LAGOON 42

OWNER'S MANUAL



LAGOON

189199 RCD-2
Index G

CE

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- This manual is written to help you enjoy your boat in safety. It contains details of the boat and of all the equipment provided and installed on your boat, as well as instructions for its use. Read it carefully and get to know your boat properly 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 safely and with ease before taking the helm alone. Your dealer, national sailing or motorboat association, or yacht club will be very happy to tell you about navigation schools or qualified instructors in your area.

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

- Even with a well-adapted boat, the wind and sea conditions which correspond to the design categories A,B and C range from storm force winds for category A to severe storm conditions at the upper end of category C, and could put the boat at risk from very large waves and strong gusts. These are dangerous conditions in which only an experienced, fit and well-trained crew, manoeuvring a well-maintained boat, will be able to navigate with sufficient skill.

- 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 such qualifications, or there may be other specific regulations 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 kind of use is highly unsafe. 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 all safety gear available onboard (lifejackets, harnesses etc.), and this must appropriate for the type of boat and for the weather conditions. 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 skills.

- It is strongly advised that everyone wears an appropriate flotation device (lifejacket or personal buoyancy aid) when on deck. Be advised that in some countries it is mandatory to wear a flotation device 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 a serious inherent danger with a high risk of death or serious injury if the appropriate precautions are not taken.

WARNING

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

WARNING

Either indicates a reminder of safety procedures or alerts you to dangerous manoeuvres or operations, which could result in injuries to those onboard, damage to the boat and its components or damage to the environment.

ADVICE-RECOMMENDATION

Indicates recommendations or advice for carrying out the correct manoeuvres for the planned course of action.

- 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.
The specifications and information given are not contractual and may be modified without prior notice or updates.

CE

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

- This owner's manual was written and formatted by SPBI S.A.. Any reproduction of this manual, direct or indirect, provisional or permanent, by whatever means, whether in whole or in part, as well as any modification by third parties for commercial reasons, is forbidden.

TECHNICAL SPECIFICATIONS

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- General dimensions 10
- Engine..... 10
- Electricity 10
- Capacities..... 11
- Sails 12

1.1 CONSTRUCTION

Model ..... LAGOON 42
Architect / Design ..... Van Peteghem & Lauriot-Prévost / Nauta Design
Builder ..... C.N.B.
Principal means of propulsion ..... Sail
Hull and deck construction material ..... Laminated sandwich glass / GRP / Balsa wood
Application ..... Infusion

1.2 GENERAL DIMENSIONS

L.O.A (L_{max})* : standard 12,92m
with Spinnaker pole 13,22m
(Including removable parts that can be dismantled (bow roller, pulpit, bowsprit), without affecting the structure of the boat)
Hull length (L_h)* 12,79m
(Excluding: removable parts that can be dismantled without affecting the structure of the boat)
Overall width (B_{max})* 7,68m
(Including: removable parts that can be dismantled without affecting the structure of the boat)
Beam(B_h)* 7,68m
(Excluding: removable parts that can be dismantled without affecting the structure of the boat)
Air draft - Empty vessel 20,60m
Draught - Boat fully laden 1,26m
Wetted surface area ..... Approximately 63 m²

1.3 ENGINE

Nominal maximum propulsion power (at the propeller output) ..... 2 x 41,9Kw
Maximum recommended engine size ..... 2 x 269kg

1.4 ELECTRICITY

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

1.5 CAPACITIES

Total mass of liquid contents of fixed tanks when full 1 410kg

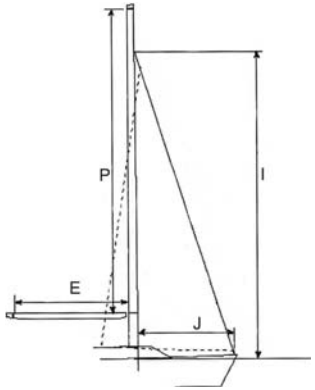
NOTE: The density of a liquid can vary according to its temperature and quality.

The volume masses chosen are:

- *0,86kg/L for diesel fuel,*
- *1kg/L for water.*

Fuel capacity: 285L
Extra tank 285L
Fresh water capacity: 300L
Fresh water capacity additional: 300L
Blackwater capacity (Toilet): ..... 80L (in each head)
It may not be possible to use these capacities fully depending on the trim and load of the boat. It is recommended that you keep a reserve of 20% in the fuel tanks.

1.6 SAILS



I: Distance between deck and highest genoa halyard sheave 15,25m
J: Distance between the fore of the mast and the bow fitting on the deck 5,94m
P: Length of the mainsail luff 15,94m
E: Length of the mainsail foot 4,86m

Classic mainsail 55m²
Square top mainsail 59m²
Genoa 35m²
Code 0 ..... 78m²
Planned sail area* 84,02m²

** Definition: designated by (AS) and calculated as the sum of the projected surfaces in profile of all sails that can be established when the vessel is close hauling, on the booms, horns, bowsprits or other spars, and the surface of fore triangle(s) to the foremost forestay, fixed permanently during operation of the vessel with the mast bearing the established sails, without overlap, assuming that the jackstays and leeches are straight lines.*
The surface of the spars is not included in the projected calculation sail plan area, with the exception of the wing-masts.

DESIGN CATEGORIES AND DISPLACEMENT

2

Design categories..... 16

- Some information is shown on the manufacturer's plate fixed to the boat. Explanations of the information given can be found in the relevant chapters of this manual.

Design category	A	B	C	D
Maximum number of people onboard *(CL)**	**12**	**14**	**20**	**30**
Light displacement *(MLC)***	**12 104kg**			
Recommended maximum load *(ML)****	**5 150kg**		**5 390kg**	**6 140kg**
Displacement with maximum load *(MLDC)*****	**17 254kg**		**17 494kg**	**18 244kg**

NOTE: The options fitted onboard are included in the maximum load. The more options the boat has, the less room there is for provisions or personal belongings.

DEFINITION:

*** CL:** Crew Limit

**** MLC:** Mass of the boat in Light Craft Condition
includes the weight of the boat in the standard ready-to-navigate configuration, keel, standard equipment, engine(s) and sails (if the boat is a sailing boat).

***** ML:** Maximum Load

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

- 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, greywater, blackwater).

****** MLDC:** Mass of the boat in Maximum Load Condition
Includes light ship mass (MLC) + maximum load (ML).

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 37,5kg;

and that

- the total weight of all allowed onboard (based on about 75kg 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 weight evenly in order to maintain the optimum trim (more or less horizontal).

- Avoid placing heavy loads high up in the boat.

2.1 DESIGN CATEGORIES

Category A:

A yacht of design category A is considered to be designed for wind that may exceed force 8 (on the Beaufort scale) and waves that can exceed a significant height of 4 metres, but excluding exceptional conditions such as storms, severe storms, tornadoes and extreme sea conditions or very large waves.

Category B:

A yacht of design category B is considered to be designed for wind that may go up to force 8 inclusive and waves that can reach a significant height up to 4 metres inclusive.

Category C:

A yacht of design category C is considered to be designed for wind that may go up to force 6 inclusive and waves that can reach a significant height up to 2 metres inclusive.

Category D:

A yacht of design category D is considered to be designed for wind that may go up to force 4 inclusive and waves that can reach a significant height up to 0,3 metres inclusive, with occasional waves of a maximum height of 0,5 metres.

NOTE: Boats in each category must be designed and built to withstand these parameters in respect of stability, buoyancy and other relevant essential requirements, and to have good handling characteristics.

STABILITY AND BUOYANCY

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- Access to the boat 20

3.1 STABILITY INFORMATION

- Fully laden displacement was used to evaluate the stability and buoyancy of the boat. The value of this displacement can be found in the "Technical specifications" paragraph 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 performance;
- It is important to keep water in the bilges to a minimum;
- Adding weight high up on the boat will affect stability;
- 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.

- This boat is likely to capsize or be overrun if it is over-canvassed. In these circumstances, it may then sink. The sail plan should be adjusted according to wind and sea conditions and it is important to be particularly vigilant in case of gusty winds or squalls.
- This vessel is likely to capsize and remain inverted if she carries an excessive sail surface. The sail plan should be reduced if wind exceeds 15 knots..



- Reduce speed in wavy conditions.
- 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.
- If the wind exceeds 20 knots, it is recommended that you stow all removable protection sheets (lazy bag, Bimini, awnings, ...).



- The boat may capsize if carrying too much sail.
- It is important to take additional precautions in the event of strong winds, rough seas or breaking waves.

- The following openings are marked "MUST BE CLOSED WHEN UNDER WAY"; ensure that this warning is observed. "Under way" means the boat is not anchored or moored to the ground, nor is it aground.

Aft cabin



Forward cabin



Head



Saloon



NOTE: The retractable forward window must be closed when sailing and during rainfall.

3.2 ACCESS TO THE BOAT

Access to the cockpit





DANGER: It is essential that the guardrail remains closed when under way.

Access to the saloon



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

- It is essential that the access doors to the saloon are 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 engine compartment

to port & To starboard





Foredeck access



NOTE: The top wire of the guardrail must be open while the boat is sailing under code 0.

MANOEUVRABILITY

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Visibility from the steering station..... 24

4.1 VISIBILITY FROM THE STEERING STATION

The view of the helmsman from the steering station can be obstructed when under sail due to one or more variable conditions:

1) Load and load distribution;
2) Speed;
3) Sea conditions;
4) Rain and mist;
5) Darkness and fog;
6) Lights inside the boat;
7) Position of covers and curtains;
8) Persons or mobile equipment located in the helmsman's field of view.

Sails that may obstruct forward view:

- All except storm jib.

The international rules and regulations for avoiding collisions at sea (Col Reg / RIPAM) require a full and constant lookout as well as observance of the rules of right-of-way. Observance of these rules is essential.

- Manoeuvrability is reduced at excessive speeds.

- There is a risk of loss of control during tight turns.

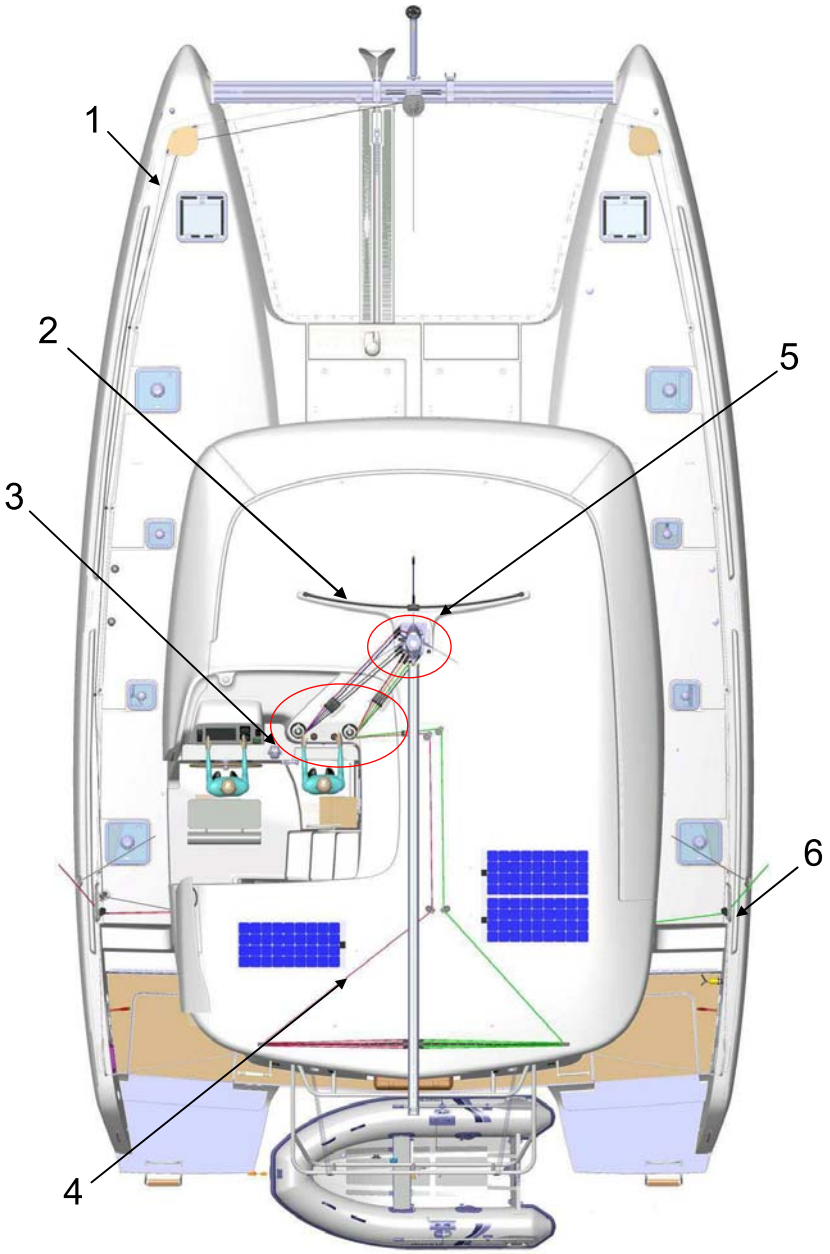
- Reduce speed before making a turn in any direction.

RIGGING AND SAILS

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- Setting the sails 32
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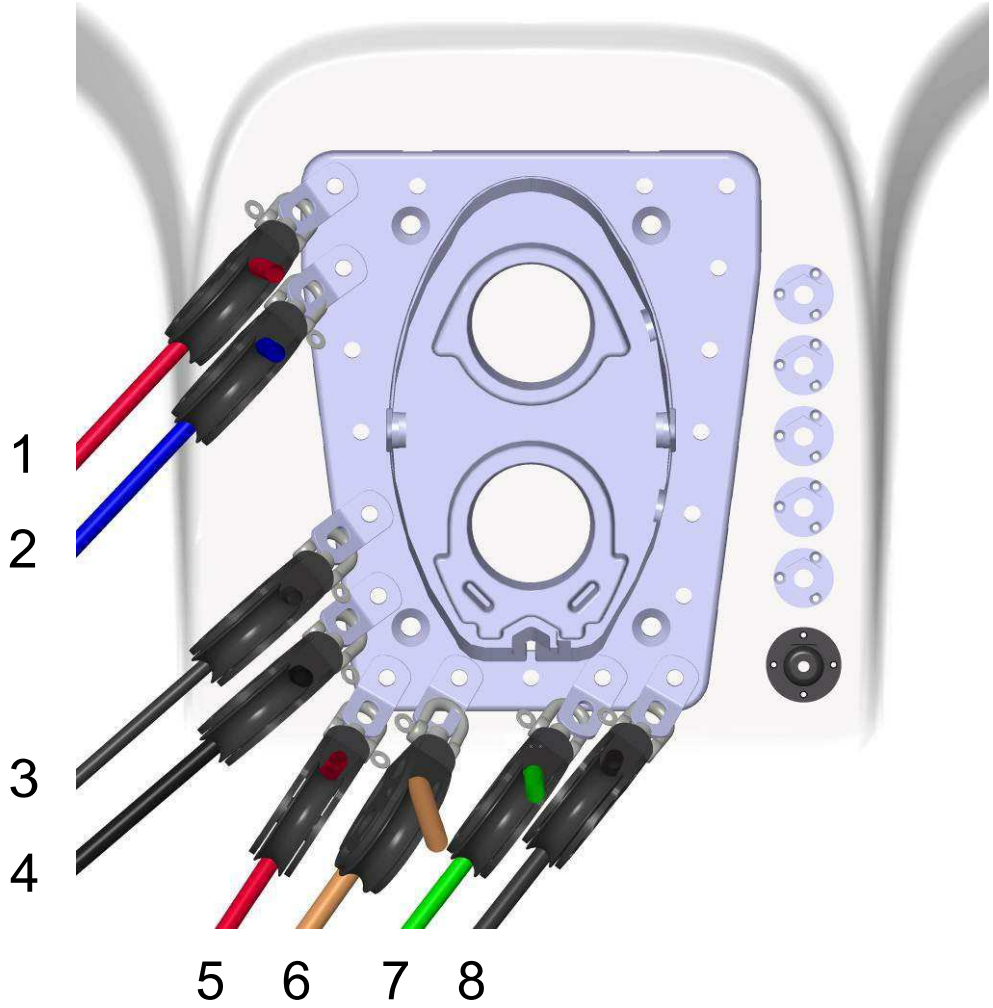
5.1 RIGGING DIAGRAM



Reference	Designation
1	Genoa furler circuits
2	Self tacking jib circuit
3	Work area
4	Mainsheet system
5	System at mast foot
6	Spinnaker sheet

5.5 SETTING THE SAILS

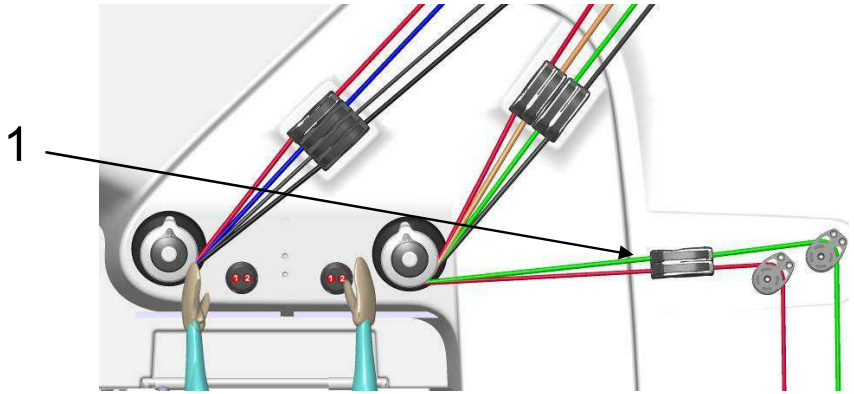
5.5.1 System at mast foot

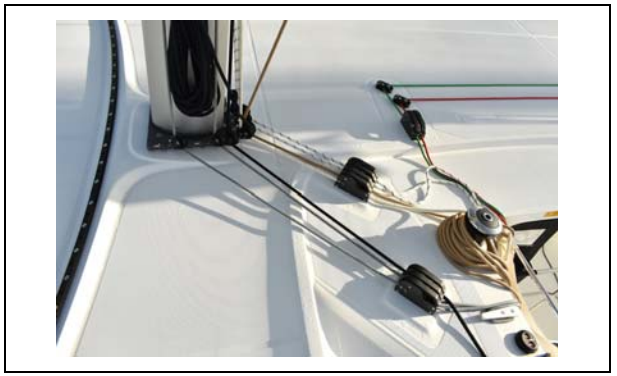


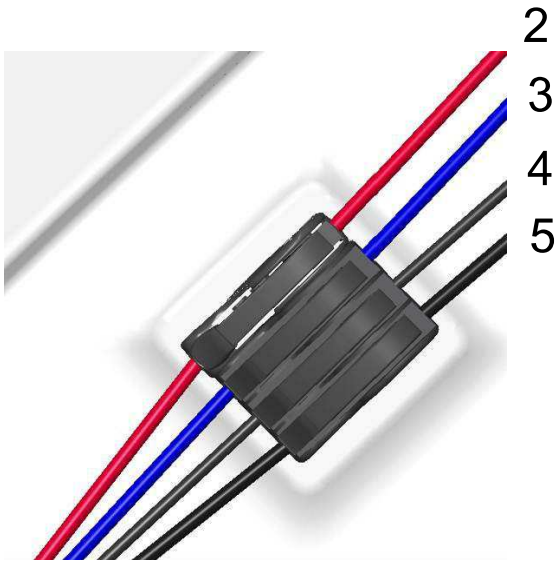


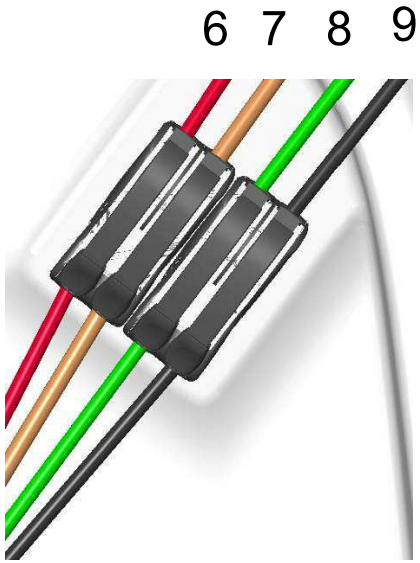
Reference	Designation
1	Code 0 halyard
2	Self-tacking jib sheet
3	Boom topping lift
4	Main halyard
5	Reef 1
6	Mainsail sheet
7	Reef 3
8	Reef 2

5.5.2 Work area



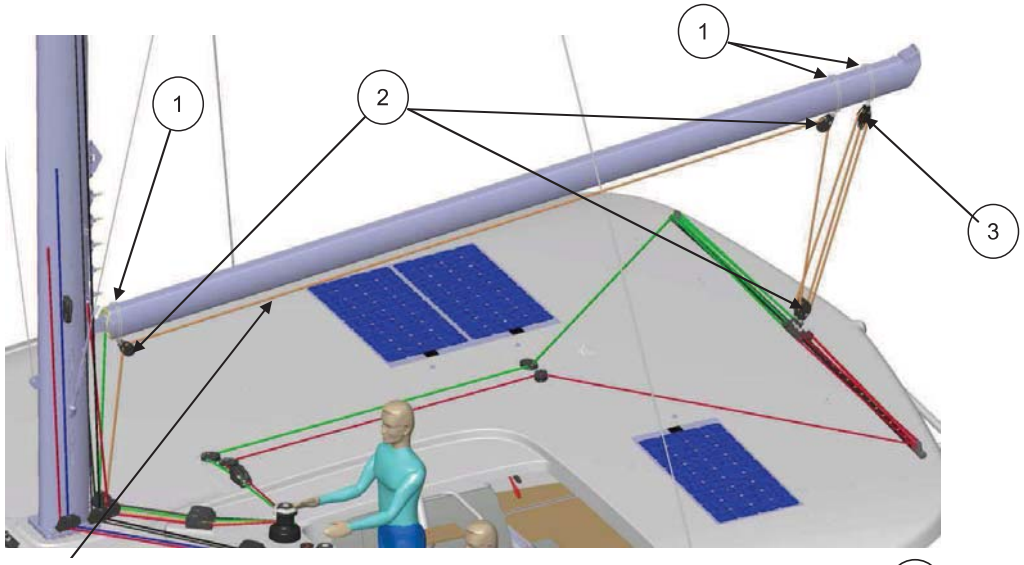




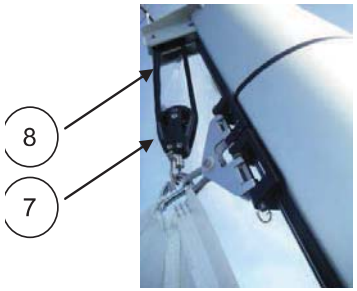


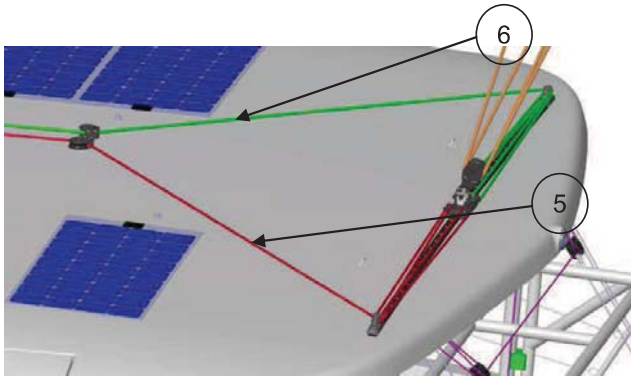
Reference	Designation
1	Mainsail traveller
2	Code 0 halyard
3	Self-tacking jib sheet
4	Boom topping lift
5	Main halyard
6	Reef 1
7	Mainsail sheet
8	Reef 3
9	Reef 2

5.5.3 Mainsheet system



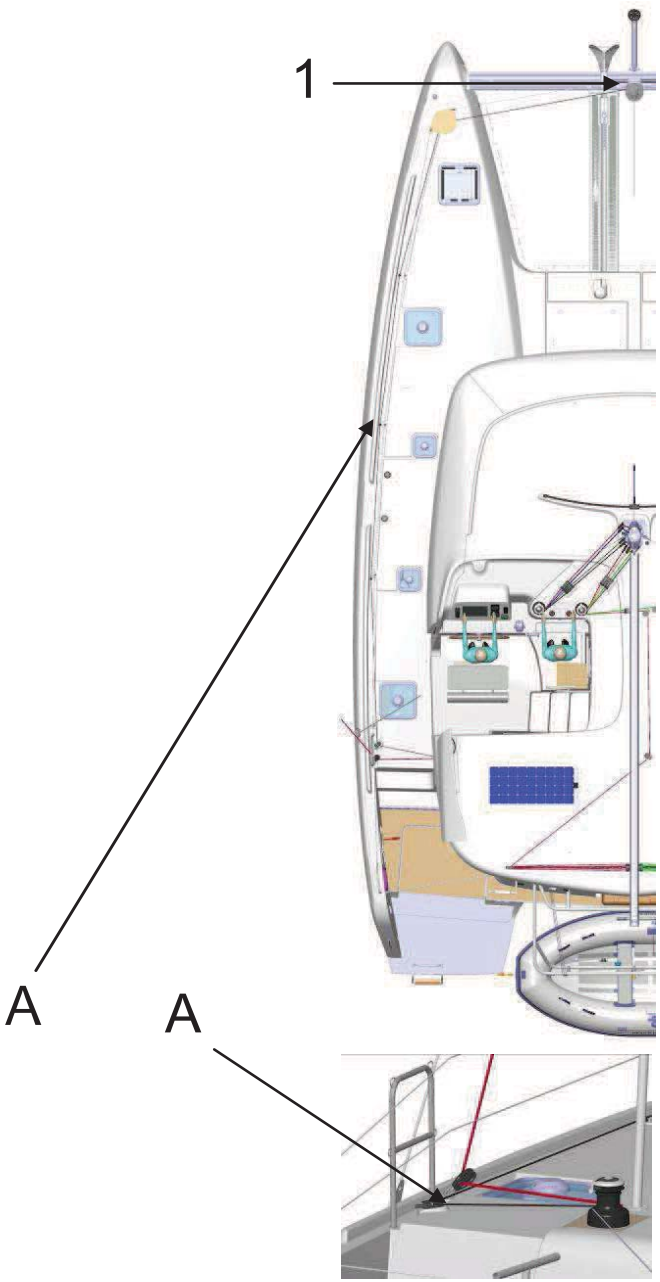






Reference	Designation
1	Pig tail
2	Single swivel pulley
3	Single becket swivel block
4	Mainsail sheet
5	Mainsail traveller adjustment (Port)
6	Mainsail traveller adjustment (Starboard)
7	Mainsail reeving pulley
8	Main halyard

5.5.4 Genoa furler (Self-tacking jib)

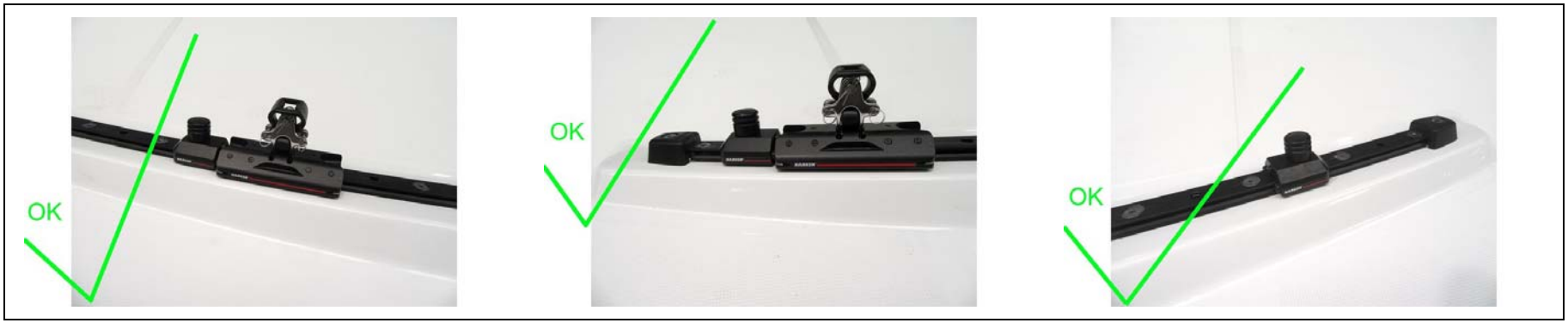




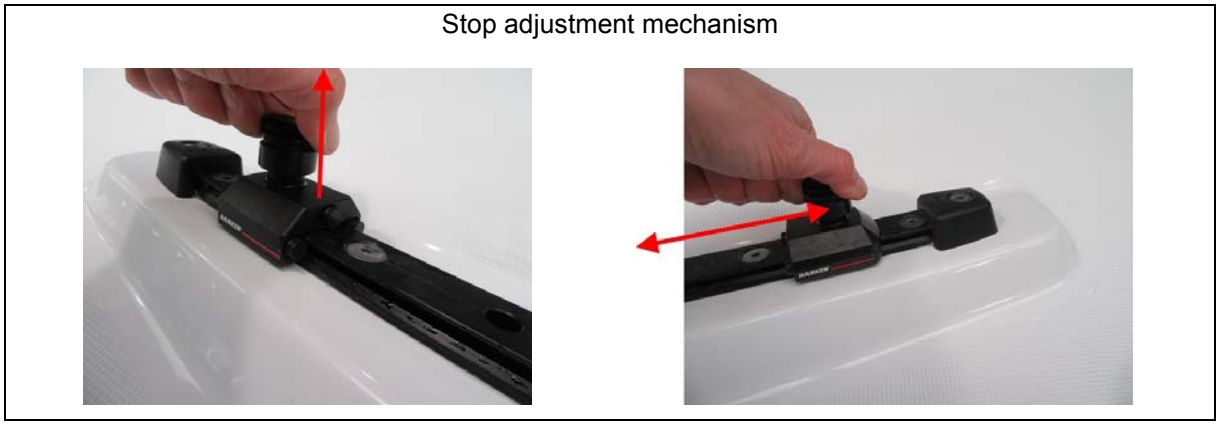
Reference	Designation
1	Genoa furler drum kit
A	Genoa furling line

Self-tacking jib rail

Adjustment stops are provided and are used to absorb the shocks of the jib carriage.

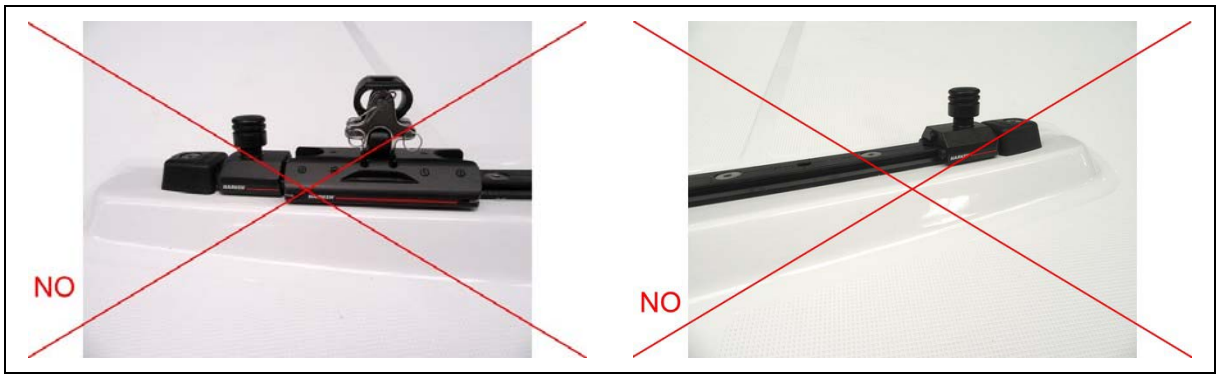


Stop adjustment mechanism





The rail ends must never be used as a stop for the jib traveller.



5.6 NAVIGATION UNDER SAIL

General point

A catamaran presents 6 times greater resistance to heeling than a single-hull vessel. In ship design we refer to righting moment (multiplication of the vessel's weight by the transverse distance between the centre of gravity and the centre of flotation (or buoyancy)).

This fact has real consequences for the handling and sail-trimming of a catamaran.

The fact that the boat does not heel over could conceal the use of an excessive sail surface area, which could be dangerous for the crew and the vessel. It is therefore essential to constantly monitor the real wind speed and to prioritise trimming the sail surface area accordingly.

These adjustments should be applied in calm seas. In rough seas one should take the precaution of making these adjustments when real wind speed is 10% lower than the speed at which they would otherwise be necessary (e.g adjustments made for a wind speed of 20 knots in calm seas should be made at when wind speed is 18 knots in rough seas). It is essential to avoid putting the boat under any kind of stress.
One should always seek to direct the sails' angle of attack towards the apparent wind and to avoid over-trimming the sail, so that the flows of air coming off the sail are parallel to each other; this will prevent turbulence behind the sail.

Failure to follow the above recommendations can be dangerous for the boat and the crew, and the manufacturer cannot be held responsible in the event of an accident.



- Your boat is designed such that no manoeuvres require climbing onto the roof.

- It is dangerous to climb onto or stand on the roof, particularly when gybing.



Put away the lazy bag for all reefing.



For safety, the reef line used should always stay on the winch with 3 turns around the drum.

Re-close the cam cleat for improved safety.

5.8 WINCHES

Manual winches

- Do not leave loose ropes on the winches - secure them to cleats.

Electric winches

- The electric winches are powered by direct current.
- A breaker protects the electrical circuit.
- An operation relay is fitted to the electrical circuit.
- Inserting a winch handle into an unloaded winch automatically disconnects the motor transmission and allows it to be used manually.

NOTE:

- Operating the electrical winches requires heavy battery usage: 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.

- The use of an electric winch for furling/ unfurling the genoa or any other foreward sail must be strictly avoided (risk of the forestay breaking which may lead to dismasting).

- 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.

LAYOUT OF COMPONENTS

Winch + Contactor
Location: Steering station



Breaker - 80A
Location: Starboard passageway



Relay box
Location: Deckhead - Galley





5.9 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 that you keep the sheet under slight tension so that the genoa furls correctly.
- Furling and unfurling of the sail are carried out upwind

Maintenance

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



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

SAFETY

6

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6.1 PREVENTING MAN OVERBOARD SITUATIONS AND MEANS OF REBOARDING

6.1.1 Prevention of man overboard

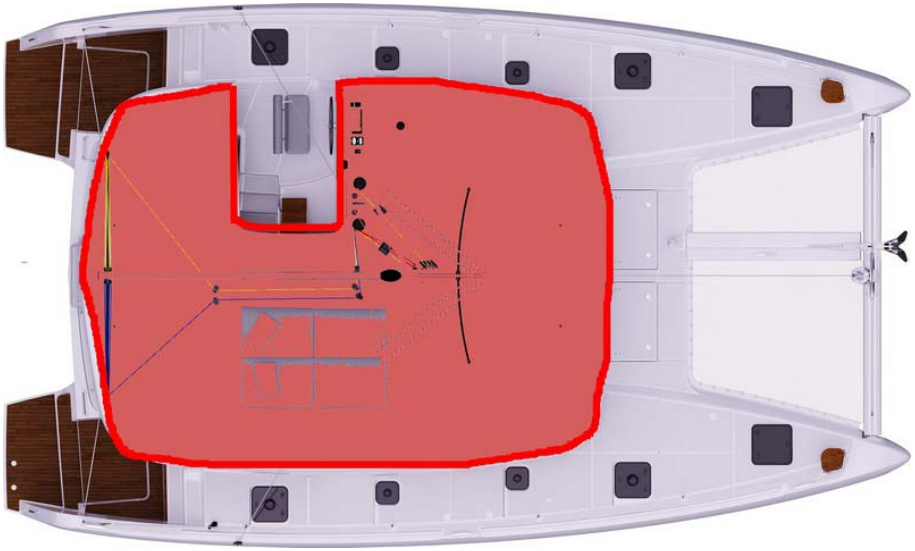
- The off-limits areas of the working deck when under way are cross-hatched below
- "Working deck" refers to the exterior parts of the boat where people stand or walk during normal use.

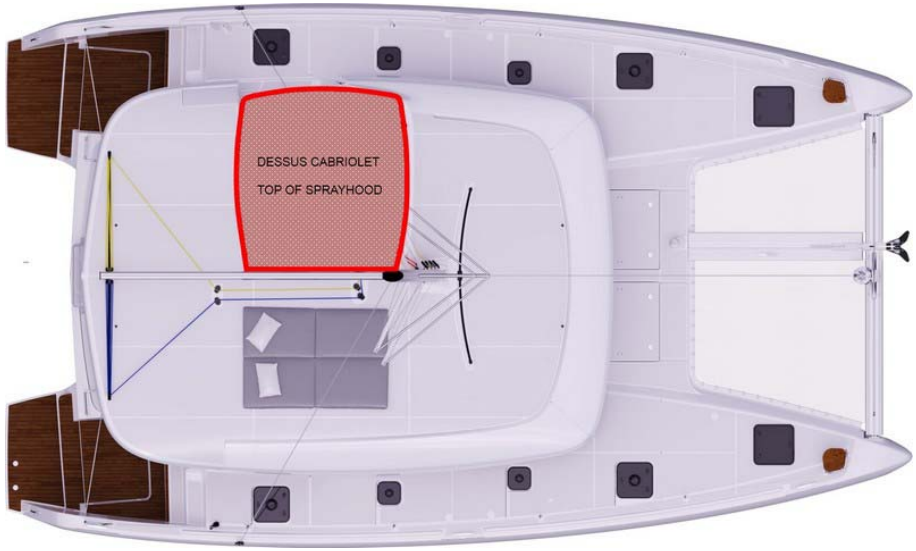
Top view: Deck

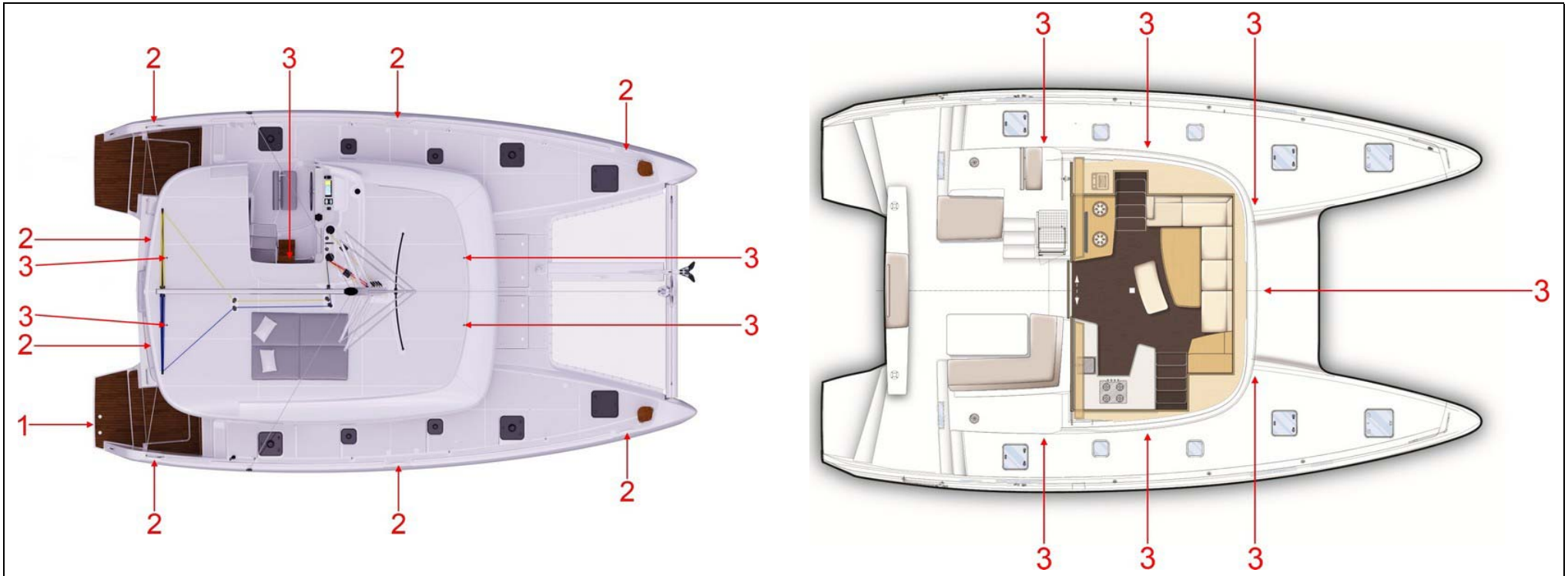


- Do not position yourself on the roof near the cabriolet during manoeuvres and generally when under way: High risk in this area during rigging movements.

Top view: Roof







Ref 1: Reboarding device.

Ref 2: Mooring cleats.

Ref 3: Anchor points (for the lifelines).

Regularly check the guardrails:

- With metal guardrails look out for signs of corrosion (particularly at connecting points).

Regularly check the tension of the lifelines and the attachment points.

- Use the seats provided.

6.1.2 Reboarding

A reboarding device must be usable from the water by a single person with no external help.

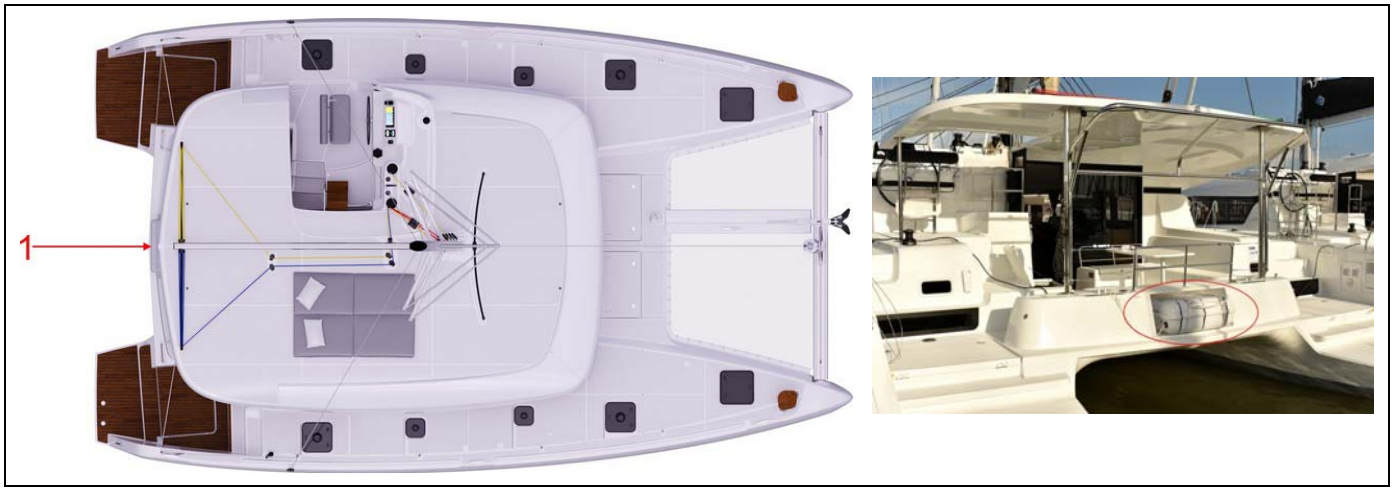
Reboarding device:
Swimming ladder (Ref 1)



- Some types of reboarding equipment 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 means for getting back onboard are readily accessible and easy to use by someone alone in the water.

6.2 STORING THE LIFERAFT



The liferaft (not supplied) must be stored in the space provided for it (Ref 1). A pictogram allows for easy location.

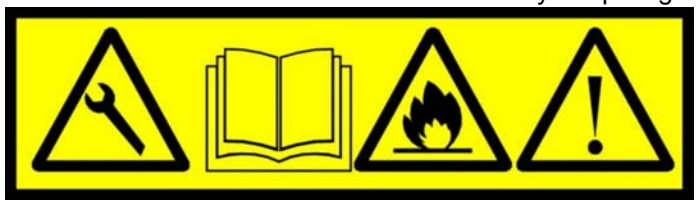


- Before departure, read carefully the procedure for using the life raft.

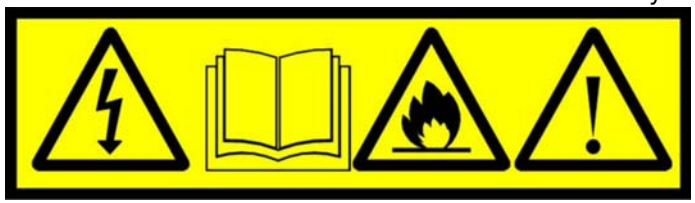
- It is the responsibility of the skipper to ensure regularly that the liferaft is properly secured in place.

6.3 SECURING MOVEABLE ITEMS

The technical areas are identified in the boat by the pictogram below:



The electrical technical areas are identified in the boat by the pictogram below:



Technical areas may not be used as storage compartments.

- Ensure that movable items are firmly secured when sailing.
- Do not store anything below the floorboards.

6.4 DECK LAYOUT



1. Lifebuoy support bracket (ring lifebuoy not supplied).
2. Outboard engine bracket (outboard engine not supplied).

Outboard engine bracket (Ref 2)



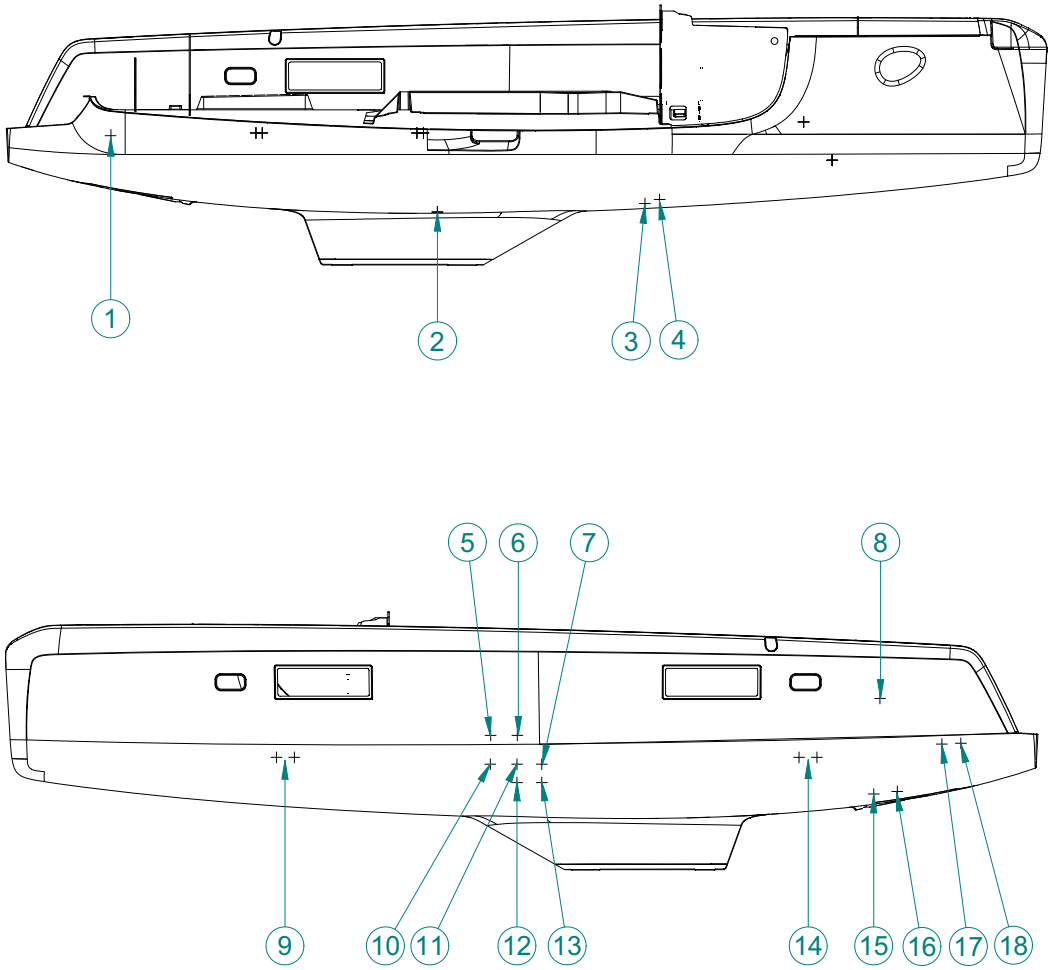
The maximum weight of the outboard engine on the pushpits must not exceed 50 kg.

6.5 INFORMATION ON FLOODING RISKS AND BOAT STABILITY

6.5.1 Hull openings

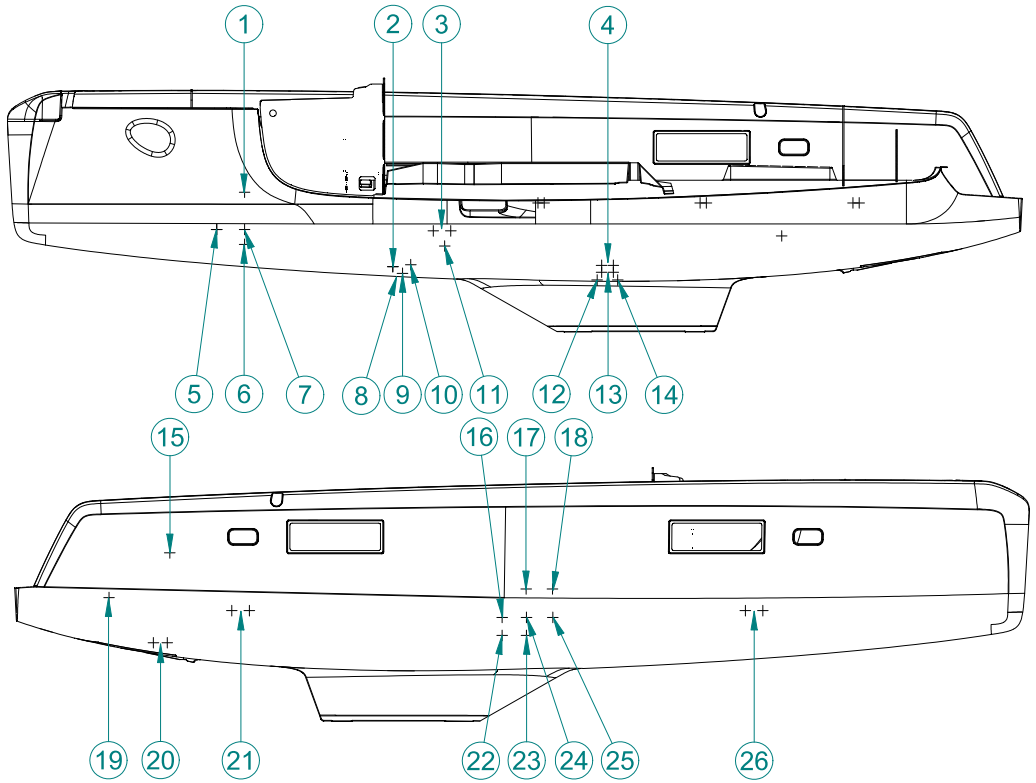
Valves, thru-hull inlets and other brass or bronze fittings have a lifespan of around 5 years. All valves, thru-hull inlets and other brass or bronze accessories must be checked by a professional every year and replaced as necessary.

View of hull, port side



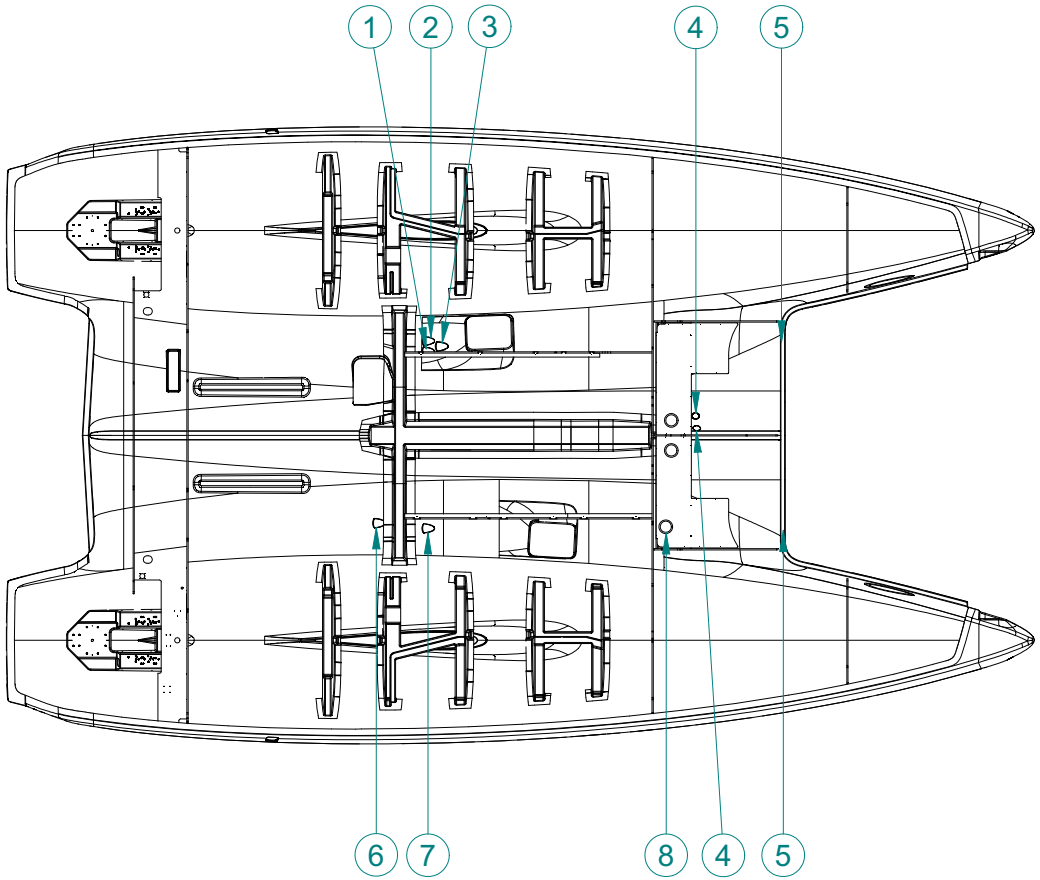
Reference	Designation	Valve
1	Seawater drainage - Watermaker	Yes
2	Seawater intake - Toilet	Yes
3	Seawater intake - Air conditioning	Yes
4	Seawater intake - Toilet	Yes
5	Blackwater tank vent	No
	Blackwater drainage tank (4 cabins 4 heads version)	Yes
6	Blackwater tank vent	No
7	Head washbasin drainage	Yes
8	Fuel tank vent	No
9	Seawater drainage - Air conditioning	Yes
10	Head washbasin drainage	Yes
11	Electric bilge pump drainage	Yes
12	WC drainage (to sea)	Yes
	Blackwater drainage tank (3 cabins 3 heads version)	Yes
13	WC drainage (to sea)	Yes
14	Seawater drainage - Air conditioning	Yes
15	Seawater intake - Deck wash pump	Yes
16	Seawater intake - Watermaker	Yes
17	Engine exhaust	No
18	Heating exhaust	No

View of hull, starboard side



Reference	Designation	Valve
1	Blackwater tank vent	No
	Blackwater drainage tank (3 cabins 3 heads version)	Yes
2	Seawater intake - Toilet	Yes
3	Seawater drainage - Air conditioning	Yes
4	Earthing plate - Generator	No
5	Shower drainage	Yes
6	WC drainage (to sea)	Yes
7	Head washbasin drainage	Yes
8	from left to right: Depth sounder / Electronic sensor	No
9	Seawater intake - Air conditioning	Yes
10	Seawater intake - Generator	Yes
11	Generator exhaust	No
12	Seawater intake - Toilet	Yes
13	Earthing plate - Inverter	No
14	Seawater intake - Foot pump	Yes
15	Fuel tank vent	No
16	Head washbasin drainage	Yes
17	Blackwater tank vent	No
	Blackwater drainage tank (4 cabins 4 heads version)	Yes
18	Blackwater tank vent	No
	Blackwater drainage tank (4 cabins 4 heads version)	Yes
19	Engine exhaust	No
20	Anode	No
21	Seawater drainage - Air conditioning	Yes
22	WC drainage (to sea)	Yes
23	WC drainage (to sea)	Yes
24	Electric bilge pump drainage	Yes
25	Head washbasin drainage	Yes
26	Seawater drainage - Air conditioning	Yes

View from above



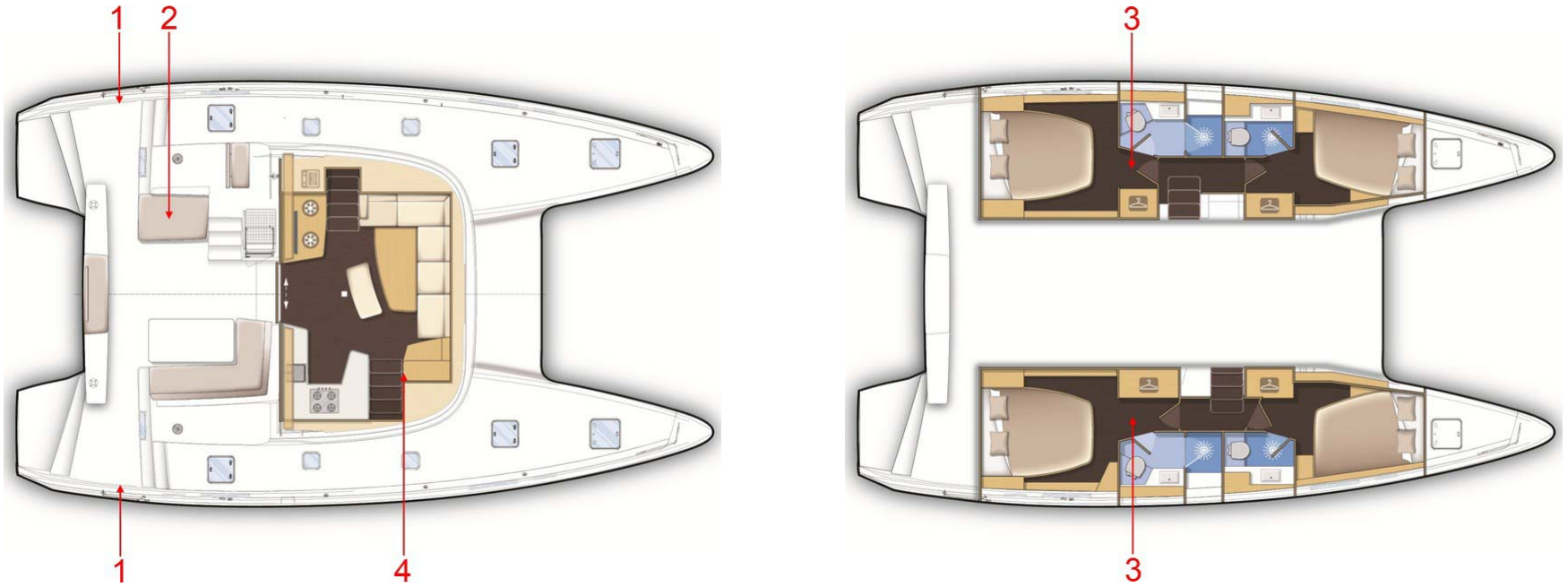
Reference	Designation	Valve
1	Drainage - Fridge	No
2	Drainage - Fridge in cockpit	No
3	Drainage - Freezer	No
4	Chain locker scupper	No
5	Water tank vent	No
6	Gas locker drain	No
7	Galley sink drainage	Yes
8	Generator exhaust	No

6.5.2 Drainage system

General points

- The inner moulding of the hull is equipped with channels: these are the draingage channels. The drainage channels allow the water to drain down to the lowest point in the boat, where it can be discharged. It is important to allow the water to flow freely down to this lowest point of the boat, which means.
- regularly cleaning the lowest point of the boat and the drainage channels.

DIAGRAM OF LAYOUT - BILGE PUMPS



Reference	Designation	Rate
1	Manual bilge pump	32L/minute *(*)*
2	Manual bilge pump lever	
3	Automatic bilge pump	70L/minute
4	Electric bilge pump switch	

(*) 45 strokes/minute

Secondary drainage system
Manual bilge pump



The manual bilge pump is in the cockpit.



The bilge pump lever is located nearby.

Operation:





I- Attach the lever to 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.
- The switch for the electric bilge pump is located on the switch panel.

Automatic bilge pump





Control: Electrical panel
Location: Starboard passageway



- 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.

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 in 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 a minimum.

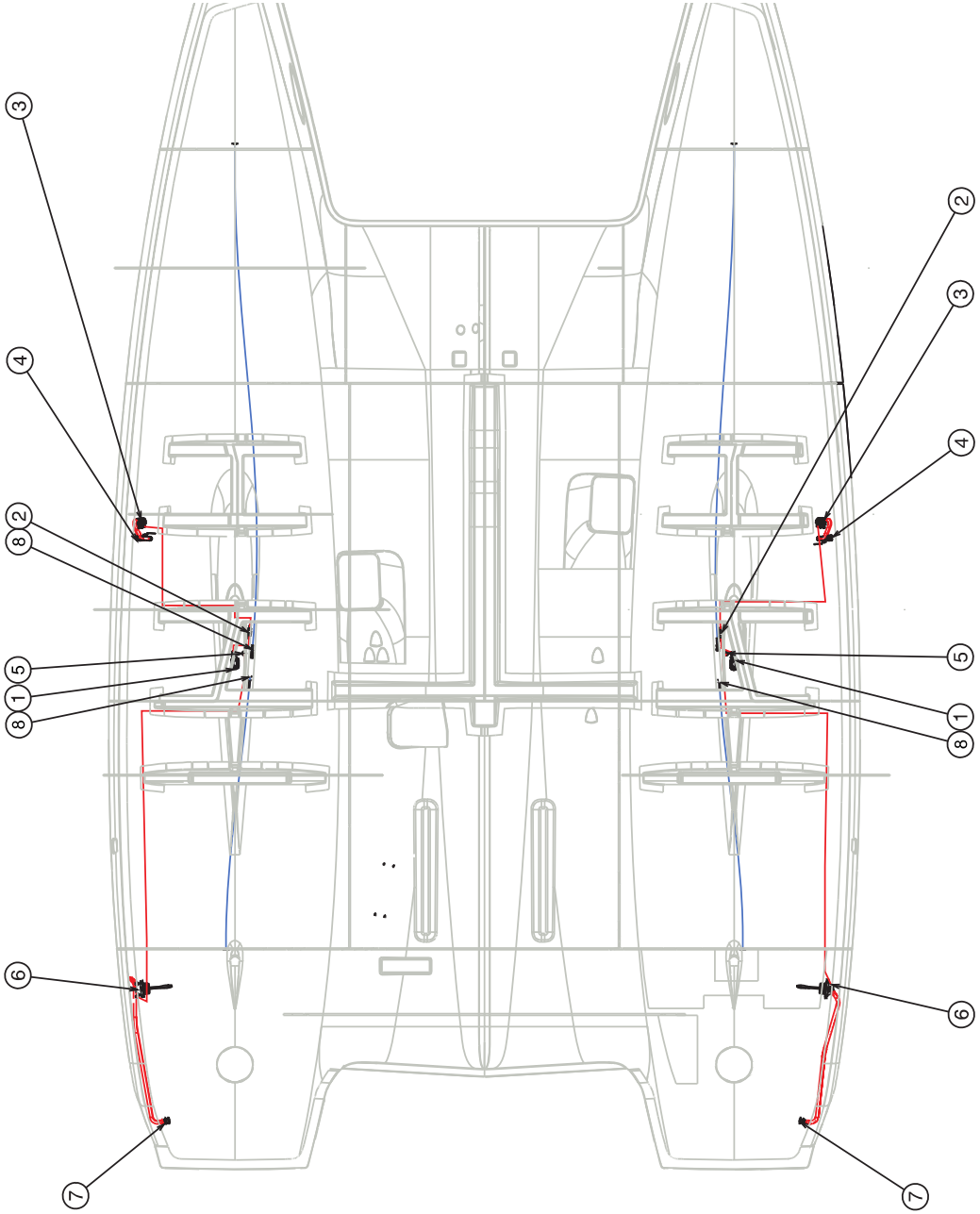
- Never store anything at the very bottom of the boat: Allow bilge water to flow freely down to the lowest point of the boat.

- Check that each bilge pump is working at regular intervals.

- Clear the points and suction filters of the bilge pump 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 LAYOUT - DRYING OUT THE BILGE

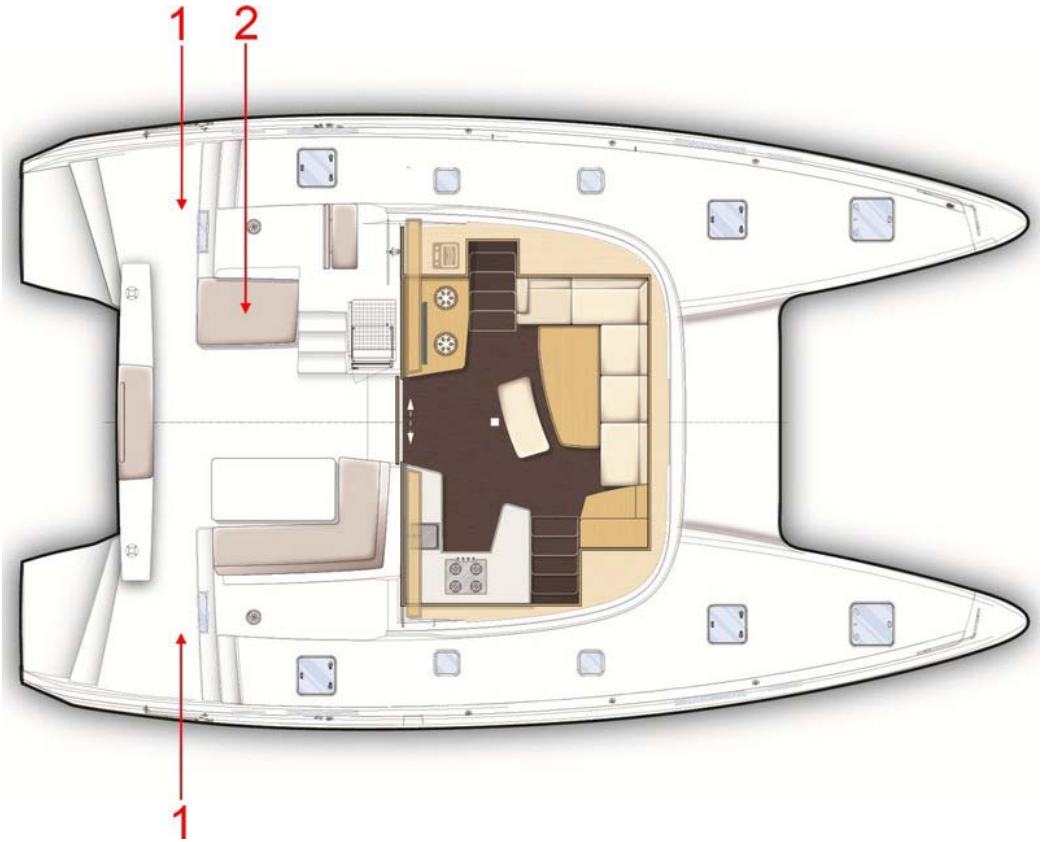


Reference	Designation
1	Automatic bilge pump
2	Non-return valve
3	Collector
4	Automatic bilge pump drainage
5	Stuffing box - Manual bilge pump
6	Manual bilge pump
7	Drainage of manual bilge pump
8	Valve - watertight compartment

6.6 EMERGENCY SYSTEMS IN CASE OF STEERING GEAR FAILURE

The emergency tiller is designed only to enable navigation at a reduced speed in case of steering gear failure.

Location of components



Sector access port (Ref 1)



Stowage of the emergency tiller (Ref 2)



Instructions in the event of steering gear failure





I. Unscrew the filler using a winch handle.

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

6.7 INFORMATION ON LIGHTNING-RELATED RISKS

- The skipper must check the weather conditions before deciding to put to sea. If there is a risk of thunderstorms, the skipper must avoid putting to sea.
- A lightning safety device is installed on the boat.
- A general anode dedicated to grounding of the rigging is connected to the mast pillar and the port cap shroud chainplate.

Precautions to be taken by the occupants of the boat during a storm

- Ensuring the safety of everyone on board is the fundamental goal of lightning protection.
- Turn off the engine, turn off the battery switches and disconnect all electronic and electrical equipment, including equipment mounted on the mast.
- Occupants should stay as much as possible inside the closed vessel.
- Occupants should not be in the water or let their arms or legs hang in the water.
- Occupants should avoid touching any part connected to a lightning protection device, especially in such a way that the parts become connected.
- Occupants must avoid contact with the metal parts of the rigging, spars, deck fittings and boat wiring. Even inside the boat, occupants should stay as far as possible away from the mast.

Maintenance

- Flexible radio antennas should not be tied down during a thunderstorm.
- If the boat has been struck by lightning, the compass and electronic and electrical equipment must be examined to determine whether any damage or calibration change has occurred.
- If the vessel has been struck by lightning, the lightning protection device must be inspected for damage and to verify the integrity of the device and continuity of the earthing.

Anode

Inside view



Outside view



INFORMATION RELATING TO FIRE RISKS AND RISKS OF EXPLOSION

7

- Propulsion engines and other fuel-burning equipment..... 64
- Electrical system 64
- Gas system 64
- Fire fighting and prevention equipment..... 65
- Emergency exits in case of fire..... 73
- In the event of capsize 74

7.1 PROPULSION ENGINES AND OTHER FUEL-BURNING EQUIPMENT

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

Note concerning the boat's tender:

- If the tender is fitted with a more powerful outboard motor than 25kW, it must have on board a portable extinguisher with a rating equal to or greater than 8A / 68B.
- Place for storage of tender petrol tank: on deck.

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

7.2 ELECTRICAL SYSTEM

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

7.3 GAS SYSTEM

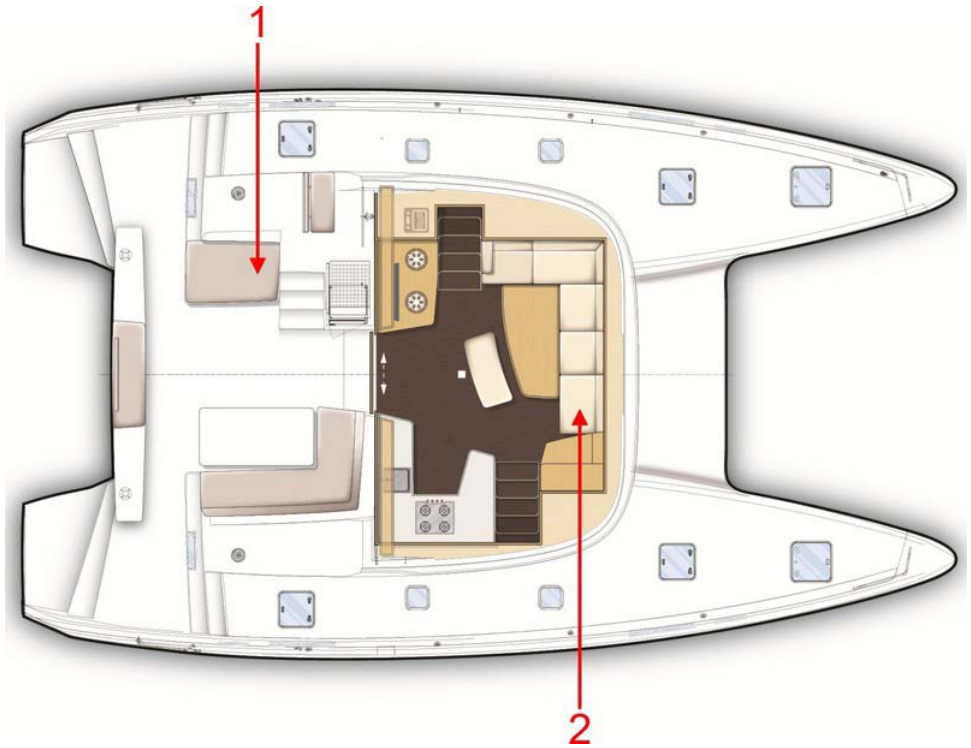
The risks associated with the gas system are described in the GAS chapter.

7.4 FIRE FIGHTING AND PREVENTION EQUIPMENT

7.4.1 Fire-fighting equipment

Portable fire-extinguishers and fire blanket (not supplied)

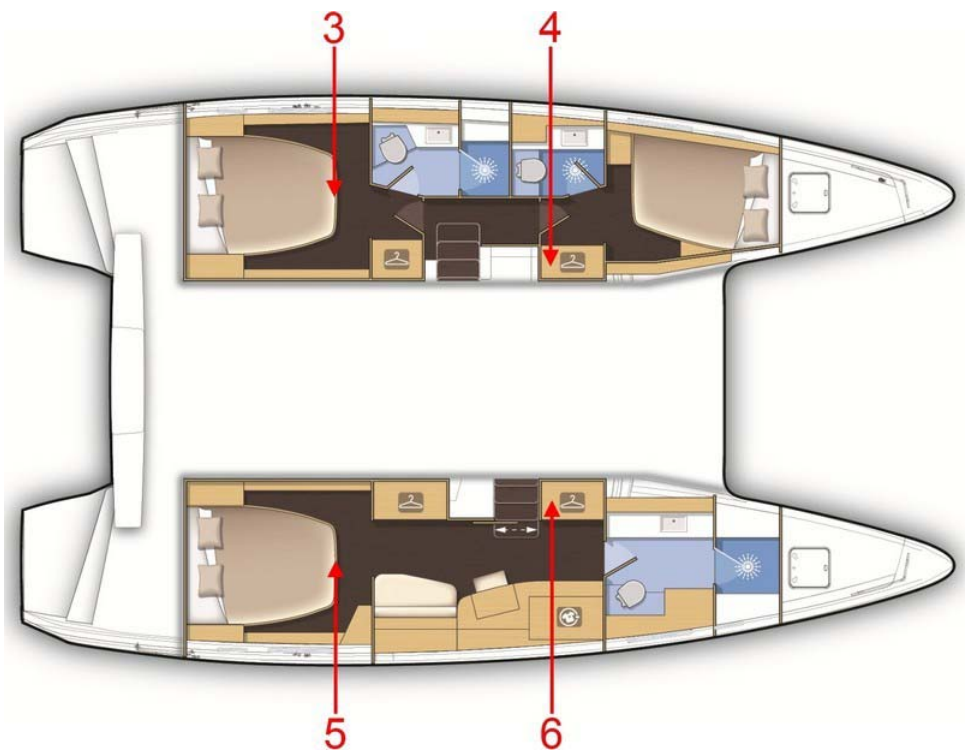
- When in use, this boat must be equipped with portable fire extinguishers of the following extinguishing capacities, located in the following places:



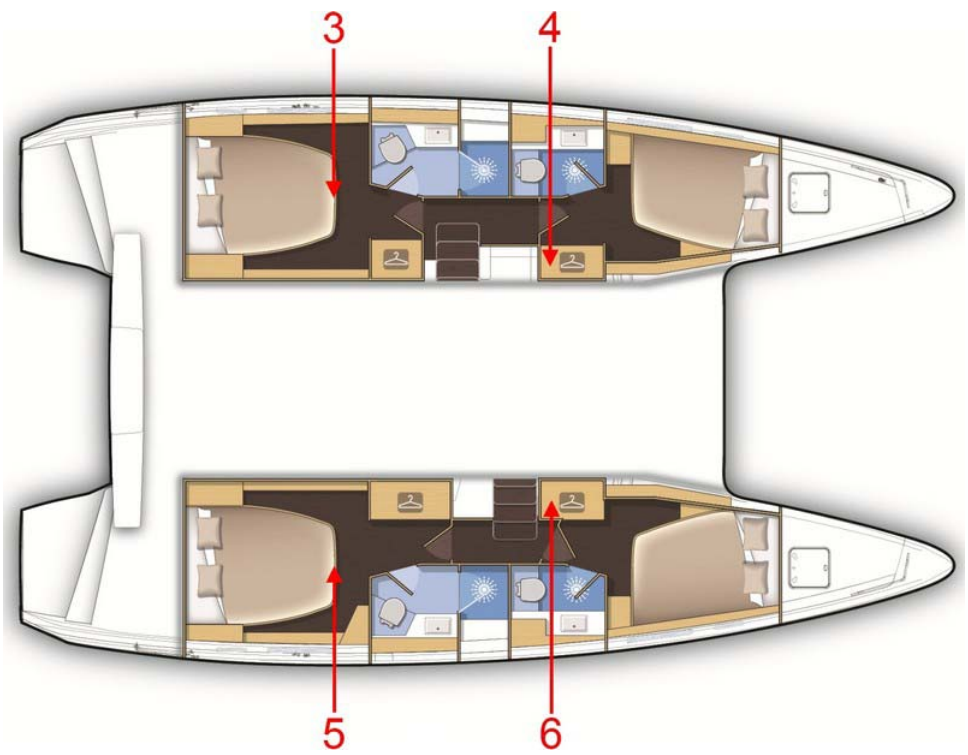
! Ref 3 & 5: Make sure that only inert gas extinguishers are used for discharge through the opening to fight a fire in the engine compartment. CO_2 type extinguishers are prohibited.

- Ref 1, 2, 4 & 6: Check that extinguishers with a minimum extinguishing capacity of 5A / 34B are used.

3-cabin layout



4-cabin layout



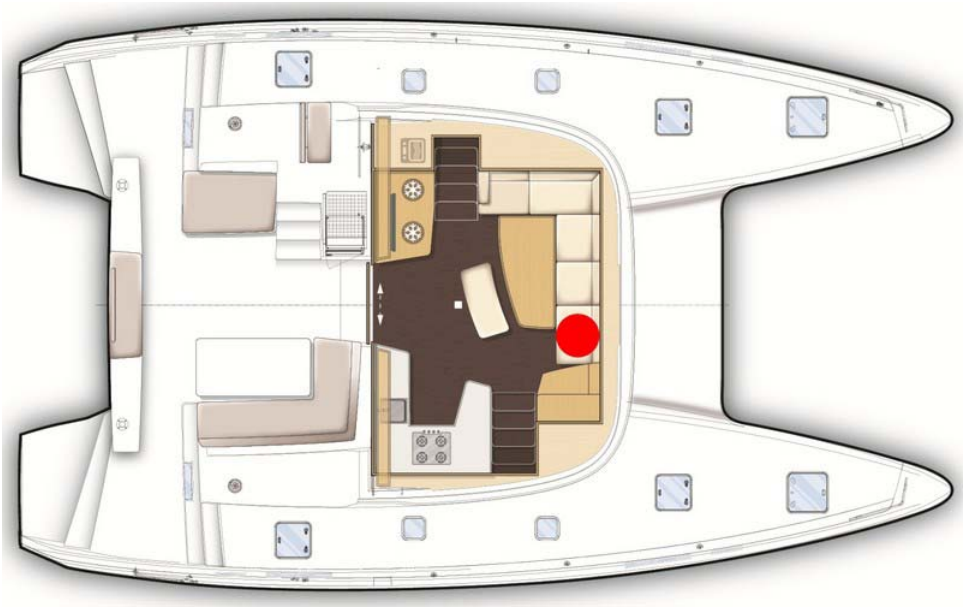
Reference	Designation	Minimum extinguishing capacity
1	Cockpit locker	5A / 34B
2	Saloon seating	5A / 34B
3	Bunk drawer - Port aft cabin	5A / 34B
4	Hanging locker - Port forward cabin	5A / 34B
5	Bunk drawer - Starboard aft cabin	5A / 34B
6	Hanging locker - Starboard forward cabin	5A / 34B

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



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

Fir blanket
Preferred location: Saloon seating



Maintenance of the fire-fighting equipment

The owner/person operating the boat must:

- Have fire-fighting equipment checked as frequently as recommended by the manufacturer;
- Replace portable fire extinguishers, if outdated or discharged, with extinguishing apparatus of equal capacity;
- Provide at least one fire bucket with a lanyard, in a readily accessible place, for protection of the deck;
- Have fixed fire extinguishing systems filled or replaced if they have been 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.
- Equip the vessel with one or more portable extinguishers whose heads are compatible with the diameter of the opening in vertical use.
- Unlock all deck hatches and fire escape openings when the vessel is occupied.



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;
- Obstruct the ventilation of the compartments or spaces, in particular those containing the engines, tanks or batteries.

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.
- When replacing components of the fire-fighting equipment, use only appropriate components of the same code designation or with 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 **CO_2** extinguishers must only be used only to fight **electrical fires**
- The fire exits other than the door or main companionway are identified by the following symbol:



7.4.2 Smoke alarm

General points

- The smoke detector is a photoelectric detector which operates with a 9 V alkaline battery (battery included).
- The detector emits a flashing red light every minute in normal operation.
- The smoke detector is designed to operate between 0° and + 50°C.
- Whenever any smoke is detected, the 85 dB alarm is triggered.
- The smoke detector is not designed to stop a fire from breaking out. It serves to warn the people onboard of the danger.
- The detector is a device which warns people onboard in the event of smoke.

Actions to take if the alarm is triggered: The skipper should check the source of the smokeand attempt to extinguish the fire with the resources at his/her disposal. If the fire spreads, the skipper must immediately evacuate the entire crew.

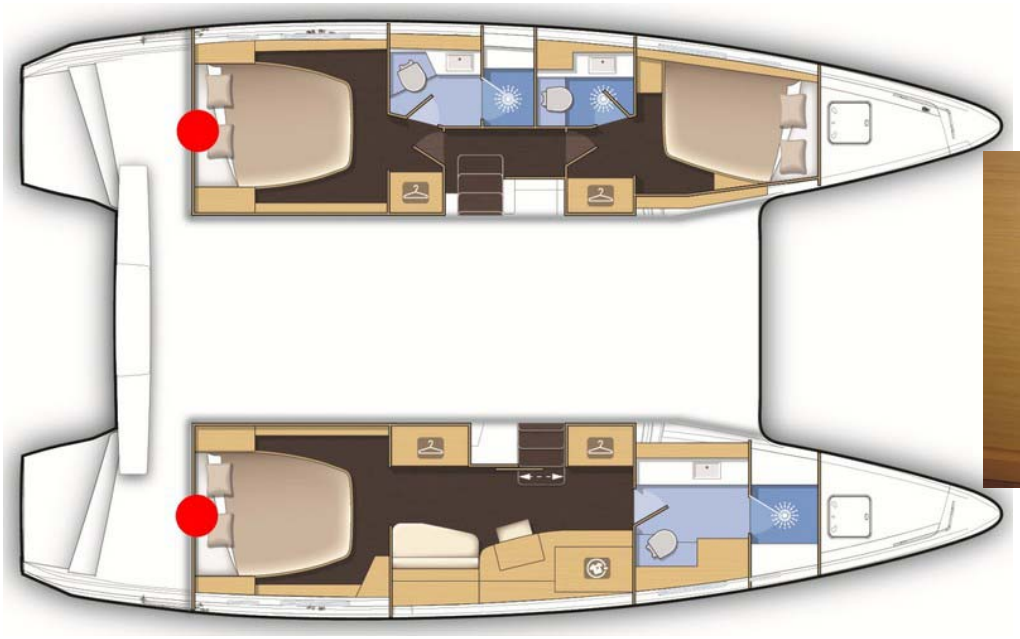
- The service life of the smoke detector is approximately 10 years. Beyond 10 years, replace the smoke detector with an identical device.

- The smoke detector is not a gas detector.
- The smoke detector is sensitive to dust and steam: avoid exposing the detector to these environments to prevent the triggering of unwanted alarms.
- Never use a rechargeable battery.
- Never trigger the alarm deliberately to check the operation of the detector.
- A dirty detector may activate incorrectly or late. It is important to clean each detector for the safety of people onboard.
- Never cover the smoke detector (with paint or ceiling panels, for example) and in general do not alter the appearance of the detector.
- Do not fit the smoke detector in a different location from the one specified for the purpose.

7.4.3 Extinguisher discharge hole

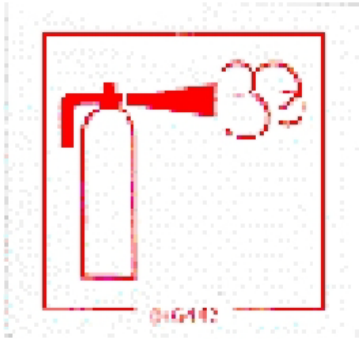
The engine compartment has a port that makes it possible to discharge the extinguishing product inside without opening the usual access hatches.

Location of the fire extinguisher port
Access: Port aft cabin & Starboard

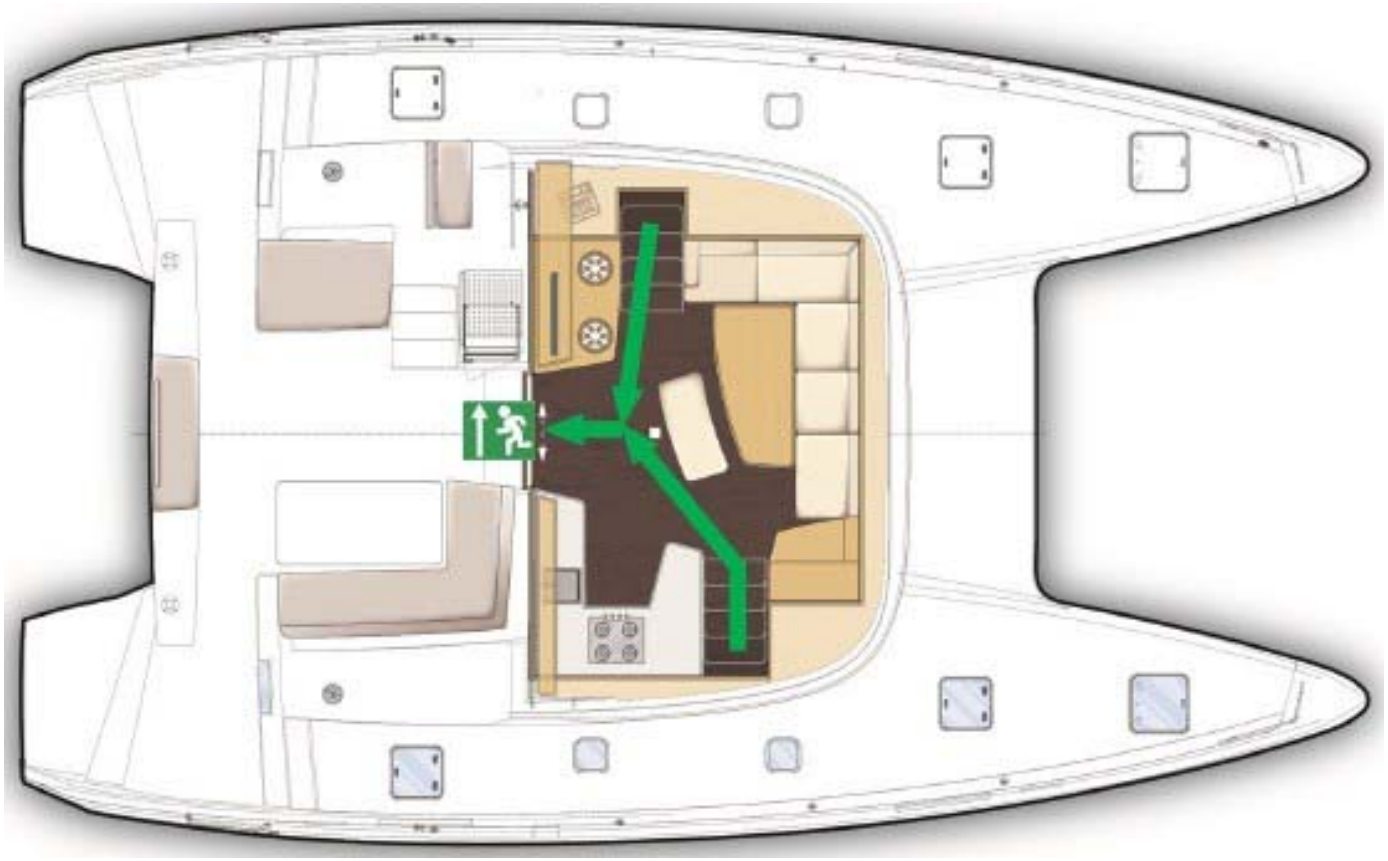




A pictogram allows for easy location.



7.5 EMERGENCY EXITS IN CASE OF FIRE



- 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.

7.6 IN THE EVENT OF CAPSIZE

Use the hammer located next to the panel (or in the trunk of the life raft) to break the glass.

Passageway






Skipper's cabin



Do not use the skipper cabin whilst under way.

Emmergency hammer



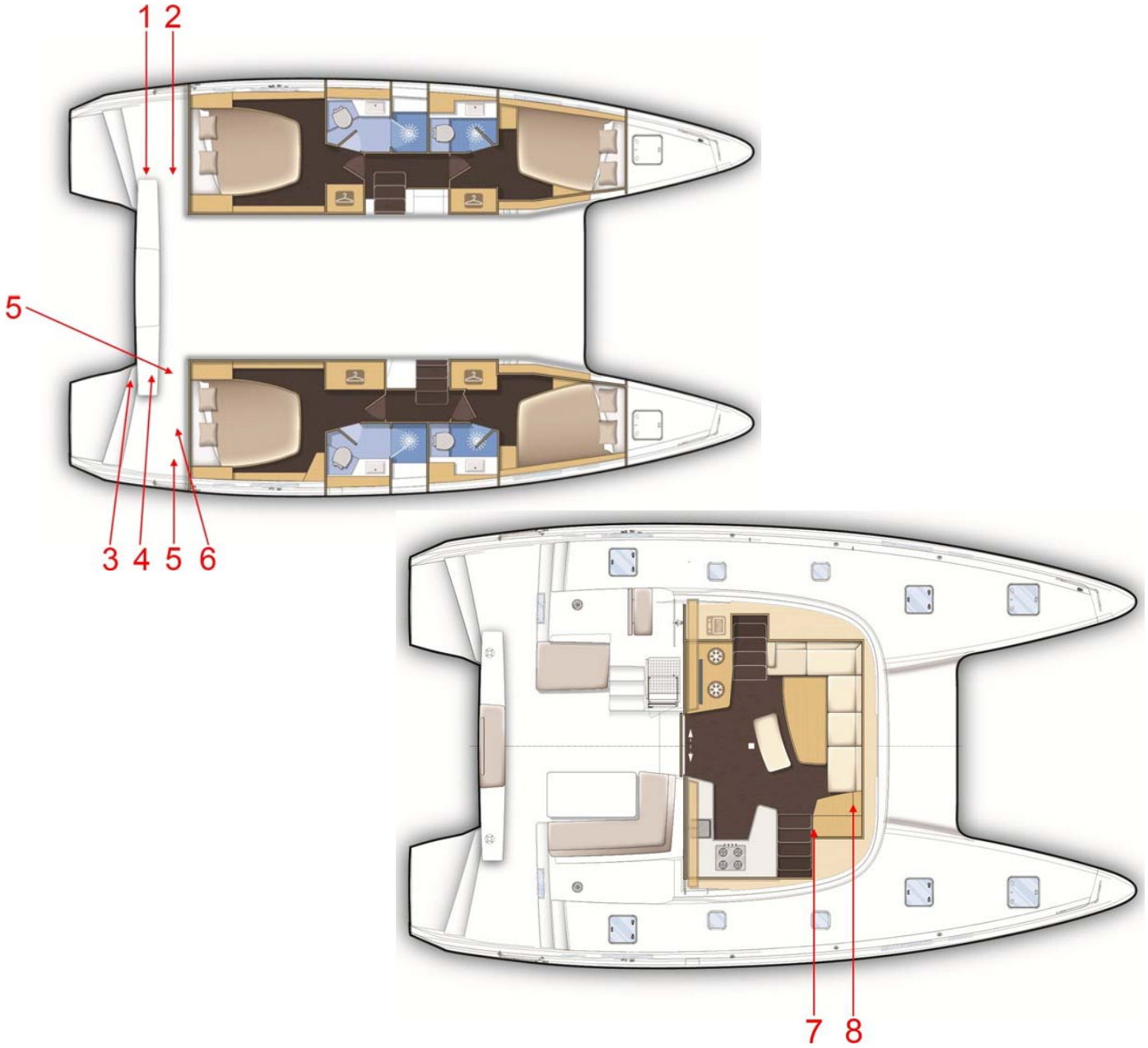
The life-rafts are accessible on the transom (see the beginning of the chapter).

ELECTRICAL SYSTEM

8

- General information about the electrical system 76
- DC installation (12 V or 24 V)..... 79
- AC system (110 v or 220 v)..... 93
- Protection against electrolysis / Earth plate..... 101

8.1 GENERAL INFORMATION ABOUT THE ELECTRICAL SYSTEM



- A risk of fire or explosion may result from careless use of the DC and AC systems.

- A risk of electrocution may result from careless use of the AC system.

NEVER:

- work on a live electrical system;

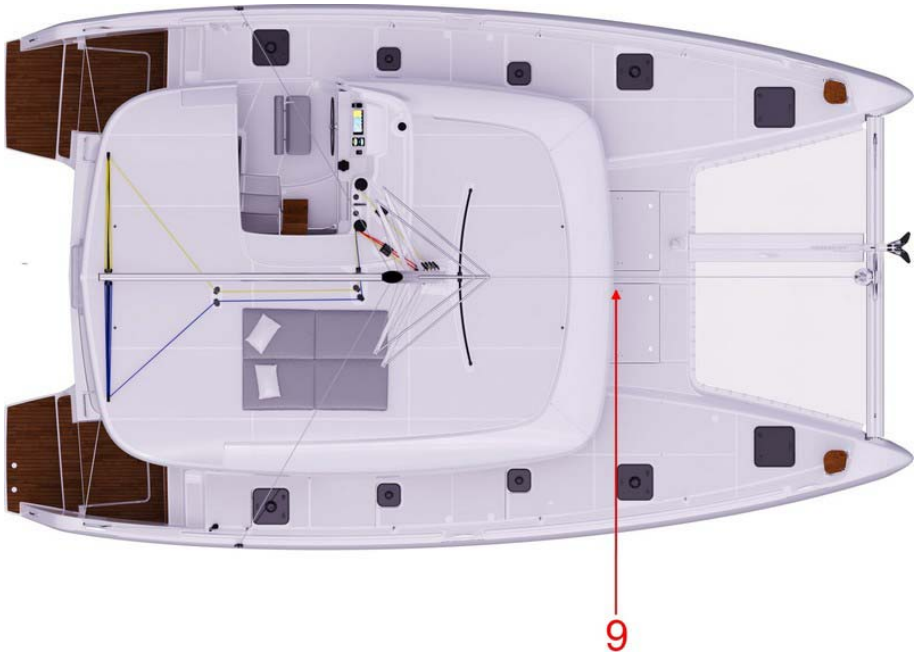
- modify the elecrical system of the vessel or the relevant diagrams: It is important that installation, maintenance and any modifications be carried out by a qualified marine electrician;

- 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;

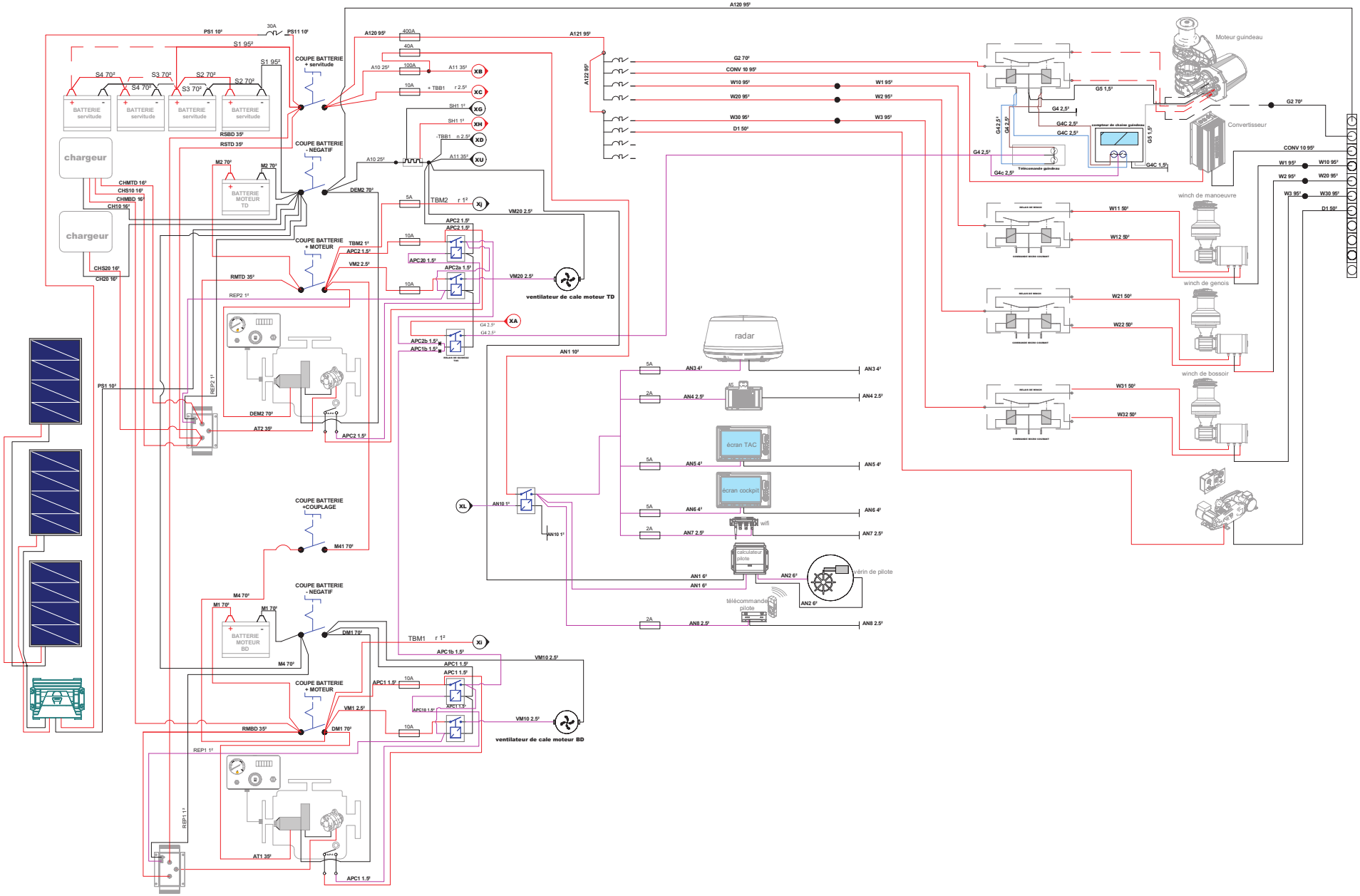
- leave the boat unsupervised when the electrical system is live, apart from when the automatic bilge pump and the boat's fire protection and security system are in use (where installed).

Electrical connections change over time. It is necessary to have the boat's electrics checked regularly and at least once every two years by a professional. Special attention should be paid to the tightness of the electrical connections.



Reference	Designation
1	Battery switches, Coupling, Power distributor
2	Port engine battery
3	Starboard engine battery
4	Battery switches, General fuse (12V)
5	Service batteries
6	Battery chargers, Power distributor
7	Electrical panel, Voltmeter
8	DC breakers
9	Generator battery

8.2 DIAGRAM OF LAYOUT



8.3 DC INSTALLATION (12 V OR 24 V)

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

The boat may also be equipped with:

- a generator powered by its own battery;

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 (where installed).

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

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 bank (standard)

Engine battery: 2 x 110A



Service batteries: 2 x 140A



Spare service batteries: 2 x 140A



Generator battery: 1 x 110A



Gel battery pack (optional)

- Service batteries: 4 x 120A
- Engine battery: 2 x 50A

Maintenance

- 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.
- Keep the batteries charged at all times: this will improve their lifespan.
- Avoid long periods of electrical inactivity (for example when wintering the boat).

Maintenance of lead batteries

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

Charge controller - Batteries
Control screen

Location: Saloon

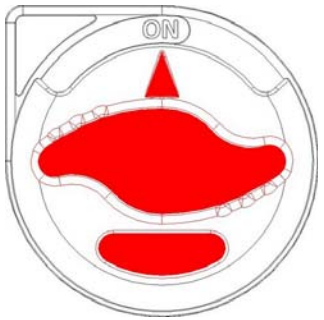


- All work carried out on a battery must only be carried out by someone qualified to do so. Whenever working on a battery, wear safety goggles and protective clothing.
- Never smoke or produce a spark near a battery: this may cause an explosion.
- If any acid accidentally splashes on your skin or in your eyes, rinse it off immediately and thoroughly with fresh water. See a doctor immediately.
- Never touch the battery terminals: you may suffer an electric shock.
- Refer to the manufacturer's instructions for use and maintenance.
- **IT IS ESSENTIAL THAT YOU DISCONNECT THE BATTERY CHARGER BEFORE DISCONNECTING THE BATTERY TERMINALS FOR MAINTENANCE (EITHER BY DISCONNECTING THE AC SHORE POWER SOCKET OR BY CUTTING THE AC CIRCUIT BREAKER OF THE BATTERY CHARGER).**

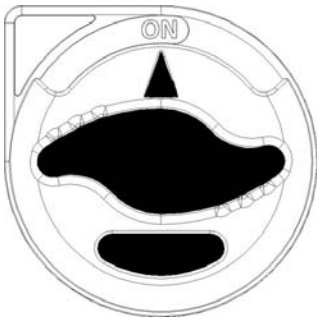
8.3.2 Battery switches

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

Positive isolator switch



Negative isolator switch



Port engine compartment



1. Battery breaker - "positive terminal - engine" - Port
2. Common battery negative isolator
3. Connection of the battery bank

Starboard engine compartment



4. Battery breaker - "positive terminal - engine" - Starboard
5. Common battery negative isolator
6. Battery switch "service positive"

8.3.3 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 provide 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 indicator lights up green.

Power: 150A

Location: Port and starboard engine compartment





8.3.4 Connection of the battery bank

If one of the engine batteries is low on power, use the battery link function by actuating the linking system.

Location: Port aft cabin



<u>Coupling handle</u>

Put the handle in the emplacement provided. Turn the handle to connect the coupling circuit when starting the engine. Remove the handle once the engine is running.

8.3.5 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.

Capacity: 2 x 40A

Location: Starboard engine compartment





Operation

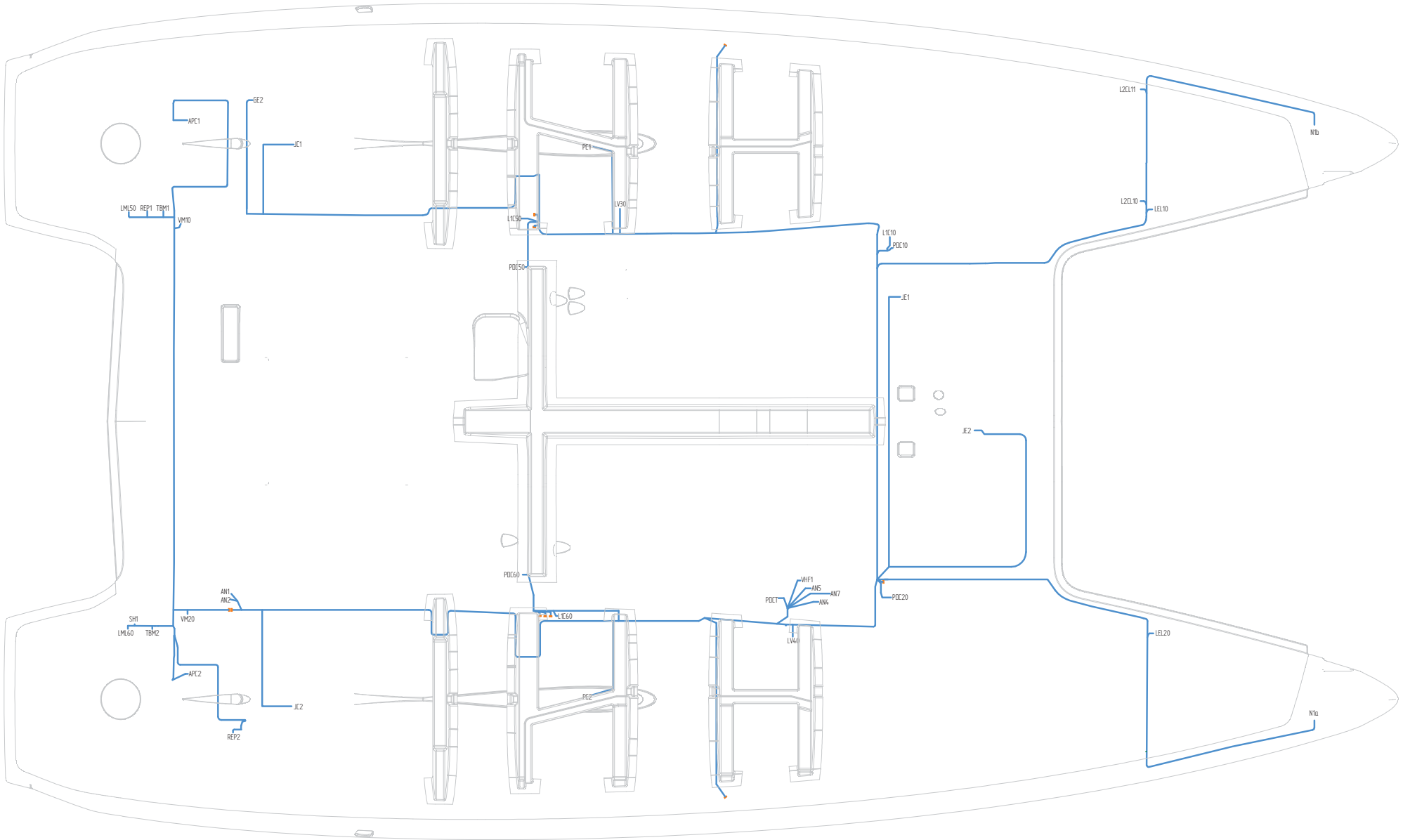
- The charger runs fully automatically. It can stay permanently connected to the batteries and does not need to be disconnected when starting the engine.
- In some electrical circuits, there may be battery chargers coupled in parallel.

Maintenance

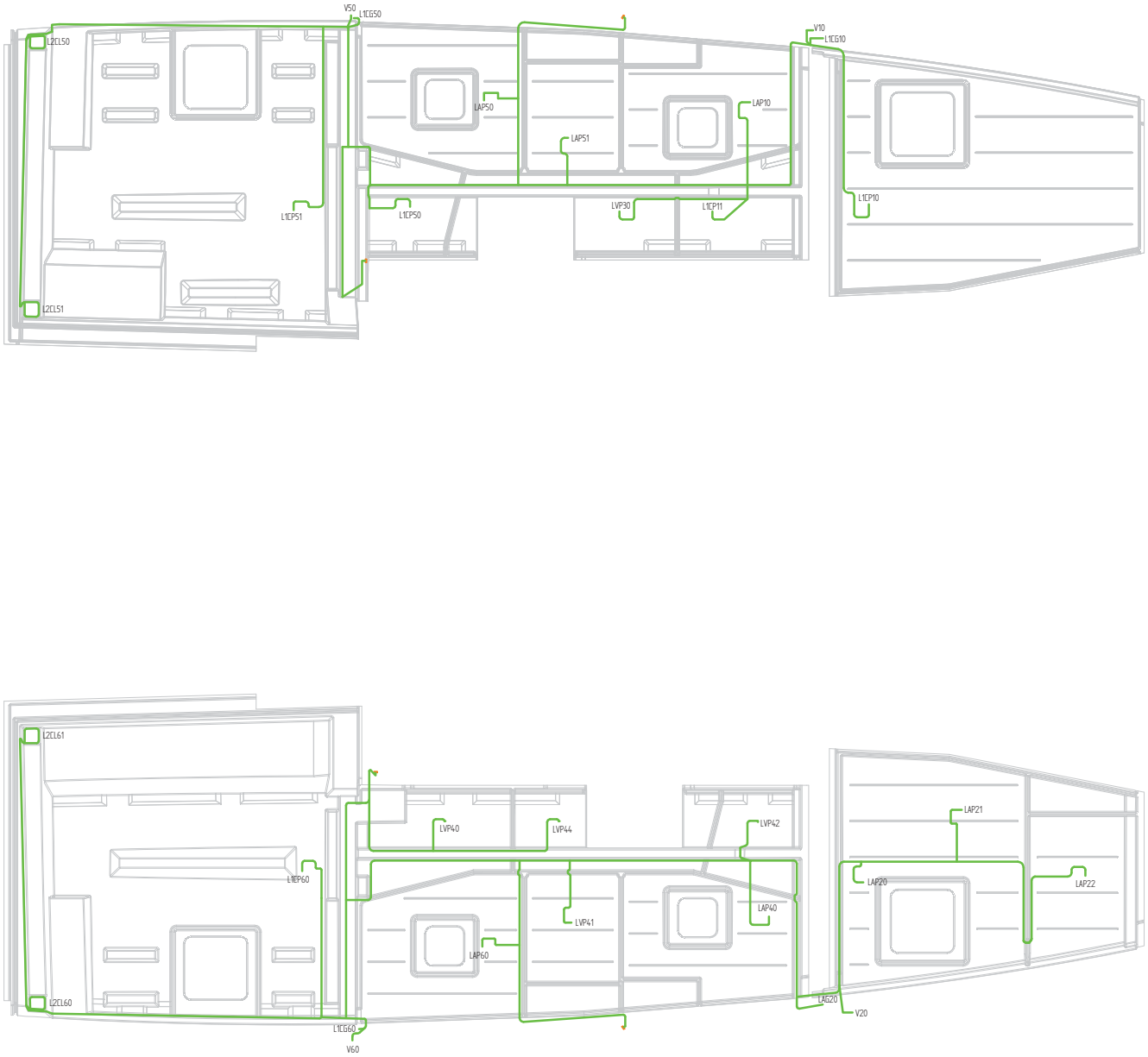
- Before doing any maintenance, cut the AC supply.
- Regularly vacuum out any dust particles which may accumulate in the charger. An annual check of the tightness of the nuts and bolts is necessary to ensure the correct operation of the charger.

IT IS ESSENTIAL THAT YOU DISCONNECT THE BATTERY CHARGER BEFORE DISCONNECTING THE BATTERY TERMINALS FOR MAINTENANCE (EITHER BY DISCONNECTING THE AC SHORE POWER SOCKET OR BY CUTTING THE AC CIRCUIT BREAKER OF THE BATTERY CHARGER).

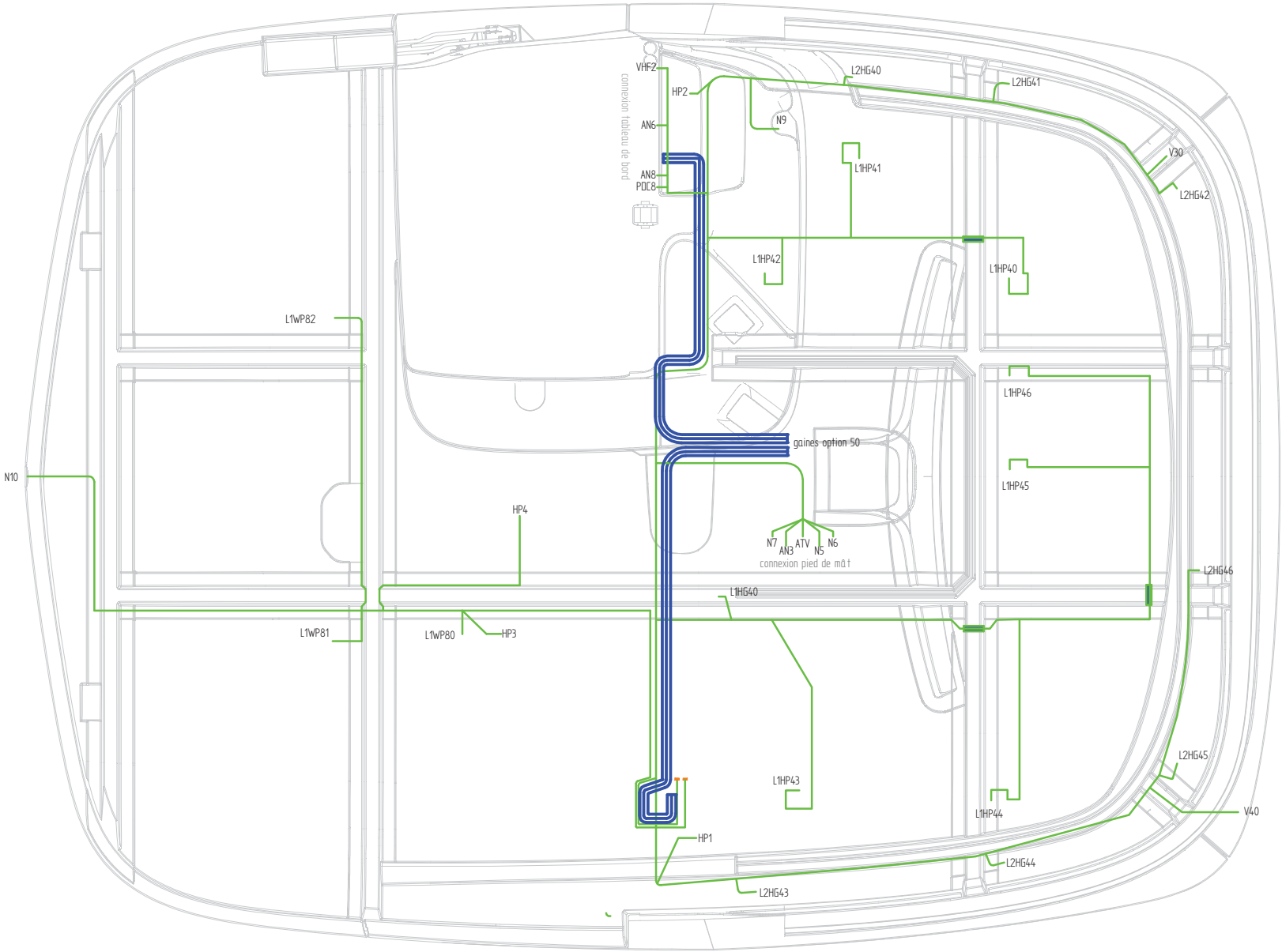
8.3.6 Layout of hull wiring looms - DC circuit



8.3.7 Layout of deck wiring looms - DC circuit



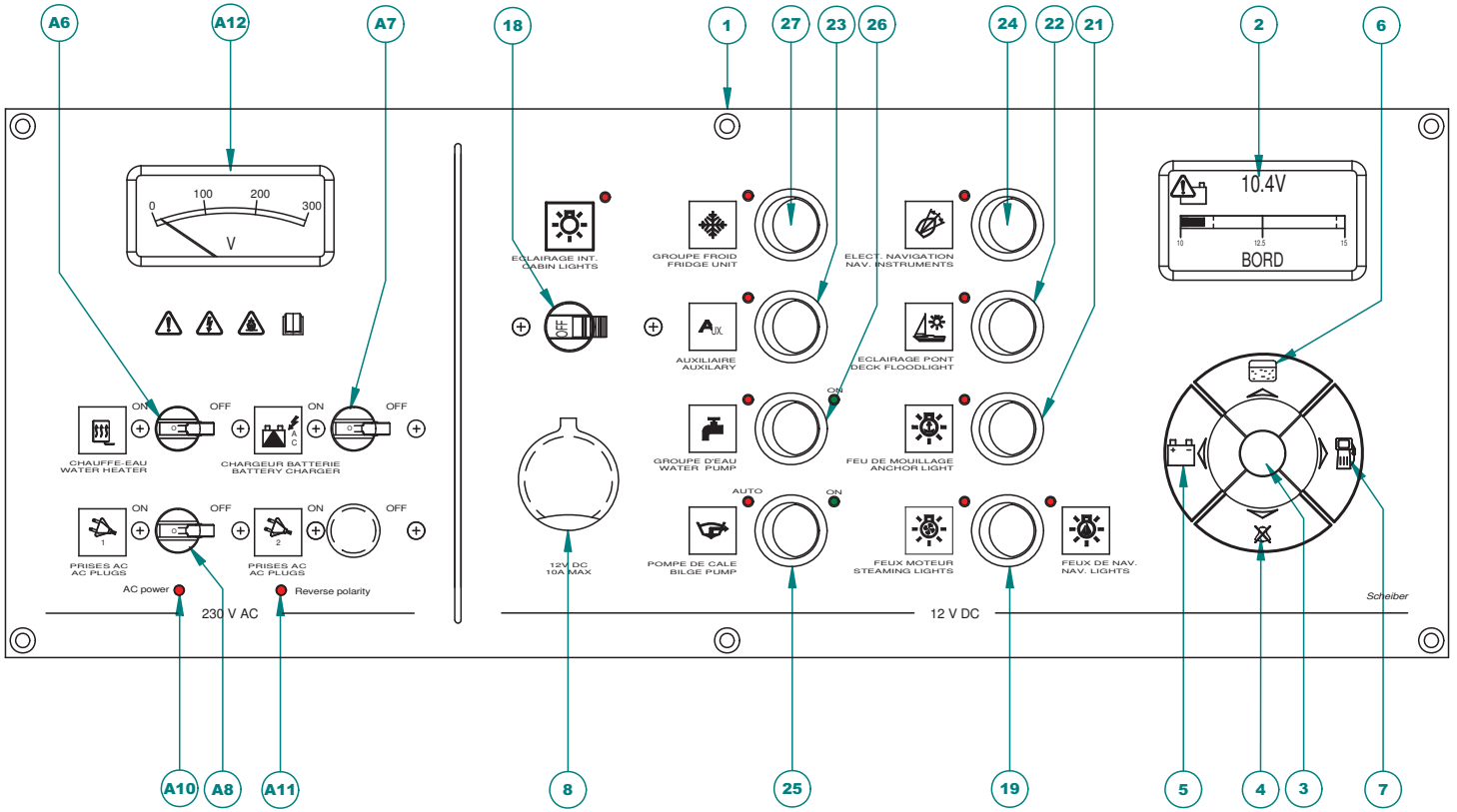
8.3.8 Layout of roof wiring looms - DC circuit



8.3.9 Electrical panel

Location: Starboard passageway





Reference	Designation
1	Electrical panel
2	Multi-function display
3	Change over switch - voltmeter inlet / Water gauge / Fuel oil gauge
4	Contrast selector
5	Voltmeter selector
6	Water meter selector
7	Fuel meter selector
8	12V DC socket electrical panel
18	"Interior lighting" general circuit-breaker
19	"Navigation light/ engine light" switch
21	"Anchor light" switch
22	"Deck lighting" switch
23	"Auxiliary" switch (option)
24	"Navigation electronics" switch
25	Switch - bilge pump
26	Switch - water unit
27	"Refrigerated unit" switch
A6	bipolar circuit breaker "water heater"
A7	bipolar circuit breaker "battery charger"
A8	Bipolar circuit breaker "AC sockets"
A10	Live shore power line warning light - "Shore Power"
A11	Warning light - reversal of polarity
A12	Voltmeter

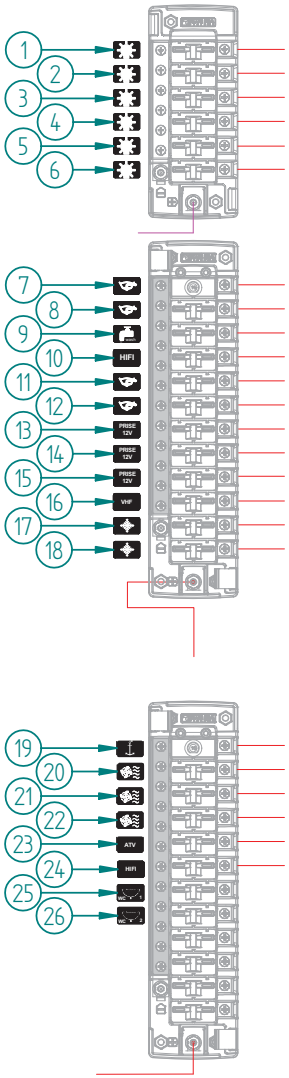
8.3.10 Circuit breakers

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

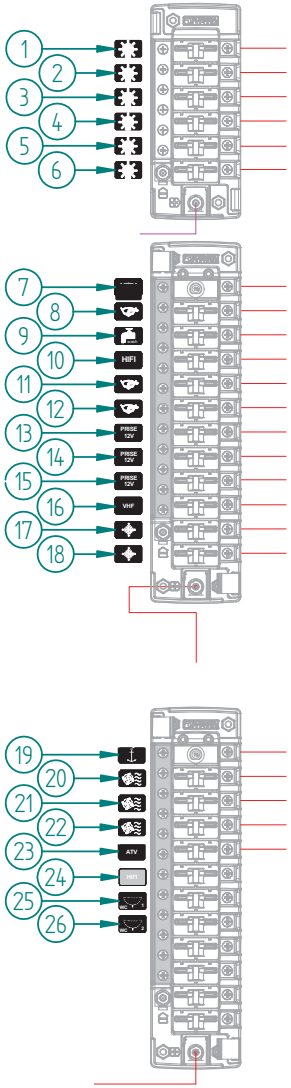
Location: Saloon
(Under map table)



3-cabin layout



4-cabin layout



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

20A 15A 10A 5A 3A

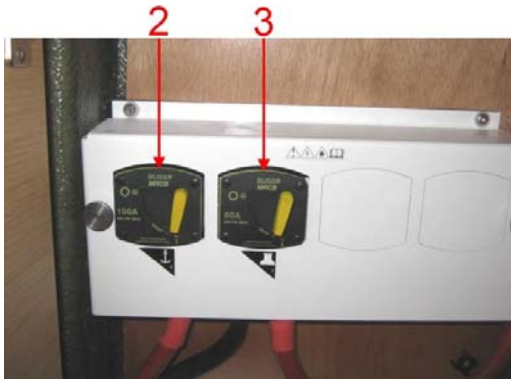
Reference	Designation	
1	Lighting: Port forward	
2	Lighting: Port aft	
3	3-cabin layout: Lighting: forward / Starboard centre	4-cabin layout: Lighting: forward / Central - Starboard aft
4	Lighting: Starboard aft	
5	Lighting: Starboard side	
6	Lighting: Starboard centre	
7	3-cabin layout: Shower pumps: Starboard forward	4-cabin layout: Shower pumps: Central / Starboard aft
8	Shower pumps: forward / Port aft	
9	Pump for deck washing	
10	HiFi - saloon	
11	Port electric bilge pump	
12	Starboard electric bilge pump	
13	12V socket: Cabins - forward / Port aft	
14	12V socket: Cockpit & Electrical panel	
15	12V socket: Cabins - forward / Starboard aft	
16	VHF / AIS	
17	Cooler	
18	Fridge in cockpit	
19	Electric windlass	
20	Ventilators: Cabins - forward / Port aft	
21	Ventilators: Central - Port / Starboard	
22	Ventilators: Cabins - forward / Starboard aft	
23	TV Antenna	
24	3-cabin layout: Hifi - AFT owner's cabin	4-cabin layout: Unused
25	Electric toilet - Port	
26	Electric toilet - Starboard	

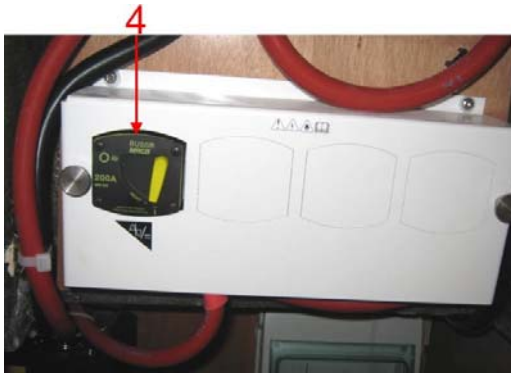
Location: Starboard engine compartment



1. Breaker - Solar panels

Location: Starboard passageway





2. Breaker - Electric windlass
3. Breaker - Port electric primary winch
4. Breaker - DC/AC converter

8.3.11 Fuses

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

General circuit fuse - 12V

Location: Starboard engine compartment



8.4 AC SYSTEM (110 V OR 220 V)

8.4.1 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 (where installed):
    - Air conditioning,
    - Household appliances,
    - Water heater,
    - Interior AC sockets,
    - Battery charger(s).

<u>Guidelines for using the AC electrical system correctly</u>

- Do not modify the vessel's electrical installations or the relevant diagrams. Installation, maintenance and modifications must be carried out by an electrician qualified in marine electricity. Have all electrical installations checked (tightening and connections) every year.
- Disconnect the boat's shore power when the system is not in use.
- Connect the relay boxes or metal casings of the installed electrical equipment to the boat's protective conductor (green or green with yellow stripe).
- 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).

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

- Never let the end of the boat/shore supply cable hang in the water: This may result in an electric field that could injure or kill nearby swimmers.
- Incorrect use of alternating current systems will result in a danger of electrouction.
- Do not work on a live AC system.

To reduce the risk of electric shock and fire:

- Turn off the shore supply with the onboard cut-off switch before connecting or disconnecting the vessel/shore supply line.
- Connect the boat/shore power cable on the boat before plugging it into the socket onshore.
- Disconnect the boat/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 boat/shore power cable: only use compatible connections.

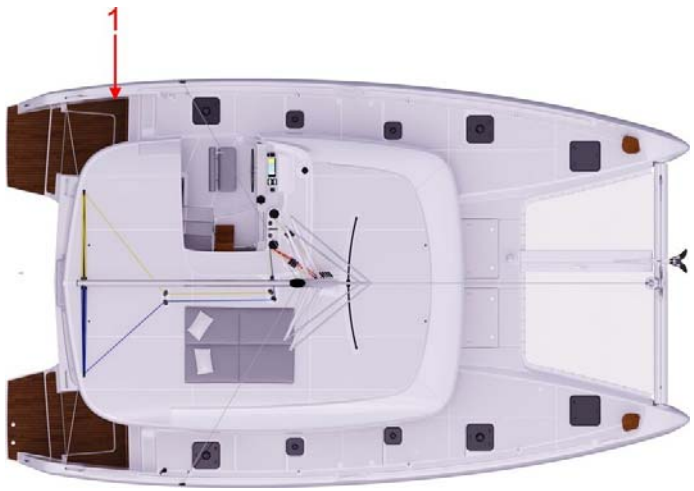
DO NOT MODIFY THE CONNECTIONS OF THE BOAT/ SHORE POWER CABLE.

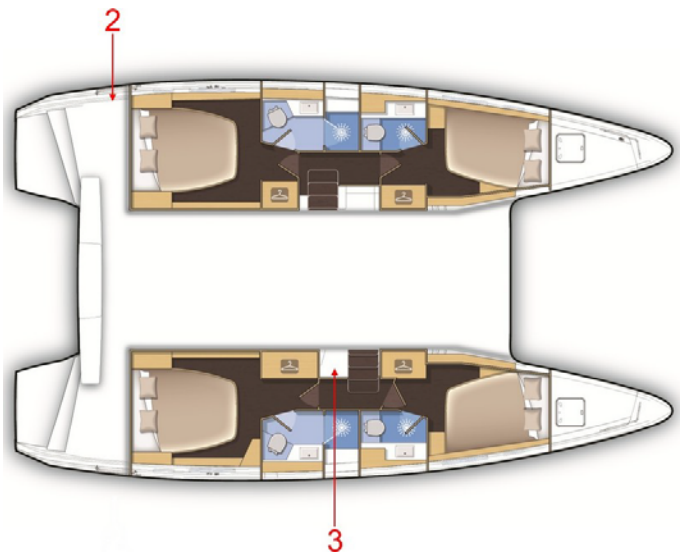
Electrical connections change over time. It is necessary to have the boat's electrics checked regularly and at least once every two years by a professional. Special attention should be paid to the tightness of the electrical connections.

Every month, you are advised to test the circuit breaker or residual current differential switch, recognisable by its "test" button.

8.4.2 AC shore socket

LOCATION OF COMPONENTS





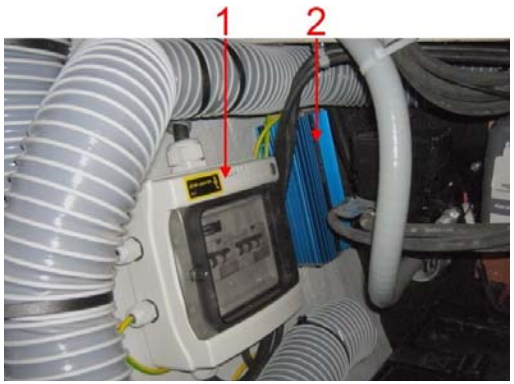
Ref 1:
AC shore socket - General



Ref 2 (Europe Version):
Bipolar circuit breaker (Protection)



Ref 2 (US Version)



1. Bipolar circuit breaker - onboard & Air conditioning
2. Galvanic isolator

Ref 3:
Differential switch - On-board AC (Operation)



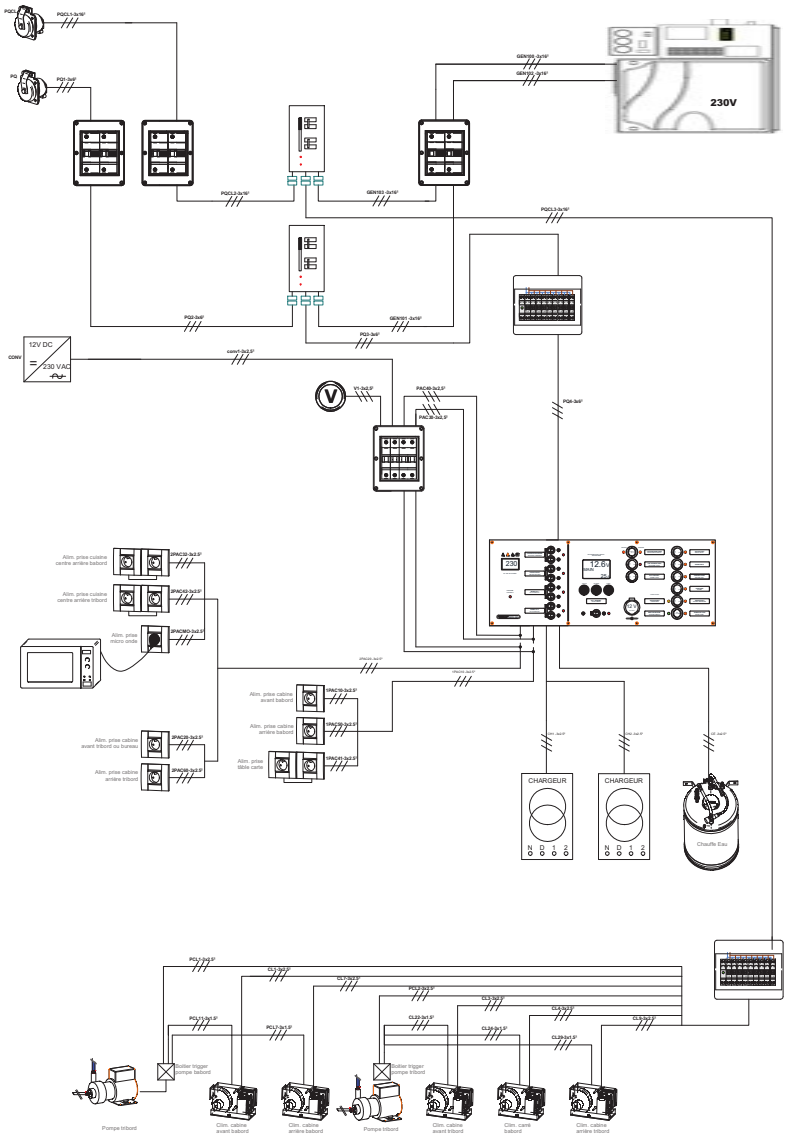
Operation

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

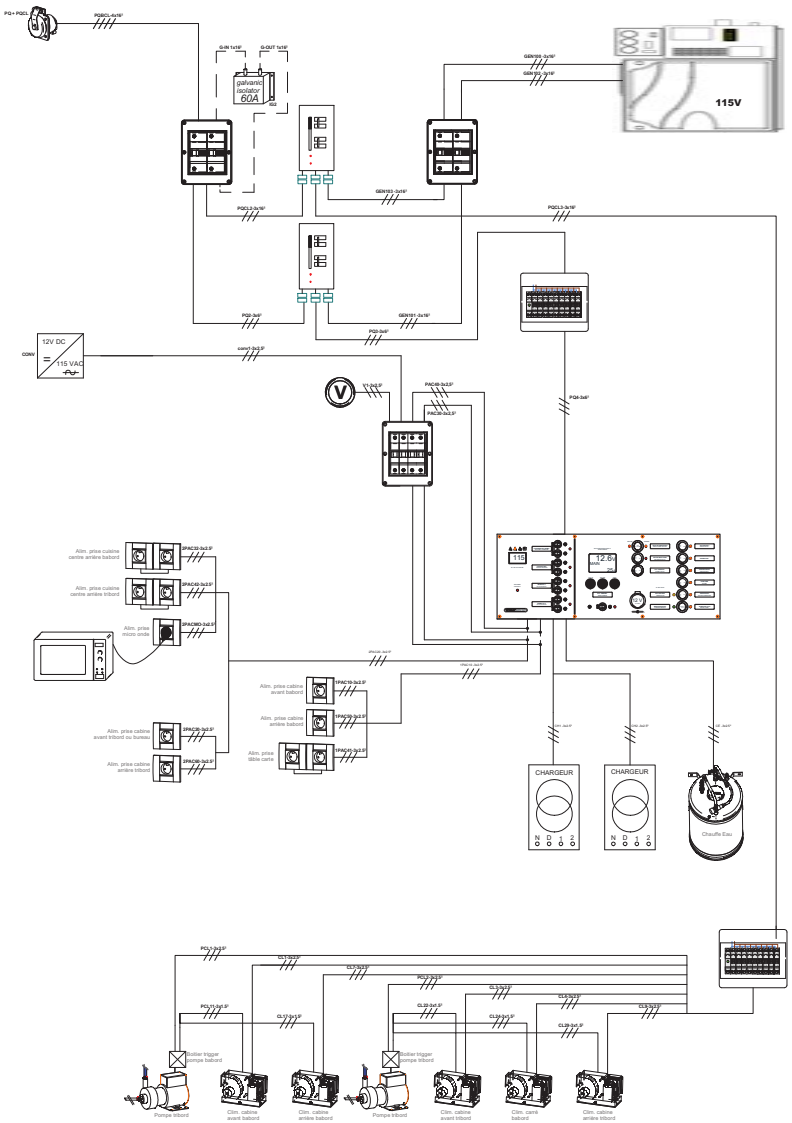
8.4.3 Diagram of layout

AC ELECTRICAL SYSTEM

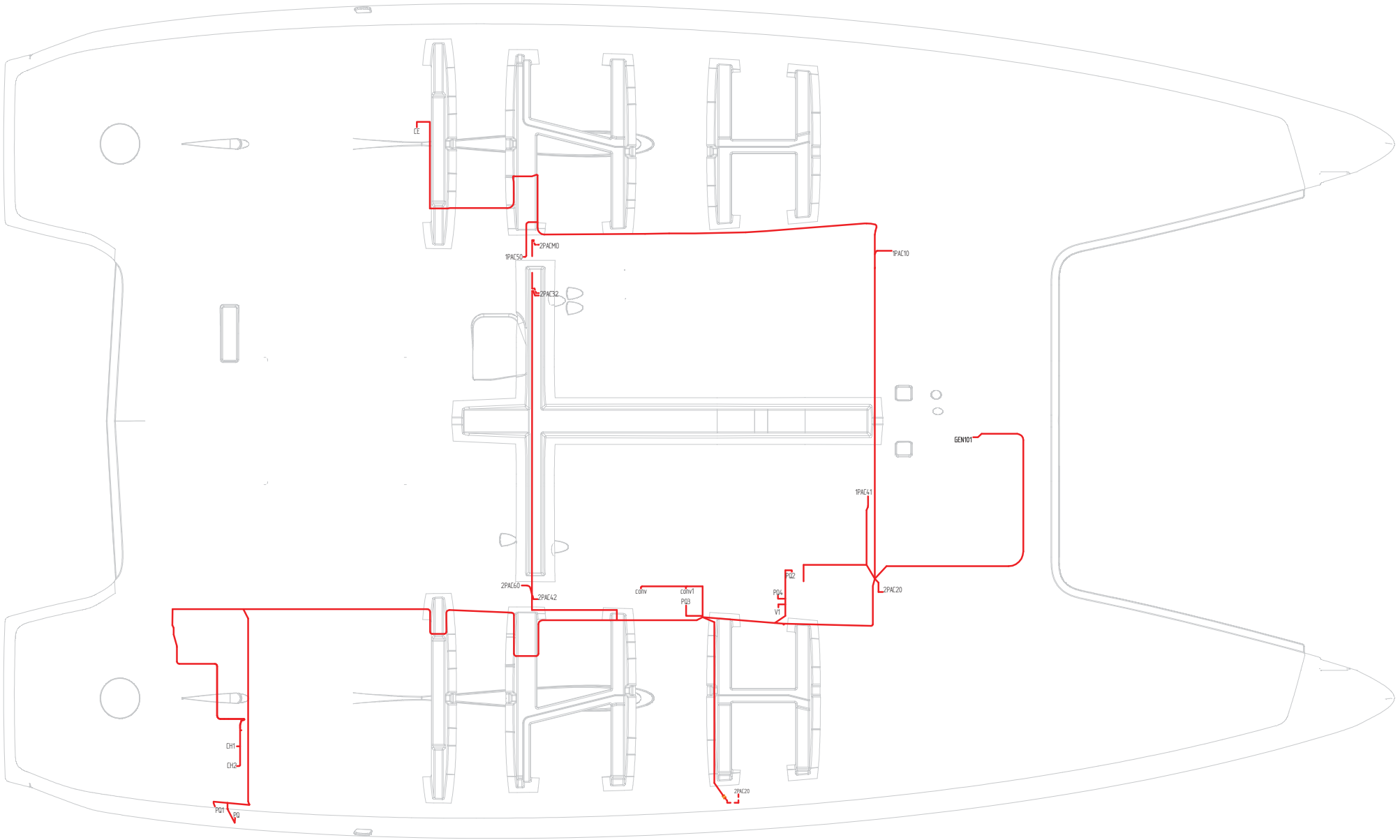
Europe Version & Brazil Version



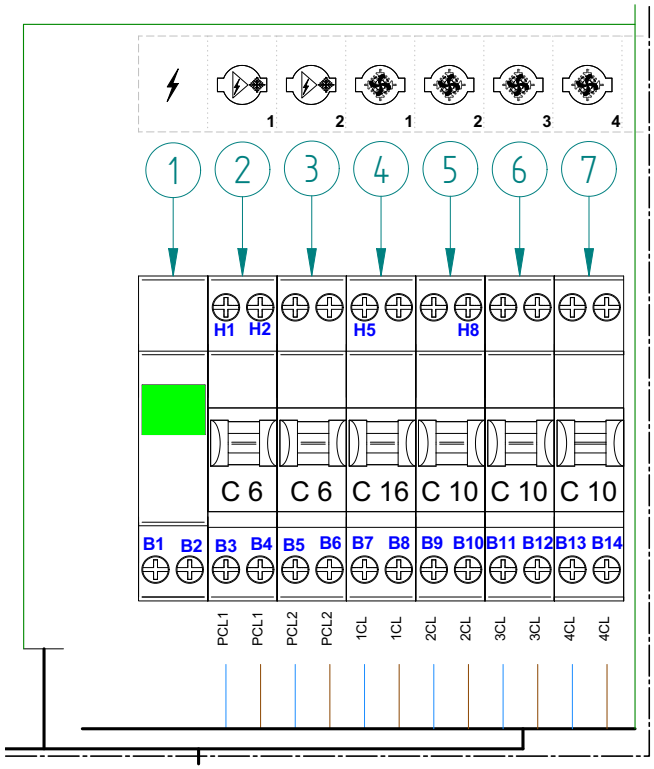
US Version



8.4.5 Bundles installation - Hull - AC circuit



Air conditioning:





from left to right:

1. Mains power
2. Seawater pump (Port)
3. Seawater pump (Starboard)
4. Compressor (Port forward)
5. Compressor (Saloon)
6. Compressor (Port aft)
7. Compressor (Starboard aft)

LIQUEFIED PETROLEUM GAS (LPG) SYSTEM

9

- General points 106
- Operation of the LPG system 108
- Verification of the LPG system 108
- Diagram of layout 111

9.1 GENERAL POINTS

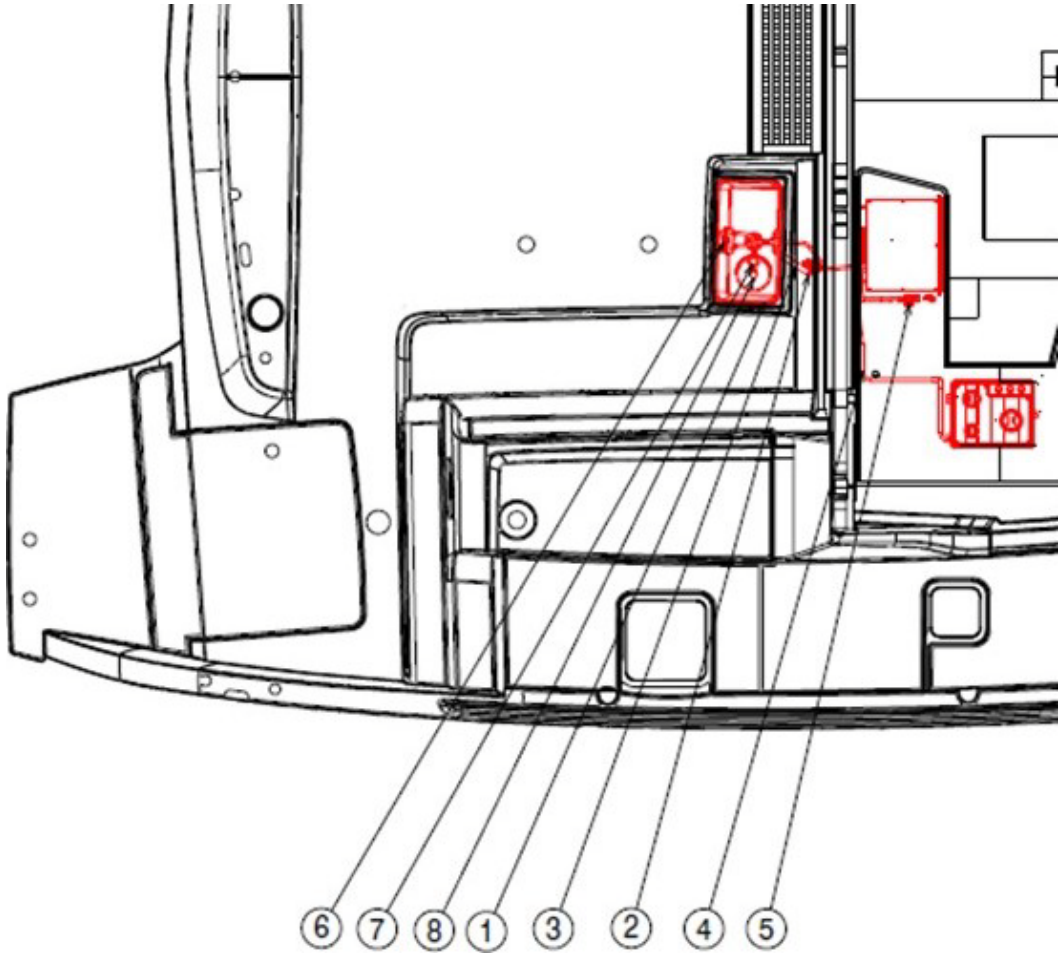
- The working pressure of the LPG unit is 28 millibars.
- Recommended cylinder capacity:

  Europe Version: 2,75 kg of butane.

  US Version: 10 lb of propane.

- Have the hoses, the entire LPG system and the flue pipes in the LPG system inspected professionally and regularly (or at intervals determined by the national requirements of the country in which the boat sails), and have them replaced if damage is detected.
- Taps attached to empty cylinders must be closed and disconnected. Protective covers, lids or caps must be held in place. Spare bottles must be stored outside on the boat and protected from weather and mechanical damage. If a gas leak occurs, it is essential that the gas escapes outside.
- Do not impede access to the components of the LPG system.
- Do not use the housings or the LPG bottle lockers to store other equipment.
- Check the vent pipes at least once a year. Replace them if they have deteriorated or split.

Location of components



Reference	Designation
1	Gas cylinder locker
2	Thru-hull fitting
3	Drain
4	Gas system
5	Gas supply valve
6	Bubble tester
7	bubble gas leak detector
8	Gas cylinder

9.2 OPERATION OF THE LPG SYSTEM

- Valves for supply lines and cylinder valves must be closed when appliances are not in use, before changing a cylinder and immediately in case of emergency.
- Appliance valves must be closed before opening the cylinder valve.
- Ventilation is necessary when appliances that consume oxygen from inside the boat are used.
- If the stove is not suspended by gimbals, it should not be used when wide roll angles or continuous listing are likely.
- Please refer to the manufacturer's notes for the use and maintenance of the LPG cooker.

9.3 VERIFICATION OF THE LPG SYSTEM

The LP system should be tested for leakage before each use in any of the following ways:

- If the LPG circuit is equipped with a pressure gauge:

  Before each use, close the appliance valve, open the LPG cylinder valve, allow the pressure gauge to stabilize, close the LPG cylinder valve and observe the pressure indicated by the pressure gauge near the LPG cylinder for 3 minutes. The pressure indicated by the manometer should be constant if there is no leak in the system.

  The pressure indicated by the manometer should be constant if there is no leak in the system. If bubbles are observed in the detector liquid, there is a leak.

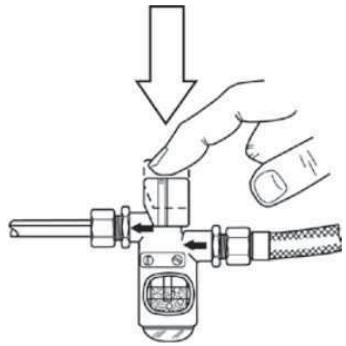
  NOTE: The pressure gauge only indicates vapour pressure, which is a constant at a given temperature. It gives no indication of the amount of LPG remaining in the cylinder..

- If the LPG circuit is equipped with a bubble leak detector, use it as follows:

  Regularly observe the bubble leak detector.

  OR

  Once the installation is pressurised and stabilised, press the detector push button. The installation is not leaking if bubbles do not appear in the detector liquid. If bubbles are observed in the detector liquid, there is a leak.



- Carry out a manual search by applying a foaming solution, soapy water or a detergent (with the burner taps closed and the installation and gas bottle taps left open). Foaming solutions for detecting leaks in gas installations conforming to EN 14291 are adequate for these requirements.

- If an LPG leak is detected or suspected, immediately take the following measures:
    - Cease use of all LPG appliances;
    - Disconnect the LPG supply from the supply valve(s);
    - Extinguish all naked flames and other sources of ignition (heaters, cooking appliances, pilot lights, etc.);
    - Do not operate electrical switches;
    - Evacuate the area if possible.

NOTE: Leak tests carried out by the boat user are not a substitute for regular and complete checks of the LPG circuit by a competent professional.



To ensure sufficient ventilation, make sure that you open the hatches or ports near the hotplate when using it.

<u>To change an LPG bottle</u>

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.

- If a leak or fire from an LPG tank is detected, close the main LPG supply valve and do not use LPG appliances.
- Do not use an installation with a leak before it has been inspected and repaired by a competent person.
- Do not modify the boat's LPG system. Installation, modification and maintenance should be carried out by a qualified individual. Have the system checked at regular intervals or as prescribed by national requirements.
- Never use a naked flame to check for leaks.
- Do not use a hotplate or an oven to heat the living areas.
- Fuel-burning equipment with a naked flame consumes the oxygen in the cabin and leaves combustion residue in the boat. Ventilation is necessary when this equipment is used.Open the vents provided for this purpose when using this equipment. Do not use a hotplate or an oven to heat the living areas. Never obstruct the openings provided for ventilation.
- Ventilation requirements have been calculated for LPG appliances as installed. Additional ventilation openings may be required if other appliances are installed in addition to these (please consult a professional).
- 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 to replace it.

- Do not use solutions containing ammonia when testing for leaks manually (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 contact with the ammonia).

Gas cylinder locker (Europe Version)





Gas cylinder locker (US Version)



Cooking equipment (Europe Version)





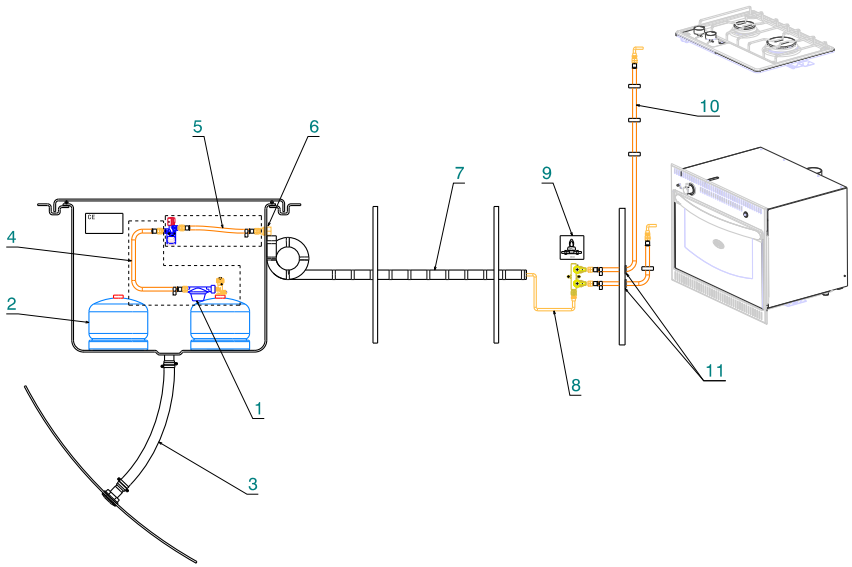
Gas supply valve (Europe Version)





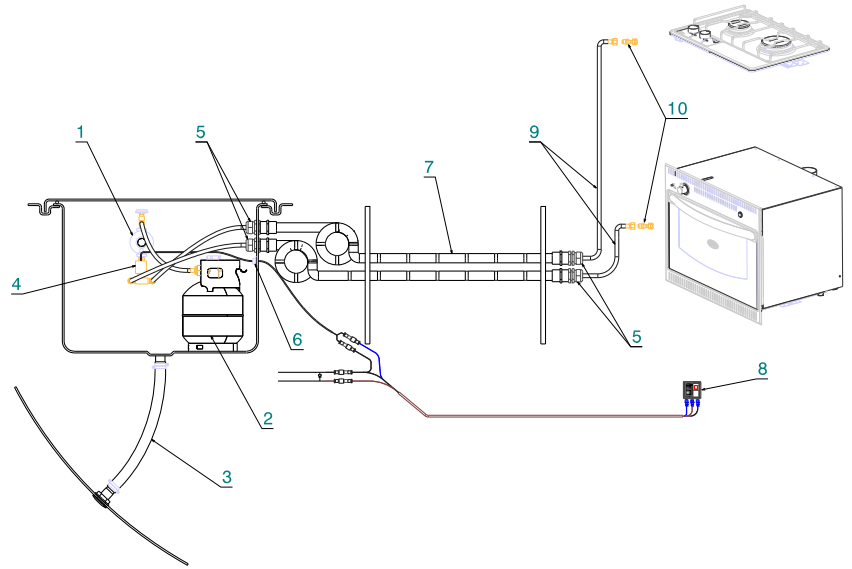
9.4 DIAGRAM OF LAYOUT

Europe Version



Reference	Designation
1	Regulator valve
2	Gas cylinder
3	Drain
4	Gas bottle connection kit
5	Bubble tester kit
6	Rubber washers
7	Ringed PVC sheath
8	Copper gas connection kit
9	Label
10	Gas appliance connection kit
11	Bulkhead fitting

US Version



Reference	Designation
1	Regulator valve
2	Gas cylinder
3	Drain
4	Electromagnetic valve (12V)
5	Bulkhead fitting
6	Wire passage
7	Ringed PVC sheath
8	Solenoid switch
9	Plastic propane pipe
10	Gas appliance connection kit

DOMESTIC APPLIANCES

10

- Fridge..... 114
- Microwave 117
- Washer..... 118

10.1 FRIDGE

General points

- The fridge comprises 3 components: the compressor, the evaporator and the condenser. These components are connected by a closed 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 must be strictly avoided.
- 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 selection of the desired temperature setting for the inside of the fridge.
- The refrigration power can be affected by:
    - The ambient temperature,
    - The quantity of food to chill,
    - The frequency with which the door is opened.

Maintenance

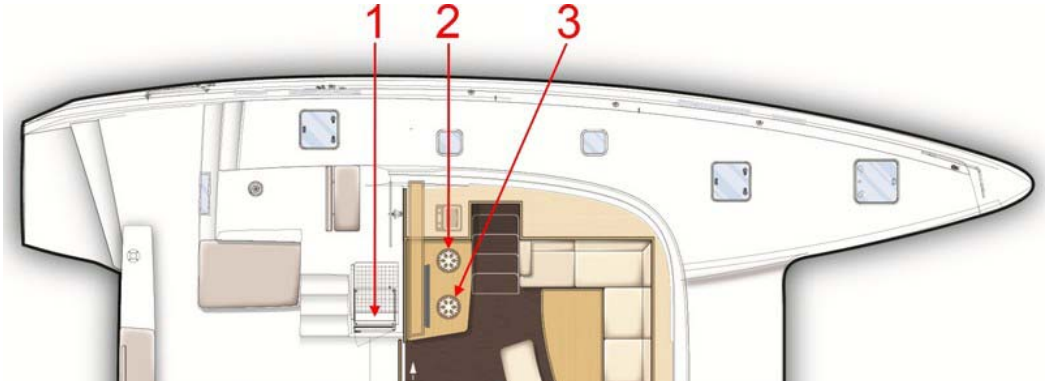
- Clean the evaporator with a damp cloth at least once a year. Never use cleaners which are abrasive or acidic, or which contain solvents, for cleaning the evaporator.
- Regularly clean the fridge/icebox door seal with a damp cloth.
- Regularly defrost the fridge.
- When winterising the boat, leave the fridge door/icebox cover open to prevent mould and odours 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 (doing so may damage the interior surface).

- Never obstruct the heat exchanger of the fridge.





Ref 1: Fridge - Cockpit (Positive temperature)

Closed	Open
	

Ref 2: Freezer (Negative temperature)





NOTE: The control is located directly inside the device.

Ref 3: Fridge (Positive temperature)

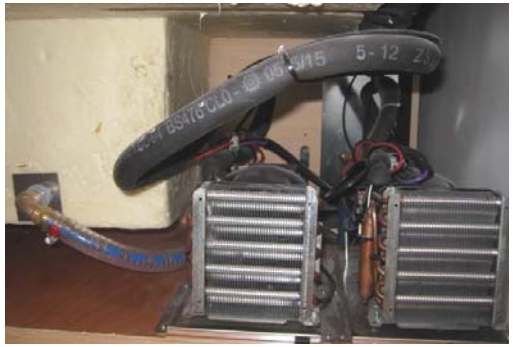
Fridge





NOTE: The control is located directly inside the device.

Refrigeration unit
Access: Port aft cabin

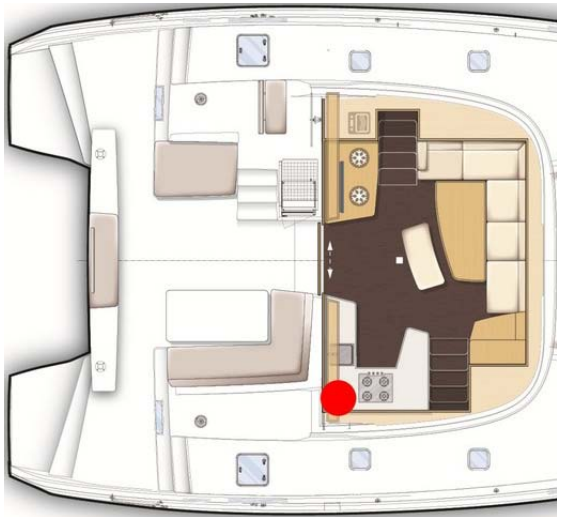


10.2 MICROWAVE

General points

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

Location





Starting up

- Use the switch to select the desired power source (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.

ONBOARD COMFORT

12

- Air conditioning 126
- Electronic equipment 133
- Fuel-burning equipment for purposes other than propulsion (Generator, Heating) 139

12.1 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 seawater temperature exceeds 13°C.
- In winter, you can programme the dehumidifier function on the air conditioning controls.
- The refrigeration compressors are made by one or two seawater pumps. These pumps are run on AC voltage and are master controlled by one or two relay boxes.
- Seawater is drained via a through-hull fitting equipped with a valve, located above the waterline. Each compressor has its own through-hull drainage 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;
- Make sure that the control panel is in the STOP position;
- 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 approximately 3 minutes.

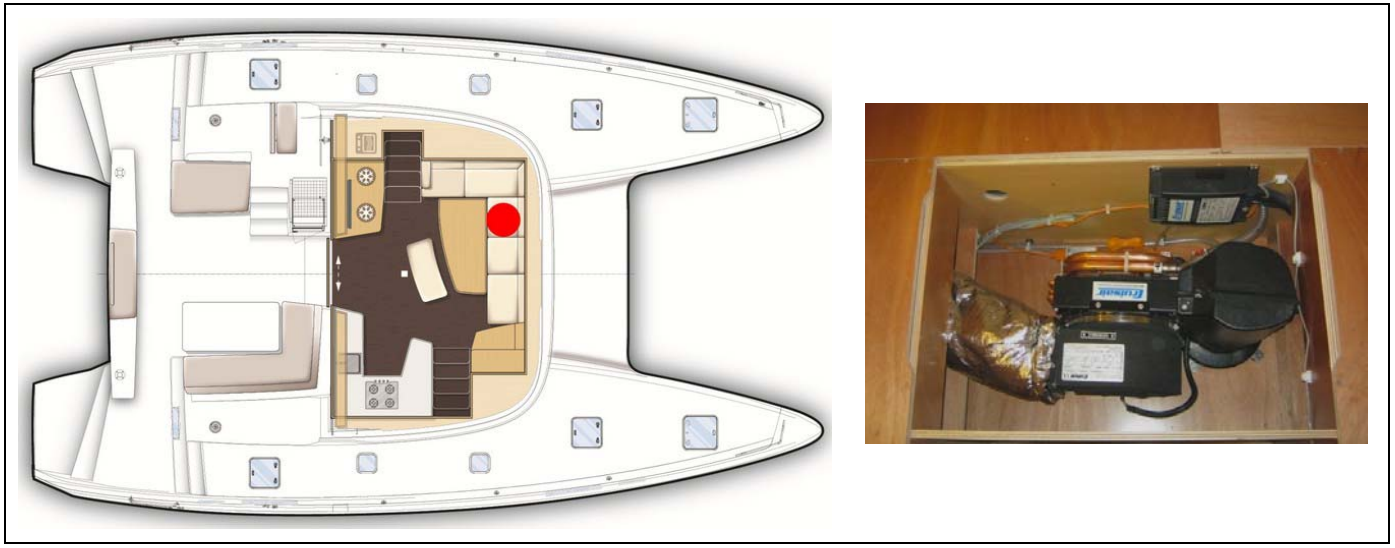
If the seawater pump is deprimed (eg. in case of running aground), carry out the following procedure:

- Disconnect the discharge hose from the seawater pump by loosening the 2 stainless steel collars;
- Blow air through the pipe using a compressor;
- Re-connect the discharge hose with 2 stainless steel collars.

When the air conditioning is running:

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

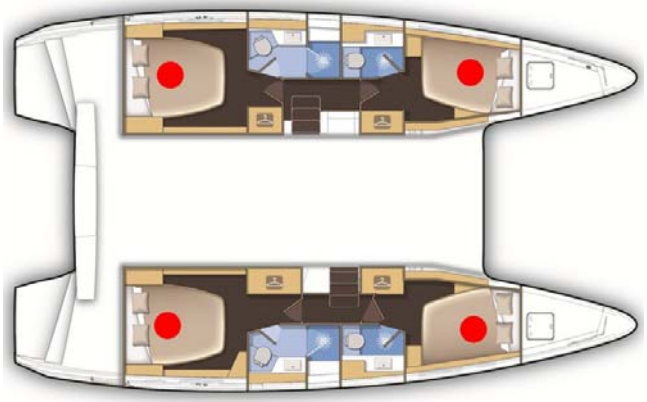
COMPRESSORS - LOCATION



3-cabin layout



4-cabin layout



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

- When the air conditioning is running, check visually that the seawater has been fully drained.

- Never start the generator when the air conditioning is already on.

- Always turn off the air conditioning before turning off the generator.

- Regularly check and clean the seawater filter placed on the thru-hull seawater intake.

  - Close the seawater intake valve;
  - Unscrew the top of the filter;
  - Clean the filtering screen;
  - Put everything back in place.

- Clean the air filter (located in the compressor) regularly for maximum performance.

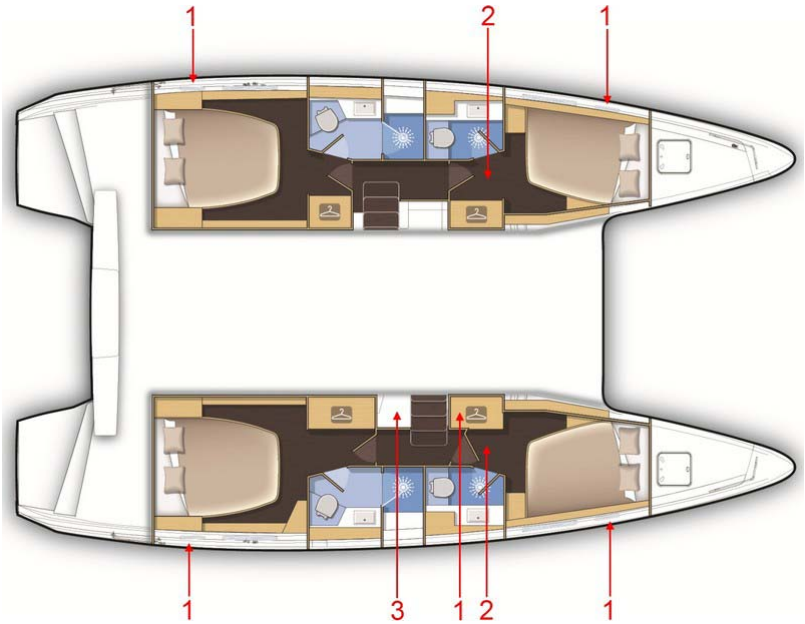
- Clean the cooling coil at least once a year.

- To prevent the air-conditioning circuit from freezing: never run the system when the seawater temperature drops below 5°C.

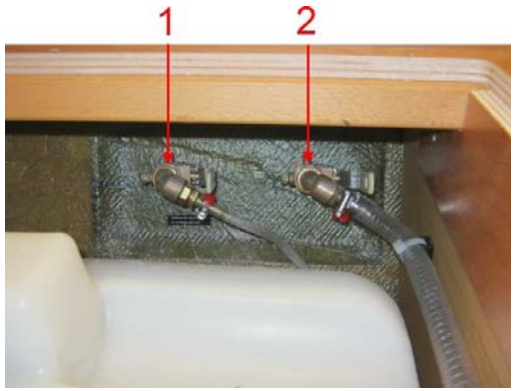
- Winterisation: drain the whole seawater system.

- The cooling gas circuit requires no maintenance.

LAYOUT OF COMPONENTS



Ref 1: Seawater drainage



1. Condensation water drainage
2. Seawater drainage

Ref 2: Seawater intake

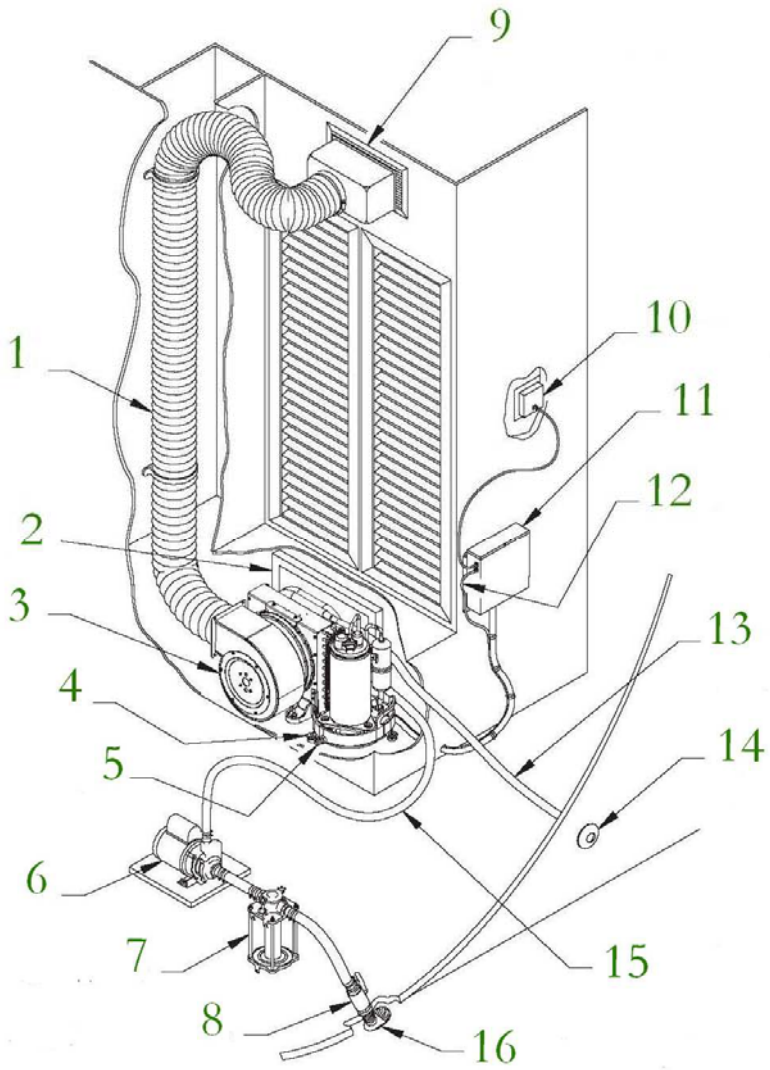


1. Seawater pump
2. Seawater filter
3. Seawater intake

Ref 3
Location: Starboard passageway



1. Circuit breakers - Air conditioning (see Chapter: AC BREAKERS)
2. Relay box (Seawater pump)

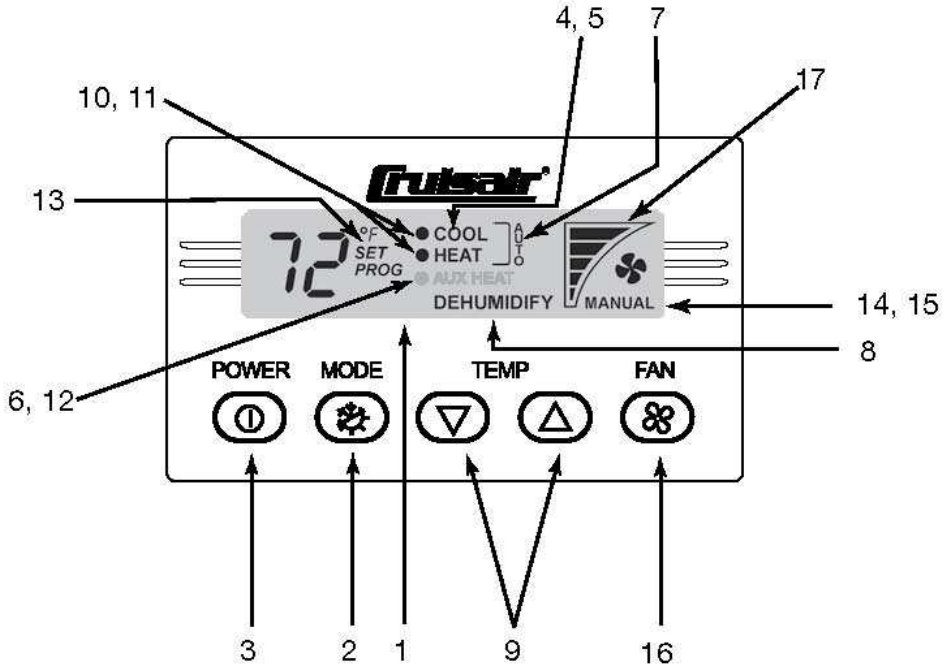


Reference	Designation
1	Insulated pipe
2	Ambient air intake
3	Refrigeration unit
4	Mounting support
5	Condensation water pipe
6	Seawater pump
7	Filter
8	Seawater supply valve
9	Conditioned air outlet
10	Manual control
11	Relay box
12	Temperature sensor
13	Seawater drainage pipe
14	Thru-hull fitting
15	Seawater supply
16	Seawater intake filter

Air-conditioning controls

Please refer to the key on the following page





Manual control of the air-conditioning

1. Data display
Screen displaying desired temperature, programmed values and error messages.

2. MODE
Enables navigation between the different operating modes.

3. POWER/OFF
Lights up 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. Option (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. + and - keys
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. Option (Auxiliary heating).

13. Temperature control indicator
This indicates the temperature control setting (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 current ventilator speed.

NOTES

- When the system is in dehumidifying mode, the system's safety devices remain active: if there is an interruption in the flow of seawater or a drop in AC voltage, the system automatically stops.

- In cooling mode, the system works efficiently when the seawater temperature is below 30°C.

- In heating mode, the system works efficiently when the seawater temperature is above 13°C.

- It is important to switch the system to HEATING mode at least once a month to prevent the changeover cock from becoming stuck in the COOLING mode.

LOCKING METHOD

- It is possible to lock the control buttons to prevent settings from being changed accidentally: Press these three buttons simultaneously: MODE, UP (arrow pointing up), FAN.

LC appears on the screen, which signifies "LOCK".

- To unlock and resume use of the buttons, press the same three buttons simultaneously: 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), touching any button automatically and instantly lights the screen up blue.

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

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

Procedure:

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

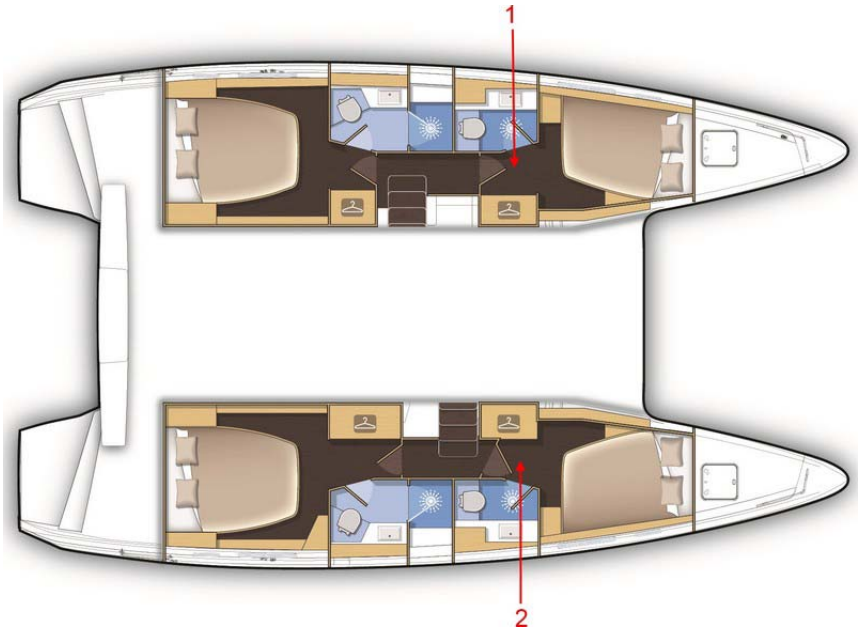
12.2 ELECTRONIC EQUIPMENT

The onboard electronics are powered by direct current.

Control: Electrical panel

Sensors

Location of sensors:



- Before strapping the boat when taking it out of the water, be sure to remove the probes from their housing to prevent the lifting strap from damaging them.
- Close the hull opening by the cap for this purpose (supplied with the probes).

Ref 1: DST800 Sensor



Ref 2: Forward Scan Sensor



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

Autopilot

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

VHF

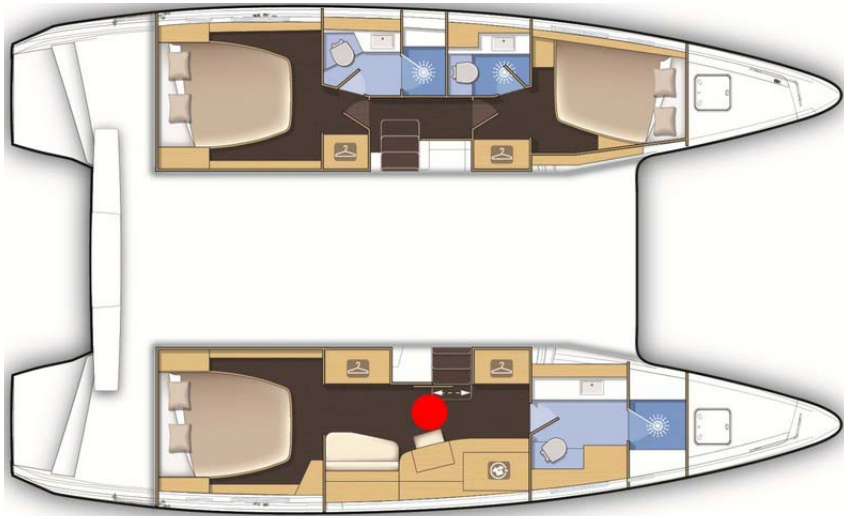
VHF
Location: Chart table



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

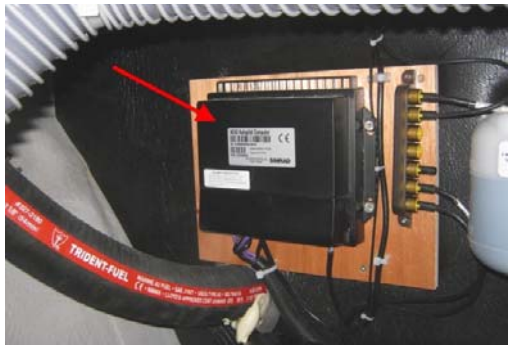
Gyrocompass

Location: Starboard passageway

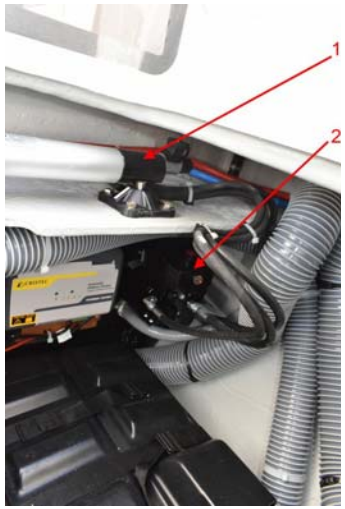




Vessel Management Unit
Location: Starboard engine compartment



Location: Starboard engine compartment



1. Hydraulic piston
2. Tank

Pilot control
Location: Steering station

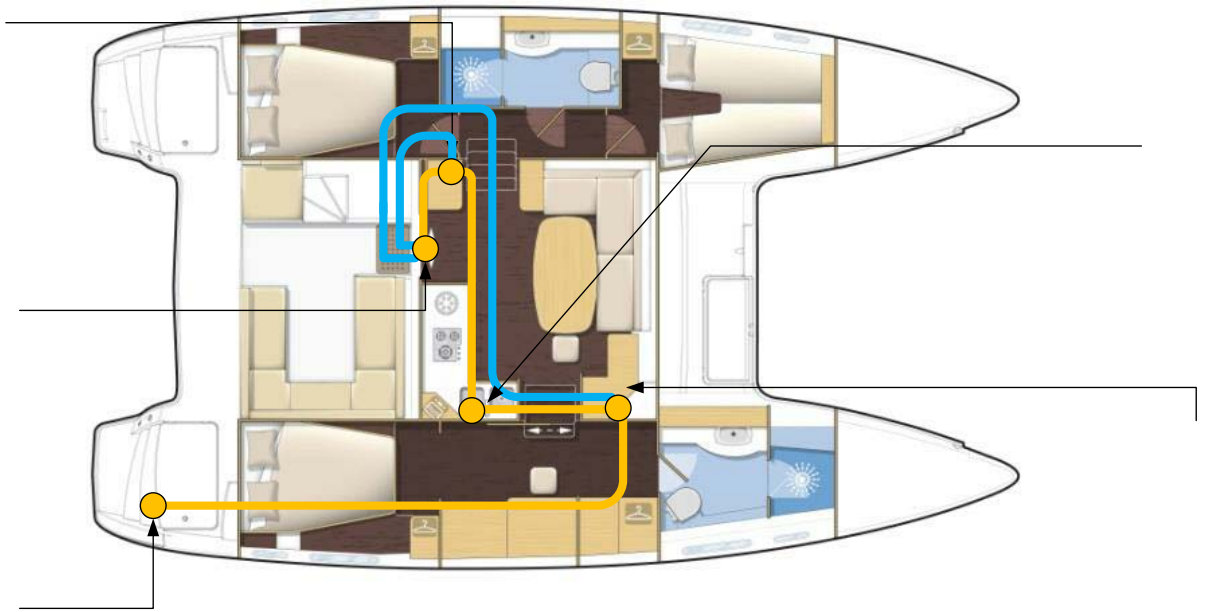


LAYOUT OF COMPONENTS





















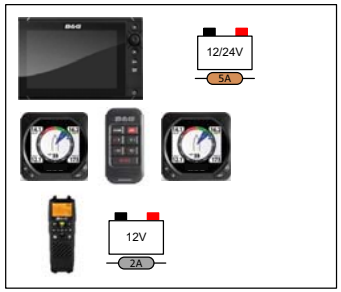








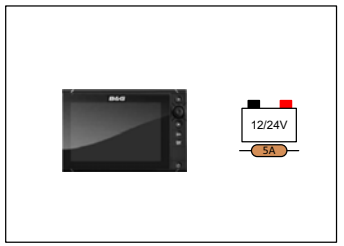


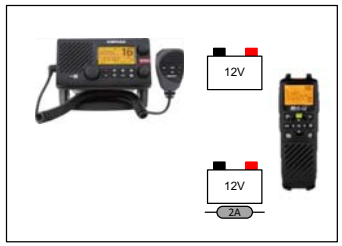

12/24V
5A
12V
2A


B&G






12/24V
5A


12V
12V
2A


B&G

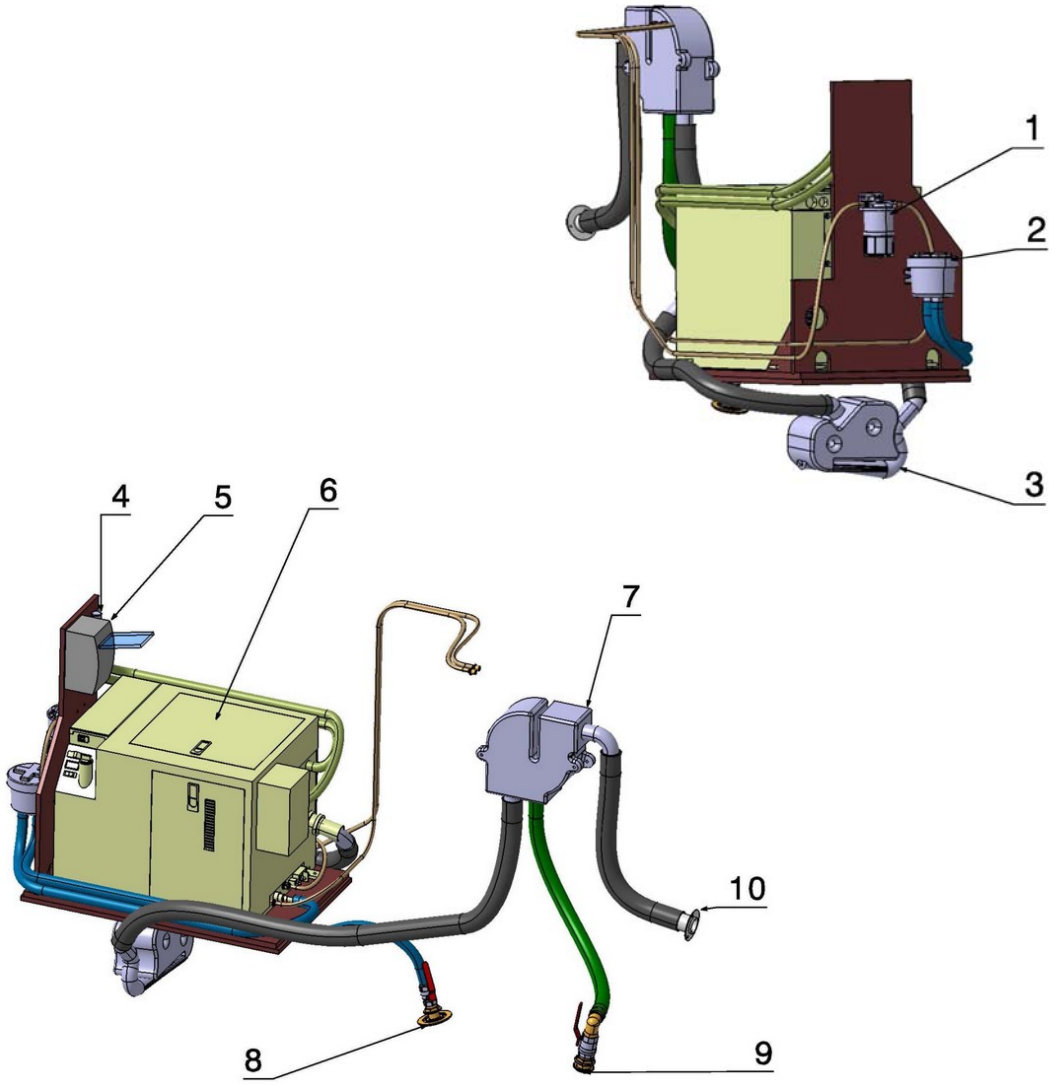
12.3 FUEL-BURNING EQUIPMENT FOR PURPOSES OTHER THAN PROPULSION (GENERATOR, HEATING)

12.3.1 General points

- Make sure that the ventilation openings in the engine (and, if installed, generator) compartment are well-cleared.
- Stop the engine and refrain from smoking while the fuel tank is being filled.
- Have your fuel circuit checked regularly by a professional engineer.
- Avoid any contact between inflammable materials and the hot sections of the engine.
- Take all necessary precautions to avoid contact with naked flames and other hot areas.
- Do not obstruct or modify the ventilation system.
- Fuel stored outside the tanks (jerrycans, portable fuel tanks, etc.) must be stowed on deck and protected from bad weather and mechanical damage.

12.3.2 Generator

DIAGRAM OF LAYOUT



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

General points

- The generator is a machine which can produce AC electrical power using mechanical power (fuel). The generator powers onboard equipment operating at 220V or 110V, moored or sailing.
- The generator starts with its own battery (12V circuit).
- Make sure that there is enough fuel in the fuel tank before using the generator. The generator is supplied with fuel by the port/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 (seawater, coolant, fuel, exhaust gases). If there is a leak, stop the generator at once and have the leak repaired.
- The generator is earthed by an earthing plate which is located under the hull (see Chapter: EARTHING PLATES).
- 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 itself or by the switch on the control panel.

Starting up

- Fill the generator with water to prevent the seawater pump from running dry (refer to the supplier's recommendations).
- 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. Toggle the shore power/ generator switch.

Control - Generator
(on appliance)



Remote control



Master switch - Generator



In the event of the generator catching fire

- Do not open the generator.
- Cut the power 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 port



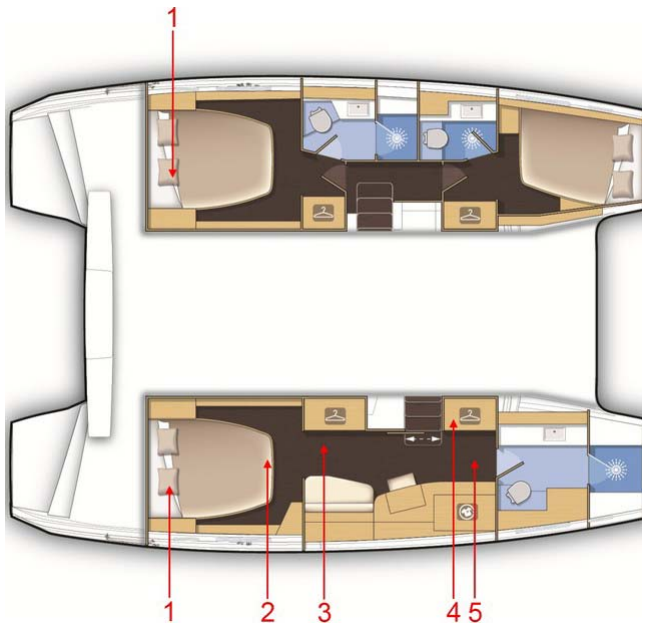
- Refer to the manufacturer's instructions for use of the generator.

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

- Never connect the shore power to the generator: you may suffer an electric shock.

- An extinguisher access port is provided on the generator in the event of a fire starting in the generator.

LAYOUT OF COMPONENTS



Ref 1:
Fuel supply valve



Ref 2:
Tank selection pull



- Lever pushed: Port tank supply
- Lever pulled: Staboard tank supply

Ref 3:
Earthing plate



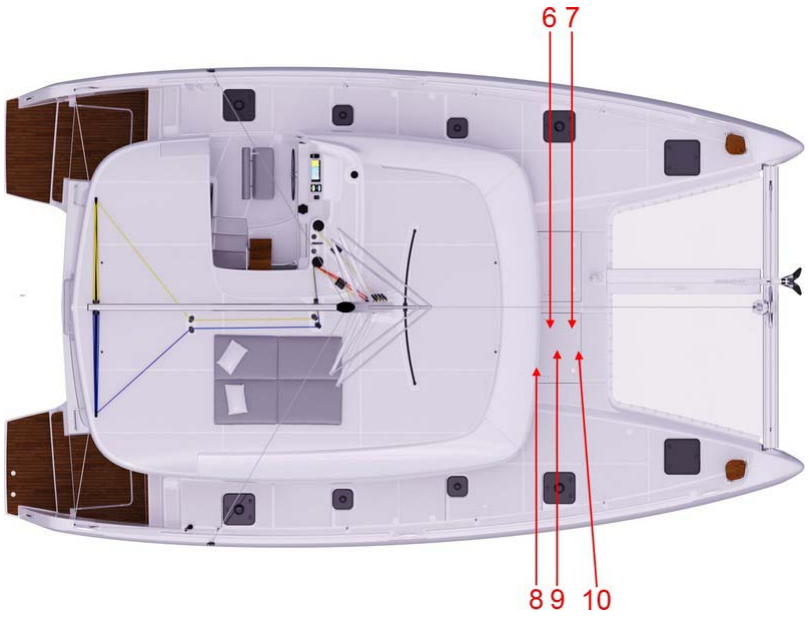
Ref 4: Seawater drainage
Access: Starboard passageway



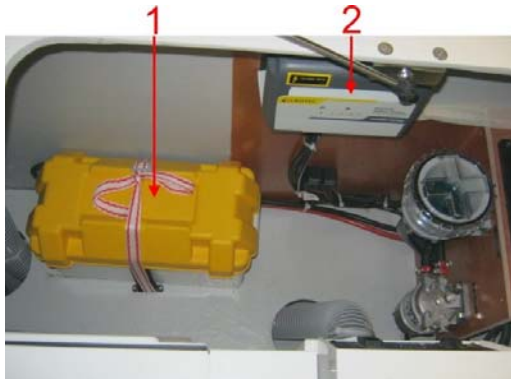
Ref 5: Seawater inlet
Location: Starboard passageway



1. Seawater pump
2. Seawater inlet

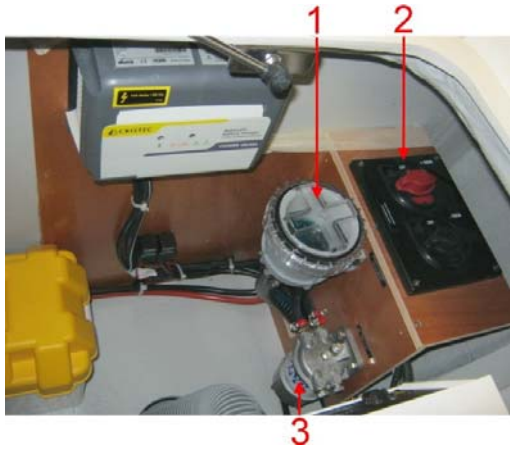


Ref 6



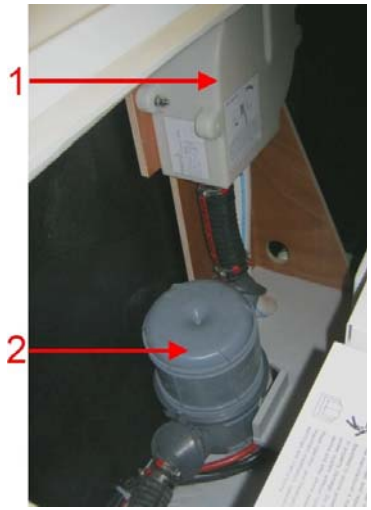
1. Battery
2. Battery charger

Ref 7



1.Seawater filter
2.Battery isolator - Positive& Negative terminal&
3. Fuel filter

Ref 8



1.Water/gas separator
2.Water trap

Ref 9: Generator



Ref 10: Breaker



WATER SYSTEMS

13

- General points 152
- Using a valve..... 153
- Fresh water filling system 154
- Fresh water distribution system 157
- Main plumbing equipment..... 158
- Blackwater system (Toilet) 170
- Waste water system 177

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 non-toxic antifreeze).

- 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.

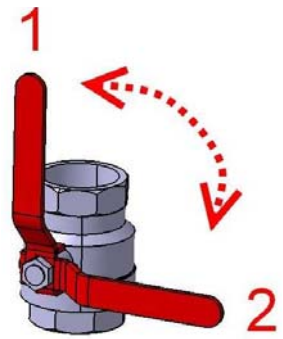
- Disconnect the onshore shore water supply before leaving the boat (if fitted).

- If the boat is sailing in temperatures below freezing, antifreeze can be used in the water systems: use a non-toxic antifreeze for potable water.

NEVER USE AUTOMOBILE ANTIFREEZE: RISK OF POISONING.

13.2 USING A VALVE

The valve is closed 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.



1. Open valve
2. Closed valve

Valves, thru-hull inlets and other brass or bronze fittings have a lifespan of around 5 years. All valves, thru-hull inlets and other brass or bronze accessories must be checked by a professional every year and replaced as necessary.

Using the drainage valve

- The direct-to-sea drainage valve can be sealed by means of the drilled hole on the handle.
- To lock the drainage valve in the closed position: Pass the tightening collar around the drainage valve and feed through the hole in the handle as shown.

- Beware of any unintentional draining.

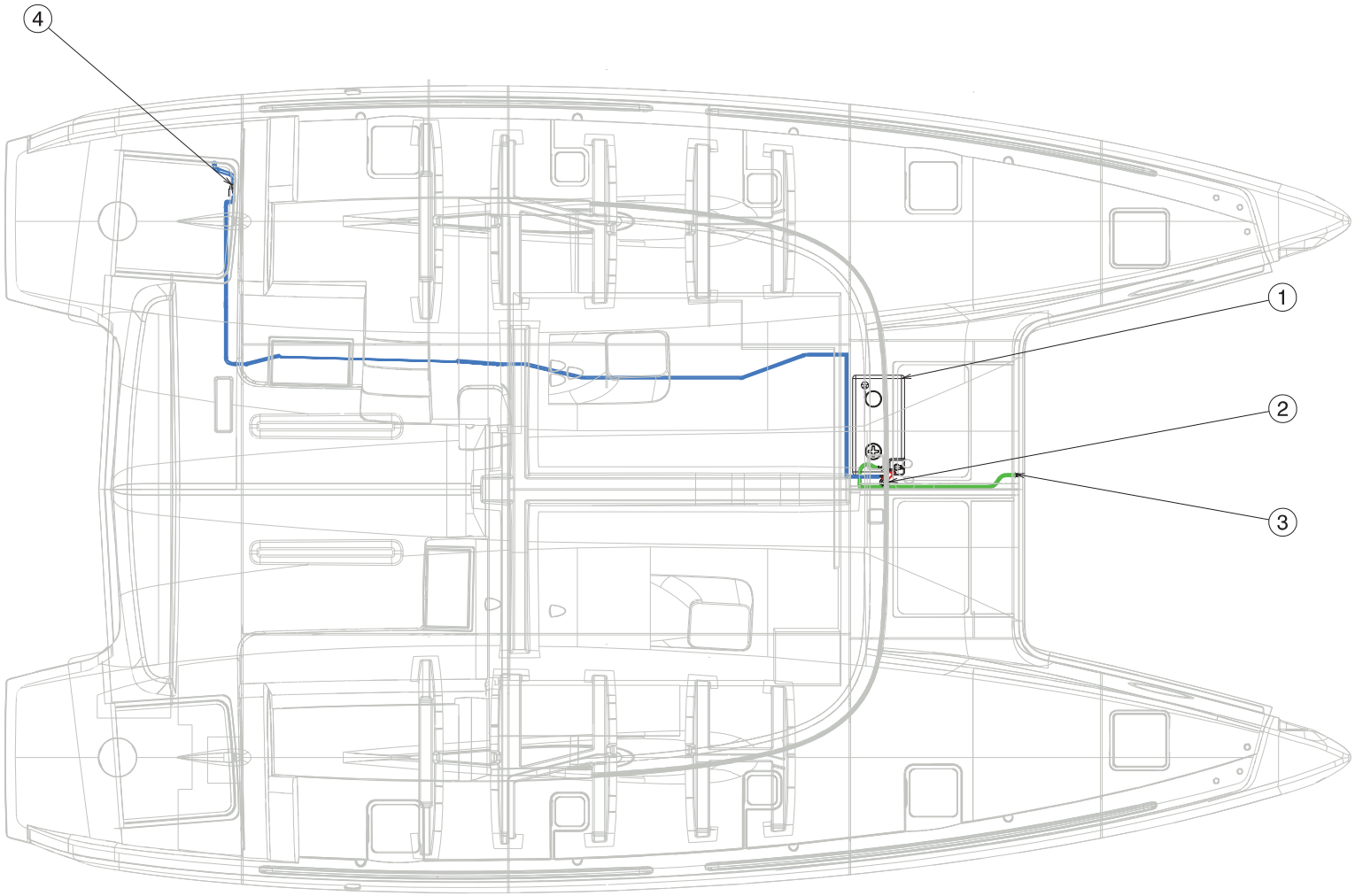
Plastic valve



Bronze valve

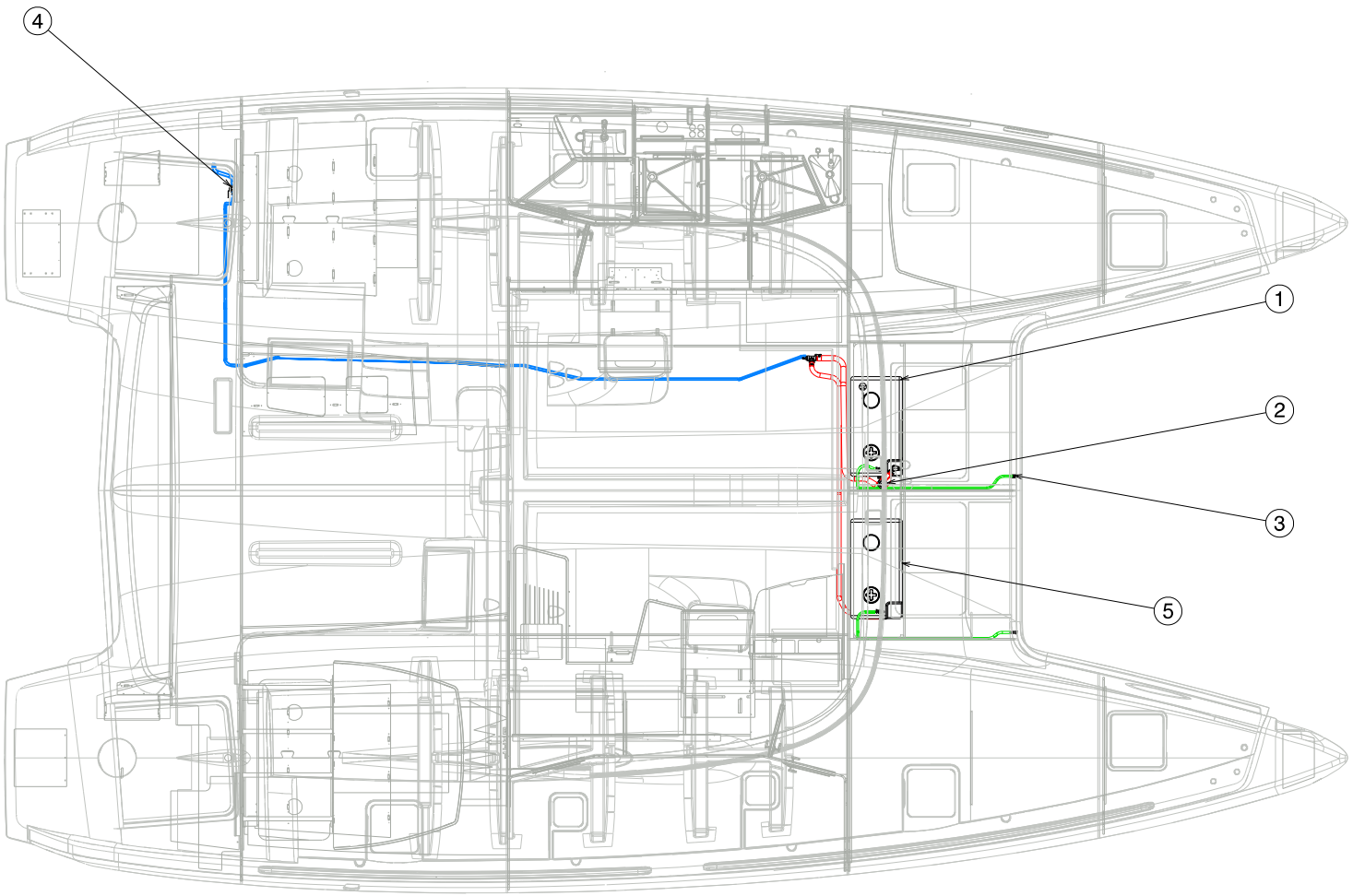


13.3 FRESH WATER FILLING SYSTEM



Reference	Designation
1	Water tank
2	"WATER" deck filler
3	Water tank vent
4	Valve closure

FRESH WATER FILLING SYSTEM - OPTION: EXTRA WATER TANK



Reference	Designation
1	Fresh water tank - Port (option)
2	"WATER" deck fillerVent
3	Vent
4	Valve closure
5	Fresh water tank - Starboard (option)

Water tank (Port)



Gauge: on the electrical panel

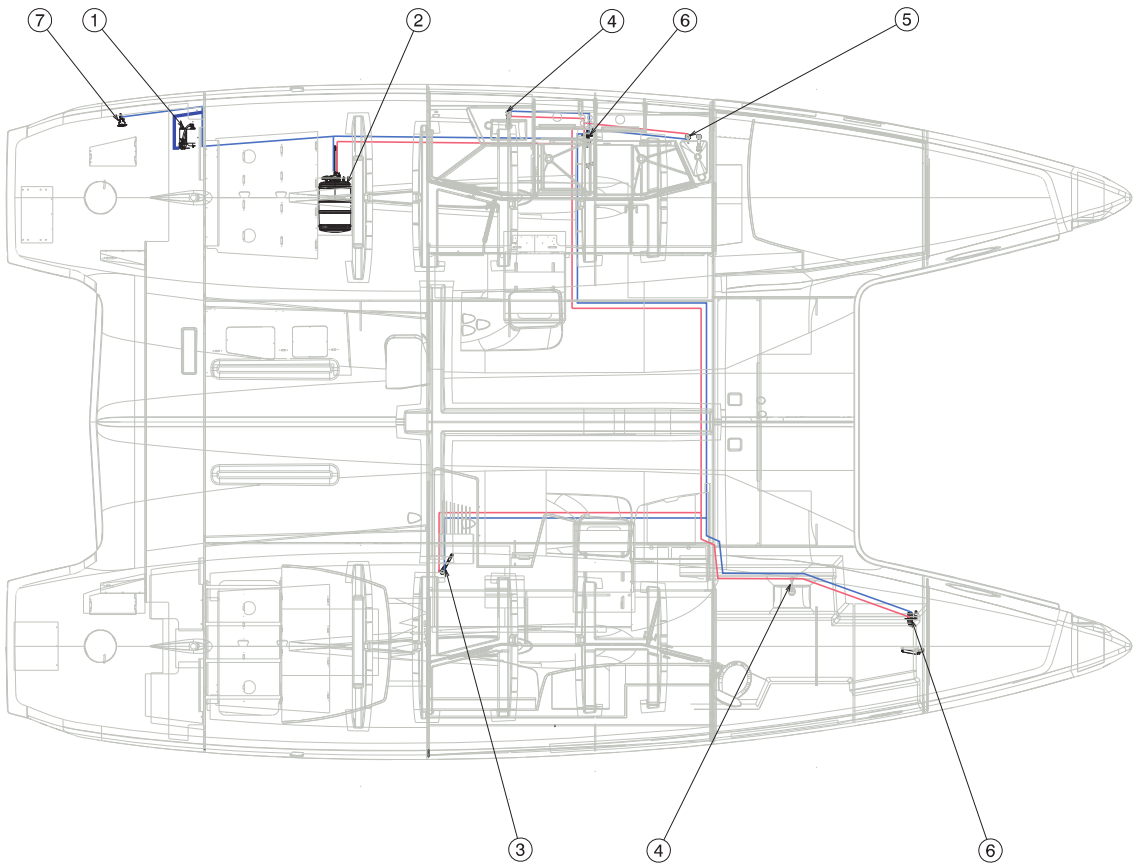


Starboard tank (option)



13.4 FRESH WATER DISTRIBUTION SYSTEM

3-cabin layout



Reference	Designation
1	Water unit
2	Water heater
3	Sink mixer tap
4	Washbasin mixer tap
5	Washbasin/shower mixer tap
6	Mixer shower
7	Cockpit shower

13.5 MAIN PLUMBING EQUIPMENT

13.5.1 Water unit

- The water unit is powered by direct current.
- It supplies all the boat's plumbed-in 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 (e.g. seawater, bilge water, oil products) must be strictly avoided.
- The water unit is switched on at the electrical panel.
- Make sure that the water unit never runs dry.
- The pressure and capacity of the water unit depend on the temperature of the stored fresh water supply.

Access: Port engine compartment



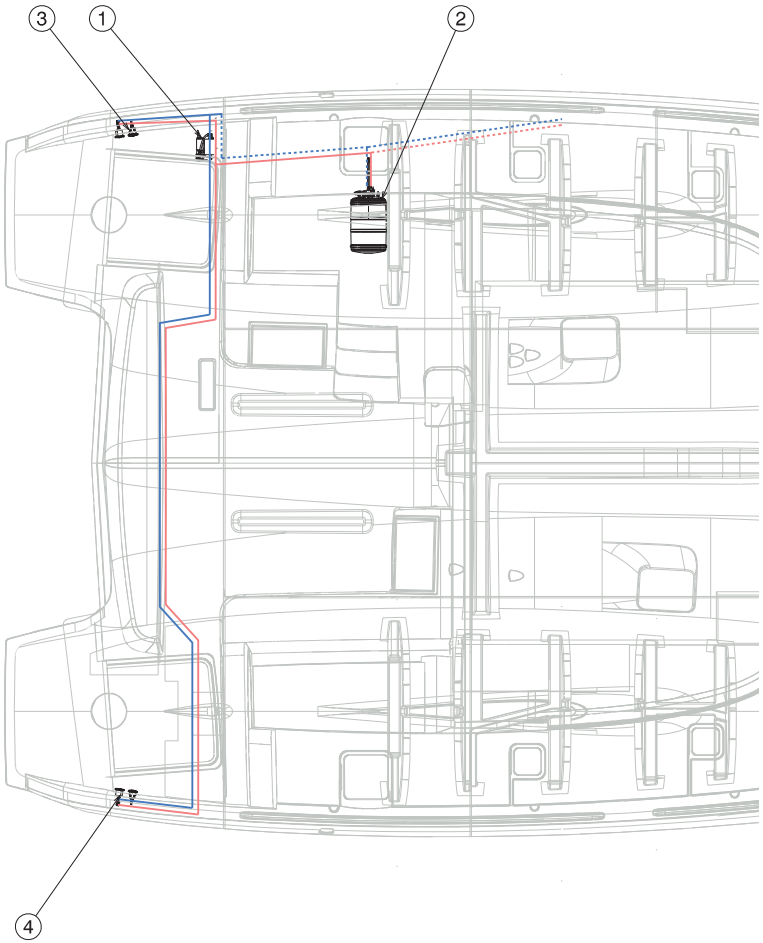


1. Fresh water filter
2. Water unit
3. Expansion tank
4. Water tank / water unit supply valve *(this valve enables isolation of the water pump for maintenance)*

13.5.2 Cockpit shower

- The cockpit shower provides 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 or off;
    - It allows a choice of water temperature (hot water / cold water).

DIAGRAM OF LAYOUT



Reference	Designation
1	Water unit
2	Water heater
3	Cockpit shower (Port)
4	Cockpit shower (Starboard)

Operation:

- To use the shower, turn on the water by tipping the tap on its axis.
- 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 back into its original position.

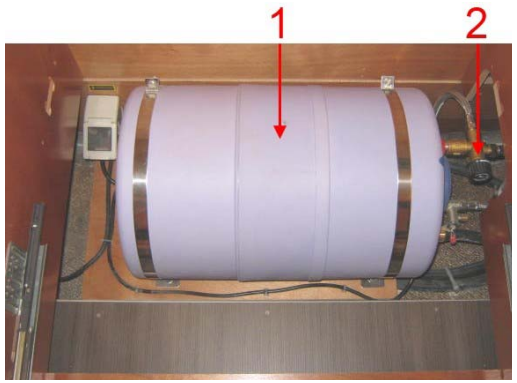
Location: Scoop - Port (standard)
Scoop - Starboard (Option)



13.5.6 Water heater

- The water heater enables the use of hot water on board the boat.
- The water heater functions by recovering calories from the port engine cooling circuit or the on-board AC electrical circuit.
- 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: Port aft cabin



1. Water heater - 40L
2. Mixer tap

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

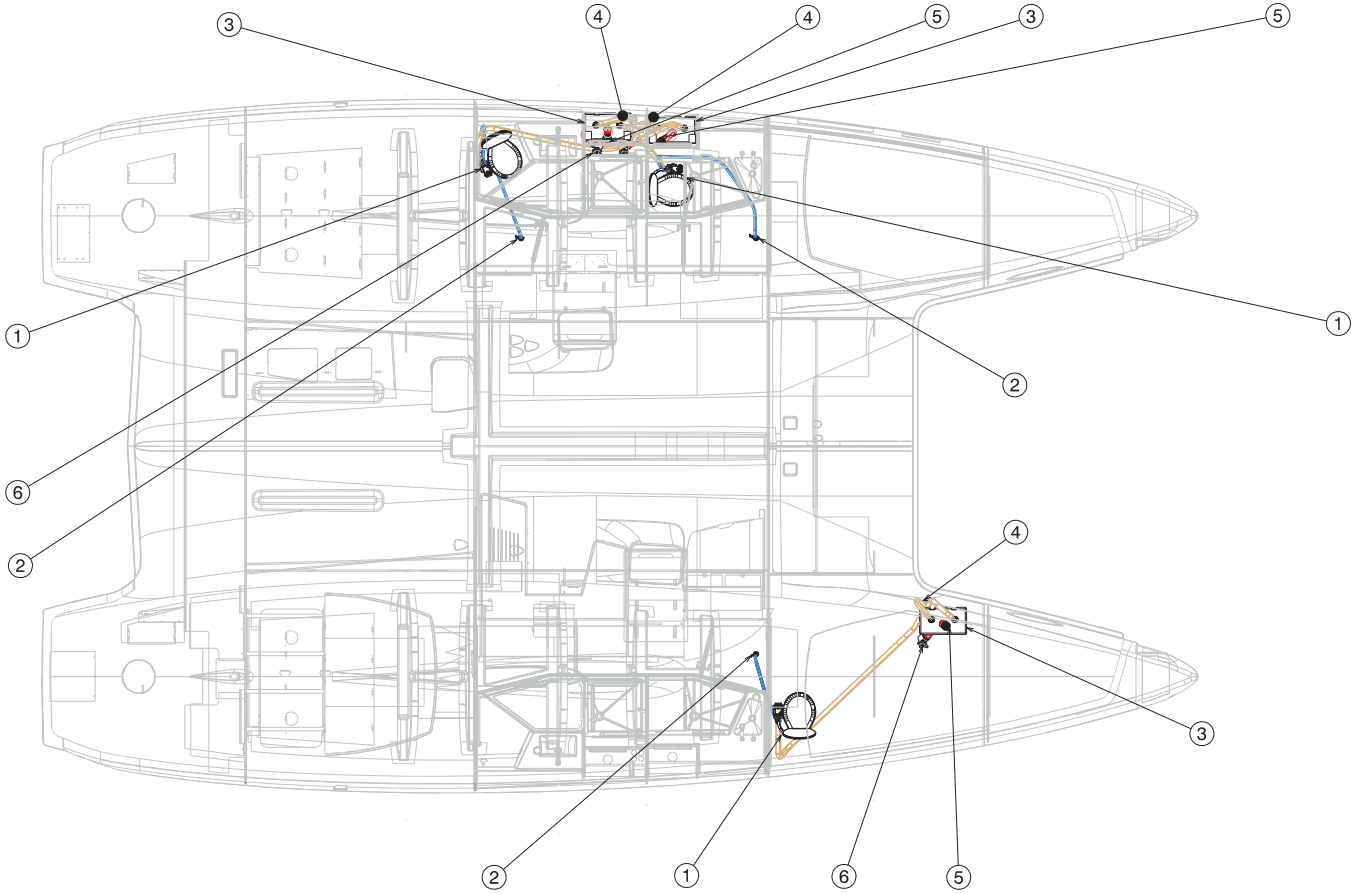
13.6 BLACKWATER SYSTEM (TOILET)

General points

- Blackwater is human waste including water flushed from the toilets.
- Close the valves after each use and especially 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 Diagram of blackwater system

3 CABINS 3 HEADS VERSION



Ref 2: Seawater intake

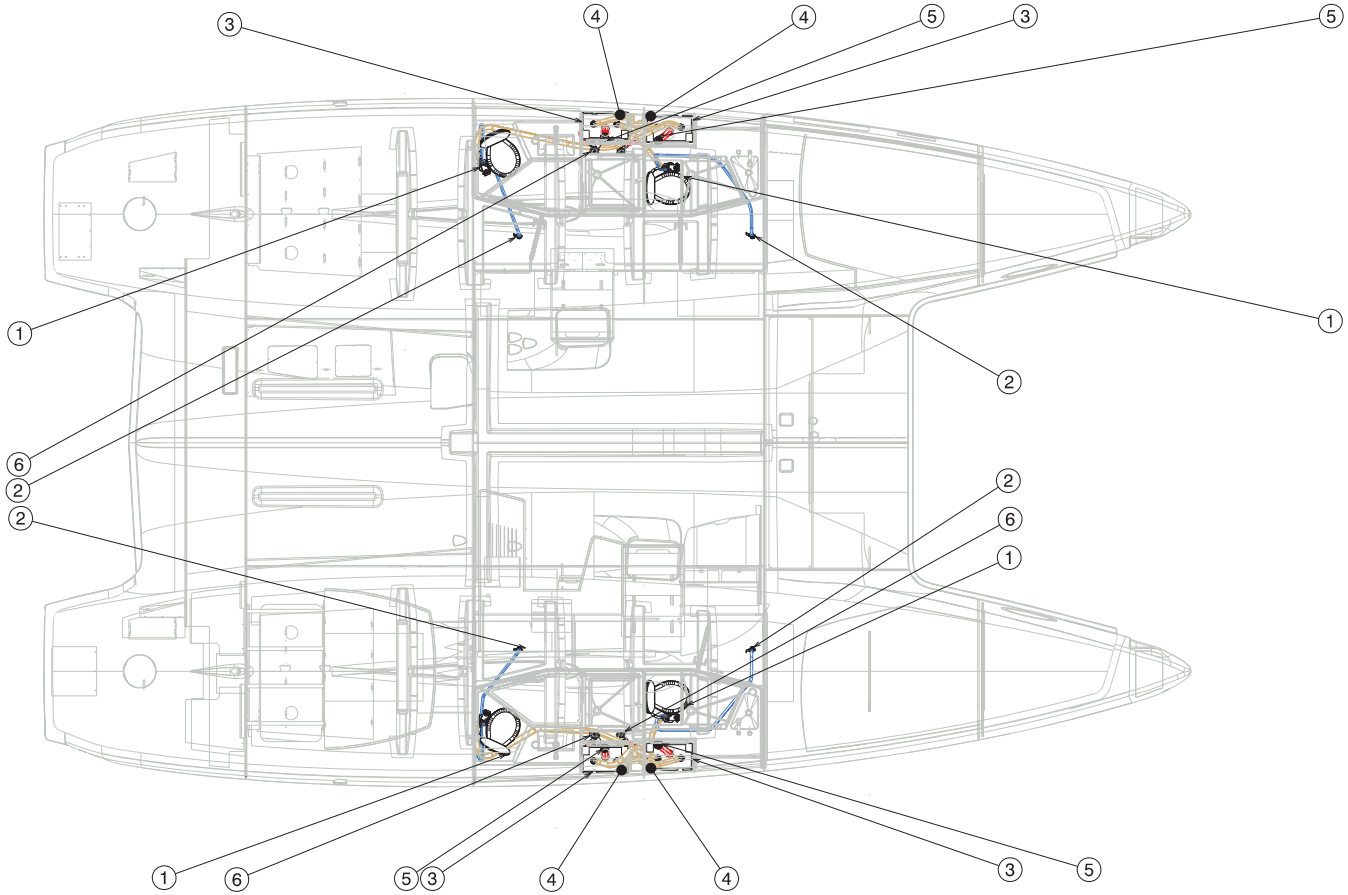


Ref 6: WC drainage (to sea)



Reference	Designation
1	Toilet
2	Seawater intake
3	Blackwater tank
4	Vent
5	"WASTE" deck connection
6	WC drainage (to sea)

4 CABINS 4 HEADS VERSION



Reference	Designation
1	Toilet
2	Seawater intake
3	Blackwater tank
4	Vent
5	"WASTE" deck connection
6	WC drainage (to sea)

YOUR BOAT IS FITTED WITH A BLACKWATER TANK

To minimise odours from this tank, we suggest following the use and maintenance guidelines below:

1) Holding tank

Location: in each head
Capacity: 80L



- A blackwater tank is used solely for the temporary collection of water 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, which empties directly into the sea (provided that the laws of the country in which the vessel sails permit dumping into the sea).
- Only use water-soluble toilet paper to avoid blockages.

Note: Sanitary towels and other items (paper handkerchiefs, dressings etc.) in the toilets and blackwater tank will result in blockages.

- Faecal matter causes the formation of unpleasant odours in the blackwater 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 blackwater 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. You may wish to use the shower in the head for this purpose. Seawater allowed to stagnate in the bowl gives off bad odours.

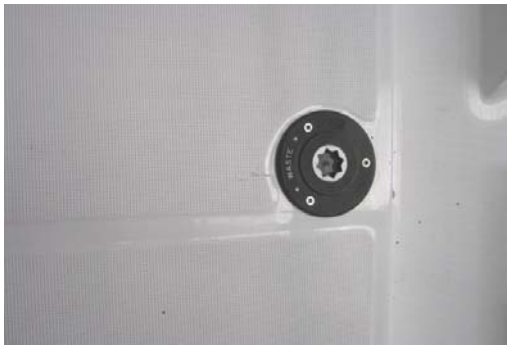
3) Maintenance of blackwater tank

- 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 to add 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).

WASTE filler cap



Control - Electric toilet



4) Using the drainage valve

- The direct-to-sea drainage valve can be sealed by means of the drilled hole on the handle.

- To lock the drainage valve in the closed position: Pass the tightening collar around the drainage valve and feed through the hole in the handle as shown.

Plastic valve



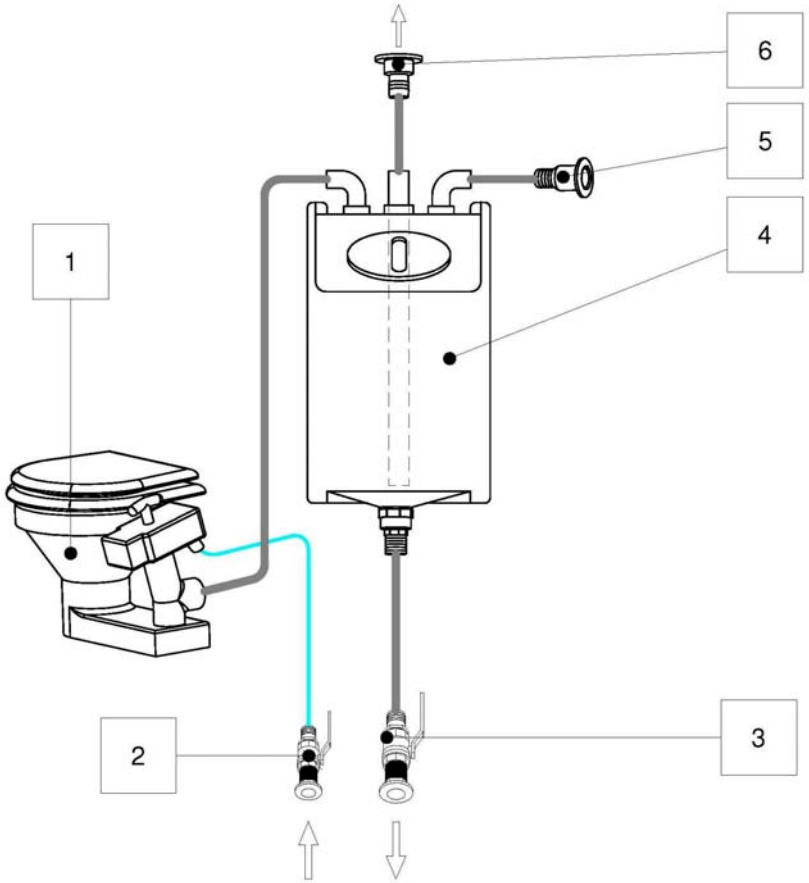
- Never use automobile anti-freeze in the blackwater system: risk of poisoning.

- Respect local regulations regarding the emptying of blackwater tanks.

- Beware of any unintentional draining.

Layout diagram of blackwater system

Emptying by gravity



Reference	Designation
1	Toilet
2	Seawater intake valve
3	Thru-hull seacock
4	Blackwater tank
5	Vent
6	"WASTE" deck connection

Using a marine toilet fitted with a tank emptied by gravity

I. Open the seawater 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. For 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 seawater 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. For 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.

13.7 WASTE WATER SYSTEM

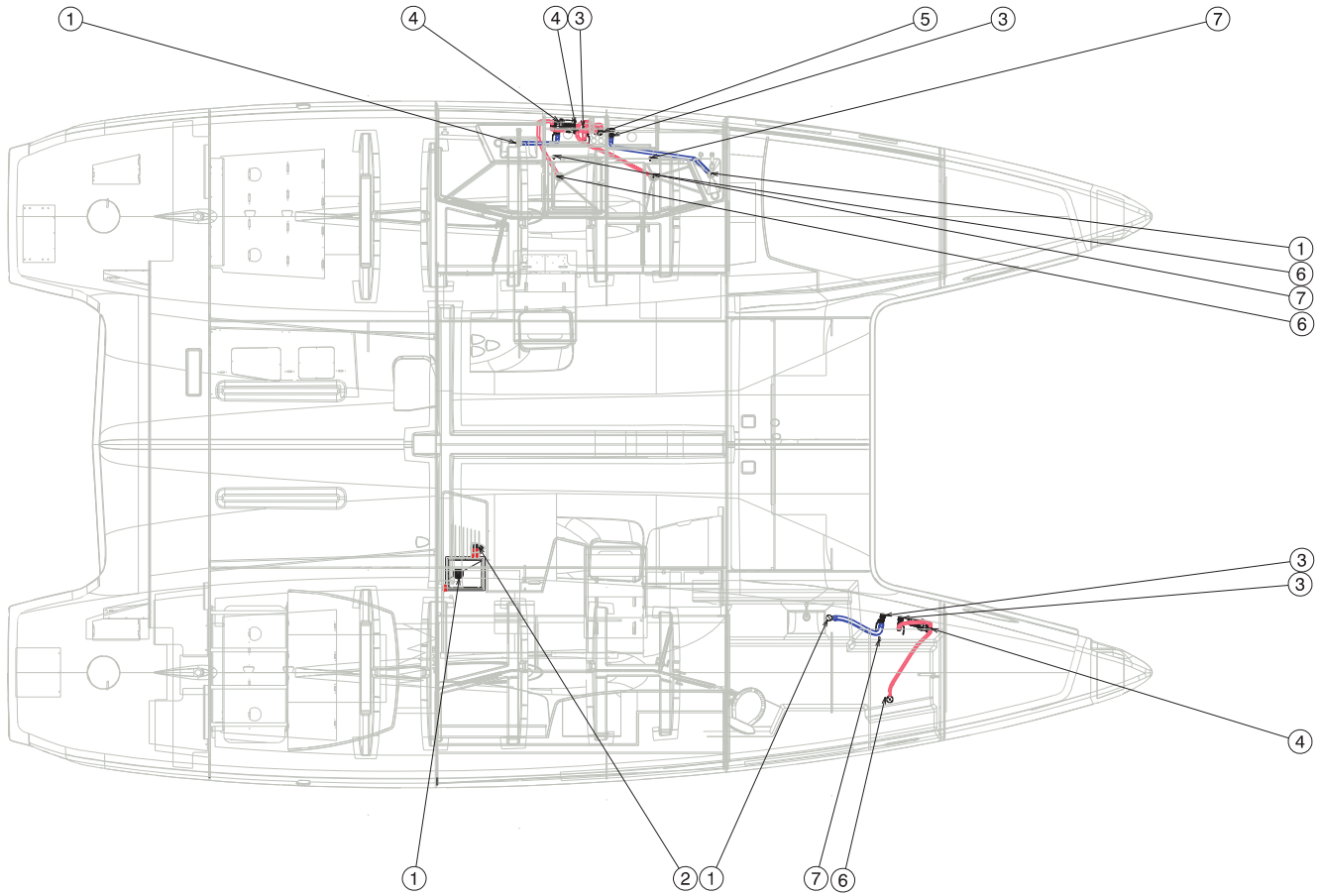
General points

- Waste water comprises the water coming from the sink, showers, air conditioning drains and washbasins.
- Close the valves after each use and especially 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 greywater tanks.

Layout diagram waste water

3-cabin layout



Reference	Designation
1	Sink plug hole / Washbasin drain plug
2	Sink drainage
3	Washbasin drainage / Shower drainage
4	Shower pump
5	Collector - Waste water
6	Shower plug hole
7	Switch - shower pump

SHOWER

Drain plug



Shower pump drainage



Shower screen



Holding



NOTE: To maintain essential closed Navigation.

- The shower drainage is automated: There is no control switch to drain water from the showers.
- In integrated heads, when the taps are opened the shower drainage pump is activated, whether the tap is pointing towards the shower or the washbasin: the noise from the drainage pump is normal, even if water is only flowing into the washbasin.

ENGINE

14

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- Danger from moving mechanical parts 183
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- Anti-siphon valve 187
- Fuel filter 187
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- Propeller 191

14.1 INFORMATION RELATING TO FIRE RISKS AND RISKS OF EXPLOSION

- 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 while the fuel tank is being filled.
- Have 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 cut off energy to the electric system when the engine is running.
- Never block access to the fuel supply valve.
- Do not obstruct or modify the ventilation system.
- Never turn the engine over when the boat is on land.
- Fuel stored outside the tanks (jerrycans, portable fuel tanks, etc.) must be stowed on deck and protected from bad weather and mechanical damage.
- Regularly check that the engine compartment is clean and dry.

Engine water intake valve:



Fuel supply valve:



14.2 DANGER FROM MOVING MECHANICAL PARTS

- Keep away from the drive shafts and the mechanical parts of the engine when they are in motion (including belts, moving parts and hot components).
- Be careful if you have long hair, bulky clothing, rings etc. (these may become caught).

14.3 GENERAL POINTS

- Do not install an engine more powerful or heavier than recommended for this boat, since doing so may compromise the boat's stability.
- Any alteration or modification to the exhaust system of the propulsion engine(s) is prohibited.
- Make sure you have enough fuel before sailing.
- Stop the engine before opening the engine compartment.
- Do not close the fuel supply valve between each use of the engine (except in the event of prolonged disuse).
- Get the whole propulsion system checked at least once a year by a professional engineer.

see Chapter: MANOEUVRABILITY.

Always start the engine with the control lever in neutral.

Type of motorisation

Your boat is fitted with two in-board diesel engines.

Transmission type is: Sail-drive.

Filling up with fuel

- Fill the fuel tank by opening the cap marked "DIESEL", provided for this.
- Fuel capacity: 2 x 285L.
- Position of tanks: Port aft cabin & Starboard.
- Regularly check that the O ring on the filler cap is in good condition to prevent water ingress.
- Each fuel supply valve supplies one engine.
- The generator has its own fuel supply valve.

- Regularly check that the O ring on the filler cap is in good condition to prevent 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 isolators when the boat's engine is running (risk of serious damage to the charging circuit).**

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

Deck filler - DIESEL



NOTE: Ensure the seal is tightly closed to prevent ingress of water.

Gauge
on the electrical panel



Fuel tank



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

14.4 STARTING THE ENGINE

Before starting the engine, it is essential:

- to open the fuel supply valve;
- to open the seawater 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 seawater 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.

The engine compartment bilge fan is activated automatically when the engine is started.

Engine compartment ventilator
Location: Engine compartment (Port and starboard)



- 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 seawater intake valve plays a crucial role in ensuring that the engine runs well.

- Keep the filter under the hull as clean as possible;
- Brush the filter whenever the boat is lifted out.

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

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

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

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

Seawater intake:
Intake filter



Seawater filter
Access: Engine compartment



Supply valve (on the housing)



14.6 ANTI-SIPHON VALVE

Anti-siphon valve
Access: Engine compartment





- The function of the anti-siphon valve is to inhibit the siphoning action when the engine stops, thus preventing a backflow 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 this occurs, you must 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.
- It is advisable to carry out this simple preventative maintenance procedure on the anti-siphon valve once a year.

14.7 FUEL FILTER

Engine running problems may stem from various causes, including dirty fuel. The injection pump may wear out if there is water in the system. The water results either from condensation resulting from an insufficiently filled tank, or from a filler cap which has either not been closed properly or which has a damaged seal.

Location: Engine compartment



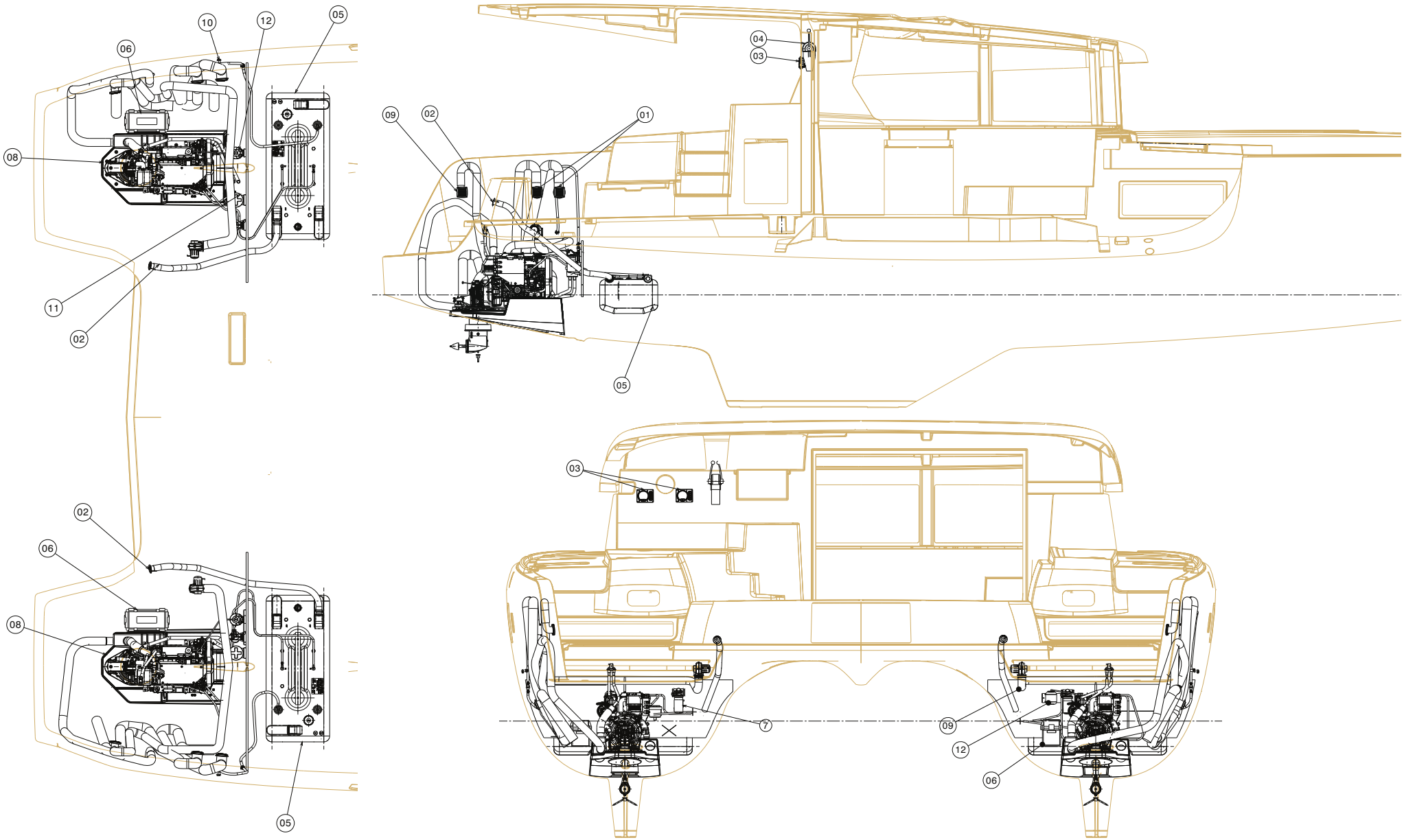
In order to prevent any water infiltration, the fuel runs through two filters:

- 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 works as a water decanter and prefilter.

<u>Maintenance</u>

- 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.

14.8 ENGINE INSTALLATION

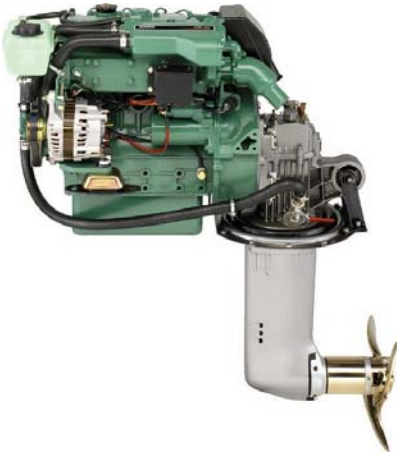


Reference	Designation
1	Fresh air suction
2	Filler cap
3	Engine panel
4	Engine control lever
5	Fuel tank
6	Engine batteries
7	Fuel filter
8	Motor
9	Hot air extraction
10	Fuel tank vent
11	Seawater filter
12	Expansion tank

Yanmar engine



Volvo engine



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.



1. Port engine control panel
2. Starboard engine control panel
3. Engine control lever (x 2)

14.10 ACCESS TO THE ENGINE

Access to the engine can be gained via:

- the cockpit.

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

14.11 PROPELLER

- The propeller delivered with the boat is specifically selected after 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 or dirty: clean the blades regularly and attentively.
- During lift-out, check the propeller: it should turn freely on its axis and there should be no play.

Propeller



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

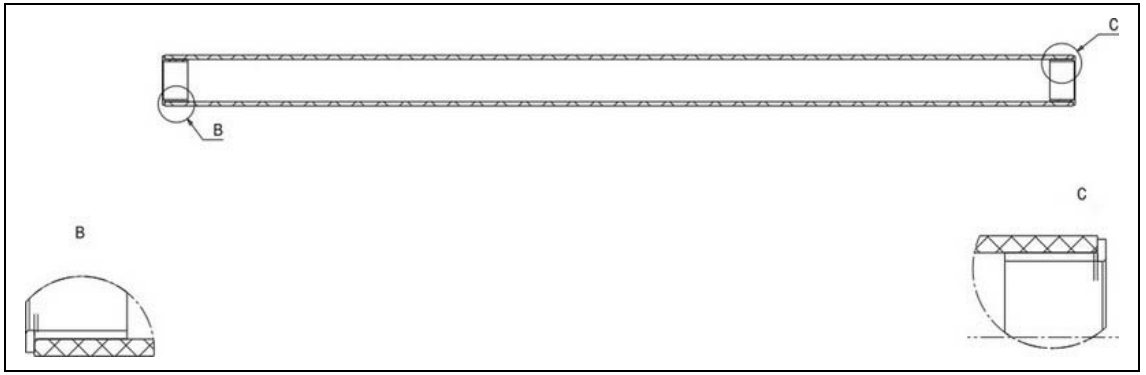
STEERING SYSTEM

15

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- Diagram of layout 195

15.1 GENERAL POINTS

- The steering operates by steering cables.
- The steering system is an important safety feature. For this reason, an 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 needed, 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 gears as well as the coupling bar ball joints.
- Do not grease the steering cables or the pulleys.
- Maintain the nylon, ertalon or teflon bushes with only a suitable lubricant.
- The textile lines on the boat have a lifetime of 5 years. Beyond 5 years (the expiry date is sewn on the textile lines) the textile lines must be changed.

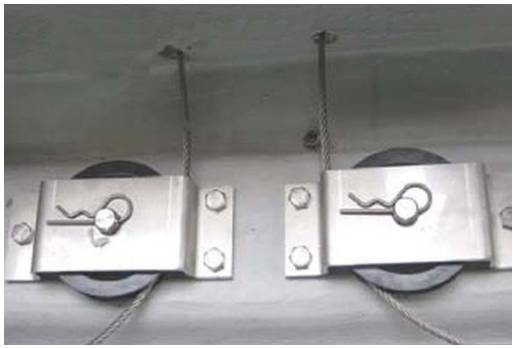


- The bronze rings (mark B and C) are integrated into the rudder port tube. Each ring is a wearing part: make sure you change them regularly (Please contact your dealer).

Cable adjustment - Line



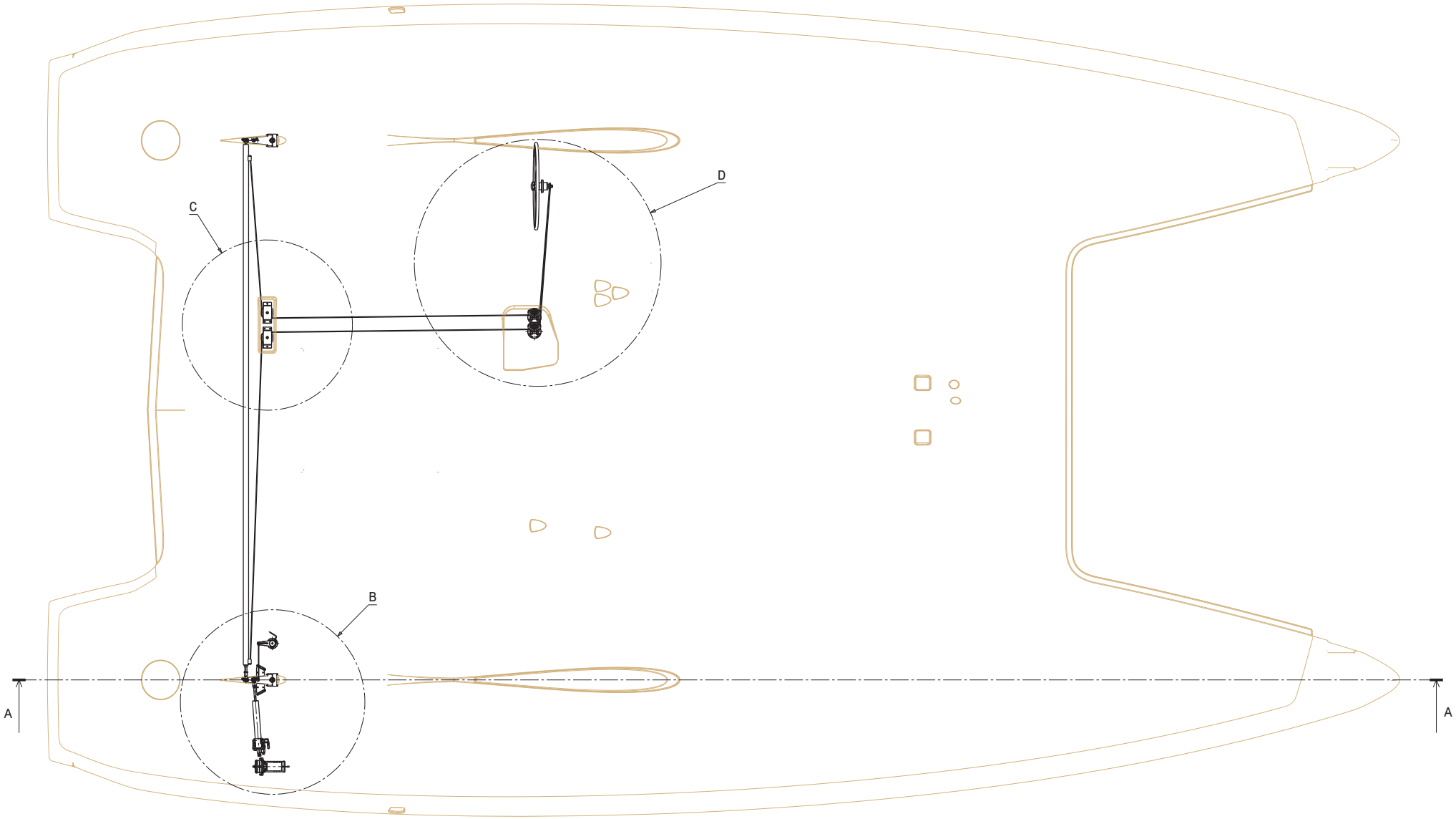
Sheaves - Line



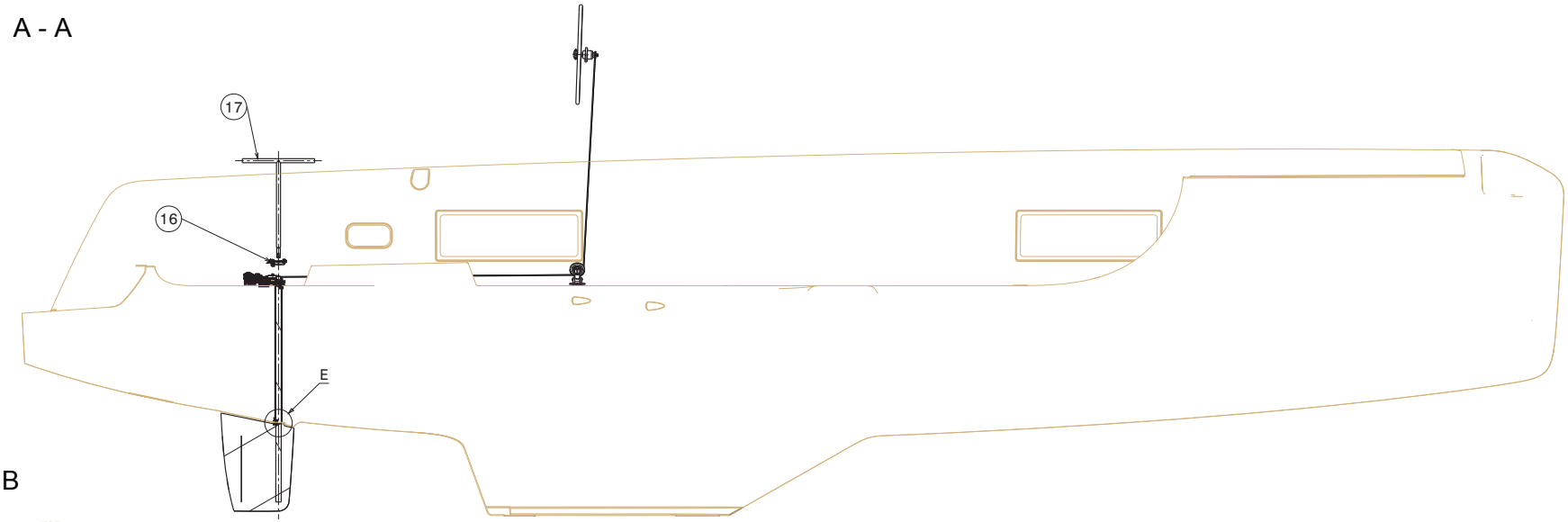
Coupling bar ball joint



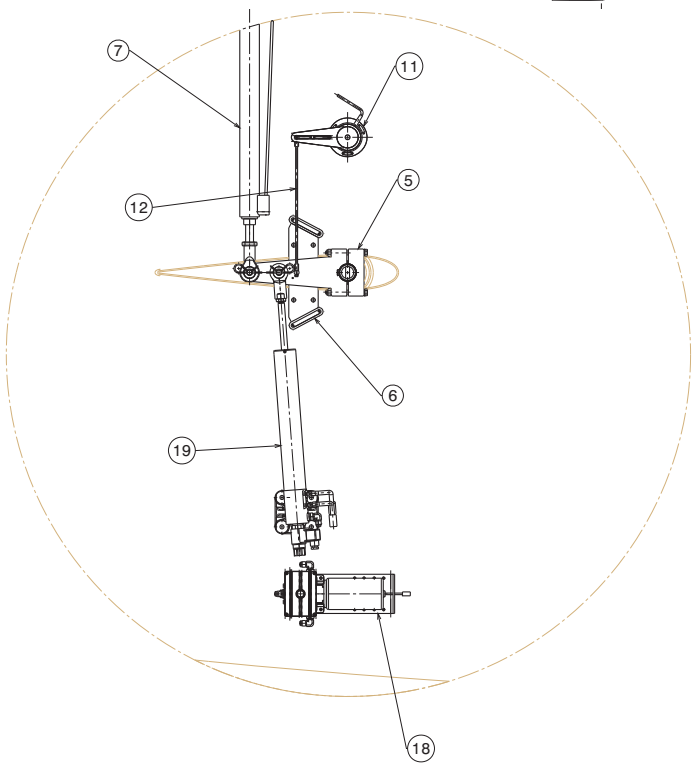
15.2 DIAGRAM OF LAYOUT



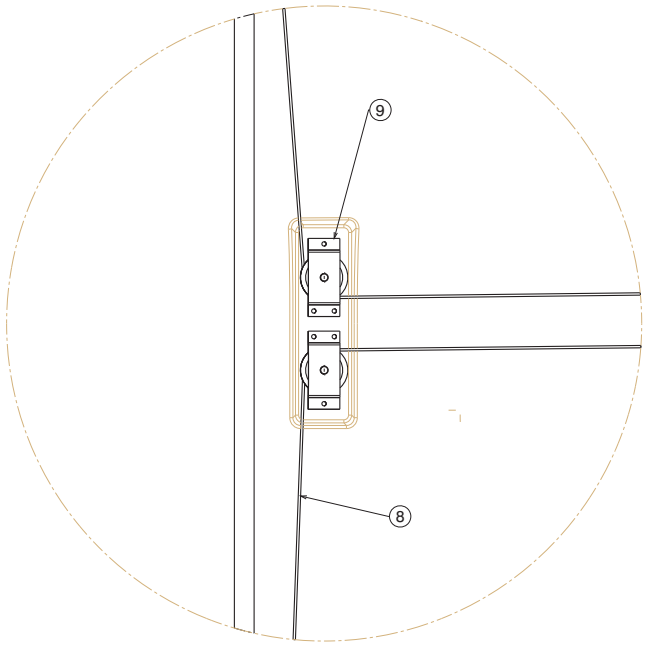
A - A



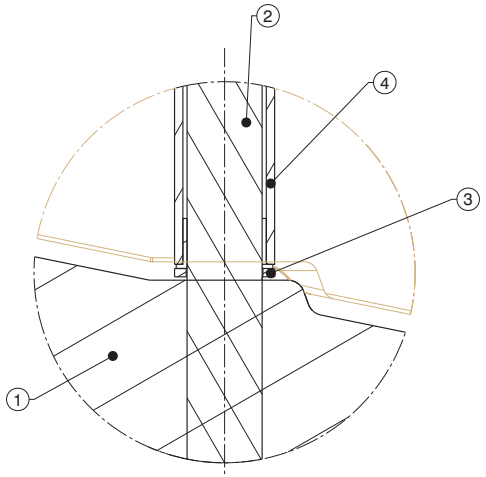
Detail B



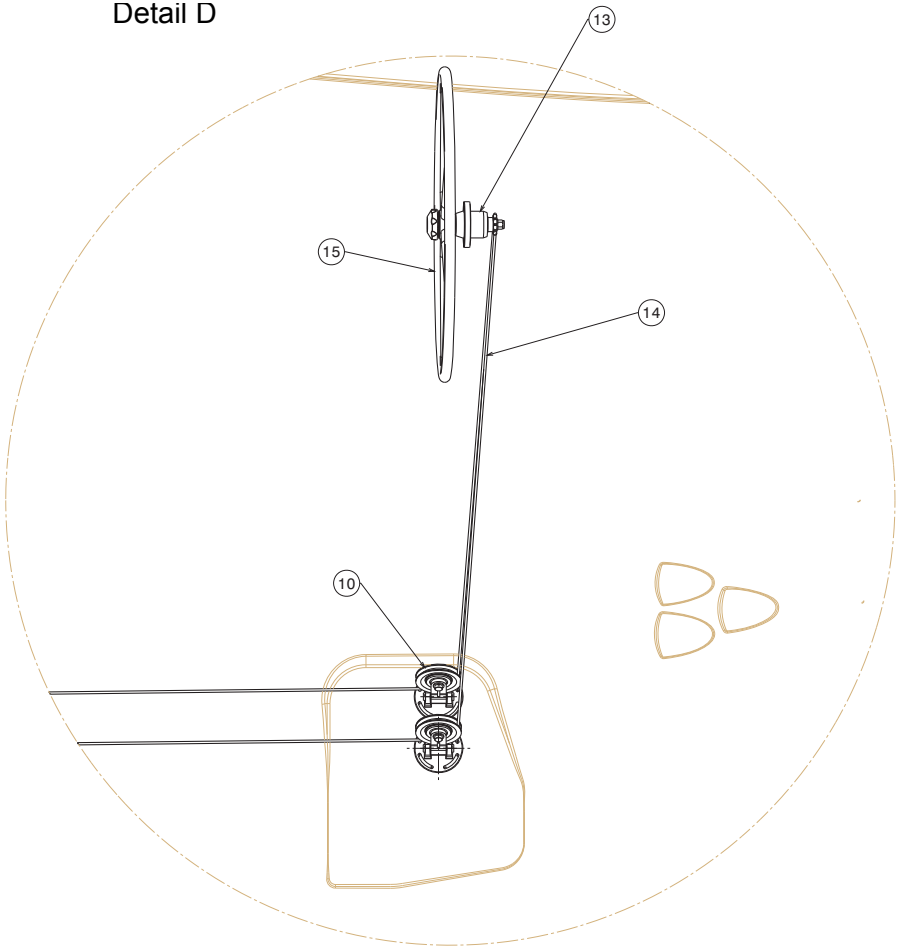
Detail C



Detail E



Detail D



Reference	Designation
1	Rudder
2	Rudder stock
3	Balance bush
4	Rudder tube
5	Stock arm
6	Stock arm stop
7	Connecting rod
8	Tiller cable
9	Sheave
10	Movable Sheaves
11	Helm angle sensor
12	Rocker bar
13	Steering Gear
14	Chain
15	Steering wheel
16	Sector access port
17	Tiller
18	Angle bracket
19	In-line piston - Autopilot

DECK FITTINGS

16

- General points 200
- Equipment 202
- Berthing, anchoring, towing 207
- Main elements of the chain locker 209
- Electric windlass 210

16.2 EQUIPMENT

16.2.1 Davits

- The davits enable the launch and retrieval of the tender from the transom. Any other use is dangerous and must be strictly avoided.
- The davits are equipped with a pulley block for manoeuvering the tender.





Mechanism



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

- The davits are designed to support a maximum load of 200kg and a tender which is at most 3,40m 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.

- Refer to the manufacturer's instructions for use and maintenance.
- Avoid handling the tender in strong wind or rough seas.
- The tender must be empty during launching or lifting.

Launching the tender

- Insert the bung.
- Free the locking system of the davit on the starboard pen board.
- Free the jammer located on the starboard pen board.
- Using the manoeuvring winch and the tackle, lower the tender to the water surface.

Retrieving the tender from the water

- Secure the pulley's hooks to the front and back of the tender.
- Free the jammer located on the starboard pen board.
- Lift the tender with the manoeuvring winch and the tackle until it stops against the pen boards.
- Hold it up with the jammer and locking system located on the starboard pen board.
- Pull out the bung.

ASSEMBLY



4 IN D6 spring hooks



6 Davit loops (L = 0,8m)

Aft part (Port)

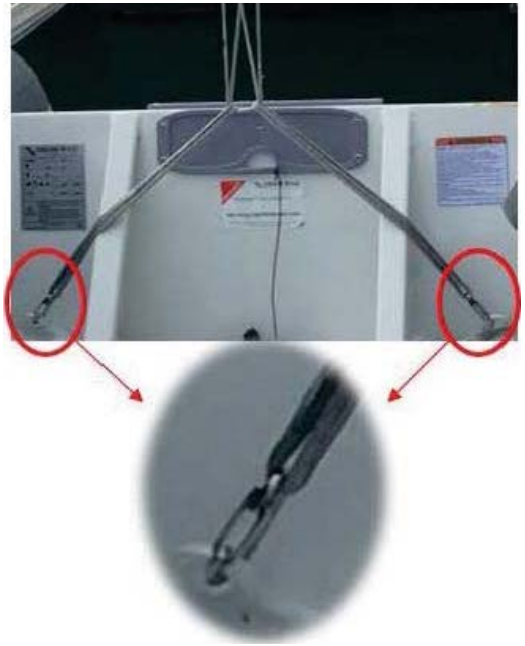
1. Pass a loop through the davit ring where the pulley is hooked on.



2. Pass 2 more double loops inside the first.



3. Connect these 2 loops to the tender using stainless steel spring hooks.



Fore part (Starboard)

1. Pass a loop through the davit ring where the pulley is hooked on by doing **an extra dead turn**.



2. Pass 2 more double loops inside the first.



3. Connect these 2 loops to the tender using stainless steel spring hooks.



4. The tender is put in place.



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.

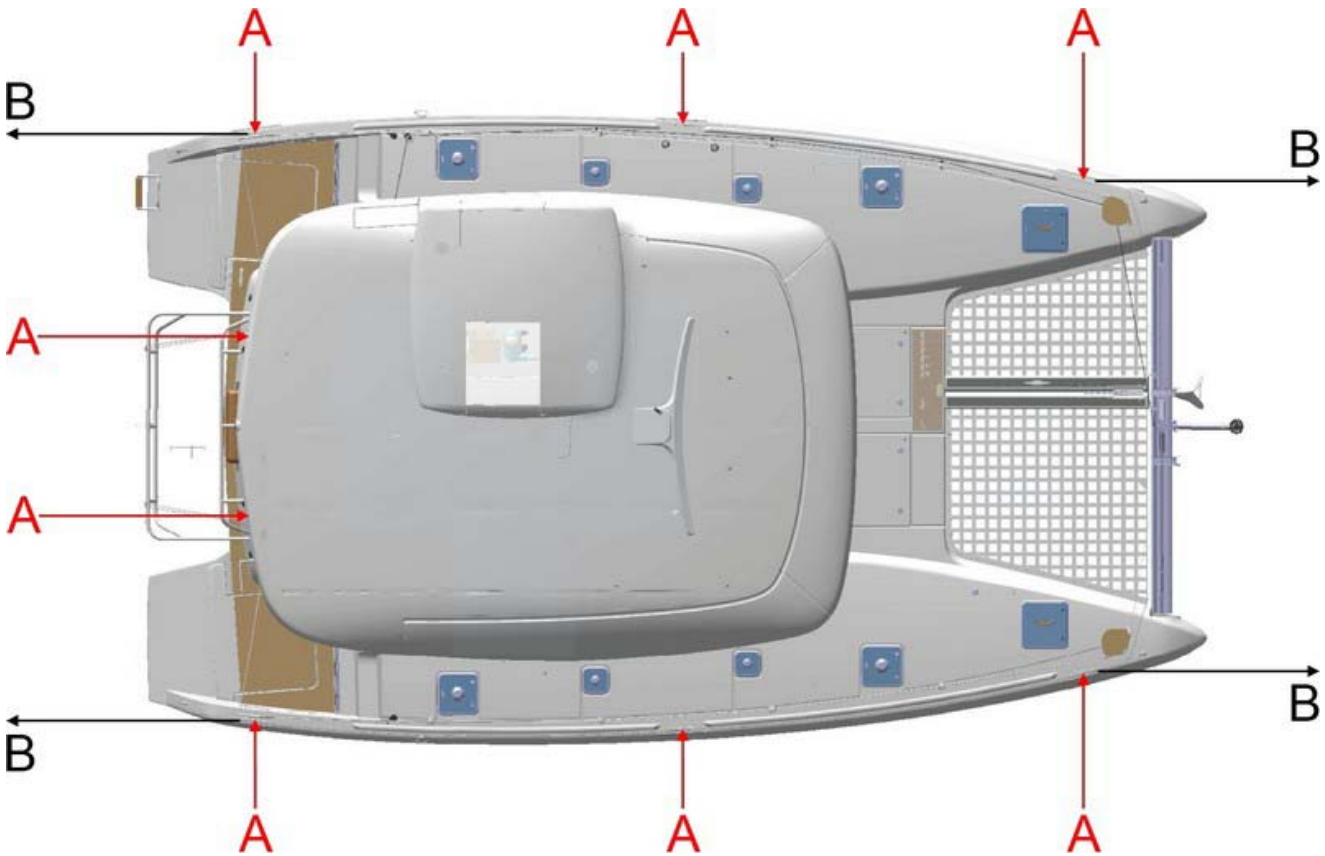
	MOORING LINES	MOORING	TOWING
Reference *(Diagram on next page)*	**A**	**A/B**	**A/B**
Anchor Point Breaking Strength	**30,9kN**	**49,3kN**	**49,3kN**
Mooring Line/Chain Breaking Strength	**24,7kN**	**39,4kN**	**39,4kN**

Anchoring points showing visible signs of deterioration must be replaced.

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



A. Mooring cleats (corresponding to the anchor points for the lifelines).

B. Towing:

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

- Generally the breaking strength of lines/ chains must not exceed 80% of the breaking strength of the anchor points.

- Always tow or be towed at low speed. Never exceed the maximum speed of a displacement hull during a tow.

- Be particularly vigilant when the end of a towing cable is being thrown or received (the end may become 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

General view





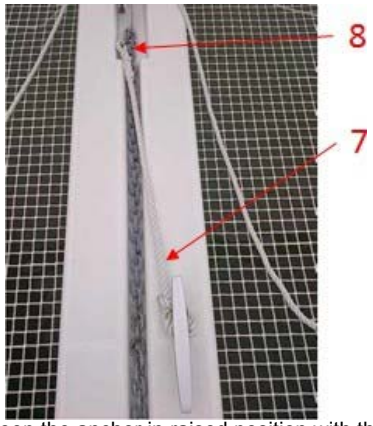


1. Handle fitting
2. Drum head
3. Gypsy
4. Remote control
5. Handle storage

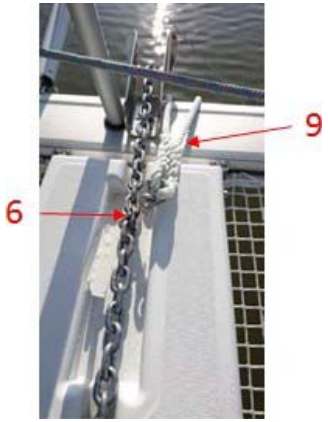
- Refer to the manufacturer's instructions for use and maintenance.
- Windlass operations are dangerous:
- Always keep the anchor chain or rope free and unfouled;
- Carry out manoeuvres carefully and always wear shoes;
- Avoid wearing baggy clothing and jewellery that could get caught in the engine when it is running. Tie up long hair..

Fitting - Anchor





Keep the anchor in raised position with the strop on the cleat



Chain hook on bridle line

6. Mooring hook
7. Pig tail
8. Shackle
9. Bridle

16.5 ELECTRIC WINDLASS

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

General points

- The windlass is DC powered.
- The windlass is designed for anchoring purposes: Any other use is dangerous and must be strictly avoided.
- 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.

Operation

- Before lowering the anchor, make sure that the chain or anchor rope is securely attached to the bitter end ring.
- Activate the circuit-breaker then use the control to start the windlass.
- Nobody should be aboard the tender during maneuvers carried out with the davits. If the port engine is not functioning,the windlass can work on service batteries (if available) by switching on the port engine ignition only (the engine alarm will then sound while the windlass is in use).

Preparation of anchoring

- Install the bridle by fixing it to the chain plates located at the ends of the fore beam.
- Put the bridle through the stem bow roller.
- Shackle the bridle to the central cleat during the lowering of the chain.
- **When at sea, secure the chain or anchor rope 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).**
- With dual control, be careful to use only 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.