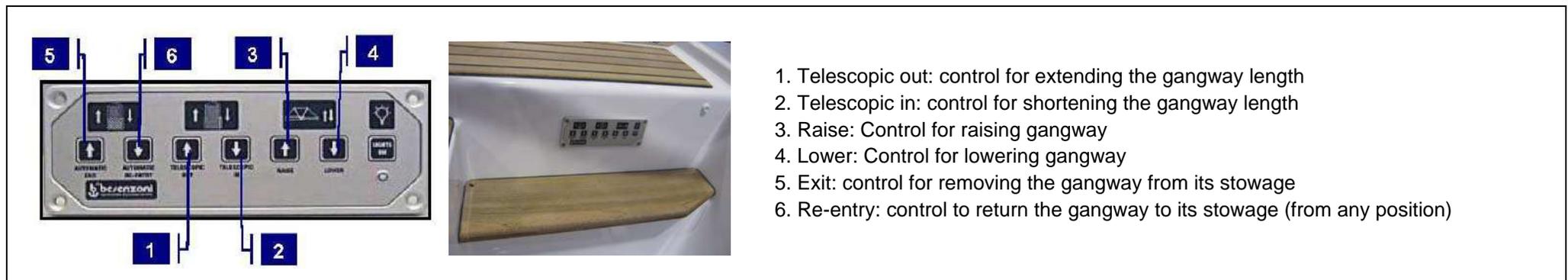


Emergency procedure

- A key allows the user to open the electronics box to put the emergency switch to ON.
- Operate the manual lever to stow the gangway.
- Put the switch back into its original position after the manoeuvre.



Control



16.2.2 Electric platform (Rear skirt)

General points

The platform runs on the DC power supply.

A circuit-breaker protects the circuit.

Using the remote control:

Handling and precautions to take are identical to the fixed control. If you control the platform opening from the quay, make sure that the seat is resting properly in the unlocked position.

General view



Breaker - Platform (90A)
Location - Port cabin



Electrical piston



Control - Platform



- 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.



- When you are using the platform remote control, check beforehand that the space in which it operates is completely clear of obstructions and remains so throughout the operation.

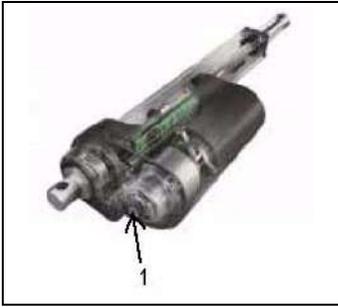


- Do not let a child operate the platform remote control on his/her own.



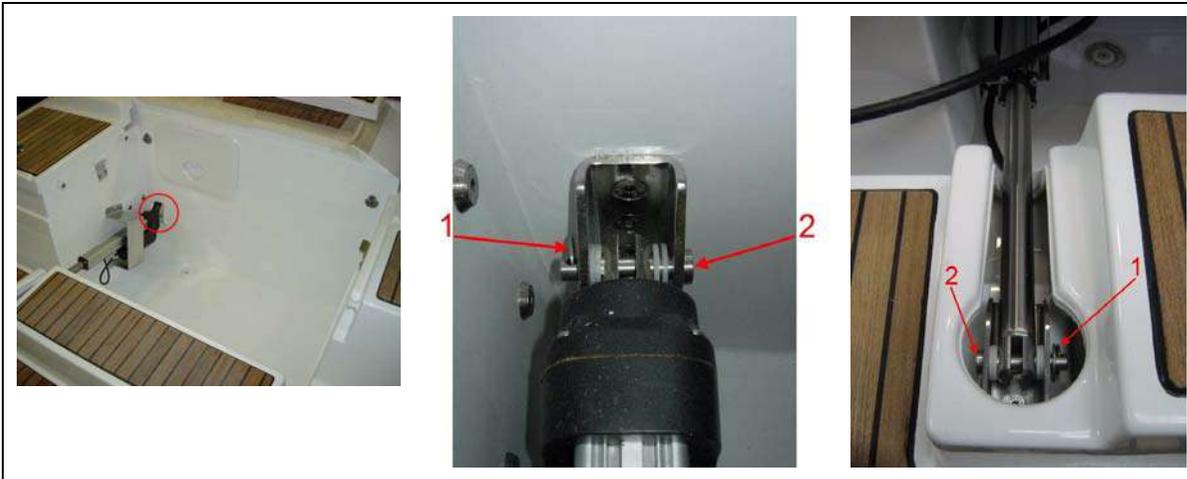
- When not operating:
 - Make sure the breaker is turned off.
 - In upper position: Make sure the helmsman bench is locked.

emergency procedure



In case of electrical failure, you can close the platform manually by following the stages below:

- Shut off the DC supply of the cylinder by the circuit breaker (Starboard aft cabin);
- Remove the protection key from the cylinder body (Ref 1);
- Insert an Allen key to be used as a crank handle. Turn the Allen key manually in the motor until the platform is completely closed.



If the cylinder fails, you can close the platform manually by following the stages below:

- Shut off the DC supply of the cylinder by the circuit breaker (Starboard aft cabin);
- Remove the split ring (item 1) and the shaft (item 2) at the two cylinder fixings;
- Remove the platform cylinder and store it in the boat;
- Strike an end on the platform to raise it manually. It is possible to use a winch for this operation.

16.2.3 Davits

- The davits enable the launch and retrieval of the tender from the transom. Any other use is dangerous and forbidden.
- The davits are equipped with a pulley block for manoeuvring the tender. This pulley block is manoeuvred by hand.
- A breaker protects the electrical circuit.

Launching the tender

- Put the bung in.
- Secure the pulley's hooks to the front and back of the tender.
- Lower the front then the back of the tender alternately until it touches the water.

Retrieving the tender from the water

- Pull out the bung.
- Secure the pulley's hooks to the front and back of the tender.
- Raise the front and then the back of the tender alternately as high as the pulley block allows.

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

 - The davits are designed to support a maximum load of 250 kg and a tender which is maximum 3.80 metres long.

 - 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.

16.3 BERTHING, ANCHORING, TOWING

16.3.1 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 (Diagram on next page)	A&B	B	B
Anchor Point Breaking Strength	39,4 kN	56,6 kN	
Mooring Line/Chain Breaking Strength	31,5 kN	45,2 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.

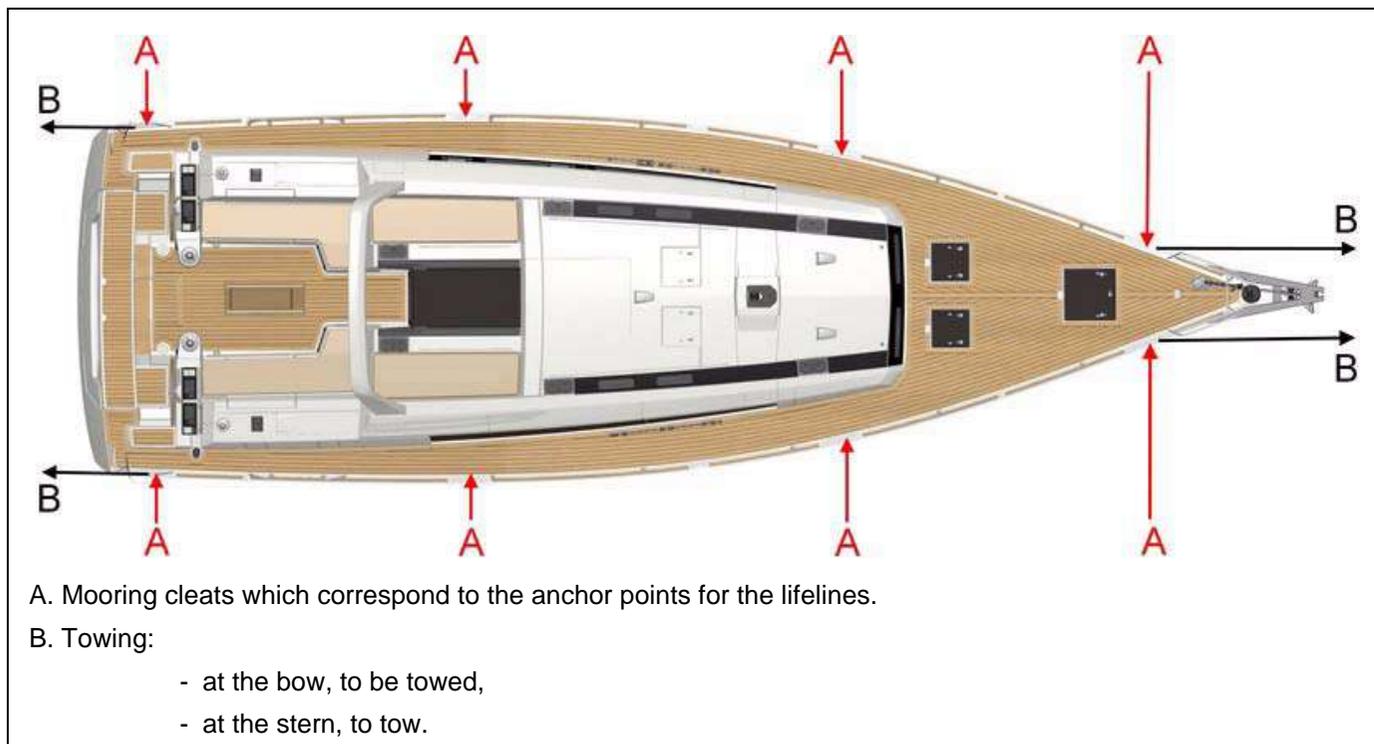
Note: black components are less sensitive to UV radiation than light coloured ones.

Pass warps through the fairleads provided for this purpose.

16.3.2 Towing

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

Location of attachment points



- 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.

16.4 MAIN ELEMENTS OF THE CHAIN LOCKER

Access - Chain locker:
Skipper's cabin



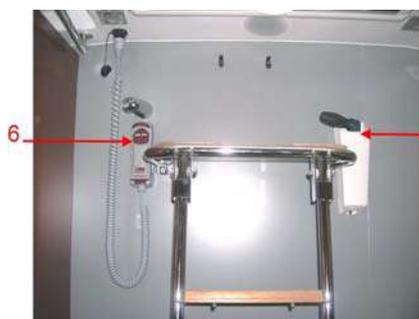
Clinch



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.



1. Windlass - 12 V - 1500 W
2. Chain rim - 12 mm diameter
3. Bow fitting
4. Handle storage (Skipper's cabin)
5. Operation relay (Skipper's cabin)
6. Remote control (Skipper's cabin)

16.5 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.

Control: Situated in wheelhouse

- 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.

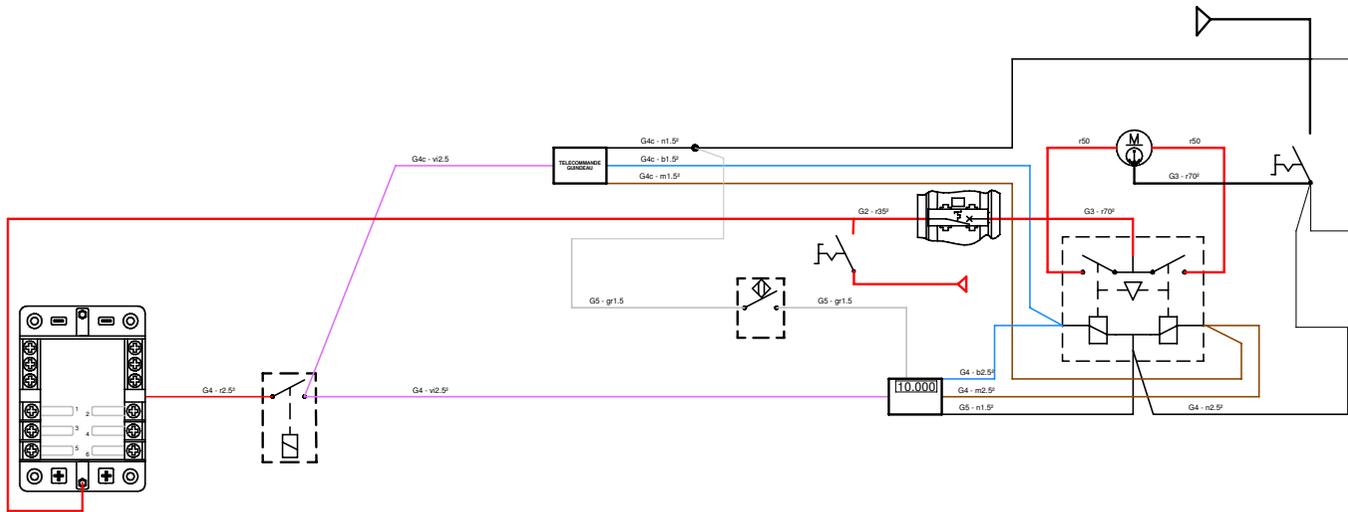
Maintenance

- 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.

Layout diagram - Windlass

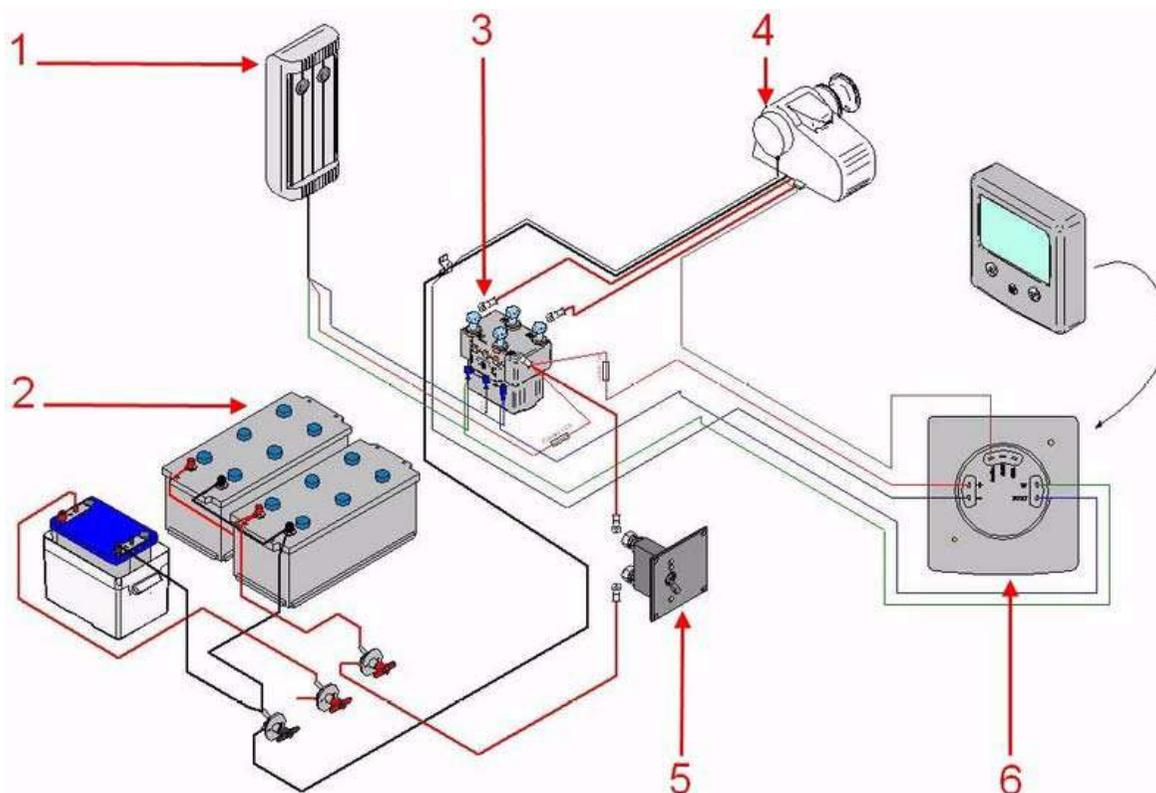


! The handle serves only to release the chain grab in order to lower the anchor manually should the electric windlass break down. The handle cannot be used to raise the anchor manually.

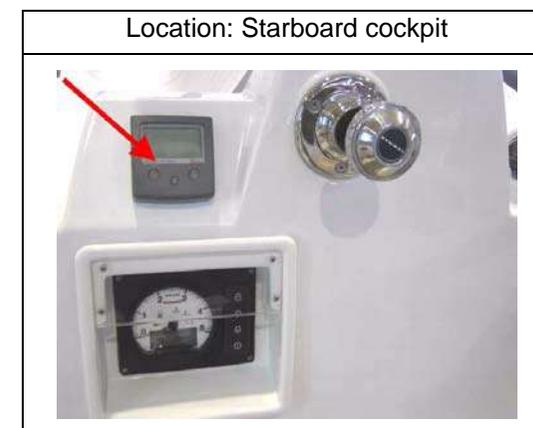
!

- 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



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



HULL FITTINGS

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17.1 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 immediately 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.



- 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: lacqueurs, 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.

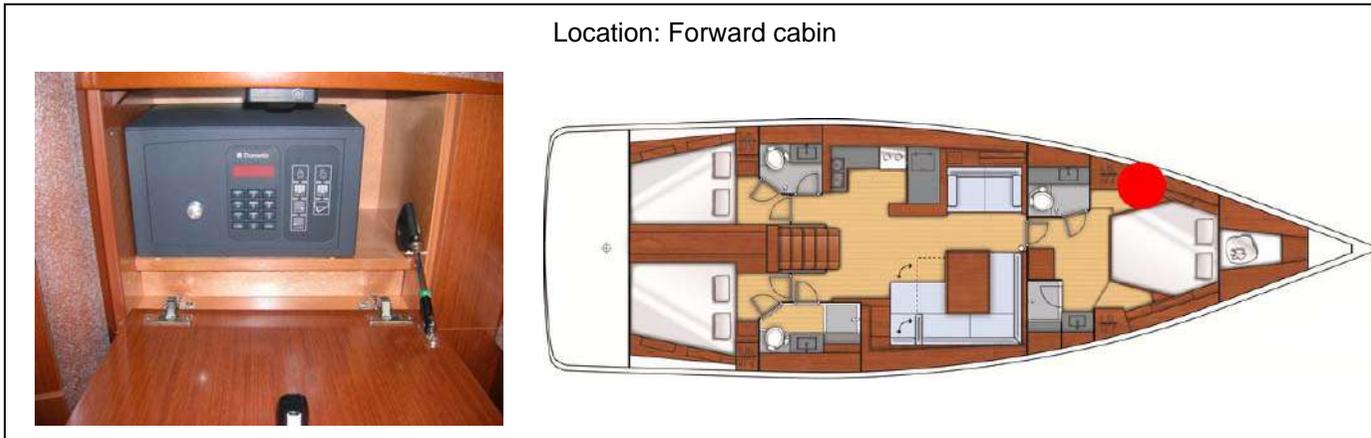
17.2 INTERIOR WOODWORK

- 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).

17.3 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...).

17.4 SAFE



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).

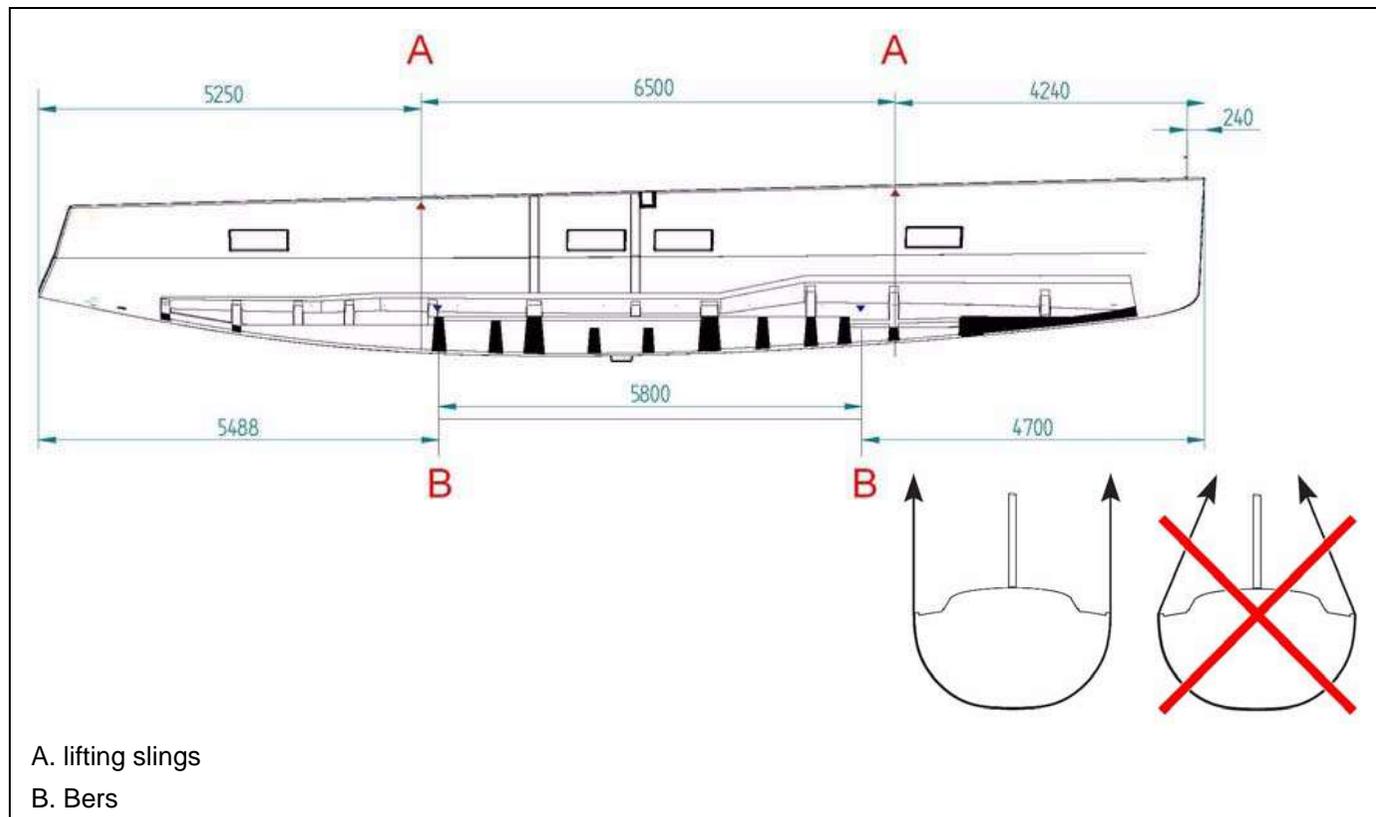
NEVER:

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

HANDLING, TRANSPORT

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18.1 LIFTING PLAN



Note: Measurements are expressed in mm.

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



Dock and Go version: it is imperative to engage forward gear for several seconds to position the engine base of the boat correctly under the crane before stopping the boat's engine.

18.2 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: 55 m².



- Follow the manufacturer's recommendations scrupulously when applying antifouling.
- Never cover with antifouling:
 - the refrigeration unit condenser;
 - the anodes;
 - the earthing plates (Generator / DC/AC converter);
 - the sea water strainers;
 - the sensors of the electronic instruments.
- Avoid using copper or tin-based antifouling: these are banned in some countries.
- Dock and Go version: use an antifoul appropriate for aluminium components to paint the POD.

18.3 KEEL

General points

The ballast is the appendix located under a sailing yacht. It is an essential component of stability, essential for the operation of the boat.

The ballast is fixed to the bottom of the hull by bolts or pins and nuts with the corresponding tightening torque.

Maintenance

The ballast is a part of the hull under the waterline. It needs to be protected with anti-fouling paint.

Each time the hull is cleaned and each year at least, inspect the condition of the ballast visually together with its joint with the hull. Any fault, crack or burst must be reported to your dealer or a professional who will give you the right advice.

Yearly inspection

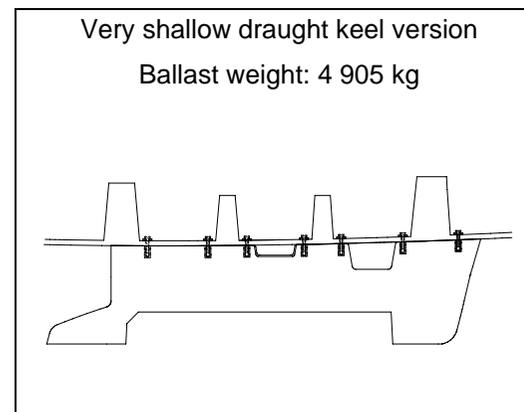
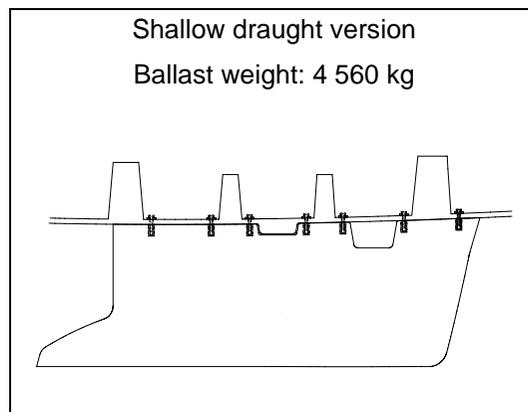
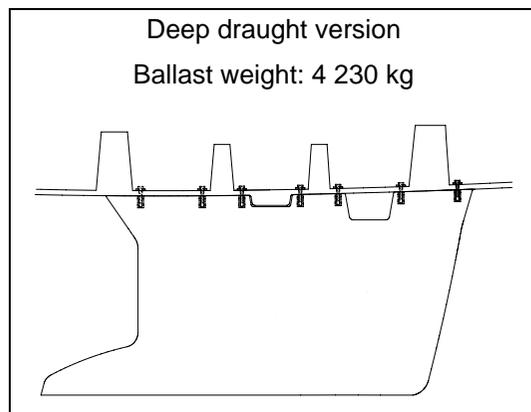
Make a visual inspection of all the ballast fixings under the floors. Make sure there are no cracks around the washers, bolts or nuts and that there is no significant corrosion. Any work carried out on these components must be done professionally.

In the event of an incident

In the event of grounding or impact with an unidentified floating object, lift the floors and check that there is no leakage of seawater in the ballast area. Do the same in the area of the rudder mountings.

If there is a leak of seawater, even small, reduce speed and contact the emergency services to follow their advice.

Then take the boat out of the water immediately and have it professionally inspected.



18.4 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.

18.5 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 the chapter on Electricity).
- Check the propeller (see the chapter on Steering).
- Prepare enough fenders and lines.
- Check the engine's sea water intake valve and the fuel feed valve (see the chapter on motorisation).

18.6 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.



- 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.

18.7 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.

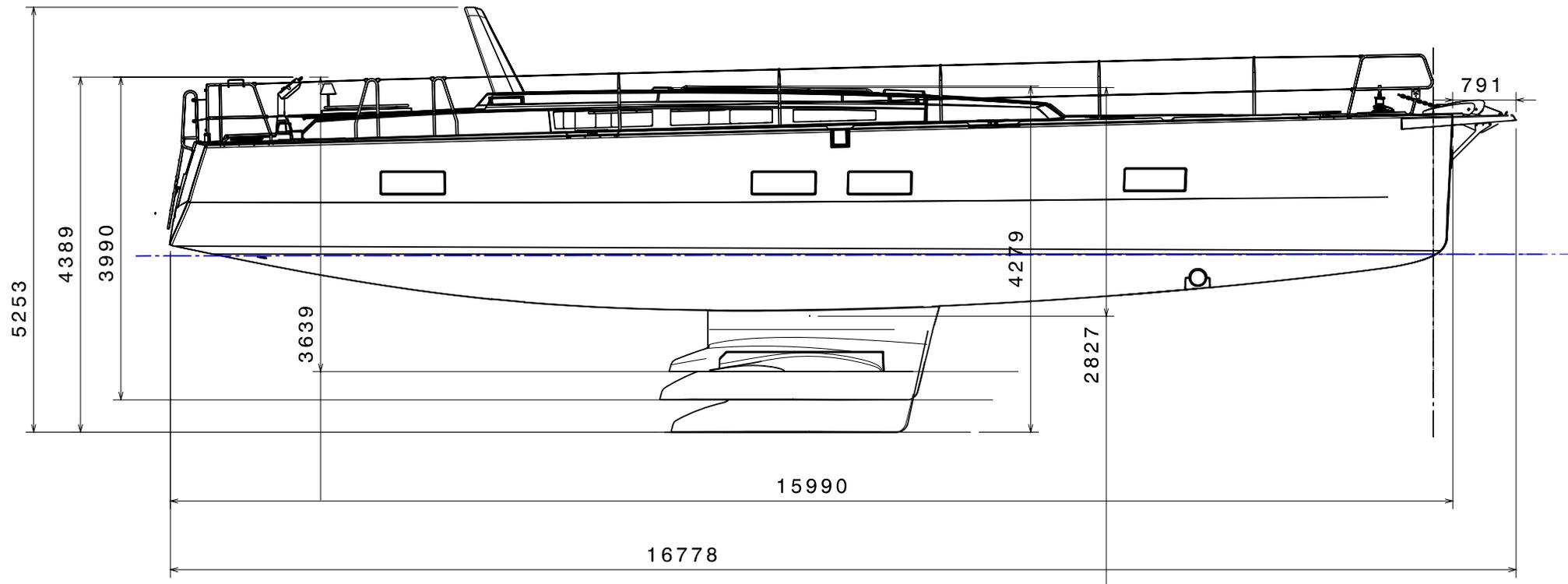


- The winterisation of the engine requires the skills of a professional engineer: please consult your dealer.

- 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.

18.8 TRANSPORT

Packing plan



Note: Measurements are expressed in mm.

ENVIRONMENT

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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 environmental 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.