

PERSHING

**Owner's
Manual**





This manual has been drafted in compliance with standard **UNI EN ISO 10240**.
Any reprinting, either in whole or in part, without prior written approval by **FERRETTI S.p.A.** is strictly prohibited.
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PERSHING

7X

General information

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1. GENERAL INFORMATION

1.1 GENERAL INFORMATION

NAME OF THE YACHT	PERSHING 7X
TYPE OF YACHT	MOTOR YACHT
CATEGORY OF PROJECT	A



CAUTION

CATEGORY A: This yacht is designed for navigation in conditions where the wind can exceed 8 on the Beaufort scale, the significant wave height is greater than 4m and is largely self-sufficient. Excessive conditions, such as hurricanes, are excluded. These conditions can be found in long crossings, for example interoceanic crossings or near the coast, exposed to wind and waves for several hundred nautical miles.

1.1.1 Introduction to the use of the manual

Prior to operate the yacht and the equipment on board, read the manual carefully, in order to acquire an adequate familiarity with the systems and their operation, so as to avoid hazard to personnel and risks of costly damages.

A great passion for sea and the prestige of this yacht are elements that encourage constant and regular maintenance to ensure long periods of navigation, a long life span and an ensuing improvement in safety.

The maintenance operations described in the manual are simple, but should be performed by authorised and qualified technical staff only, according to standard procedures and in compliance with national and international regulations.

For specific interventions it is advisable to request the service of specialized technicians or contact our After sales & Service Department.

1.1.2 Layout of the manual

For an easy and quick consulting, the manual is subdivided in the following sections:

- GENERAL INFORMATION
- SAFETY
- DESCRIPTION OF THE YACHT
- HELM STATION
- SYSTEMS (Water, Electric, Driving, Air Conditioning)
- PROPULSION SYSTEMS
- EQUIPMENT ON BOARD
- INFORMATION FOR USE
- MAINTENANCE
- TROUBLESHOOTING



CAUTION

If the entire manual is printed, remember to store it in a safe, dry and easy-to-access area for easy consultation. When you decide to change the yacht, deliver this manual to the new owner in its integrity.

1.2 INTRODUCTION OF THE MANUAL

The documentation provided to the owner by PERSHING consists of two types of documents:

- The owner's manual, produced in accordance with current regulations;
- The collection of technical documentation, related to on-board equipment and systems, consisting of a series of independent manuals, produced by the respective manufacturers.

The owner's manual constitutes the "guide" document and must be examined in its entirety and in any case before the manuals constituting the collection of technical documentation.

It is compiled with the aim of helping you to use your yacht safely; it contains details of the yacht, the equipment supplied and installed, the systems and instructions on their correct operation.



CAUTION

PERSHING suggests that you carefully review all the documentation provided by the various component manufacturers.

For any problems related to use or maintenance, please refer to the service centers listed in the manufacturers' documentation.

There are some interventions that, in case of emergency, can be carried out by the personnel on board, after having consulted the relevant manual.

This manual has been drawn up by PERSHING in their mother language (Italian) and translated into other languages, to satisfy the customer's requirements, and has been issued with the purpose of assisting you with the use of your yacht in full safety and with complete satisfaction.

This manual has been issued in compliance with the Directive 2013/53/ EU, with UNI EN ISO 10240 rules and with RINA S.p.A. (REGISTRO ITALIANO NAVALE) requirements.

We recommend that you carefully read through this manual so as to become familiar with its contents before starting to navigate for the first time.

If this is your first yacht, or if this is a type of yacht that you are not familiar with, for your safety and to ensure your maximum satisfaction, make sure you have acquired sufficient experience about how to use and operate the yacht, before "taking the command".

THIS MANUAL MUST BE STORED AND WILL ALWAYS BE ON THIS YACHT AT EVERY TRANSFER OF PROPERTY.

SANCTIONS ARE ENVISAGED IF THE YACHT IS NOT EQUIPPED WITH THE "OWNER'S MANUAL".

IN CASE YOU LOSE OR DAMAGE THIS MANUAL, PERSHING WILL ALWAYS BE ABLE TO SUPPLY YOU WITH A NEW COPY OF IT.



CAUTION

PERSHING declines all responsibility for any damage to third parties due to discrepancies between the manual and reality.



CAUTION

This manual contains pictures of details not representing completely your yacht or with colours not corresponding to your arrangements. This is mainly due to the fact that it is possible to encounter problems during the realization of details' photos, like bed covers and sofas, which are defined only shortly before yacht delivery and therefore when the manual itself has already been issued.



CAUTION

This yacht can be steered only by authorized staff for the control and steering of pleasure yachts according to their classification.

1.2.1 Service requirement method

The extensive PERSHING Service Network is glad to provide you with any information regarding issues not addressed by the manual.

Customers may contact Dealers, Sale Offices, Service Centres or directly:

PERSHING After Sales & Service Department

Ferretti Spa

Via Ansaldo 7 - 4100

Forlì - Italy

Tel: + 39 0543 474445

Fax: + 39 02 70058589

customer.service@pershing-yachts.com

PERSHING has carefully selected all main components and accessories installed aboard your yacht, choosing among the most reliable manufacturers who, by offering a wide service network, also guarantee a speedy availability of spare parts.



CAUTION

For all aspects related to the warranty of the yacht, please exclusively refer to what indicated in the sale agreement and in the warranty certificate in which all warranty conditions applicable to the purchased product are specified.



WARNING

PERSHING declines all responsibility concerning tampering carried out by third parties on equipment installed in the shipyard. Such tampering or unauthorized installations will not only void the warranty, but may cause damage to the yacht and injuries to the people on board.



CAUTION

PERSHING declines all responsibility for damage due to improper preservation and poor maintenance or incorrect use of on-board equipment.



CAUTION

PERSHING declines all responsibility for the installation and operation of electric, electronic and mechanical equipment improperly installed by third parties in any unauthorised way by the Shipyard.



WARNING

Equipment and devices: Engine, winch, extractors and other devices are guaranteed by their manufacturers, who will service them directly through their service points. In case of need, the PERSHING After sales & Service Department will support your requests in order to provide you with a quick service and to guarantee the respect of the applicable rules. Upon yacht purchase, the Owner must send the Warranty Certificates of the relevant Manufacturers, in order to start the warranty period. PERSHING will not be liable for undelivered Warranty Certificates.



CAUTION

The maintenance operations described in the manual are simple, but should be performed by authorised and qualified technical staff only, according to the standard procedures delivered by the devices Manufacturers and in compliance with national and international regulations. We suggest contacting the PERSHING After sales & Service Department.

1.3 NOTICES

To highlight particularly significant sections and/or to indicate some important requirements, some symbols have been defined as follows.



CAUTION

It indicates a reminder to apply certain safety measures or to avoid certain unsafe practices that could lead to personal injury or damage to the yacht, to its components or to the environment.



WARNING

It indicates the existence of a possible hazard that may lead to personal injury or death, if proper safety precautions are not taken.



DANGER

It indicates the existence of a serious hazard that could involve a high probability of death or of serious injury if suitable safety precautions are not taken.



ENVIRONMENT

This symbol draws your attention to the possible hazards of environmental pollution.

NOTE / MAINTENANCE

Draw your attention on information and important memos.

1.3.1 Specific safety notices

They integrate the general safety notice and are aimed at providing specific information about the nature of possible dangers.

Fire hazard:

To indicate a specific fire hazard.



DANGER

The cause of fire breaking is described here.

Electric shock hazard:

To indicate a specific electrocution risk.



DANGER

The cause of electrocution is described here.

Burn hazard:

To indicate a specific burn hazard.



DANGER

The cause of burn is described here.

Forbidden areas:

To forbid the access, the transit or the stay in a dangerous area.



DANGER

This area describes the forbidden area: for forbidden areas are meant dangerous places or the approaching to mechanical moving parts.

1.4 CERTIFICATION, CLASSIFICATION AND IDENTIFICATION

PERSHING yachts undergo rigid and accurate tests required by the International Authorities in charge, in order to obtain a CLASSIFICATION CERTIFICATE.

The PERSHING 7X yacht, on which you are about to navigate, has obtained the RINA S.p.A. (REGISTRO ITALIANO NAVALE) classification after supervision of the hull lamination, of the reinforcement structures, of the power system and of the safety equipment on board.



CAUTION

Always keep the plates readable and, if deteriorated or altered, address to PERSHING for replacement.

NOTE

Builder's plate: Part of the information is provided on the manufacturer's plate affixed to the yacht. A full explanation of this information is provided in the relevant sections of this manual.

PERSHING

Pershing 7X

Costruttore: Ferretti SpA

Design Category A

Max  = 16

Max  +  = 2480 kg



CE 0474



1.4.1 Yacht identification specifications

Manufacturer	FERRETTI S.p.A.
Model	PERSHING 7X
Type of yacht	MOTOR YACHT
Identification number HIN (Hull Identification Number)	XFAP7X35F627
Identification number CIN (Craft Identification Number)	IT-FERP7X35F627
Navigation class	A (open sea navigation: the wind force can be higher than 8 and the wave height can exceed 4 metres)
Certification and forms	B+F+A1 (sound emission)
Classification	"CE" conformity according to the standards stated by the Directive 2013/53/ EU
Classification Authority	RINA S.p.A. (REGISTRO ITALIANO NAVALE)

1.5 LOAD CARRYING CAPACITY

Maximum number of passengers	no. 16 (RINA S.p.A. class.)
Maximum load recommended by the Manufacturer	People + luggage = 2480 kg
Safety equipment (standard)	no. 16
Berths	no. 7
Located in:	• no. 2 in the VIP cabin (double bed) • no. 2 in the Owner's cabin (double bed) • no. 2 in the guests' cabin starboard (single berths) • no. 1 in the crews cabin (single berth)



WARNING

Do not exceed the maximum recommended number of passengers. Regardless of the number of persons on board, the total weight of persons and equipment must never exceed the maximum recommended load.
Always use the seats/seating spaces provided.



CAUTION

Make sure that safety equipment is perfectly efficient and available to each passenger.



CAUTION

The standard safety equipment furnished by the Shipyard is for twelve passengers. If a higher number of passengers (however, no more than 16) is boarded on the yacht, the above-mentioned safety equipment should be increased so that the real number of boarded passengers is reached.



CAUTION

The maximum load that the Manufacturer recommends does not include the content of the fixed fuel and water tanks when full. It must not exceed the total load that may be added to the displacement with yacht unladen and dry.



CAUTION

When the yacht is being loaded, never exceed the maximum load recommended by the Manufacturer.
Always take great care when loading the yacht and try to distribute the loads evenly so as to keep the correct trim.
Avoid placing heavy loads in the upper part.

PERSHING

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Safety

Owner's
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2. SAFETY

2.1 SAFETY RULES

Your yacht has been designed paying the utmost attention to all aspects regarding your safety and the safety of your guests. However, all personnel on board must be instructed and aware about some precautions to be adopted at all times.

For this purpose, it is advisable that all people on board carefully read the guidelines contained in this manual, as well as the signs installed on the yacht and, in particular, all safety notices.

The time spent in reading such instructions will prevent unpleasant accidents. Remember that you are responsible for your safety and the safety of your passengers, and that you may jeopardize the safety of other boats.



DANGER

Only the personnel having a regular license or the necessary qualifications can steer this yacht.
Personnel operating the yacht must not be under the influence of alcohol, drugs or narcotics.

Please make sure you are perfectly aware of the main safety rules:

- During normal operation or any activities on the yacht, keep passageways and escape routes in proper conditions, in order to avoid hazards to people's safety.
- Always perform regular inspections of hull conditions, power system, safety equipment, and systems on a regular basis.
- Always check the fuel level before navigation and compare the tanks' capacity with the engines' consumption and the length and expected type of cruise.
- Check the forecasted weather conditions in the area you are about to navigate.
- In any case, always act according to common sense.

Safety is also "in the hands" of all those on board, who should be instructed and aware of some precautions to be adopted all times:

- Move carefully around the yacht because yacht stability may be suddenly affected by the effects of the sea waves.

- Everybody on board must know the life jacket storage location and how to wear it, the location of fire extinguishers (see safety equipment) and life rafts.
- All passengers must be perfectly aware of the risks provoked by a fire, and correct way to proceed in the event a fire should occur.
- The engine room must be properly ventilated when the engines are running.
- Everybody on board must be able to release and launch the life buoy and the life rafts at sea.
- Access to the engine room must be allowed only to authorized personnel, aware of possible dangers like:
 - Moving mechanical parts;
 - Hot parts and components;
 - Circuits with pressurized, hot or irritating fluids;
 - Circuits with flammable fluids;
 - High noise when engines are running;
 - Possibility to shift important valves for navigation safety unintentionally.



DANGER

It is strictly forbidden to stay on weather decks without railings (i.e. aft platform) during navigation.

Do not tamper with, disconnect, eliminate or by-pass the safety devices installed on your yacht. Periodically check their real efficiency in time to ensure that they can be used in case of need. Failure to meet such requirements may lead to serious risks to the health and safety of passengers.



WARNING

Personnel performing any type of operation during the entire lifetime of the yacht must be technically qualified and have proven abilities and experience acquired and recognised in the specific field. The lack of such skills can endanger your safety as well as the safety of people on board and the integrity of the yacht.

Make sure any parts not stored or not secured correctly, cannot move during navigation, hinder the passage, prevent the opening of inner hatches, fall against the people on board, damage or hinder the quick finding of necessary pieces.

It is the responsibility of the owner/user of the yacht to make sure that the fire-fighting and safety equipment is easy to reach when the yacht is occupied, and to inform the crew members on:

- The position and operation of the fire-fighting equipment.
- The position and operation of the safety equipment.
- The position of the discharge openings in the engine room.
- The position of the escape routes and exits.



WARNING

Keep all sea cocks and all other opening/closing and discharge devices of the hull closed or open, as the need requires, in order to minimise the risk of sinking.



CAUTION

Be always careful during navigation, especially in bad weather conditions or breaking waves.

As Owners and/or Operators of the yacht, you are responsible for knowing the rules of navigation and safety and boating practices. Take the time to learn the Nautical Rules of Navigation (COLREGS), navigation techniques and practices for the safe operation and maintenance of the yacht and its equipment.

The yacht's Owner and the people responsible for its operation and maintenance must carefully read and understand the directions and instructions given in this manual and in the manuals supplied by the Manufacturers of various equipment, as well as the signals and signs installed on the yacht. Pay special attention to safety in this manual and elsewhere. This information is essential for the safety of persons on board and the safety of the yacht.



CAUTION

Persons operating your yacht must never be under the influence of alcohol or drugs. The yacht's pilot should be experienced in the use of all instruments and controls, and know the handling characteristics of the yacht at all speeds and sea conditions.

You should be certain that persons intending to operate your yacht are completely knowledgeable about its proper operation. If you are not certain about an individual's qualifications or competence, the person must be supervised by a qualified operator.



CAUTION

When you board or leave the yacht, always use the relevant routes and equipment. Use the available staircases, guards and handrails. Wear shoes with clean and dry rubber soles. Do not jump to board or leave the yacht. Do not use control devices, rudders, etc.. as handholds. Failure to observe these rules may result in serious injury or death.

NOTE

Make sure that the required and approved safety and fire-fighting equipment on board operate correctly. All safety devices must be periodically checked for reliable operation. These devices must be stored, in case of emergency, inside easy visible and accessible places. All persons on board must know how to use the safety equipment correctly.



CAUTION

The safety equipment and systems must be produced in compliance with the local, national and international legislation in force. These devices must be controlled and overhauled periodically by qualified personnel and within the expiry date indicated on the same. Address to local Port Authority and consult the national and international legislation concerning the safety equipment.

Failure to observe such rules may lead to damages of equipment with consequent personal injuries, death and/or fines and/or penalties imposed by the relevant Authorities.



DANGER

It is absolutely forbidden to perform reverse run with one of the two engines stopped. This operation is allowed only in case of life danger for the persons on board and for the safety of the yacht itself, however when the engine is running it should not run higher than 1000 rpm.



CAUTION

Make sure that the forecast wind and sea conditions are suitable for the category of your yacht and that the crew and yourself are sufficiently experienced to steer the yacht in these conditions.

Even though your yacht is classified for same, the sea conditions corresponding to design category A, B, and C range from stormy conditions for A category to strong wind/sea conditions for the upper limit of the C category, exposed to the dangers of a rogue wave or a wind gust.

Therefore, these are dangerous conditions, where only a skilled crew, trained on a well-maintained yacht can work in a satisfactory manner.

2.1.1 Use-related rules



DANGER

Carbon monoxide poisoning.

Fossil fuel combustion generates high quantities of carbon monoxide.

This gas is a colourless, odourless and highly toxic. When the engines and/or the generator are running, the yacht must be properly ventilated, in particular if underway at low speed, or when the exhaust fumes may blow back on board (e.g. when the yacht is shored or anchored or riding the anchor).

Arrange the load evenly so as to keep the correct trim.

Do not overload the yacht especially at bow and aft.

Observe the rules to prevent a sea collision and respect the speed limits; moreover always pay the utmost attention during navigation.



WARNING

The Captain is the only person responsible for driving the yacht.

Prior to departure, the Captain must ensure that the safety equipment required by law is present on board and perfectly working.

The Captain should always meet the requirements and have the specific qualification to steer this yacht as requested by the laws in force in the country of use.

After becoming duly informed as to the operation and controls of the yacht, at first use the Captain should simulate some test manoeuvres, to locate the controls and to be aware of the common reactions of this yacht.



WARNING

Do not use the yachts if the safety equipment is inoperative. Failure to meet such requirement may cause serious risks to the safety and health of passengers.

The basic operations like start, navigation, anchorage and mooring must be carried out and checked thoroughly; in particular all procedures for navigation set-up should strictly be observed.



WARNING

At high speed, the use of the autopilot is dangerous and not recommended. Always be very careful during navigation even when the autopilot is in use.

All refuelling phases have to be carried out with the necessary precautions to avoid even the smallest spillage of products which could pollute the environment. When navigating near harbours, beaches and shores, observe the directives issued by local port authorities, particularly as to the speed; high speed can originate wake waves which can jeopardize the safety of the people and environment. Before lowering the anchor in free waters, be aware of the kind of sea bottom underneath and near your yacht, to avoid damaging it.



CAUTION

Close the portholes, windows and skylights during navigation, especially in bad weather conditions. Furthermore, make sure all doors are closed or locked to prevent impacts against persons or property.



CAUTION

Any modification in masses on board (for instance adding weight on top, a structure or replacement of parts with different specifications) may jeopardize stability, trim and yacht performance. In these cases, contact PERSHING After sales & Service Department.



CAUTION

Pay the utmost attention in towing stage as the stability of the yacht might be significantly reduced.



CAUTION

Bilge water should be kept to a minimum. Stability is reduced by any weight added high up. In case of heavy seas: hatches, cabinets, and doors must be closed to reduce the risk of flooding. Crashing waves are a serious hazard for stability.



CAUTION

Avoid sudden manoeuvres at high speed.



CAUTION

For sake of comfort and safety, reduce the speed in presence of waves.



CAUTION

Do not remove or move any weight positioned underneath the dunnage in the lower deck.

2.1.2 Maintenance rules

Keep your yacht in conditions of the highest efficiency, carrying out all scheduled maintenance of the devices on board. A good maintenance will provide the best performance, a longer useful life and a constant respect of the safety requirements.

For the general cleaning of your yacht, only use bio-degradable or environmentally friendly products.



ENVIRONMENT

During navigation, do not release any on-board waste at sea, but keep it and dump it in waste containers ashore.

Remember that it is forbidden to dump oils and fuels into the sea; therefore, it is recommended to clean the engines' bilges by using absorbent materials to be disposed of later on into dedicated containers.

Before carrying out maintenance and adjustment operations on your yacht, activate all safety devices provided and evaluate if it is necessary to inform all persons on board.

In particular, place warning signs in the nearby areas and prevent access to any device that, if operated, could cause unexpected hazardous conditions, thus endangering the persons and/or property on board.

Maintenance and adjustment operations must be carried out by authorized personnel who must use all necessary protections according to the procedures provided by the Manufacturer.

All maintenance operations requiring precise technical knowledge or particular skills must be carried out exclusively by qualified personnel with a recognised experience, acquired in the specific field of intervention.

To carry out maintenance in an area that is not easily accessible, or dangerous, take all of the necessary safety measures, according to rules and standards applicable to safety at work.



ENVIRONMENT

Any maintenance operation must be carried out in the strict respect of the surrounding environment. Take all necessary measures to avoid that even one single "oil drop" may be spilled: the protection of our environment starts with this type of attention.

Access to the engine room during navigation must be limited only to authorized personnel.

Inspect the sea water system inlets and outlets as well as the bilge systems. These checks are vital to ensure yacht's buoyancy.

Do not perform any maintenance operations or adjustments other than those indicated and/or suggested by the Manufacturer. If necessary, contact the Service Centre for more precise instructions.

Keep all yacht's components clean by following the procedures and using the specific products suggested by the Manufacturer.

Only replace worn parts using original spares.

Use oils and greases recommended by Manufacturer. This will ensure the yacht functionality and the expected safety level.

2.2 SAFETY RULES FOR YACHT MAINTENANCE

Do not start any work before ensuring that people on board are not in danger. If something about the work to be carried out is doubtful, ask someone with knowledge. Do not draw any conclusions.

Always operate with caution, care and under safety conditions. Apart from the regulations stated in this manual, specific warnings are given throughout. This section is meant to provide safety rules for operation and maintenance procedures.



CAUTION

This section includes a certain amount of information to maintain the components without dangers. Remember that each time you activate the controls, you are in fact the pilot. You must therefore read and understand the information given before activating the controls.



CAUTION

The use of faulty lifting attachments can be the cause of accidents; therefore, check their efficiency. Ensure the compliance of hoisting gears with local norms and their suitability for the job they have to carry out. Also check their soundness according to the work to be carried out.



CAUTION

The use of unsuitable clothing can cause accidents; do not wear loose, flapping clothes which could easily get caught in the yacht's moving parts. Wear protective clothes suitable for the kind of work to carry out (helmets, safety shoes and protective goggles, overalls). Button cuffs, do not use ties or scarves and do not leave long hair loose.



CAUTION

It is extremely dangerous to operate the yacht controls under the influence of alcohol or drugs. Never take alcohol or drugs before or during work. Do not take medicines that cause dizziness.



CAUTION

Be alert and use the greatest caution while working. Take great care to avoid possible dangers.



CAUTION

Lifted equipment may fall and hurt you. Do not walk or work under lifted devices not sufficiently and safely supported.



DANGER

The engines' moving parts are dangerous; do not open hatches while running the yacht.



CAUTION

Yacht entrance. Always face the yacht to enter or leave it and use the handles and the steps. Make sure that steps, handles and rubber soled shoes are clean and dry. It is advised to remove the shoes. Do not jump down from the yacht; do not use the yacht controls as handholds; use the handles.



CAUTION

Activating the throttles from outside the helm station can cause serious accidents even fatal ones: controls must only be operated from the correct position in the helm station.



CAUTION

Metallic chips from working with metallic parts can cause injury: always wear safety goggles and use a soft mallet or punch.



CAUTION

Insufficient information may cause accidents. If two or more persons are working simultaneously in the same area, make sure that each one of them is aware of the operation carried out by the others. Before starting the engine, move the other persons from the risky areas (rotary blades and engine belt, tools and movements, engine inner and rear parts). Failure to comply with these precautions may cause serious injury, and even death.



DANGER

Do not approach unprotected flames to the yacht. Do not smoke during refuelling or while working on the engine. Carry out refuelling with the engine shut off. Failure to comply with these precautions can cause accidents and injuries.



CAUTION

A frozen battery may blow up if used or charged; do not start a yacht with a frozen battery. To prevent the battery from freezing always keep it completely charged.



DANGER

The battery releases explosive gases: do not allow sparks or flames to come close to the battery and never smoke near it. If the battery is used or charged in a closed area, check for good ventilation. Do not check the battery charge by short-circuiting the terminals with metal tools: use a density gauge or a volt-meter.



CAUTION

Do not remove the tank filling plug when the engine is on, because the hydraulic system under pressure may cause injury. Stop the engine before releasing pressure.



CAUTION

The spilling of hydraulic oil under pressure may cause injuries: before disconnecting or connecting the hoses, stop the engine and operate the controls to release the residual pressure. Prevent the engine from starting when the hoses are disconnected.



CAUTION

If damaged, the hydraulic hoses may cause death, carry out appropriate periodical checks to check for the presence of:

- Damaged fittings;
- Wear of outer coatings as consequence of rubbing;
- Swelling on outer coatings;
- Bent or squashed hoses;
- Fittings not properly located.



CAUTION

Oil is poisonous: do not swallow. The engine oil contains dangerous polluting agents which can generate skin tumours. Handle oil as little as possible and protect your skin with creams and gloves. Any skin that comes into contact with oil must be washed carefully with warm water and soap. If you want to cover the yacht with a protection sheet, you must arrange a frame to support the whole covering.



CAUTION

Hydraulic oil spraying at high pressure penetrates the skin: do not check for oil leaks with your fingers or allow your face to become too close to them. Use a cardboard blank to verify the possible presence of hydraulic oil. If oil penetrates the skin, ask immediately for a doctor for the relevant treatment.



CAUTION

Clean the trim tabs and stabilizing fins periodically, to remove possible dirt build up, which can jeopardize their efficiency.



CAUTION

The cleaning of metallic parts with unsuitable solvents may cause corrosion; use detergents and solvents of the prescribed type only.



CAUTION

Seals and O-rings fitted incorrectly, or damaged or worn out may cause leaks or accidents; replace them immediately except when otherwise prescribed. Do not use trichlorethane or solvent near O-rings and seals.



DANGER

Hot coolant. When the engine temperature is high, the cooling system is under pressure and the hot fluid can spill over when you remove the radiator plug. Therefore, before removing it, wait until the system has cooled down, then turn the plug up to the first notch and release the system's pressure.



CAUTION

During the restoring operations of metallic or non metallic components, wear safety goggles. Move away from the area or protect possible flammable materials, which could catch fire from sparks.



WARNING

If you want to cover the yacht with a protection sheet, you must arrange a frame to support the whole covering. Avoid covering the whole yacht without a supporting frame as it could be loaded by water or snow pockets, etc..

2.2.1 Fire prevention rules



DANGER

On all yachts, fire is a major danger. Therefore, all fire prevention measures must be followed scrupulously.

Before steering a yacht, the Captain must be perfectly aware of the following fire prevention measures.

At all times the yacht must be equipped with portable extinguishers, located as shown in this manual.

The yacht's Owner and the Captain are directly responsible for:

- Having extinguishers and fire-fighting systems within the date marked on same and having them replaced, as required by the rules in force with other extinguishers of equivalent or higher capacity;
- Informing the crew about the location and use of fire extinguishers and fire-fighting systems and escape routes;
- Ensuring that fire extinguishers are also available in the passengers' cabins.



DANGER

Do not stow transportable tanks containing petrol on board.



CAUTION

The engine room is equipped with a HFC-227 gas fire-fighting system.



CAUTION

In case fire breaks out in proximity to electrical equipment, do not use water, use the manual dry-powder fire extinguishers only. After using the extinguishers, leave and ventilate the area immediately before re-approaching it, in order to prevent asphyxia and physical damages.

Clean out any fire extinguishing powder very carefully.



WARNING

NEVER:

- Obstruct passageways and the escape routes;
- Hinder access to safety devices, such as fuel valves, electrical switches, etc..;
- Obstruct access to fire extinguishers stowed inside the lockers;
- Leave the yacht unattended, when burners or heat generating equipment are on;
- Use flames;
- Modify electrical or fuel supply systems, without consulting PERSHING beforehand;
- Smoke near or when handling flammable materials;
- Stow highly flammable materials (such as fuel, thinners, etc..) in proximity to heat sources, such as engines, galley, etc..;
- Stow flammable material in the engine room. Non-flammable materials may be stowed only if properly rigged, so they do not accidentally come into contact with rotating engine parts, or obstruct access to the engine room.

Keep the bilges clean and check them frequently for any oil or fuel leaks.

In addition to these requirements, PERSHING recommends the following:

- Avoid smoking in lower deck, especially in the engine room.
- Avoid dropping liquids in the bilge and keep it clean, especially the engine room bilge. In case of fuel leaks from the engines or from the generator, operate as follows:
 - Stop all engines immediately;
 - Locate the leakage and, if possible, repair it after closing the delivery valves;
 - Dry and clean the bilge before restarting the engines, without draining at sea or in the harbour;
 - Do not stow flammable items in proximity to heat sources, like engines, burners, halogen lamps, etc..;
 - Should the yacht leak, try to remedy with plugs and/or rags, if possible, from outside;
 - In case a system of the yacht breaks, close all hull valves, locate and repair the leak if possible. Remember to reopen all hull valves not involved.



CAUTION

The Captain of a pleasure yachts must be perfectly aware of the basic fire- fighting techniques and how to use the extinguishers.

In case of fire, follow the procedures described below:

- Keep calm and do not spread panic among the passengers;
- Stop the yacht, close the sea cocks and the drains;
- Set the battery breaker to "OFF";
- Close the air intakes in the engine room;
- Locate the fire and its origin;
- Avoid breathing smoke;
- Extinguish the fire, by following standard fire extinguishing techniques.



DANGER

In case of the risk of the yacht sinking, close the fuel and black waters valves.



CAUTION

The reading of this section, containing all the information the Captain of the yacht should know, is strongly recommended.



WARNING

EXPLOSION HAZARD

Any lithium battery powered device on board must be recharged only in open air areas, connected to a suitable charging system.

Also please refer to the device dedicated Use and Maintenance Manual.

2.2.2 Abandonment of the yacht

When you must abandon the yacht, swim against the current or windward.

The fuel leaks float in the direction of the current and can catch fire.

When you have taken shelter, count the person present on the yacht and help people in need.

- Take advantage of the distress call.

Keep all people gathered in order to facilitate the rescue operation.

2.3 NOTES ON THE ENVIRONMENT

Environmental pollution is caused by three kinds of polluting agents:

- Water polluters;
- Air polluters;
- Soil polluters.

Non oily and black waters (containing only human organic waste) can be discharged into the open sea. In harbour areas they should be collected into suitable containers and afterwards discharged either during navigation into open sea or by means of special drainage systems fastened to the shore or wheel-conveyed.

Soil pollution is caused by discharging waste at shore.

International rules for pleasure yachts essentially prescribe the following:

- During navigation it is forbidden to discharge any non biodegradable product, either of food or commercial origin, into the open sea.
- In the harbour, normal waste is considered urban waste that must be hermetically sealed in plastic bags and thrown into waste dumpsters.
- Special waste must be disposed of in suitable containers or, if these are not available, it must be delivered to local waste disposing areas, in compliance with the rules in force, issued by the local Port Authority.
- The following waste is considered special waste:
 - Water and oily mixtures (e.g. bilge water);
 - Oils (fuel, additives and lubricants);
 - Poisonous chemical substances (like battery acids, paints, thinners and the relevant containers);
 - Spray cans containing C.F.C. gas;
 - Batteries;
 - Spent flares;
 - Expired pharmaceutical products;
 - Products containing lead or asbestos;
 - Etc..
- Fuel and oil leaks.
- Waste discharge and disposal.
- Excessive noise.
- Wake / wake from board.
- Exhaust fumes.
- Paints, detergents and other agents.

Please remember that, according to legislation, until such waste is delivered to suitable disposal areas, you will be considered as possessors and therefore indictable in case of unlawful discharge. Should specific cases be missing in the harbour area, the Authority in charge for the disposal is the Port Authority section "Waste Disposal".

2.4 REGULATIONS FOR WASTE DISPOSAL

MARPOL 73/78 is the international convention governing the prevention of pollution from ships.

Those standards apply to all yachts with no limits on tonnage and service, therefore including all pleasure yachts.

The rules cover the entire Mediterranean.



WARNING

When moored in a harbour, always check that your yacht is not a source of pollution. The environment must be respected and safeguarded, preventing risks for the life of aquatic flora and fauna. It is good practice to leave no trace behind you, to respect laws on safety and environmental protection. Do not discharge bilge waste, oily residues, fuel or other liquids overboard. Dispose of solid waste and old engine oil in the containers provided at mooring points.



WARNING

During navigation, it is always necessary to behave suitably and to respect the safety and the comfort of your guests and of persons on nearby boats. Therefore:

- Avoid excessive noise;
- Do not leave the engines running for long periods without moving off;
- Do not navigate at high speed or beyond the permitted limits when leaving or entering harbours, marinas, etc., to prevent causing excessive wash or wave motion.



CAUTION

It is absolutely prohibited to throw plastics, synthetic cables, fishing nets, waste bags, floating packaging materials, paper, rags, metals, bottles, galley utensils and similar waste into the sea. Non-comminuted or unground food waste can only be disposed of beyond 12 miles.



CAUTION

It is prohibited to discharge holding tanks close to the shore or in any other prohibited area. Use the suction systems located in the harbours or marinas for emptying the holding tanks before navigation.



ENVIRONMENT

Always refer to and follow the local and international environmental laws against sea pollution (MARPOL).

Always follow the rules of good conduct of the yacht.



CAUTION

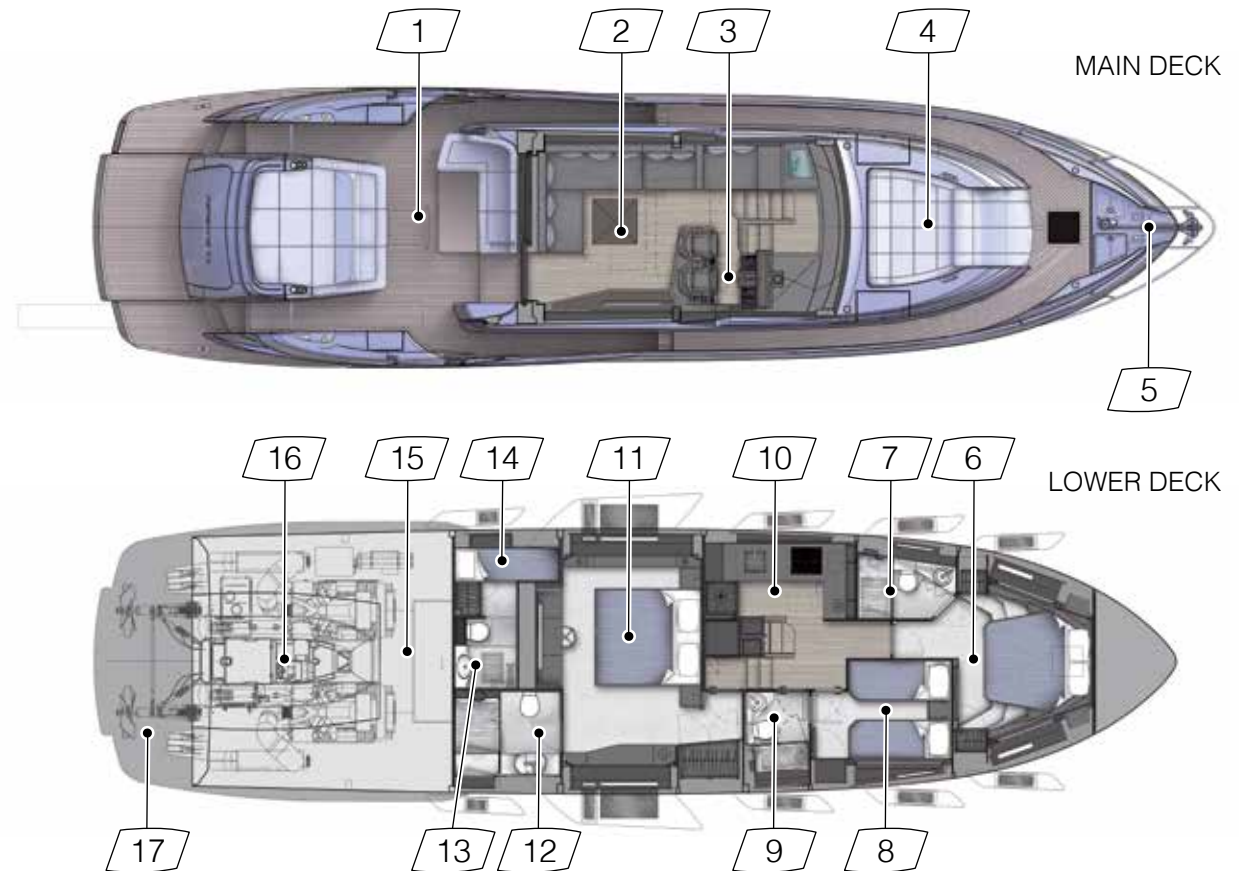
When garbage is mixed with other harmful substances having different disposal or discharge requirements, the more stringent disposal requirements apply.

Although discharge at sea, except in special areas, of a wide range of ship-generated garbage is permitted at specified distances from the nearest land, preference should be given to disposal at shore reception facilities.

2.5 YACHT'S AREAS

The diagram below, represents the yacht's general layouts, divided according to the areas they include:

1. Stern cockpit and sun deck
2. Saloon
3. Helm station
4. Bow sun deck / storage
5. Bow mooring and anchoring area
6. VIP cabin
7. VIP cabin bathroom
8. Starboard guest cabin
9. Guest / crew bathroom
10. Galley
11. Master cabin
12. Master cabin bathroom
13. Crew cabin bathroom
14. Crew cabin
15. Engine room
16. Garage
17. Stern platform



2.6 FORBIDDEN AREAS



Areas that cannot be used during navigation.
External areas forbidden during navigation, with restricted access.



Areas that can be used on a restricted basis.
Sitting and lying is allowed in the sun-deck areas and on the sofas highlighted in orange which, anyway, are not considered as a “working deck”.



External areas accessible with care during navigation.
Deck areas for normal transit or stopping when navigation and sea conditions so allow.



WARNING

Control and verification of compliance with safety requirements is a responsibility of the yacht Captain.



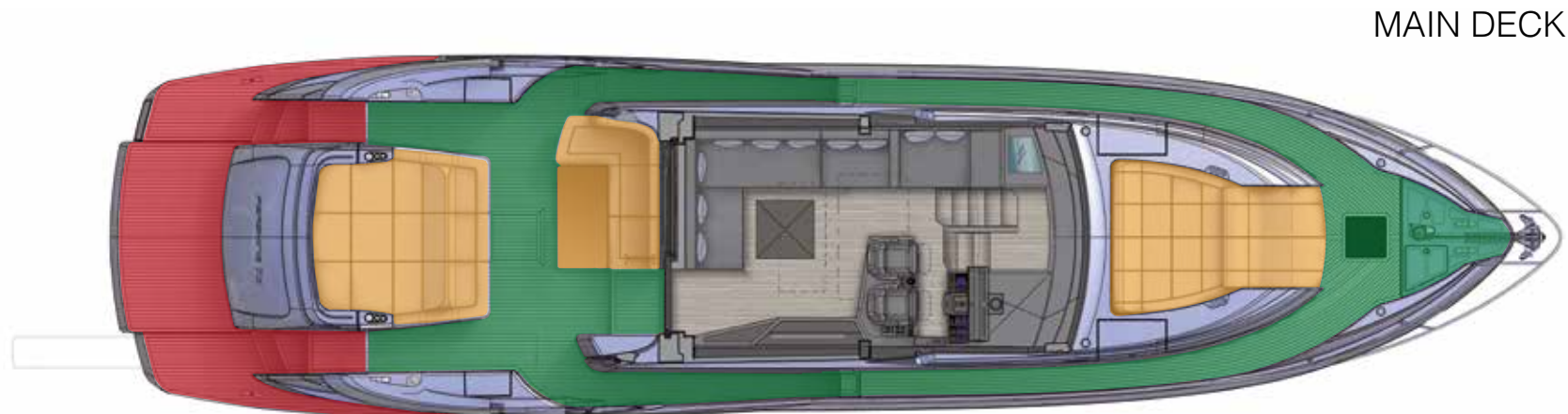
CAUTION

All the areas where there is polished fibreglass are no-step areas.



DANGER

On board the yacht, some areas are “dangerous”, and need plenty of care, and possibly require wearing protective equipment, in order to safeguard the integrity of people on board.
During navigation, the risks relating to any hazardous area increase significantly; we recommend, therefore, scrupulously observing the safety rules indicated in this manual.



MAIN DECK



DANGER

External areas of the yacht not identified: access to these areas is FORBIDDEN. Only professional personnel, under their own responsibility, can gain access to them when the yacht is moored in a safe harbour or in a lay-up shipyard if they are wearing shoes with non-slip sole and belt/safety equipment tied to a safe point of the yacht to prevent falling.

The areas are following:

- **Engine room:** area with a high level of noise, presence of moving components, burns hazard, tripping and falling hazard. The access to the engine room is only allowed to trained and expert crew, prepared for the risks and equipped with proper safety devices.
- **Stern platform:** outer area non protected by rails against the fall at sea. During navigation access to this area is forbidden. Accessing and staying in this area is allowed only when the yacht is idle and with the engines shut off.
- **Overstructure outside:** these areas present no anchoring points and surfaces are smooth; the risk of falling at sea is therefore remarkable. The access to these areas is only allowed to experienced crew, equipped with shoes (or boots) with anti-slipping sole and possibly tied to a line.

In case of a fall overboard, the following rescue devices can be used:

- Life buoy;
- Embedded emergency ladder;
- Individual life jackets.

The easiest way to get on board is from the stern platform by means of the swim ladder, which is stowed inside the stern structure when not in use.



CAUTION

The pilot is responsible for ensuring boarding with the electro-hydraulic ladder extracted every time the yacht is NOT IN OPERATION (meaning not navigating) ALTHOUGH ATTENDED.



CAUTION

Do not seat in the bow cockpit when the yacht is moving.

2.7 ESCAPE ROUTES



In order to deal with various emergency situations that could require the abandonment of the yacht (fire, collision with sinking hazard etc..) in the quickest and safest way, the rules in force require an “escape plan” informing about the safest and most secure, as well as the quickest paths (from any yacht’s area) for taking shelter and reaching the “muster stations”, outdoors, from which it will be easier to leave the yacht.



WARNING

During navigation it is necessary to unlock the safety retainer of the bow skylight so as to ensure a safe and quick escape.



WARNING

Always keep the escape routes, dry, free and accessible.



DANGER

The various yacht’s areas have more than one escape route. It is therefore necessary, according to the nature and position of the danger or fire source, to choose the safest and most suitable escape route very carefully.



WARNING

The ladders must be carefully used during navigation.



DANGER

For safety reasons the watertight hatch, giving access to the engine room, must be kept closed by any chance and situation. It must stay open only while passing.



WARNING

The foldaway ladder, hidden underneath the mattress of the VIP cabin, must be used only in case of emergency.

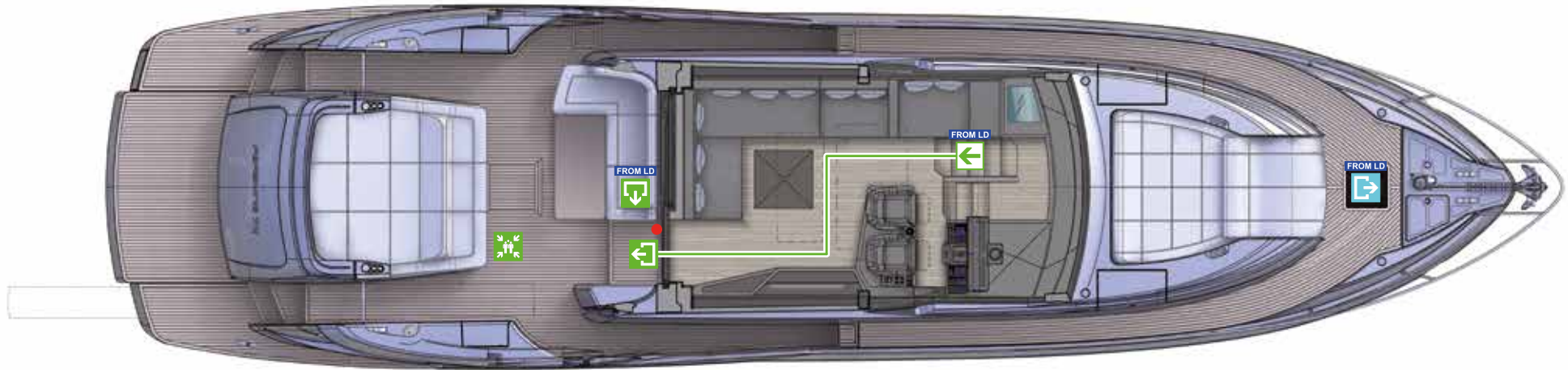
- Move the mattress to make the ladder accessible.
- Extract the ladder from its housing.
- Position the mattress on the bed properly.
- Position the ladder on the mattress, on the perpendicular of the bow skylight.
- Open the bow skylight and leave the room.

During the opening phases of the ladder, do not stay under it. The skylight opens on the main deck in the bow area.



CAUTION

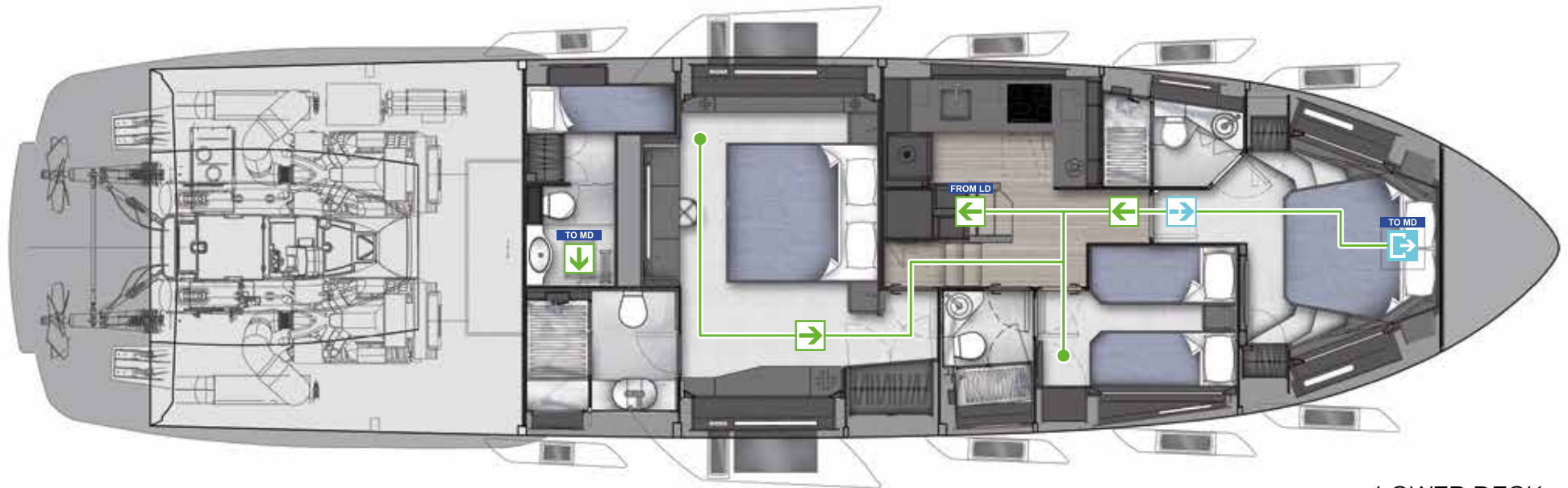
When the yacht is in use, the captain is responsible for unlocking all doors and/or escape equipment in order to enable these means for their designed use in the case of an emergency.



MAIN DECK

ICON	DESCRIPTION
	Primary escape route
	Secondary escape route
	Main escape
	Secondary escape

ICON	DESCRIPTION
	Muster station
	Tool-free opening door from inside and outside when closed and unlocked



LOWER DECK

ICON	DESCRIPTION
	Primary escape route
	Secondary escape route
	Main escape
	Secondary escape

ICON	DESCRIPTION
	Muster station
	Tool-free opening door from inside and outside when closed and unlocked

2.8 SAFETY EQUIPMENT



Everybody on board must be aware of the location and use of safety equipment, i.e. life jackets, life buoy, life rafts, extinguishers and fire extinguishing systems (i.e. in engine room, etc..).



CAUTION

The following lay-out shows the position provided by the manufacturer for the various safety equipment; it represents therefore a reference as to position and code. It is the owner's responsibility to inform the crew on the yacht about the safety equipment, whether in case of fire or in case of sinking and listing.



CAUTION

The above-mentioned safety systems must comply with existing local and international navigation regulations, and which must be periodically inspected and maintained by qualified technical personnel, prior to the expiry date indicated on the systems.



CAUTION

The Captain is required to inform the crew on the yacht about the safety equipment, whether in case of fire or in case of sinking and listing.



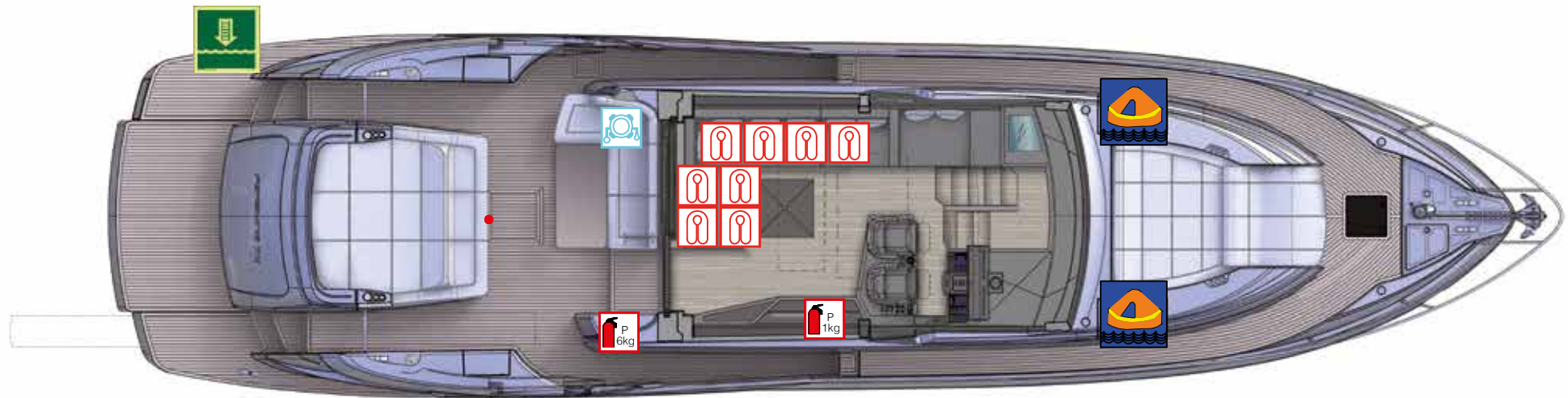
CAUTION

The diagram indicates the location of the portable extinguishers approved for the European (EC) model and is therefore a guide to the location of the portable extinguishers.



DANGER

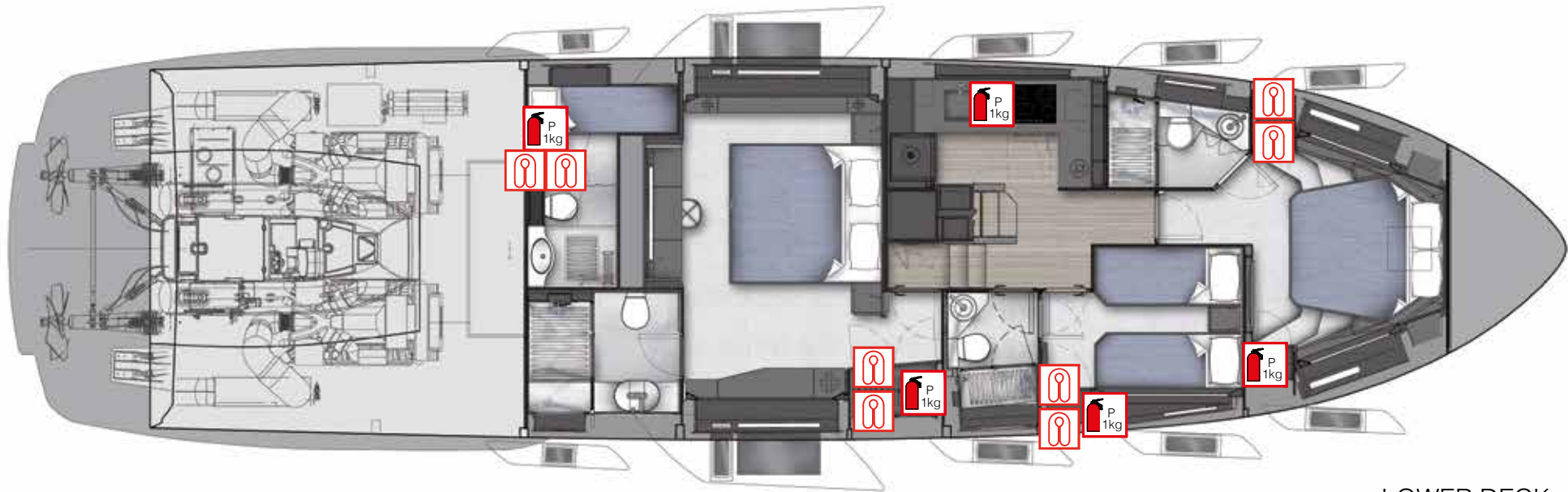
Check the conditions of the safety equipment and the dates of inspection, maintenance or replacement, so that they are always in good working order.



MAIN DECK

ICON	DESCRIPTION
	Portable powder extinguisher 1kg
	Portable powder extinguisher 6kg
	Fire port

ICON	DESCRIPTION
	Inflatable life raft
	Lifebuoy
	Individual life jacket
	Built-in emergency ladder

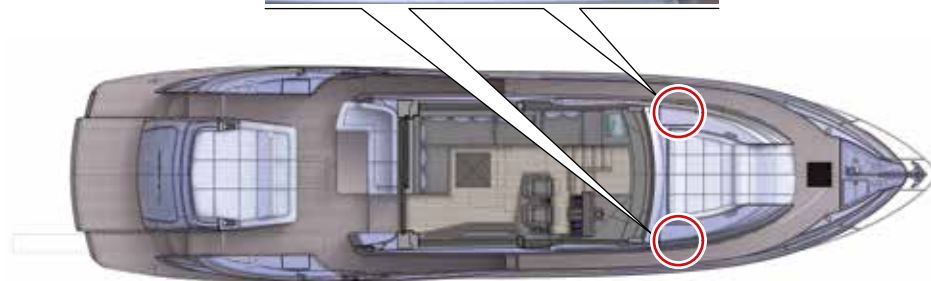


LOWER DECK

ICON	DESCRIPTION
	Portable powder extinguisher 1kg
	Portable powder extinguisher 6kg
	Fire port

ICON	DESCRIPTION
	Inflatable life raft
	Lifebuoy
	Individual life jacket
	Built-in emergency ladder

2.8.1 Self-inflatable life raft



WARNING

Before setting up for navigation, check that it can be used immediately without obstacles.

Self-inflatable rafts must be used only in case of real emergencies, requiring the abandonment of the yacht.

The yacht must in fact be abandoned in case of a serious sinking hazard, or in case of fire becoming out of control. In all other cases careful evaluation is necessary, because to leave the yacht, even though on a self-inflatable life raft, could mean a more difficult identification by the rescue team.

As a matter of fact, the search for the shipwrecked will start exactly from the last known position of the yacht.

In case the use of self-inflatable life rafts becomes necessary, perform the following operations:

- Shut the engines down and wear the life jackets;
- Perform the distress call using the VHF device;
- Uncoil the life line of each raft by 3 to 4 m; secure it tightly to a fixed point of the yacht and launch the self-inflatable life raft into the sea on the lee side;



WARNING

Check that the anchoring line is always well fastened to the yacht.

- Unwind the lifeline completely, then give a strong and decisive pull; the raft will open in a couple of minutes;
- Board by jumping directly from the yacht into the life raft;
- If the distress call has already been made and you have received an answer, prepare for a relatively short wait; then evaluate whether to cut or not the life line. If you did not have the time to make the distress call or you did not receive an answer, prepare for a long wait; in this case, plan for survival, taking the following items, as well as the equipment included in the kit: floating smoke signals and rockets, a knife, drinking water and energy foods that do not cause thirst. Before boarding the raft wear all possible garments, except shoes that could injure other shipwrecked persons or damage the life raft;
- Embark possible clothes and supplies;
- If somebody falls overboard, help him/her up into the raft; throw the life buoy with line, if necessary;
- Make sure that everybody is on board, take the knife out of its sheath and cut the line that ties the life raft to the yacht;
- Move quickly away from the sinking yacht, using the oars;
- When the overpressure valves have stopped hissing, close them by tightening the safety plugs.



CAUTION

The validity of the self-inflatable life raft is limited; check its expiry on the certificate. The raft can be overhauled by a reliable entity extending its validity. Some sanctions are provided if this rule is not respected.



DANGER

If the life raft opens upside down, jump into the water and roll it over, by pulling the special rope.

If the life raft does not open after the first pull, repeat the operation two or three times. If the life raft still does not open, jump into the water and, keeping a hand on the container, pull the emergency line strongly. If the life raft still does not open, cut the container open with a knife and operate the opening device directly (by pulling the life line).

Oars are only useful for small manoeuvres.

- The life raft is fitted with stabilisers and a floating anchor, for improving its stability and drift. The stabilisers give stability to the raft. Keep the floating anchor into the water. The anchor prevents excessively rapid drifts.
- When the life raft is towed, weigh the floating anchor on board.
- With very high waves and strong wind there is the risk that the raft may overturn: shift the weight of persons on board towards the side tending to lift.
- If the life raft does capsize, roll it over and return on board. If the sea is rough, it is advisable to wear the life jackets all the time. If the raft deflates, inflate it again from time to time using the relevant inflating device provided with the raft.
- If air blows out of a hole, use one of the plugs stowed inside the repair kit.
- Oars are only useful for small manoeuvres. Clean the torn area and the repair pad, spread both with the glue. Hold the pad for thirty seconds, pressing from the centre outwards, in order to eliminate any air bubbles.
- Hold down for a little time and inflate again, after one hour.



DANGER

All persons on board must know the location of self-inflatable rafts storage and the correct use procedures.



DANGER

If the waves are high and the wind is strong, the life raft may capsize; in such case, move the personnel weight to the side that tends to lift.

If the life raft in spite of all does capsize, roll it over and return on board.

2.8.2 Signalling rockets

Pleasure yachts are obligated to carry 4 manual rockets with red light and 4 manual orange smoke signals as required. Always verify the legislation of the Country in whose waters the yacht is going to navigate.

- The signalling rockets have a limited lifetime; it is therefore necessary to check their expiry date and eventually to replace them.
- The floating smoke signals, visible up to 4 km, have to be used with the daylight, to indicate the correct position.
- The red light rockets, visible up to 10 km, are designed for night use, but they can also be seen during the day.
- Before using the signalling rockets, always wait for the arrival of an aeroplane or to see persons on the shore or on other boats.
- Store the signalling rockets away from flammable liquids.
- As the content of the signalling rockets absorbs the moisture, make sure to have them located in a dry and accessible place.
- All people boarded must know the place of the signalling rockets and the method of use.
- Carefully follow the activation instruction for all signalling rockets.
- Each month, and anyway before each navigation, check that they can be used immediately without obstacles.



DANGER

Keep the signalling rockets away from heat sources, as flammable liquids or naked flames, and out of the reach of children.



DANGER

Once the signalling rocket has been lit, never direct it towards persons, there is a risk of burns and scalds.



WARNING

The signalling rockets have a limited lifetime, indicated on their containers. Once expired, contact the rockets suppliers which offer a disposal service. Do not light them unless necessary, because they can activate the Emergency Services.

2.8.3 First aid kit

The first aid box must be kept on board of class A yachts qualified for navigation “with no limits from the coast”.

The container must be rigid, floating and with watertight closure.



ENVIRONMENT

It is forbidden to discard medicines at sea, even if expired. Treat medicines as special waste and therefore in accordance with the disposal procedures envisaged by the Country in which you are staying/ transiting.

This is the minimum quantity of the medicines recommended for the Owner to keep on board:

- Disinfectant bottle for outer use;
- Ammonia;
- Bandages of various sizes;
- Plasters;
- Medicated plasters;
- Cotton wool;
- Pair of scissors;
- Compressed hydrophilic gauze of various sizes;
- Compressed Vaseline gauze of various sizes;
- Tourniquet;
- Splints for fractures.



DANGER

Remember to check the expiry date and availability of the products contained in the first aid box at regular intervals.

Remember to store those medicines which need to be kept in cool places in the fridge.

Inform all passengers of this.

Keep the first aid box in a place free from moisture and away from heat sources, easily accessible, quickly reachable in case of need and far from the reach of children.

2.8.4 Embedded emergency ladder



The yacht has an emergency ladder built into the aft structure, above the waterline.

A cleat that makes using the emergency ladder easier is installed on the platform.

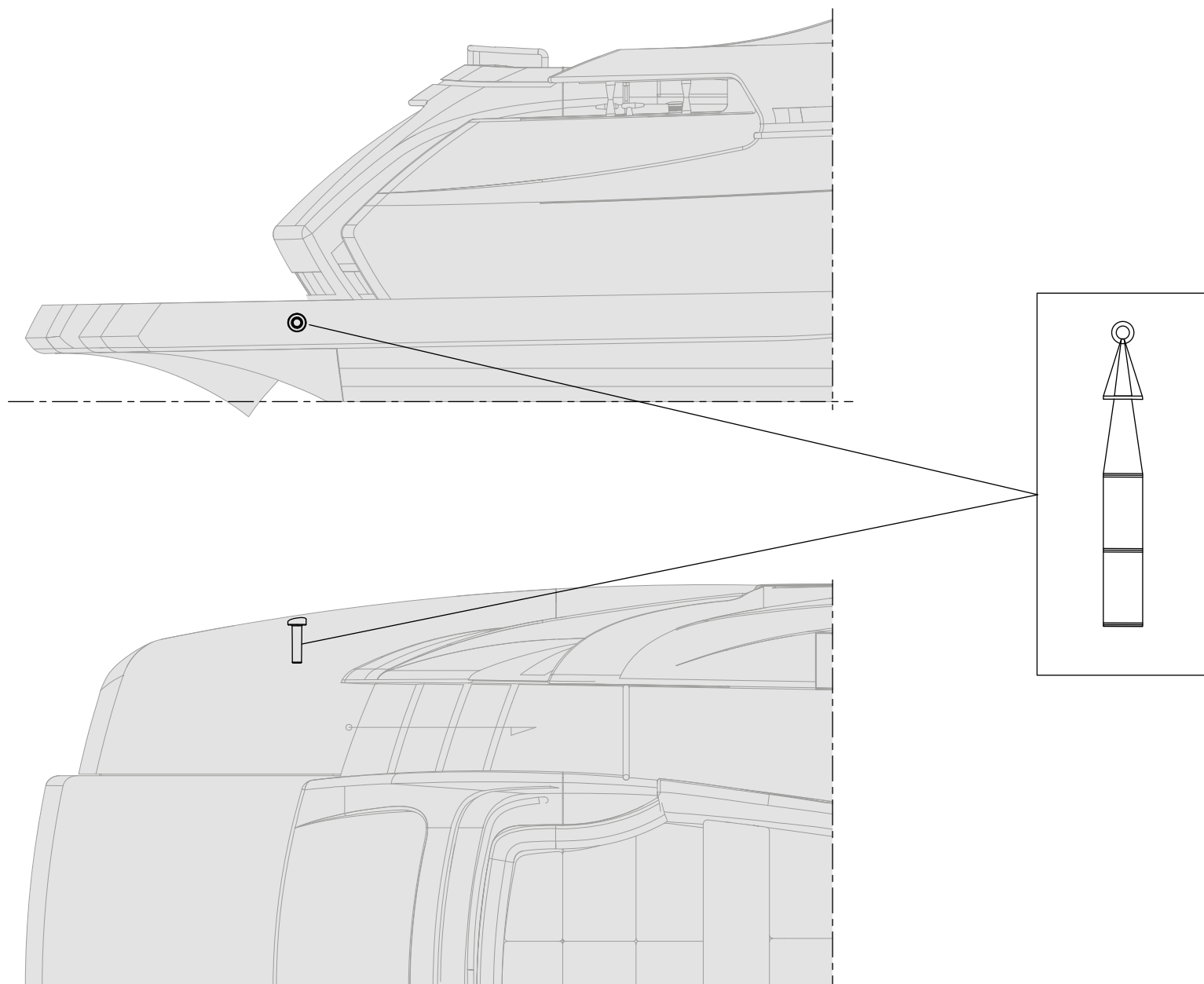


CAUTION

The built-in ladder is used only in the case of an emergency, and can be used by just one person and in water without any outside help.

Instructions:

- The person in the water pulls the ring of the closing cap and in this way the ladder comes out of its housing.
- Let the ladder totally extend into the water.
- Climb back on board using the rungs of the ladder.



2.8.5 Portable fire extinguishers

In case a fire breaks out, immediately reach a fire-fighting station where a portable fire extinguisher is located.

The use of a fire extinguisher requires a certain familiarity with it, but some theoretical-practical rules can facilitate its handling:

- Make sure that the safety pin against accidental discharge has been removed;
- Always direct the extinguisher towards the bottom of the flame;
- Do not stand but try to bow as far as possible;
- Do not hit the fire from above;
- Shift the fan-shaped jet slowly from one side to the other of the flame;
- Act immediately before the temperature becomes too high;
- Always stay windward;
- If the material burnt is wood, paper or tissue, after the fire has been extinguished, pour on water to prevent any further spread of flames;
- Always act dressed, avoiding loose clothing or similar;
- Head the yacht so that the fire is leeward;
- Persons not engaged with the fire fighting must gather windward from the fire area and if necessary, disembark on a rescue device (tender, rubber dinghy, self-inflatable life raft), that must be linked to the yacht with a line, in order also to embark the persons engaged with the fire;
- If the fire is big the operators must abundantly wet their clothing;
- Isolated objects in flames must immediately be thrown overboard;
- All openings that can allow air to penetrate through the flames must be closed;
- After using the extinguisher to fight fire in closed spaces, ventilate the space carefully, prior to entry, and remove powder deposits.



DANGER

The person in charge of the yacht must make sure that all passengers know the locations and how to operate the fire extinguishers on board correctly.



WARNING

We advise regularly checking the charge status (visual check of pressure gauge and weight) and also its overhauling, according to the rules in force in the country whose flag the yacht flies.



DANGER

Pay particular attention during the cleaning and cooling operation because the components are still hot and can generate burns or scalds.

The arrangement of the fire extinguishers is indicated in the previous “Location of safety and fire-fighting equipment” diagram.



CAUTION

All fire extinguishers should be checked at least every 6 months by qualified staff and in any case, after each navigation. Even after a partial use, the extinguishers should be recharged by authorized personnel.

The extinguisher should be kept in a good condition and the charge indicator, located on the pressure gauge, must always be positioned in the green field. Keep the extinguishers in a vertical position.

After the use of a dry-chemical fire extinguisher, carefully clean the parts that came in contact with the powder because it is highly corrosive.

Portable fire-extinguishers maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Portable extinguishers	Checks and tests	Check the state of charge of each fire extinguisher at least once every 12 months, and in any case before each journey at sea, by means of the installed pressure gauge. The fire extinguisher is correctly charged when the weight value is as stated on the fire extinguisher's tag, and the charge indicator on the pressure gauge is in the green area. If they are found to be discharged or insufficiently charged, or at least every 10 years, have qualified technicians: • Check the condition of the container (cylinder); • Refill the extinguishing medium; • Carry out a hydrostatic test. MAINTENANCE At least every 12 months, and, in any case, before each journey to sea, check the state of charge of the fire extinguisher. At least every 10 years, and in any case before each journey to sea, check the external state of the fire extinguisher. At least every 6 months check the fastening of the fire extinguisher.

2.8.6 Individual life jacket

This kind of life jacket assures, by means of a suitable distribution of the floating material, the support of a body with the face out of water, apart from the position taken by the body when diving in the water.

These life jackets must be worn correctly and be firmly tied by means of strong laces.

To avoid energy waste it is necessary to float by keeping legs and arms folded as far as possible and tight to the body to maintain the heat.

The individual life jacket is equipped with an orange whistle, fastened to the jacket by means of a safety cord.

The whistle is particularly useful to indicate the wearer's position when the weather conditions do not allow sufficient visibility (bad weather, fog, etc.).

The individual life jacket has to be worn under following circumstances:

- When you navigate through sandbanks or tide reefs;
- At first sign of bad weather;
- When visibility is limited;
- When you navigate with rough sea;
- When you navigate alone;
- At any time with children below 10 years of age.



CAUTION

The yacht must be equipped with a number of individual life jackets equal to the number of persons present on board. All persons on board must know the location of life jackets, how to wear them, how to tie them properly to the body, and where the whistle is located.



DANGER

If you are to choose a life jacket for a child, take care about for the correct size and that smaller children do not slip out of them once in water. We recommend that all children wear an individual life jacket when they move on the yacht.



CAUTION

CARING FOR AND INSPECTING THE LIFE JACKETS

The life jackets must be handled with care so that they are able to save your lives whenever necessary. Check that all the belts, braces and buckles are in good condition and firmly secured on a regular basis: make sure that all the seams are steadfast and that any welded or glued part adheres perfectly. Check that the reflecting strip, whistle and light (if supplied) are firmly secured and that the light battery has not yet expired.



CAUTION

Do not use as a cushion. Train yourself in the use of the device.

May not be suitable for persons with physical disabilities.

Full performance may not be achieved using waterproof clothing or in other circumstances. Refer to the leaflet.

The use of this lifejacket does not guarantee the safety and ultimate rescue of the wearer but the lifejacket will afford support in the water for an extended period.

MAINTENANCE

Wash in warm soapy water after use. Dry thoroughly.

Store in a dry, ventilated area away from direct sunlight and harmful chemicals.

Check your lifejacket regularly to ensure it is in good working condition.

2.8.7 Life buoy



The life buoy is equipped with a lifeline of 30 m and with an automatic light buoy.

The life line is not twistable and it is orange in order to be easily seen in water.

At least once a month:

- Check the fastening of the floating line;
- Check the loading condition of the batteries of light buoy;
- At least once every 6 months check the status of the floating line.



CAUTION

All passengers must know the stowing place of life buoy.



CAUTION

The Captain must make sure that all passengers know how to use the life buoy:

- How and where to throw it;
- How to behave in case of "man overboard".

2.8.8 VHF-Radiotelephone



The VHF device allows communication on channels dedicated to Port Authority, rescue and radio stations.

To ask for rescue it is necessary to use the suitable VHF/FM channel: after each hour, as a legal rule, 6 minutes of silence follow, from minute 0 to minute 3 and from minute 30 to minute 33, so as to enable a better listening of the distress communications.

If the VHF is used, the distress call must be preceded and ended by the wording **"MAYDAY, MAYDAY, MAYDAY"**. It is therefore necessary to give your position, the yacht's name, the kind of damage and the kind of help you require (medical, mechanical, etc..).



CAUTION

Perform the **"MAY DAY"** rescue call, only in case of real need.

If, listening to the distress channel, a distress call that has not yet received an answer is picked up, it is possible to send a **"MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY"**, forwarding the communication of the person who requested rescue.

It can in fact happen that the distress call, carried out on the open sea or by means of a poorly powered sender, is not received by the rescue team. Acting as a spokesman, you can help the message reach its destination successfully.



CAUTION

Perform the call **"MAYDAY RELAY"** only if there is a reasonable certainty that the message has not been collected by the rescue team, so as not to engage the distress channel uselessly.

The use of the standard procedure avoids creating confusion and shortens the transmission time. In case of danger, use only the phonetic alphabet recommended.

The VHF device is a vital and important communication line; please remember some fundamental rules:

- No transmission should be performed without reason;
- Listen before transmission so as to avoid interference with other senders;
- For distress calls, use and hold the best possible wireless contact;
- Always use your call identification or the name of the yacht in order to make yourself identifiable. The use of names or family names is not allowed;
- Send short and clear messages;
- For distress calls it is important to give the yacht's position, the kind of danger, the time passed in water, the kind of yacht and the number of persons involved;
- For other calls, once the contact with the person called has been established, transfer the call on an operation channel.
- Cut out transmission if required by a coastal station;
- Retune the radio when the call is ended.

TAKE ADVANTAGE OF THE DISTRESS CALL:

- Select the distress channel by pressing key 16 or by scrolling the channels with the volume keys.
- Confirm the channel by pressing the OK key.
- Press the transmission key "PTT" on the radiotelephone and perform the call.

MAYDAY - MAYDAY - MAYDAY

THIS IS: repeat the yacht's name 3 (three) times.

MAYDAY THIS IS: repeat the name of the yacht.

AT POSITION: specify the position of the yacht.

SPECIFY THE DISTRESS CAUSE.

- Release the “**PTT**” transmission key.
- Wait for the reply for a few seconds.
- If you do not receive any reply, repeat the message at regular intervals, until receiving a reply.



CAUTION

For instructions on VHF device use, refer to the chapter “Helm stations” of this manual.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

2.9 ENGINE ROOM FIRE-FIGHTING SYSTEM

The engine room is protected by its own fire-fighting system with automatic or manual activation, which uses HFC-227 gas extinguishing agent. The discharge is automatically activated by means of a glass flask filled with liquid; when the temperature in the engine room rises, the liquid expands until the flask breaks, and the extinguisher discharge activates.

The flask is equipped with a pressure gauge and is fitted on the cylinder itself. The extinguisher can also be activated manually, the discharge is controlled by the tie rod, placed inside the utility cabinet in the stern cockpit.

In case of fire, a control unit stops the WC of engines, extractors, and generators. In both helm stations there is a panel for the control of the fire-fighting system, described hereunder:

1. **Green light**
 - It indicates that the cylinder is charged.
2. **Red light:**
 - It indicates that the cylinder is discharged.
3. **SILENCE button:**
 - It turns off the acoustic signal which indicates that the system is operating and that the system is releasing or has released gas, or is empty.
4. **DIMMER:**
 - It varies the brightness of the control lights of the panel.
5. **VERRIDE button:**
 - By pressing the button the automatic stop of the engines, generators and extractors is inhibited in case of system discharge.
 - In **VERRIDE** position the engines, the generators and the extractors stay on also in case of discharge of the fire-fighting system.



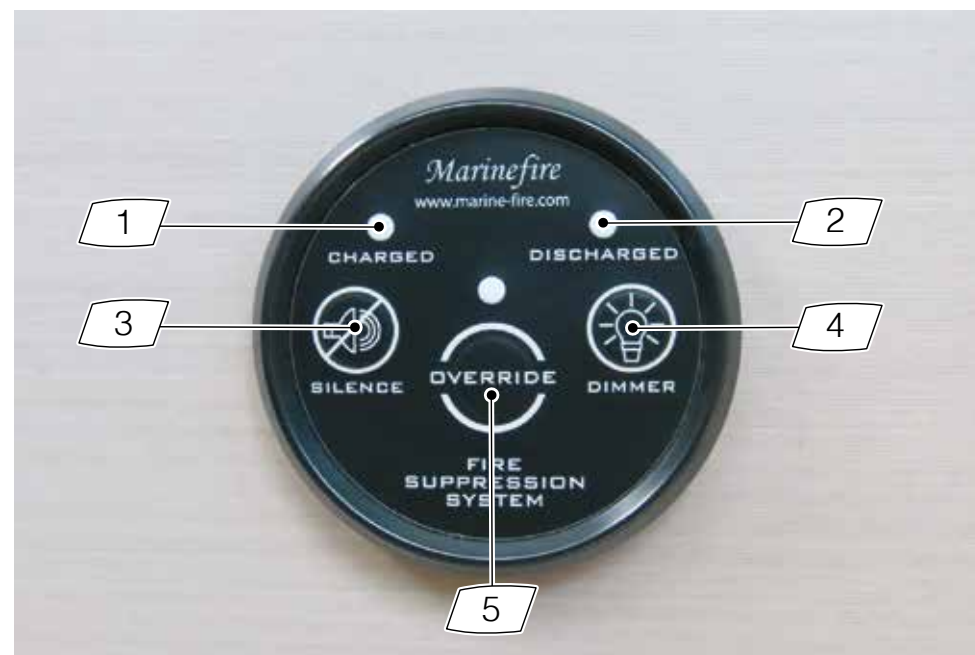
CAUTION

The **VERRIDE** button must only be used in case of real emergency.



WARNING

The **VERRIDE** button must be pressed only when navigating in confined waters or with a collision hazard and to restart the engines after the system's discharge.



In case of fire in the engine room, operate as follows:

- Shut down both engines and generators, if running, by means of push- buttons on main deck dashboard;
- Turn OFF the battery breaker switches by selecting the services and all magneto-thermal switches of the AC services;
- From the fire-fighting panel, located inside the aft cockpit utility cabinet, cut off the fuel supply to engines and generators by pulling tie rod;
- Remove safety wire and pin by slipping them off;
- Pull tie rod for extinguisher discharge. The extinguisher can be automatically discharged, but pull the handle anyway.



CAUTION

In case of fire

Leave immediately the engine room, close the access door and pull the fuel supply cut-off tie rods for fire fighting system activation.
The tie rods are located on the main deck inside the utility cabinet.



DANGER

Before activating the fire-fighting system, make sure that nobody is inside the engine room.



DANGER

Do not open the engine room access hatch, until the fire is completely extinguished.



DANGER

Once checked that the fire is totally extinguished, before entering the engine room, ventilate the room adequately, so as to avoid risks of burns and poisoning due to high temperatures and to poisonous gas suspended in the air.



CAUTION

Keep the fire-fighting control tie rods efficient; service them periodically and check for their operation (as per rules in force).



DANGER

To reset the fire-fighting system, with the aim of resuming navigation is a recommended operation only in case the fire source has not produced damages to the yacht's structure or to important devices of the same.
In such a case, or should you have any doubt, it is essential, to wait for rescue without resuming navigation.



WARNING

Remember that, as a result of the fire-fighting system reset, the HFC-227 extinguisher will be discharged and will be inefficient in case of another fire breakout.
Therefore, once returned to the harbour, you must have the fire extinguishers immediately recharged by authorised personnel.



WARNING

When required by the existing regulations, have authorised technicians check the cylinders charge status and their operation.
When required by the existing regulations, have the system cylinders tested by authorised test shops.

**CAUTION**

The chemical agents for extinguishing fires and the residues of a discharge system are toxic. To avoid diseases, injuries or death caused by the breathing of the fumes, make sure that nobody stays in the engine room during the system discharge.

**CAUTION**

An automatic fire-fighting system can cause fire to spread out again. If fire spreads out again the passengers on board are in danger. Even the opening of the engine room access hatch can cause through oxygen a new spreading out of fire. If fire spreads out again, to avoid heavy injuries or even death, do not open the hatch or engine room access door until fire has been completely extinguished.

2.9.1 Fixed fire-fighting system

1. Safety wire and pin

- Ensures that the tie rod is not accidentally activated.

2. Extinguisher discharge rod and electric system disconnection

- It drives the automatic discharge of the extinguisher in the engine room and cuts out the electric system, shutting down the engines, the generators and the electric extractors.

3. Fuel cut-off tie rod

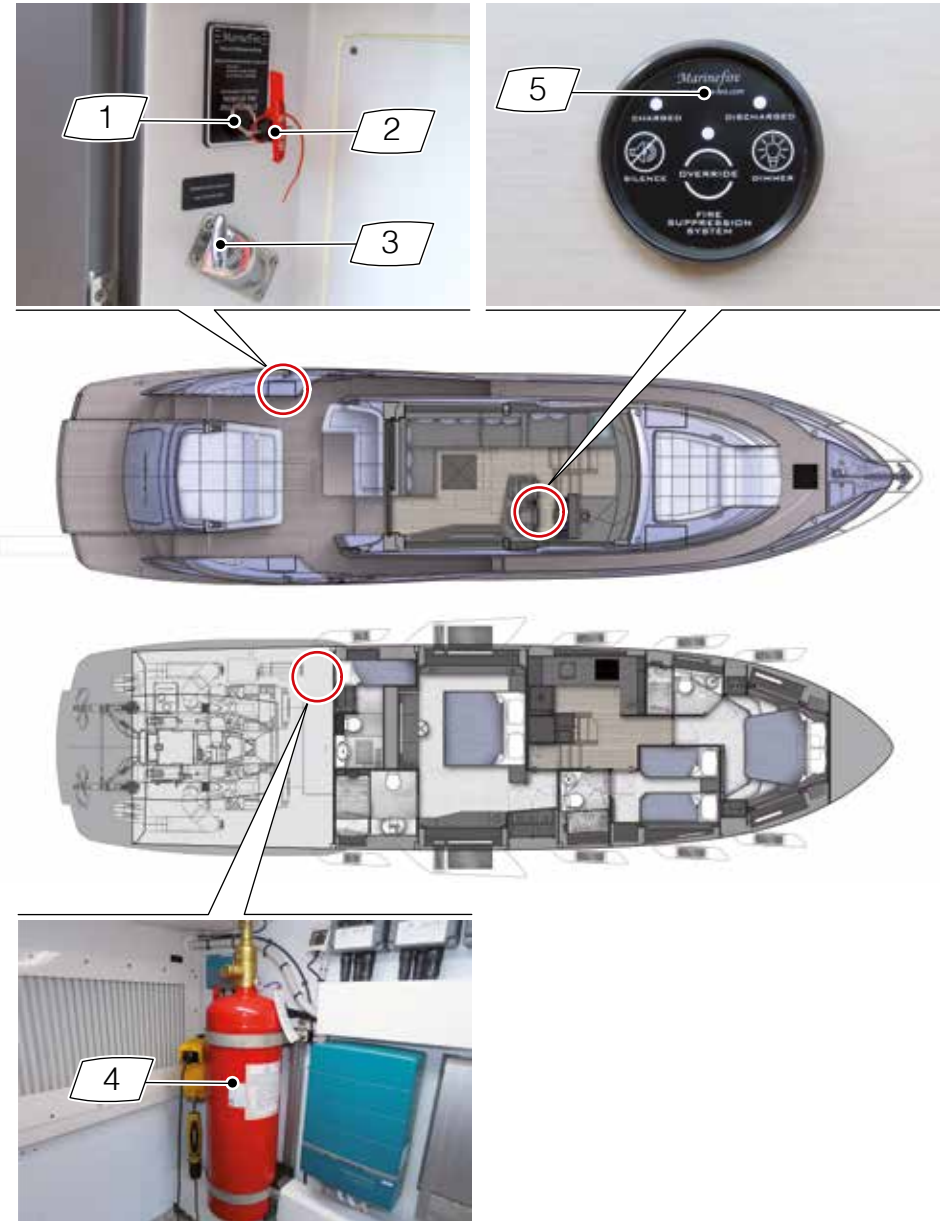
- This control cuts off the fuel supply valves of the propulsion engines.

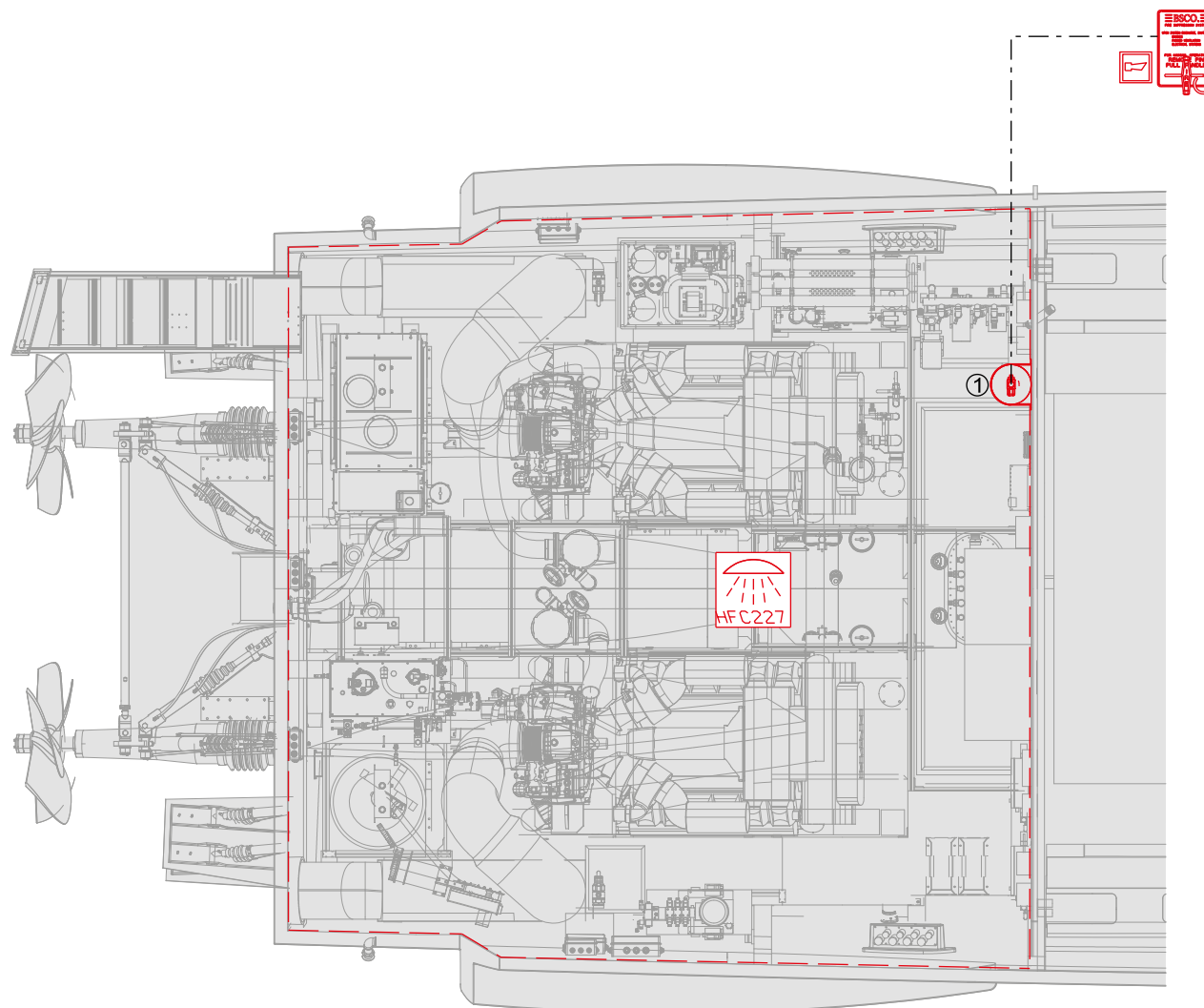
4. Extinguisher cylinder

- Located in the engine room between the two generators.

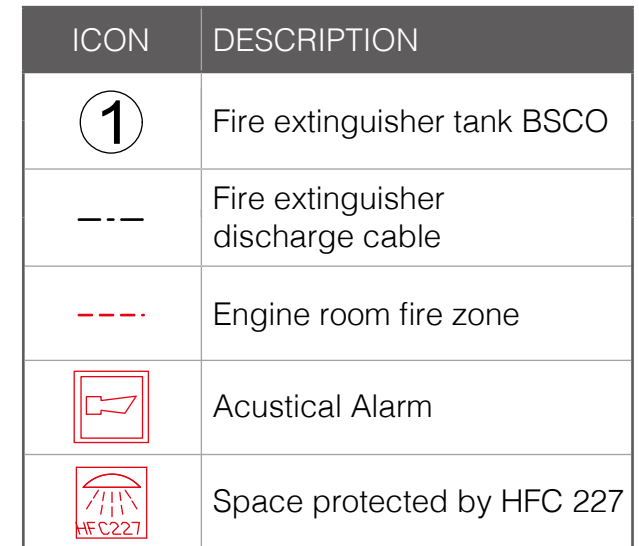
5. Fire-fighting system control panels

- Located in the helm station.





ICON	DESCRIPTION
①	Fire extinguisher tank BSCO
---	Fire extinguisher discharge cable
---	Engine room fire zone
	Acoustical Alarm
	Space protected by HFC 227



2.9.2 Maintenance of fixed fire-fighting systems

Have the system overhauled by a qualified service centre according to the manufacturer's instructions. The technician who performs maintenance should attach a tag indicating the date of the check to the system.

Check the discharge indicator before use, to make sure that the fixed fire-fighting system has not been discharged.

The fixed fire-fighting systems must be checked at least once a month and in any case, before each navigation.

- For corrosion.
- To make sure that the access to the controls is not hindered.
- To make sure that the cylinders are firmly sitting.
- To make sure that the pulling cables are not broken, loose, damaged or twisted.
- To make sure that the cable connections are fastened properly.
- To make sure that the distribution pipe connections are firmly fastened and that the discharge nozzles are not clogged.
- To make sure that the system has not discharged.



CAUTION

Accidental discharge of the chemical agents for fire extinguishing during handling or installation may cause serious injuries. The chemical agents for extinguishing fires and the residues of a discharge system are toxic. Protect eyes and skin during installation or maintenance of the fire-fighting systems.



CAUTION

The extinguisher CONTAINS TOXIC CONCENTRATED CHEMICAL AGENTS AND SUBPRODUCTS FOR FIRE FIGHTING. Avoid inhaling steams or long exposure to them.

THE ACCIDENTAL DRAIN DURING USE OR INSTALLATION CAN CAUSE SERIOUS INJURIES.

Never let it drop down. Keep it far from extreme heat.



DANGER

The extinguisher cylinder has a safety pin. Verify that such pin has actually been removed. Otherwise, in case of fire the extinguisher(s) should be blocked and the discharge of same would not activate, with the possibility of subsequent serious damages to your yacht (even sinking).



DANGER

The presence of the safety pin inserted prevents the activation of the manual discharge (by means of tie rods).



CAUTION

Read carefully the instruction manual.

Before attempting any installation, removal, activation or maintenance of this device.



CAUTION

During maintenance operations, pay attention not to break the flasks unintentionally, in order to prevent accidental cylinder releases.



CAUTION

Make sure that the cylinder pressure gauge is in the proper operational conditions indicated by the supplier at ambient temperature.

2.9.3 Reset of the engine room fire-fighting system

After activation of the engine room fire-fighting system and extinguishing of the fire source, it is necessary to reset the basic navigation conditions in order to quickly reach the nearest harbour, where the duly checks can be performed. To resume navigation, the engine room ventilation system and the propulsion engine fuel system should be reset to their normal operational condition.



DANGER

Before entering the engine room, ventilate the room adequately, so as to avoid risks arising from high temperatures and to poisonous gas suspended in the air.



DANGER

These tasks should be performed directly in the engine room. Therefore, before carrying out any operation, read carefully the safety warnings contained in this manual.



DANGER

Resetting the fire-fighting system, with the aim of resuming navigation is a recommended operation only in case the fire source has not caused damage to the yacht's structure or to important devices of the same. In such a case, or should you have any doubt, it is essential, to wait for rescue without resuming navigation.



WARNING

Remember that, as a result of the fire-fighting system reset, the HFC- 227 extinguisher will be discharged and will be inefficient in case of another fire break-out. Therefore, once returned to the harbour, you must have the fire extinguishers immediately recharged by authorised personnel.

To allow starting of propulsion engines, a manual intervention on the engine delivery valves should be performed.

For this purpose, the fuel suction valves, previously closed on by the fuel cut-off tie rod, should be opened.

The fuel cut-off valves must not be left on intermediate positions but completely open when the handle is parallel to the longitudinal axis of the pipe.

2.10 GARAGE FIRE-FIGHTING SYSTEM

In case of fire, a FIRE PORT hose has been installed to be used for extinguishing a fire without accessing the garage.

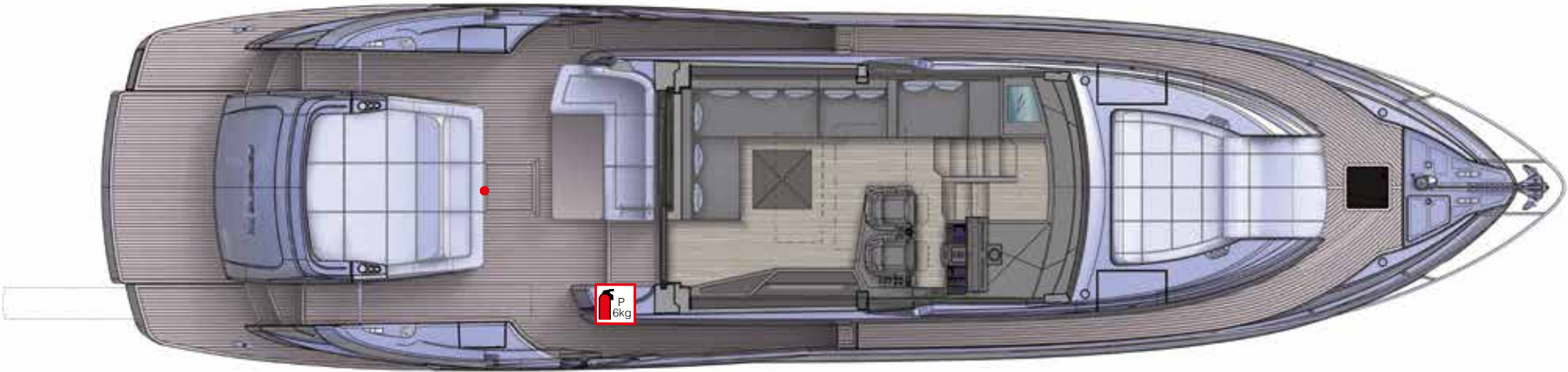
The system consists of:

- A 6 kg dry chemical extinguisher, located in the starboard aft cockpit utility cabinet;
- A fire port, situated to the fore of the aft cockpit sun deck.

For extinguishing a fire in the garage, proceed as follows:

- Remove the extinguisher safety pin.
- Break the glass on the fire port.
- Insert the nozzle of the extinguisher in the garage by means of the fire port.
- Activate discharge.
- Make sure fire is extinguished properly before opening the garage.
- Access the garage only after having ventilated the room properly.





MAIN DECK

ICON	DESCRIPTION
	Portable powder extinguisher 6kg
	Fire port

2.11 ALARM DEVICES (VISUAL AND ACOUSTIC)

Smoke detection system

The alarm devices include a smoke detection control unit and a flashing signal unit with alarm siren. These devices activate in case of smoke detected by sensors located in the engine room.

MAINTENANCE

At least every month carry out an operation test.

Bilge water alarm system

An alarm siren is provided to warn against a high water level in the bilge, operated by floating switches located in the various compartments of the bilge on board. The alarm is repeated on monitoring system.

MAINTENANCE

At least once a week check the operation of the floating switches and of the siren.

At least once a month clean the floater switches.



CAUTION

For more information about the various devices installed on the yacht, refer to the use and maintenance manuals delivered separately by the Manufacturer.



CAUTION

To prevent false alarms, make sure that the system is isolated and disabled, before proceeding with the maintenance and cleaning of the smoke detectors. Once the periodical maintenance of all smoke detectors has been completed, supply and reset the system.

2.11.1 Smoke detection control unit



Designed and realized according to applicable standards, it is a fire detection unit. The detection unit is able to identify anomalous situations and to diagnose them, providing a wide range of signals. All signals can appear on the display as well as on the signalling LEDs. Each detection unit is equipped with own output of alarm repetition allowing to handle a fire in a selective way.

For a more detailed description consult the relevant specific use and maintenance manual.



CAUTION

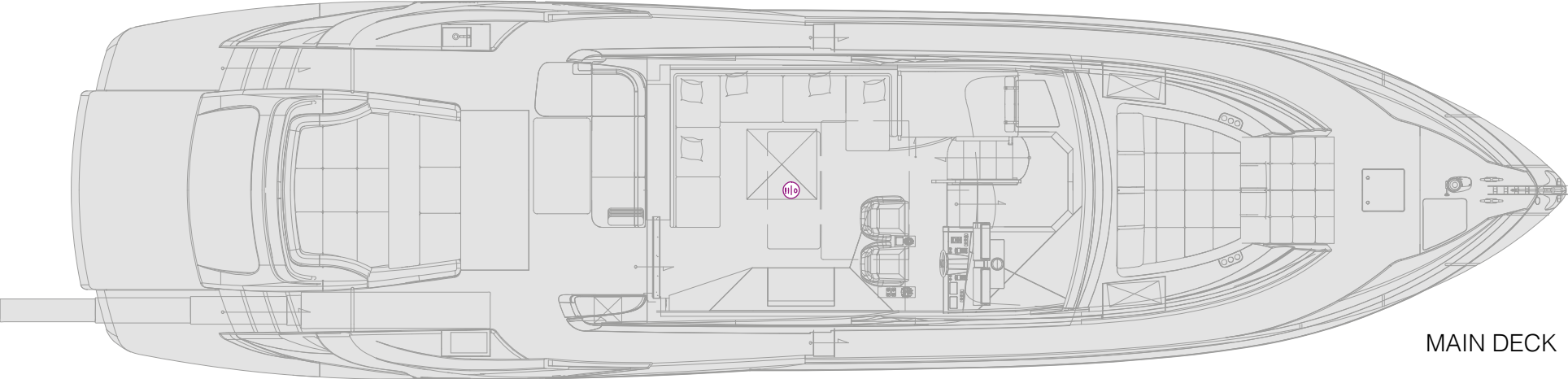
The control unit has been set and tested by PERSHING. Do not alter the programming controls, read the user manual for a correct operation reset, or better, address to PERSHING After sales & Service Department.



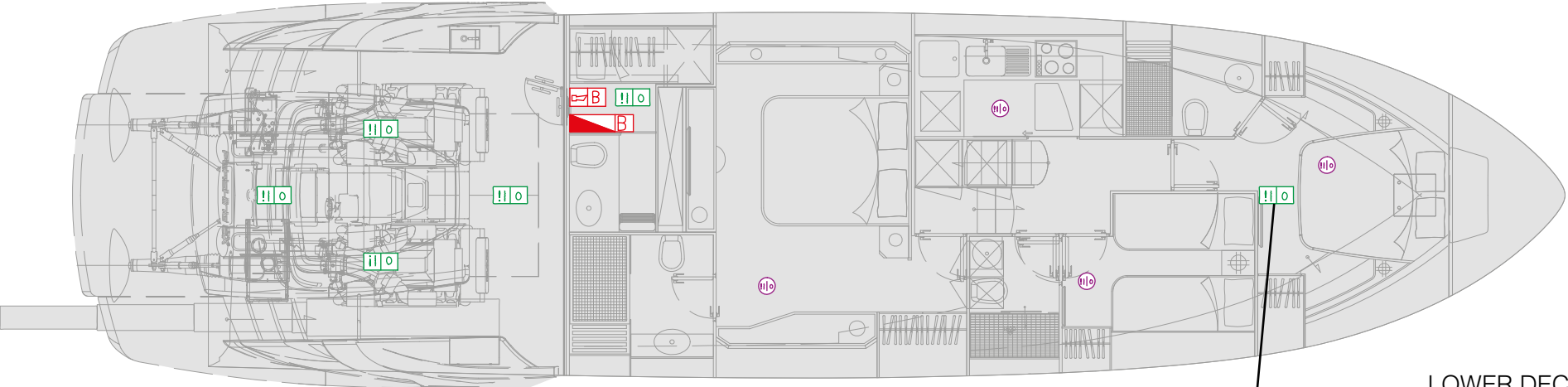
CAUTION

In case the accumulator of the smoke detection unit is discharged, the siren starts automatically.

2.11.2 Smoke detection system



MAIN DECK



LOWER DECK

Positioned in the bow
maneuvering propeller
locker

ICON	DESCRIPTION
	Fire detection unit
	Siren fire detection system

ICON	DESCRIPTION
	Optical smoke sensor
	Optical glass smoke sensor

2.12 GENERAL PRECAUTIONS FOR FIRE PREVENTION

For eliminating any residual possibility of causing fire directly or indirectly, a regular maintenance of the systems and the safe and adequate behaviour of people on board are of utmost importance.

Over 90% of the probabilities of fighting a fire successfully, depends on the ability to prevent and avoid any condition that may help a fire to spread.

The remaining percentage depends on the crew's reaction ability, and most of all, their rapidity to enter into action.

Nearly all fires, if detected early, can be extinguished easily.

For these reasons, it is necessary to carry out preventive surveys on a regular basis and identify all possible fire sources, and in particular:

- Check the proper operation of all main equipment/systems of the yacht.
- Visit all compartments and in particular the engine room frequently.
- If a system does not work correctly, identify the failure and take the appropriate corrective actions.
- Operate all systems and equipment as specified.
- Do not stow flammable materials on board where not envisaged.

If a fire is detected, identify and remove the cause, if possible, (e.g. in case of a short-circuit, cut-off the electrical system), extinguish the fire promptly and be vigilant to make sure that the fire does not break out again.



WARNING

Never use water jets to extinguish fires on electric or electronic equipment.



CAUTION

The ability to operate the fire extinguishers properly can ensure the success of the operation.

It is vital that the fire fighting operations are performed by people competent in this type of emergencies.

It is in any case necessary to be aware of the minimum fire-prevention and fire-fighting rules; the first defence is to prevent fires before they start spreading.

The following table contains the classification of the fire types:

Comparison between fire classes

AMERICAN	EUROPE/ AUSTRALIA/ASIA	FUEL HEAT SOURCE
Class A	Class A	Ordinary fuels
Class B	Class B	Flammable liquids
	Class C	Flammable gases
Class C	Class E	Electric appliances
Class D	Class D	Combustible metals
Class K	Class F	Cooking oil or fat

It is very important to use the correct extinguishing agent according to each fire class; normally, water can be used only for class A fires, together with chemical extinguishing agents (portable or fixed devices).

Every yacht Owner/Operator/Captain must be well informed and knowledgeable about the measures to be taken in case of fire and fire fighting techniques.

2.13 MANDATORY SAFETY EQUIPMENT

In order to ensure the maintenance of the intrinsic safety conditions of the yacht, the Owner must keep the yacht in good operational conditions (as regards the hull, and the propulsion, electrical and fire-fighting systems), and also to provide for the replacement of any system, rescue and safety equipment showing signs of wear or deficiencies capable of impairing their efficiency.

In addition to the equipment provided by PERSHING, the Owner is responsible for providing the yacht with any further system and safety/ marine equipment required by the rules in force in the nation where the yacht is used, according to weather and sea conditions and to the distance from safe harbours along the intended course.



DANGER

Rescue equipment must be arranged so as that when it is launched it is no obstacles to free floating and must be equipped with proper fitting allowing for quick release from the yacht when at sea.

The Owner is responsible for equipping the yacht with some of the equipment listed.



CAUTION

Refer to the local Port Authorities for instructions and changes of the Safety Rules in force in the country where you are.

2.14 RECOMMENDED ITEMS TO BE KEPT ON BOARD

In addition to the standard safety and marine equipment, required by the existing regulations for pleasure yachts, we recommend keeping on board a number of items (not included in the standard equipment), that can be useful when operating the yacht; most probably, these items will not be used frequently, but may be determining for the navigation safety and continuity, in case of failures:

- 2 lines - Ø 25/30 mm, 30 m long
- 2 lines, Ø 20 mm, 20 m long
- 1 line, Ø 25/30 mm, 50 m long
- 1 line, Ø 5 mm, 100 m long
- 1 spare anchor 30 kg
- 2 plastic buckets
- 2 synthetic sponges
- 2 empty 25 l cans
- 2 funnels of different size, complete with 50 cm rubber tube
- 15 kg of engine oil
- 10 kg of gear box oil
- 5 kg of hydraulic oil for the steering system
- 5 kg of anti-freeze liquid
- 1 kg of oil for each thruster
- 10 kg of oil for the electro-hydraulic system
- 1 set of navigation light bulbs
- 10 spare little spot lights
- 2 spare bulbs for engine room lights
- Insulating tape
- Stainless steel pipe clamps of various size
- 1 underwater light
- 2 pairs of heavy-duty rubber gloves
- 3 kg of white rags
- 1 CRC spray can
- 1 Vaseline spray can
- 1 engine spare parts kit
- 1 generator spare parts kit
- Battery for smoke detection system
- Fuses for synoptic panel
- Noise-proof earphones
- Batteries for signal light unit

2.15 SCHEDULE

Minimum rescue facilities and safety equipment to be kept on board of yachts and pleasure yachts with no limit of distance from the shore and with expiry date.

	2026	2027	2028	2029	2030	2031	2032	2033
Self-inflatable life raft (for all persons on board)								
Individual life buoy (for each person on board)								
Life buoy (floating type and unwindable)								
Light buoy								
Smoke buoy								
Red light hand fires								
Red signal rockets with parachute								
Compass and deviation charts								
Nautical chart								
First aid kit								
RTF inspection								
Mooring fees								
Insurance								
Licence (of the pilot)								
Portable extinguishers								
Fixed fire extinguisher in the engine room								
E.P.I.R.B.								

2.16 LOCATION OF SAFETY PLATES

The plates applied on the yacht are used to point out special risks: each plate is located on the part of the yacht which can be a source of risk. Before working with or on this part of the yacht, read the safety warning carefully.

Keep all the plates clean and readable, replace them if missing or damaged. This page shows the plates with their application points.

The fire extinguisher plates are located close to the extinguishers.



CAUTION

It is prohibited to remove or damage the safety plates on the yacht.

PERSHING

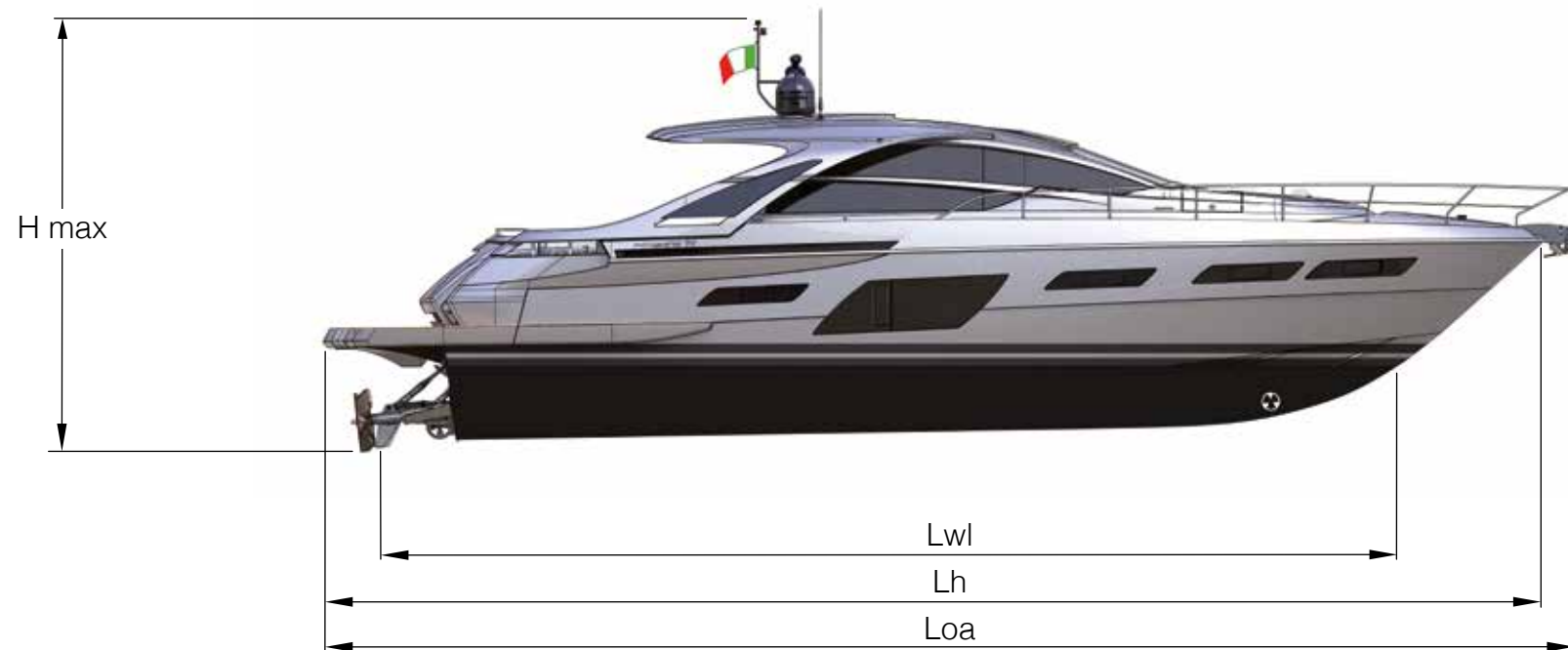
7X

Description of the yacht

Owner's
Manual

3. DESCRIPTION OF THE YACHT

3.1 MAIN DIMENSIONS AND CHARACTERISTIC DATA OF THE YACHT



MAIN DIMENSIONS		
(Loa) Overall length	21,11 m	69 ft 3 in
(Lh) Hull length	20,27 m	66 ft 6 in
(Lwl) Waterline length (yacht fully laden)	16,13 m	52 ft 11 in
Maximum beam	5,35 m	17 ft 6 in
Hmax = Overall height from keel	7,07 m	23 ft 2 in
Depth under propellers (yacht fully laden)	1,52 m	5 ft 0 in
Displacement unladen	35 ton	77162 lb
Displacement laden	42 ton	92594 lb

FEATURES		
Hull type		Warped hull with spray rails and aft deadrise 12°
Propulsion	Model	MAN V12 1800
	Configuration	12 V-cylinders
	Power	1323 kW (1800 Mhp)
	rpm	2300
Dry weight	kg (lb)	2380 kg (5,247 lb)
Displacement	lt (gal)	24,24 l (6,4 US gal)
Transmission	Type	Top System surface drive
Fuel tank capacity	Approximately	3600 l (951 US gal)
Water tank capacity	Approximately	800 l (211 US gal)
On board black water tank capacity	Approximately	250 l (66,04 US gal)
On board grey water tank capacity	Approximately	200 l (52,83 US gal)
Total weight of liquids (full tanks)	Approximately	4256 kg (9382,87 lb)
On board electric power supply	(V)	120/240 V single-phase generator set
	(V)	24V from batteries
Power generator (n° 1)	Model	Onan 21,5 kW 60 Hz
	Voltage	120/240 V
	Frequency	60 Hz
	Power	21,5 kW
Batteries	Engines (n°)	4 (for each engine)
	Services (n°)	2
	Generator (n°)	1
Line from shore supply	Model	100 A - 60 Hz
Bilge pumps	Owner's cabin (n°)	1
	Crew (n°)	2
	Decommitment (n°)	1
	Engine room (n°)	2

**CAUTION**

PERSHING are designed to obtain a correct transversal trim with full optional equipment, as well as spare propellers and shafts.

If the yacht is not provided with full optional and with spare propellers and shafts, some weights are inserted to correct the transversal trim.

The above-mentioned weights can be removed or displaced as soon as the yacht is provided with a new equipment.

NOTE

The technical specifications and the performances indicated are merely indicative, do not constitute an offer with the value of a contract in any way, and are referred to standard models of the yachts built by the Shipyard in the European version.

The only technical indications or descriptions with contract value for the purchaser are those relevant to the specific yacht purchased and contained in the sale documents.

**WARNING**

When loading the yacht, never exceed the maximum recommended load.

Always load the yacht carefully and distribute the loads appropriately to maintain the design trim.

3.2 GENERAL ARRANGEMENTS

This chapter contains a general description of the yacht and is supported by a set of illustrations, thanks to which it is possible to easily locate the main areas and the various devices. Advice and information on the correct use of the various instruments are also given.

The structure of the yacht has been divided as follows:

- Main deck - exterior;
- Main deck - interior;
- Lower deck;
- Engine room.

The yacht is provided with both electronic and mechanical devices and instruments; some of these are provided with their own user's manuals.

The information contained therein are an integral part of this Owner's Manual.



3.2.1 Keys of the yacht

With the yacht all the keys are delivered, they have different handles and each one of them is supplied in two or three copies.

The keys can be recognized by a code number printed on them. Rewrite the code list in case you need another copy.

The other locks on the yacht are universal; the same key opens all the locks.



CAUTION

For the safety of the persons on board, the Captain should have an identifiable copy of the keys on board for any occasion.

Always keep a copy of the keys on your yacht and always contact PERSHING After sales & Service Department in case of deteriorated or altered locks.

Beyond being equipped with different keys, the yacht is also equipped with a remote control for the gangway.

On the transom is installed the receiving photocell, whose function is to pick up the signal sent by the radio control and transmit it to the hydraulic power unit.

The radio control must be directed towards the receiving photocell and there must be no obstacles between them.

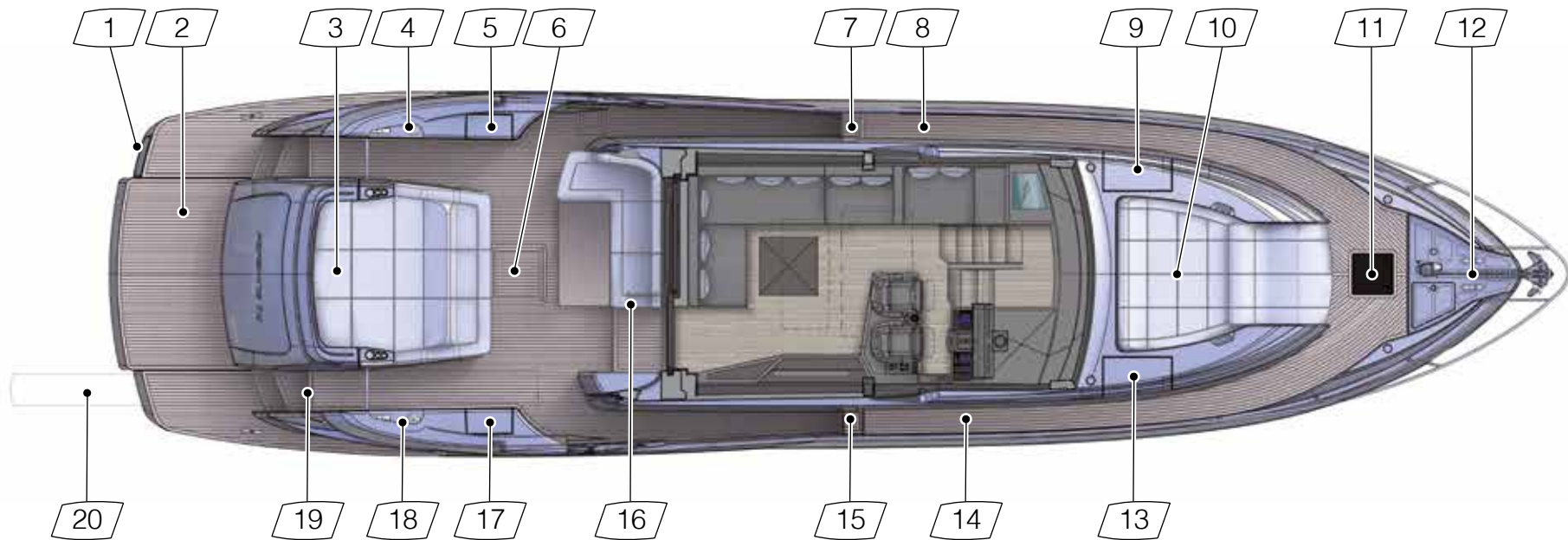


CAUTION

The hydraulic gangway, even if easy manoeuvrable, might damage people and things. Its use is recommended only to well experienced people.



3.3 MAIN DECK – EXTERIOR



1. Swim ladder
2. Stern platform
3. Cockpit sun-deck
4. Stern mooring area
5. Stern cockpit sink
6. Engine room access
7. Fresh water filling nozzle
8. Port side walk-around
9. Port inflatable raft storage locker
10. Bow sun-deck
11. VIP cabin skylight

12. Bow anchorage and mooring area
13. Starboard inflatable raft storage locker
14. Starboard side walk-around
15. Black water shore suction
16. Crew cabin access
17. Grill
18. Stern mooring area
19. Shore connections
20. Hydraulic gangway

Access to the yacht is possible via the hydraulic gangway located aft on the star-board side.



CAUTION

Always use the gangway to board the yacht; any other access system is potentially dangerous.

From the water it is possible to climb back on board through the hydraulic swim ladder on the left side of the stern platform.

On the aft transom is the garage hatch, the garage inside can stow inside a tender.



DANGER

Never stay on the stern platform during navigation, because this is not equipped with protection rails preventing a possible fall at sea.



DANGER

The garage hatch must always be closed during navigation, it can stay open only with stationary yacht and with favourable sea weather conditions. Loads stowed inside the garage, must be fastened with the utmost care. During navigation nobody should stay inside the garage.



DANGER

Never use foldaway cleats for the yacht mooring or towing. They have the sole function of mooring the tender and are not suitable for towing them.



WARNING

Never navigate with stern gates, swim ladder, gangway and garage hatch not fully stowed / closed. Before undertaking navigation check they are closed and properly locked.



DANGER

As the opening/closing of the garage hatch is performed by means of power-steered mechanisms, always check that no obstacles or persons are standing nearby before its activation; this operation must be performed exclusively by skilled crew.



DANGER

In case a fuel can is stowed, the can must not exceed a capacity of 25/ 30 litres.



DANGER

After using the garage key-pad which controls the tender handling winches, disconnect the key-pad and close the socket with a suitable cover.



CAUTION

PERSHING declines all responsibility for any accident to persons or damage to property caused by any special equipment stored in the garages by the Owner or by the crew.



CAUTION

Perform an accurate cleaning after each usage by wiping off any grease build-up and liquid contained in the holding tray of the grill at lava rock. At least once a month carry out an accurate cleaning. At least once every three months check the operation.



CAUTION

Do not close the cover when the cooking plate is still hot.

On both sides of the yacht are the stern cleats and mooring winches.



CAUTION

Do not use the warping winches as permanent mooring points.

In the centre of the aft cockpit there is the access hatch to the engine room.



CAUTION

Always keep the engine room access hatch closed during navigation.



WARNING

When leaning on the outside handrail, be careful so as to prevent any accidental fall at sea.

The side walk-around leads to the bow area.



DANGER

If you control the anchor winch from the main helm station, make sure that nobody is near it and that your visual field is free.



DANGER

Pay particular attention to rotary pieces, keeping your feet, hands, clothing and hairs at due distance.



CAUTION

The removable curtains and relevant posts must always be removed and stocked in the relevant seats before undertaking navigation. The curtains should be installed only with yacht stationary and in good weather and sea conditions. Do not leave the curtains open in the event of heavy rain. Do not leave the curtains installed with the yacht unattended. Do not let water become stagnant on the cloth of the curtains. When the curtains are not being used, keep the post engagement holes closed with their covers.



DANGER

During navigation it is compulsory to unlock the safety retainer of the bow skylight so as to ensure a safe and quick escape.



CAUTION

An open skylight is cumbersome and creates an obstacle on the main deck.



CAUTION

Do not use pressurised water on light devices installed outside.



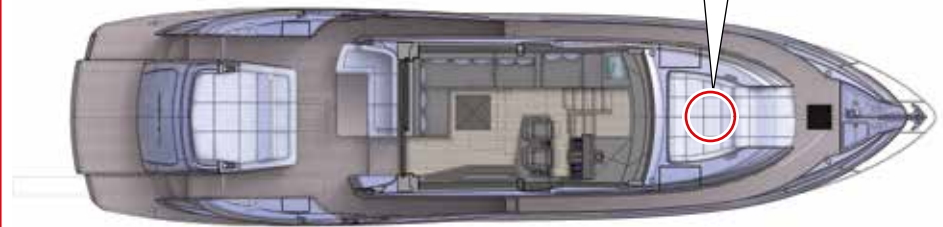
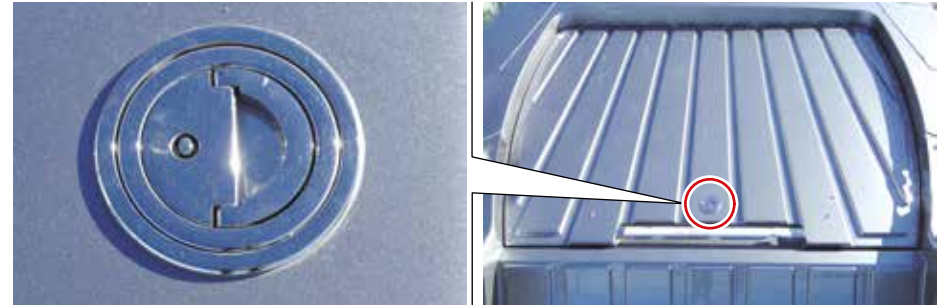
CAUTION

In case a jet-ski is used, each passenger must wear a life jacket; the driver must also have a regular license and keep to the rules of the country where the jet-ski is driven.

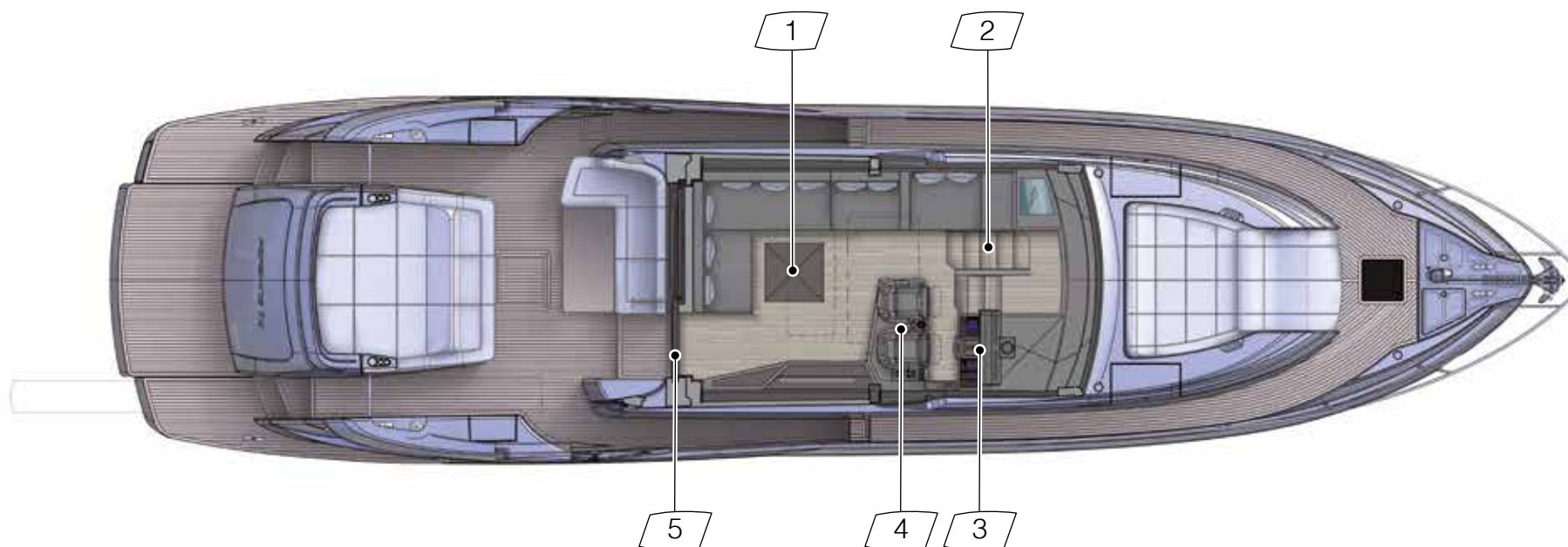


DANGER

Before starting navigation, make sure you have locked and properly secured with the key supplied, the storage under the bow sundeck.



3.4 MAIN DECK – INTERIOR



1. Living room with sofa and table
2. Cabins access stairs
3. Control panel
4. Pilot's seats and manoeuvring controls
5. Sliding and folding access door

A large sliding door provides access to the yacht's saloon. Once fully opened, the salon door can be pulled down using the relevant buttons to make the aft cockpit an extension of the saloon.



CAUTION

For adjustments to the salon door and the retractable glazing, please contact PERSHING After sales & Service Department.



DANGER

The glass door giving access to the salon must be properly latched during navigation, to prevent that the yacht lists can close the door unexpectedly, thus causing damage and personal injury.

Before any motion of the salon glass wall, check that no objects or persons are staying in the glass wall's moving range.



CAUTION

The living room is equipped with an air conditioning system, as most of the yacht's rooms; therefore, we recommend opening the glass-wall as little as possible when the system is operating.



CAUTION

The extremely precious finishing of woods used is the result of an accurate work, it is water resistant but at the same time delicate and needing accurate maintenance. Such surfaces must therefore be dried after use, after being exposed to rain and or washed, and a regular maintenance must be carried out.



CAUTION

The excessive use of conditioned air may cause infirmities due to the great difference of temperature between the yacht inside and the outside. It is recommended to condition rooms with a temperature difference of maximum 5 °C between inside and outside.

Forward of the saloon on the starboard side is the control panel.



On the dashboard there are all the control and command devices of the on-board systems.



CAUTION

Keep the access to the helm station reserved to the Captain only, in order to prevent accidental alterations of the instruments carried out by incompetent persons.



DANGER

The personnel operating the yacht during the various activities on board must not be under the influence of alcohol, narcotics or drugs.



CAUTION

For the correct use of the various devices installed in the main helm station, see the relevant instruction manuals.



CAUTION

It is not recommended to move during navigation, because a lateral skid of the yacht could have a negative effect on a moving passenger, causing an accidental fall or the impact against a piece of furniture.



CAUTION

Keep all on board steps clean and dry.



CAUTION

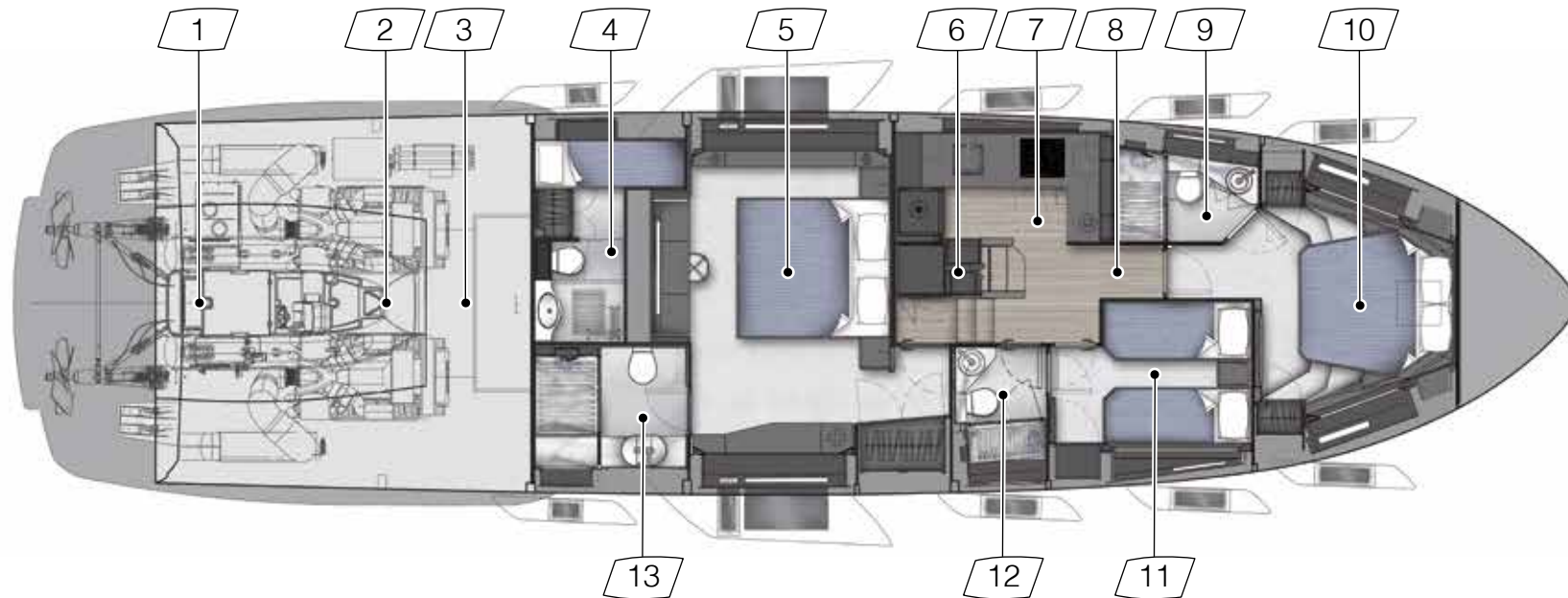
Turn on the spot lights of the passage ways so as to ensure a proper lighting. Check the operation of the spot lights and, if necessary, replace their bulbs.



WARNING

During navigation, the normal movement of the yacht in the water can cause people to slip or fall, resulting in serious injury or death. People must remain seated in safe places when the yacht is at sea.

3.5 LOWER DECK



1. Garage
2. Engine room
3. Engine room access hatch
4. Crew cabin and bathroom
5. Owner's cabin
6. Main deck access stairs
7. Galley
8. Lobby lower deck
9. VIP cabin bathroom
10. VIP cabin
11. Guests' cabin
12. Guest/service bathroom
13. Owner's cabin bathroom

The lower deck is divided into four areas accessible from different positions and not communicating with each other:

- Garage;
- Engine room;
- Crew cabin;
- Guest, owner and galley cabins.

A tender can be accommodated inside the garage. The garage is equipped with roller slides and a remotely controlled winch to allow the tender to be lowered and hoisted on board.



CAUTION

Before undertaking any navigation, check the closure of the cabs access doors. You will avoid unpleasant banging and accidental dangers.



CAUTION

Close the portholes while underway or when the yacht is left unattended for a long period.



CAUTION

The excessive use of conditioned air may cause infirmities due to the great difference of temperature between the yacht inside and the outside. It is recommended to condition rooms with a temperature difference of maximum 5°C between inside and outside.



CAUTION

During navigation the portholes must be closed.



WARNING

During navigation it is necessary to unlock the safety retainer of the bow skylight.



CAUTION

Do not store in the bilge material free to move due of the lists of navigation.



CAUTION

Keep all windows, doors, skylights and vents closed during navigation or when weather conditions at sea are unfavourable.



DANGER

Do not stow transportable tanks containing petrol on board.

3.5.1 Galley

When navigating, it is advisable to close all the doors properly.



CAUTION

Always check the absorption of the household appliances and deactivate them in case they are not used.



CAUTION

Do not leave pans unattended when they are on the burner.



CAUTION

It is recommended not to fill pots more than 50% with water and not to use pressure cookers.



CAUTION

When using the galley, increase the ventilation of the inner rooms as much as possible. Never use the cooking top to heat the room.



CAUTION

During navigation, keep the fridge doors locked with relevant lock systems.



CAUTION

Children are allowed to use the galley only when they are able to use its items correctly and to understand the dangers specified in the special instruction manuals. The help of an adult is required.



CAUTION

In order to eliminate smells, steams or fumes, it is necessary to turn on the suction hood at cooking start and to keep it on after cooking end for 10-15 minutes.



CAUTION

Do not put liquid food into the oven.



CAUTION

Do not place metal containers or containers with metal inserts inside the microwave oven.



CAUTION

Please remember that the plate, even after use, can still be very hot for a long time, and that it may cause damage to property or scalds.



CAUTION

In case of navigation with rough sea, we recommend not to use the galley.



CAUTION

For the procedures and the correct use of the various household devices of the galley, refer to relevant manuals.

3.5.2 Porthole



The porthole consists in a fixed part (frame) and a moving part (window). For opening, it is necessary to unlock the window by turning the handles 90° outwards. Closing is done by means of a thick seal on the porthole frame. A screw device allows the adjustment of the locks pressure on the glass frame, ensuring in this way a perfect sealing.

It is necessary to make sure that the two knobs are correctly closed, in order to make the window seal adhere well to the frame.



CAUTION

Close the portholes and the skylight when navigating or when the yacht is left unattended for a long period.

MAINTENANCE

At least once a month check the correct operation of the closing system. At least once every three months check the watertight status.

When necessary, clean the seals or replace them, if required. With a soft cloth remove the dust or other dirtiness from the seal

At least once a year it would be well-advised to lubricate the un/locking knob with lubricating product.

At least once a month wash out with fresh water all the areas where salty deposits have been created; then dry them with a soft sponge cloth, be careful not to scratch the plexiglass.

If for some reason the stainless steel surfaces become opaque, use a product (liquid and not paste) specific for polishing the steel.

Do not use solvents and never spray oil or other lubricating products inside the clutch, its functioning would be nullified.

3.5.3 VIP cabin skylight



This skylight has the function of a window and of a passage way. It is equipped with two controls: outer, inner and inner locking.

MAINTENANCE

At least once a month check the correct operation of the closing system. At least once every three months check the watertight status.
When necessary, clean the seals or replace them, if required.



CAUTION

Never use denaturised alcohol or acetone to clean Plexiglas parts; they could crack inside.



CAUTION

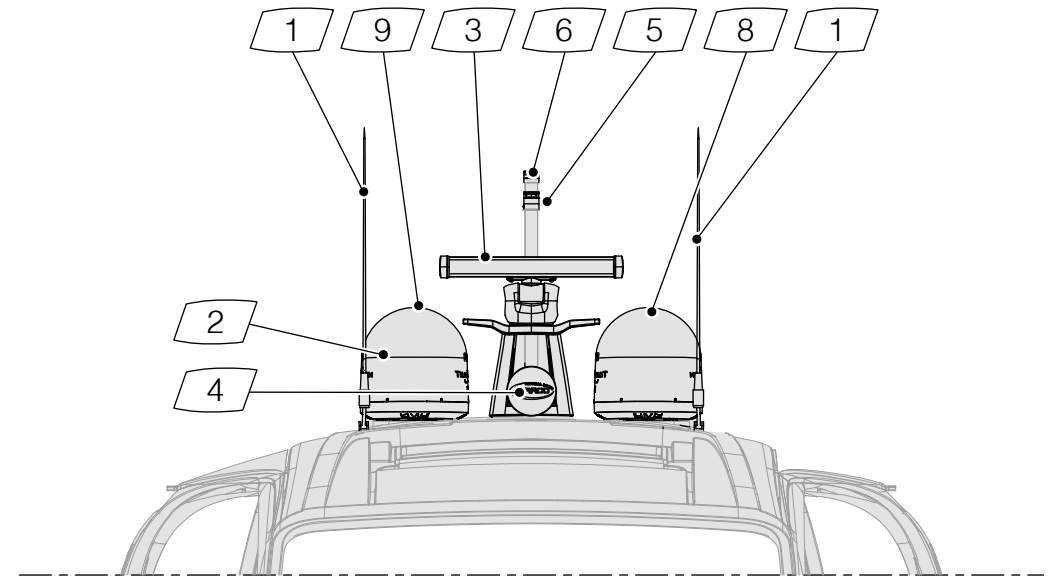
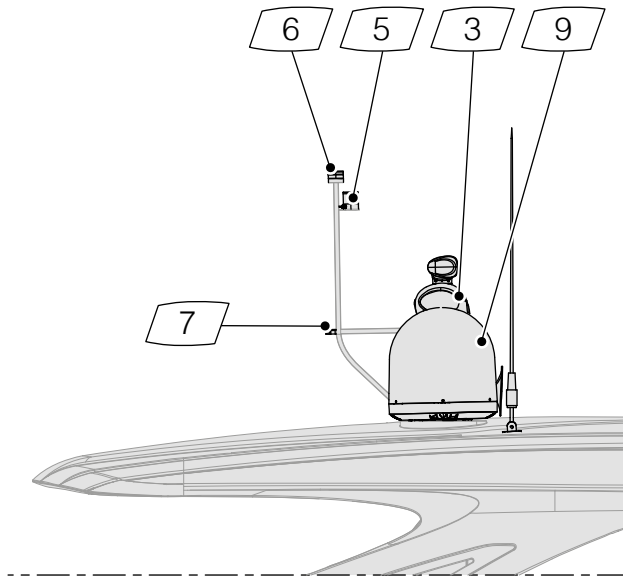
Maximum safety working load 100 kg - 220 lbs.



CAUTION

Keep the skylight closed during navigation.

3.6 AERIALS



1. VHF Antenna + AIS system
2. GPS antenna
3. Radar antenna
4. Horn
5. Mast head light
6. Anchor riding light
7. Aft light
8. SAT TV Antenna
9. KHV Antenna

**CAUTION**

The radome of the antenna must absolutely not be washed with pressure water; we recommend directly cleaning with a sponge or doeskin.

For a correct maintenance avoid the penetration of water inside, the radome is not waterproof, in order to allow possible condensation to evaporate.

**WARNING**

It is absolutely not recommendable to lean on the dome aerials; as their surface cannot bear any mechanical load.

**CAUTION**

Keep more than 2 meters away from the SAT TV antenna during transmission.

**WARNING**

Lower the VHF antennas before the approach of a thunderstorm to limit the risk of lightning.

3.7 NAVIGATION LIGHTS, SHAPES AND SOUND SIGNALS

Mast head light (white)

Visibility range 225°.

Shown by every engine-driven yacht.

Side lights or navigation lights (red port, green starboard)

Visibility range 112° 30' each.

Shown by any moving yacht and caused by any reason.

Aft light (white)

Said also stern light, visibility range 135°.

Shown by any moving yacht and for any reason.

Anchor riding light (white)

Visibility range 360°, can be seen from any point of the horizon.

Seen from every anchored or under navigation yacht, or in specific circumstances.

The rules relevant to the navigation lights must be observed from sunset to dawn and during this period no other lights must be visible except the lights that cannot be exchanged for those specified in this manual. Although the lighting system is preset by the Manufacturers, the Owner/ Captain has the responsibility for the observance of the local rules. Please note that the local and international rules relevant to lighting can slightly vary, we suggest therefore to gather information about the local rules of your area. Night navigation requires more precaution. All rules are applicable but apart from the right of course, it is advisable to slow down and to keep the proper distance from other boats.

It is a good rule to remember that bright lights reduce visibility at night.

MAINTENANCE

At least once a week check the operation of the navigation lights.

At least once a week carry out accurate cleaning of glasses and headlights.

At least once every six months check the presence of corrosion in the connections of the navigation light cables.

At least once every six months, tighten the cable connections of the navigation lights.

In order to increase the safety of people on board, the manufacturer has provided the installation of a mast for visual day signals, in accordance with Directive 2013/53/EU.



NOTE

The combined use of shapes, sound signals and navigation lights increases the visibility of the yacht, reducing the risk of collisions.

**CAUTION**

The positioning of the navigation lights is optimised by adapting the regulatory requirements to the geometry of the boat, providing lights where they are most easily visible.

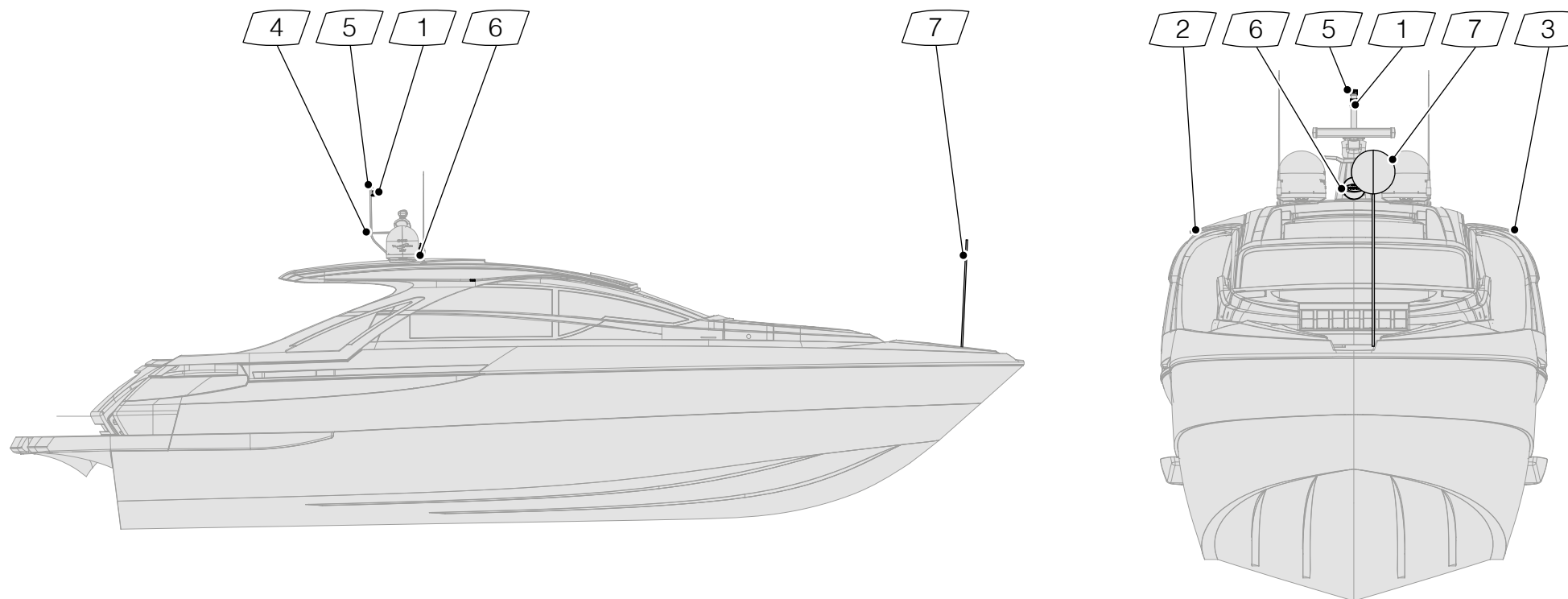
Non-steering lights (N.U.C. = Not Under Control) and a bell are not included in the on-board equipment. The fitting of lights and sound signals is subject to the approval of the Flag Administration where the boat is registered.

**WARNING**

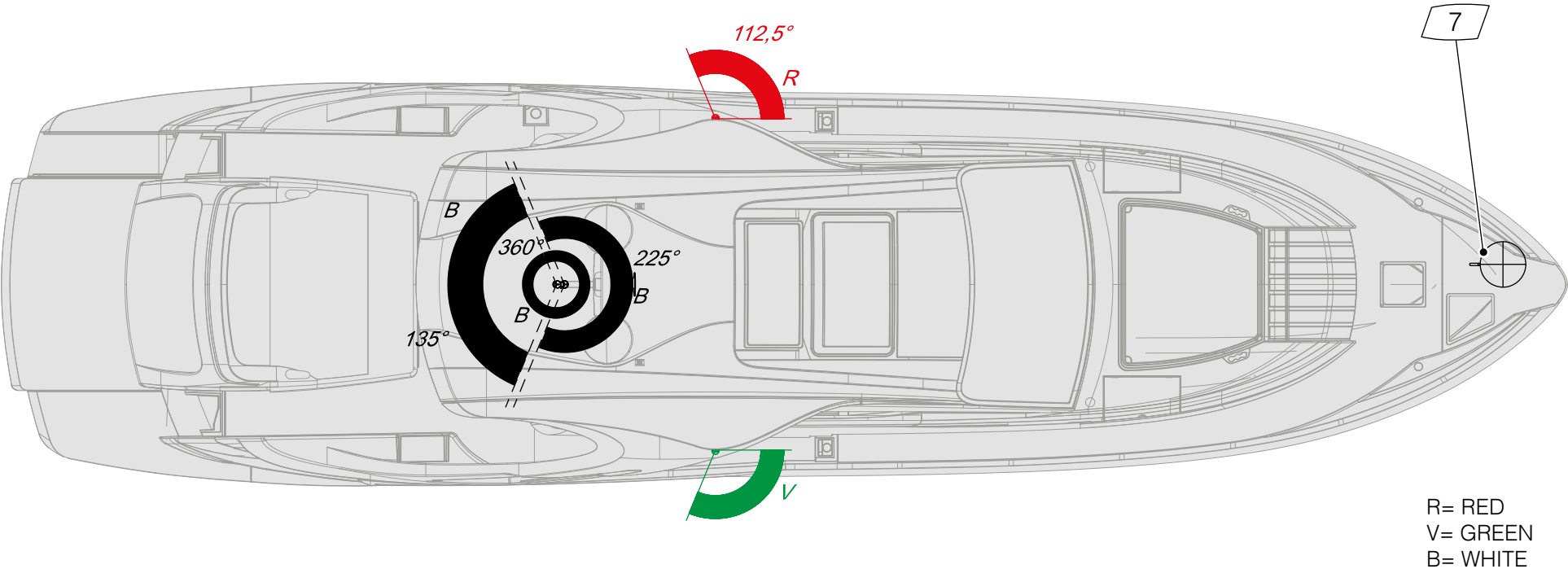
Navigation lights, shapes and sound signals.

Where navigation lights, shapes and sound signals are installed, they must be in conformity with COLREG 1972 (II International Regulations for Preventing Collisions at Sea) or CEVNI (European Code for Inland Waterways). Regulations depending on the case.

3.7.1 Navigation light diagram

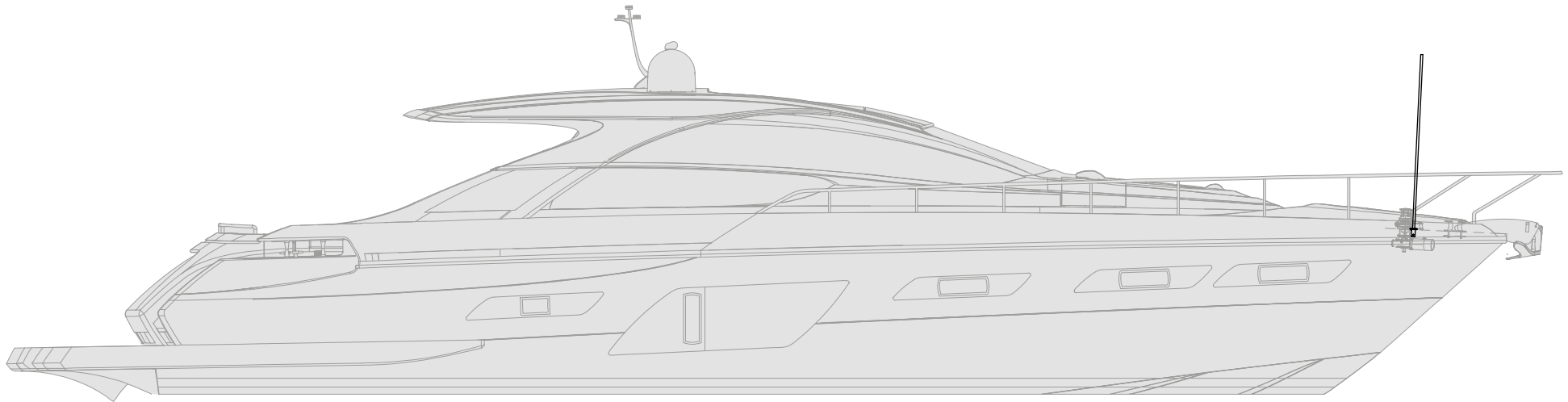


N.	PART	ELECTRICAL CHARACTERISTICS	VISIBILITY
1	White mast head light 225°	7W / 10-32VDC	5 mn
2	Starboard green navigation light 112.5°	2,1W / 10-32VDC	2 mn
3	Port red navigation light 112.5°	2,1W / 10-32VDC	2 mn
4	White stern light 135°	1,3W / 10-32VDC	2 mn
5	White anchor light 360°	1,8W / 10-32VDC	2 mn
6	Pneumatic whistle	/	/
7	Mast for visual day signals	/	/

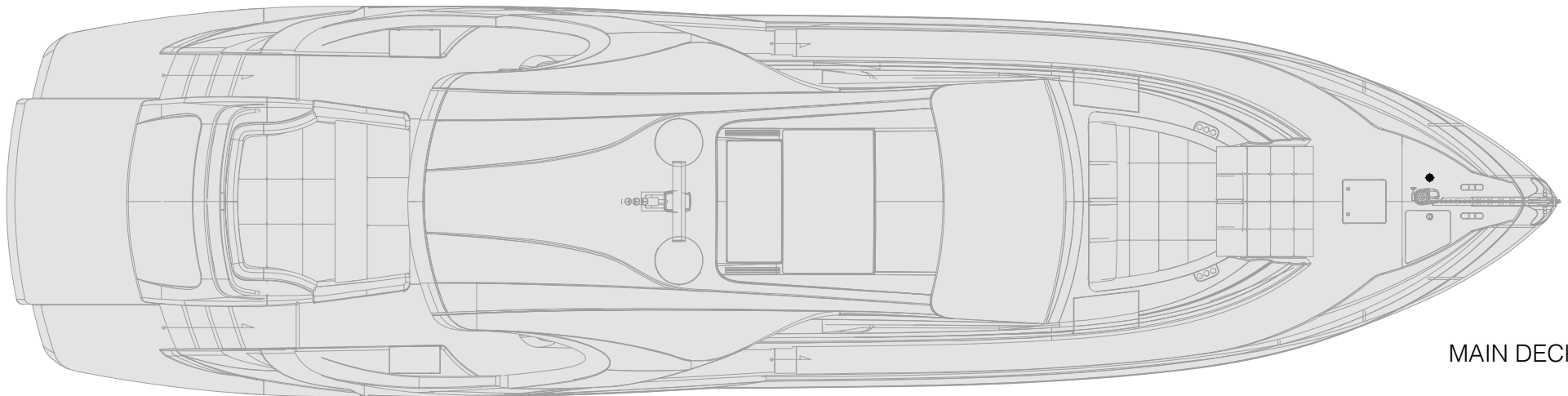


N.	PART	ELECTRICAL CHARACTERISTICS	VISIBILITY
1	White mast head light 225°	7W / 10-32VDC	5 mn
2	Starboard green navigation light 112.5°	2,1W / 10-32VDC	2 mn
3	Port red navigation light 112.5°	2,1W / 10-32VDC	2 mn
4	White stern light 135°	1,3W / 10-32VDC	2 mn
5	White anchor light 360°	1,8W / 10-32VDC	2 mn
6	Pneumatic whistle	/	/
7	Mast for visual day signals	/	/

3.7.2 Mast for visual day signals



PROFILE



MAIN DECK

3.8 ENGINE ROOM

The engine room can be reached through the access located in the aft cockpit.



DANGER

For safety reasons the watertight hatch, giving access to the engine room, must be kept closed.



CAUTION

Only authorized personnel should have access to the engine room and also be informed about the components operation and about the features of the fire-fighting system.



DANGER

In the engine room, thermal engines create highly radiated areas which keep temperature high for a long time. Protect yourself and wait until they are cool before entering the engine room.



CAUTION

Do not store free-to-move items in the engine room, as they might skid during navigation.



DANGER

You are not allowed to enter the engine room during navigation.



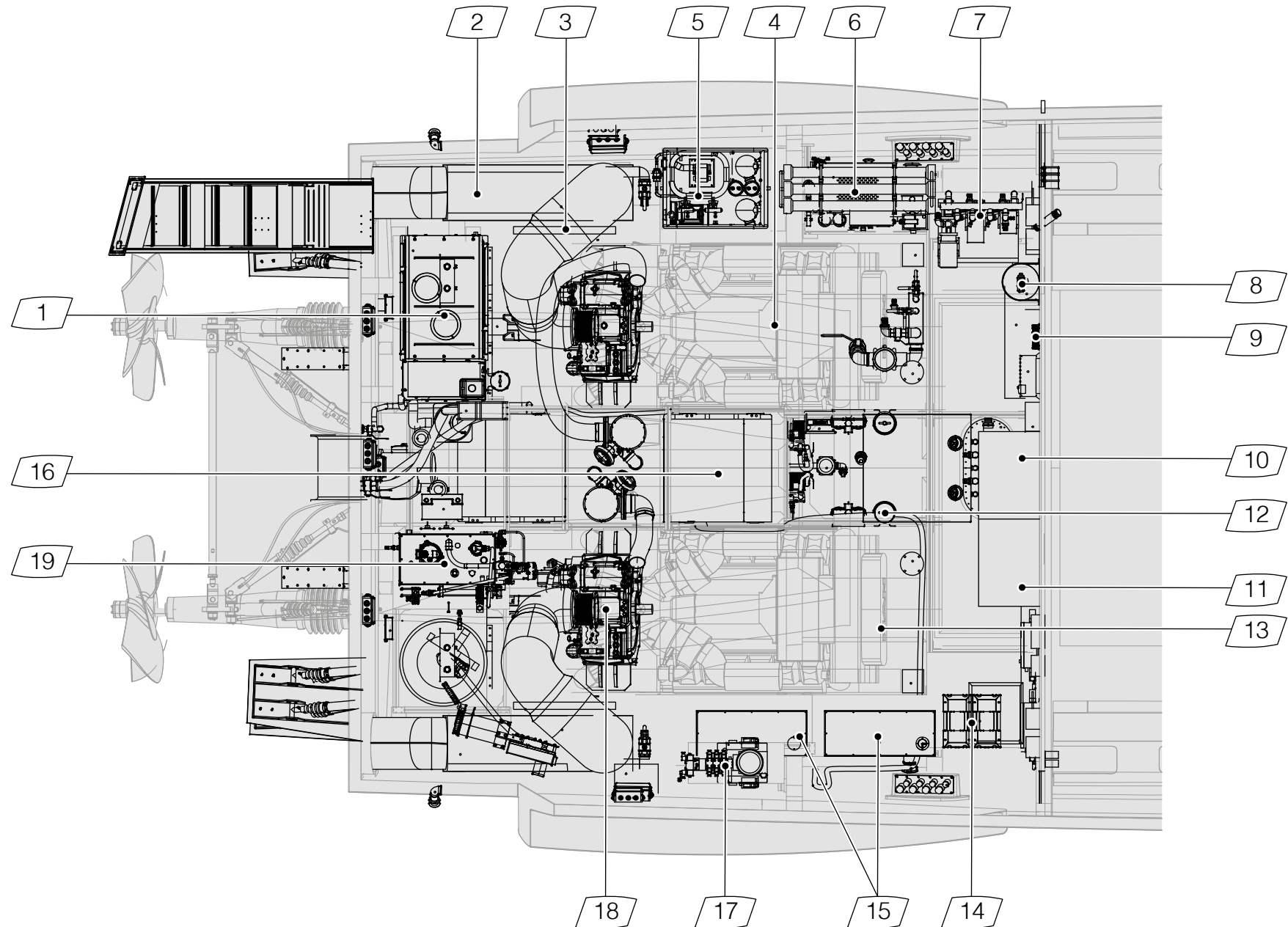
WARNING

Before discharging the fire-fighting system, shut off the engines and the extractors. Evacuate the engine room.



CAUTION

The engine room is equipped with a fixed fire-fighting system. After the system's discharge in order to avoid asphyxia, ventilate the engine room plenty of time, before entry.



1. Generator set
2. Engine exhaust muffler
3. Engine gas exhaust
4. Port engine
5. Air conditioning unit
6. Watermaker (opt)
7. Black, polyvalent and grey pump unit
8. Fire extinguisher
9. Charger services
10. Electrical panel 24 V
11. Electrical panel 120/240 V
12. Fuel filter
13. Starboard engine
14. Services Batteries
15. Engine batteries
16. Gyroscopic stabilizer
17. Hydraulic power unit
18. Inverter
19. Control unit surface drives

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Helm station

Owner's
Manual

4. HELM STATION

4.1 HELM STATION

Your yacht is equipped with a helm station situated on the starboard main deck bow of the salon.



CAUTION

Herewith only general information for first start-up is given: in order to practice and for the specific use of the individual systems, see the manufacturers' manuals or contact PERSHING After sales & Service Department.



CAUTION

It is a good rule to keep the instruments clean by washing them with wet and clean rags, avoid using chemical or abrasive products. After navigation, it is advisable to cover instrumentation and equipment.



CAUTION

The helm station must be used only by the Captain or by the crew members authorised by the same.

The accidental activation of the controls installed in the helm station is a source of danger for the ship and its passengers.



CAUTION

All electric appliances for navigation, whose parameters can be configured and set by software through the control panel, have been configured and tested upon delivery. These operations must be performed exclusively by authorized service personnel. Any modification of the preset configurations can alter the operation and reliability of the concerned system. Appliances must be used by the personnel in charge of driving the yacht and of using the systems.

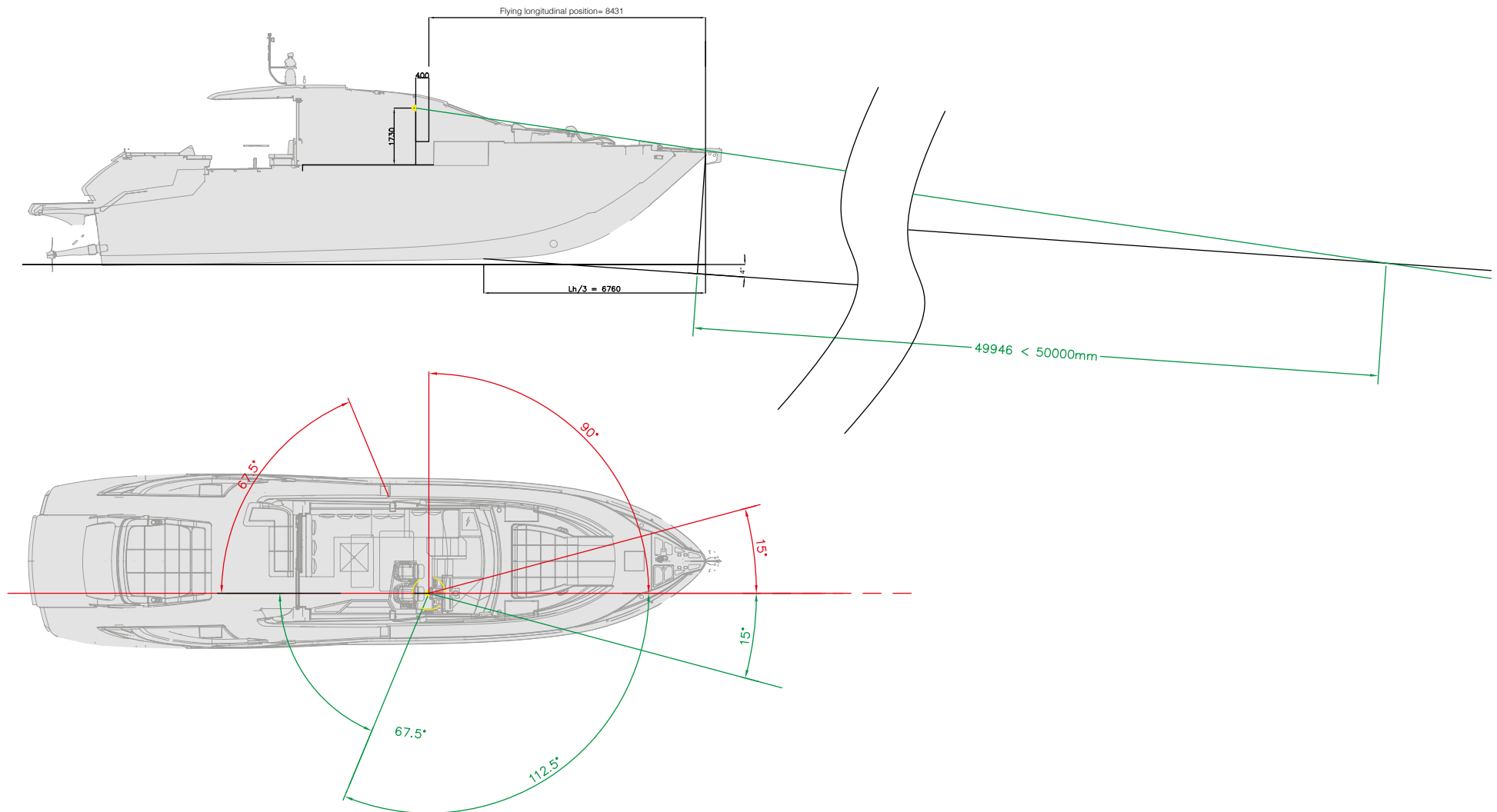


CAUTION

Refer to specific manuals concerning the electronic and electric instrumentation on board.

Observe the instruction given meticulously.

4.2 VISUAL FIELD FROM HELM STATION



PERSHING

4.3 HELM STATION

7X

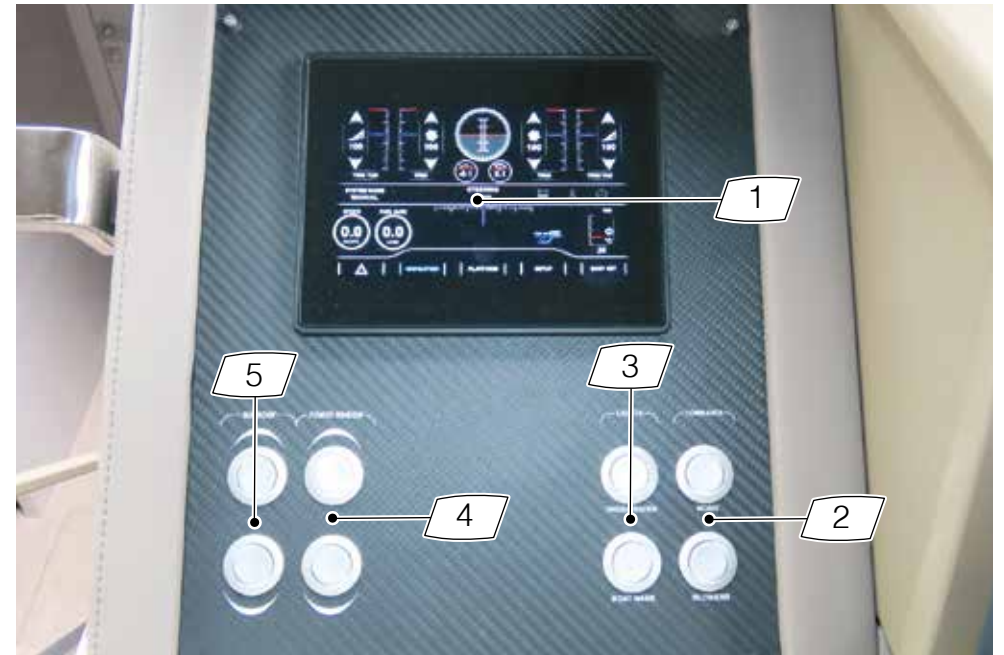


SECTION A:



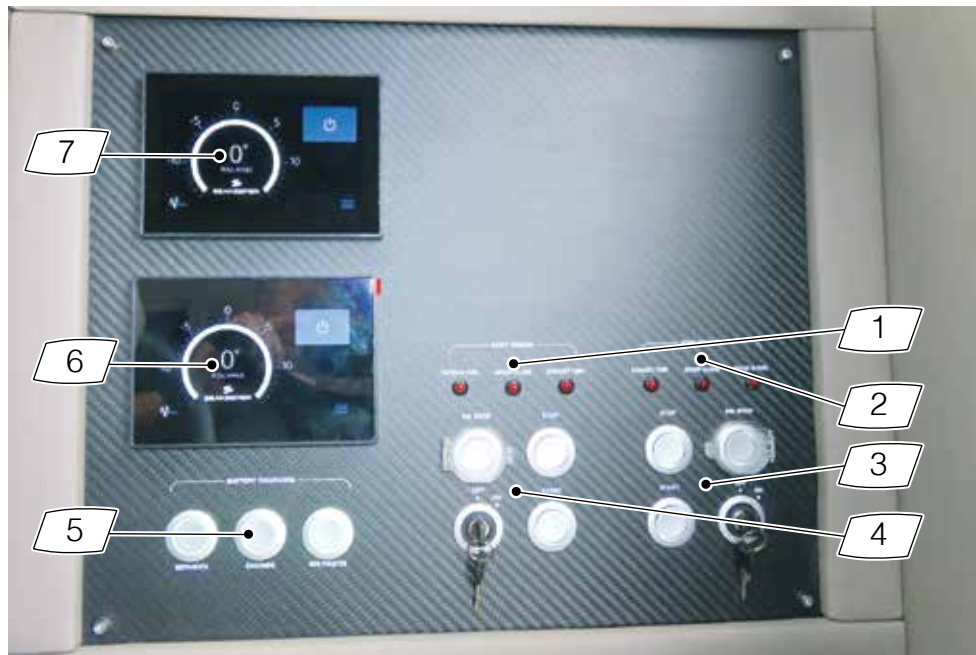
1. Multifunction display
It allows to monitor and manage the systems on board.
2. Magnetic compass
3. Multifunction display
It allows to monitor and manage the systems on board.
4. Anchor winch activation buttons
They allow to activate the anchor winch.
5. Thrusters control panel
It allows to activate and control the thrusters operation.

SECTION B:



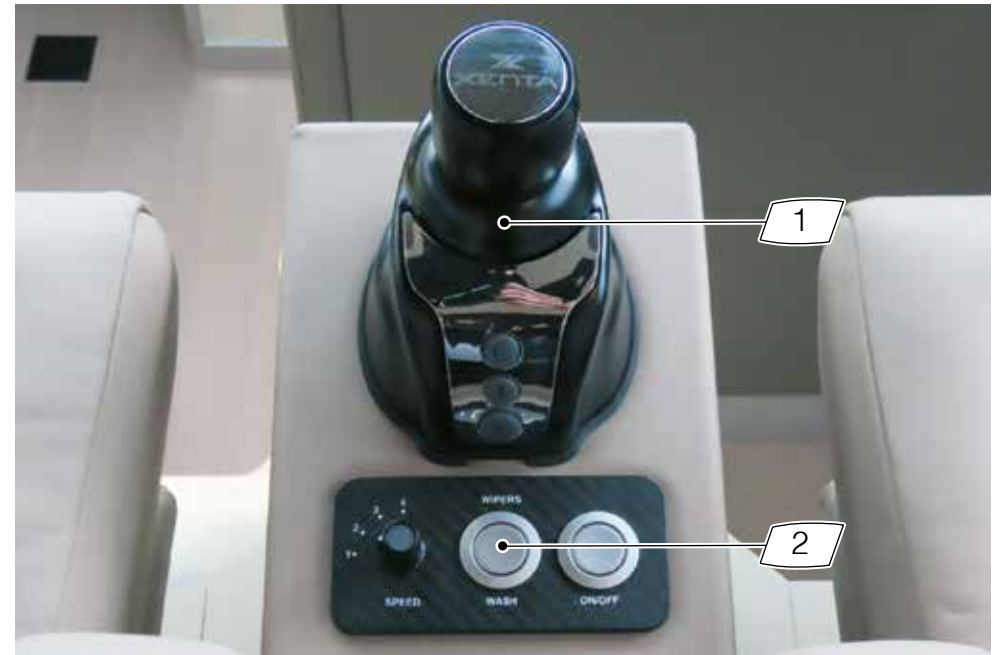
1. Multifunction display for automatic control of surface propellers
They allow to control automatically the surface propellers.
2. Operating buttons of audible warning device and engine room extractors
It allows, by pressing the relevant button, to activate or deactivate the warning device and the engine room extractors.
3. Light buttons
They allow to switch on/off the underwater lights and yacht name ones.
4. Electric window buttons
They allow to open/close the side electric window.
5. Opening roof buttons
They allow to open/close the opening roof.

SECTION C:



1. Signalling panel of port engine malfunction
2. Signalling panel of starboard engine malfunction
They allow to visualise signalling of any engine malfunction.
3. Starboard engine buttons
4. Port engine buttons
They serve to:
 - Activate electronics by rotating the key;
 - Turn on the engine;
 - Stop the engine;
 - Stop the engine in emergency mode;
 - Two indicator lights show the presence of water in the fuel and any malfunction of the exhaust gas temperature.
5. Battery charger buttons
They allow to activate/deactivate the following battery chargers:
 - Utilities;
 - Engines;
 - Bow thruster.
6. Gyroscopic stabilizer control panel
7. Gyroscopic stabilizer control panel
They allow to control the operation of the gyroscopic stabilizer.

SECTION D:



1. Steering joystick
It allows to make manoeuvres in confined waters easier, coordinating the whole steering instrumentation, including bow thruster, inverters and positioning instrumentation, and controlling the yacht movements and rotations.
2. Windscreen wiper controls
They serve to:
 - Activate / deactivate windscreen wiper;
 - Activate washing of wind-shield;
 - Manage windscreen wiper speed.

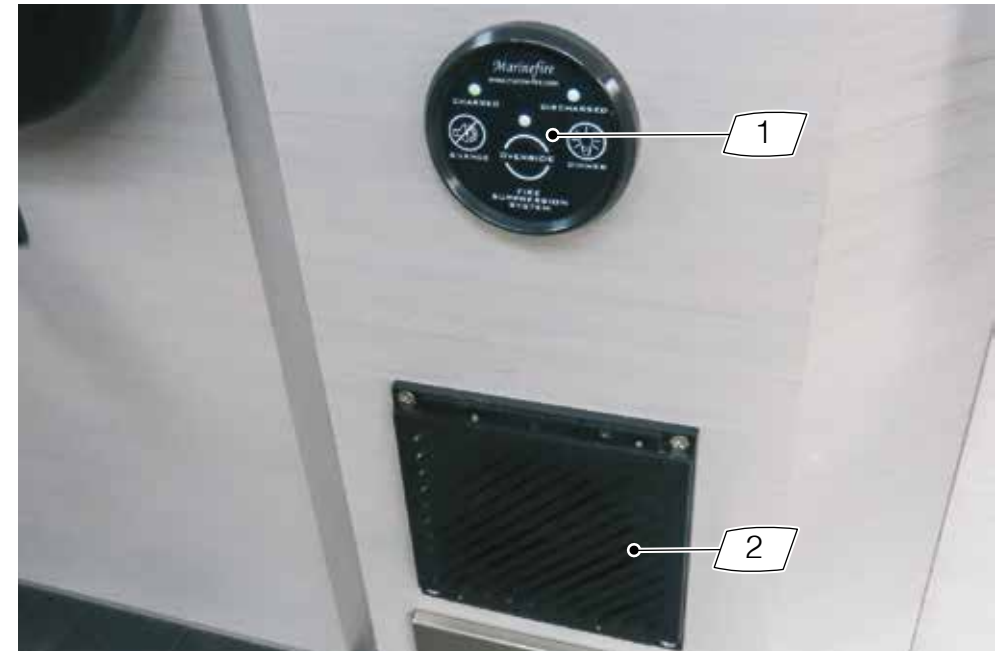
SECTION E:



1. Engine and inverter throttles
They allow to operate engines and inverters.
2. VHF
It allows to communicate with other boats or port authorities.
Your yacht is equipped with the AIS (Automatic Identification System) which allows to exchange informations with other AIS equipped boats.
This system allows to communicate the position, the course and the speed of your yacht.
3. Control panel of surface propellers inclination (vertical axis)
They allow to operate manually the surface propellers to optimise propulsion.
4. Flaps control panel
It allows to control the flaps direction manually.
5. Multi-function display control keypad
It allows to manage the multifunction displays.

SECTION F:

Underneath the pilot's seat is:



1. Fire-fighting system override panel
It allows to manage the alarm signals of the fire-fighting system.
2. VHF loudspeaker
It allows to play audio from VHF.

4.4 INSTRUMENTATION

Radiotelephone keyboard

4.4.1 VHF-DSC radiotelephone

For use of the radiotelephone:

- Supply the device by the magneto-thermal switch located on the general electrical panel.
- Press the ON/C key; the appliance goes on by default on the priority channel frequency (16). If the “LAST USED CHANNEL” function has been previously set, the radio telephone will turn ON on the frequency of the last set channel.

The keyboard shows the channel number and the volume/squelch levels.



WARNING

For channel selection or special function instructions, please refer to the radiotelephone Manufacturer's manual.

The keyboard has digital keys for the selection of the channels and function keys for the adjustment of the volume and the squelch.

The **SHIFT** key serves to access the secondary functions.

The **PTT** key (Push To Talk) situated on the left side of the appliance is active when the telephone is removed from the support.

The **16** key allows to select the channel for distress vocal transmissions.

It is also possible to make digital selective calls, much quicker and easier than the traditional ones. For this purpose, raise the protective door situated on the front side of the radiotelephone.

Then, press the **DISTRESS** key to access the various functions.



Use the ▲ and ▼ keys to scroll the various danger categories available:

- Not defined (default setting)
- Abandonment
- Piracy
- Man over board (MOB)
- Fire
- Flooding
- Collision
- Hauling
- Listing
- Sinking
- Drifting

Hold the **DISTRESS** key to start the 5-second countdown before the message is sent.

Press **ON/C** to return to normal operating mode.



CAUTION

The DSC-call should only be made if the yacht is in a real distress situation. Otherwise, to send a DSC-call with no need is considered as an infringement.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

Main uses of DSC

The emergency messages are automatically sent without any distinction to all stations, while the messages of other type are addressed even only to some stations (or a single station) by means of identification codes MMSI.

Distress call

To require the intervention only and exclusively if human life is in danger. NEVER use this kind of call unless you are in real need.

This call will transfer your position automatically until a coastal station or boat confirm its reception.

It is activated by means of a specific operation and by key (Distress) located on the transmission unit and immediately available.

Emergency call

This call is done in case human life is not immediately seriously involved and allows specifying the cause of the danger for which the intervention is required: explosion on board, flooding, collision, run ashore, overturning; sinking, run adrift, abandonment, piracy, man over board etc..

Routine call

This call has to be carried out to establish ordinary communication from ship to ship, from ship to shore or from shore to ship.

Group call

This kind of call allows contacting a specific group of ships, for instance a fishing fleet or during a sailing race.

Safety call

This kind of call is usually sent to all ships from the Coast Guard to inform automatically about weather or navigation conditions.

Phonetics alphabet

The phonetic alphabet is used to stress parts of a message or of a crucial or difficult transmission to be acknowledged during a vocal communication.

LETTER	PHONETICS ALPHABET
A	Alfa
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Lima
M	Mike
N	November
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-Ray
Y	Yankee
Z	Zulu

4.4.2 Magnetic compass



The magnetic compass fitted on the dashboard of a yacht of such size, is inevitably close to the magnetic fields produced by the electric and electronic systems on board. Only a specialized technician should turn the compass for compensation. We remind you that the compensation should be carried out a couple of weeks after the launching, in order to eliminate the magnetizations developed during the construction of the yacht.



CAUTION

The yacht is delivered with a compass not compensated. The compass compensation has to be carried out at Owner's responsibility, after the installation of any additional electronic equipment, and should be performed by an authorised and qualified technician. Any electrical or metallic items located in its proximity may influence the compass.

MAINTENANCE

At least once a month check the operation and the deviations. When necessary have it calibrated and compensated again.

NOTE

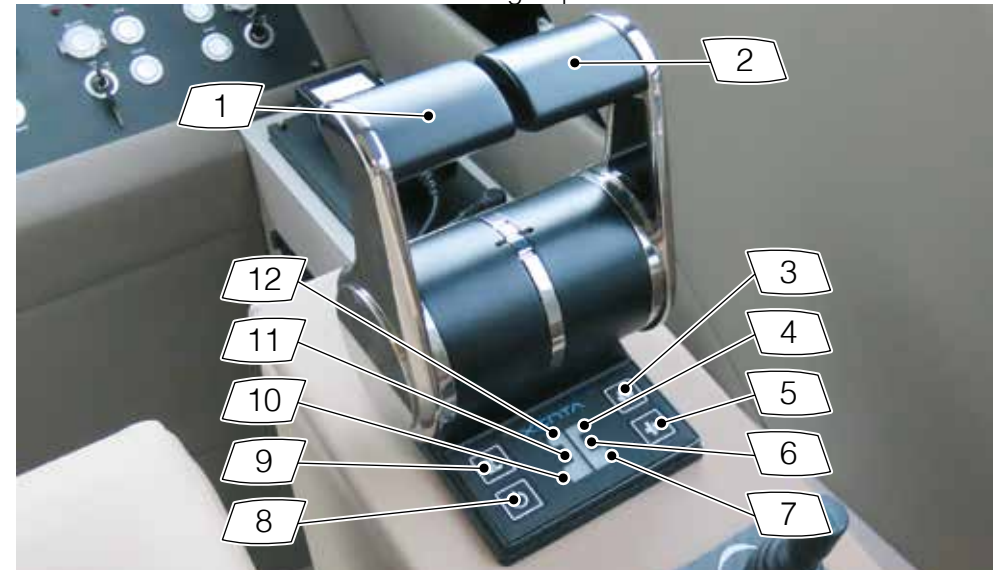
For further information on use and maintenance, please refer to the manufacturer's manual.

4.4.3 Throttle (engine control systems)

The throttle is a system intended for control engine revolutions and inverter gears. It has the following features and performance functions.

- Sequential inverter and engine speed;
- Start interlock;
- High/low idle;
- Engine synchronization for several thrusters;
- Trolling solenoid valve control;
- Emergency protection against inversion;
- Inverter oil pressure interlock (optional).

These features and functions make lever group use easier.



1. Throttle of port engine/inverter
2. Throttle of starboard engine/inverter
3. WARM UP  button
4. Control indicator – port
5. TROLLING  button
6. Throttle indicators – port
7. Gear and mode indicators – port
8. COMMAND  button
9. SINGLE LEVER  button

- 10. Gear and mode indicators – starboard
- 11. Throttle indicators – starboard
- 12. Control indicator – starboard

- **SINGLE LEVER button**  (9) : it allows the activation of the **SINGLE LEVER** mode (after authorisation by means of the **COMMAND** button).
- **COMMAND button**  (8): it activates the throttle levers station and allows to confirm the activation of all the other operative modes.
- **WARM UP button**  (3): it activates the **WARM UP** mode (prior authorization by **COMMAND** button).
- **TROLLING button**  (5): it activates the **TROLLING** mode (prior authorization by **COMMAND** button). The **TROLLING** mode is an optional feature.
- Control indicator (4 and 12): it indicates the status of the port/starboard lever and reports the errors.
- Throttle indicators (6 and 11): they indicate the level of throttle requested by port/starboard lever.
- The more throttle is requested, the higher is the number of lights activated.
- Gear and mode indicators (11 and 14): In **THROTTLE** mode, they are both ON in solid blue if the port/starboard lever is in neutral. When the lever is in forward position, the top LED is ON in solid blue. When the lever is in backward position, only the bottom LED is in solid blue. In **SINGLE LEVER** mode, they are both on in fixed blue if the control lever is in neutral. When the lever is in forward position, the top LEDs are ON in solid blue. When the lever is in backward position, the bottom LEDs are ON in solid blue. In **WARM UP** and **TROLLING** modes they flash in blue giving an indication on the active operational mode.

The lights on the control panel of the control level provide information on the operational conditions of the system.

Control taking stages

- Make sure the throttle are in neutral. The station cannot take control when the levers are in other positions.
- Press twice the throttle switching on button, the LEDs go on indicating that the throttle is active.



WARNING

The following movement of the group lever of the throttle will engage the gear.

- Start engine and the neutral control at the same time. If the levers of the lever group are not in neutral, the interlock switch will not allow engine starting.
- Move the levers to the stop backward or forward. The drive system starts.

Basic operation

The throttle has three stops: backward, neutral, and forward.

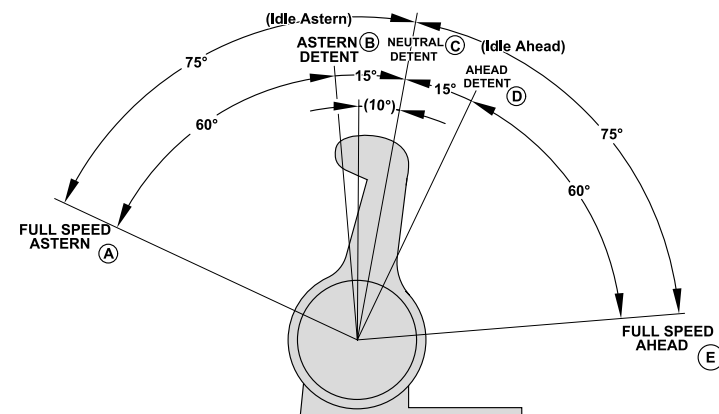
With the throttle positioned on the “Neutral detent” stop, the system sends the neutral control and idle revolutions per minute.

By moving the lever of the throttle forward “Astern detent” or backward “Ahead detent” by 15° the backward/forward clutch engages.

The engine runs at the idle revolution number.

By moving the lever further, the engine revolution number increases proportionally compared to the lever of the throttle.

INDICATOR	LEVER POSITION
A	Full speed astern
B	Stop backward (idle astern)
C	Neutral stop
D	Stop forward (idle ahead)
E	Full speed ahead





CAUTION

The neutral stop (central position of the throttle movement) is 10° forward. The moving degrees are measured from this position, not from the vertical one.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.4.4 Engine control panel

The panel allows to start, stop and stop in emergency the propulsion engines.



CAUTION

The engines should be started with inverters in neutral and throttle levers at idle.



DANGER

Before starting the engine, make sure no one stands in the danger area in the engine room.



DANGER

Make sure the engines cannot be started by non-authorized personnel.



CAUTION

The emergency stop causes a heavy strain to engines, with a subsequent risk of damaging its parts. Use only in case of real need.

4.4.5 Multifunction display

It allows to visualise the information about speed, depth, distance, environmental data, etc.. in analogue/digital/graphical format.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.4.6 Bow and stern thruster control panels



They are supplied by a switch on the general electrical panel of the engine room. The control panel carries the activation buttons and the joystick for the bow/stern thruster control (with the silk-screened side arrows).

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.4.7 Steering wheel

This wheel is connected to the coupling bar of the surface drives by means of hydraulic systems (cylinders), able to develop a greater power and to facilitate the steering during navigation.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.4.8 Radar/Chartplotter/Fishfinder

This device provides all features of a radar, a digital fishfinder and a chartplotter. The overlay of the radar image to the cartographic one combined with the data windows defined by the user make the device a real integrated navigation system. All functions and controls of the various instruments can be accessed from any display, thus allowing a safe navigation.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



WARNING

Pay the outmost attention during navigation, because in proximity of the yacht a shadow cone is formed, which is not covered from the radar waves.



DANGER

Radiation danger

The radar antenna emits radiations, which can damage the human body, especially the eyes. When the radar is operating, never look straight at the transmission aerial from a distance shorter than 1 m.

During the radar operation it is necessary to keep out of the antenna transmission flow.

Switch off the radar if not expressly necessary to navigation.



CAUTION

The electronic chart is an aid to navigation, designed to facilitate the use of authorized government charts, not to replace them. Only official government charts and notices to mariners contain all information needed for the safety of navigation and, as always, the Captain is responsible for their proper use.

4.4.9 Steering joystick

It allows to make manoeuvres in confined waters easier, coordinating the whole steering instrumentation, including bow thrusters, inverters and positioning instrumentation, and controlling the yacht movements and rotations.



1. Joystick;
2. Command button and indicator (C);
3. Thruster button and indicator (T);
4. Engine button and indicator (E).

- **Joystick (1):** Controls all manoeuvres.
- **Command indicator (C) (2):** A blue light indicates the correct operation of the system. It turns red in case of problems. This button is used to activate the combined control of engines and thrusters.
- **Thruster indicator (T) (3):** A blue light indicates the correct operation of the thruster(s). It turns red in case of problems or malfunctions. This button is used to activate control of the thruster or the rudders.
- **Engine indicator (E) (4):** A blue light indicates the correct operation of engines. It turns red in case of problems or malfunctions. This button may be used to activate optional features.

The three lights on the joystick control panel provide information on the operational conditions of the system. They show both the system status and any malfunction, providing information about the first troubleshooting level:

C: indicates the overall system status.

T: indicates the status of the thruster(s).

E: it indicates the status of the engines.

Each indicator has five possible states, providing a greater level of detail:

Solid red: operation is blocked.

Flashing red: operation failure.

Flashing blue: operation is available for use.

Solid blue: system in operation.

OFF: system either turned OFF or unavailable.

All of functions of the system are activated via the **C**, **T** and **E** buttons situated on the joystick control panel. To activate the system, proceed as described below:

1. Make sure the Joystick is in neutral.
2. Switch both keys on.
3. Wait until the system switching on procedure is complete.
4. At the end of the procedure, the system will start the **STANDBY** mode automatically.

DYNAMIC POSITIONING mode (optional)

The **DYNAMIC POSITIONING** mode, when active, maintains the position and the heading of the yacht. In calm wind conditions, with low currents, the **DYNAMIC POSITIONING** mode allows the pilot to hold the yacht steady within 5 meters of a selected position. When **DYNAMIC POSITIONING** is active, the yacht's heading will also remain steady. **DYNAMIC POSITIONING** is based on GPS and compass data. **VMA** automatically controls engines, gearboxes and thrusters to maintain the selected position and heading. This allows the captain to keep the yacht almost steady when, for example, waiting for refueling, for a bridge to open or where anchoring is not allowed or feasible. It is anyway always under captain's responsibility to keep under control the movements of the yachts and the surroundings, watching for obstacles or any other kind of danger. It is captain's solely responsibility to always stay close to the helm station and react to any kind of danger that may occur. When **DYNAMIC POSITIONING** is active, the pilot can still use the joystick to perform every action, as in **MANEUVER** mode. When the joystick is put back in neutral, the system detects the yacht's new position and heading and automatically controls engines, gearboxes and bow thruster to keep the position and heading steady. To activate the **DYNAMIC POSITIONING** mode, proceed as follows:

1. Make sure the Throttle levers are at neutral position;
2. Make sure the Joystick is in neutral;
3. Press the **C** button to open the selection mode;
4. Press the **T** button once to reach the **DP** mode;
5. Press the **C** to confirm the activation.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

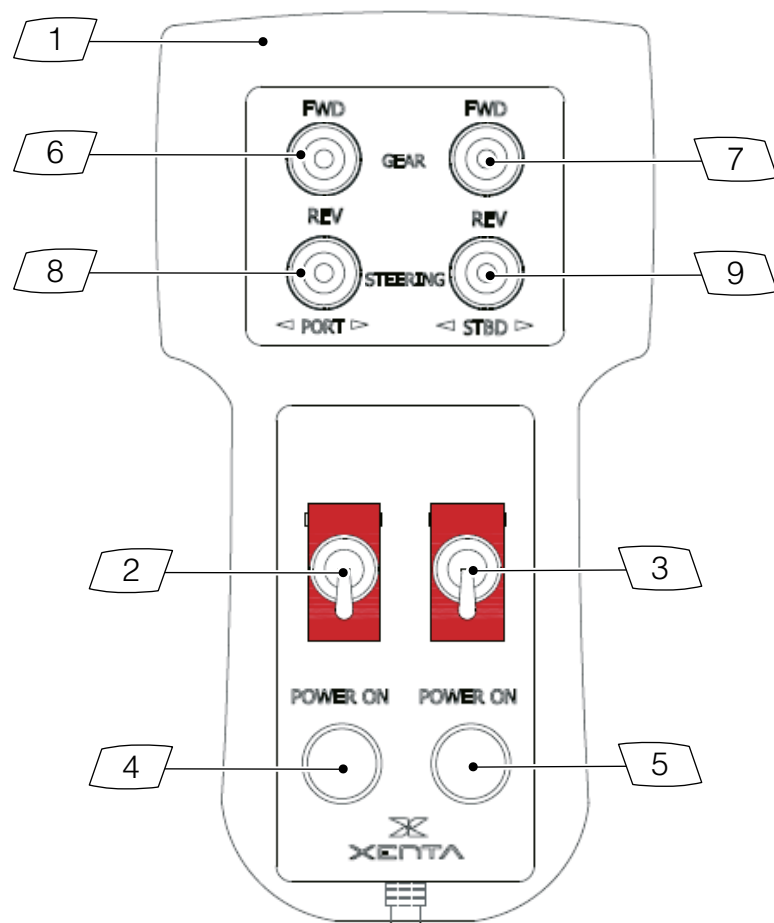
4.4.10 Back-up control panel

The XENTA system can be integrated with a BACK-UP control system, which guarantees the maneuverability of the yacht in the event of failure of the main electronic system.



CAUTION

It is always under captain's responsibility to keep the movements of the yacht and the surrounding area under control, paying attention to any obstacles or dangers. It is the captain's only responsibility to remain close to the helm station and to react promptly in case of danger.



- **BACK-UP panel (1)**: ensures navigation with reduced functionalities in case of XENTA system malfunction
- **Power switch (2)**: activates the engines back-up commands
- **Power switch (3)**: activates the rudders back-up commands
- **LED operative indicator (4)**: a red light indicates the ignition and operation of the engines back-up commands
- **LED operative indicator (5)**: a red light indicates the ignition and operation of the rudders back-up commands
- **Port gear switch (6)**: activates the left engine control
- **Starboard gear switch (7)**: activates the right engine control
- **Port steering switch (8)**: activates the left rudder control
- **Starboard steering switch (9)**: activates the right rudder control

FUNCTIONALITIES:

Connect the **BACK-UP** panel to the relative connector installed on the dashboard. Activate the **BACK-UP** system, lifting the safety guard and bringing up the power switch of the back-up commands to be activated: the relative LED will light red to signal the activation of the required back-up commands.

Through the two upper switches (6 and 7) it is possible to gear the port and starboard engines forwards and backwards respectively, with a limited number of revolutions.

Through the two lower switches (8 and 9) it is possible to move both left and right rudders to port and starboard, allowing, therefore, the movement in emergency conditions of the steering system, ensuring the minimum maneuverability necessary to arrive in port and put the yacht in a safe condition.



CAUTION

In the event of a failure of the main steering system and, therefore, during the use of the back-up system, the relevant rudder position indicators may not function correctly. It is therefore the captain's responsibility to adapt the position of the rudders in accordance with the direction of travel of the yacht.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.4.11 WATCHIT system (optional)

WATCHIT is an advanced system intended to assist the captain in operating the boat in a safer way by providing an alert about potential risks both over and under the water.

This system processes data from the on-board sensors (GPS position, heading, speed, rudder angle, LOG, wind indicator, etc..) and from the maps data which allows to constantly assess the risk of collision and issue warnings in real time to prevent accidents at sea.



CAUTION

Do not use the system as a navigational tool as it is not intended as such. This system is intended only as an aid to navigation and does not substitute safe and alert yacht navigation and operation by a qualified operator.

Once the system was installed on board your yacht and was calibrated, there is no need to actively operate the system. The only action needs to be taken before leaving your port or marine is making sure the power supply switch/fuse is ON and the system will automatically power up.

The system has 4 modes of operation:

- **Normal Mode** – In this mode the system will generate a vocal an obstacle alert in case it has detected a potential hazard on the yacht's path. The alert will be heard 30 seconds before impact in order to allow enough time for the skipper to react.
- **Crowd Mode** – Whenever the system detects multiple objects in the near surrounding and the yacht speed is less than 15 Knots - the system will automatically switch to Crowd Mode and the vocal alerts will be replaced with Beeps to inform the captain about any potential risks. The beeps frequency will increase as the risking object will get closer to the yacht.
- **Anchor Mode** – Whenever the system has detected that the yacht has stopped – it will automatically switch to Anchor Mode. In case the system has detected the yacht is drifting, it will popup a Drifting Notification. After 5 minutes in case no one acknowledge the notification – a drifting alert will be triggered.
- **Marina Mode** – Whenever the yacht has entered a marina, the system will switch to Marina Mode. In this mode no vocal alerts will be heard.



NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

4.5 INTERNATIONAL RULES FOR PREVENTION OF COLLISIONS AT SEA (COLREG 1972)

The pneumatic hoot (horn) installed on board of the ship, satisfies adequately the requirements prescribed by the regulation against collisions at sea (Colreg 1972). Hereunder please find an off-print of the "International rules for prevention of collisions at sea".

- **Application** (Rule no. 1): the current Norms are applicable to all boats at high sea and to all waters communicating with it, accessible for sea navigation.
- **Responsibility** (Rule no. 2): none of the current rules can exempt a boat, its Owner or the crew from the consequences of any negligence of application of the said rules.
- **Definitions** (Rule no. 32):
 - — "one short sound", of the duration of approximately a second.
 - ——"prolonged sound", of the duration of four to six seconds.
- **Signals of manoeuvre and warning** (Rule no. 34):
 - — one short sound "I am going starboard".
 - —— two short sounds "I am going to port".
 - ——— three short sounds "I am going backward".
 - — — — two prolonged sounds and a short one "I am going to overtake you starboard".
 - — — — — two prolonged sounds and two short ones "I am going to overtake you port".
 - — — — — — one prolonged sound, a short one, a prolonged one and a short one "OK for the overtaking".
 - — — — — — — five short sounds "I have doubts about this manoeuvre".
 - — a prolonged sound "boat approaching a channel elbow".
 - — a prolonged sound "boat answering to previous signal".
- **Signals with poor visibility (Rule no. 35 and 37):**
 - — a prolonged sound at two minutes interval "boat at mechanical thrust in fresh way".
 - — — two prolonged sounds with an interval of two seconds and repeated every two minutes "boat at mechanical thrust in navigation, with engines shut-off and without fresh way".
 - — — — a prolonged sound and two short ones at intervals of two minutes "boat out of control or with manoeuvre troubles or towing".
 - — — — — a prolonged sound and three short ones at intervals of two minutes "last boat towed answering to boat towing".

- — — — a short sound, a prolonged one and a short one "boat riding the anchor giving its position to a ship approaching with hazard of collision".
- — — — — five seconds of continuous sound at intervals of one minute "boat riding the anchor giving its position".
- — — — three short sounds one after the other "boat stranded".
- — — — — four short sounds "pilot boat in service".
- ————— a continuous sound "danger and rescue need".

PERSHING

7X

Systems

Owner's
Manual

5. SYSTEMS

5.1 WATER SYSTEM

The system consists of:

- Fresh water tank;
- Autoclave pump (1);
- Fresh water inlet from shore (2);
- Fresh water inlet (3);
- Watermaker (optional) (4).

The fresh water tank, has a capacity of 800 l.

The tank is equipped with an inspection flange located in the bilge under the dunnages of the cabin corridor.

On the flange there are all following connections:

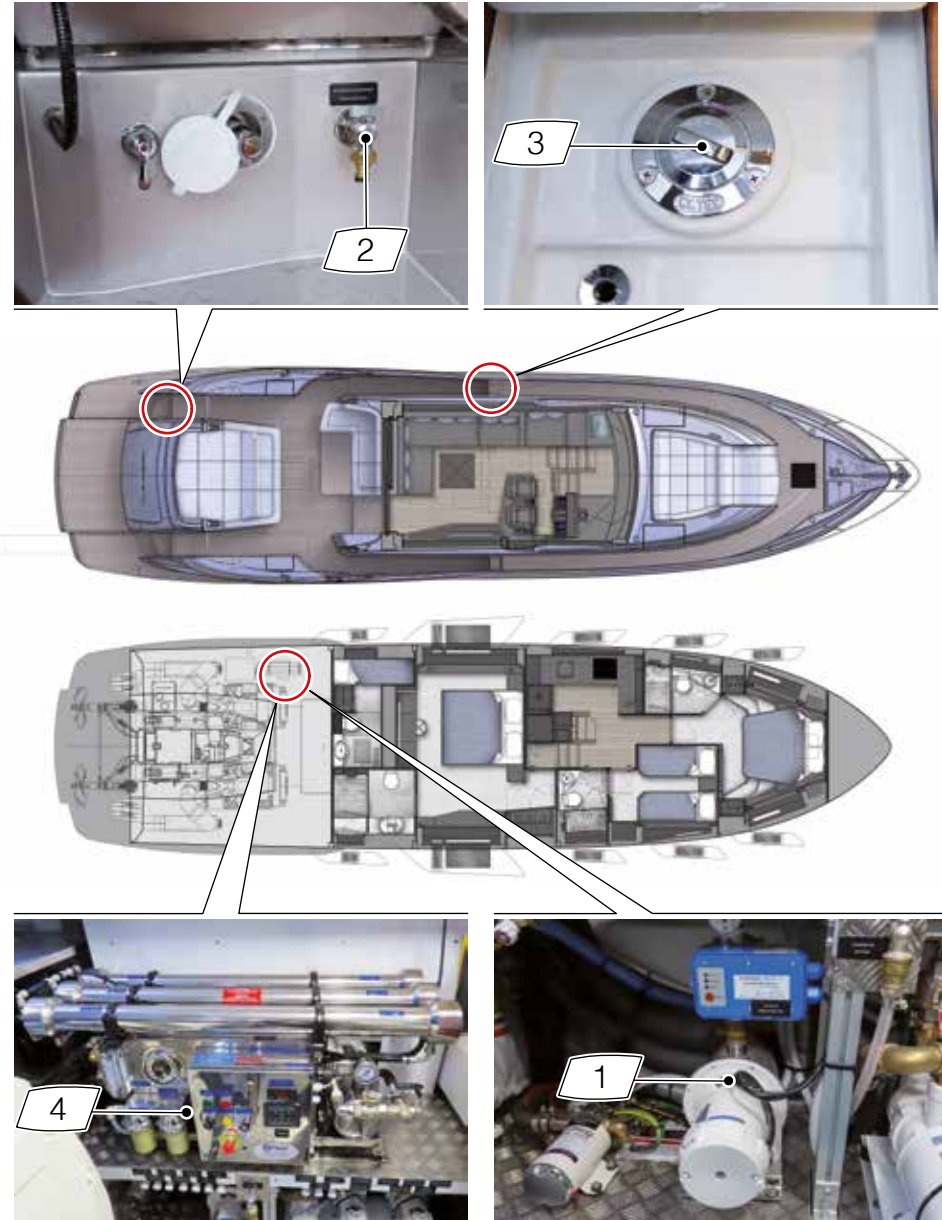
- **Water inlet**
The inlet is located on the port walk-around.
- **Fresh water tank vent**
The tank is located on the port side of the yacht.
- **Fresh water suction**
Delivers water to the pump, that keep under pressure the whole water system.

The system can also be supplied by means of the shore inlet line, equipped with a pressure relief valve and a pressure gauge, they are installed in the engine room. The various equipment can in this way be supplied without the on-board pumps because the pressure of the shore system is available.



CAUTION

On yachts provided with direct connection to shore fresh water, the maximum operation pressure should not exceed 3 bar and the pipes must be disconnected for safety reasons, if the yacht is left unattended. Notwithstanding the presence of a pressure limiter, check the pressure on the pressure gauge installed on the regulator.



The fresh water system is equipped with an autoclave pump with electronic controller, that implies:

- Less use of batteries as the 24V pump activates only by high delivery requests;
- The pump continuous operation, eliminating the connection and disconnection phases;
- The pump start after reaching the minimum pressure value set on the panel, with warning lights visualizing the various operation stages;
- Power ON (green light - voltage);
- ON (yellow - pump runs for some seconds and brings the system under pressure 2.8/3 bar).

At service connection the system starts the pump automatically, this latter stops when the service disconnects, after resetting the system under pressure. When faults occur, such as water leak or pipe clogging, the electronic control indicates the faults by means of "Failure" red light and stops the pump. The system restarts either by pressing the red Restart button, or by handling on the magneto-thermal switch on general electrical panel (by cutting out/in the pump voltage supply). When filling fresh water by means of the direct inlet from shore, the fresh water tank is not filled. The fresh water tank can be filled only by means of the side inlet filler.

In case of technical problems, see instruction manual of the pumps group or address to the After sales & Service Department.



CAUTION

The fresh water circuit, and particularly the tank, must be sanitized periodically by pouring in the case a specific disinfectant solution. We recommend in any case that the water coming from the on-board system not be drunk.



CAUTION

Before refilling the fresh water tank, check that the water supplied by the shore fresh water system is potable.



CAUTION

Regularly inspect the fresh water and bilge circuits for leaks. Repair any leaks by releasing the pressure in the system, in order to avoid damaging the furniture and the electrical equipment.



CAUTION

The inlet plug is marked "WATER" to avoid accidental introduction of different liquids. To avoid damage to the system and tanks, we recommend replenishing by gravity and not by pressure.



CAUTION

The pressure regulator at the outlet of the autoclave is preset by the manufacturer. Do not make any modifications.



WARNING

It is good practice to optimise the use of water, especially if you are navigating on the high seas.



CAUTION

In case of need, break or pollution of the tanks, they can be replaced. Contact PERSHING After sales & Service Department.

5.1.1 Watermaker (optional)



To solve the problem of water supply and to ensure a constant availability also during long navigations, the yacht has been provided with an efficient water maker system.

The water maker is installed in the engine room and, by means of an electric pump, sucks sea water through the service sea cock and, after filtering and treating it, sends it to the on-board tank.

Before the sea water is treated, it is filtered in order to remove all “suspended” particles, such as small seaweed and impurities in the water, which could clog the inner membranes of the water maker, even within a short amount of time.

The water maker can produce bacteriologically pure water which can therefore be used for all on-board applications.

Excess water and salt concentrate are discharged overboard. In order to prevent the problem of the deposit of salts on the inner membranes and their crystallization over time, the system has been provided with an end-of-cycle flushing system which uses fresh water. Given the importance of this operation, clean the inner membranes of the water maker according to the procedures and the schedules indicated by the manufacturer.

On the general electric panel in the engine room (120/240V mains), there is a magneto-thermal breaker which supplies and protects the water maker system.



CAUTION

The water maker is to be kept in good condition by scrupulously following the indications in the specific manual.
Bad maintenance can lead to production of non-potable water unsuitable for food use.



CAUTION

The water maker does not eliminate all dangerous agents present in polluted waters (see specific manual).
Use the water maker only in clean waters, to avoid contamination of its membranes, tanks and of the whole circuit.



CAUTION

In order to prevent clogging the water maker filters and membranes, do not use the system where sea water is dirty or contains a great deal of sand in suspension.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

MAINTENANCE

At least once a month verify:

- The correct operation;
- The oil level in the pump.

Periodically perform a fresh water washing cycle. At least once a year, change the oil of the pump.

When necessary clean the filters.

5.1.2 Cold fresh water system

The system is kept under pressure by pump equipped with pressure switch.



The pump supply the system by drawing water from the tank; the water flowing through pipes and manifolds supplies following services:

- VIP bathroom;
- Owner's bathrooms;
- Starboard guest bathroom;
- Crew bathroom;
- Bow shower;
- Stern shower;
- Cockpit sink;
- Galley sink;
- Windscreen wiper;
- Air conditioning unit top up;
- Washer-dryer;
- Dishwasher;
- Water heater;
- Engine room tap;
- Garage tap.



WARNING

Before activating the system, ensure the proper position opening/ closing of the manifold valves: valve open, lever parallel to input hose, valve closed, lever perpendicular to input hose.



WARNING

During navigation and, in general, when the water in the tank is used, we remind closing the valve fitted on the shore inlet line, located in the engine room.

5.1.3 Hot fresh water system

A water heater is installed on board the yacht to heat the water.



Water is drawn from the tank by means of a pump and delivered to the water heater to be heated. It operates only at 120/240V AC and is activated by means of the thermal switch located on the general electrical panel of the engine room, 120/240V Section or by monitoring system.

The water heater is located in the bilge under the dunnages of the VIP cabin.

By means of a distribution manifold, the hot water is conveyed to the following services:

- VIP cabin bathroom;
- Guest cabin bathroom;
- Owner's cabin bathroom;
- Crew bathroom;
- Cockpit sink;
- Galley sink;
- Bow shower;
- Stern shower.

In order to use hot water, it is necessary to:

- Set to ON the magneto-thermal switches of water heater and pump installed on general electrical panel;
- Ensure that a power supply is connected (generator or shore);
- Make sure the service battery breaker is set to ON.



WARNING

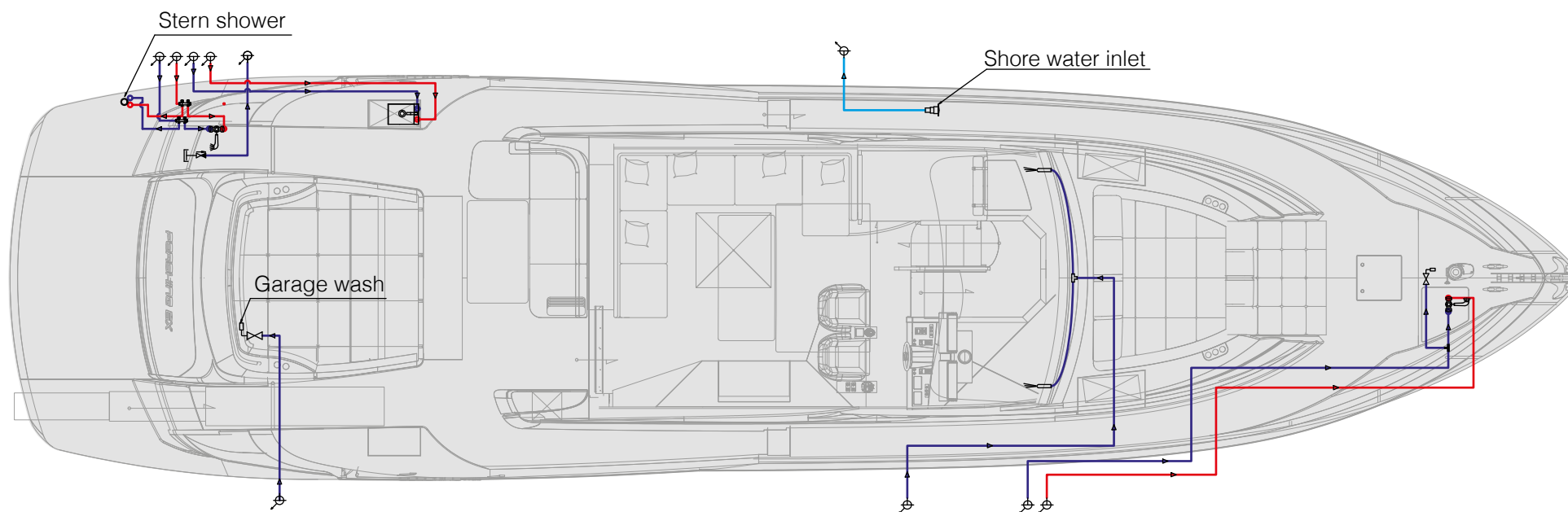
To activate the water heater, either start the generator or get connected to the shore column, without forgetting to check the current amperage of the harbour you are moored into.



WARNING

Never switch on the electric resistance if the water heater is empty.

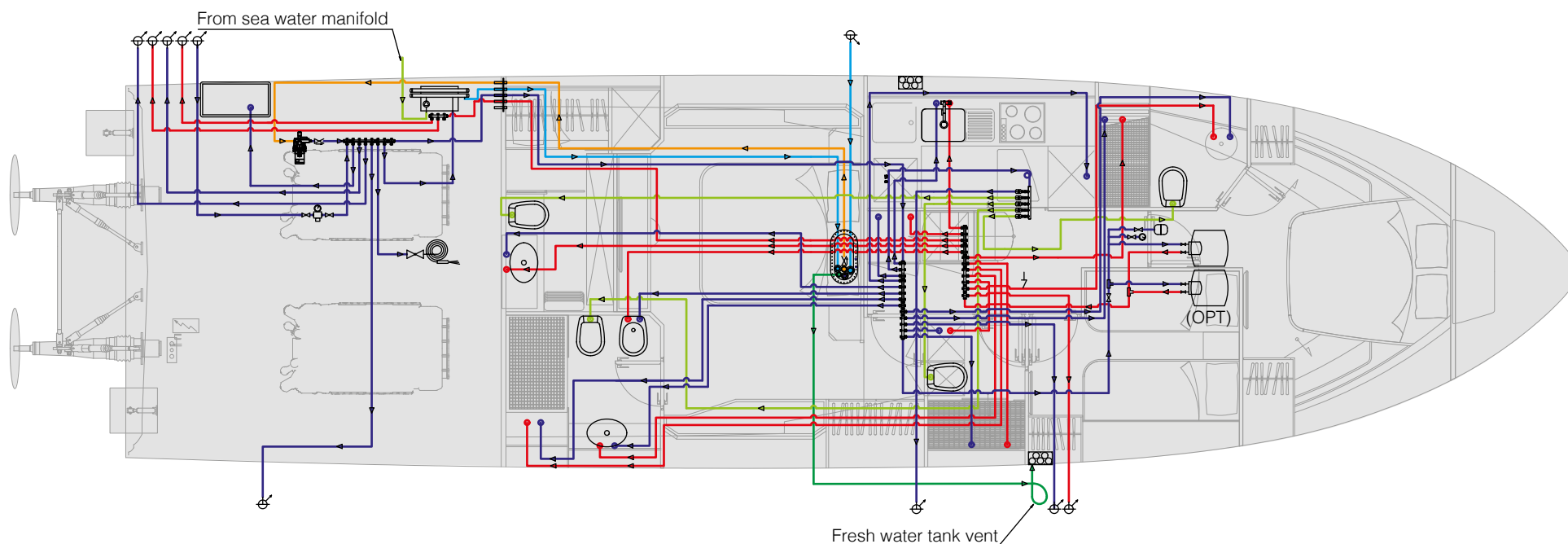
5.1.4 Fresh water system diagram



ICON	DESCRIPTION
	Solenoid valve 24V
	Filter for solenoid valve
	Watermaker (opt)
	Stainless steel bulkhead
	Water heater
	Pressure reducer
	Valve manifold
	Flexible metal hose
	Shoreside inlet

ICON	DESCRIPTION
	Manometer
	Ball valve
	Three-way valve
	Pressure reducing valve
	Non-return valve
	Window washing nozzle
	Water boarding
	Autoclave
	Centralized discharge

ICON	DESCRIPTION
	Expansion vessel
	Warm fresh water system line
	Hot fresh water system line
	WC fresh water line
	Air vent line
	Fresh water tank filling line
	Fresh water suction line



ICON	DESCRIPTION
	Solenoid valve 24V
	Filter for solenoid valve
	Watermaker (opt)
	Stainless steel bulkhead
	Water heater
	Pressure reducer
	Valve manifold
	Flexible metal hose
	Shoreside inlet

ICON	DESCRIPTION
	Manometer
	Ball valve
	Three-way valve
	Pressure reducing valve
	Non-return valve
	Window washing nozzle
	Water boarding
	Autoclave
	Centralized discharge

ICON	DESCRIPTION
	Expansion vessel
	Warm fresh water system line
	Hot fresh water system line
	WC fresh water line
	Air vent line
	Fresh water tank filling line
	Fresh water suction line

5.1.5 Maintenance of hot/cold fresh water system

COMPONENT	MAINTENANCE	NOTES E PRECAUTIONS
Fresh water tanks	Cleaning and check	At least every month, drain the fresh water tanks completely and rinse them a couple of times with clean fresh water. This in order to change completely the water stowed in the storing tanks and at the same time to wash them too. If is necessary to extract the tanks for cleaning, remove them through the port guests' cabin, disassembling the starboard net of the berth. Periodically pour a specific disinfectant, in the quantity recommended by the Manufacturer, into the tanks, through the intake filler, in order to prevent the formation of bacteria in the system.  CAUTION The fresh water circuit, and particularly the tanks, must be sanitized periodically by pouring in the case a specific disinfectant solution.
Electric water heater	Cleaning and check	 CAUTION If warm water is not available, because of the fresh water circuit discharge, switch off the water heater to prevent damaging its resistors. MAINTENANCE At least once a month check the operation of the water heater. At least once a month check the operation of the relief valve. At least once a year carry out the thermostat calibration, and if necessary, have it calibrated again. At least every two years descale the resistor.

COMPONENT	MAINTENANCE	NOTES E PRECAUTIONS
Fresh water system	Cleaning and check	In case of need or of maintenance, by acting on the valves installed on the distribution manifolds, it is possible to cut out parts of the system or single services, without involving the operation of the general system. Check if along the hydraulic circuit, where possible, are present leaks due to the damage of piping.  WARNING The high temperature can cause the softening of the pipes and the following slackening of the fittings. Always check the pipes tightening, especially those located near heat sources.  WARNING During winter, if you do not use the yacht, drain all the circuits where there is fresh water to prevent cracks due to freezing.

COMPONENT	MAINTENANCE	NOTES E PRECAUTIONS
Surge tank pump	Cleaning and check	The pump should be serviced by qualified personnel only, after having been disconnected from the power mains. No routine maintenance is required so long as the following precautions are taken: • In case of freezing risk, it is necessary to empty the pump body; then refill the pump before operating it but make sure the ambient temperature is higher than the water freezing temperature. • Make sure the pump never works dry. • If the pump remains unused for a long time, it is better to empty the body and clean it. • Periodically check the efficiency of valves and strainers. • On D.C. engines the brushes must be periodically checked for consumption and spring pressure. • Protect electric components of the pump with proper products.  WARNING The surge tank pump is self-priming but it needs though, in order to operate, to have its body filled with liquid. For a correct use, we recommend priming first or after a long period of idling, to fill the pump body with liquid, to check the pressure inside the tank (it must have the same pressure priming the electric pump) and to verify the clockwise rotation of the pump (seen from the engine side). Besides, if on the synoptic panel the pump operating led remains always lit, but the enslaved services are not in use, check for leaks. NOTE For further information on use and maintenance, please refer to the manufacturer's manual.



WARNING

During winter, if you do not use the yacht, drain all the circuits where there is fresh water to prevent cracks due to freezing.



DANGER

Before carrying out maintenance on the fresh water pump, avoid its accidental priming.

5.2 SEA WATER SYSTEM

The sea water systems on board are:

- **Engine cooling system**

This system consists of two circuits, one for the starboard engine and the other for the port engine. Sea water is sucked directly by the inner pumps of the same engines, by means of two sea cocks equipped with two cut-off valves and strainers. The water sucked by the engines, flows through the strainers and is then delivered to the heat exchangers of the gear boxes and to the heat exchangers of the same engines, and then discharged overboard. Moreover, suitable circuits branches allows the cooling exhaust manifolds.

- **Generator cooling system**

Sea water is sucked directly from the inner pump of the generator by means of the relevant sea cock equipped with cut-off valve and strainer. The water sucked by the generator flows through the strainer and is then delivered to the generator heat exchanger, and then discharged overboard. In order to discharge water and fumes overboard, the generator convey its discharge through the muffler and subsequently to a separator.

- **Fire-fighting sea water system**

It consists of an electric pump that sucks the sea water through a sea cock fitted with cut-off valve and strainer and sends it to the sea water- fed services as black and grey water tank wash and anchor chain wash.

- **Air conditioning cooling system**

The sea water is suctioned by the pump dedicated to cooling the air conditioning through a sea intake equipped with valve and strainer.

- **Gyroscopic stabilizer cooling system**

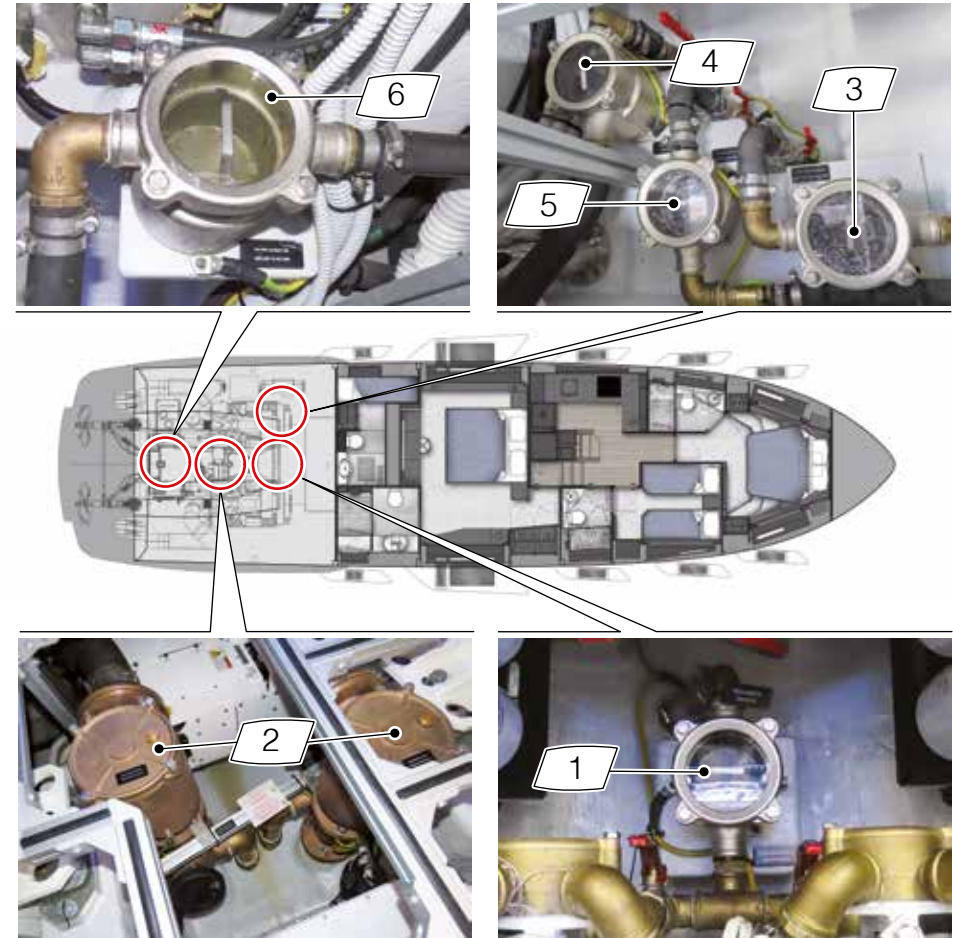
Sea water is directly sucked by the stabilizer cooling pumps by means of a sea cock provided with cut-off valve and strainer.

The water sucked by the generator flows through the strainer, is delivered to the heat exchanger of the stabilizers and then discharged overboard.



CAUTION

Before carrying out the cleaning of the sea cocks strainer, check that services supplied with sea water are not on and used.



1. Gyroscopic stabilizers sea water strainer
2. Engine sea water intake strainers
3. Air conditioning sea water intake strainers
4. Water maker sea water intake strainer
5. Fire-fighting sea water intake strainer
6. Generator sea water strainer



WARNING

It is advisable, when leaving the yacht in water for a long time, to close all sea cocks.



CAUTION

In case of sinking hazard, if the escaping conditions allow it, close all ball valves of the sea intakes.

Clean the sea cock strainers according to the schedule and to the pollution condition of the sucked waters (seaweeds, mucilages, etc..).

- Close the valve of the involved sea cock (by means of the handwheel or lever).
- Cut-off valves upstream of involved strainer.
- Remove the strainer cover by loosening the screws.
- Remove the strainer basket and wash away all impurities with fresh water. If necessary, replace them.
- Reinstall the basket and the strainer cover.
- Open the valves upstream of involved strainer.
- Before restarting the system circuit, ensure that the screws and relevant washers are correctly fastened with the ring and disc on strainer's body.
- Completely reopen the overboard intake valve and check that there are no leaks from the strainer cover.



DANGER

The lack of care while cleaning each sea intake strainer can cause serious damage to the on-board devices and, in some cases such as fire, it may have extremely serious consequences. Check before undertaking the navigation and at regular intervals during navigation, the condition of the sea cock strainers of the various devices through the transparent cover.



WARNING

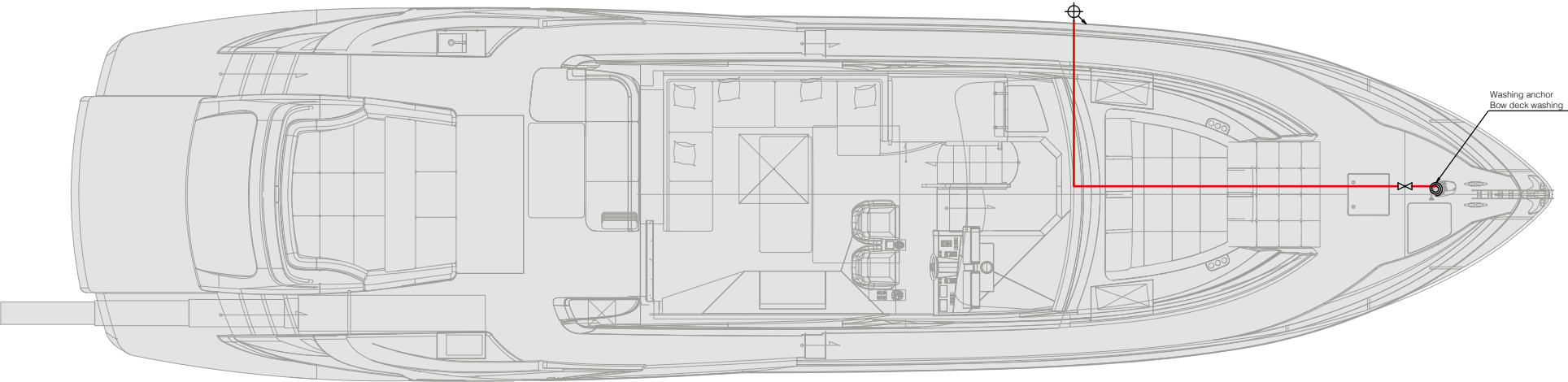
Before carrying out maintenance on the sea water circuit, disable its operation and close the sea cock valve.
Before restarting the system circuit, make sure that the cut-off valve is completely open.



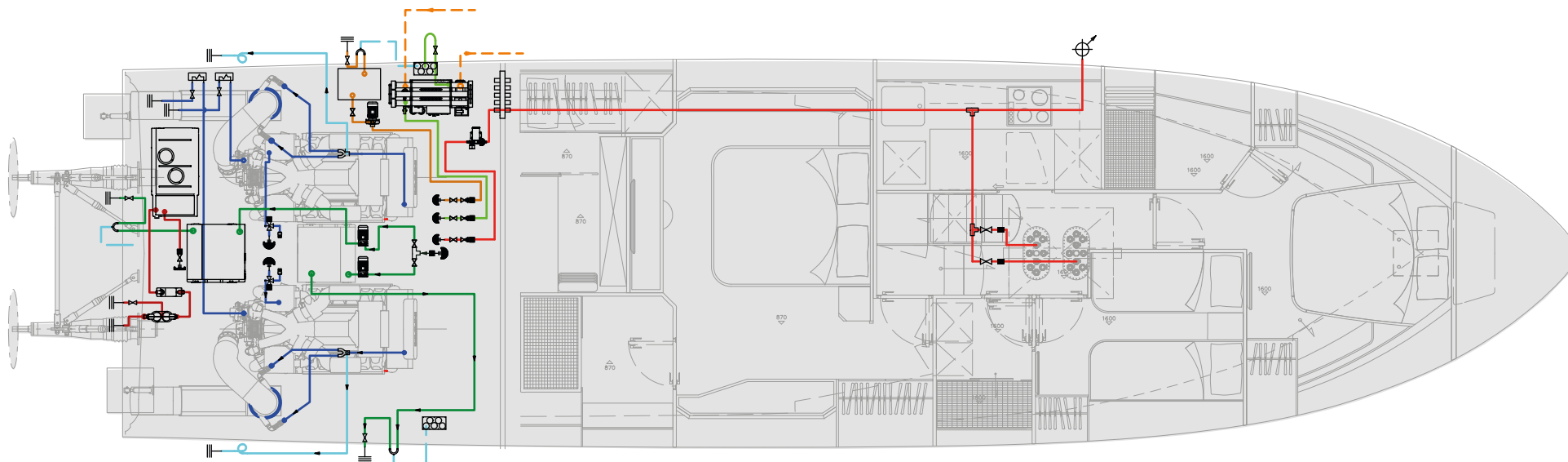
WARNING

During navigation, regularly check the cleanliness of the sea water strainer baskets.
If the yacht is crossing a dirty sea area, check the condition of the strainers and proceed with their cleaning.
Taking suitable precautions is very important to prevent damage to mechanical parts (engines, generators, etc..), discharge systems and to not jeopardize the safety of the yacht.

5.2.1 Engine cooling and sea water distribution system diagram



ICON	DESCRIPTION	ICON	DESCRIPTION	ICON	DESCRIPTION
	Outboard discharge		Foot valve		Partializer
	Water filter		Centralized seawater manifold		Sea line engines
	Top system heat exchanger		Sea water intake		Sea line generators
	A/C sea water pump		Sea water intake		Sea line seakeeper
	T-junction		Siphonbreak		Sea line services
	Chiller unit		Non-return valve		Sea line Fireproof
	Generator		Ball valve		Sea line hydraulic cooling
	Generator muffler		Watermaker (opt)		
	Generator gas-water separator		Going up pipe		
	Safety valve		Going down pipe		



ICON	DESCRIPTION
	Outboard discharge
	Water filter
	Top system heat exchanger
	A/C sea water pump
	T-junction
	Chiller unit
	Generator
	Generator muffler
	Generator gas-water separator
	Safety valve

ICON	DESCRIPTION
	Foot valve
	Centralized seawater manifold
	Sea water intake
	Sea water intake
	Siphonbreak
	Non-return valve
	Ball valve
	Watermaker (opt)
	Going up pipe
	Going down pipe

ICON	DESCRIPTION
	Partializer
	Sea line engines
	Sea line generators
	Sea line seakeeper
	Sea line services
	Sea line Fireproof
	Sea line hydraulic cooling

5.2.2 Maintenance of sea cocks and strainers

COMPONENT	MAINTENANCE	NOTES E PRECAUTIONS
Seacocks and strainers	Checking and cleaning (as required depending on the shoring area, but at least every month)	MAINTENANCE At least once a week check the correct water flow in the strainers. At least once a month: • Check the integrity of the strainers; • Check the correct functioning of the sea inlet valves; • Clean the strainer and the suction valve. At least 1 time every 6 months: • Check the condition of the cover seal; • That the valve does not show any sign of corrosion; • Protect with suitable products. Seacock cleaning This operation has to be carried out outside, therefore the yacht must be in a dry shore or you can ask the intervention of a diver. • Have the sea cocks cleaned (removal of seaweed or barnacles. If necessary have them removed with a brush). Inspection and cleaning valves and strainers • Cleaning is to be carried out more frequently if the water drawn in is particular dirty (seaweed, mucilage, etc..).  WARNING Before removing the strainer, it is necessary to close the valve fitted to the sea cock, to prevent flooding the bilge with water.

COMPONENT	MAINTENANCE	NOTES E PRECAUTIONS
Seacocks and strainers	Cleaning (as required depending on the shoring area, but at least every month)	Inspection and cleaning valves and strainers • Check for barnacles or corrosion on the control levers of the cut-off valves of the strainer to be checked. • Clean the control levers of the valves with a brush. • Move the levers repeatedly. • Close the cut-off valve upstream the strainer. • Remove the strainer cover by loosening the screws • Remove the filter element, clean it with a brush and rinse it in water (replace if necessary). • Clean the strainer housing. • Check and, if necessary, replace the gasket of the strainer cover. • Fill the strainer with water to avoid the pumps running dry not that the system does not prime. • Reposition the strainer, the cover and tighten the nuts. • Reopen the cut-off valve and check whether the strainer cover is leaking.  WARNING Before servicing the sea water lines, disable the operation of the connected utilities. Before restarting the utilities, make sure that the cut-off valve is completely open.  WARNING During navigation, regularly check the cleanliness of the sea water strainer baskets. If the yacht is crossing a dirty sea area, check the condition of the strainers and proceed with their cleaning. Taking suitable precautions is very important to prevent damage to mechanical parts (engines, generators, etc..), discharge systems and to not jeopardize the safety of the yacht.

COMPONENT	MAINTENANCE	NOTES E PRECAUTIONS
Electric pump services	Inspection and cleaning	Check pump operation at least weekly.  WARNING The pump is self-priming but, in order to operate, it needs to have its body filled with liquid. For a correct use, we recommend at first priming or after a long idling period, to fill the pump body with liquid and to verify the rotation direction of the pump (it should be clockwise, seen from the engine side). Besides, if on the control panel the pump operating led remains always lit, but the connected utilities are not in use, check for leaks.  DANGER Before servicing the pump, disable its operation. • Have the inner cleanliness of the pump checked; possibly, have it cleaned with well diluted detergent and dried. • Have the fittings for well tightening and corrosion checked. • Frequently check and keep the suction strainer clean. • Check that the electric power supply cables are in good conditions. • For further information, see the Manufacturer's Manual.

5.3 GREY WATER SYSTEM

The grey waters system is arranged so as to collect the discharge from: sinks, showers and bidets and fan-coils, in the main tank (200 l) located in the bilge under the dunnage of lower deck atrium.

From the tank, thanks to a piping reaching the grey water pump located in the engine room, water is discharged at sea, by means of a drain, installed next to the pump.

The grey water pump is controlled through the synoptic panel on the dashboard. The grey water system also contains Rule cover tanks for collecting fan coil condensation and grey water of the crew and owner's bathroom and galley. These cases are equipped inside with a draining pump, actuating automatically thanks to a level sensor.

The grey water pump has two operating modes, "AUTOMATIC" and "MANUAL", which can be selected by means of the control on the synoptic panel.

In "AUTOMATIC" mode, reaching the medium level enables the pump, which remains active until the low level is reached.

If the pump is active, switching the auto/manual selector stops the pump. In "MANUAL" mode, press the "MAN" button to start the pump.

The pump remains active until the low level is reached.

If the level is lower than the low level, the pump will not start, not even pressing the "MAN" button.

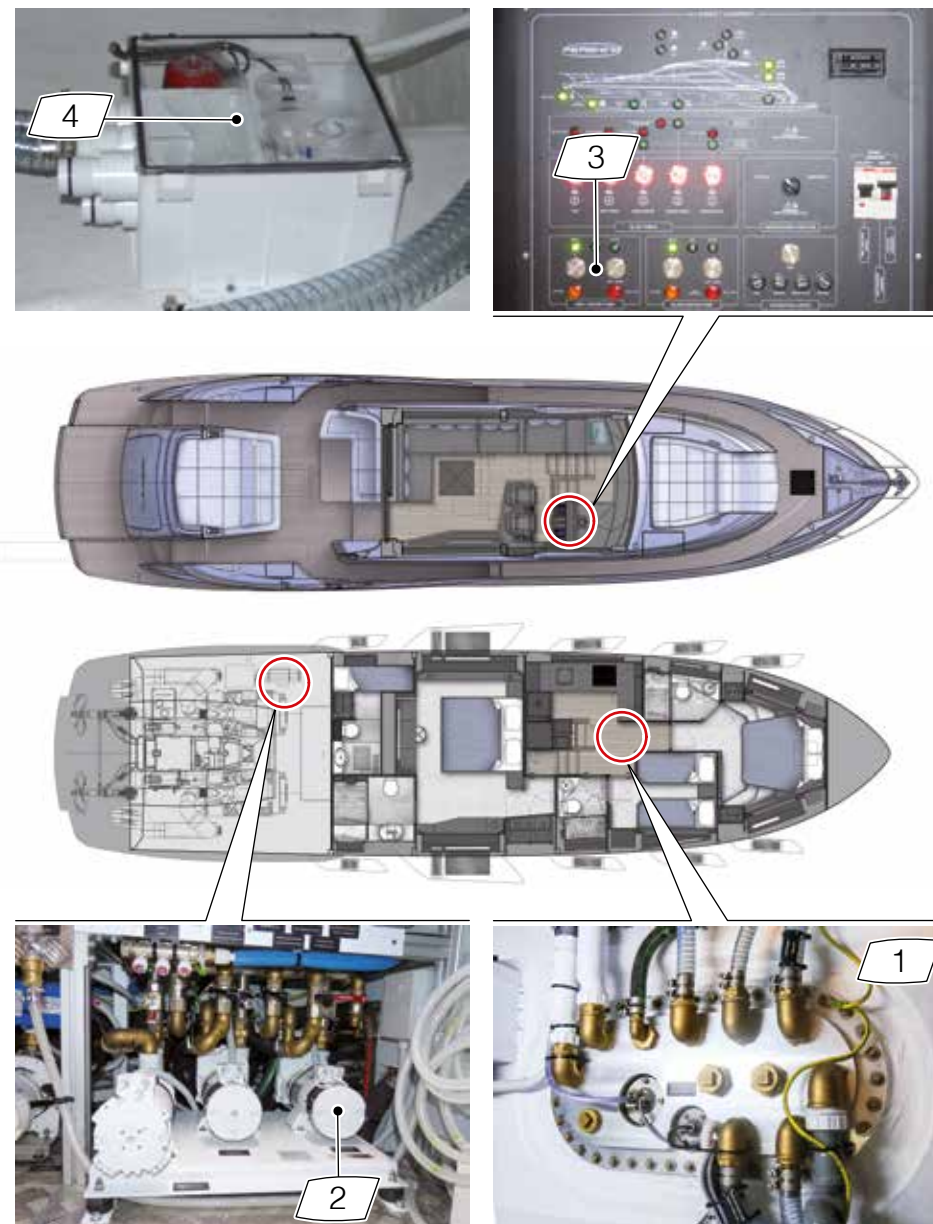
NOTE

We recommend always monitoring the tank level through the monitoring system (LEVEL screen) or, anyway, draining the tank in manual mode before entering the harbour, to avoid being forced to return to open sea to carry out its draining.



CAUTION

The alarm is given with the high contact of the main grey water tank, but the fresh water pump is not disabled.





ENVIRONMENT

Do not discharge soaped waters drained by washing machines and dishwashers in the harbour, inside marinas or near beaches, because of the large amount of foam produced.

To increase the reliability and safety of the system, it is possible in case of a fault of the grey water pump, to drain by means of the black water pump. Under such condition, it is necessary to ensure the proper opening of the concerned manifold valves.

To allow a regular flow and to avoid the formation of bad smell and gas, the tank is equipped with anti-odour siphons. Also condensate water produced by air conditioning is drained into the grey water tank.



WARNING

Do not pour any corrosive product into the washbasins or showers or at high temperatures, as they could cause damage to the grey water system.



CAUTION

Totally empty the system and the grey water tank before the lay-up period in order to prevent any problems with freezing.

MAINTENANCE

At least once every three months:

- Carry out the complete cleaning of the tank;
- Carry out the complete cleaning of the tank.

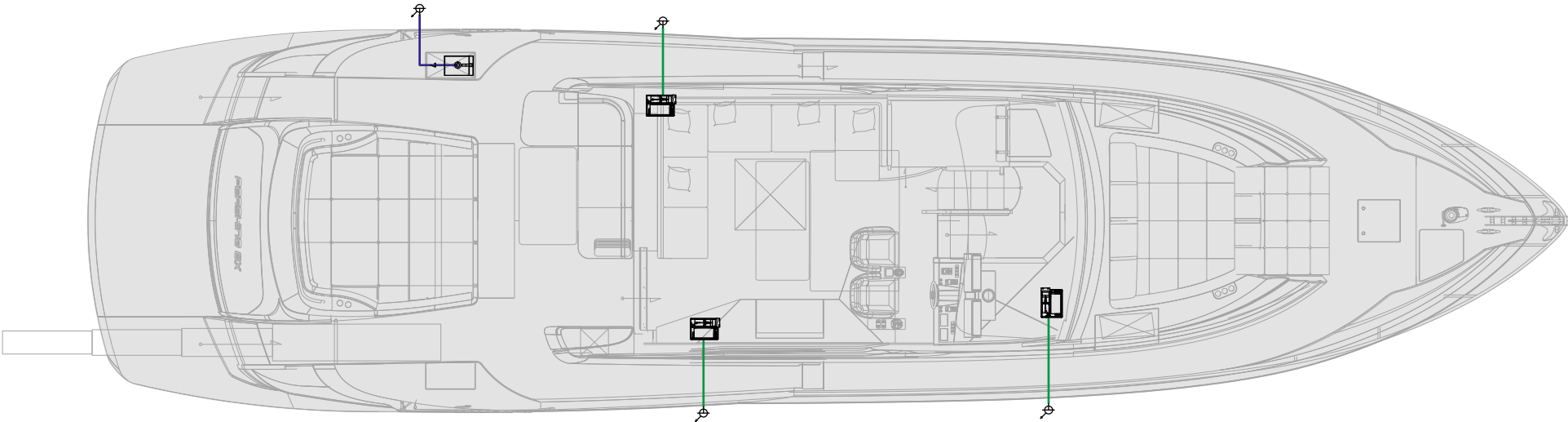
At least once every six months check the status of the pump.



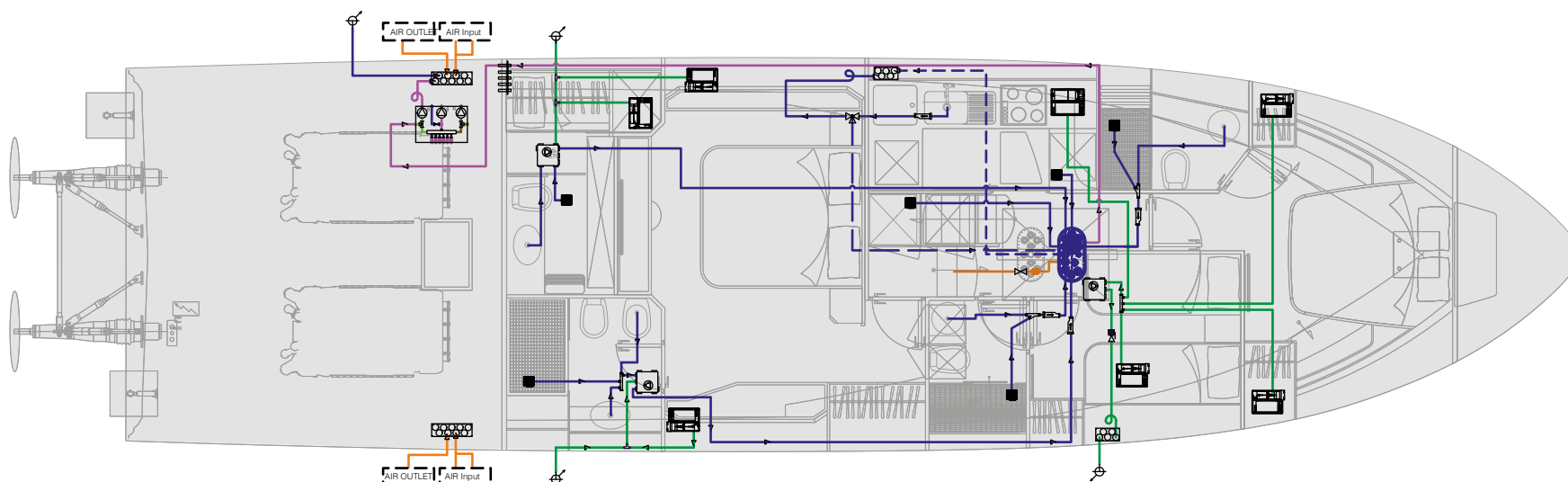
CAUTION

Do not activate the grey water pump manually if the level for automatic stop is the lowest, to keep the pump primed.

5.3.1 Grey water system diagram



ICON	DESCRIPTION	ICON	DESCRIPTION
	Bilge pump Grey water pump Black water pump		Bulkhead
	Standard flange from dock for black waters		Anti-odour trap
	Ball valve		Gray water tank with discharge pump
	Overboard manifold		Connections for gray waters pipe
	Overboard discharge		Non - return valve
	Overboard vent discharge		No - smell filter
	Siphonbreak		Going up pipe
			Going down pipe



ICON	DESCRIPTION	ICON	DESCRIPTION
	Bilge pump Grey water pump Black water pump		Bulkhead
	Standard flange from dock for black waters		Anti-odour trap
	Ball valve		Gray water tank with discharge pump
	Overboard manifold		Connections for gray waters pipe
	Overboard discharge		Non - return valve
	Overboard vent discharge		No - smell filter
	Siphonbreak		Going up pipe
			Going down pipe

5.4 BLACK WATER SYSTEM

The system consists essentially of a tank **(1)** and of a black waters pump **(2)**, draining overboard.

The water used for WC wash is taken from the cold water system by means of a distribution manifold.

On the manifolds are installed the solenoid valves, each one of them concerns one toilet; they allow the flush of water each time the buttons “Before use” or “After use”, on the control panels of the toilets, are pressed. Each toilet has a retting pump conveying black waters into the holding tank.

The holding tank has a capacity of 250 l.

The lid of the holding tank can be inspected through the dunnages of the lower deck atrium.

A pump, in the engine room, drains the tank by means of a suction line, discharging directly at sea through the outlet under the water line or on the starboard side walkway.

The pump has two operating modes, “Auto” and “Manual”, which can be selected by means of the control on the synoptic panel (and in monitoring panel, when installed).

In “AUTO” mode, reaching the medium level enables the pump, which remains active until the low level is reached.

If the pump is active, switching the auto/manual selector stops the pump. In “MANUAL” mode, press the “MAN” button (which is not active in auto mode) to start the pump.

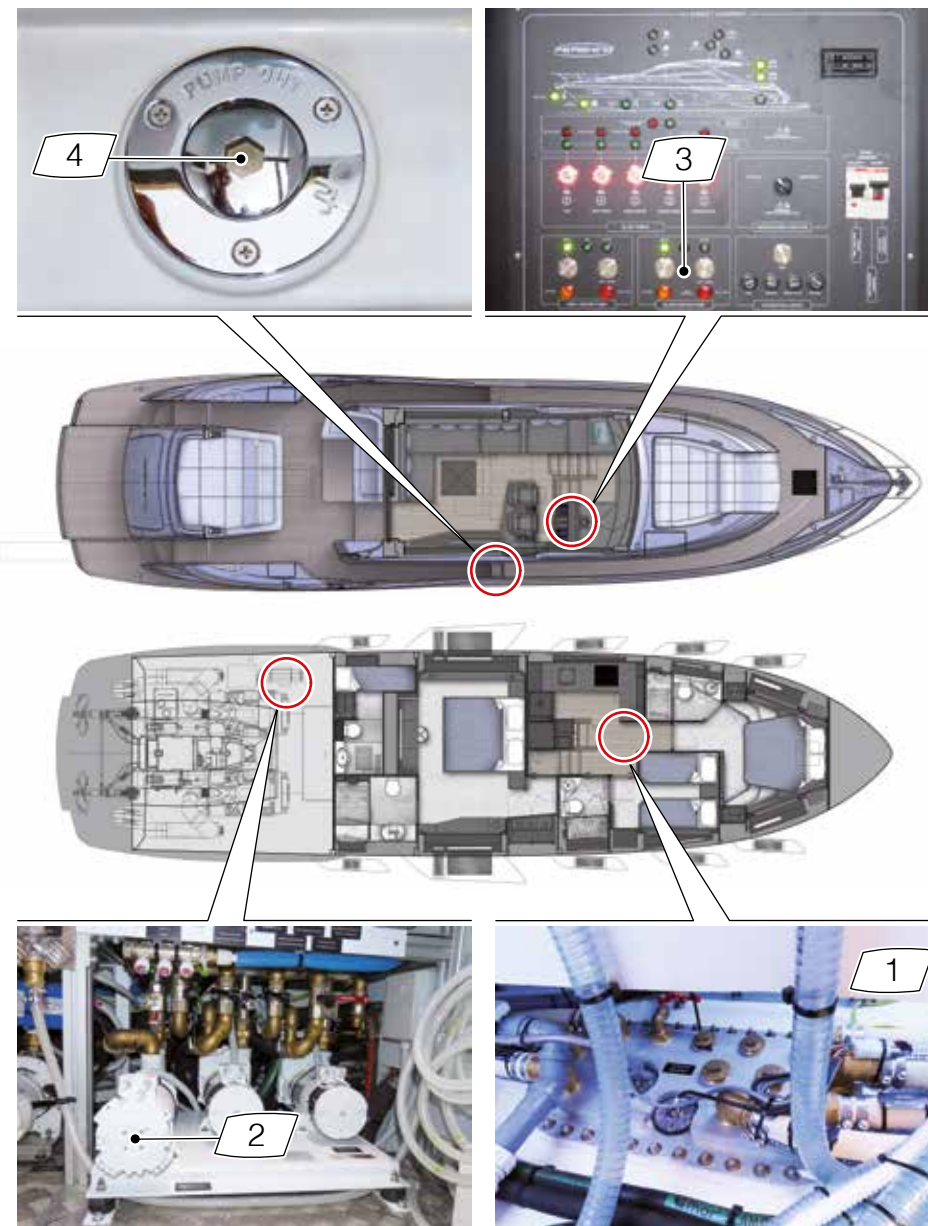
The pump remains active until the low level is reached.

If the level is lower than the low level, the pump will not start, not even pressing the “MAN” button.



CAUTION

Within 12 nautical miles from the coast it is forbidden to discharge the black water tank into the sea; it is necessary to keep the discharge pump inactive and to exclude the automatic activation.



On the synoptic panel (3) of the main helm station, there are the warning lights of full-tank WC-disabled, full-tank pre-alarm and manual or automatic activation control of tank drain.

The discharge of black water from the shore directly into the sewer system properly is the solution of minimal environmental impact to be taken whenever it is moored in place and equipped.



CAUTION

Before leaving the harbour, check the indicators of level of the black water tank on main deck panel to perform, if necessary, the suction from the shore supply.

Procedure for draining by PUMP OUT outlet (4).

- Handle the hose by paying attention not to soil the deck teak, and dampen it ahead of time.
- Correctly fit the outlet for shore drain by means of the screw connection.
- Take advantage of harbour services for sewage intake with vacuum system.
- Once the operation is completed, disconnect the hose correctly by paying attention again so as not to soil the deck teak. If necessary, rinse.

We recommend monitoring the tank level before entering the harbour, to evaluate whether to drain it at sea or to take advantage of the shore services, previously checking if the harbour towards which you are navigating has the facility to drain the tank by means of the WASTE outlet, located on the starboard side walkway.

To increase the reliability and safety of the system, in case of a fault of the black water pump, it is possible to drain by means of the grey water pump. Under such condition, it is necessary to ensure the proper opening of the concerned manifold valves.



CAUTION

During the suction black water from the shore is strictly prohibited:

- Using the toilet;
- Press the command button then operate the pump discharge overboard.



WARNING

Before use, make sure:

- Enabling services, if necessary, setting to ON system toilet breaker on the general electrical panel in the engine room;
- The absence of the red light high-level holding tank.



CAUTION

We recommend regularly monitor the level black water from monitoring system panel (Levels) to achieve optimum use of the retention system in compliance with environmental regulations locally in force.



CAUTION

In case of sinking hazard, if escaping condition allow you this, close the ball valve of the **black water drain**.



CAUTION

Totally empty the system and the black water tank before the lay-up period in order to prevent any problems with freezing.



CAUTION

For all pleasure yachts, drain at sea of on-board toilets is forbidden inside harbours, landings and moorings dedicated to yachts' anchor riding, and also within the limit of beaches visited by swimmers, as stated in the single decrees of the Port Authorities.



CAUTION

All pleasure yachtes classified for a number of passengers exceeding the 15 units and equipped with toilets can drain the untreated sewage at sea according to MARPOL rules, only BEYOND the limit of 12 (twelve) miles from the coast, while navigating at fixed track and at the maximum speed allowed, anyway not lower than 4 knots.



CAUTION

Direct sea discharge can only be carried out in the event of an emergency.

The holding tank is equipped with a sea water washing system. In order to wash the tank, you have to open the valve concerned, located on the tank door and to start the concerned pump.

This operation has to be performed periodically at a variable time interval, according to the use of the tank.

In addition to this, we recommend to constantly check the filling of the tank, so as to disconnect the pump when necessary.



WARNING

The valve for the washing of the holding tank must always be closed, except for the washing operation. If the valve remains open, the tank can be flooded and sea water can be boarded.



WARNING

The holding tank washing must be performed only in compliance with legislation in force, in the harbour, only under condition to get connected to the ground disposal facilities.



WARNING

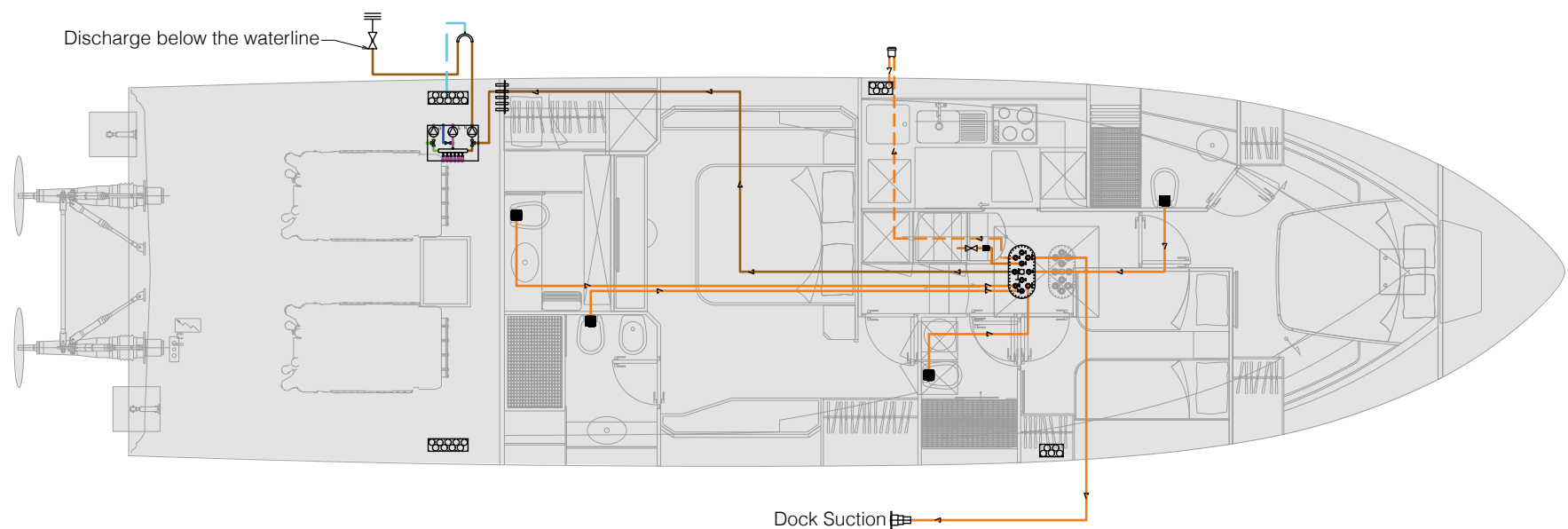
When using chemical products, follow the manufacturer indications meticulously and use the suitable protection devices.



DANGER

The washing of the holding tank must be performed by experienced personnel and followed carefully until the tank is empty. An excessive pump operation, can cause the boarding of a large quantity of water with consequent overfilling and bilge flooding.

5.4.1 Black water system diagram



ICON	DESCRIPTION	ICON	DESCRIPTION
	Bilge pump Grey water pump Black water pump		Bulkhead
	Standard flange from dock for black waters		Anti-odour trap
	Ball valve		Gray water tank with discharge pump
	Outboard manifold		Connections for gray waters pipe
	Outboard discharge		Non - return valve
	Outboard vent discharge		No - smell filter
	Siphonbreak		Going up pipe
			Going down pipe

5.4.2 Maintenance of black and grey waters draining system

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Holding and grey water tanks	Rinse the tanks (at least every month)	Have the tanks filled with clean water and drain them two or three times. To prevent the formation of bacteria and of bad smell, pour periodically a disinfectant into the toilet, sink and bidet drains.  CAUTION Should deodorants or disinfectants be used, avoid abrasive substances or acids, because they could damage tubes and seals.  CAUTION In case of need, break or pollution of the tanks, they can be replaced. Contact PERSHING After sales & Service Department. MAINTENANCE At least once a week check the correct operation: • Of toilets; • Of the black water pump. At least once every three months check the status of the tubes and connections. At least once every six months protect with proper products: • Of toilets solenoid valves; • The black waters pump. When necessary, at least once a year, carry out the accurate cleaning of the holding tank.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Pumps	Operation check and cleaning (at least every month)	This is a difficult operation and should only be undertaken by skilled personnel.  CAUTION The electric engine may become hot when running. Pay attention. The electric pump must only be repaired by competent or qualified personnel, using manufacturer's spares; if this procedure is not followed, the Manufacturer declines any responsibility and warranty is void and null.
Pumps	Operation check and cleaning (at least every month)	Electric pumps usually do not need ordinary maintenance, as long as some precautions are taken, which extend their lives (address to the pumps' Manufacturer).  DANGER Before each intervention make sure that voltage is disconnected and that there is no possibility of accidental connection. • If there is a risk of freezing, it is necessary to empty the pump casing from the liquid and to fill it, before restarting the pump. • Make sure that the pump never runs dry. • The DC engine brushes must be periodically checked for consumption and spring pressure. • If the pump does not work for a long time, it is better to empty the pump casing and clean it. • If a strainer and a foot valve are installed, check periodically for their efficiency and cleaning. • Check that the impeller is jammed, this could cause heavy damages to the electric engine; if this happens, descale the impeller and pump body. • At least once a month, have the operation of the grey/black water pumps checked, having their tanks filled with clean water until the pump activates and having the correct overboard draining checked.

5.4.3 Toilet operation

The bathroom toilets are made of ceramic and their control panels contain two backlit buttons:

1. Button "BEFORE USE"
2. Button "AFTER USE"

After 2 minutes of service the backlit buttons 1 and 2 switch off and the device sets to energy saving mode.

Approaching the hand to the panel, the backlight will be restored and the operation panel.

In case of alarm for a full tank, the two button icons are illuminated permanently.

To clean the surface of the panel, turn it off by pressing briefly one of the two buttons. This prevents the accidental activation of the WC control.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



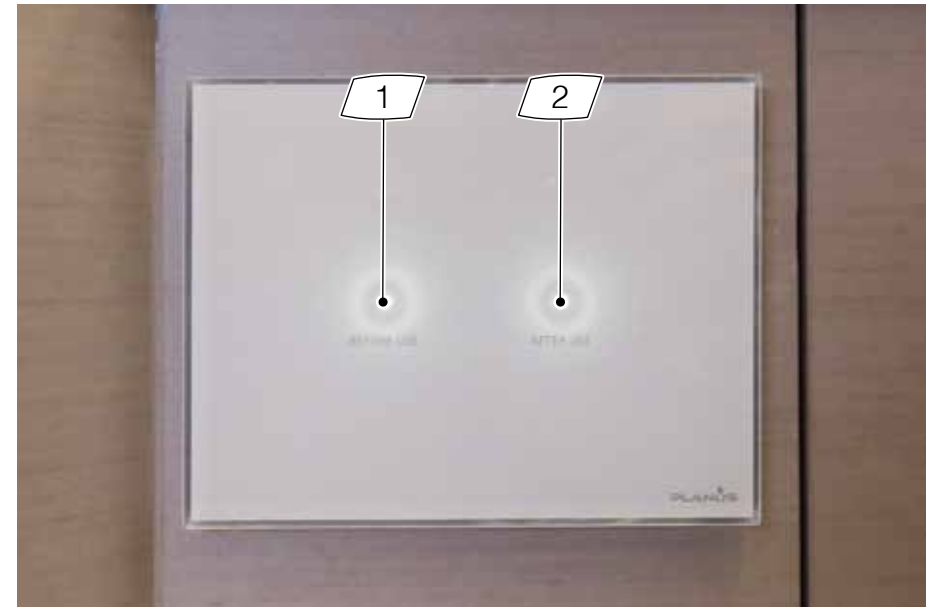
CAUTION

We suggest not to use the **residential function** of the toilet, as the water inside the WC could splash out and wet the floor due to the yacht's rolling.



CAUTION

Except for organic waste, only very thin toilet paper can be discharged into the sea toilets. Paper tissues or handkerchiefs and sanitary napkins may clog and damage the sanitary system.



**CAUTION**

Make sure that toilets are electrically powered and that the black water system is operating before using them.

**CAUTION**

Forcing the toilet discharge can cause overflow of the tank.

**CAUTION**

The full tank condition is indicated by the red icon light.

**CAUTION**

The disabling of toilet drain protection can cause the tank to overflow.

5.5 BILGE SYSTEM

5.5.1 Main bilge system



The centrifugal diving pumps for bilge suction, driven by suitable float switches, suck water from the bilge and deliver it to the overboard drain. Another float for alarm activation, located a little higher than the first one, actuates the acoustic alarm in the stern cockpit.

The pumps are connected directly to the batteries and can therefore start even if the battery master switch is positioned to OFF, thus ensuring water drain at any time (keep the magneto-thermal switches on the electrical panel to ON).

The suctions of the pumps are equipped with net strainers, whose purpose is to prevent the penetration inside the circuit of foreign bodies, which may damage the pump or cause pipe clogging.

- Engine room bilge pumps (126 l/min);
- Crew bilge pump (126 l/min);
- Owner bilge pump (126 l/min);
- Lower deck access ladder bilge pump (126 l/min).

The bilge pumps can operate both in automatic mode, thanks to float switches and in manual mode.

To activate the pump manually it is necessary to activate the relevant buttons located on the synoptic panel in the helm station. To enable the running of the bilge pumps, switch on the relevant thermal switches located on the main electrical panel of the engine room.



WARNING

In case of emergency it is possible to suck the bilge water in the engine room through the sea pumps placed on each engine.



WARNING

Keep the bilge dry to allow the detection of water and to reduce the risk of slipping, as well as creating a less aggressive environment for the fixtures.

Should the automatic bilge pumps of the engine room, as well as the auxiliary bilge pump not be able to drain the bilge water, the engine room is equipped with the bilge emergency draining system, operating by means of flywheel valves with manual activation, as draining pump.

In case of emergency, use the handwheels of both valves, taking the valves to the emergency position; the suction of the pumps, driven by the engines, is diverted towards the bilge.

Should it be necessary to use this draining system, the bilge level must be checked continuously, because in case of complete drainage, the engines will not be cooled down.



CAUTION

Be careful to replace the valves to sea water suction position, when the water level in the engine room bilge is under control, so as not to impair the engine components.



CAUTION

A suction basket to collect accidental oil leakage is located under the engines and does not communicate with the bilge.



ENVIRONMENT

Sea discharge of oils and fuels is prohibited.



ENVIRONMENT

Possible oil or fuel spilled in the bilge must be collected and stowed. It is forbidden to discharge bilge water mixed with oil or diesel fuel into the sea, because this can cause pollution. During the maintenance operation in the engine room, it is compulsory to disconnect the magneto-thermal switches of the bilge pump automatic suction system, avoiding in this way accidental spillages of liquids and consequently sea water pollution.



CAUTION

In case of water presence in some compartments of the lower deck, before getting alert, verify if the bilge water is fresh or salted, this will be of fundamental help with the verification of its source.



WARNING

The bilges must be kept dry and clean. Remove any rags or other residues from the bilge, to prevent any clogging of the pump intakes, causing serious damage to the pumps and impairing the safety of the yacht.



WARNING

The system total capacity is not designed for yacht draining in case of a hull leaks.

5.5.2 Maintenance of bilge automatic suction system

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Bilge pumps	Operation check Bilge pump operation check	As shown in the following sequence.
Non-return valves	Operation check	As shown in the following sequence.

Bilge pumps

Operation check



DANGER

Before each intervention make sure that voltage is disconnected and that there is no possibility of accidental connection.

Check that the pump axis turns freely (this is possible by inserting the screwdriver in the back end of the engine axis).

Check the rotation direction, that the pump engine works within its output range and that the absorbed current is not higher than that one indicated in the tag.

These pumps, normally, do not need ordinary maintenance, provided that some measures are taken which extend their operation.

- Make sure that the pump never runs dry.
- The brushes, on DC engines, must be checked at regular intervals.
- If the yacht must remain inoperative for a long period, it is advisable to drain the pump body and to clean it.
- If a strainer and a foot valve are installed, check periodically for their efficiency and cleaning.
- Check that the impeller is jammed, this could cause heavy damages to the electric engine; if this happens, descale the impeller and pump body.

Bilge pump operation check

- Have the operation of each bilge pump checked, having the bilge filled with clean water up to the activation of each pump and having the correct draining overboard checked.
- Have the operation of each bilge pump checked even the manual one (at checks end the pumps switches must be on "AUTO").



CAUTION

Never run the electric pumps dry.



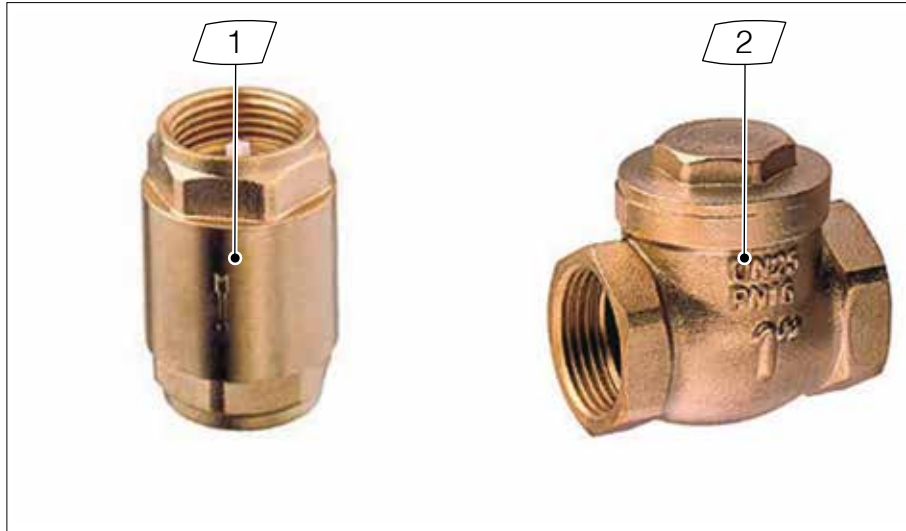
CAUTION

Check all bilge pump operation at regular intervals. Clean the pump intakes. The hull valves installed in the bow and stern peak walls must be kept closed; they must be opened only to drain the water from the main bilges.

Non-return valves

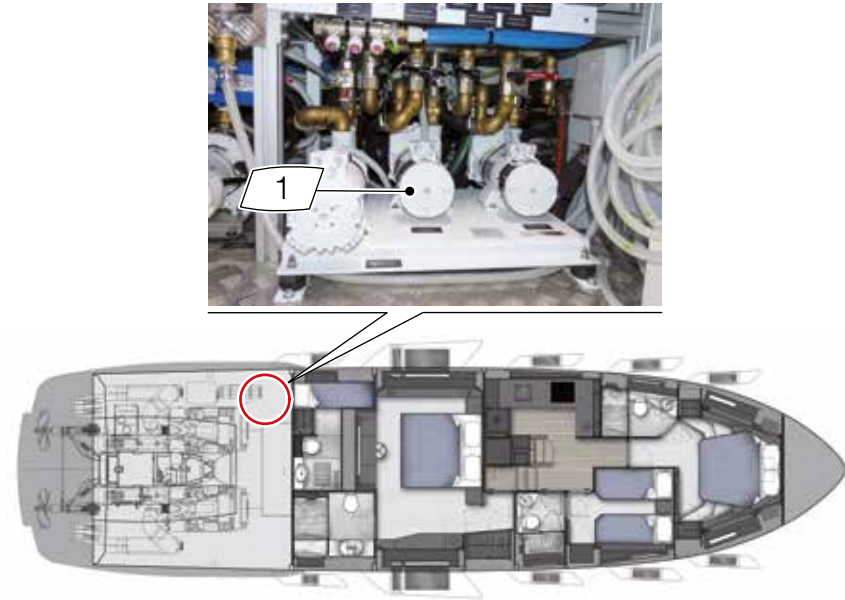
The on-board hydraulic system consists of check valves (or non-return valves) "EUROPE" type (1) and "CLAPET" type (2).

Their maintenance, only the extraordinary one, is due to their lack of operation, which can be caused by a foreign body inside the valve itself, or by a mechanical break; in both cases, check the failure, if it is not removable, carry out the replacement.



5.5.3 Multi-purpose pump system

The yacht is equipped with a multi-purpose pump (1) 90 l/min, which can be used, in case of emergency, to help or to replace the various automatic bilge pumps, in order to drain water from the bilge.



The multi- purpose pump, activated manually, by correctly shunting the valves on the relevant manifold, can replace the following pumps:

- The black water pump;
- The grey water pump;
- The automatic bilge pumps.

In case of failure of black or grey water pumps, the multi-purpose pump replaces the suction of one of the two pumps, by means of two deflecting valves installed on the multi-purpose pump manifold.



CAUTION

After the use of the multi-purpose pump, it is advisable to carry out a check of the impeller. For the procedure ask PERSHING After sales & Service Department.



CAUTION

To use the multi-purpose pump, activate the magneto-thermal switch located on the general electrical panel.



ENVIRONMENT

The bilge drains can be discharged at sea only if they do not contain polluting substances.

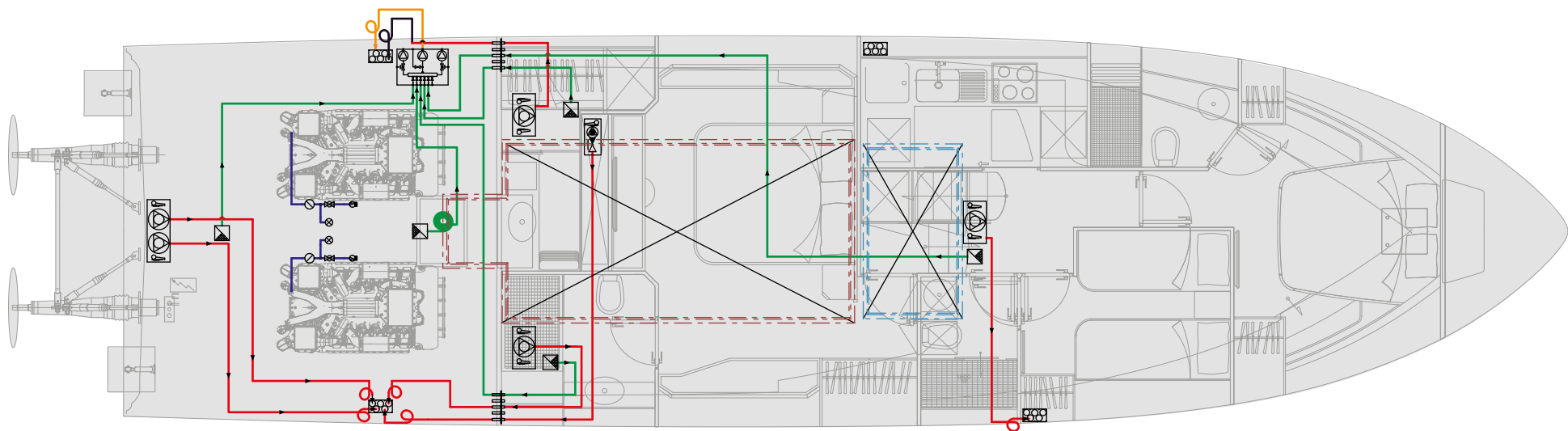
If polluting agents are present in the bilge waters, dispose of them by taking advantage of the suitable containers for polluting agents located in the harbours.



CAUTION

Never run the electric pumps dry.

5.5.4 Bilge draining system diagram



ICON	DESCRIPTION	ICON	DESCRIPTION
	Bilge pump Grey water pump Black water pump		Three-way valve
	Sucker		Pump
	Float level switch		Pump
	Float level switch		Main bilge system (automatic / manual)
	Non-return valve		Secondary bilge system
	Ball valve		
	Bulkhead		
	Centralized discharge		

5.5.5 Maintenance of multi-purpose bilge pump system

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Pumps	Operation check and cleaning (at least every month)	Electric pumps usually do not need ordinary maintenance, as long as some precautions are taken, extending their lives. Make sure that the pump never runs dry. The DC engine brushes must be periodically checked for consumption and spring pressure. If the pump does not work for a long time, it is better to empty the pump casing and clean it. If a strainer and a foot valve are installed, check periodically for their efficiency and cleaning. Check that the impeller is jammed, this could cause heavy damages to the electric engine; if this happens, descale the impeller and pump body.
	Replacement of impeller and mechanical seal	This is a difficult operation and should only be undertaken by skilled personnel.



DANGER

Before each intervention make sure that voltage is disconnected and that there is no possibility of accidental connection.



CAUTION

The electric engine may become hot when running. Pay attention. The electric pump must only be repaired by competent or qualified personnel, using manufacturer's spares; if this procedure is not followed, the Manufacturer declines any responsibility and warranty is void and null.

5.6 THE SCUPPERS

The scupper system, by means of appropriate holes and drains, allows the quick overboard flow of rain water, marine water or other nature water, that may fall on main deck or on the sun-deck.

All waters collected by the scuppers are conveyed by means of manifold tubes, placed along the bulwarks.

The total or partial clogging of one or of more scuppers must absolutely be prevented, because it is a cause of flooding and consequent loss of stability by the yacht and its structures.



CAUTION

Always check the correct water flow towards the scuppers.

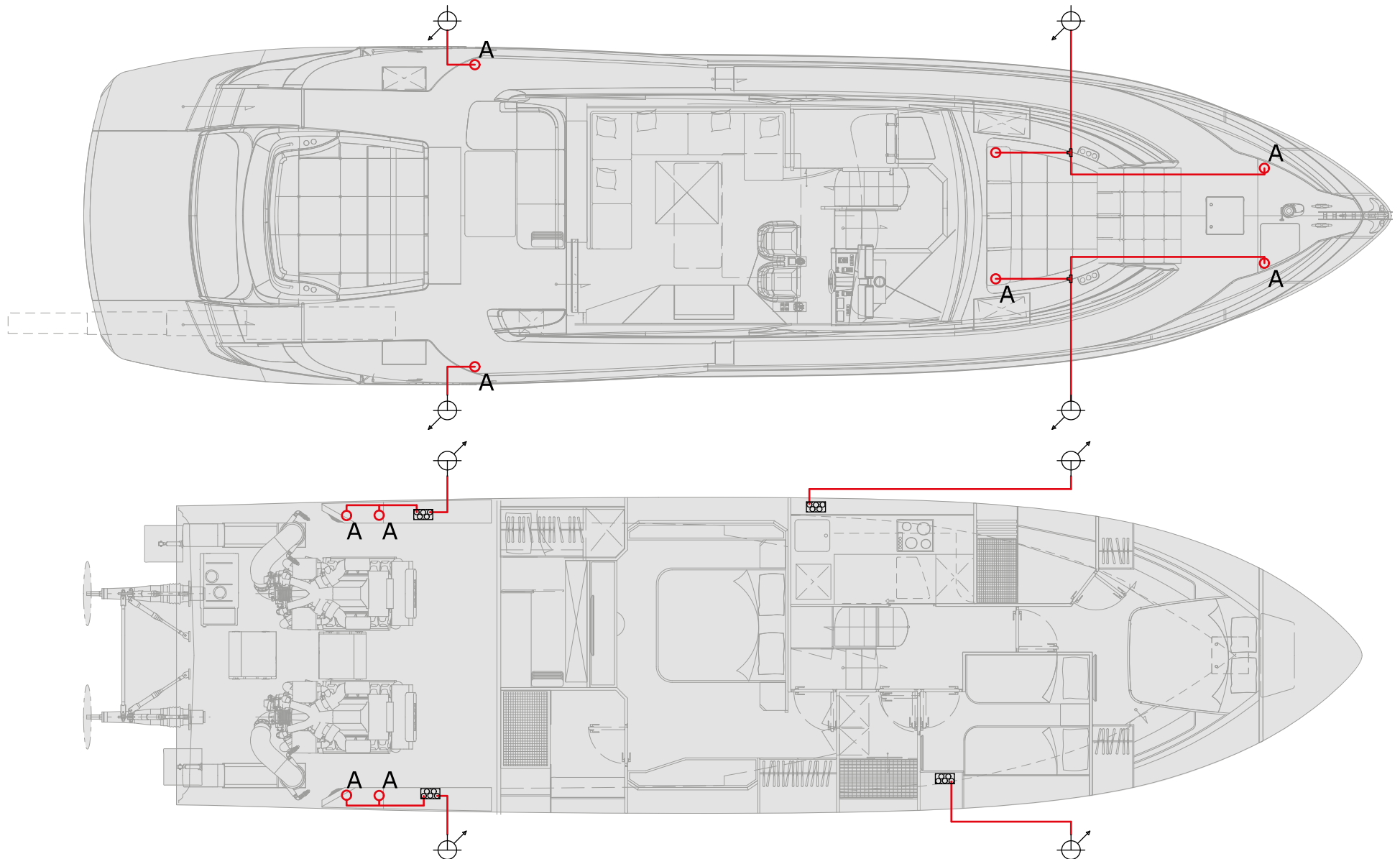
The partial or total clogging of one or more scuppers is a possible cause of damage for the yacht structure and of loss of stability.



CAUTION

Avoid that incorrectly stowed objects clog the scuppers.

5.6.1 Scuppers system diagram



5.7 ELECTRIC SYSTEM

The electric system of the yacht has been designed paying the utmost attention to all aspects regarding your SAFETY and the SAFETY of your Guests and it has been manufactured using high-quality materials, fully in compliance with the rules in force.

The electric system of Your yacht consists of 4 defined and separated sections.

- Service mains, supplied by a rated current of 24 V DC, delivered by two accumulators sets 24V DC. - 200Ah each, serial connected between them. This set of batteries is recharged by the on board battery charger of 80A.
- Engine mains, supplied by a rated current of 24 V DC, delivered by four accumulators sets 12V DC. - 70Ah for engine, serial and parallel connected between them. This set of batteries is recharged by the on board engine battery charger and by the alternator driven from each engines.
- 120/240V service mains, supplied by the shore mains, or alternatively, by power generator installed on board. The power generator is supplied by a 12V CC battery - 70 Ah located close to the generator and is recharged by an alternator driven by the same unit.

Your yacht can be equipped with a transformer (optional).

The yachts are equipped with electronic injection machines and electronic remote control systems, for this reason it is very important for the user to carry out some simple operation to prevent faults to the electric systems, which on their turn may cause problems to the propulsion system.



CAUTION

Before undertaking any navigation, check that the batteries are in good condition and that they supply the correct nominal current.



CAUTION

During navigation both the button-switch of the service batteries and the button switch of the engine batteries must always be connected, that is positioned to ON. The parallel button switch on the two sets must be normally disconnected and therefore set to OFF.



CAUTION

Never start navigation without having set to ON both the engines batteries switch and the services batteries switch and do not disconnect them during navigation.



CAUTION

If during navigation an operation fault on the re-charging alternators occurs, set to "ON" the button switch of the parallel connection between the batteries sets and let it connected until the fault has been removed.



CAUTION

If, during navigation, a remarkable and continuous voltage drop of one or both battery banks occurs, check the recharging efficiency (alternator recharge on monitoring system) of the relevant alternator. If the alternator is not operating, it is necessary to start the power generator and to activate the independent electrical battery charger.



CAUTION

The parallel connection system between the batteries sets, is used to increase the boosting power at engines start, under particularly climate conditions or charge condition, and for a short period of time. This system must be activated only if the button switches connecting the engines and service battery banks are positioned to ON. Do not use in case of faults on the batteries recharging circuits, for instance on the engines alternators. We advise to use this system only in emergency cases.



CAUTION

The engine control systems: accelerator and gears engagement remote controls are electronic. Their reliability is very high, but in case of a sudden black-out, it is necessary to immediately switch off the engine which is not controllable any more by means of the relevant buttons located in the main helm station.



CAUTION

Do not modify the electric systems or relevant drawings. The installation, the modifications or the maintenance must be carried out only by a skilled naval electrician. Inspect the system at least once a year.



CAUTION

Disconnect the shore power supply connections when the system is not in use.



CAUTION

Use electric devices with double isolation or grounding.



WARNING

Do not allow that cable end of shore power supply to floats in the water. This can cause an electric field and following injuries or even the death of the swimmers nearby.



CAUTION

Do not modify connectors of shore power supply cable, use only plug compatible connectors.



WARNING

Before stopping the power generator, disconnect the various on-board services supplied by this; stopping the power generator under load can irreparably damage the electronic control units of the various services, beyond having a negative influence on the generator operation.
In any case, refer to the manual of power generator to obtain detailed information about the procedures for switching it on and off.



DANGER

Do not modify the electric systems or relevant drawings. The installation, the modifications or the maintenance must be carried out only by a skilled naval electrician.
Inspect the system at least once a year.

The electrical system installed on board has been designed and manufactured in compliance with the CEI and RINA, based on the following criteria:

- All wiring, splices, and all guards before the line such as circuit breakers, fuses and differentials were concentrated and grouped both internally and in the front panels of different board electrical panels.
- All power lines are oversized, channelled and / or inspected and made with flame resistant unipolar cables placed in special sheaths also flame retardant, most of these lines are connected with special plugs ILME male-female, with it placed by the side of the main electrical panel.
- The system is highly fragmented and protected with circuit breakers and fuses for each service or homogeneous groups of services in order to simplify the identification of possible failures, which can occur only at the two ends of the line: the service and the electrical panel.

The protection of the single electric system sections is performed by automatic magneto-thermal switches of different amperage and size, according to the absorption of the various services to be protected and by the size of cables used for their supply.

All metallic wet pieces are interlocked with equipotential connections and linked on sacrificial anodes installed on the underwater quick-work.



WARNING

Refrain from performing any modification or intervention on the system and on the panel and take advantage of experienced Companies and skilled staff. Avoid particularly derivations on electric lines and splices of services not provided for on the same panel. Finally, if you need to assign services to the switches available, make sure that their characteristics are suitable with the device installed.



WARNING

NEVER:

- Work on the electric system while under voltage.
- Modify the electric systems of the system or relevant drawings: the installation, the modifications and the maintenance must be carried out only by a skilled marine electrician.
- Alter or modify the intensity of rated current of protections against over-current.
- Install or replace electric equipment or devices with components exceeding the rated current intensity of the circuit.
- Leave the yacht unguarded with the electrical system powered, except for the circuits of the bilge automatic suction pumps, of the fire-fighting protection and of the alarms (directed to battery).



DANGER

Electrocution hazard! Turn the power off before removing the cover and servicing any electrical equipment internal component.



DANGER

All electrical systems (included those at low voltage) if wrongly handled or subjected to overloads, can originate short-circuits and dangerous overheating with potential fire hazards!



CAUTION

If you are compelled to use the “battery parallel connection”, turn off all electronic devices, so as not to jeopardize their correct operation. In emergency conditions, use the battery parallel set for the shortest reasonable time.



DANGER

We recommend, in order to operate in complete safety, to carefully read the safety rules relevant to the maintenance and contained in this manual.



DANGER

When disconnecting the inverter by means of the switch located on the front panel the connection with the mains is not broken off.



DANGER

Do not work on the inverter or on its system if still connected to a current source. Only qualified staff can carry out interventions on the electric system.



WARNING

The services supplied by the inverter highly stress the batteries that could discharge as a result.



DANGER

Before operating on the battery charger, disable the generators start and cut-off the shore power supply.



WARNING

Before carrying out the switching over of the AC sources (generator/ shore), it is advisable to disconnect all AC services currently operating, to prevent damaging the electronic boards of the relevant devices.



CAUTION

PERSHING suggest to examine very carefully the whole documentation delivered by the manufacturers of the various components; and for any problem relevant to maintenance, to contact directly PERSHING After sales & Service Department.



DANGER

Before starting to work on electrical panels or devices, prevent the generators' operation by disconnecting the electric power supply from shore and the inverter.



DANGER

The system is similar to a domestic system in terms of features and risks and, if "wrongly" used, mishandled or serviced, it statistically represents one of the most frequent reasons for fire on board.



DANGER

Have the inner condition of the inverter and battery charger checked at least once a year by skilled personnel. Faults like loose connections, burnt wires, etc., with following risk of fire spreading, must be repaired immediately.



CAUTION

Do not modify connectors of shore power supply cable, use only plug compatible connectors.



WARNING

Do not disconnect the battery master buttons with engines running or you may damage the engine alternators.



CAUTION

For the correct procedures of fuses replacement refer to the on-board electric manual delivered separately.

The on-board services are supplied by separate electric systems with different features:

- 24 V DC
- 120/240 V AC (60 Hz)

5.7.1 Maintenance of the electric system

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Equipment and circuits	Cleaning and checks	At least once every six months, have the various connections of electric boards, panels and boxes checked by experienced personnel. Make sure that ground connections of electric equipment and electrical panels are tight and not oxidized. Have the absorption of the different electric engines periodically checked by skilled personnel. When cleaning the bottom hull, carefully clean the electronic instrument ground static discharger and the porous plate to which is connected the power generator grounding. Moreover, check the condition of the protection anodes and if necessary, replace them. During the lay-up period, do not apply any antifouling on the ground static dischargers.

MAINTENANCE

At least once a week check the operation of all electrical panels.

At least once every six months:

- Check the possible presence of damaged cables;
- Protect the various contacts.



DANGER

Do not modify the electric systems or relevant drawings. The installation, the modifications or the maintenance must be carried out only by a skilled naval electrician. Inspect the system at least once a year.



DANGER

Before carrying out any intervention on the electric system, disconnect all circuits (shore, generators and inverter):

- Disconnect the shore sockets;
- Set to OFF the magneto-thermal switch of generators;
- Set to OFF the magneto-thermal switches at inverter output and turn off the inverter (off button on the front).



CAUTION

It is forbidden to use pressurized water on light appliances installed outside.

5.8 GENERAL ELECTRICAL PANEL

The electrical system is controlled from the control panel located in the engine room.

In order to simplify the descriptions of the framework, the following main sections have been identified:

1. On-board service control panel and indicator lights
2. Magneto-thermal utilities services 120/240V
3. Magneto-thermal galley services 120/240V
4. Measuring instruments for 24V network control
5. Magneto-thermal safety systems 24V
6. Magneto-thermal uses from APS 24V
7. Magneto-thermal services battery 24V
8. Magneto-thermal battery engines 24V

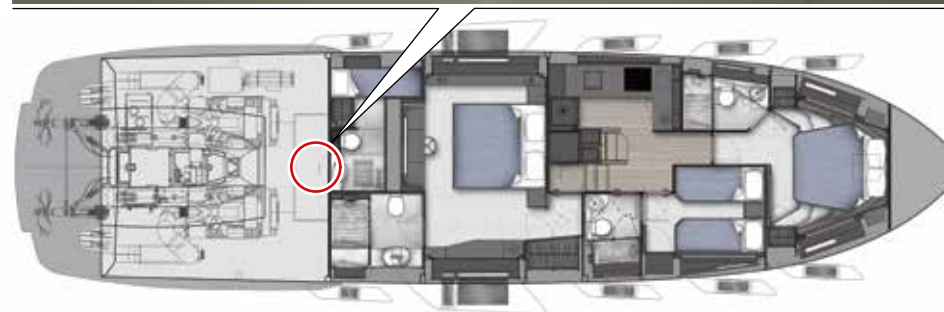


CAUTION

Before removing the front panel for maintenance, stop the power generators, disconnect the shore sockets and the inverter.

NOTE

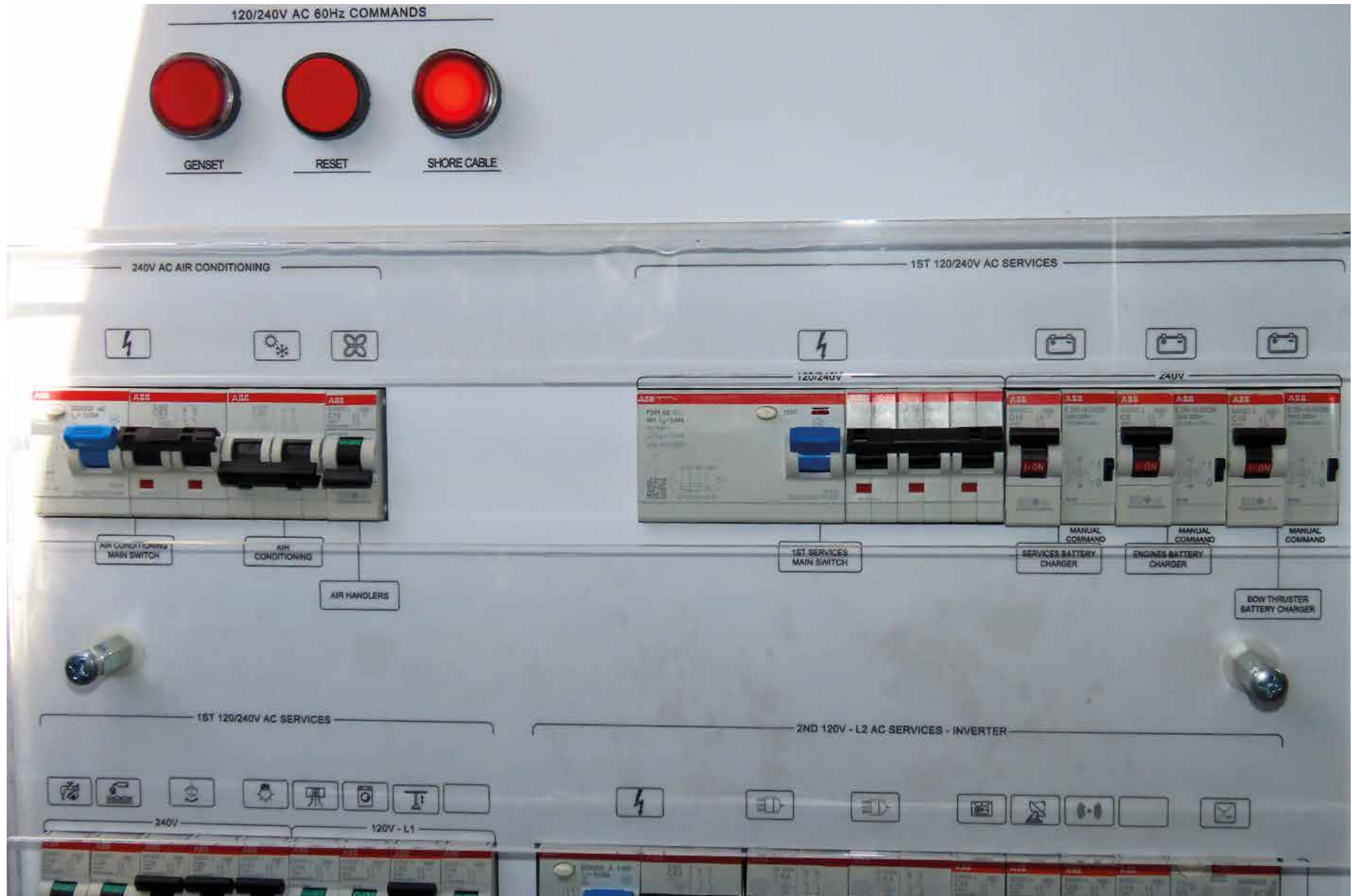
For a detailed description refer to the electric installation manual.

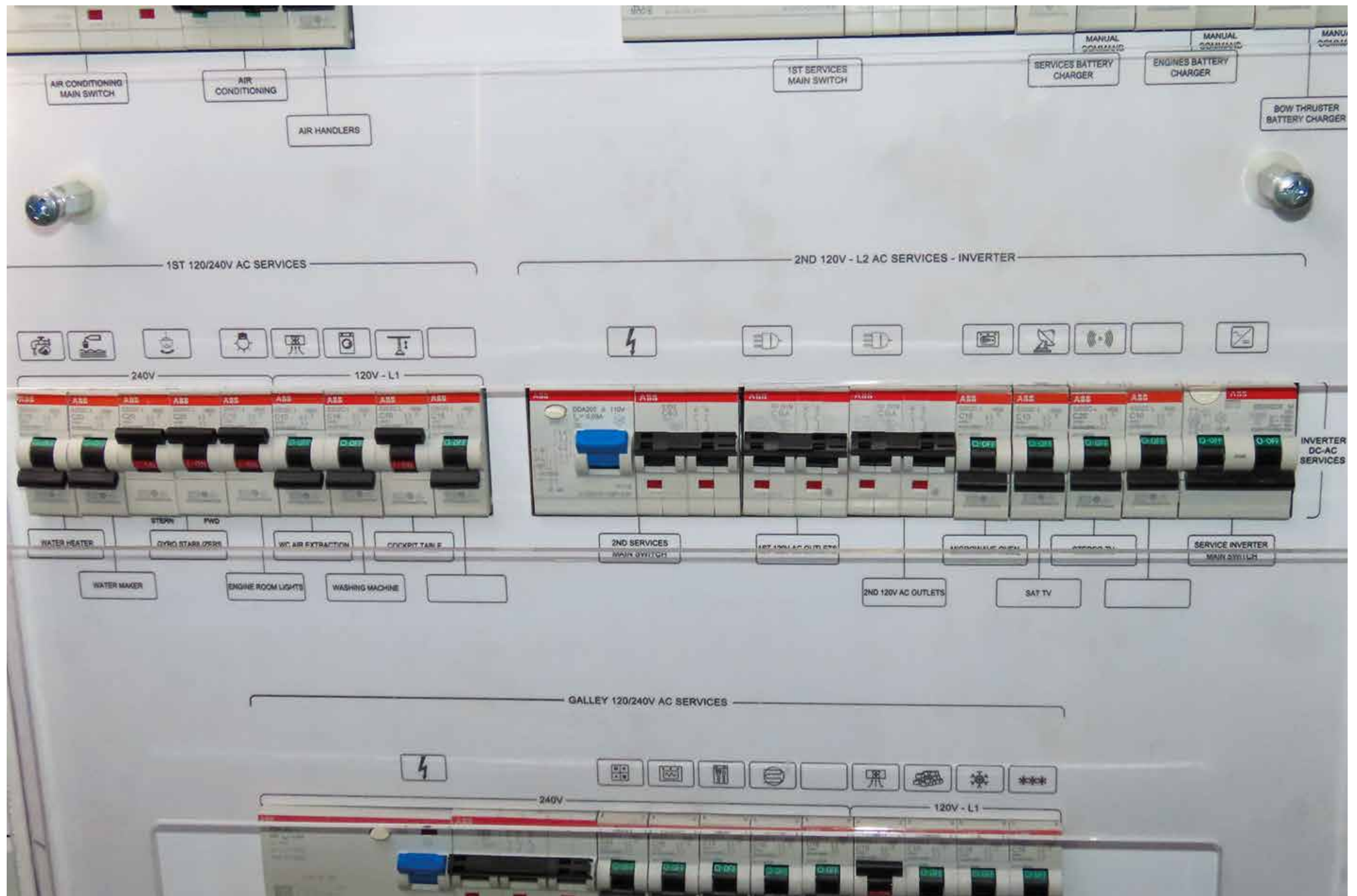


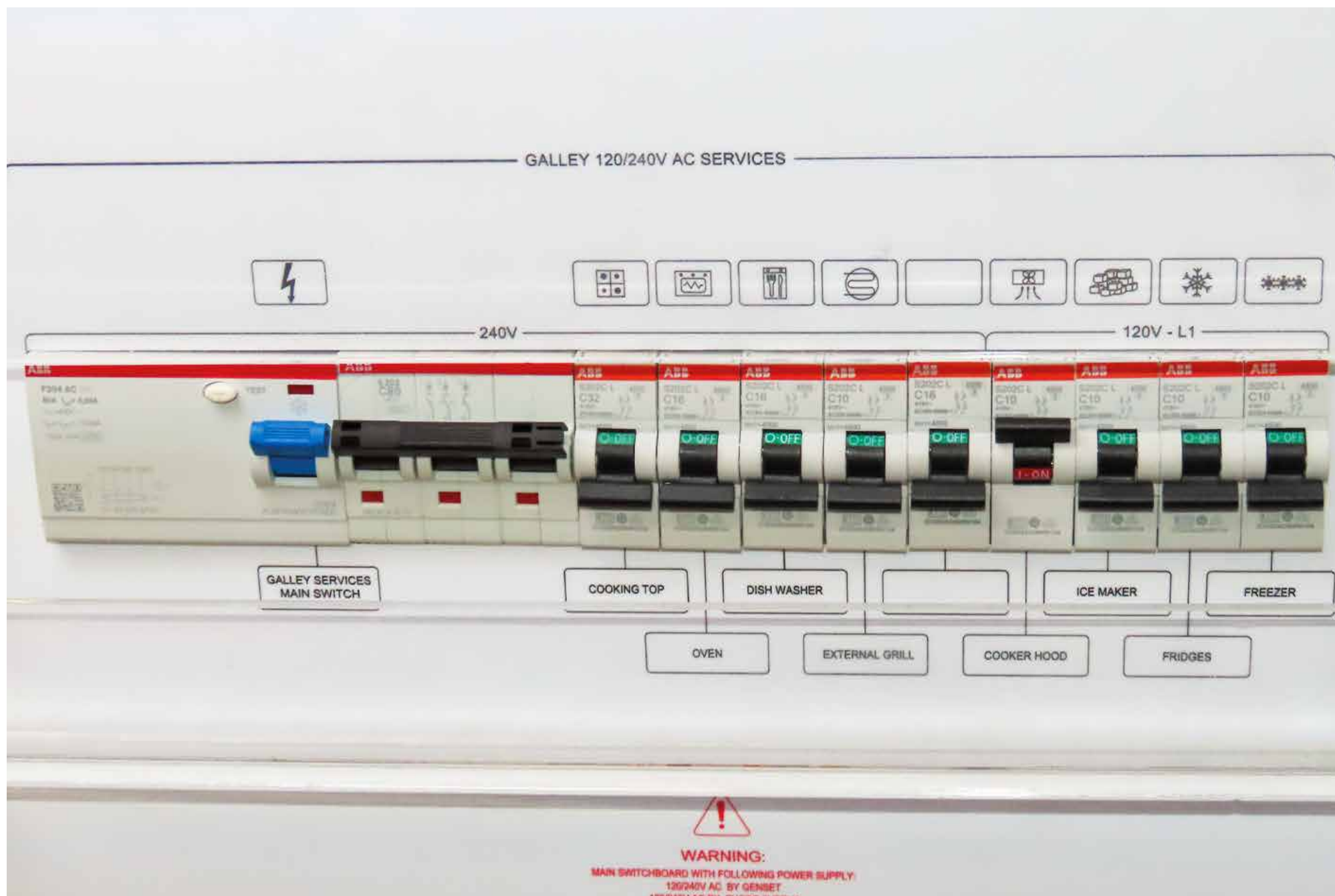
On-board service control panel and indicator lights and Magneto-thermal utilities services 120/240V:



Magneto-thermal utilities services 120/240V and galley services 120/240V:



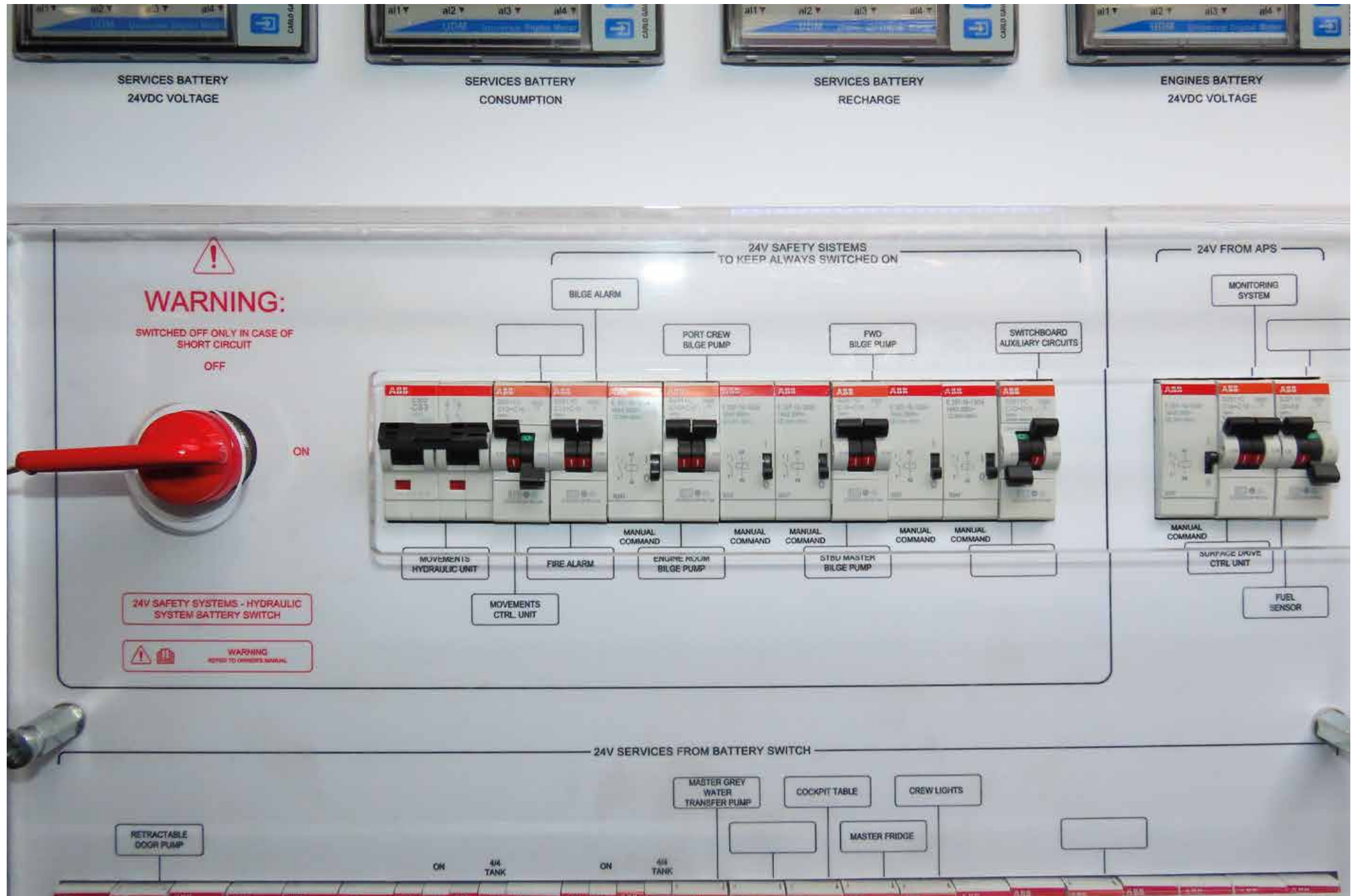




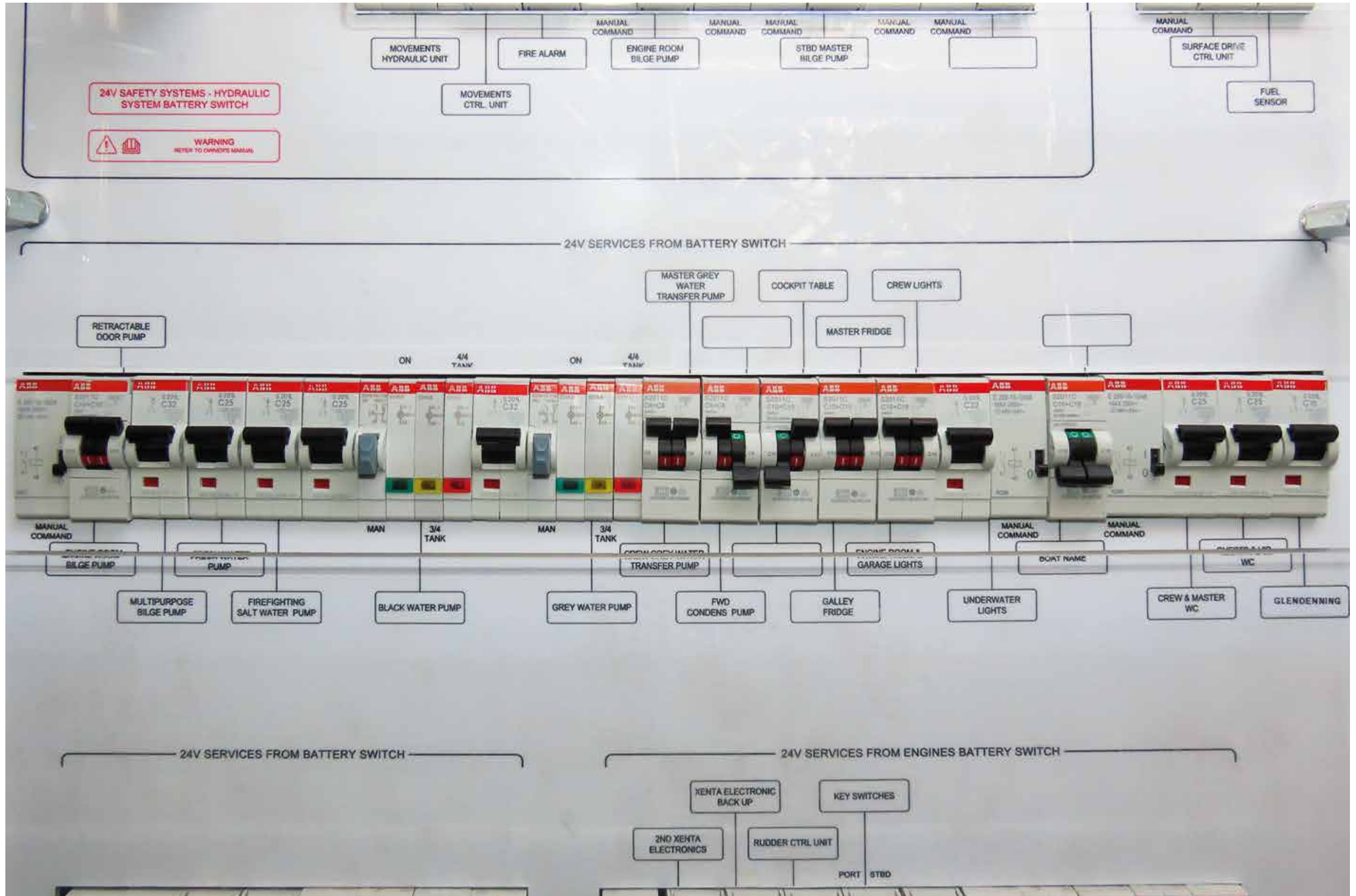
Measuring instruments for 24V network control:

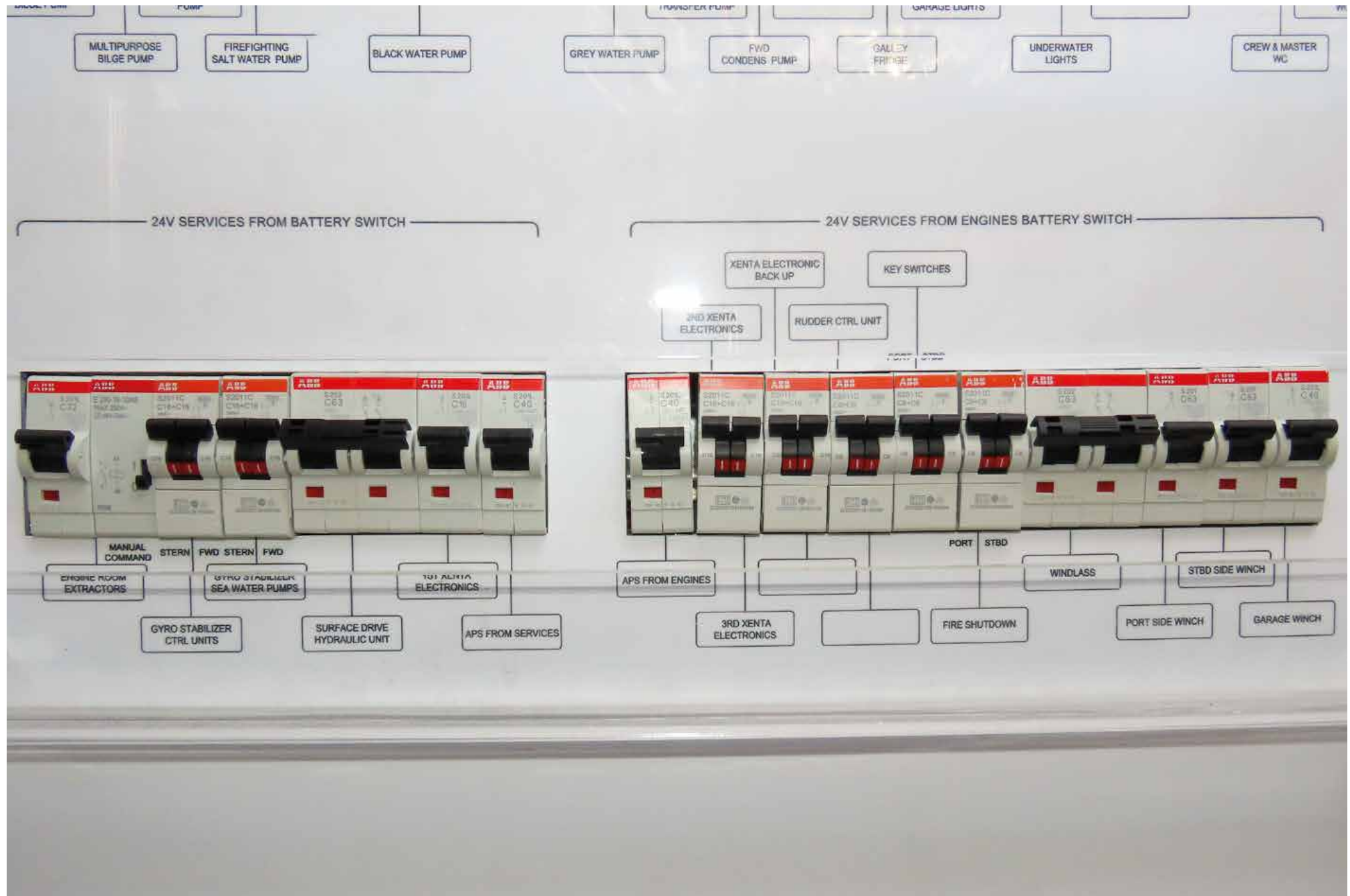


Magneto-thermal safety systems 24V, uses from APS 24V and services battery 24V:



Magneto-thermal battery engines 24V:





5.9 DASHBOARD ELECTRICAL PANEL

The following main sections have been identified, in order to make the descriptions easier:

1. Synoptic panel
2. Dashboard control enablement magneto-thermal
3. Services battery 24V magneto-thermal

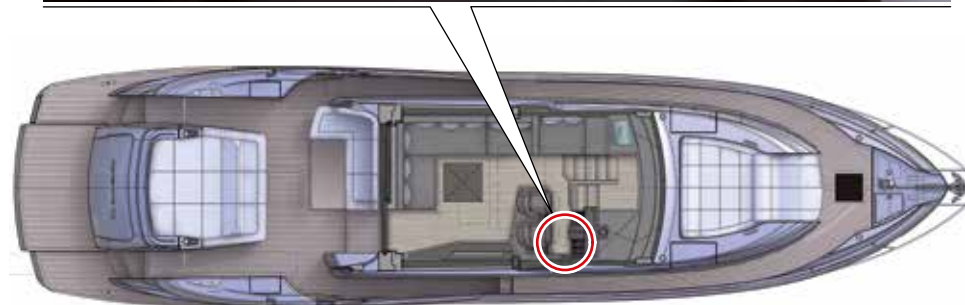


CAUTION

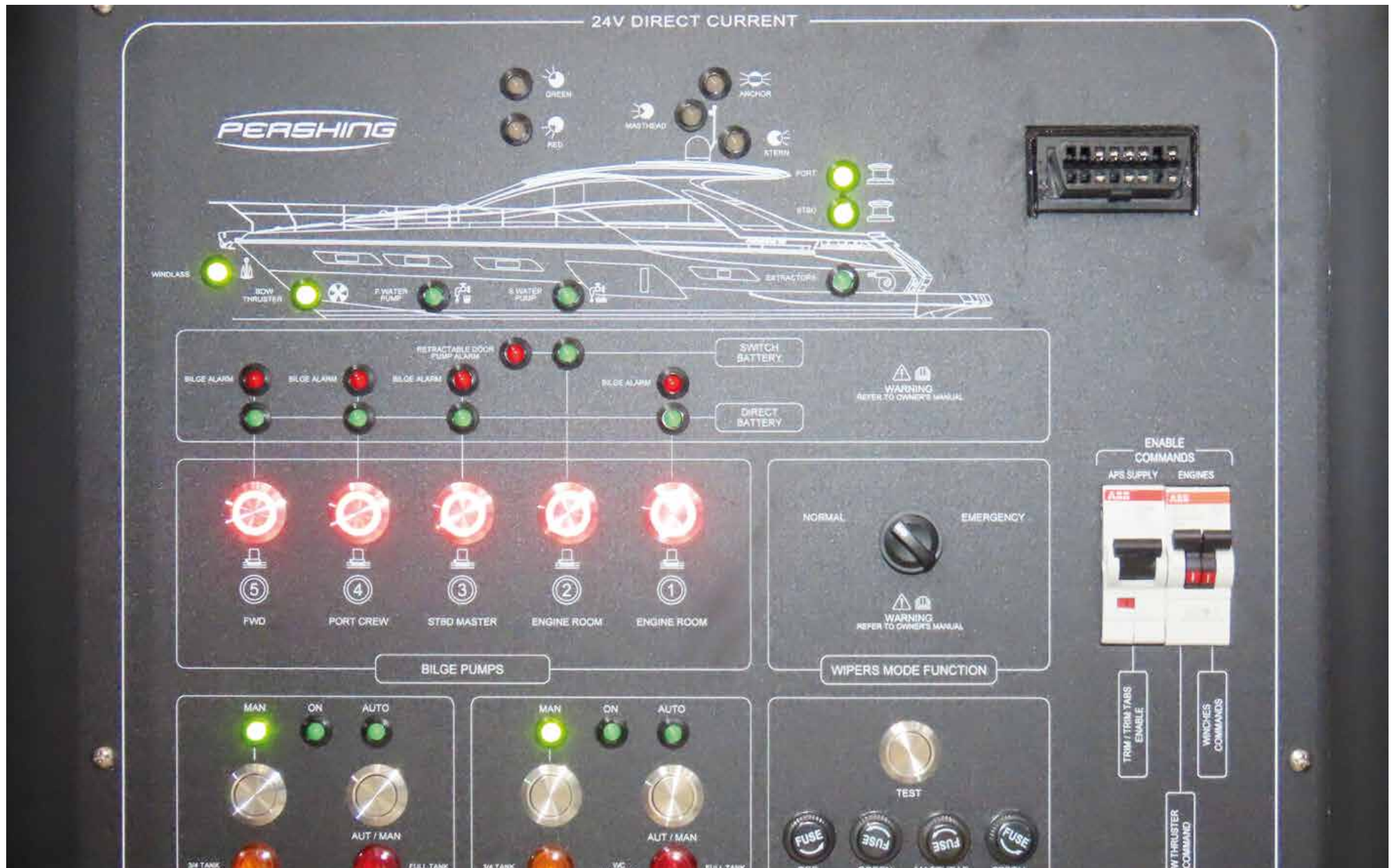
Before removing the front panel for maintenance, stop the power generators, disconnect the shore sockets and the inverter.

NOTE

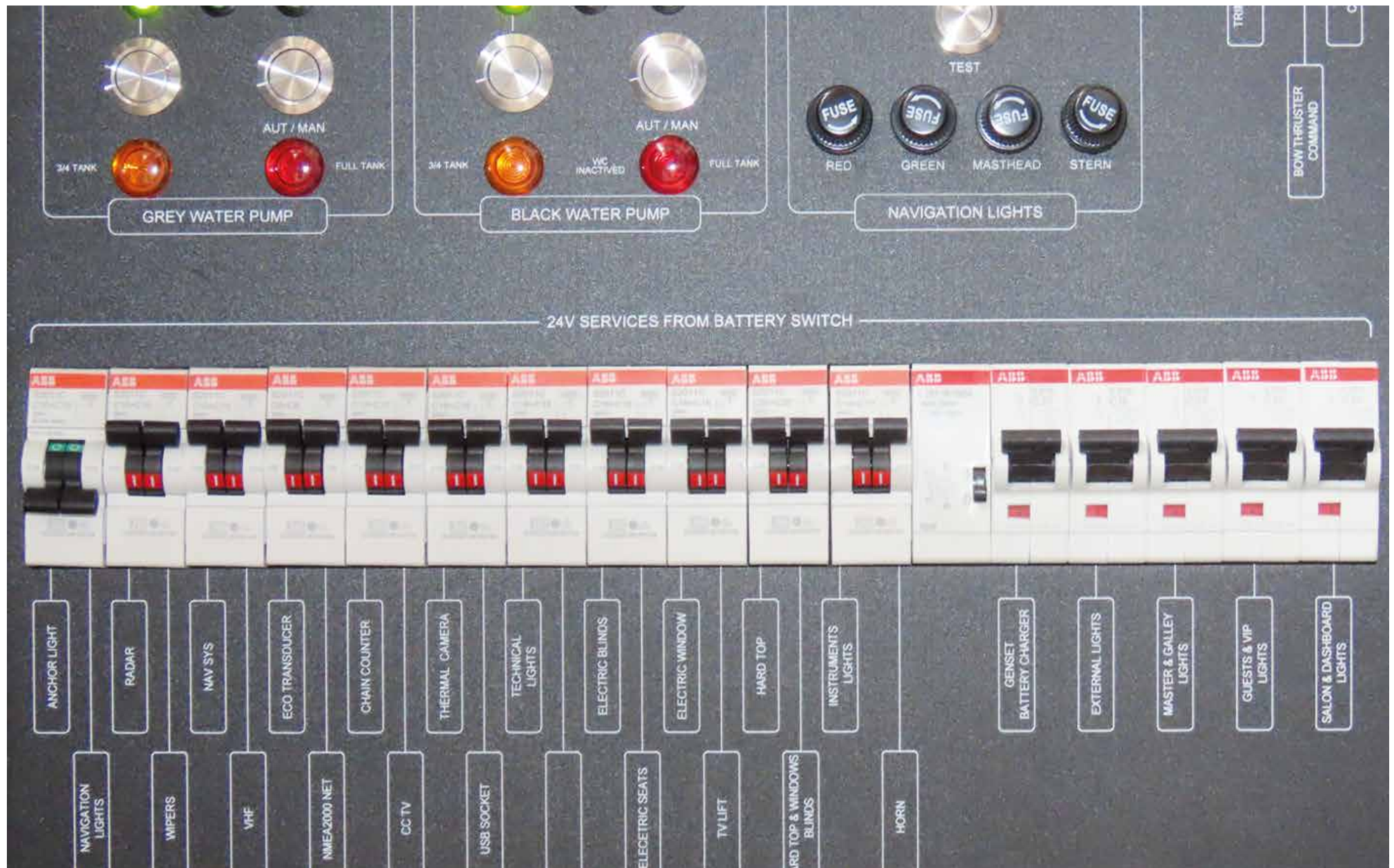
For a detailed description refer to the electric installation manual.



Synoptic panel and dashboard control enablement magneto-thermal:



Services battery 24V magneto-thermal:



5.9.1 Synoptic panel

The following main sections have been identified, in order to make the descriptions easier:

1. Synoptic with signal lights, manoeuvring thrusters, moorings, air extractors, anchor winch, and navigation lights.
2. Indicator lights and bilge pump activation buttons.
3. Tank and grey water pump controls and control:
 - Tank level indicator lights:
 - Yellow: grey water tank over half (3/4).
 - Red: grey water tank full.
 - Selector switch for automatic or manual grey water pump operation.
4. Tank and sewage pump controls and control:
 - Tank level indicator lights:
 - Yellow: Black water tank over half (3/4) WC active.
 - Red: black water tank full toilet deactivated.
 - Selector switch for automatic or manual black water pump operation.
5. Wiper operation selector switch:
 - If in normal operation (normal position) the windscreen wipers do not work (control unit failure), move the switch to emergency mode to move the primary arm only to ensure minimum visibility.
 - In emergency mode, the starboard windscreen wiper in front of the driver's seat is operated at maximum speed.
6. Protective fuses for navigation lights:
 - Red light on the way.
 - Green street light.
 - TEST button for navigation lights: The Test button is used to verify the correct functioning of the light test circuit, through the illumination of lights located on the synoptic panel.



CAUTION

Before removing the front panel for maintenance, stop the power generators, disconnect the shore sockets and the inverter.

NOTE

For a detailed description refer to the electric installation manual.

5.10 GROUND PROTECTION

An adequate system of leakage current with porous plate which constitutes a specific terminal of dispersion for the shore supply line of the GENSET on which are connected all the neutrals of AC systems as all the negative of DC systems.



DANGER

In case of yacht out of water, use protection for shore dispersion immediately restoring the contact of SHORE GROUND CONNECTION in engine room.



DANGER

If the yacht is out of the water and connected to the quayside power supply, check the presence of the shore-side system in the power supply system.



WARNING

Periodically check the status of sacrificial anodes and porous plate: replace if the reduction for corrosion is more than 50% of their original mass. If their wearing is particularly quick, so the on board electric system could be leaking. Have the electric system checked by experienced personnel.

5.11 FUSES

In addition to these protections, there are common fuses with types and characteristics appropriate to the specific installation.

Please refer to the electric system user's manual for their location on board.

The main fuses on board have the following characteristics:

- 10 A
- 20 A
- 80 A
- 100 A
- 125 A
- 160 A
- 250 A
- 300 A



DANGER

For reasons of safety and reliability of any electrical system, any fuse must be replaced with one which has the same electrical characteristics: in case of doubt, consult an expert technician.



DANGER

At the end of eventual replacement of a fuse, ensure the proper keeping: DO NOT not leave any foreign objects inside the panel.

NOTE

For a detailed description refer to the electric installation manual.

5.12 BATTERY SET

The batteries are normally charged by the alternators during the engines operation. As an alternative, you can recharge them with the battery chargers supplied from shore or with the generators.

DESCRIPTION	ELEMENT NUMBER	FEATURES ELEMENT
Engine start	4 + 4	12V - 70 Ah
Generator start	1	12V - 70 Ah
Service batteries	2	24V - 200 Ah
Thruster batteries	4	12V - 70 Ah

SERVICE BATTERIES:



There are 2 lithium-ion batteries of 24V 200Ah each, connected in parallel to form a bank of 400Ah nominal 24V.

The batteries are connected to a main controller (located on the forward bulkhead, in front of the batteries) to which the power connections from the batteries, the utilities and the on-board services charger are connected.

The various devices (batteries, battery charger, controller and inverter, if present) are connected to each other in the grid and the various information on the status of the batteries (voltage, charge/discharge, residual capacity, etc..) are available on the multifunction display installed on the front of the 24V engine room electrical panel. This panel is also connected to the NaviOP system which can be viewed on the dashboard.

For charging during navigation, the main alternator of the left engine is connected to a charge divider which guarantees charging of the left engine battery bank and Lithium Services batteries.

The main controller is equipped with a contactor that connects the batteries to the rest of the system, it constantly checks the state of the batteries by managing their charging (when charging sources such as battery charger and left alternator are available) and discharge. It has a start/stop button at the bottom to be used to ask the controller to activate and deactivate the batteries.

To activate the batteries, if the batteries are sufficiently charged, simply press and hold down the start/stop button for about 1 second, you will notice a green light coming on and the internal contactor noise closing.

At the same time, the multifunction display on the 24V electrical panel in the engine room will light up.

When using the service batteries, when the controller detects that they are very low, it opens the internal contactor by disconnecting the on-board services in order to preserve their useful life.



CAUTION

In such conditions the security services (bilge pumps, bilge alarm, fire detection alarm) and gangway are switched off.

You must act promptly to get the batteries back in working condition, act as follows:

- On the battery breaker switchboard (on the engine room forward bulkhead, below) locate the battery breaker of the services, and move it to the OFF position (open). In this way, all consumers are disconnected from the power supply after the battery has been disconnected;

- On the 24V switchboard in engine room, turn OFF all the thermals in the section of the security systems and gangway (bilge pumps, bilge alarm, smoke alarm, gangway);
- Activate a 120/240V on-board source (shore socket or generator);
- Activate the battery charger then within a few moments press and hold down the start/stop button on the battery controller for about 1 second;
- If the procedure has no effect try to repeat the procedure taking care to activate the charger and the controller almost simultaneously;
- If it is not possible to activate the battery contact the Customer Service.

It is good practice when using the yacht in port or at anchor to keep the services charger switched on at all times to prevent the batteries from discharging which would put the safety and gangway services out of power.

Monitor the battery parameters using the multi-function display (or NaviOP).

Similarly, during navigation it is good practice to use the left alternator to charge the service batteries, keeping the service charger off (on/off button on the right control panel on the dashboard).

To store the yacht, in order to keep the service batteries isolated and reduce self-discharge, open the contactor located inside the controller:

- Switch OFF the various 24V services, then open the service battery breaker;
- Press and hold the start/stop button on the controller for about 1 second;
- The green light must go out and you must hear the opening noise of the internal contactor.

The ideal state of charge of the batteries for storage is about 60%. Check the voltage of the batteries within 3 months at the most, recharging them if the voltage drops below 24V.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

ENGINE BATTERIES:



The engine batteries are divided into 2 battery banks for left and right engine. Both banks are made up of 4 12V 70Ah AGM batteries connected in series/parallel to form a bank of 140Ah at 24V each.

On board there is a 2-output battery charger dedicated to charging both engine banks. For charging during navigation, each alternator (left and right) recharges its engine starter battery bank (the left one recharges through the charge divider described above the left engine battery bank, the right alternator recharges the right engine battery bank).

It is good practice during navigation to keep the engine charger OFF (ON/OFF button on the starboard control panel on the dashboard).

The control of the battery breakers for services, port engine and starboard engine can be done remotely from the battery breaker panel located in the cockpit inside the port mooring cabinet or physically on the front of the battery breaker panel in the engine room.

It is possible to parallel the engine batteries to each other by means of a manual battery breaker, placed in the battery breaker panel in the engine room.



CAUTION

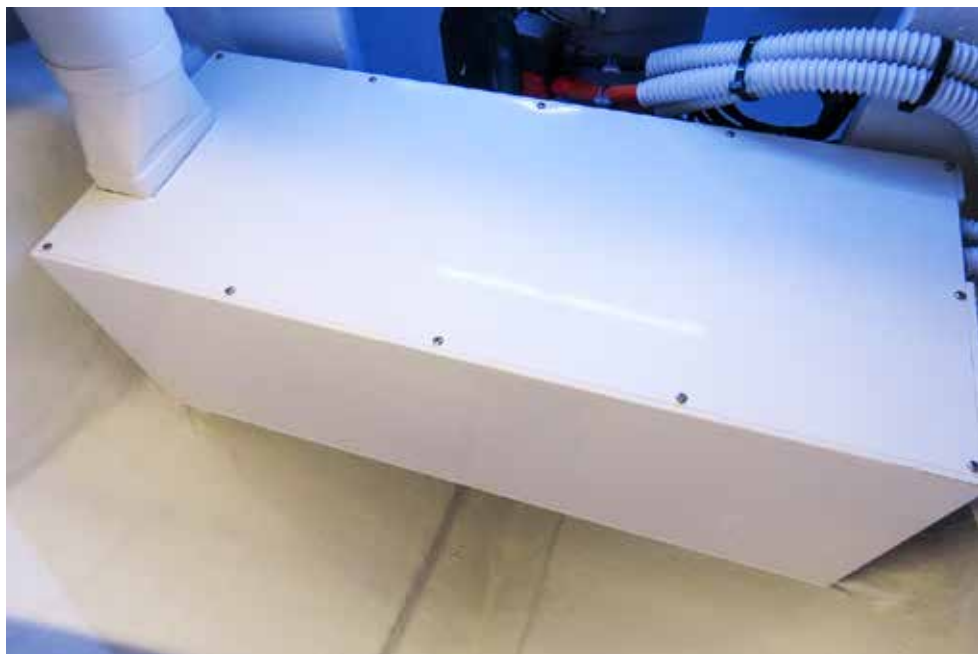
Keep the service chargers, engines and manoeuvring thruster switched off during navigation.



CAUTION

Turn OFF the generator battery charger (if any) before starting the generator and keep it OFF while using the generator.

THRUSTER BATTERIES:



The batteries of the manoeuvring thruster are positioned forward under the dunage of the VIP cabin; it consists of a bank of 4 batteries 12V 70AH AGM placed in series between them.

The manoeuvring thruster battery bank is equipped with a remote control battery breaker with manual override, located in the left cabinet of the VIP cabin.

Recharging of the batteries during navigation is guaranteed by an auxiliary alternator, 48V, installed on the left engine.

During mooring in port and at anchor, it is possible to recharge the batteries of the manoeuvring thruster by means of a dedicated battery charger, located near the batteries.



WARNING

Before starting the engines, switch OFF the thruster charger (ON/OFF button on the dashboard).

Keep the battery charger OFF during navigation.

The battery voltage can be displayed on the on-board monitoring and control system.



WARNING

The batteries left uncharged over long periods of non-operation progressively lose their charge until they become completely flat and irreparably damaged.



WARNING

Do not lay objects on the cases containing the batteries.



WARNING

If the engines are ON; it is advisable to keep the thermal switch of the battery charger to OFF, in order to avoid alternator damage.



DANGER

NEVER obstruct the air intakes of the battery boxes as natural ventilation must always be allowed so that the batteries do not overheat.

**CAUTION**

A frozen battery may blow up if used or charged; do not start a yacht with frozen battery. To prevent the battery from freezing keep it always completely charged.

**DANGER**

The battery releases explosive gases: do not approach sparkles or a flame nor smoke near it. If the battery is used or charged in a closed area, check for good ventilation. Do not check the battery charge by short-circuiting the terminals with metal tools: use a density gauge or a voltmeter.

**WARNING****EXPLOSION HAZARD**

Any lithium battery powered device on board must be recharged only in open air areas, connected to a suitable charging system.
Also please refer to the device dedicated Use and Maintenance Manual.

5.12.1 Maintenance of the batteries

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Batteries	Battery check (accumulators)	The batteries installed are low maintenance batteries, with no special control needs: It is recommended, however, to check the status at least twice a year and whenever there is a difficulty or delaying of charging time.



CAUTION

In case of contact with battery acid, wash the contaminated part with fresh water for at least 15 minutes and consult a doctor.



CAUTION

Always keep the batteries charged and recharge them periodically even if the yacht is left unattended. If the charge level drops to the minimum, the batteries can get irreparably damaged. Check each week the charge status.



CAUTION

Remove bracelets, rings and every other piece of jewellery before working on the batteries.



WARNING

The batteries replacement must always installed the original model of battery originally furnished by the shipyard.



WARNING

All maintenance operations listed must be performed only by skilled personnel.



CAUTION

Monitor the voltage of the engine and service batteries. During the charging phase 29.1V can be reached, this is a temporary value, well tolerated, both by the batteries and by the battery charger. This value must be monitored and, if this situation lasts for too long, the magneto-thermal switch of the battery charger must be disconnected.

5.12.2 Battery check

Carry out following checks:

Terminals inspection

- Check that the battery containers are clean and dry and that the terminals are coated with silicon grease and properly fastened. Clean and grease as required. Check at least every six months.
- Identify positive and negative cables, prior to connecting (connect the positive terminal first and then the negative, in order to avoid sparkles).



DANGER

Always remove the negative terminal (-) for ground connection first and connect it last.



DANGER

Operations on batteries must be carried out by experienced personnel.



DANGER

Batteries may be subject to explosion hazard, with subsequent risks of serious personal injuries. Do not use open flames, smoke, cause sparks or use arc-welders in the area where batteries are located. Do not disconnect battery cables when the generator is running.

Battery acid may cause serious injuries. Wear safety goggles, gloves and protective clothing.

Do not wear any bracelet, ring or any other jewel when operating on batteries.

In case of contact with battery acid, wash the contaminated part with fresh water for at least 15 minutes and address to a doctor.

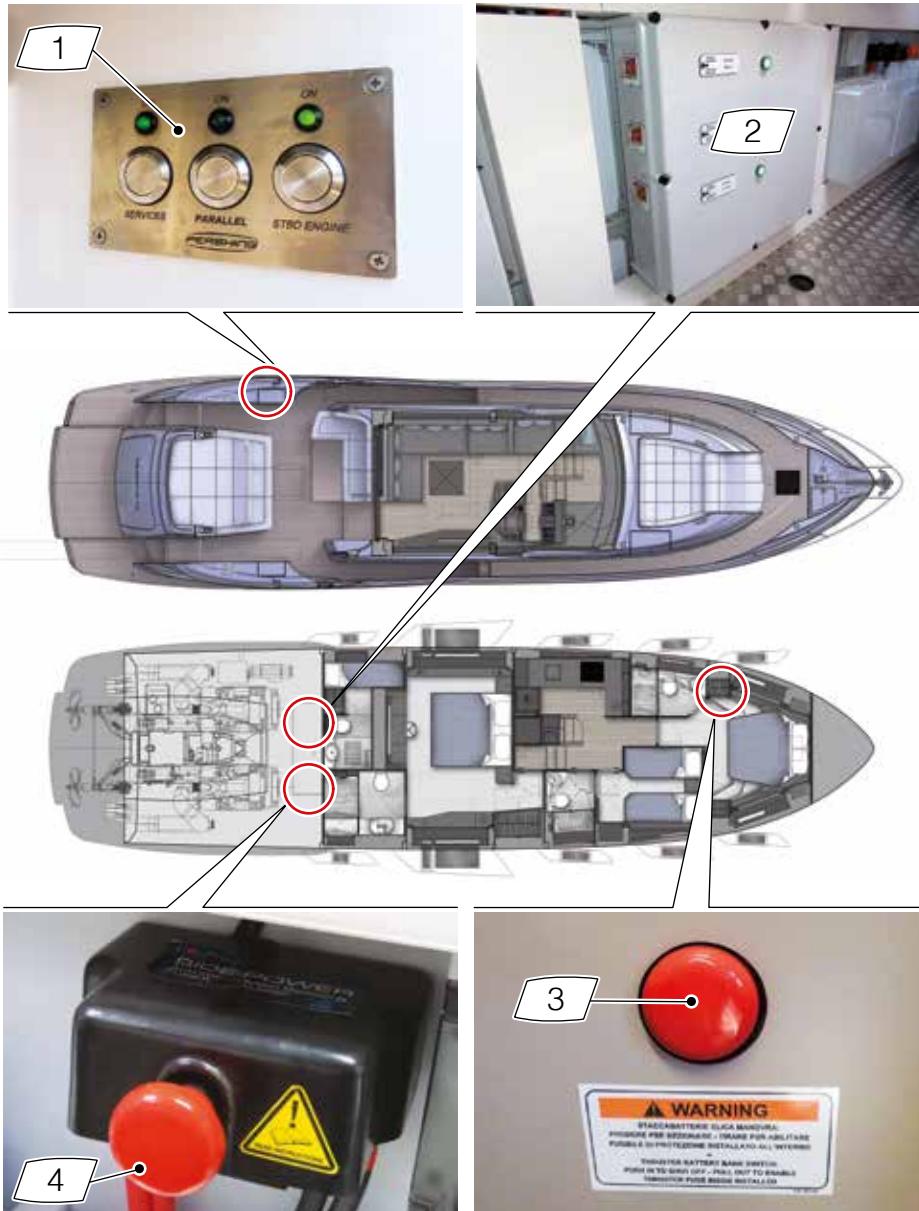


CAUTION

Check the condition of batteries for the presence of galvanic corrosion on connection poles and terminals; if some is noticed, address to the After sales & Service Department and have the pieces showing this kind of problem replaced.

5.13 BATTERY BREAKER PANEL

The panel (1) is located in the stern cockpit on the port side.



In the panel (2) are contained the control buttons of the electronic battery breakers (each with red LED) that switch OFF:

- Service batteries;
- Parallel connection engine batteries;
- Engine batteries.

The LEDs on indicate that the batteries are in operation, to disconnect them you must press the buttons (LED OFF).

In case the control buttons of the electronic battery breakers do not work, it is possible to use the manually operated battery breakers located on the forward bulkhead of the engine room under the main electrical panel.



CAUTION

Never disconnect the battery breaker switches with the engines running.



CAUTION

Use the "Services-Engines parallel connection" breaker only if strictly necessary and disconnect it as soon as possible.

In the left-hand wardrobe in the VIP cabin, there is the battery release button (3) of the bow thruster.

In the engine room there is the battery release button (4) of the stern thruster.

• Service batteries

- This switch allows cutting in or out the service battery set.

• Parallel

- If the engine batteries are flat or not sufficiently charged, the battery main switch allows the parallel connection the engine battery bank, to enable the start of the propulsion engines.



CAUTION

This connection must be activated only if the engine batteries are not sufficiently charged. The battery parallel connection switch must be activated only with the buttons connecting the battery set to ON.

- **Engine batteries**
 - This switch allows cutting in or out the engine battery set.
- **Generator battery breakers**
 - Allows you to insert or exclude the battery for the generator.
- **Safety system and hydraulic system battery breaker**



DANGER

Keep the 24V isolating switch of the safety systems in ON position. Only disconnect in the event of a short circuit.

- **Manual battery breaker box**



WARNING

Remember to disconnect all batteries before leaving the yacht, let only the safety system insert.

5.14 SHORE ELECTRIC POWER SUPPLY



DANGER

Before connecting the shore socket, ensure the type of voltage and the sockets available, their integrity and the absolute absence of moisture on the wire, on the socket and on the plug.

With plug connected check that wire:

- Cannot get in traction as a result of tide variations, yacht movements, etc..;
- Cannot get crushed, etc..;
- Does not dive into water.



CAUTION

The connection must be performed under safety conditions with not powered connections and by paying attention to carry out a correct grounding.

The shore columns can supply different types of voltage, according to the harbour you are moored into; address to the Port Authority for the correct power supply of the column you are going to be connected.

In order to power the yacht's electric system to operate the various systems on board, a connection for 100 A 60 Hz electric power supply from shore has been arranged aft on the starboard side.

To facilitate the electrical connection to the shore, the yacht is equipped with an electric cable reel (glendinning), located in the engine room on the starboard side.

By means of the main electrical panel, it is possible to check and monitor the electric parameters of the shore sockets, allowing a clear and readable visualization of the values measured, this facilitates the prevention of possible faults and malfunctioning and increases the safety of navigation.

It occurs very often to find shore plugs with dimensions not compatible with those on the yacht; in this case it is necessary to address to the Port Authority and to get a new plug or an adapter.

Connection procedure

To use the shore electric power supply:

- Pull out the electrical cable, using the appropriate control, and bring it near the shore power column;
- On the main engine room switchboard, open (OFF) the general magneto-thermal circuit breakers of the on-board services;
- Open the switch to protect the power supply of the shore socket located aft on the starboard side (transom access ladder);
- On the shore power column, open the power switch;
- Connect the power cable to the quayside power column;
- Turn OFF the switch on the shore column;
- Close the power switch to protect the power supply to the yacht's shore socket;
- From the electrical panel in the engine room, select the quay power supply and monitor the voltage using the relevant instrument;
- Only in case of correct voltage, close the general magneto-thermal circuit breakers dedicated to the utilities (1st service main switch, 2nd services main switch and galley main switch).



CAUTION

Do not modify connectors of shore power supply cable, use only plug compatible connectors. If the yacht power supply cable cannot be plugged into the shore socket, ask the Port Authority for an adapter. In any case, never use adapters cutting the mass conductor connection between the shore electrical system and the yacht electric system.

The use of these adapters can damage irreparably the electric devices.



DANGER

Do not leave shore power supply connected without people on board.



DANGER

Before carrying out any intervention on the electric system, disconnect all circuits and the shore plug.



WARNING

If the warning light on the main electrical panel in the engine room is on this means that the electric socket for shore power supply is plugged.



CAUTION

Disconnect the shore power supply connections when the system is not in use.



WARNING

Do not allow that cable end of shore power supply to floats in the water. This can cause an electric field and following injuries or even the death of the swimmers nearby.



CAUTION

To cut the electric power supply from shore:

- Disable the shore power supply on the main switchboard in the engine room.
- Turn OFF the protections on the shore column.
- First disconnect the power supply cable from the shore power supply source (shore column), then from the user.

MAINTENANCE

At least once every two weeks, have the various connections of electric boards, panels and boxes checked by experienced and equipped personnel.

Make sure that ground connections of electric equipment and electrical panels are tight and not oxidized.

At least once a month check the status of the shore socket and eventually clean it.



DANGER

Risk of electric shock from leakage currents. Never swim in waters near harbours or marinas.

5.15 BATTERY CHARGER

On board your yacht there is a fully automatic and high-performance service battery charger (1). The battery charger implements an optimised charging technique that charges the batteries quickly and safely while also powering the connected loads. In addition, each charger is protected against short circuits, overloads and high temperatures (typical of engine rooms).

A front panel meter on each charger displays a reading of remaining battery capacity value, in a manner analogous to a car's fuel gauge.

The more LEDs are lit, the more the battery is charged.

Energisation:

The battery charger is energized when the switch is in the ON position. One of the LEDs on the front side turns on and the charge starts immediately.

De-energisation:

The battery charger is de-energised when the switch is set to OFF.

The connection between the electric mains and the battery charger is not interrupted with the switch.

Bulk (LED 1 on):

The battery is discharged only when the first LED Bulk/ON (Quick charge/ ON) is lit. Now the battery charger provides full power and the battery voltage increases slowly. After having reached the 27.6 V level, the battery is about 25% charged and the second LED turns on.

(LEDs 1 and 2 on):

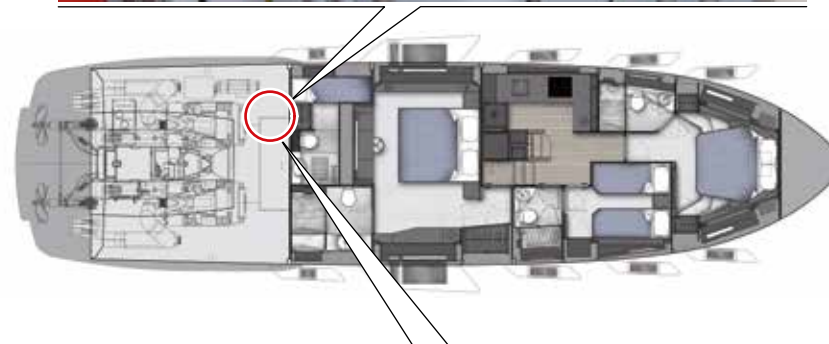
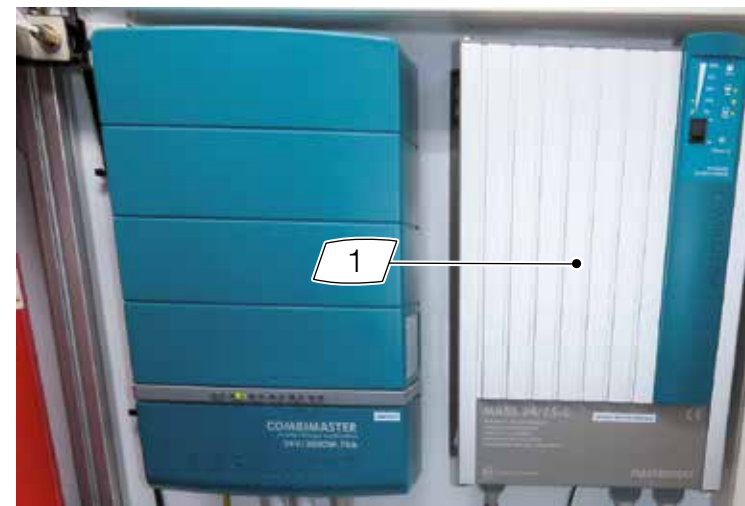
The battery has been charged to 25%. The battery charger still provides the maximum output current and voltage increases up to the level of absorption voltage. Phase A can last up to 6 hours max.

Absorption (LEDs 1, 2 and 3 on):

The battery has been charged to 50%. The battery charger limits the charging voltage to a safe level and the charging current decreases slowly.

(LEDs 1 to 4 on):

The battery has been charged to 75%. The charging voltage is limited to the absorption level, because the battery is nearly full. Current consumption will continue decreasing.



Maintenance (LEDs 1 to 5 on):

When all the LEDs are lit, the battery is fully charged. The slow maintenance/charging programme provides a output voltage, high enough to keep the batteries with a 100% charge, but low enough to prevent that the batteries suffer unnecessary constraints. The battery charger can now deliver full power to the connected utilities/loads.

LEDs on	Meaning
Normal operation: the green light of LED no. 6 turns on	
1	Battery charger On
1+2	U output > 27.6 V
1+2+3	U output = absorption (28.5 V)
1+2+3+4	3 hours after the max. bulk time has started or I < return amp
1+2+3+4+5	6 hours after the max. bulk time has started or I < return amp. for 15 min or more
9	Recharging current equal to 0-5% of total current
9+10	Recharging current equal to 5-25% of total current
9+10+11	Recharging current equal to 25-50% of total current
9+10+11+12	Recharging current equal to 50-75% of total current
9+10+11+12+13	Recharging current equal to 75-100% of total current
6	Green: normal operation, red: faulty, OFF: stand-by or off
7	Green: communication of MasterBus in progress, OFF: no communication of MasterBus
Failure condition: the red light of LED no. 6 turns on	
6 red +1	Battery detection error
6 red +2	Too high temperature of the battery charger
6 red +3	Short-circuit warning: the battery charger will reduce charging current to 25%
6 red +4	CC error: CC voltage is too low or too high
6 red +5	Temperature detection error



CAUTION

Disconnect the shore power supply connections when the system is not in use.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

ENGINE BATTERY CHARGER (2):

On board your yacht there is an engine battery charger installed in the engine room.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

5.15.1 Battery charger maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Battery charger	Check Charge output	At least two or three times a year, have a specialist check the connection of each cable checked for looseness or oxidation. Keep the battery charger dry, clean and away from dust in order to ensure a good dissipation of heat.



DANGER

Do not work on the battery charger or on the electric system if they are still connected to a current source.

Modification to the electric system must be carried out exclusively by skilled staff and only after approval of PERISHING.

MAINTENANCE

At least once a month check the correct operation of the battery charger.

At least once a month carry out the complete cleaning.

At least once every six months protect the contacts with proper products.



DANGER

Have the inner condition of the battery charger checked by skilled staff at least once a year. Faults like loose connections, burnt wires, etc., with following risk of fire spreading, must be repaired immediately.



WARNING

If the engines are on, the alternators are charging the batteries; it is therefore advisable to keep the thermal switch of the battery charger to OFF, in order to avoid alternator damage.

5.16 INVERTER

On your yacht's engine room bow bulkhead, there is a inverter (**1**) dedicated to services.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

5.16.1 Operation

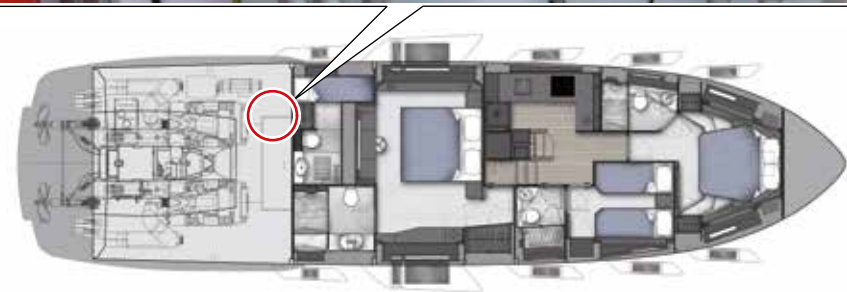
The inverter is a device that transforms the 24V DC voltage into 120/240V AC.

- **ON, Switch**
Position the ON/OFF switch, located on the front panel of the inverter to "ON". The green light "inverter on" lights up and the inverter starts.
- **OFF, Switch**
Position the ON/OFF switch, located on the front panel of the inverter to "OFF". The inverter stops and all lit lights switch OFF.

Warning lights

The functions of the warning lights located on the inverter front panel are:

- **Inverter ON**
The green light indicates when the inverter is ON.
- **Overload**
The indicator lights up if the inverter is overloaded. When the inverter is overloaded, the power limiter reduces the voltage output. According to the load, the inverter will switch OFF after a short period.
- **Overload + ON slow**
When the inverter remains overloaded for a long period of time, it will switch OFF and the "overload + ON" indicators will blink slowly. This takes approx. 20 seconds after which the inverter will restart automatically. This is called "wait state" and gives the inverter time to recover from any supply and gives the battery time to recover in case it is flat.



- **Overload + ON fast**

The inverter is switched OFF. When the inverter switches OFF 10 times with intervals no longer than 30 seconds, the inverter will switch OFF permanently and the “overload” and “ON” indicators will blink fast. To switch the inverter on again, you have to switch the inverter OFF and on again. When the output terminal is short-circuited, the inverter will overload. The “overload” and “ON” indicators will blink slowly. The inverter will try to start up ten times. If the short-circuit is not removed, the inverter will switch OFF permanently. Remove the short-circuit and reset the inverter by switching it ON and OFF.

- **Low battery (nearly flat)**

The inverter is OFF when the battery voltage is too low. If the voltage increases above certain values, the inverter restarts automatically.

- **Temperature**

The inverter switches OFF in environments at high temperature and/or remarkable overload. After the cooling, the inverter starts automatically.



DANGER

When disconnecting the inverter by means of the switch located on the front panel the connection with the mains is not broken OFF.

5.16.2 Inverter maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Inverter	Maintenance and check	For a reliable and optimum function of the inverter, the following is required: • Check at least once a year if all cable and wire connections are still firmly connected. • Keep the inverter dry, clean and dust-free, in order to ensure good heat discharge.



DANGER

Do not work on the inverter or on its system if still connected to a current source. Only qualified staff can carry out interventions on the electric system and only after the approval of PERISHING.



DANGER

Have the inner condition of the inverter checked at least once a year by skilled personnel. Faults like loose connections, burnt wires, etc., with following fire break risks, must be removed immediately.



WARNING

The services supplied by the inverter highly stress the batteries that could discharge as a result.

5.17 GENERATOR

On board the yacht there is a generator **(2)** located aft in the engine room. On the fuel tank flange, you can easily see the power generator, which can be cut-off by means of the suction valve, on which you can handle quickly to cut-off the fuel lines in case of emergency in order to shut off the generator. The connection going from the generator to the tank are for fuel flow-back.

The fuel, before being used by the generators, is passed through a separator filter that retains dirt particles and separates any water present.

The exhaust gases, instead of being discharged directly overboard, are conveyed through muffler **(3)**.

This muffler, by injecting water in the exhaust pipes, allow cooling down the fumes and, at the same time, reducing the noise produced by the water outflow.

To further reduce the noise, the fumes are then sent to the separator.

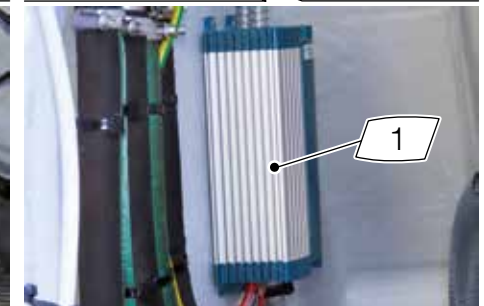
The separator use the gravity and centrifugal forces to separate exhaust gases from cooling water. This latter is separated and discharged directly under the water line. The exhaust gases without water are conveyed and discharged overboard.

The sea cock of the cooling circuit is installed on the hull with the sea water strainers, fastened to a surface close to the sea cock valve. Clean the sea cock strainers according to the frequency of the system use and to the pollution condition of the sucked waters.

On the generator is positioned the control panel for the control and to perform the starting and stopping operations, a battery disconnect and the protection magne-to-thermal switch.

The monitoring system allows monitoring and controlling the main operational parameters of the generators, so as to detect any alarm situation or potential risk.

The charging of the generator starter batteries is guaranteed by a battery charger **(1)** powered at 24V from the dedicated batteries.



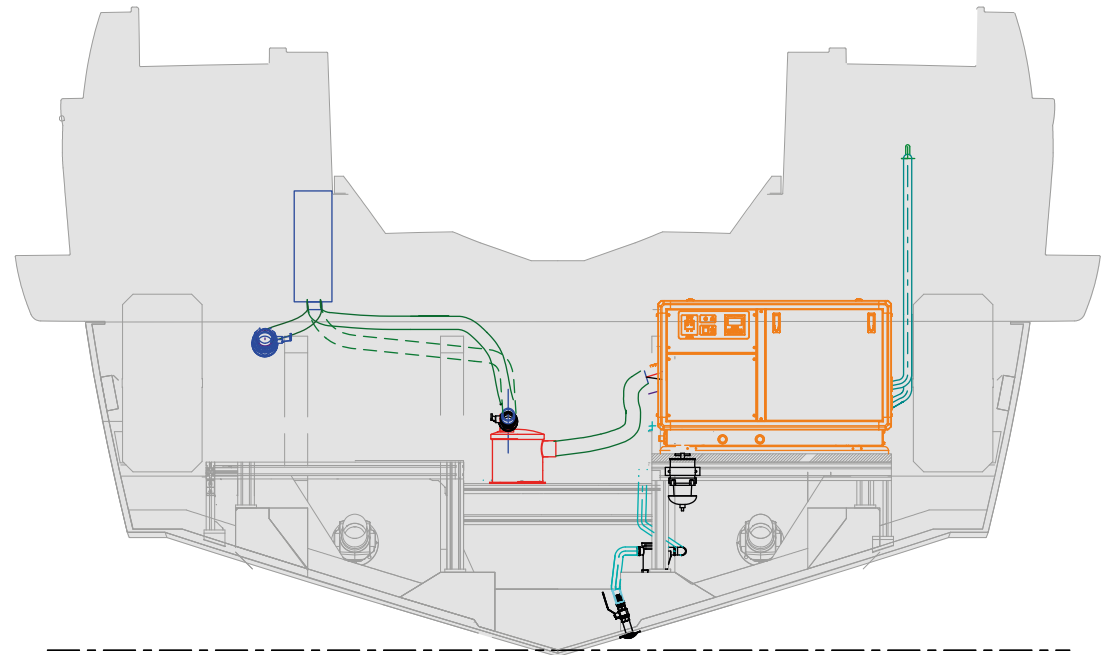
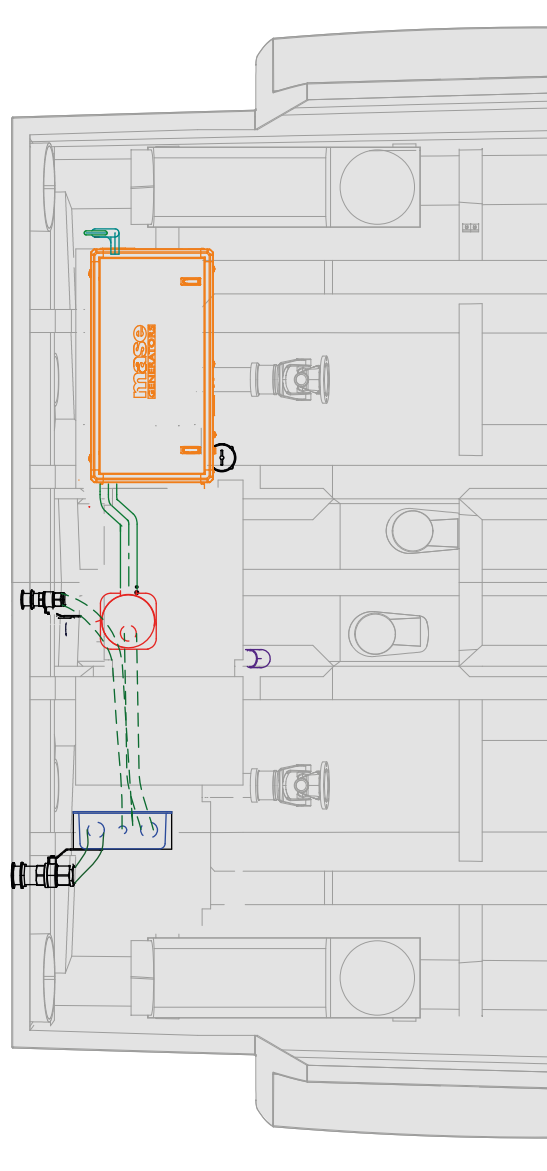
NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

**WARNING**

Before stopping the power generator, disconnect the various on-board services supplied by it; stopping the power generator under load can irreparably damage the electronic control units of the various services, beyond having a negative influence on the generator's operation.

However, please refer to the manual of the power generator to obtain more detailed information about the starting and stopping procedures.



5.17.1 Generator Maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Lubrication system	Oil specifications	Use oils that comply with the Manufacturer's specifications.
	Oil check	Check the oil level in the crankcase every day or before each start, to make sure that the level is within safety limits. Remove the dipstick, clean the end, reinsert it as far as possible and remove it. Keep the oil level between the level marks (Min., Max.).
	Oil change	When changing the oil, remove the drain hose from its retainer. Place the hose in the oil collection container. Remove the oil filler cap. Open the oil drain valve on the engine and drain the oil completely into the receptacle. Change the oil at the intervals specified by the manufacturer.
		 CAUTION Do not mix different oils.
	Oil filter change	Remove the oil filter by turning it counterclockwise with a spanner. Apply a thin layer of oil to the rubber seal of the new filter. Replace the oil filter with the periodicity indicated by the manufacturer.
Fuel system	Cleaning/replacement of fuel prefilter	Replace the fuel prefilter with the periodicity indicated by the Manufacturer.
	Cleaning/replacing the fuel filter	Close the fuel supply valve. Loosen the fuel filter by turning it counterclockwise. Remove the filter and clean the contact surface. Screw the filter onto the adapter until the gasket makes contact. Replace the fuel filter with the periodicity indicated by the Manufacturer.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Cooling system	Cleaning / replacement of air filter	Release the two spring clips and remove the air intake cover. Clean the cover and base with a clean cloth to remove dirt. Refit the element and the cover to the base of the filter air intake. Replace the filter at the intervals specified by the manufacturer.
	Coolant refill	Before filling the cooling system, stop the generator and let it cool down. Close the bleed taps. To relieve the pressure, slowly turn the cap clockwise until the first stop. Remove the cap after the pressure has been completely relieved.
	Sea water strainer	At least once a week check the correct water flow in the strainers. At least once a month check the integrity of the strainers. At least once a month clean the suction strainer. At least 1 time every 6 months check the condition of the cover gasket.



ENVIRONMENT

Recover all waste materials (engine oil, fuel, filter, etc..) according to the rules in force concerning the special waste disposal.



CAUTION

Pay special attention to the coolant level. After the coolant drains, allow time when re-filling the coolant for a complete refill of the engine water jacket. Check the coolant level as prescribed in the Pre-start Checklist.



DANGER

Hot coolant and steams may cause heavy injuries or even death.



CAUTION

For detailed information refer to Manufacturer's Manual.



CAUTION

Failure to observe the oil specifications may cause inadequate lubrication/oil pressure and cold-starting difficulties.



CAUTION

Damage due to sea water. Sea water quickly deteriorates metals. Wipe up sea water on and around the generator set and remove possible salt deposits from metal surfaces.



CAUTION

If the oil level is not positioned between the two reference notches do not activate any device.



CAUTION

Do not add coolant if the engine is still hot. Adding coolant to an hot engine can cause the cylinder block or cylinder head to crack. Wait until the engine has cooled down.

5.18 STEERING SYSTEMS

The power assisted steering system has been designed to make steering easier during navigation and to improve the safety condition of the system.

This system is completely independent from the engines of the yacht and all the necessary power is delivered by a single multifunctional control unit. The system consists essentially of an axial piston pump connected to the rudder wheel in the main helm station.

The axial piston pump of the main helm station is, in turn, coupled to the electro-hydraulic control unit. The control unit is equipped with an automatic filling system, which allows carrying out oil top-up directly on the tank of the control unit, in order not to foul the helm station.

It is also equipped with valve assemblies necessary to control the steering system of the yacht, the flaps, the vertical trim cylinders of the surface propellers. The transmission is equipped with two separate lubrication chambers. Inside the engine room are positioned the level tanks that allow to visualize the levels and to control infiltrations.

Steering system

By means of the steering wheel, located in the main helm station, you can control the horizontal shifting of the trims for the surface drives.

This control unit is equipped with interface for connection with the autopilot.

Flap and vertical motion of the surface drives (trims)

By means of a solenoid valve block, connected to the control unit, it is possible to vertically raise and lower the flaps. This unit, by means of separate lines, also monitors the vertical movements of the trims for the surface drives.

Their control is performed by the joysticks of the trims and flaps located in the main helm station.

Your yacht has a system that allows you to automatically control trim and flap without the pilot having to worry about attitude control.

All you need to do is set the desired type of navigation among the following 3 functions:

- **CRUISE** the system provides enhanced comfort and lower consumption in litres per mile.
- **SPORT** the system considers maximum performance only.
- **ROUGH** if the sea is very choppy, it controls the planing trim and optimises the hull's performance.

The Joystick allows you to use the yacht in maneuvering with the propeller.



CAUTION

Keep risks under control

Regularly inspect and maintain the steering system. An improperly maintained steering system can be damaged, resulting in sudden loss of control and causing injury and damage to the yacht.



CAUTION

For further information on the correct use of the system, refer to the relevant manufacturer's specific manual.

5.18.1 Steering systems maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Steering systems	Filling Bleeding Level check (at least once a month and anyway before each navigation) Oil change	Start filling from the control unit tank. Fill up to level L max with oil recommended by the Manufacturer and start the system for a few minutes. Top up, if necessary, the control unit tank with suitable oil. Should frequent oil top-up be necessary, check all fittings and tubes to find and remove the leak.
Oil tank for transmission systems	Filling Bleeding Level check (at least once a month and anyway before each navigation)	Top up, if necessary, the control unit tank with suitable oil. Should frequent oil top-up be necessary, check all fittings and tubes to find and remove the leak. For further information, see the Manufacturer's Manual.



WARNING

Should you find remarkable inaccuracy or anomaly when testing rudder stroke, please contact the PERSHING After sales & Service Department.



DANGER

As navigation is very dangerous if the hydraulic steering is faulty, it is important to keep a moderate speed and a cautious steering until you reach the harbour or a rescue team arrives.



ENVIRONMENT

Do not discharge hydraulic oil in the sea, but in the special areas for toxic waste disposal.

5.19 BOW AND STERN THRUSTER

The bow and stern thruster is a very simple and sturdy firm device but it requires some special care:

- The thrusters must be used at a very low speed, or without fresh way; at higher speed, more correct reactions can be obtained with the offset use of the gear boxes;
- Each time the yacht is lifted up, check the condition of the thrusters, of the protection anodes and of the fastening system.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

Use of the bow and stern thruster

To use the thrusters, proceed as follows:

- Activate the engine batteries;
- Pull the red control button on the thruster switch;
- Check the activation of the magneto-thermal "manoeuvring thrusters controls" on the control panel on the dashboard;
- Press both ignition buttons on the joystick of the manoeuvring thrusters at the same time;
- Press both ignition buttons on the joystick of the operating thruster at the same time.

To hold (or open) the battery breaker of the manoeuvring thrusters so that it cannot be closed by remote control, press the battery breaker button of the manoeuvring thrusters located in the left cabinet on the VIP cabin.



CAUTION

Keep the battery breaker open during storage and in any case during periods of inactivity of the yacht.



CAUTION

When the bow and stern thruster is not used, always disconnect the control unit.





DANGER

During the bow and stern thruster operation, pay attention to possible swimmers or small boats which may be close to the thruster openings.

Do not test the thrusters when the yacht is outside water, unless you are sure the workers are at safety distance from the thrusters tunnel.



WARNING

Remember to disconnect the power supply of the system when manoeuvres are ended or during normal navigation.



DANGER

Always stop the bow and stern thruster before undertaking inspection or maintenance tasks by disconnecting the switches and possibly also the battery terminals.



CAUTION

Never activate the bow and stern thruster longer than one second when the yacht is at dry shore, because this can damage the engine seriously.



CAUTION

When the bow and stern thruster stops supplying the thrust while the engine turns, there might probably be a fault. In this case, immediately disconnect the bow and stern thruster.

5.20 FLAPS

The yacht is equipped with flaps, which can be controlled from the dashboard. They allow the longitudinal attitude of the yacht to be varied during navigation. By lowering the flaps you obtain the effect of lowering the bow towards the sea, vice versa by raising them the bow is raised. This is necessary because in some navigation conditions, due to lateral forces (currents and wind), the yacht takes on an inclined trim by its very nature and to return it to the correct position it is necessary to counteract the action of the wind or sea currents with an action of the rudder.



WARNING

The use of the flaps is quite normal during navigation, in order to make it more comfortable and to improve the yacht's performance.

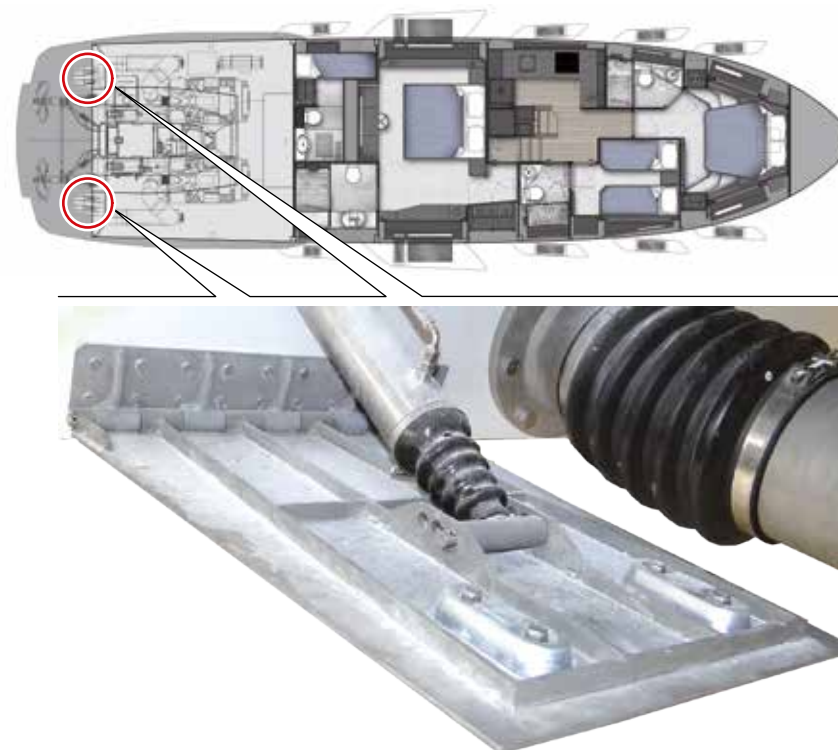


CAUTION

Raise the flaps completely during the reverse gear otherwise they might get damaged.

Some advice will prove useful to familiarize with the flap.

- In calm seas, the best position for the flaps is the one that will allow you maximum speed with less friction of the yacht, as they counteract the evolutionary capabilities of the yacht. At medium speeds it is recommended to give a strong impact to the flaps.
- In rough seas "in the bow", the flaps "down" will allow you to "beat less" and sail with more comfort even if the speed will be decreased.
- In rough seas "in the stern", the flaps "up" will raise the prow thus avoiding unpleasant traffic jams.
- With lateral wave motion or asymmetric lateral load, the best stability is achieved with staggered flaps.
- At the end of the cruise or when you stop, return the flaps to the neutral position.



**CAUTION**

Flaps can give sudden changes of direction to the yacht if they are operated too quickly. It is therefore necessary to test the response of these elements in the open sea and very carefully.

**CAUTION**

Always ensure that passengers are seated before making large adjustments on the flaps, especially during navigation at high speed.

5.21 GYROSCOPIC STABILIZER

In order to reduce the annoying effect of the rolling, determined by the sea motion, an system has been installed, consisting of two gyroscopic stabilizers, able to generate an equal and opposite spin with respect to the waves. The system provides a remarkable reduction of the pitch both with the yacht stationary or during navigation with low energy consumption that does not impair the quality of life on board and does not affect performance. Thanks to these important features, the device can also be kept on at night to allow a greater comfort by damping almost completely the annoying rolling motion.

The stabilizer devices are based on a well-known principle of physics: a gyroscope tends to maintain its vertical rotation axis, parallel to the acceleration of gravity.

When an external force attempts to vary the position of the stabilizer, such as roll caused by the movement of waves, the stabilizer prevents this action by rotating along an axis perpendicular to its own and that of the disruptive cause.

This generated operation (pitch) is reduced by means of two dampeners, duly calibrated according to yacht's features.

The system consists of two stabilizers positioned centrally in the engine room.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



CAUTION

Have the scheduled PERIODIC INSPECTION performed by skilled personnel every two years. Address to PERSHING for further information.



WARNING

During operation, the stabilizers, vibration dampers and their housing overheat. Touching the stabilizers during operation may cause burns.



**DANGER**

The stabilizer housing is not a solid component. If you place objects or sit on the stabilizer, the stabilizer may be damaged.

**CAUTION**

The stabilizer's not watertight. If it's submerged in seawater, it could be damaged.

MAINTENANCE

The gyroscope system is designed to require as little maintenance as possible. However, since the system is equipped with mechanical and electrical components for operation at sea, periodic checks and maintenance are recommended. The manufacturer recommends an annual inspection and maintenance interval every 2000 hours of operation of the gyroscope in the absence of failure.

5.22 AIR CONDITIONING SYSTEM

The air conditioning system consists of a heat pump conditioning unit (1) with inner heat exchanger at sea water, which cools (or heats in winter) the fresh water of a closed circuit.

This unit is used to cool water used as a thermal exchange with the air of the rooms to be cooled down. In winter the inversion of the cooling circuit (by heat pump) allows the water heating instead of the cooling, in this way the rooms get warmed up. The system, by means of a circulation pump, conveys cooled (or heated) water to the fan-coils, until the set temperature is reached.



CAUTION

Check that fresh water circulates regularly. Because of a pressure drops or of a long period of inactivity, stop the system and top up water through supply valve until the requested pressure is achieved, this will be indicated by proper pressure switch installed on the unit. After this, close the supply valve.

The whole system is supplied at 120/240 V AC and driven by a magneto-thermal switch, located on the general electrical panel.

The compressor set and the main control panel (2), are located in the engine room. Each conditioned room is equipped with self-adjusting control panel.

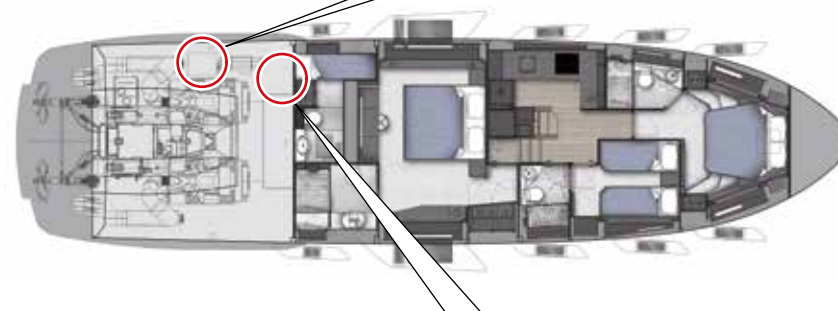
If the optional easy power is present on board, the air conditioning system can be fully controlled (compressor and fan-coil unit) through the on-board monitoring and control system.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

Before starting the system, check the sea-water and circulation pumps for free rotation, by rotating the cooling fan of the electric engine with a screwdriver. Rotation should be free, in case the pump is locked, do not start, but eliminate troubles first (dirt, rust, scraps, etc..).

Check that sea-water intake and outlet valves are both open.



Check the correct rotation of sea water and treated water pumps, by looking at the arrow that is marked on the pump body.

It is advisable to check the power absorbed by the pumps and to compare it with the plate data.

The unit will work normally if the circulation of sea water and treated water is correct. After a few seconds the compressor will start.

Its operation will stop when reaching the temperature of chilled water 7 to 8°C.

The chilled water circulation pump will circulate water to the different fan- coils. Fan-coils will exchange heat with surrounding ambient, the return water will be heated and the thermostat will automatically start the compressor, in a differential range of 3 to 4°C, thus keeping the chilled water temperature in the range from 7 to 11°C.



CAUTION

Clean the strainer of the centralized sea cock according to the time interval of the system use and to the pollution conditions of the sucked waters (seaweeds, mucilage's, etc..).



CAUTION

Each time before starting the system, make sure that both the valves of the sea cocks and the valves of the overboard drain are completely open and check the cleanliness of the strainer.



CAUTION

Before cleaning the strainer, remember to close the sea cock valve and then proceed with maintenance. Once this operation is finished, remember to open the valve which supplies the cooling circuit.



CAUTION

When starting the unit after a prolonged shut down check the correct operation of the sea water pump and make sure of proper circulation.



CAUTION

The excessive use of conditioned air may cause illness due to the great difference of temperature between the yacht inside and the outside.



CAUTION

The air inlets of the air conditioning system must always be free; their obstruction beyond involving the system performance, can also generate serious problems.



CAUTION

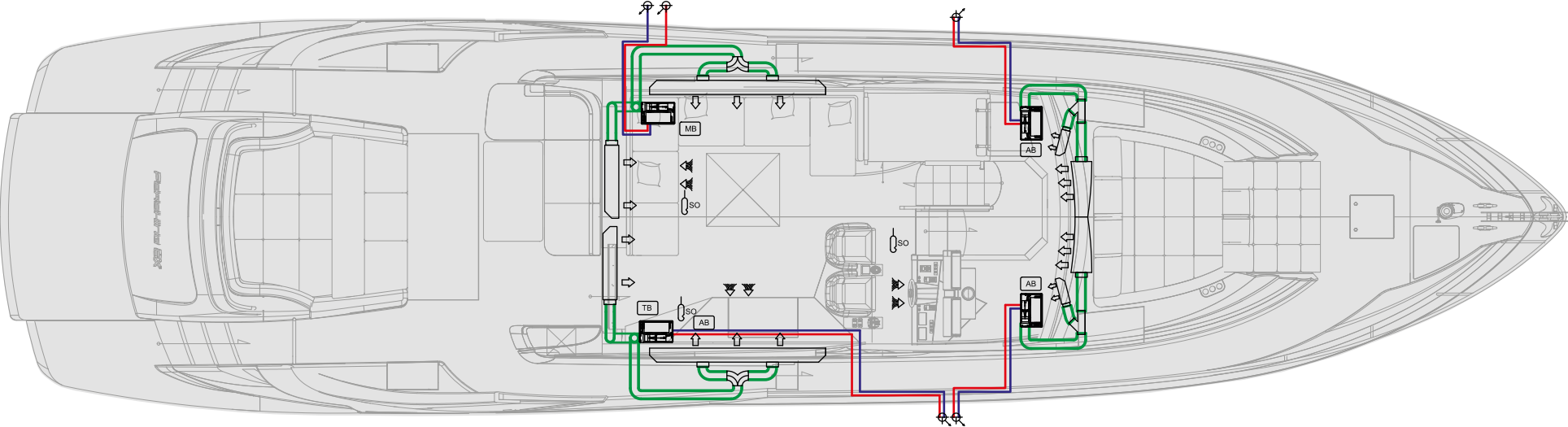
Never clog the temperature sensors located in each air conditioned room; as their clogging could impair the correct operation of the system.



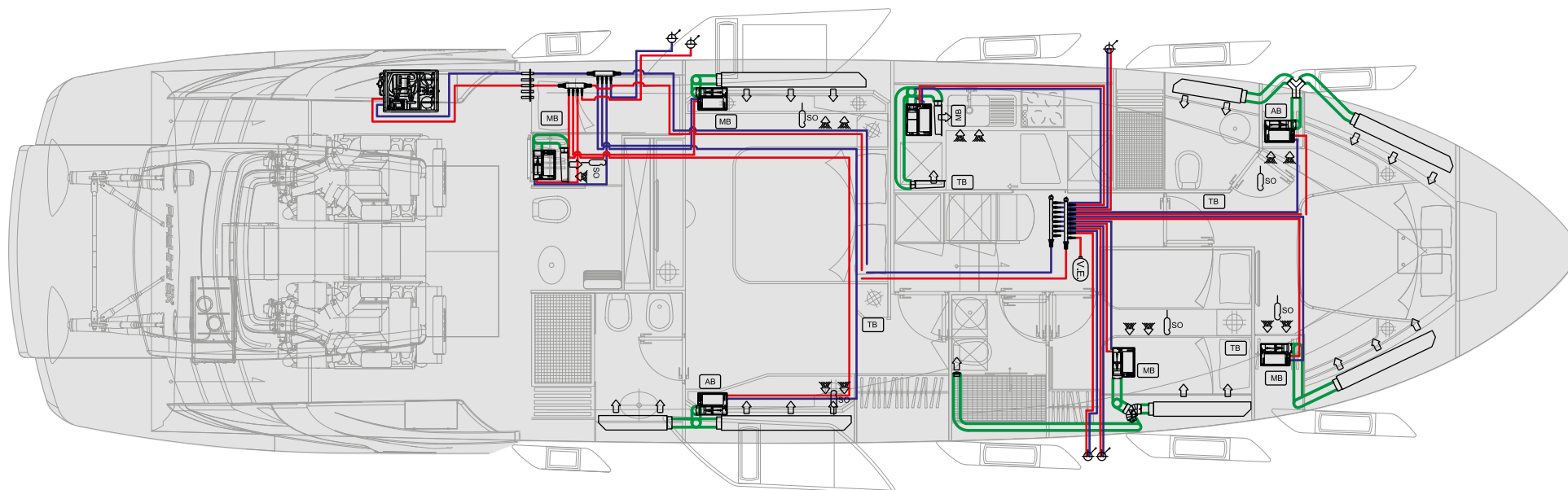
CAUTION

PERSHING declines all responsibility for any accident to persons or damage to property caused by a wrong use of the device.

5.22.1 Air conditioning diagram



ICON	DESCRIPTION
so	Temperature probe
TB	System adjustment panel
MB	Mainboard
AB	Auxiliary fan-coil board
→	Fan-coil delivery
←	Fan-coil suction
⊕	On the lower deck
⊕	On the upper deck



ICON	DESCRIPTION
so	Temperature probe
TB	System adjustment panel
MB	Mainboard
AB	Auxiliary fan-coil board
⇨	Fan-coil delivery
⇦	Fan-coil suction
⊕	On the lower deck
⊕	On the upper deck

5.22.2 Refrigerating unit control panel

The control panel of the refrigeration system located on the forward wall of the engine room has the following functions:

1. **Alarm indicator**
If pressed, the button shows the active alarms on the display.
2. **Program mode**
Press to enter the menu.
3. **Escape to exit**
Press to exit the menu.
4. **Scroll up**
Press to scroll up.
5. **Enter**
Press to select and confirm the highlighted option.
6. **Scroll down**
Press to scroll down.
7. **Display**

At first start the chiller unit will operate according to the parameters set.



NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



CAUTION

It is strongly recommended that the factory-settings NOT BE CHANGED. This is possible only in exceptional cases and with the help of PERSHING staff and After sales & Service Department.



CAUTION

The signal of any alarm implies a failure in the operation of the system. INVESTIGATE and ELIMINATE THE REASON FOR THE FAULTY OPERATION before restarting the system. Refer to the specific manual or refer to the After sales & Service Department.

5.22.3 Fan-coil control panel

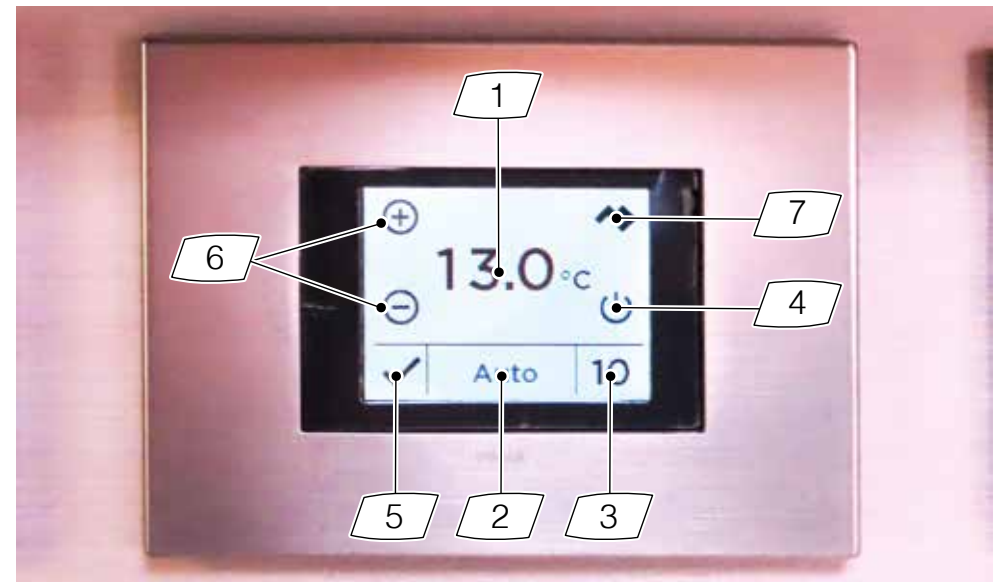
The fan-coil control panel located in each room, as shown in the air conditioning control diagram, has the following functions:

1. Ambient temperature read at the selected probe
2. Active operating mode (HEATING, electric HEATING, cooling, fan only)
3. Fan speed (AUTO, MANUAL). By clicking on the symbol to access the function menu:
 - AUTO
 - MANUAL
4. Disconnection of the fan-coil
5. Temperature reached. By pressing the symbols in the function menu:
 - Cooling
 - Heating
 - Electric heating
 - Fan only
6. Temperature set keys
7. Configuration key

The system automatically switches over to heating or air conditioning, based on the temperature detected.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



5.22.4 Air conditioning system maintenance

No delivery of cool or warm air from fan-coils

Lack of treated water in pipes. Check if the pressure gauge operates at the minimum pressure of 10 m with idle system. In case the gauge reads 0, most probably there are air pockets in the circuit or water leaks. Stop the system and fill water through a cock so as to reach a pressure of 10- 15 m. Purge air by means of the relevant valves installed on the heat exchanger, the fan-coils and the manifolds, keep the purge valve open. If the treated water flows regularly, and the outlet does not release warm or cold air, check if the fan turns and if the room thermostat is set to correct summer-winter position.

Fan-coils air setting

Each fan-coil allows setting three speeds. Select the required mode.

Room temperature setting

To obtain the desired room temperature, set the thermostat to +21, +22 °C in winter cycle and to +24, +25 °C in summer cycle. Refer to the instruction manual.

Temperature check of treated water in the fan-coils circuit

The temperature of the water circuit to fan-coil may vary from 0 °C to + 60 °C. for a good performance in heating output the thermometer should indicate +7 +8 °C in summer cycle and +45 °C in winter cycle, after 15-20 minutes of operation.

When the set temperature is reached, the compressor stops, while the treated water pump keeps running. The compressor starts automatically when water temperature decreases by 3 °C in winter cycle or increases by 3 °C in summer cycle. If in winter cycle sea-water has a temperature below +10 °C, the heating output of the unit is seriously affected.

Sea water circuit check and cleaning

Check the strainer located on sea water suction periodically, specially when the yacht is shored.

Never leave water in the system when the yacht is out of water.

At least once a year, it is important to have the system rinsed with fresh water for half an hour, to remove all sea water residues.

Fan-coils cleaning

At least once every six months clean the fan-coils sucking the dust trapped in the back screen. Disassemble the filter, clean it, disinfect it and reassemble it; if broken, replace it.

Winter cycle

The unit can produce hot water at approx. 45 °C for heating purposes, by using the heat pump, reverse cycle principle.

In winter, the heating capacity of the unit depends on the sea water temperature; efficiency diminishes as sea water temperature grows colder.



CAUTION

The air inlets of the air conditioning system must always be free; their obstruction beyond involving the system performance, can also generate serious problems.



CAUTION

Always leave the temperature sensors in every air-conditioned environment free; their construction compromises the correct functioning of the system.

5.23 ENGINE ROOM VENTILATION SYSTEM

The ventilation system of the engine room allows the necessary air recirculation for the operation of the propulsion systems and of the machinery installed on your yacht, so as to keep a safe temperature inside the engine room.

The ventilation system consists of two lateral air intakes (1), which let air enter in the room and prevent the penetration of sprinkled water and of two extractors (2), withdrawing the inside air and conveying it outside.

In case of emergency, the extractors can be stopped directly by activating the fire-fighting system in the stern cockpit on the starboard side inside the utility cabinet. To activate the air extractors, press the button located on the helm station.



CAUTION

While the engines are running, the extractors must always be activated. It is suggested to keep them on for at least 30 minutes, after anchoring, to eliminate the residual heat.



CAUTION

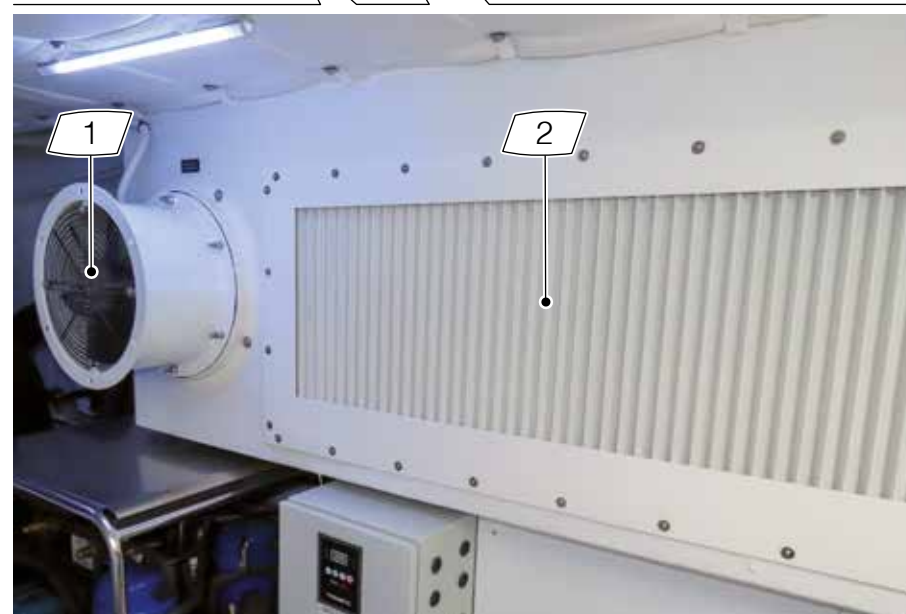
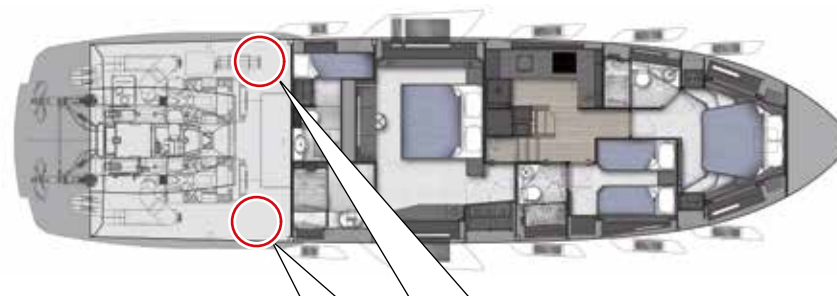
Do not lay tools or clothing on the extractors or on the air inlets, because the emergency closing mechanism might get blocked.



DANGER

Carbon monoxide poisoning

Fossil fuel combustion generates a high quantity of carbon monoxide. This gas is a colourless, odourless and highly toxic. When the engines and/or the generator are running, the yacht must be properly ventilated, in particular if underway at low speed, or when the exhaust fumes may blow back on board (e.g. when the yacht is shored or anchored or riding the anchor).



DANGER

It is strictly forbidden to insert your hands or tools inside the fan when operating or when electrically connected. Before starting the fan, make sure that this one is protected against tampering, in compliance with the laws in force.

5.24 COMPRESSED AIR SYSTEM (optional)

On the starboard side in the engine room, the manufacturer has installed the compressed air unit.



CAUTION

Be very careful when the compressed air use to prevent damage to property and / or people.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



PERSHING

7X

Propulsion systems

Owner's
Manual

6. PROPULSION SYSTEMS

6.1 PROPULSION SYSTEMS

In the engine room all the components of the yacht thrusting system are assembled.

The propulsion system consists of two equal units.

Technical features:

- 1.** Engine "MAN V12 1800"
- 2.** Inverter "ZF 3050"
- 3.** Elastic engine mounts
- 4.** Inverter elastic supports
- 5.** Surface transmission
- 6.** Gimbal joint
- 7.** Propeller
- 8.** Flap

6.2 ENGINES

TECHNICAL SPECIFICATIONS	
Model	MAN V12 1800
Make	MAN
No. of cylinders	12
Configuration	90° V
Displacement	24,24
Real power	1323 kW / 1800 mhp
Rated speed	2300 RPM
Dry weight	2365 kg (5214 lb)

For any problem related to the use or maintenance of the engines, refer to the specific manuals or directly to the Manufacturer's Service Centres.

Among all the possible interventions to carry out on the engines in case of need (see the operating instruction manual) these are the most useful, according to our experience:

- Replacement of the fuel filters.
- Replacement of the oil filters.



CAUTION

The engine data boards are very important in case of repairs. Therefore keep them with care together with the warranty.

Remember that you can obtain a flawless operation and a high power only by respecting the prescribed maintenance intervals and by using the specified fuels and lubricants.

The engines have been installed on suitable elastic struts which absorb vibrations and allow a minimum motion of the engine; in this way the structures and the devices connected with them are not damaged.

Besides, the elastic struts easy engine position adjustment, both for a new installation or after the required run in.



6.3 SURFACE DRIVE

The yacht is equipped with two surface drives that provide the propellers with engine force; each drive is coupled to the respective inverter flange by means of a universal joint (1). The control of each group is entrusted to two separate and independent systems managed by a multifunction electro-hydraulic power pack. The ability to adjust the trim up and/or down (position of the propeller in the vertical plane) is obtained through hydraulic cylinders called "trim cylinders". The possibility to adjust the vertical trim of the surface propellers allows to vary the propeller immersion and to equalize the power absorbed with that released by the engine. In this way more power is converted into thrust, while the engine works closer or nearer to the rated power curve. With this articulated system the propeller immersion can be adjusted while the yacht is navigating, allowing the selection of the optimal thrust angle for different displacement and sea conditions.

Unlike conventional systems, the system allows you to vary the thrust direction of the propeller to coincide with the direction of movement. This is why the surface propeller drive system can turn at a narrower turning angle than a fixed axis system with rudder. Refer to the manufacturer's manual for more detailed information on operation and components as well as assembly and maintenance procedures.



DANGER

Do not approach the propellers when they are in rotation.



DANGER

Always stop the transmission before carrying out maintenance or checks.



6.3.1 Maintenance of surface drive systems

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Hydraulic cylinders	Periodic checks	Check their status periodically as indicated in the Manufacturer's manual.
Systems	Periodic checks (as necessary depending on the parking area but at least every month)	Always keep propellers and propeller shaft clean; the formation of parasitic elements or the presence of foreign bodies such as cables or rags or plastic bags lead to reduced propulsion efficiency, propeller cavitation and vibration, resulting in damage to the through-hull seals and shaft bearing bushings. Checking and cleaning can be done with a dry yacht or using a diver.

6.4 START OF PROPULSION ENGINES

First start

Before starting up an overhauled or new engine, read the relevant manufacturer's documentation carefully. During the first few hours of operation, it is recommended that new engines are operated at a maximum of three-quarters of their maximum load and at varying engine speeds. After this period the engine may be slowly brought to full performance.



CAUTION

Use only approved fuels otherwise the Manufacturer's warranty will become null and void and the engines can get seriously damaged.

Start-up

Before daily start-up of engine, check fuel level, coolant level and engine oil level. In case of need, fill with fuel, coolant and oil mix.



CAUTION

Engines must always be started with gear boxes at idle run and throttle levers set at minimum speed.



DANGER

Before starting an engine, ensure that nobody is standing in the dangerous area of the engine room.



DANGER

Ensure that the engines cannot be started by unauthorized personnel.

Cooling liquid

Fill the engine cooling system with a mixture of drink water and antifreeze on ethylene glycol basis or anti-corrosion agent.

- Slowly introduce the coolant through the coolant nozzle.
- Refer to the Manufacturer's manual for the amount of coolant.



Sea water suction



CAUTION

Do not let raw water pump run dry! Make sure that all valves of the raw water circuit are open. Drain the pump with freezing weather.

Engine oil



CAUTION

Do not top up oil so to exceed the MAX notch of the dipstick. If the oil level is too high, damage to the engines may occur!

Pour lubricating oil into engine by means of proper filler neck. For the quantity required see the Manufacturer manual.

Oil level check

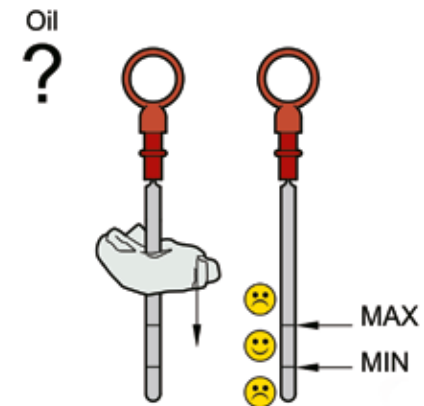


Check engine oil level only approx. 5 minutes after the yacht has been switched off.

- Pull out dipstick for oil level check.
- Wipe it with a clean, dry and lint-free cloth.
- Place it back up to retainer.
- Pull out dipstick again.

The oil level should set between the two notches in the dipstick and must never fall below the MIN notch. Top up oil as necessary.

Ensure utmost cleanliness when handling fuels, lubricants and coolants.





CAUTION

Do not top up oil so to exceed the MAX notch of the dipstick. If the oil level is too high, damage to the engines may occur!

Procedures for start-up

- Verify that the following functional consumers of the yacht are powered on the main electrical panel:
 - Engine keys, engine room vacuum cleaners, surface mount propellers, handcuffs and joysticks, street lights, instrument lights, horn, wipers, VHF and echo.
- Move the control levers (4) and (5) to the neutral centre position.
- Turn the starter key of the right engine (6) to the "ON" position.
- Start the operation of the handcuffs by pressing twice the start button (7).
- Then proceed by pressing the engine start "START" button (8).
- Check that the oil pressure settles in the normal value within 10 seconds.
- Check that the cooling water circulation is correct.
- Start the first engine and, only after it has been ascertained that it is working properly, start the second engine.
- Start the left hand engine as described for the right hand engine.
- Turn the ignition key of the left engine (9) to the "ON" position. Then proceed by pressing button (10) "START".
- Warm up the engines for about 2-3 minutes at 1000 rpm maximum.
- Check the charge of the alternators.



Throttle operation

- Move both throttles (4), (5) to the “**NEUTRAL**” position.
- Press the power button (7) 2 times from the position.
- Select the operating mode of the handcuffs using the buttons on the handcuffs.



CAUTION

If you have to connect the batteries in parallel for the start-up of the propulsion engines, it is suggested to disconnect the electric devices in order to avoid current rushes or drops.



CAUTION

Should a magneto-thermal switch trip, do not try repeatedly to reset it, but check the relevant electric system condition.



CAUTION

We suggest avoiding slow running for periods longer than 5 minutes. The slow run implies major wear of the engine mechanical parts and is the most harmful from the point of view of polluting exhaust.

6.4.1 Checks after starting the engines

Following the correct starting of the propulsion engines, some functional checks must be carried out.

- Check that the oil pressure values stabilize within 10 seconds of starting the engine.
- Check that there is no abnormal noise or excessive smoke at the exhaust; if not, switch off the engines and contact Service.
- Check that the alternators recharge the batteries correctly.
- Disconnect the shoreside cable (120/240 V) if still inserted.
- Check that there are no noisy lines or floating objects that prevent the propellers from moving.



DANGER

Make sure that there are no people at the gas drains and near the mooring lines.

6.4.2 Engine drive

Despite the yacht's efficiency and high performance, and in particular the sensitivity to the action of the rudders, which allow an immediate response to commands, the use of this yacht requires careful and responsible conduct.

The minimum gliding speed is influenced by the displacement, the distribution of the weights on board, the position of the flaps and the conditions of the sea. The excellent choice and quality of the engines allows keeping high speeds for a long time with no consequences.

Yet an excellent compromise between transfer speed, comfort and consumption is obtainable with about 1500/2000 rpm less than the maximum allowable revolutions. Do not keep the propulsion engines at idle for a long time; in this way they do not become "dirty" or overheated.

Avoid harsh accelerations or decelerations to avoid excessive stresses for the engine turbines.

When the yacht reaches the cruising speed, the engine check instruments should set to constant values.

If the instruments show contrasting or abnormal indications during continuous run, check for failures of the systems or of the equipment and contact MAN Assistance Service.



CAUTION

Even if the automatic pilot controls the route, navigation must be supervised in any case.



CAUTION

During navigation, keep rear lateral sliding door closed to avoid the introduction of exhaust gases and water splashes into the main deck compartments, under special conditions of wind direction and force. This will improve comfort for the passengers and silence inside the compartments.



CAUTION

Set the speed of the yacht and the trim tab position according to the conditions of the sea and the prevalent direction of the waves; in this way the structure of the yacht does not undergo to useless stresses and the passengers can enjoy more comfort during navigation.

In the passage between displacement and gliding navigation there is a critical phase to be carried out as quickly as possible, as it is characterized by high consumption and more vibrations; it also causes a very deep wake.



DANGER

It is absolutely forbidden to perform reverse run with one of the two engines stopped. This operation is allowed only in case of life danger for the persons on board and for the safety of the yacht itself, however when the engine is running it should not run higher than 1000 rpm.



WARNING

Avoid prolonged use of engines at low speeds to avoid overheating of the exhaust pipes due to reduced cooling water circulation.

6.5 STOP OF PROPULSION ENGINES

Do not immediately stop the engines after a full-load operation, but let them run idle (about 5 minutes) to balance the temperature differences.

From inner helm station:

- Recall the levers (1) and (2), in the central neutral position of the inverter.
- Press the **STOP** buttons (5) and (6).
- Turn the keys (3) and (4) to the **OFF** position.
- Detach the magneto-thermal circuit breakers for the starting keys of the two engines.



DANGER

Make sure that the engines cannot be started by unauthorized staff.



CAUTION

With engines stopped carry out following:

- Exclude unnecessary electrical consumers and check the general layout of the electrical panel and the indications of the voltmeters and ammeters;
- Check bilge pump switches and their regular operation;
- Close the fuel supply to the engine;
- Close the sea water intake valve of the engines;
- Check for leaks;
- Rinse the yacht with fresh water;
- Connect the shore electric power supply;
- Leave the engine room air extractor running, to ventilate and cool the air, at least 30 minutes.



6.6 ENGINE EMERGENCY PROCEDURE

Due to a mechanical or electrical fault, the normal procedures for engine stop might not be sufficient; it is therefore necessary to stop the engines with the EMERGENCY procedures.

EMERGENCY STOP buttons

The STOP EMERGENCY buttons **(1)** or **(2)** are positioned on the dashboard: keep them pressed until the engines actually stop.

From the engine room with control station

Get to the engine room and access the engine control panel. Press the red emergency mushroom button.

Diesel oil tie-rod

Operate the STOP diesel fuel tie rod located in the aft cockpit inside the left-hand service cabinet.

In the case of a engine malfunction alarm, the luminous ring of the relevant Start button on the helm station will light up red in a flashing manner. Acknowledge on the helm station or in the engine room.



CAUTION

The emergency stop causes heavy stress on the engines with consequent hazard of component damage. Use only in case of real need.



WARNING

The engines emergency stop controls must be used only in case of real emergency. Never use these controls during the normal engine stop procedure.



DANGER

Before restarting the engines after an emergency stop, make sure to find and to clear the reason of the fault.



6.7 PROPULSION ENGINE MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Lubrication system	Replacement of the oil separator filter	Replace the separator filter, according to the time intervals suggested by the Manufacturer.
	Oil level check	Check the oil level by means of the special dipstick; make sure the level is included in the allowable range (MIN - MAX). Do not start the engines if the oil level is not included between the two reference marks, as indicated in the Manufacturer's Manual.
	Oil and oil filter replacement	Replace engine oil according to time intervals and oil type suggested by the Manufacturer.
Fuel system	Fuel filter replacement	Replace fuel filter within the intervals indicated by the Manufacturer.
	Air cleaner replacement	Replace air filter within the intervals indicated by the Manufacturer.
Cooling system	Coolant check	Make sure that the fluid is above the minimum level indicated in the tank.
	Cooling system filling	Refer to the Manufacturer's user manual for fluid specifications.



DANGER

A wrong use, a wrong maintenance, tampering and replacement of pieces, can cause serious damages or mortal events, beyond damaging the equipment. The interventions on the electrical and mechanical equipment must be carried out by qualified staff after having examined the Manual delivered by the Manufacturer.



DANGER

Any maintenance procedure on the engines is to be carried out with engines shut off, after they have sufficiently cooled down and after seeing to the prevention of their being switched on by disconnection of the magneto-thermal switches.



ENVIRONMENT

Dispose of waste materials (engine oil, fuel, filters, etc.) with respect for the environment and according to the laws in force. Use only authorized disposal procedures, in case of doubts, contact the Port Authority.



WARNING

Use only technical fluids approved by the Manufacturer so as not to void the warranty.



CAUTION

Do not top up oil so to exceed the MAX notch of the dipstick. If the oil level is too high, damage to the engines may occur!



CAUTION

Do not use open flames, do not generate electric sparks. Do not smoke. Avoid ignition sources. Risk of fires and explosions!



DANGER

Compressed air at high pressure may create the risk of injuries. Do not direct compressed-air jets at persons. Wear protective goggles, safety masks and ear protectors.



DANGER

Hot oil can contains combustion residues which are harmful to health. Risk of injury and scalding! Wear protective clothing, gloves and goggles/safety mask. Avoid contact with skin. Do not inhale oil vapour.



DANGER

Because of the high temperature in the engine room, oil or fuel leaks can evaporate and create a serious risk of fire. Check regularly the integrity of the system.



CAUTION

It is absolutely necessary to view with PERISHING the documentation of the different components provided by the Manufacturer; for any problem relevant to the use or maintenance, please directly refer to the Service Centres, listed in the documentation provided by the Manufacturer. In any case there are some small procedures that can be carried out by the crew on board, after consulting the operation manual.



ENVIRONMENT

Handle used fuel filters as special waste.



DANGER

Coolant is hot and under pressure. Risk of injury and scalding! Let the engine cool down and wear protective clothing, gloves and goggles safety mask.



CAUTION

Cold coolant inside a boiling engine can cause considerable thermal stress with the risk of cracks in the components. Only intervene when the engine is cold.



CAUTION

Do not operate anything if the oil level is not between the two reference marks.

6.8 FUEL SYSTEM

The fuel tank (2) is made of fibreglass in accordance with ISO 10088 and is located forward in the engine room below the dunnage level. The tank, which has a capacity of about 3600 l, can be filled by a refuelling nozzle (1) located at the beginning of the left side walkway, towards the stern.

The fuel level is detected by means of a sensor located inside the tank and is visible through the monitoring system on the dashboard.

In this way it is possible to monitor the tank level. The other level is obtained by means of an optical indicator applied directly on the fuel tank flange and can be activated by means of the valve to verify if the transducer value coincides with the actual fuel level inside the tank.

NOTE

The level indicated without operating the valve refers to the last check.



CAUTION

It is a good rule, before each navigation to check again the fuel level also by means of the visual check installed on the tank flange.

The fuel is sucked directly from the tank via the distribution flange and goes to power the engines and generator.

The fuel sucked in, before reaching the two engines, is passed through the water/fuel separator filters (3) so as to retain impurities and separate any water present.



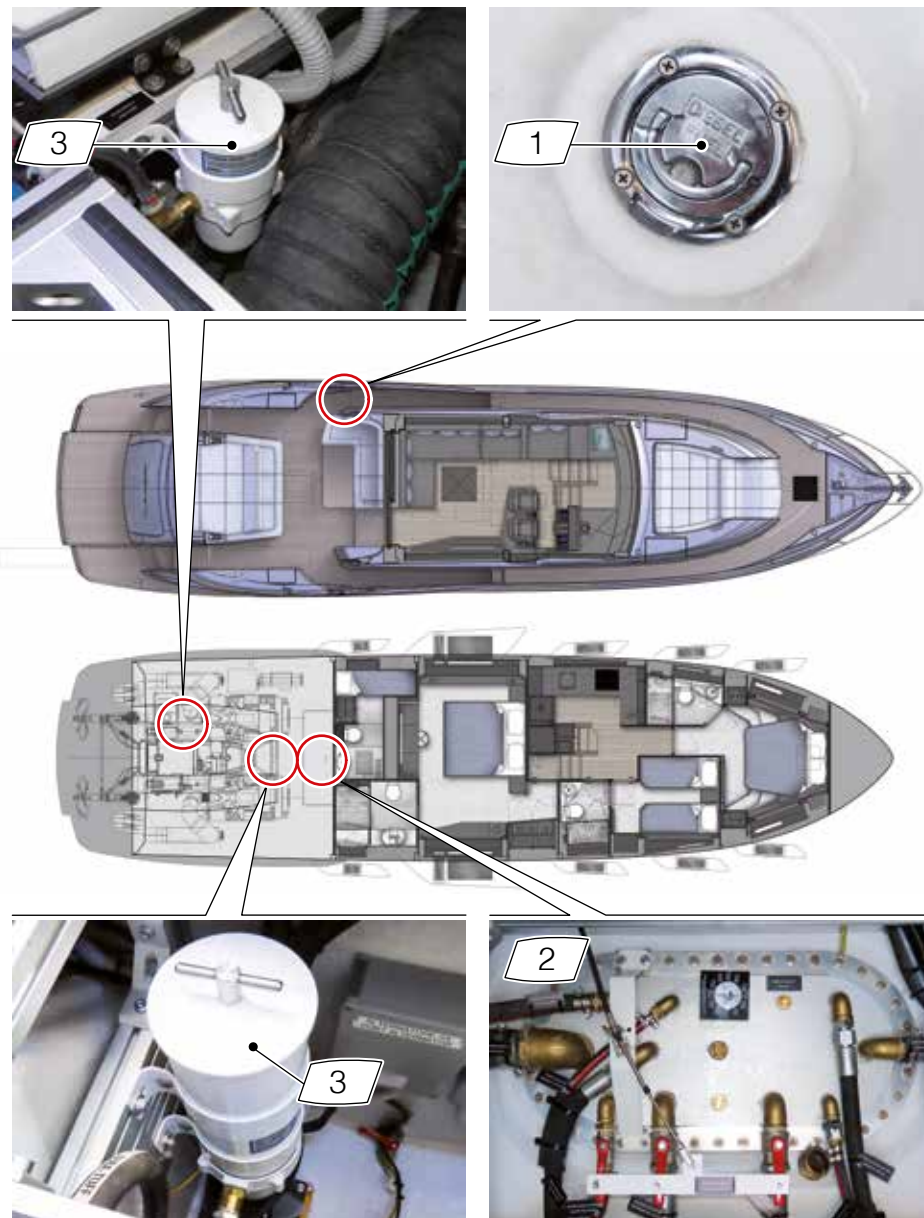
CAUTION

Pay attention not to accidentally damage fuel system lines. Perform a visual inspection of all pipes periodically.



CAUTION

While checking for consumption and distances, it is a good rule to always keep plenty of margin, so as to be able to face bad weather conditions or other possible unexpected events.



During inlet, the fuel flow produces a lot of foam; if it comes out, you might think the tank is full. Therefore, it is good to wait for a few minutes and then fill, so as to be sure the tank has been filled correctly.

The shape of the tank allows the decantation of possible impurities or water in the fuel.

It is appropriate to fill the tank some hours before setting up for navigation; in this way, the impurities in the fuel will settle down and water will decant as they are both heavier than fuel.

The tank is drained by a valved cock manually controlled and located in the bilge under the service flange, this valve allows separating possible sediments.



CAUTION

The bleeding procedure should be carried out every two or three refuelling operations.



ENVIRONMENT

Handle water mixed with fuel and dispose of it according to the rules in force. Use only authorized disposal procedures; in case of doubt, refer to the Port Authorities.



DANGER

It is forbidden to smoke, use naked flames or keep mobile phones switched on during refuelling.



DANGER

Because of the high temperature in the engine room, oil or fuel leaks can evaporate and create a serious risk of fire.



CAUTION

A fuel leak can generate fire and explosion hazard.
The stowage of fuel in the lazarette is strictly forbidden.



WARNING

The sensor reading can be distorted by the temperature, because the specific weight of fuel varies according to this last parameter and to the yacht trim. Therefore before setting-up for navigation, always refer to the visual level in the engine room.

To avoid fuel fumes, the tank has been equipped with two flame-breaking retina air vents.

In addition, to prevent fuel spillage during refuelling, there is a fuel flow switch on your yacht.

The fuel suction of the engines and generator as well as on site can be remotely intercepted by a tie rod to be operated only in case of emergency located in the aft cockpit, inside the port side service cabinet. The operation of the fire-fighting system involves the automatic closing of the fuel shutoff valves.



DANGER

When refuelling, do not bring naked flames near the yacht; do not smoke or keep mobile phones ON. Refuel with the engine OFF. Failure to observe these precautions can result in fire and injury.



CAUTION

The draining should never be conveyed to the bilge. If accidentally the draining is conveyed to the bilge, disconnect the bilge pumps and clean accurately.

**ENVIRONMENT**

Handle water mixed with fuel and dispose of it according to the rules in force. Use only authorized disposal procedures; in case of doubt, refer to the Port Authorities.

**WARNING**

The bilges of the engine room must always be kept clean, so that fuel or oil leaks or penetrations from the engines or the generators can be easily noticed. If leaks are noticed, it is necessary to stop the engines and to let them cool and only afterward, if possible, repair the leak. Finally clean the bilges.

**DANGER**

Loss of fuel carries the risk of fire and explosion. It is not permitted to store fuel in tanks or containers other than the tender's fixed tanks inside the stern garage.

**ENVIRONMENT**

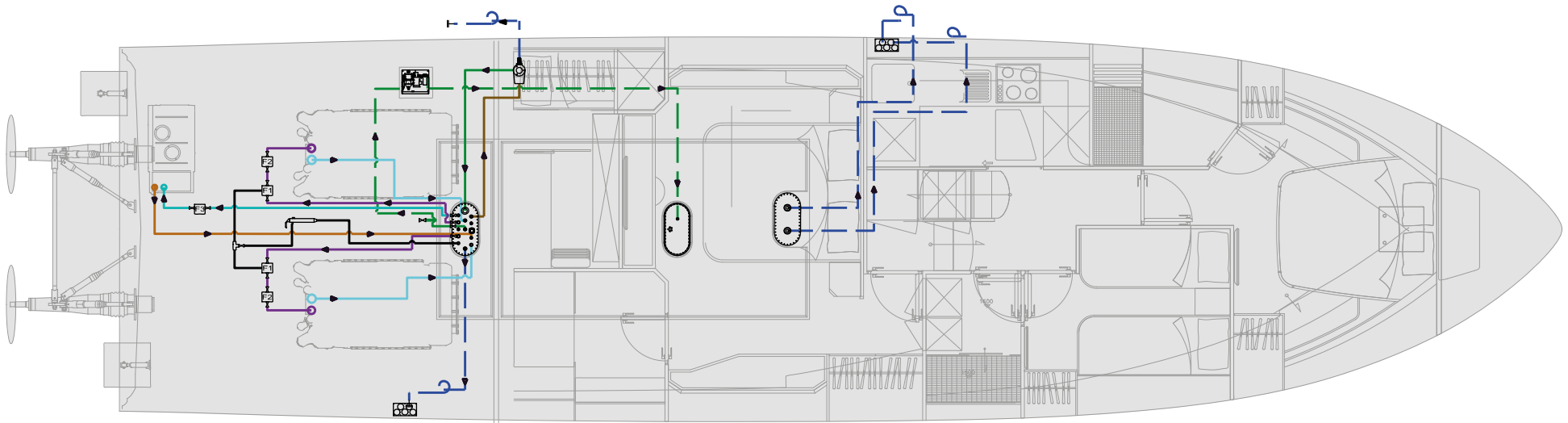
It is forbidden to discharge bilge water mixed with oil or diesel fuel into the sea, because this can cause of serious pollution. Check periodically the level of possible oily waters contained into the collecting tanks under the engines, should their level be close to bilge overflowing, disconnect the circuit breakers switches of the bilge automatic pump system, to avoid accidental spills, until the tanks have been completely drained in accordance with the environmental legislation. During maintenance operations in the engine room, it is compulsory to disconnect the magneto-thermal switches of the automatic bilge pump suction system, thus preventing accidental spillage.

**ENVIRONMENT**

Every marina has dedicated toxic waste disposal areas. It is recommended not to scatter waste that can contaminate the environment (such as used oil, fuel, oily liquids, batteries, etc.).

Prior to perform any job in the engine room, disconnect the bilge pumps switches, to prevent accidental fuel, lubricant or other liquid leaks and therefore the pollution of the yacht surrounding waters.

6.8.1 Fuel system diagram



ICON	DESCRIPTION
	Boarding cap
	Ball valve
	Engine diesel filter
	Diesel fuel pre-filter (OPT)
	Diesel fuel pre-filter (OPT)
	Diesel oil hand pump
	Ascending tube
	Tube going down

ICON	DESCRIPTION
	Centralized discharge
	Engine delivery
	Engine return
	Generator delivery
	Generator return
	Tank reflux
	Diesel fuel boarding
	Tank vent

6.8.2 Fuel inlet

The fuel intake of the yacht is equipped with a flow switch having the function to prevent undesired leaks of fuel from the plug and from the vent which may stain the bridge and pollute the water. The leak of fuel may occur during refuelling, if the tank is almost completely full.

The fuel leaking from the boarding conduit is collected in a storage tank, which in turn will automatically empty into the on-board fuel tank through the return conduit. Also the flow switch is equipped with own air vent, bleeding from the wall near the filler plug of the tank.



CAUTION

The inlet plug carries the indication "DIESEL - FUEL" to avoid accidental input of different fuels. To avoid damage to the system and tanks, we recommend replenishing by gravity and not by pressure.



CAUTION

During refuelling operations make sure that the vents are free to avoid regurgitation. It is also advisable to wet the teak near the cap with fresh water.



CAUTION

Place the refuelling gun as deep into the boarding cap as possible.



6.8.3 Fuel quality

The quality of the fuel is crucial for a good performance of the engines installed on your yacht.

The fuel should be purchased from reliable high-sale filling stations, for both the quality and a probable short stay of the fuel inside the shore tank.

Fuels that meet the following standards:

- European Standard EN590
- DIN EN 590 (Germany)
- ÖNORM EN 590
- ASTM D975 No. 1D (USA)
- BS 2869 Part 1 Class A 1 (United Kingdom)
- BS MA 100 DMX (Marine Diesel Fuel)

are suitable for powering engines.

If the above fuel type is not available in some countries, follow the rules described in the engine manual.



CAUTION

We advise to drain and clean the tank periodically, at least once a year. Please remember that re-used fuel must be filtered.



WARNING

For the type of fuel to be used, follow the manufacturer's recommendations. Diesel engines require very clean fuel. Keep filters clean.



WARNING

Stop all engines when refuelling.



WARNING

If fuel containing water reaches the engines it can seriously damage the injection system. To avoid this, drain water from the fuel tank and service regularly the fuel/water separator filter. During winter service do not use fluidity correctors.

6.8.4 Fuel system maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Fuel tank	Bleeding (at least every two or three re-fuelling and at least once a month)	As shown in the following sequence.
Fuel flow stopper	Checks and cleaning	As shown in the following sequence.
Water/fuel separator filters for engines	Maintenance and water drain Replacement of filter element Troubleshooting procedure	As shown in the following sequence.

6.8.5 Fuel tank

Bleeding

In order to purge the water or any impurities that may have been taken on board with the fuel, it is necessary to wait a few hours after refuelling so that the suspended particles have time to settle.

Bleeding is done by opening the bleed valve on the tank. To do this, remove the closing cap on the valve, slowly open the valve and let the water and deposits drain into a container until only clean fuel comes out. Once the operation has been carried out, close the valve and reinsert the cap.

During long periods of inactivity of the yacht it is recommended, when the tanks are empty, to open the flanges and remove the fuel deposits on board during refuelling, which are deposited on the bottom of the tank.



WARNING

The inner cleaning of tank is a special operation, that has therefore to be carried out by specialized personnel. Contact PERSHING After sales & Service Department to receive suitable help.

During the flange reassembly, make sure that the screws are correctly and uniformly tight, in order to prevent leaks of fumes and fuel. Furthermore, check the condition of the O-ring.



CAUTION

The draining should never be conveyed to the bilge. Before draining, first deactivate the bilge pumps.



CAUTION

The bleeding procedure should be carried out every two or three refuelling operations.



ENVIRONMENT

Handle water mixed with fuel and dispose of it according to the rules in force. Use only authorized disposal procedures; in case of doubt, refer to the Port Authorities.



CAUTION

It is recommended to empty and clean the tank periodically, contact the PERSHING After sales & Service Department. Please also remember that reused diesel fuel must be filtered.

6.8.6 Fuel flow stopper

Checks and cleaning

Check weekly for leaks.

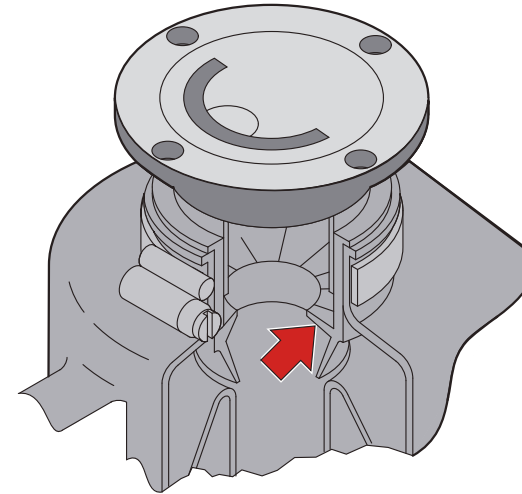
At least each season begin and end carry out the following checks:

- Pipes and clamps, checking for tightness;
- Splash-proof sleeve.



ENVIRONMENT

Fuel is harmful to the environment. Prevent any spilling. Keep oil- absorbent rags within reach as a precaution!



6.8.7 Water/fuel separator pre-filters for engines

Maintenance and water drain from collection tank

Purge frequency or the replacement of the filter element (1) are determined by the contamination level of the fuel.

Check or drain the water collection tank (2) daily.

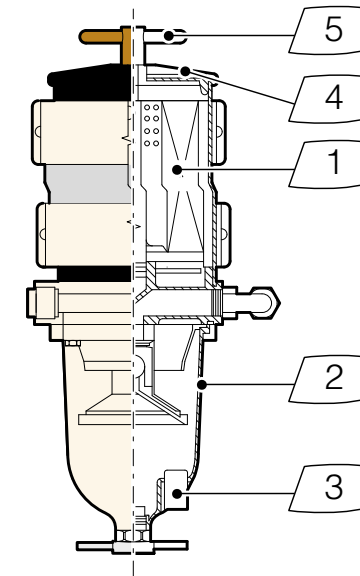
The collecting cup must be drained before polluting agents reach the turbine end, i.e. when the water detector (3) sends the alarm signal indicating the need to drain water.

- After having placed a capacious collection container underneath it, open the drain to discharge containments.
- Remove the cover (4) and fill with clean fuel.
- Close the cover and tighten the T-handle (5) firmly by hand.

Replacement of filter element

Replace the element according to the schedule recommended by the manufacturer or if a lack of power is noticed. Power loss indicates that the element is indeed clogged. Other elements like a too full tank or excessively contaminated fuel can also clog the filter.

- Close the seacock.
- Remove the cover.
- Remove the element by holding the handle and by pulling lightly forward with a twisting movement.
- Insert a new filter having the same filtering features of the one replaced.
- Check and, if necessary, replace the filter cover gasket. Apply a layer of clean fuel or engine oil on the seal before reinstalling it, insert the new element with a slow twisting movement downwards.
- Fill with clean fuel, then replace the cover. Tighten the T-handle manually and reopen the valve.
- Start the engine and ensure there are no leaks. Repair any leaks with engine shut off.



MAINTENANCE

At least once a month check the operation.

At least once a week, and anyway before each refuelling, check for the presence of water in the fuel.

If necessary drain the water present.

When necessary, but at least once a year, replace the cartridge of the filters.

Troubleshooting procedure

The main reason for a poor start-up or lack of power is the result of a clogged filter or of an air leak in the fuel system. If the device does not prime or does not hold the idle run, or air bubbles are visible through the check glass, first of all check the cover by means of the T-handle and vent it, if it had not been closed properly. Then check all connections and lines and make sure that no fuel line is clogged with contaminants. If the fuel tank is equipped with an incorporated filter, check for its possible clogging. If the problem persists and the filter element is new, contact technical support.

**CAUTION**

The separators have to be checked at regular intervals as suggested by manufacturer, so as not to impair the engines operation.

MAINTENANCE

At least once a month check the operation. At least once a week, and anyway before each refuelling, check for the presence of water in the fuel. If necessary drain the water present. When necessary, but at least once a year, replace the cartridge of the filters.

6.8.8 Water/fuel separator filters for generator

Maintenance and water drain from collection tank

Purge frequency or the replacement of the filter element (1) are determined by the contamination level of the fuel.

Check or drain the water collection tank (2) daily.

The collection tank must be drained before contaminants reach the engine.

- After having placed a capacious collection container underneath it, open the drain to discharge contaminants.
- Remove the cover (3) and fill with clean fuel.
- Close the cover and tighten the T-handle (4) firmly by hand.

Replacement of filter element

Replace the element according to the schedule recommended by the manufacturer or if a lack of power is noticed. Power loss indicates that the element is indeed clogged. Other elements like a too full tank or excessively contaminated fuel can also clog the filter.

- Close the seacock.
- Remove the cover.
- Remove the element by holding the handle and by pulling lightly forward with a twisting movement.
- Insert a new filter having the same filtering features of the one replaced.
- Check and, if necessary, replace the filter cover gasket. Apply a layer of clean fuel or engine oil on the seal before reinstalling it, insert the new element with a slow twisting movement downwards.
- Fill with clean fuel, then replace the cover. Tighten the T-handle manually and reopen the valve.
- Start the engine and ensure there are no leaks. Repair any leaks with engine shut off.

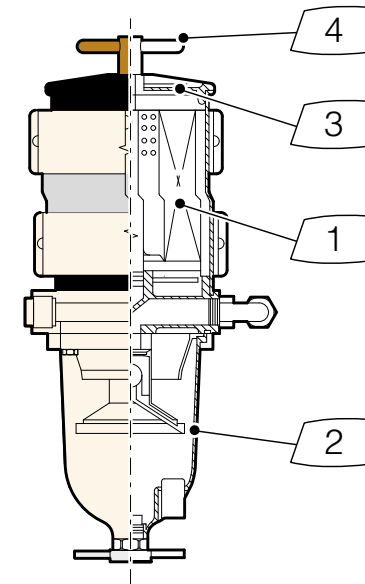
Troubleshooting procedure

The main reason for a poor start-up or lack of power is the result of a clogged filter or of an air leak in the fuel system.

If the device does not prime or does not hold the idle run, or air bubbles are visible through the check glass, first of all check the cover by means of the T-handle and vent it, if it had not been closed properly.

Then check all connections and lines and make sure that no fuel line is clogged with contaminants.

If the fuel tank is equipped with an incorporated filter, check for its possible clogging. If the problem persists and the filter element is new, address to Dealer.



6.9 EXHAUST SYSTEM

6.9.1 Engine exhausts

Engine exhaust is underwater. This system reduces the smoke that would normally tend to dirty the stern of the yacht.

The exhausts must be maintained and checked regularly to prevent the formation of deposits that could prevent the proper escape of gases.



CAUTION

A strong smell and a light smoke from exhaust insulation are normal during the first period of use.



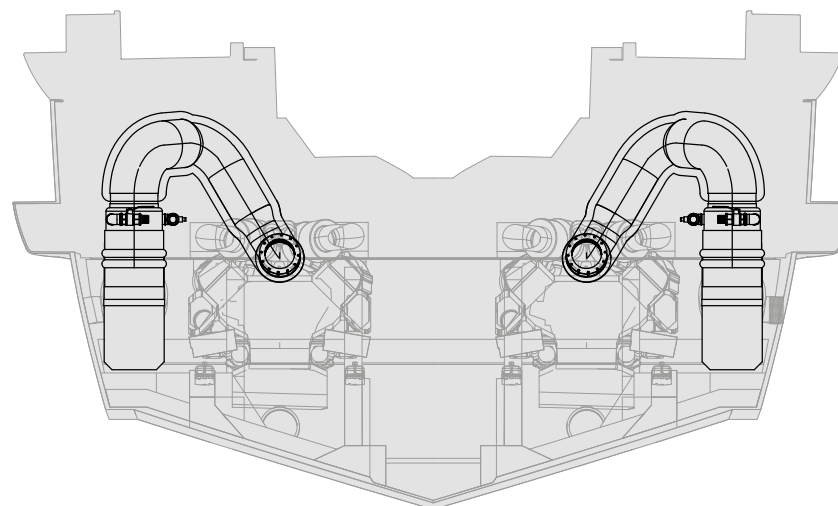
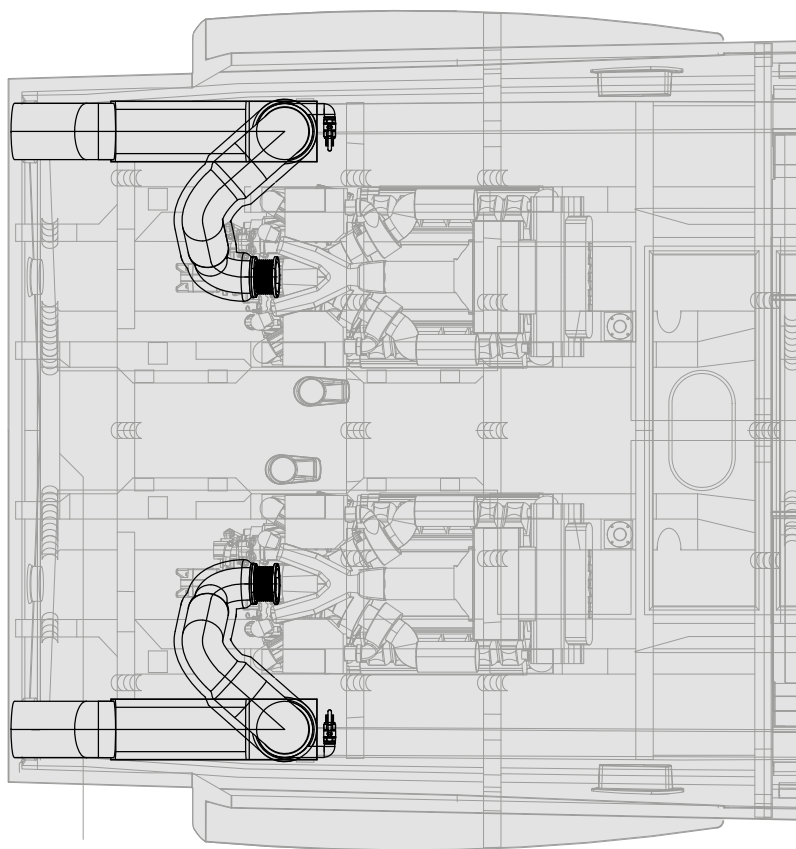
CAUTION

Some temperature sensors have been installed on both engine exhausts; the warning lights are visible on the engine control panels and, when the alarm signals activate, they indicate that the temperature inside the exhausts is too high.



WARNING

Avoid prolonged use of engines at low speeds to avoid overheating of the exhaust pipes due to reduced cooling water circulation.



6.9.2 Engines exhausts maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Submerged exhausts	Periodical check (as necessary, according to the floating area)	Check the underwater exhaust terminal cleanliness conditions periodically. Clean, if necessary. To carry out the check it is necessary that the propulsion engines are shut down, and that their start is prevented, then with the help of a diver check that the drain is open and remove possible scales.
Raiser	Periodic check	At least once every 3 months check the correct tightening of the exhaust raiser bolts.



CAUTION

Carbon deposits, marine growths and fouling may affect the engine regular operation, causing performance degradation and serious damages. Check that all the check valve parts move freely and without any obstruction. The valve blockage, even if partial, may compromise the correct engine operation.

6.10 GEARBOX

The main functions of a marine gearbox are the following:

- Couple the engine with the propeller drive coupling and reduce the speed.
- Reverse the direction of motion.
- Stop the propeller movement (neutral).

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

6.10.1 Gearbox maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gearbox	Oil level check	For the correct maintenance and check procedures, refer to use manual delivered by the Manufacturer.
	Oil change	For the kind of oil and grade of viscosity recommended by the Manufacturer, refer to the gearbox plate.
	Oil filter change	Have the scheduled maintenance operations performed at the correct time schedule by authorized and skilled personnel, in order to keep the gearboxes perfectly efficient.



WARNING

The gearboxes are provided with emergency controls in case of fault. Refer to the Manual delivered by the Manufacturer.



WARNING

Under normal operation conditions, the gear change can be carried out with the engine at low speed. However, in case of emergency, gearshifting can be carried out with the engine at high speed, thus remarkably reducing clutch life though.



CAUTION

The use of the gearbox with a low quantity of oil may damage the gears. An excessive quantity of oil may cause seals and vents to leak and can remarkably increase the operation temperature.

6.10.2 Gearbox check

Oil level check

The oil level check should only be carried out when the engine has been stopped. The correct oil level is between the highest and lowest mark on the oil level dipstick. After the first filling, repair or cleaning of the oil filter, run the reverser for about 2 minutes.

Check the oil level again 2 minutes after the engine has stopped.



CAUTION

Before starting checking the oil level, check that the gearbox oil temperature complies with the normal operating specifications.



ENVIRONMENT

Recover waste oil following the norms in force, relevant to special waste disposal.



DANGER

Service the gearbox only if engine and propeller are stopped and the magneto-thermal switch is OFF. Before starting the gearbox, carry out the filling and the consequent check of the oil level. The use of the gearbox with a low quantity of oil may damage the gears. An excess of oil might cause leaks to the seals and to the vent and increase remarkably the operating temperature.

6.11 PROPELLERS

The surface propeller eliminates cavitation by replacing it with air ventilation. This eliminates vibration, surface erosion and underwater noise.

Check periodically that the propellers are not too “dirty” as this leads to rapid performance degradation and increased vibration.

In case of impact against the bottom, check propellers and axes immediately; in case of sensitive vibrations, reduce the revs to idle and go to port for repair.



WARNING

The increase of vibrations with engines running could damage the propulsion system and the yacht structure. To reduce the risk of damage, set the engines speed to idle run and head to the nearest harbour for repair. If vibration is higher, stop the yacht as soon as possible, drop the anchor and address to the After sales & Service Department.

6.11.1 Maintenance of the propellers

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Propellers	Periodical checks	The propeller check should be performed according to the floating waters. Inspection and possible cleaning may be carried out with the yacht in a dry shore or with the help of a diver. Check if the propeller blades have notches, fractures, fouling or barnacles which may have a negative influence on the yacht performances during navigation. If you notice corrosion, check the anodes conditions and replace the propellers for major failures.
	Assembly/disassembly	The starboard and port propeller are not interchangeable between them neither with others as designed according to specific features of your yacht. Replace only with genuine spare parts supplied by PERSHING After sales & Service Department.



DANGER

To clean or check the yacht in water, disable engines and generators start.



CAUTION

We recommend applying an antifouling treatment in order to minimize the formation of barnacles.



CAUTION

Do not replace the propellers of your yacht with other of doubtful origin. Contact PERSHING After sales & Service Department.
Each yacht model has its own propeller.



CAUTION

Avoid the use of hammers or mallets to pull out the propeller.
The pull out force must be uniformly exerted on the entire hub of the propellers.

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Equipment

Owner's
Manual

7. EQUIPMENT

7.1 PREPARATION FOR MOORING

Your yacht is equipped with deck instruments necessary for easy and safe mooring. In addition to the anchor winch, mooring equipment is located at the bow, on the walk-around and at stern of the yacht, and consists of cleats, fairleads and anchor windlass:

- Each stern mooring furniture is arranged with a cleat (5) and a mooring winch (4);
- A cleats (3) is arranged on each side of the walk-around of your yacht;
- On the stern platform, two cleats (6) have been arranged (one on each side of the yacht);
- In the bow mooring area two cleats (2) and a windlass (1) are arranged.

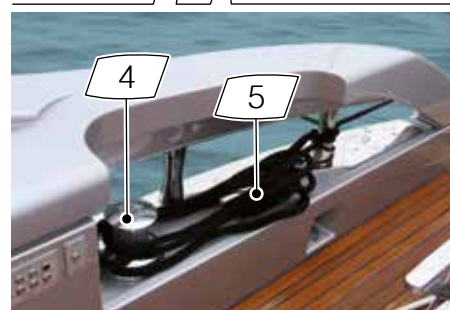
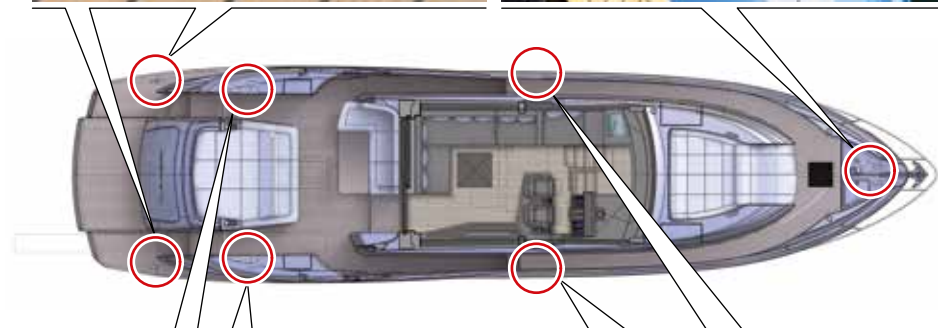
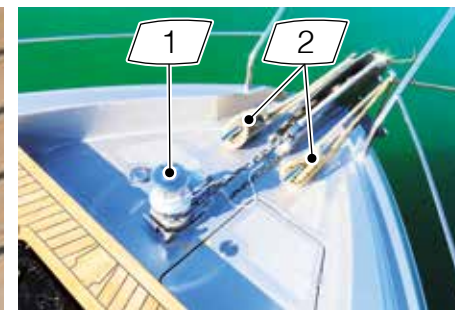
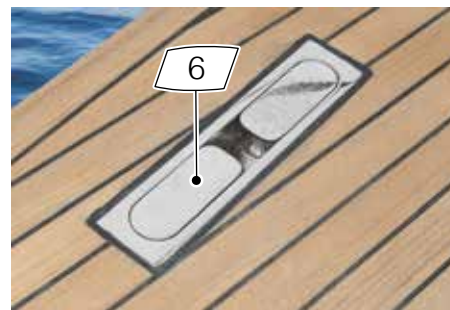


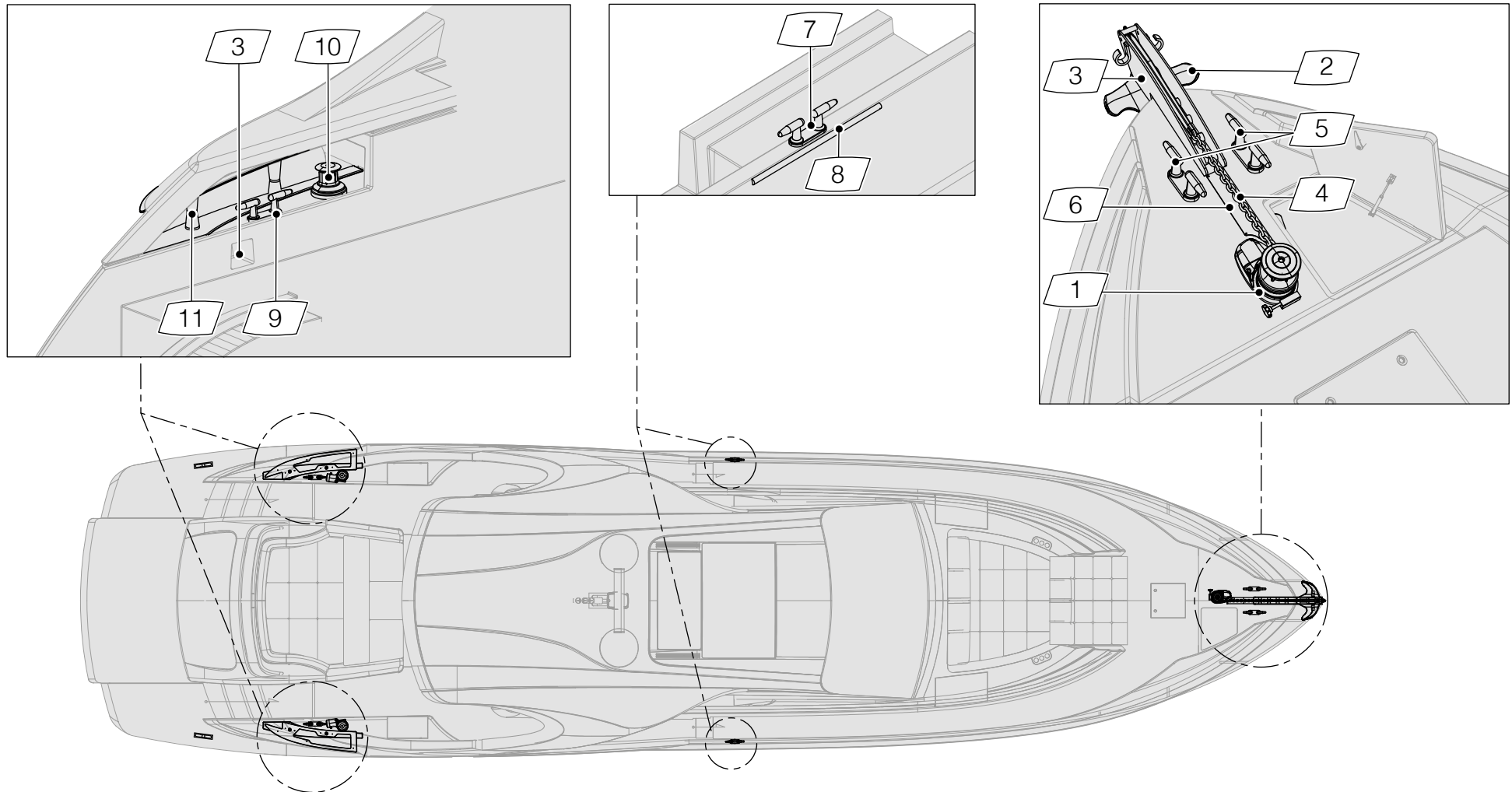
CAUTION

Do not use the stern platform cleats as permanent mooring points of the yacht. They should only be used for the tender or jet-ski mooring. The stern cleats must never be used for the tender or chase boat towing.

HORIZONTAL LOADS

For anchoring and towing	74,62 kN
Forward for mooring	60,84 kN
Stern	52,03 kN





1. Windlass
2. Anchor
3. U-bolt and pivot point
4. Anchor Chain
5. Cleats
6. Chain slide

7. Half yacht cleats
8. Foot button actuation winch
9. Bow cleats
10. Mooring winch
11. Fairleads

7.2 MOORING WINCH

At the stern, a mooring winch (2) is installed laterally in each mooring unit. For operation it is necessary to wrap the rope on the bell and press the foot button (3). The foot button of each winch is positioned at the base of the mooring box. To reverse the direction of rotation of the winch when the foot pedal is operated, use the rotation selector (1) located near the winch and enable reverse rotation.



CAUTION

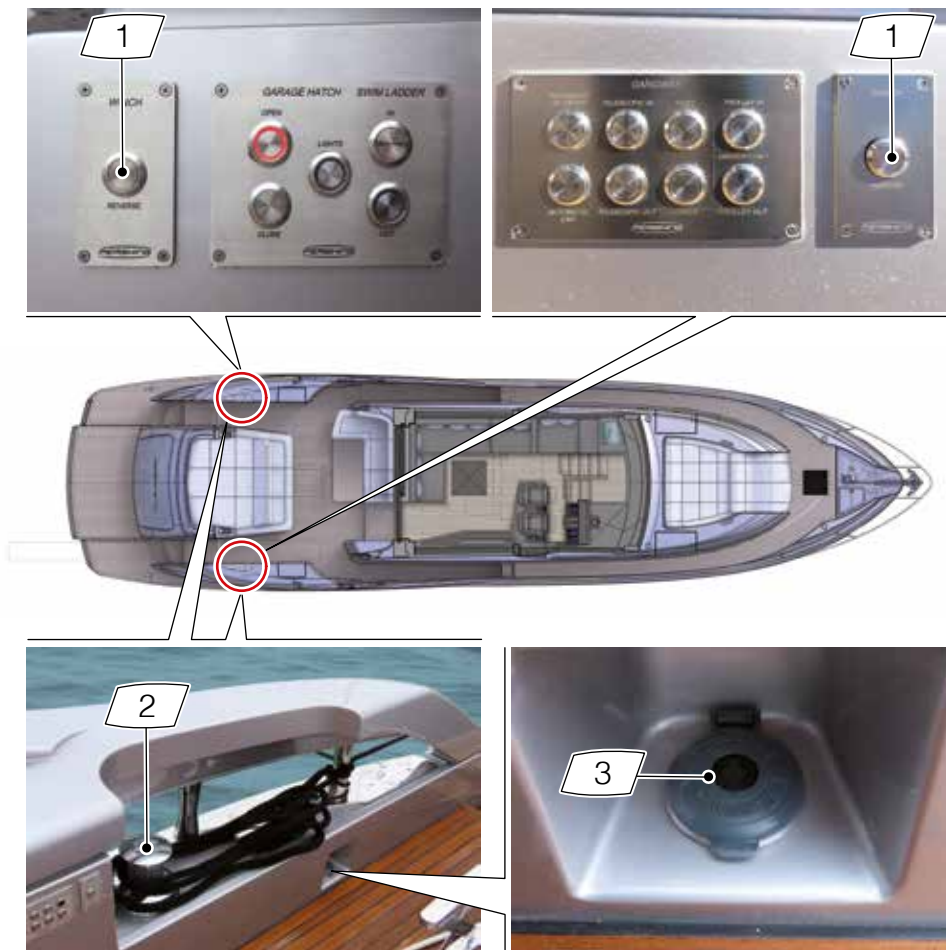
When using mooring winches with low ambient temperatures, run the warping winch in idle state for about one minute. This allows the oil contained in the gearmotor to heat up, increasing its fluidity and reducing the operating friction and current consumption.

To release the rope from the winch bell, press the button inside the mooring cabinet. A mooring cleat is mounted next to the mooring winches. The lines used for mooring must be fixed to the mooring cleat in order to achieve a secure hold.



CAUTION

Do not approach your hands to the sliding area of the mooring rope.



7.2.1 Mooring winch maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gearmotor	Cleaning and check	For a correct maintenance and check, refer to instruction manual delivered by the Manufacturer.

7.2.2 GEARMOTOR

Cleaning and check



DANGER

Before carrying out any maintenance operation on the anchor winch cut-off the electric power connected with it and remove with care the chain from the wildcat.

The winch is made of marine grade materials: it is necessary, in any case, to remove regularly the layer of salt which forms on the outer surfaces, to avoid dangerous corrosion, which could jeopardize its integrity. Wash accurately with fresh water and clean the surfaces, particularly those in which salt remains trapped. Disassemble the barrel according to the service intervals recommended by the Manufacturer.

MAINTENANCE

At least once a week:

- Check the operation;
- Wash with fresh water and carry out an accurate cleaning.

At least once every six months grease the terminals of the electric engine.

At least once a year disassemble and check the exposed parts.



DANGER

Do not bring body parts or objects near the area where the line runs. Before actuating the winch manually, make sure that this latter is not electrically powered.



CAUTION

Do not activate electrically the winch with lever inserted into the drum.

7.3 ANCHOR WINCH

The yacht is equipped with an anchor winch that moves the anchor housed in the bow.

The chain to which the anchor is connected, enters the yacht through the chain pass, and reaches the anchor windlass, turns around the Wildcat and enters the chain compartment.

The anchor winch is equipped with a control for moving the chain in both directions and a manual brake to lock the position of the chain during mooring.

It is equipped with a clutch that separates the transmission axis from the Wildcat, allowing it to be used as a mooring winch for pulling a line.

NOTE

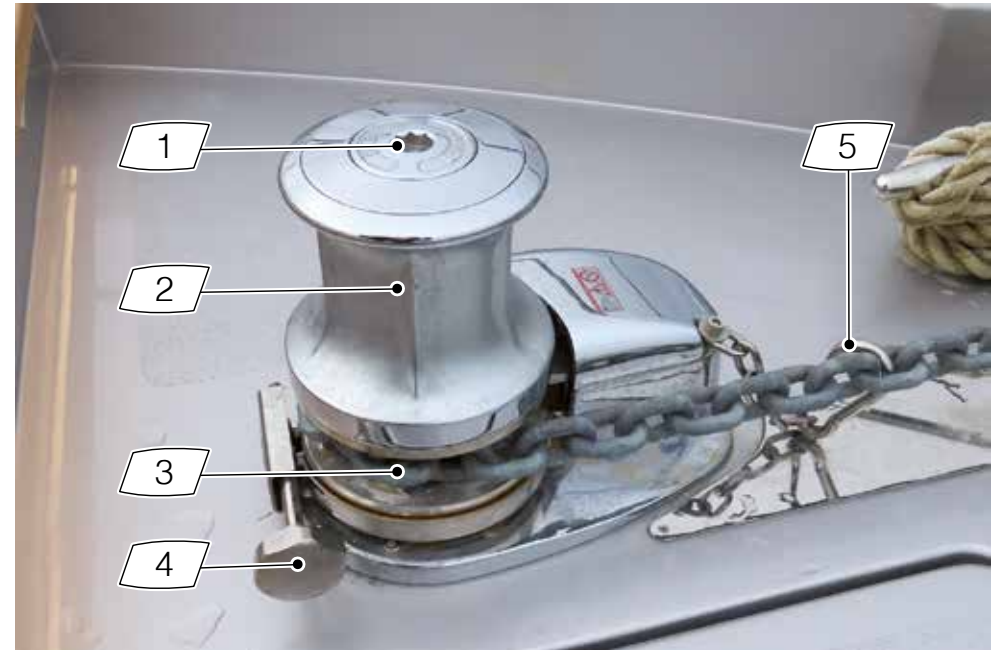
For further information on use and maintenance, please refer to the manufacturer's manual.



CAUTION

PERSHING is exempted from any liability for any accident or damage caused to persons or property due to incorrect use of the device.

1. Bushing for lever engagement
This device allows the lever engagement.
2. Barrel
This device allows pulling a line.
3. Wildcat
This device allows weighing and lowering the anchor.
4. Wildcat locking wheel
This device allows blocking the rotation of the wildcat and securing the chain.
5. Safety wire
This device allows locking the anchor chain.



Anchor winch activation controls

The winch, located in the bow, is operated by means of the remote control normally housed inside the bow storage compartment, its connection is installed externally. In addition, it is possible to operate the winch from the dashboard using the two buttons that allow you to lower or sail the anchor.



CAUTION

If you wish to use the anchor, loosen the wildcat lock wheel and remove the safety lock.



DANGER

Do not bring body parts or objects near the area where the chain, the line and the wildcat run. Make sure the electric engine is not supplied when acting manually on the anchor winch (also when you use the lever to loosen the clutch): people having the remote controls of the anchor winch (remote push-button panel) might accidentally activate it.



CAUTION

In order to prevent possible water infiltrations, completely insert the control pin and screw on the ring nut or plug the socket with the relevant plug.



CAUTION

Each time the key-pad controls are used, make sure they are correctly stored into the relevant supports after use.



CAUTION

In order to prevent unintentional activations of the appliance or oxidation, we recommend disconnecting the plug after each operation, and covering the socket with the relevant cover provided.

Anchor weighing

Start the yacht's engine. Make sure the clutch is engaged and pull out the lever. Press the control button available and start to weigh the anchor. If the anchor winch stops without any reason, the anchor might be stuck and therefore the anchor winch thermal switch trips, due to the effect of the effort.

In this case, if after several attempts the anchor winch remains stuck, we suggest to manoeuvre the yacht, to release the anchor.

Check the raise of the last metres/feet in order to avoid bow damage.



CAUTION

Lock the chain with its safety cable before setting up for navigation.



CAUTION

Do not operate the anchor winch electrically with the lever in the drum housing or in the wildcat cover.

Anchor lowering

Lower the anchor by means of the electric controls or manually. To carry out this operation manually, open the clutch and let the wildcat rotate freely on its axis and the chain fall into the water. To brake the anchor chain fall, turn the lever clockwise. To lower the anchor electrically, press the control button at your disposal. In this case the anchor lowering is perfectly controllable and the unrolling of the chain or of the line is regular.

Once the yacht is anchored, lock the chain with the safety cable.

The anchor and the chain may cause damages to the yacht bow if the anchor winch is not operated carefully.

It is advisable to carry out the manoeuvre using the remote control located near the anchor windlass; this will allow you to control the speed of ascent and descent of the chain and of entry and exit of the anchor axis in the bow roller.



DANGER

Do not use the on board auxiliary equipment for aims or ways other than those indicated in the manual delivered by the Manufacturer.

Always disconnect the warping winches not in use, to prevent accidental activation.



DANGER

Never get too close to moving parts to avoid danger and injury.



CAUTION

The anchor chain is fastened to the yacht by means of a line. If it is impossible to remove the anchor from the sea bottom, this system will ease up to resume navigation.



DANGER

When the winch is operating, be extremely cautious of rotating parts; keep your feet, hands and the remote control cable at safe distance.



CAUTION

The anchoring area is a circle with the centre at the anchoring point and a radius equal to the chain length plus the yacht length.

The entire anchoring area must be free, in case of sudden variations of wind and/or current direction, especially in case of night anchoring.

At night, before dropping the anchor, check that the white anchor light works.

Before anchoring, check the nautical charts: anchoring is prohibited in certain areas, in weed covered sea bottom, anchoring is unsafe and harmful to the environment, on rocky sea bottom, the anchor may get stuck or lost.

Anchor the yacht with the engines running, both for safety reasons and to compensate the electrical consumption of the winch.

Check the anchoring point frequently.

The distance from obstacles or other yachts must be, at 360°, greater than the length of chain dropped.

During anchor riding it is advisable to leave the winch powered. Do not reverse the winch rotation suddenly.

Clutch use

The wildcat is connected to the main axis by means of the clutch. The clutch opens (disengages) when the lever inserted in the bushing is rotated counterclockwise. When rotating clockwise, the clutch will close (engage).

Anchoring

The wind and the sea conditions highly affect an anchored yacht. Make sure the anchor is set in any situation. It is necessary to understand the principles of the chain length and its effect on the anchor performance.

The radius is technically defined as the ratio between the chain length and the vertical distance from the bow to the sea bottom.

The chain length depends on the type of anchor, on the sea bottom, on the tide, on the wind and on the sea conditions.

The chain length is 5 times the depth of calm sea; it is 7:1 in normal conditions and up to 10:1 in critical conditions.

$$\text{Radius} = \frac{\text{Chain length}}{\text{Bow height} + \text{water depth}}$$

As it is necessary to know the length of the chain to be used for mooring.

Chain length = (bow height + water depth) x radius

Anchoring operations

- Make sure that the engines battery breaker is on;
- Turn ON the anchor winch switch on the general electrical panel;
- When the key-pad is not used, disconnect it to prevent contact oxidation;
- Before operating the anchor winch with the electric control, check that the wildcat clutch is properly engaged and remove the wildcat stopper and the safety wire;
- Let the yacht move backward slowly; if necessary, use the engines;
- Lower the anchor until just below the waterline, and hold;
- Lower the anchor until it reaches the sea bottom;
- Once the anchor holds, leave the lock and the brake engaged.



CAUTION

Operate the anchor winch with the engines running, in order to provide the high current required and reduce the stress by slowly moving the yacht toward the anchor.

Lower and raise the anchor always by using the electrical control, after engaging wildcat and barrel. This latter can be disengaged both for casting off the anchor in case of need and to operate the barrel as a warping winch.



CAUTION

During navigation, make sure that both the chain stopper and the chain brake are securely locked.

Weighing the anchor

To weigh the anchor, the operations must be repeated in reverse order. In windy or strong current conditions, start the engines and keep the bow toward the anchor position to avoid breakage of the roller. Once the anchor is on board, fasten the chain stopper before resuming navigation.



CAUTION

Prior to departing, check that the chain stopper is properly fastened.

7.3.1 Anchor winches maintenance

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gearmotor	Check and cleaning (before each navigation)	When you weigh the chain, after an anchor mooring in a muddy or weedy sea bottom, we advise you to wash the chain using the proper system. The outer part of the winch requires frequent washes with fresh water because very much exposed to sea salt during navigation specially with choppy sea. It is a good norm, at season begin, to carry out maintenance by disassembling the wildcat and the drum in order to remove oxidation in the rubbing and gliding points and to restore correctly the lubrication in the required points.
Connection spindle between anchor and chain	Check	At least every three months.
Chain links status	Check	At least each year.
Anchor winch	Check the operation	At least once a week.
	Disassembly and check of all parts	At least once a year.
Electric engine terminals and control box	Check the connections	At least once a month.
Locking system still idling	Check reliability	At least once a month.

7.3.2 Gearmotor



CAUTION

Before carrying out any maintenance operation on the anchor winch cut out electric power connected with it and remove with care the chain from the wildcat.

Remove the layer of salt, which builds up on the anchor winch outer surfaces as often as possible, to avoid dangerous corrosion, which could jeopardize its integrity. Wash with fresh water and clean the surfaces, particularly those hidden and hardly reachable and into which the salt remains trapped. At least once every two months disassemble the exposed parts, clean and check all pieces so that they do not show signs of corrosion and grease the thread of the axis with sea grease. In case of anchor winch long inactivity, we advise you to have the engine run idle for a couple of minutes in both directions. If the electric engine turns with problems we advise you to clean or replace the brushes. We strongly recommend to separate the anchor winch from the main deck at least twice a year to remove the salt deposits building up under the base. Should oil bleed from the body because of the seals wearing out, it is necessary to disassemble the gear box to replace the seals. A complete kit of spares parts is available for this purpose.

Check and top up

Top up the gearmotor body with oil through the level check cap. Check regularly the condition of the electric engine terminals and of the gearmotor, removing possible drifts and spreading the terminals with grease.

7.4 GANGWAY SYSTEM / SWIM LADDER / GARAGE HATCH / SALON DOOR

The movement of the gangway (1), swim ladder (2), garage hatch and glass door is managed by an independent system that works through an electro-hydraulic power unit (3) located in the engine room on the starboard side and essentially consists of an electric pump, oil tank and solenoid valve block. The system is fed by the pumps which, sucking the oil from the tank, send it, through the two solenoid valve blocks and pipes, to the hydraulic cylinders which operate the movements. The same control unit allows the activation of the glass door and the garage hatch. In the event of a breakdown of the electrical system or in the event of a power failure, it is possible to use the emergency manual controls to move the gangway and the glass door, using the manual control panel (4) located at side near the power unit itself in the engine room.

With the key(s) in the "manual" position, the manual control panel excludes all other commands and the operation of the system is managed exclusively through the panel switches. With the key(s) in the "automatic" position, the manual control panel is excluded and the operation of the system is managed directly from the control unit.



CAUTION

When passing on the gangway, maintain due caution when holding on to the candlesticks; these cannot be considered a rigid and secure support, but simply an aid to maintaining balance.



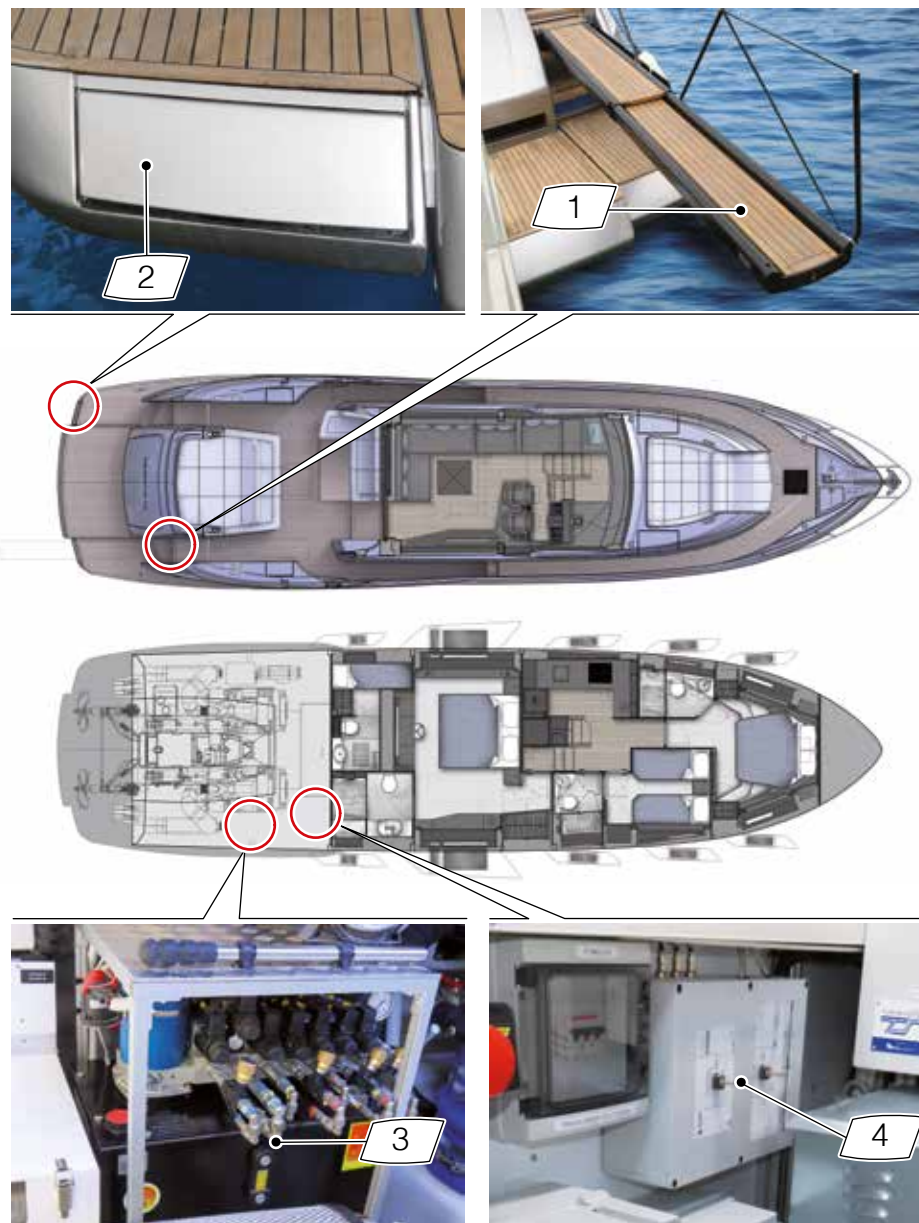
CAUTION

Manual operation is always to be used with great caution to avoid damage to persons and mechanical structures.



CAUTION

Also use and suggest comfortable shoes to passengers and possibly help them during boarding.





CAUTION

Do not use slippery products for cleaning the gangway.



WARNING

Make sure that the gangway, garage hatch and swim ladder are properly closed before starting navigation.



DANGER

Pay attention to moving parts and hands.



DANGER

Avoid operating the gangway at all times when people are passing by.



WARNING

Never jump on the gangway.



DANGER

Do not use the gangway to lift people, even if it is the same arranged and tested to lift much higher loads.
Always make sure not to exceed the maximum load capacity defined by the Manufacturer.

7.4.1 Gangway

The gangway (1) is housed in the engine room on the starboard side and exits from the starboard staircase leading to the stern cockpit, through the hatch under the first step.

The gangway handling is power steered and allows extending or retracting it. Once the gangway has been completely extracted, it is possible to lift or to lower the free end in order to adapt its trim to the shore height.

Gangway controls

The gangway control panel (2) is located near the starboard mooring furniture.

The operations are to be performed by keeping the relevant panel button pressed.

You can also operate the gangway from a remote control.

The remote control must be pointed in the direction of the sensor (3), located on the left access staircase to the aft cockpit, and there must be no obstacles in between. The gangway can be equipped with manual candlesticks (opt) which must be installed in the seats on the side of the gangway structure.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



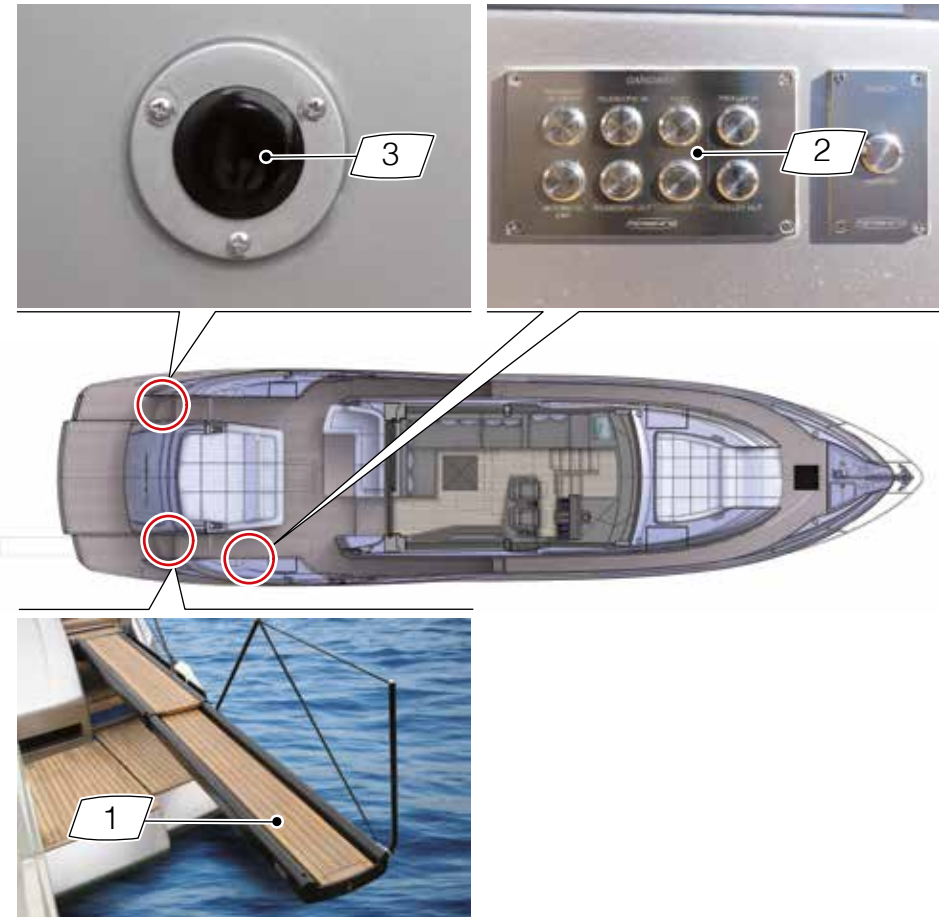
CAUTION

The passage of one person at a time is allowed on the gangway. Never exceed the maximum load limit specified by the Manufacturer.



CAUTION

Always pay the utmost attention to the movements of the gangway; in case of emergency, press any button of the remote control or of the panel to stop the gangway.





CAUTION

Always check the correct positioning of the gangway from the shore. Never jump on the gangway.



DANGER

Never start navigation if the gangway is not correctly retracted.



CAUTION

Position the gangway in such a way that it cannot touch the shore, either because of the normal yacht swinging or of the tide change. Should the gangway strike against the shore, it could get seriously damaged.



DANGER

Pay attention to moving parts and to your hands.



WARNING

Never use the gangway as a springboard.



DANGER

Never operate the gangway when someone is passing nearby. When walking on the gangway, be cautious and keep hold to the handrail; as it is made of rope, it cannot be considered a rigid and safe support, but simply a help to keep balance.

MAINTENANCE

At least once a week carry out the washing with fresh water and an accurate cleaning.

At least once a month:

- Check the oil level in the control unit, when necessary top-up;
- Check the possible presence of oil leaks and bleeding;
- Check the operation of the emergency pump;
- Check the possible presence of corrosion;
- Grease the pulley gliding races of the steel cable.

At least once every six months;

- Grease the swivel pins and the gliding sleeves;
- Tighten the locking bolts.



CAUTION

Before closing the gangway, remove the removable stanchions.



CAUTION

In order not to compromise the sealing gaskets, wash the box without water entering under pressure.



CAUTION

Never use slippery products for the gangway cleaning.



CAUTION

PERSHING declines all responsibility for any accident to persons or damage to property caused by a wrong use of the device.

7.4.2 Swim ladder

The yacht is equipped with an extractable ladder which allows an easy access from the sea to the stern platform, and vice versa.

The swim ladder (3) is stowed inside the stern platform structure, so as not to get in the way during navigation and during mooring and unmooring operations.

The swim ladder does not require ordinary maintenance; anyway, being particularly exposed to sea corrosion, it is advisable to wash it accurately with fresh water after each use.

Swim ladder controls

The swim ladder movement controls are located on the left-hand mooring furniture.

The functions are performed by holding down the respective button on the panel.

1. Swim ladder extension
2. Swim ladder retraction

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



DANGER

Never start navigation if one swim ladder is wrongly retracted.



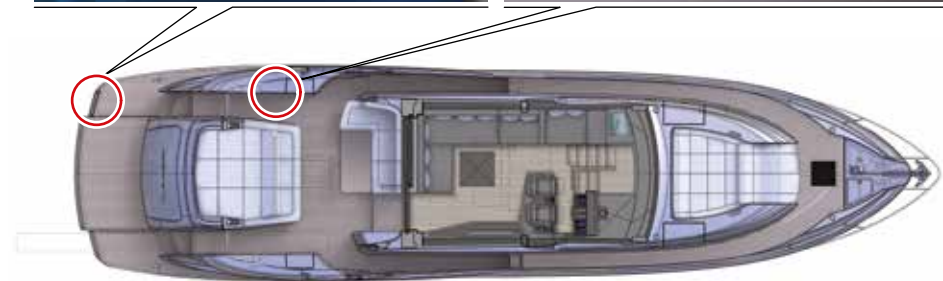
DANGER

Never use the swim ladder when the engines are running. Pay utmost attention not to approach to the flaps area, because they could be accidentally activated.



DANGER

Make sure that the swim ladder is correctly extracted and positioned before going down to water.





DANGER

Pay attention to moving parts and to your hands.



CAUTION

Pay attention because the ladder can be slippery.
Secure the grip before starting the return on board.



DANGER

Risk of electric shock from leakage currents. Never swim in waters near harbours or marinas.



WARNING

For a safe use of the yacht, when you are stopped at open sea and you are alone on board, always keep the swim ladder open.



CAUTION

Do not use the swim ladder as a springboard.



WARNING

Before opening the swim ladder put the rudder in left position.

7.4.3 Garage hatch

The garage is placed on the yacht stern and can stow inside a tender. The garage can be accessed by opening an electro-hydraulically controlled hatch.

Garage hatch controls

The controls, which activate the hydraulic cylinders that raise and lower the hatch, are located on the left mooring unit.

The gangway opening/closing operations have to be carried out by keeping the relevant push-button on the control panel pressed.

1. Turn off/activate garage lights
2. Hatch opening
3. Hatch closing

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



CAUTION

Before operating the garage hatch, make sure that nobody or no material are on the stern platform.



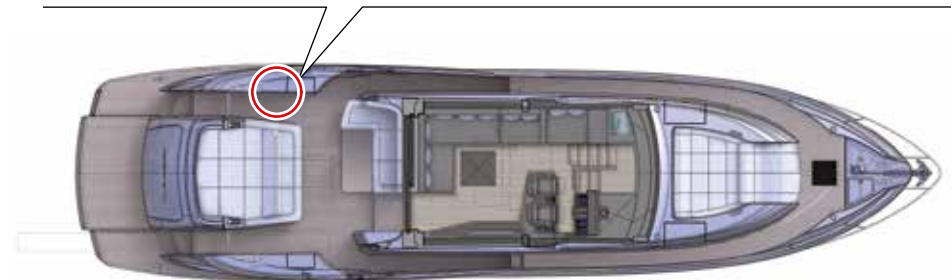
DANGER

Never start navigation with stern garage hatch not correctly and completely closed.



CAUTION

During garage hatch opening and closing operations with the yacht moored, pay great attention to the cables (electric and/or hydraulic) for shore connection as they might get crushed.





CAUTION

Moving parts: be alert, always keep hands and feet at a safe distance. Do not insert any object between the structure and its seat.



CAUTION

The stern garage hatch must always be closed during navigation.



DANGER

Loads inside the garage must be fastened with the utmost care.



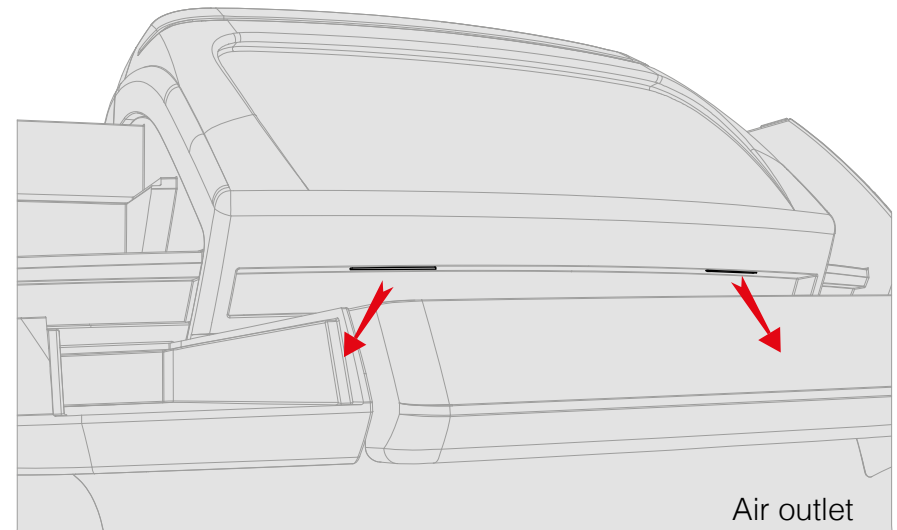
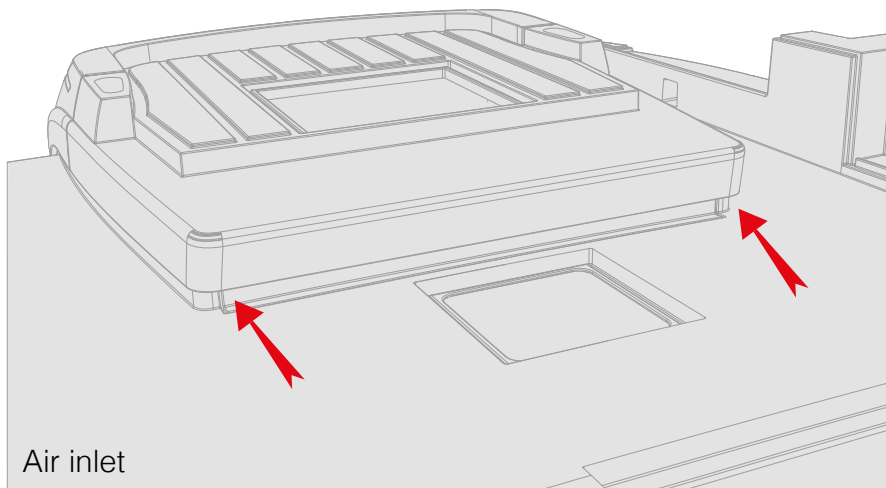
CAUTION

Inside the garage there are some devices for peak ventilation. The peak can also be used to store a tender supplied with gasoline. These devices work with natural ventilation and are duly sized. "Do not clog nor modify the ventilation system".

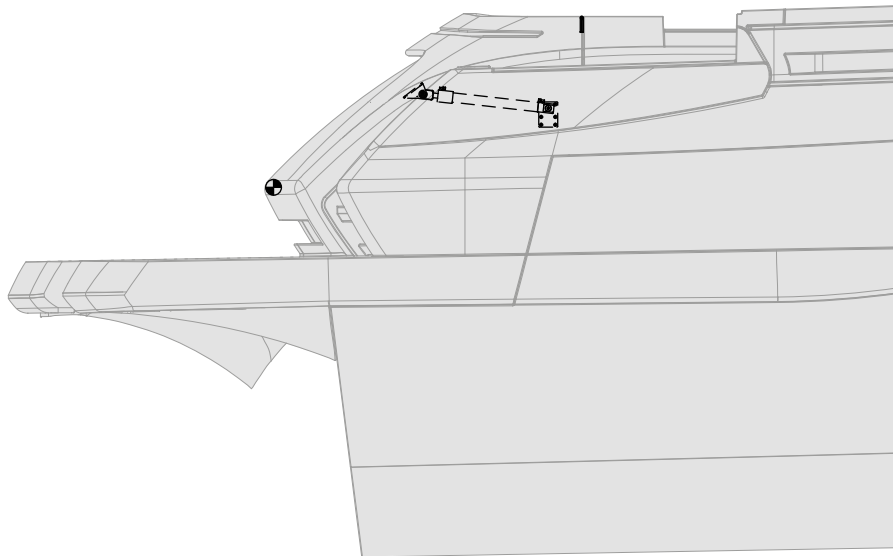


CAUTION

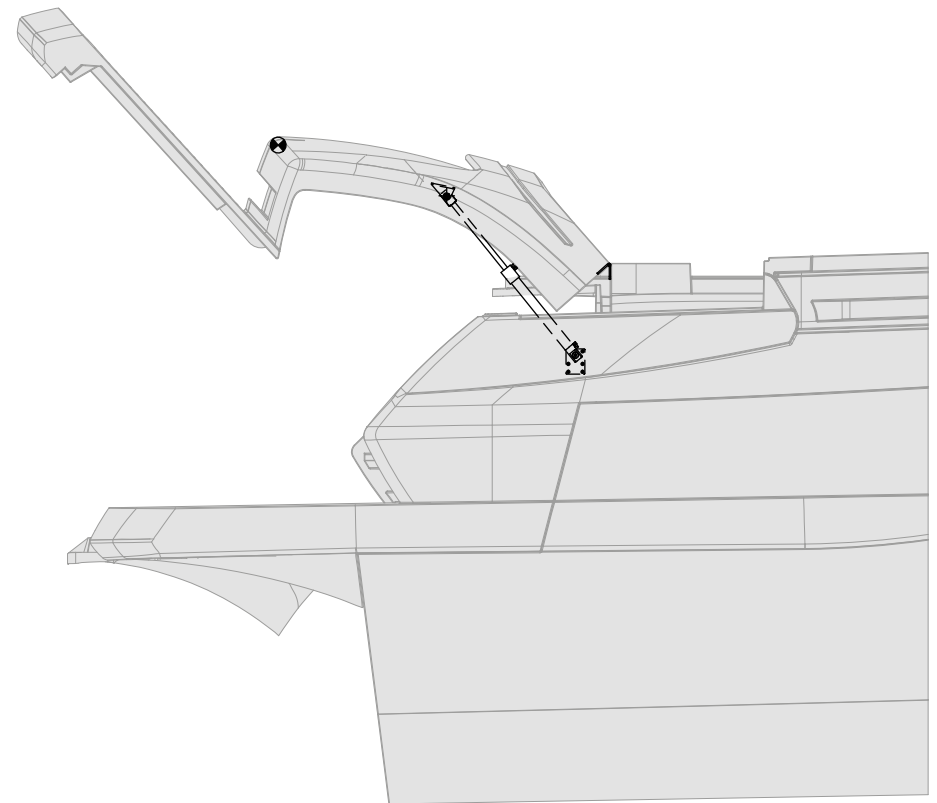
Fuel leaks create a fire and explosion hazard. Stowing cans containing fuel inside the garage is forbidden.



GARAGE HATCH CLOSED



GARAGE HATCH OPEN



7.5 TENDER LAUNCHING AND HAULING

To make it easier to haul and launch the tender inside the garage, there are roller slides, a platform that can go down to the water level and a winch. The platform and the winch are controlled by means of a remote control whose grip is located aft on the starboard side.



CAUTION

When the use of the winches/platform control key-pad is complete, disconnect the pad and close the socket with suitable cover. When not in use, the remote control seat is inside the garage.



CAUTION

Tender hauling and launching operations must always be performed by at least two people.



CAUTION

When in use, always check that the winch shackle is coupled well. Periodically check the condition of the winch line and keep it clean and knot-free. If damaged, replace it with one of the same type (original spare).



CAUTION

Hauling and launching operations should be carried out only by skilled personnel.

Tender launching

- Lower the surface propellers (trim) completely;
- Open the garage hatch completely;
- Unhook the straps holding the stern of the dinghy inside the garage;
- Lower the platform completely;
- Check that the garage winch carabiner is attached to the bow of the tender;
- Operate the winch by guiding the tender onto the roller slide;
- When the tender is completely in the water make sure to secure the tender with a line to the yacht and then release the winch carabiner from the bow of the tender;
- Retrieve the winch line with the winch control;
- Replace the winch and the winch control and close the winch grip;
- Lift up the platform completely;
- Close the garage hatch completely.

Tender hauling

- Lower the surface propellers (trim) completely;
- Open the garage hatch completely;
- Lower the platform all the way down;
- Operate the winch by pulling the line out for a length to secure the carabiner to the bow of the tender;
- Drive the tender on the roller slide in the garage and at the same time recover the winch line;
- When the tender is completely inside the garage, put the winch and the winch control back in place and close the winch grip;
- Lift the platform completely;
- Secure the stern of the tender with the straps so that it does not move;
- Close the garage hatch completely.



CAUTION

Check that the tender is correctly positioned on the saddle before closing the hatch.

It is important that the position of the tender is centred in relation to the centre of gravity of the yacht.



DANGER

Loads inside the garage must be fastened with the outmost care, particularly the tender.



DANGER

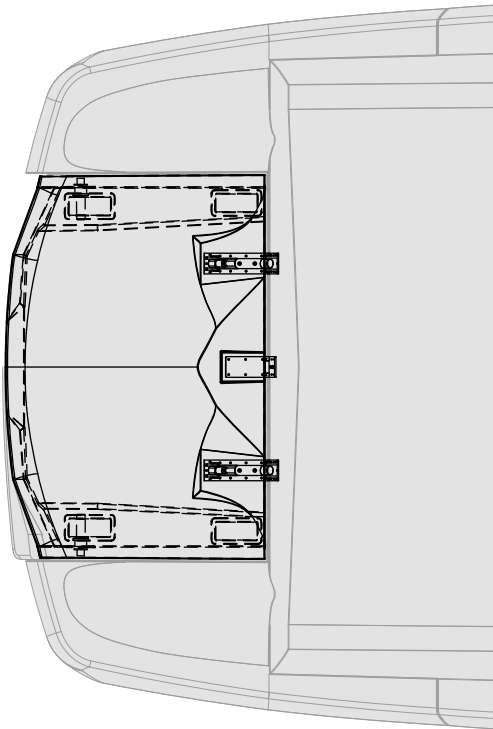
A fuel leak can generate fire and explosion hazard. Fuel cannot be stowed inside the garage.



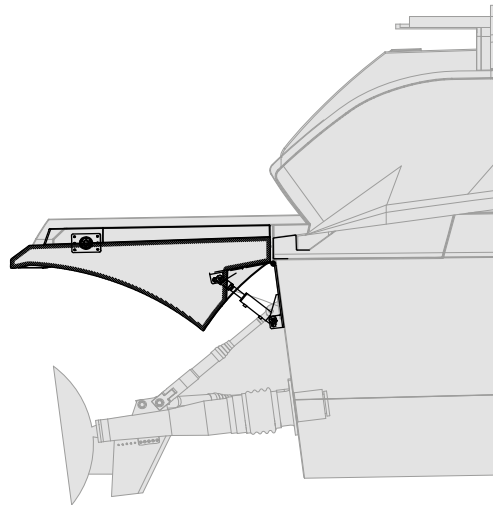
DANGER

Pay attention to moving parts and to your hands.

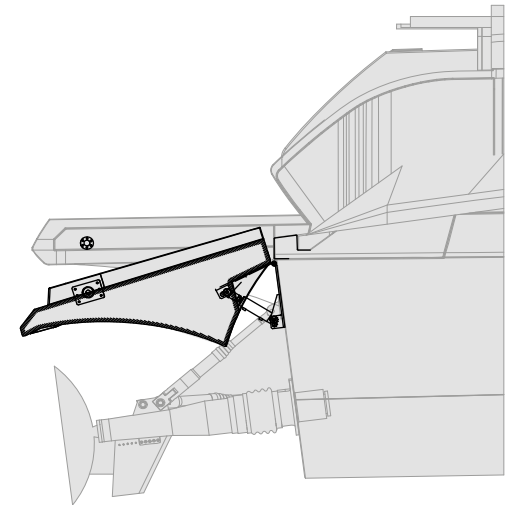
UNDER VIEW



STERN PLATFORM HIGH

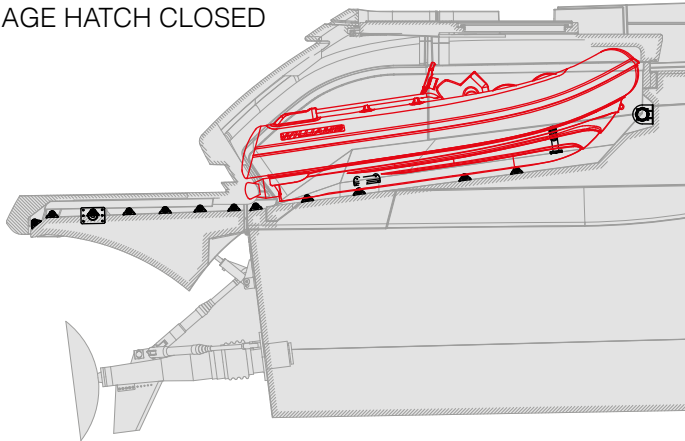


STERN PLATFORM LOW

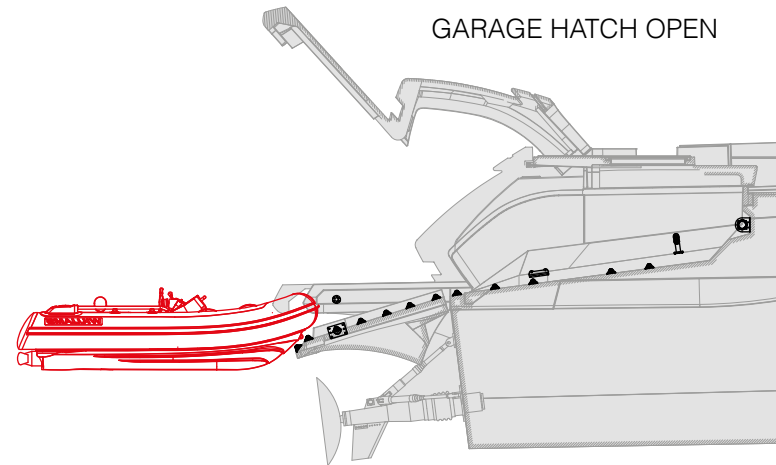


Tender launching / hauling diagram

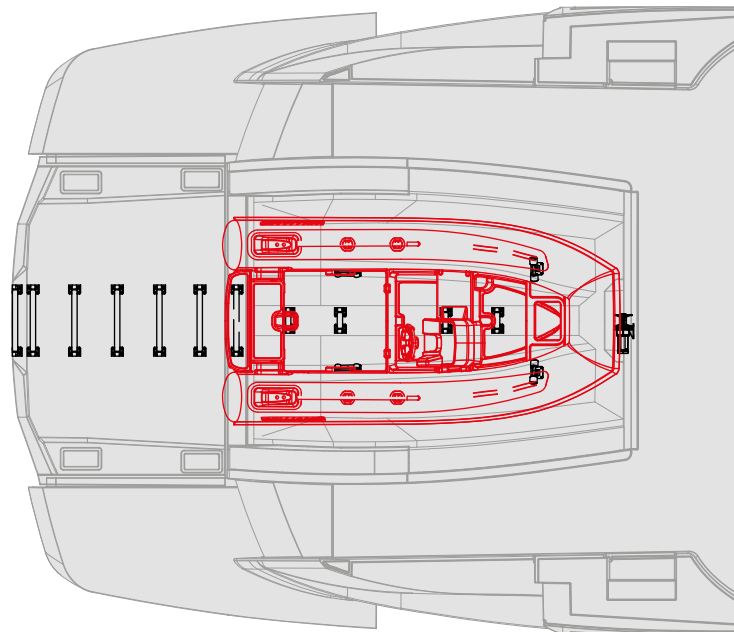
GARAGE HATCH CLOSED



GARAGE HATCH OPEN



PLAN VIEW



7.6 SALON DOOR

The glazing is equipped with a manually operated door that allows practical and quick access to the salon; the door can then be completely superimposed on the starboard window in order to make access even wider.

The glass partition between the cockpit and saloon, thanks to an electro-hydraulic movement system, can disappear downwards, allowing the exterior and interior to merge into a single room, from the control area to the aft sundeck.

Lifting and lowering of the salon door and glazing is done by holding down the respective buttons in the saloon near it.



CAUTION

Never use the door under the effects of alcohol and drugs that might compromise your balance or in conditions of physical discomfort without being helped. Always warn people nearby about your intention to open or close the door. Raise/lower the door while maintaining eye contact at all times. Take care not to trip over the bottom of the frame when you pass through the door. Never put the hands on the door hinges. Make sure the power supply is disconnected before carrying out any maintenance, repair or check on the whole system. Always use proper equipments and, should it be possible to disconnect the power supply, pay extreme attention to moving devices. Always make sure that power supply is disconnected before carrying out any operation or check on the electric system.

Working logic

- The door is closed and pushbuttons are off.
- Open the wing that goes into the mobile part of the sliding frame manually.
- When the wing is fully open, the DOWN pushbutton lights up green, while the UP pushbutton turns red.
- Push the DOWN pushbutton and keep it pressed until the frame gets to end stroke.
- During the descent the DOWN pushbutton blinks while the UP pushbutton lights up green.
- At the end of the cycle, the DOWN pushbutton stops blinking and turns red light the UP pushbutton turns green.
- Press the green UP pushbutton. The frame goes up to end stroke.
- During the vertical movement the UP pushbutton blinks while the DOWN pushbutton turns green.

- Once the frame gets to end stroke, the UP pushbutton turns red, while the DOWN pushbutton turns green.
- Now the door can be closed manually.
- When the door is manually closed, the pushbuttons turn off.



CAUTION

Keep the up/down pushbutton pressed until it stops blinking and until the buzzer stops beeping. If the cycle is not completed, the hydraulic blocks are not activated and the door is not in safety mode.



WARNING

Move the door only when the yacht is stationary and in favourable weather and sea conditions: calm sea, light wind and clear sky.



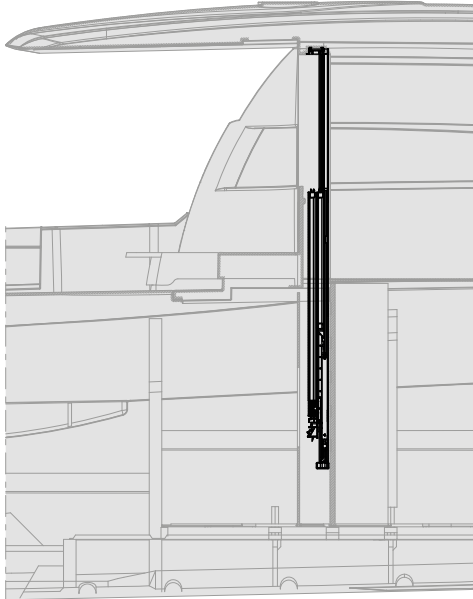
WARNING

When navigating, the door must be either fully closed or fully open. It is not permitted to navigate with the door in the intermediate position.

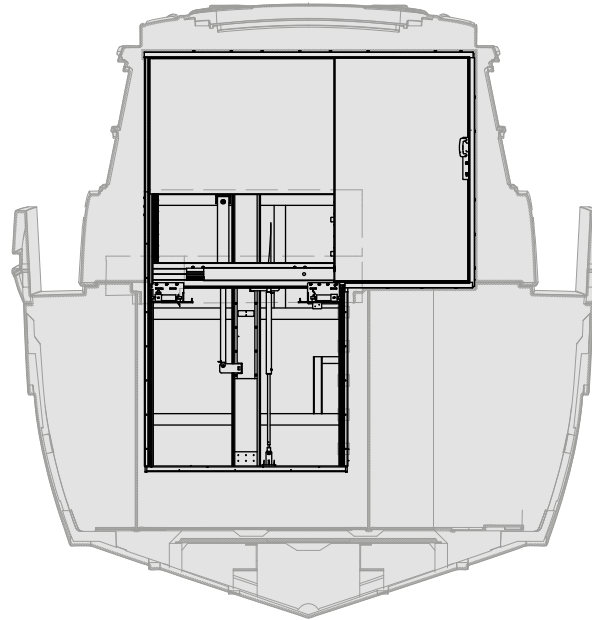
NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

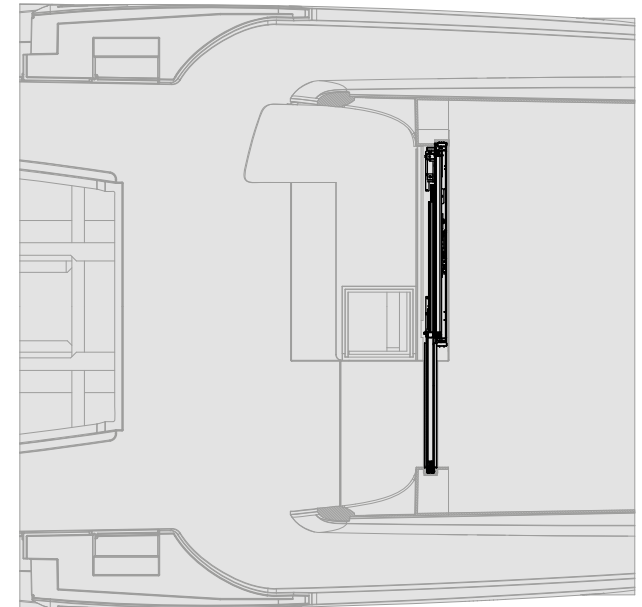
DOOR OPEN



DOOR CLOSED



DOOR CLOSED



7.7 GANGWAY/SWIM LADDER/GARAGE HATCH/ SALON DOOR MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gangway/swim ladder/garage hatch/glass door	Oil check and top-up	Check monthly and before each navigation the oil level inside the tank. Top up keeping the oil level at about three-quarters of the tank's capacity, and using the type of oil recommended by the Manufacturer.
	Outer cleaning Ordinary maintenance	As the gangway, the garage hatch and the swim ladders are located in a particular position compared to all other on-board equipment, because they are continuously in contact with water, salt and exhaust gas, they require therefore a more accurate cleaning.

7.7.1 Gangway/swim ladder/garage hatch/glass door control unit

To keep all our accessories and their parts in good working order, they should be cleaned carefully and thoroughly as often as possible.

As the gangway, the garage hatch and the swim ladder are located in a very critical position compared to all the other equipment on board, being in constant contact with water and acid exhaust fumes, they require a more accurate cleaning.

For a careful and thorough clearing operation, cover all the steel parts with a layer of paraffin oil. As far as the coated parts are concerned, use a paste/cream. This will prevent the forming of rust stains, that could give the impression the device is built with materials not suitable for its use.



DANGER

During cleaning or maintenance operations disconnect the power supply, so that nobody can start the gangway, the swim ladder or the garage hatch.



ENVIRONMENT

Do not discharge hydraulic oil in the sea, but in the special areas for toxic waste disposal.



CAUTION

During the cleaning or maintenance operation, make sure that nobody can activate the garage hatch, the gangway and the swim ladder, as this could cause heavy injuries to persons working.
Cut off power supply.

Verify oil level at each season beginning and end, if below minimum level, top up with the oil recommended by the Manufacturer. Verify the correct operation of emergency pump and hand operation of solenoid valves at each season beginning and end.

**CAUTION**

We recommend that you pay the utmost care during assembly and subsequent top-ups, so that there is no infiltration of possible waste, chips, dust, etc. into the oil tank, and thus also into the hydraulic circuit. Cut off power supply.

**CAUTION**

The spares must correspond to the requirements established by the Manufacturer, this is obviously ensured with the use of original spares.

**CAUTION**

The check and maintenance operations must be carried out by skilled technicians, instructed about the control unit operating conditions.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.

7.8 WINDSCREEN WIPER SYSTEM

In order to ensure a sufficient visibility under any weather condition, your yacht has been equipped with an efficient windscreen wiping system. The system is supplied at 24 V and allows activating, by means of mechanical brackets and at variable speed, the two windscreen wipers.

The system is controlled by the relevant controls installed in the helm station.

1. **ON/OFF** Enables and disables windscreen wiper movement.
2. **SPEED** It allows the pilot to set the wipers speed, according to the weather conditions, in order to obtain the best possible visibility.
3. **WASH** It supplies the windscreen washer nozzles with fresh water by opening the solenoid valve installed on the cold fresh water system manifold.

The system is equipped with an emergency control (4) installed on the control panel on the dashboard; if in normal operation (NORMAL position) the windscreen wipers do not work (control unit failure), move the switch to **EMERGENCY** and start the operation of the primary arm so as to ensure a minimum of visibility. In emergency mode the starboard windscreen wiper in front of the driver's seat is operated at maximum speed.



7.8.1 Maintenance of the windscreen wiper system

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Windscreen wiper blades	Cleaning	Clean accurately with fresh water after each navigation return. Clean periodically the windscreen wiping blades using specific detergent or alcohol. Apply Vaseline oil on the blades and grease the arms springs with silicone grease.
	Replacement	Replace the windscreen wiper blades at least once a year with original spares. If necessary and if the blade rubber results to be deformed or worn out, replace them more frequently. For a correct replacement operation, refer to chapter "Replacement" of this Manual.
Windscreen washer	Cleaning	If the screen washing system does not work or has a poor performance, check that the supply circuit of the nozzles is not clogged. In such a case, clean the spray holes with a needle.



WARNING

During the cleaning or maintenance operation, make sure that nobody can operate the windscreen wiping system causing damages to persons.



CAUTION

Do not remove foreign bodies activating the blades when the windscreen is dry.



CAUTION

With very harsh weather, and with the freezing risk, detach first the wiping blades from the windscreen surface.

Before activating the windscreen wiping system make sure that ice has not stuck the blades on the windscreen surface; if necessary to spray an anti-freezing agent to detach them.

7.9 STERN COCKPIT TABLE (OPTIONAL)

There is table in the stern cockpit that is adjusted in height using electric actuators. The table height modification allows using it as a dining table and as a sun-deck for cushions that are joined to those of the sofa.

The table controls are installed on the side of the sofa.

1. UP
2. DOWN



DANGER

Moving parts: be alert, always keep hands and feet at a safe distance. Do not insert any object between the structure and its seat.



CAUTION

Do not sit on the table while it is in motion. This could impair the hard-top operation.

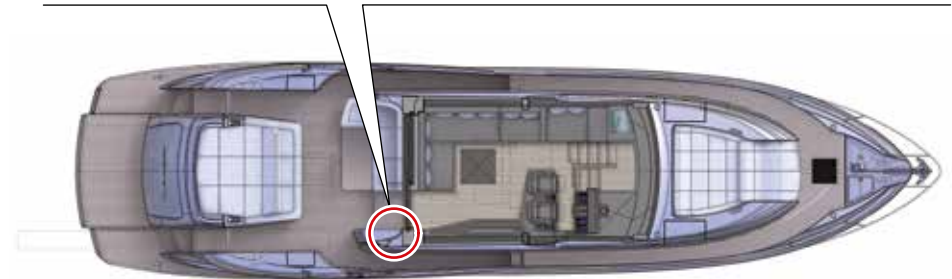


DANGER

During cleaning or maintenance operations, make sure that nobody can activate the sun-deck, because this can cause heavy injuries to persons; we recommend disconnecting the electric power supply.

NOTE

For further information on use and maintenance, please refer to the manufacturer's manual.



7.10 SACRIFICIAL ANODES

The metallic parts of the yacht are protected against galvanic corrosions by means of anodes installed in the stern hull, on the trim tabs, on the surface drive systems and on the spinners of the propeller axes. Check for their wear very frequently, as it depends also (and highly) on environmental factors like sea chains nearby, metal posts or shores, metal hulls moored nearby, electric devices, etc.. The replacement is necessary when the wear exceeds 50%.



CAUTION

Each time the yacht is lifted, check for the condition of the propeller, of the protection anode and of the fastening system.
Replace the anode frequently.

7.10.1 Grounding porous plate

An grounding plate is a plate of microspheres placed under the hull to recreate grounding on the electrical circuit of the devices supplying electricity in alternating current.

The grounding plate connects these devices to ground.

The grounding plate is not an anode. It must not deteriorate.

If it deteriorates, quickly consult a skilled electrician to determine the electrical dispersion.

7.10.2 Maintenance of sacrificial anodes

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Sacrificial anodes	Periodical check (At least once a month, or even more frequently, according to the stationary area) Assembly/disassembly	Metal parts are protected against galvanic corrosion (caused by electrolytic currents due to the approach of different metal bodies such as steel or aluminium) by means of sacrificial anodes, fitted on the bottom hull, on the propeller shaft, etc.. The wear of the anodes may depend on environmental factors such as nearby chains, hulls or metallic shores, or bad insulation of ground electric systems.
Porous plate	Periodical check Cleaning/Replacement	The porous plate to which is connected the grounding of the power generators is installed in the hull, below the water line. This plate allows the protection of metallic parts in case the sacrificial anodes are ineffective.

Sacrificial anodes

Periodical check

This operation must be carried out with yacht on dry shore or with the help of a diver.

Have the outer profile of the sacrificial anodes and porous plate checked. Have them replaced if they show evident signs of corrosion or if their volume is reduced to about 50%.



WARNING

Before cleaning the bottom or checking the underwater sacrificial anodes while the yacht is in the water, disconnect engines and generators, so they cannot be started accidentally. Serious injury or even the diver death could result. Remove the ignition keys.



CAUTION

Check the wear conditions of anodes and porous plate very frequently (when the yacht is on a dry shore or with the help of a diver) and replace them as soon as wear exceeds 50%.



CAUTION

Fail to replace the anodes, and the porous plate causes the spreading of corrosion on the other metallic parts.

Assembly/Disassembly

The sacrificial anodes are fastened to the yacht in several positions of the hull. We advise you to clean the seat of the sacrificial anode and cover with silicon the screws ends which fasten the anodes. This will ease the replacement of the anodes when worn out. We advise not to tighten the nuts fastening the anodes with glues or other materials which will hinder their removal.

**CAUTION**

Do not cover the contact surface between anode and hull with silicone.

PERSHING

7X

Information for use

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8. INFORMATION FOR USE

8.1 GENERAL INFORMATION

- Periodically check the availability and efficiency of individual and collective safety equipment.
- Keep a safe distance when anchoring.
- Check that all yacht safety equipment on board are in good conditions and no maintenance activity is overdue. (Note: the Manufacturer provides some equipment required by the international regulations. The Owner is responsible for the provision of any safety devices required by existing national regulations).
- If a fixed fire-fighting system is used, do not ventilate the engine room, until the fire has been completely extinguished.
- Ventilate the engine room before entering. Ventilate the lower deck compartment before entering, if portable extinguishers have been used.
- When operating the gangway, be sure that nobody is in the way.
- Oils, used filters, emulsions, coolants, electrolytes are all harmful products: avoid contact with the skin and dispose of them carefully.
- In engine room, be cautious with hot and moving parts.
- Wear hearing protection when entering the engine room.
- Do not use open flames and do not smoke, when handling fuel or lubricants.
- Do not scatter fuel in the environment.
- Replace the fresh water stored in the tanks frequently and apply bactericides as needed.
- Do not exceed speed limits in harbour and confined waters.
- Reduce speed in proximity of other yachts or swimmers.
- Adjust speed according to sea conditions.
- Reduce speed before entering the engines room. Modify the course, if necessary.
- Before connecting to shore, make sure that the main switch on the switch panel is disconnected.
- Before leaving the yacht, turn the battery breakers off.
- Handle hot oils carefully, in order to prevent serious burns.
- Secure engines, inverters and generator prior to performing any maintenance activity.
- Open the coolant tanks very carefully, in order to prevent serious burns.
- Do not perform any maintenance on the electrical panel of the generator, when they are running: risk of electric shock.
- Do not inhale exhaust fumes: risk of serious injuries or death.

- Before disconnecting a battery, check if the battery charger is operating. If it is, disconnect it and remove the negative wire first and then the positive one. When reconnecting the battery, proceed in the reverse sequence (the positive wire first and then the negative one).
- Replace immediately any part showing signs of corrosion.
- Never disconnect the batteries when the generator is running.
- Switch the radar off, prior to performing any work on the aerial.

8.2 PRECAUTIONS FOR HARSH CLIMATES

Periodically check that all equipment and machinery containing water is protected with the correct proportion of non-toxic antifreeze. If the outside temperature is below or close to 0°C, the fresh water and sea water systems run the risk of freezing. Piping and hoses may break from freezing and this could lead to sinking the yacht.

The systems subject to the risk of freezing include, but are not limited to, the engine and generator sea water and fresh water cooling systems, the fresh water system (cold and hot water piping, pumps and tanks), the windscreen washing system, the toilet and waste systems (piping, pumps and black water tanks), the air-conditioner pumps and piping, all sea water pumps and piping, the icemakers and refrigerators, etc..

For more information on the maintenance and service requirements of your yacht and its equipment, and for special information about maintenance with cold weather, see the sections in this manual that make reference to the single components, devices and equipment, but especially consult the User Manuals provided by the Manufacturers for specific information.

8.2.1 Cooling system

The antifreeze liquid is advised for all kinds of climates: it enlarges the working temperature range, lowering the freezing point and increasing the boiling point. When the temperature comes close to 0°C it is necessary, in order to avoid the risk of freezing, to make sure that the cooling lines are filled with antifreeze mixture. Otherwise, replace the cooling liquid with such a mixture.

Before carrying out the system filling with antifreeze mix, it is necessary to wash the cooling circuit.

We recommend the use of antifreeze liquid of which we indicate in the hereunder table the mix percentages according to the outer temperature.



ENVIRONMENT

Concentrated coolant must be treated as special waste.

When disposing of used cooling liquid, keep to prescription of Authority locally in charge.



CAUTION

Check periodically that all devices containing water are filled with the correct quantity of anti-freeze.

Each time that the outer temperature drops below 0°C the water (fresh or sea) inside the ducts may freeze and consequently break.

All systems and equipment containing water, both sea water systems (engine cooling system, generators cooling system, etc..) and fresh water systems (windscreen wipers, fresh water pump, etc..) may run this risk.

8.2.2 Fuel system

With low temperatures, Diesel fuel forms some solidified paraffin suspensions obstructing the fuel filters; in this way the normal engine supply is impossible.

The fuel as per European standard EN590 guarantees fluidity up to 0°C during the summer period, and up to -20°C during the winter period.



WARNING

There is a special type of fuel for the countries subject to very low temperatures.



CAUTION

Do not add petrol to fuel, in order to avoid serious engine damage.



CAUTION

Always refer to the manual delivered by the Manufacturer.

8.3 PREPARING FOR NAVIGATION

- Check the operation of the surface drives (move them from end to end, check their correct operation, then return them to central position);
- Check flaps operation;
- Operate both flaps. If not employed during navigation, flaps must be kept in neutral position. If not employed with ship stationary, flaps have to be kept completely "lifted";
- Check navigation lights and horn operation;
- Check the efficiency of the anchor winches and the anchor chain stopper;
- Check radiotelephone operation;
- Check documents and nautical charts;
- Check proper closing of portholes and hatches and materials proper arrangement;
- Check operation of bilge pumps and relevant indication lights;
- Cast off moorings, ensuring no obstacle can hinder unmooring operations (not aligned cables, chains, anchor log engaged in other boats moorings, etc..);
- Check that the engine room extractors are operating;
- Ensure no flammable or other improper materials have been stowed in engine room;
- Ensure that the hull valves for the cooling of engines, generators and air conditioning system are open;
- Ensure engines and generator fuel circuits are operational (open valves);
- Start the generator and, after a few minutes of pre-heating, load electric power by means of the control panel;
- Disconnect shore inlets/sockets (electric power supply, water supply, TV/Telephone, etc..);
- Connect engines and services battery breakers;
- Make sure all the equipments and loads on board are properly fixed;
- On the general electrical panel or on the monitoring system, verify the charge status of the batteries. If necessary, recharge them;
- Connect the 24V services on the general electrical panel. Disconnect not connected services after checking their proper operation;
- Verify that all on board fire extinguishers (portable and fixed ones) are charged and perfectly operating;
- Start the engines.

8.3.1 Weather

Learn to understand weather patterns and signs of change. Bad weather and sea conditions can cause an uncomfortable and unsafe situation. Here are a few basic weather-related rules:

- Check the forecast and sea conditions before leaving and while underway;
- A sudden change in wind direction or speed, or an increase in wave height indicates deteriorating weather;
- If a storm approaches, immediately seek a safe harbour;
- If a storm hits, head the bow of your yacht into the wind;
- If you encounter fog, determine your position, set a safe course, slow down and alert other boats of your presence with a sound signal.

8.4 NAVIGATION SET UP PROCEDURES

Accurate preliminary checks carried out with time, are fundamental for a safe navigation. Here is some fundamental advice to consider when setting up for navigation:

- Gather information on weather forecast and warnings.
- Consult the pilot's book.
- Consult the navigation charts, and consider the cruise distance, courses, dangerous sea bottoms and flats.
- Consider the quantity of diesel oil necessary.
- Consider the length of navigation.
- On the monitoring system and on the synoptic panel of the main helm station, check for a possible lighting of the warning lights of the bilge pumps, indicating the presence of water in the engine room.
- If the indicators are lit, turn on bilge pump switches.
- If pumps do not prime, batteries may be discharged (have them re-charged).
- If pumps work without interruption and discharge water, this means that the float switches are jammed or damaged (have them checked). If pumps work, but water does not come out, this means that the suctions are clogged (clean them).
- Check the cleanliness of the sea cock strainers for engine and generator cooling and for the supply of the air conditioning system. If they are dirty, check closing or close hull valves, remove and clean the baskets, then replace them and close the strainer housings; clean and open hull valves.



WARNING

During navigation, regularly check the cleanliness of the sea water strainer baskets. If the yacht is crossing a dirty sea area, check the condition of the strainers and proceed with their cleaning. Taking suitable precautions is very important to prevent damage to mechanical parts (engines, generators, etc..), discharge systems and to not jeopardize the safety of the yacht.



WARNING

Once the hull valves have been reopened, make sure that no leaks are present.

- Make sure that engines and generator V belts are properly adjusted. If necessary, restore correct tension.
- Check oil levels of engines, gear boxes and generators. If necessary, top up.
- Check engines and generators coolant level. If necessary, top up.
- Ensure fuel system separator filters are properly clean. If water is present, drain the filters.
- Check hydraulic oil levels of the various control units, gangway, flaps, lazarette hatch, swim ladder, etc.. If necessary, top them up.
- Check liquid levels (fuel, fresh water) in the tanks.



WARNING

To carry out the checks and the top-ups above mentioned, refer to specific manuals supplied by the Manufacturer.

- Ensure everything necessary has been loaded (provisions, nautical charts, documents, rockets, first aid kit, etc..).
- Check the proper fastening of all mobile components, on the main deck and lower deck.
- Ensure the load has been distributed evenly, so that the yacht maintains a proper trim.



CAUTION

The materials stowed in the storage room can alter the trim, especially the transversal one. Try to arrange load equally and securely, in order to avoid sudden displacements.



WARNING

The Captain must ensure all passengers are perfectly aware of safety equipment location and use (fire extinguishers, life rafts, life buoys, etc..).



CAUTION

Safety equipment should always be checked before each navigation, in order to ensure the good condition of the safety devices and to become familiar with their location and use. The little time spent may be very useful in case of need.

Create a checklist of safety equipment, as indicated herein after.

- Ensure that life jackets are in good conditions, that the inflating device is in working order and that the jackets are in the correct location and easily accessible (do not obstruct access hatches with anything).
- Ensure that the collective life rafts are easily accessible and that their mooring and anti-capsize line is in good condition (properly rolled up and not worn out).
- Ensure that the life buoy is in its correct location and fitted with relevant safety rope.
- Check extinguishers charge level;

The extinguisher is charged when the pressure gauge indicator is in the green sector.

8.5 FIRST PERIOD OF USE

During the first period of yacht operation, beyond the normal maintenance and check operations indicated in this manual, we recommend to carry out following additional operations and more accurate checks.

The duration of this period varies according to the frequency and use modes, such anyway to allow a correct run-in of all systems and components onboard.



WARNING

We recommend consulting the technical documentation provided by the Manufacturers of the various on-board systems and components; they can indicate operations, checks and specific times not included in this section of the Owner's Manual.

Following the first period of use, the hereunder listed additional operations and checks, should be performed at longer time intervals, playing anyway an important role for the safeguard and reliability of the yacht and navigation safety.

- It is recommended that new or overhauled engines should not be operated at higher loads than 75% of their maximum load and at variable speeds. After this initial run-in, the engine can be gradually brought up to full output.
- After starting each engine, check for the correct circulation of the cooling water inside the circuit, by verifying that it comes out of the drains. Check also for the presence of leaks from the sea cock valves and strainers of the cooling circuits.
- Before the engines start, check the correct tension of the v-belts.
- Check the possible presence of anomalous noises from the engines exhaust.
- During navigation monitor constantly the temperatures and operation pressures of the devices on board (propulsion engines, generators, gear boxes).
- Check, by means of the monitoring system, the correct load condition of the batteries starting the engines and services. Moreover, the engine alternators must correctly charge the batteries.
- Verify the efficiency of the surface drive (by often checking the tiller angle) and of the flaps.
- Before and after navigation, check the correct level of oil inside the hydraulic systems, such as the surface drive, hydraulic gangway and stern movements.
- After the generator start, wait several minutes before loading it. Bring it slowly to maximum performance monitoring its correct operation.

- Check the correct load level of all extinguishers (fixed and portable ones) installed on board; the indicator needle on the pressure gauge should be set in the green range.
- Check on the indicator of main pressure gauge, possible pressure drops inside the system.
- Check before and after navigation the correct operation of all bilge pumps on board.
- Check tightness and closure of portholes and hatches.
- Check the correct sliding and closure of the back wall, considering that it is not a watertight door.



DANGER

Before performing the listed checks and maintenance operations, we recommend to read carefully the Safety Rules relevant to maintenance, contained in this Manual.



WARNING

Should more or less serious faults be noticed, contact as soon as possible PERSHING After sales & Service Department.



CAUTION

PERSHING declines all responsibility concerning tampering carried out by third parties on equipment installed in the Shipyard. Such tampering or unauthorized installations will not only immediately void the warranty, but may cause damage to the yacht and injuries to the people on board.

PERSHING declines all responsibility concerning periodical maintenance activities scheduled by the Shipyard or by Manufacturers, but not carried out, of equipment/components, for which it is necessary to refer to their own Technical Manuals.



WARNING

Avoid prolonged use of engines at low speeds to avoid overheating of the exhaust pipes due to reduced cooling water circulation.

8.6 DEVICE SETTINGS CARRIED OUT BY THE OWNER

Magnetic compass



CAUTION

The yacht is delivered with a compass not compensated. The compass compensation has to be carried out at Owner's responsibility, after the installation of any additional electronic equipment, and should be performed by an authorised and qualified technician. Any electrical or metallic items located in its proximity may influence the compass.

Compensation

The compass compensation must be carried out by the Authorized Experts of the Marine Authority. As a consequence of variable magnetic fields on board and the prolonged anchorage always in the same bow, the compass turns for the relevant correction must be carried out at least every year.



CAUTION

Never unscrew for any reason screws and filling caps (1). The only screws to be regulated are the ones of the adjusters (2) (by means of the magnetic screwdriver at disposal). When the adjusters screw slot (2) is horizontal the setting is neutral, when it is vertical is maximum (see picture). Have this operation carried out only by specialized personnel.



8.7 REFUELLING



- Ensure the yacht is properly moored, stop engines and generators if running.
- The fuel fillers are located on aft of the left side walkway.
- Wash the teak with fresh water ahead of time to prevent soiling it accidentally.
- Loosen the filling nozzle, make sure that refuelling pump has suitable dimensions, then insert the pump and hold it still. Top up the tank but not to the highest level; this is to allow the fuel to expand into the tank without spilling out from vents.
- Monitor the level during filling using the level monitoring system when refuelling.
- During refuelling, monitor the vents, so as to check for accidental fuel spillages, due to the formation of air pockets and foam. In the final phase of refuelling (at about two thirds of capacity), it is advisable to carry out frequent stops to allow foam to dissolve.
- Tighten filler neck and remove any drops of fuel.



CAUTION

Refuelling should be performed at the end of navigation, in order to allow fuel cooling down, without condense. Drain the tanks, every 2 or 3 refuelling. Before refuelling, wash the teak with fresh water to avoid its contamination with fuel.



CAUTION

The inlet plug carries the indication "DIESEL - FUEL" to avoid accidental input of different fuels.

To avoid damage to the system and tank, we recommend replenishing by gravity and not by pressure.



ENVIRONMENT

Do not scatter fuel in the environment: it causes pollution.



WARNING

For the type of fuel to be used, follow the manufacturer's recommendations. Diesel engines require very clean fuel.

Keep filters clean.



CAUTION

Explosion/fire hazard

- Stow flammable material in a safety-approved container. Never stow flammable material in non-vented areas.
- Check bilge and engine room for fumes.
- Keep the ventilation system free of obstructions. Never modify the ventilation system.
- Inspect the fuel system for leaks.



CAUTION

Explosion/fire/pollution hazard

Fuel system connections that are too loose or too tight can leak, resulting in fuel loss, environmental pollution and explosion/fire danger.



DANGER

Do not smoke during refuelling.

Do not leave the yacht unattended, do not leave the engines running.

8.8 WATER SUPPLY



- Ensure the yacht is properly moored; we suggest to stop the engines and the generators, if running.
- The water inlet filler is located on the left lateral walk-around of the yacht.
- Loosen the filling nozzle and insert the hose, which must have suitable dimensions.
- During refilling, check the correct operation of the level gauge in the helm station.
- At the end of filling, remove the hose and tighten the filler plug.



CAUTION

Often replace fresh water in the tanks and, if necessary, disinfect it with suitable products. Avoid leaving the tanks full in case of frosting risk. During the supply, do not leave the yacht unattended.



CAUTION

The inlet plug carries the indication “WATER” to avoid accidental input of different liquids.

To avoid damage to the system and tanks, we recommend replenishing by gravity and not by pressure.



CAUTION

Before refilling the fresh water tank, check that the water supplied by the shore fresh water system is potable.

8.9 MOORING AND UNMOORING



CAUTION

Before the unmooring operation, ensure that engines, gear boxes, surface drive systems and bow thrusters are in good working order. During such manoeuvres, the Captain should prevent any unpleasant noise, and/or wake that might bother other people. Before starting this manoeuvre, make sure that doors, hatches, port-holes, etc.. are closed.



WARNING

Before starting the manoeuvre, make sure that people on board, especially children, do not hinder operations and that they stay in suitable places.



DANGER

Check with extreme care that no one boarded is in danger (with legs or arms outside edge, in precarious balance or moving on wet or slippery surfaces) and that the fenders are well positioned and fastened.

The yacht is equipped with very powerful engines, with a high performance surface drive and with very efficient bow/stern thrusters.

This latter is to be used at very low speed, or without making headway; at higher speeds, more correct reactions are achieved using the engine throttles in off-set way.

The ability to exploit these excellent qualities depends mainly on the “familiarity” the Captain has with his yacht. Practice is the only way to acquire confidence, and finally you will be able to safely perform mooring and unmooring manoeuvres even in very difficult or crowded areas.

A basic rule, that should always be applied, is to manoeuvre at low speed, so as to have enough time to react and to better evaluate the situation; because, in case of unexpected events, you will avoid damaging Yours and other’s yachts.

8.9.1 Leaving the mooring

The yacht is steered by means of the steering wheel that moves the surface drive.

In case of need and/or when in confined waters, manoeuvre the yacht by using the engines (changing the rpm and reversing the engine direction of rotation).

It is a good rule never to leave the steering wheel unattended, particularly when cruising at high speed or in confined waters.

Do not exceed the speed limits when operating in confined waters, harbours and wherever required.

Keep in mind that the rudders effect is proportional to the propellers rpm and to the yacht fresh way, especially with headway; as a result of an high rpm and an high speed, the rudder efficiency is high, while when the engines are idling, with low fresh way, the reaction of the tiller angle is almost negligible.



WARNING

Before unmooring disconnect the electric cable for shore electric power supply.

Before unmooring check following:

- That no other boats are manoeuvring nearby;
- That the mooring ropes are not damaged;
- That the fenders are positioned and well fastened (in case of wind or surf prepare a passenger with fender to avoid damages);
- That there are no floating objects or loosen ropes which can damage the propellers.

If the yacht is moored with the stern to the shore:

- Undo the stern lines, haul in the chain, until distant from the shore, and head to the exit.

If the mooring is on the side:

- Ease away the mooring rope from stern, warp on bow rope to move away the stern from the shore, manoeuvre for way out.

8.9.2 Mooring manoeuvre

Before setting back for the harbour, stop in free waters and test the gear boxes and the bow/stern thruster. Besides check:

- That mooring lines are ready for use;
- That the mooring berth and the berthing course are free from incoming, leaving or moored yachts or yachts with the signal of unsteered boat;
- Check that on the general electrical panel, all necessary services are supplied (anchor winch, bow/stern thruster, etc..). Disconnect unnecessary services;
- That flaps are lifted;
- That the yacht hook is easily accessible and does not hinder any passage;
- The operation of acoustic signals and of swinging spotlight;
- In case of at-night mooring, have a torch light (possibly operating) handy;
- That the passengers will not interfere with operations and, if participating, they know whom to listen to and what to do;
- That bilge, grey waters and holding tanks are empty;
- That mooring ropes and fenders are correctly arranged.

If the yacht is moored with the stern to the shore:

- Warp on stern ropes and on an anchor log, so as to haul the shore.

If the mooring is on the side:

- Warp on bow and stern ropes, so as to haul parallel to the shore.

Once moored:

- Stop the engines;
- Ensure that indication lights on the dashboard are off and remove start keys;
- Disconnect all unnecessary electric services and check the status of the general electrical panel;
- Check bilge pump switches and their regular operation;
- Check bilge and dry it;
- Ensure there are no leakages;
- Rinse the yacht with fresh water;
- Connect shore electric power supply;
- Stop the generator, once cooled down.

Before leaving the yacht, check following:

- Lower deck lights are not powered;
- Ensure that navigation lights, swinging spotlights and external lights are not supplied;
- Instruments not in use (plotter, radio, anchor winch, etc..) are not powered;

- Ensure that devices in use are powered; (automatic bilge pumps);
- Ensure that the shore plug is properly connected and the cable cannot be damaged;
- Disconnect battery breakers;
- Ensure that the safety equipment (life jackets, boathook, torches, etc..) are stowed properly;
- Ensure that no bottles or containers with flammable liquids are open or loose;
- Ensure that no food residuals are left around (which might go bad or clog scuppers etc..);
- Ensure that the gangway is in the right position and properly fastened;
- Ensure that mooring is correct (in case of bad weather forecast, tighten the mooring lines as much as possible and check the distance from other yachts is appropriate; ensure fenders are properly fastened, etc..);
- Ensure that sea water intakes are closed;
- That all portholes and the hatch are well closed;
- That lower deck compartments are properly closed;
- All fire extinguishers.

8.9.3 Unattended mooring

If the yacht is moored and left unguarded, operate as follows:

- Close sea cocks and overboard drain valves of sea water circuits;
- Check the condition of the general electrical panel and disconnect all unnecessary services;
- Check all on board compartments, portholes, skylights and bilge;
- Ensure the yacht is safely moored;
- Disconnect all unnecessary uses.



CAUTION

It is advisable to disconnect the electric plug from shore, especially if the yacht is left unattended for a long time.

It is necessary to recharge the batteries periodically.

Overboard outlets and drain pipes should be regularly checked, in order to ensure good buoyancy.

The electric system should be regularly checked, in order to prevent fires on board.



CAUTION

Inform the Port Authority about the location of the on-board fire-fighting system.



CAUTION

Disconnect all pumps of the yacht.

8.10 YACHT OPERATION DURING NAVIGATION



WARNING

Persons operating your yacht must never be under the influence of alcohol or drugs. The yacht's pilot should be experienced in the use of all instruments and controls, and know the handling characteristics of the yacht at all speeds and sea conditions.

You should be certain that persons intending to operate your yacht are completely knowledgeable about its proper operation. If you are not certain about an individual's qualifications or competence, the person must be supervised by a qualified operator.

The yacht is very efficient and is equipped with very responsive rudders; nevertheless, because of its size and performance capability, only persons experienced, competent, responsible, cautious and with necessary qualifications should operate the yacht.

The yacht is manoeuvred by means of the steering wheel in the helm station. The rudder wheel acts the orientation of the surface drive by means of an electro-hydraulic system. The steering gear operation is independent from the engine operation. Never leave the steering wheel unattended when the yacht is navigating. Keep in mind that the rudder effect is proportional to the propeller rpm and the yacht's speed, especially when moving forward.

As a consequence, the rudder efficiency is high at high rpm and speed. On the contrary, when the engines are idling and the yacht's speed is low, the yacht's reaction to the tiller angle is almost negligible.

If necessary, or when in restricted waters, you can steer the yacht with the engines by varying and/or reversing the engine speeds and alternating power from port and starboard engines.

At low rpm's, operating on a single engine, alternating port and starboard engines and using the "back and fill" method for turning the yacht is the recommended practice. Learn and practice the skills for handling the yacht at low speed and engine rpm.

When the yacht's speed increases, the transition of the hull from displacement mode to planing mode is a critical phase.

The transition to the planing mode should be done as quickly as practical to achieve fuel efficiency and provide a comfortable motion.

The minimum planing speed depends on yacht's displacement, the load distribution; trim tab position and sea conditions.

Adjust speed and trim tab position according to the conditions of the sea and to the loading conditions of the yacht, in order to ensure an easy yacht movement and to avoid stress to the structure due to the effects of sea conditions.



WARNING

At high speed, the use of the autopilot is dangerous and not recommended. Anyway, be always very careful during navigation also when the autopilot is in use.

The high quality engines allow running the yacht safely at cruising speed for extended periods of time.

8.10.1 Operating in shallow water



CAUTION

COLLISION HAZARD - Use extra caution in shallow water or where underwater/floating objects may be present. Hitting an object at high speed or at an acute angle can injure persons and damage your yacht.



WARNING

The best compromise for speed, a better comfort and to minimize fuel consumption is to run the engines at 1500/2000 rpm at the maximum rated speed.



WARNING

During navigation, keep the stern window closed, to prevent engine exhaust fumes and splash water from entering the interior. As the closure is not watertight, do not aim water directly onto the window when washing down the yacht.

Observing the following guidelines will improve comfort, minimize noise inside the yacht, avoid damage and assist in the proper operation of the yacht.

- Do not run the engines at idle longer than necessary.
- Avoid sudden accelerations and decelerations, which create stress on engine turbochargers.
- Run at idle for a few minutes before shutting down the engines, to allow a gradual cool-down.
- Once the yacht is at cruising speed, the engine instrumentation readings should remain steady. However, if, during normal operating conditions, the engine gauges show abnormal or contradicting values, investigate for possible systems and/or equipment problems or failures (stop the engines).
- Monitor the control panel gauges and system condition alerts frequently.
- Once in open waters and well clear of other boats, increase the engine rpm gradually, until the desired speed is reached. Adjust the flaps and surface drive positions for the best performance.
- Adjust the speed to accommodate sea conditions.

- Check the engine exhausts. Very black smoke means in particular dirty filters or unburned fuel, due to improper calibration of injection pumps or injectors. Very white smoke may mean presence of water in the fuel. Bluish smoke may mean abnormal oil combustion.
- In case of abnormal vibration, reduce speed and run at slow rpm until the cause of the vibration is determined. If the vibration is severe, take the engines out of gear. It may be necessary to check the propeller condition. It may also be necessary to have a specialized technician check the alignment of the propeller axes.
- Perform a visual inspection of the bilges periodically.

Be aware of the fuel supply in relation to the distance you plan to cover.



WARNING

While the yacht is underway, all persons on board must be seated in the designated seating areas in order to prevent injury due to falls caused by sudden yacht movements in active wake areas or in the event of sudden changes in yacht speed or during manoeuvring.

8.11 PRECAUTIONS DURING NAVIGATION

- During navigation do not unlock the chain stopper because you can seriously damage the yacht bow.
- Maintain a safe speed for the sea conditions, visibility, and when near other yachts.
- Do not exceed speed limits in harbour and confined waters.
- Follow all navigation rules applicable to the waters in which you are operating.
- Provide laminated plastic reference cards for the Rules of Navigation and have them available for quick reference at the helm station.
- Consult charts for information on locations of reefs, rocks, shoals, or other hazards to make sure that the yacht is not at risk of grounding or collision with fixed or floating structures.
- Frequently check that your route ahead and around the yacht is unobstructed (no yachts or objects in the expected route or approaching your yacht).
- Frequently confirm the yacht's position as you cruise, using all available aids, such as charts, visual observations and bearings, depth soundings, GPS, radar, etc..
- If the yacht is controlled by the autopilot, be especially careful to keep a good visual watch. The autopilot cannot see.
- Before night navigation, make sure that navigation lights and search lights are operational. Ensure that the correct navigation lights are turned on for operation at night. Do not keep the anchor riding light on while the yacht is navigating.
- Use navigation lights in all conditions of reduced visibility, such as fog and rain and at all times between sunset and sunrise.



WARNING

When navigating at night, visual sharpness is crucial for a safe passage. To avoid collisions, reduce speed at night to compensate for limitations of visibility. Avoid switching on inner lights that may affect the pilot's night vision.

- Know the characteristics of the sea bottom prior to anchoring. Keep well clear of other anchored yachts.
- During anchoring, pay special attention to avoiding rotating parts of the winch and take precautions when handling the anchor chain as it comes off the winch. Caution is needed to avoid injury to hands and fingers. Also, take care to avoid entangling feet and legs in the anchor rode.

- While the yacht is underway, all persons on board must be seated in the designated seating areas in order to prevent injury due to falls caused by yacht movements with rough sea and in active wake areas or in the event of sudden changes in yacht speed or during manoeuvring. No one should be seated on the spoiler or forward decks when the yacht is navigating.



WARNING

Persons entering the engine room when the yacht is navigating should be aware of the hazards of the yacht's motion and their potential exposure to high ambient temperatures, hot equipment components and operating machinery within the engine room.

Prior to entering the engine room, set the yacht on the most comfortable heading for sea and wind conditions. Persons in the engine room should maintain communication with the pilot.



CAUTION

To avoid heavy injuries or even death caused by hazards in the engine room, avoid the contact with hot and/or moving parts, while you are working in this area, wear proper safety clothing and also safety goggles and safety gloves. Be extremely cautious in proximity of hot and moving parts. Wear hearing protection if the engine is running.



DANGER

It is absolutely forbidden to perform reverse run with one of the two engines stopped. This operation is allowed only in case of life danger for the persons on board and for the safety of the yacht itself, however when the engine is running it should not run higher than 1000 rpm.



WARNING

For comfort and safety, reduce speed in the presence of waves.

**DANGER**

It is forbidden to make sudden manoeuvres at high speed.
This can lead to accidents for people on board.

**DANGER**

It is forbidden to stop or sit on the foredeck during high speed navigation.

8.12 PREPARATION FOR ANCHORING

**CAUTION**

If the anchor has to be used, unlock it, check the wildcats clutch engagement and test the operation of the anchor winch from the helm station in use.

We remind you that the anchor winch system is not equipped with stroke- end safety devices; therefore, we suggest you to “manually” handle the last metres of the chain, by means of the remote control buttons, when the anchor is close to the roller or when you reckon to ease away almost the whole chain.

To avoid overheating of the anchor winch, it is advisable to help recovering it, by moving slowly the yacht toward the chain, without approaching it too closely, so as not to damage the hull.

If the chain has been drawn, after anchoring on muddy or weedy bottom, we suggest you to wash it during its weighing, by means of the tap, located at bow.

8.13 SUGGESTIONS FOR NAVIGATION UNDER SPECIAL CONDITIONS

8.13.1 Navigation with bad weather conditions

Your yacht has been designed for a safe and comfortable use, under all weather and sea conditions, bad or favourable; in any case, the navigation safety (especially with bad weather) depends mainly on the Captain's behaviour, who should either not set off or reduce the yacht's speed, sometimes considerably, and steer the yacht with the proper attitude.

It is very important during navigation with harsh weather, to make sure that all pieces of furniture, hatches, and mobile parts, are duly fastened or stowed, to avoid damages and above all to avoid hurting persons on board.

The reliability of the machinery, also due to a perfect maintenance, the scrupulous check during the pre-navigation phase and a Captain of proven experience assume, under adverse sea and weather conditions, an even greater importance.

The following table shows the maximum speed allowed in function of the wave height, in order to safeguard the yacht structural integrity.

Speed (knots)	Wave height in metres
10	1,74
11	1,53
12	1,36
13	1,23
14	1,11
15	1,01
16	0,93
17	0,86
18	0,79
19	0,74
20	0,69
21	0,65

Speed (knots)	Wave height in metres
22	0,61
23	0,58
24	0,54
25	0,51
26	0,49
27	0,47
28	0,44
29	0,42
30	0,40
31	0,39
32	0,37
33	0,36
34	0,35
35	0,33
36	0,32
37	0,30
38	0,29
39	0,29
40	0,28
41	0,27
42	0,26
43	0,26
44	0,25
45	0,24
46	0,23
47	0,23
48	0,22
49	0,21
50	0,20



WARNING

PERSHING declines any responsibility for the improper use of the yacht, in relation to the wave height conditions.



WARNING

Before undertaking navigation, it is necessary to be aware of the sea and weather conditions you will find along the transfer route and in the area you want to reach.

Beaufort Scale	Descriptive Term	Wind speed		Probable Wave Height (metres)	
		m/sec	knots	average	max
0	Calm	0 - 0,2	up to 1	-	-
1	Light air	0,3 - 1,5	1 - 3	0,1	0,1
2	Light breeze	1,6 - 3,3	4 - 6	0,2	0,3
3	Gentle breeze	3,4 - 5,4	7 - 10	0,6	1,0
4	Moderate wind	5,5 - 7,9	11 - 16	1,0	1,5
5	Gentle wind	8,0 - 10,7	17 - 21	2,0	2,5
6	Fresh wind	10,8 - 13,8	22 - 27	3,0	4,0
7	Strong wind	13,9 - 17,1	28 - 33	4,0	5,5
8	Gale	17,2 - 20,7	34 - 40	5,5	7,5
9	Strong gale	20,8 - 24,4	41 - 47	7,0	10,0
10	Storm	24,5 - 28,4	48 - 55	9,0	12,5
11	Violent storm	28,5 - 32,6	56 - 63	11,5	16,0
12	Hurricane	over 32,7	over 64	14,0	-

8.13.2 The wind rose ranks winds by their origin

It is particularly used in meteorology since it concisely represents the distribution of wind speed by direction in a particular place.

It is a polar graph in which the points are coloured with bands corresponding to the classes of wind speed for each direction.

The length of the points changes depending on the wind frequency in each direction.

The simplest wind rose is that with 4 points formed by only the four cardinal points:

- North (N 0°) from which the north wind blows;
- East (E 90°) from which the east wind blows;
- South (S 180°) from which the south wind blows;
- West (W 270°) from which the west wind blows.

Four intermediate points can be established between the four cardinal points:

- North-East (NE 45°), from which the north-east wind blows;
- South-East (SE 135°), from which the south-east wind blows;
- South-West (SW 225°), from which the south-west wind blows;
- North-West (NW 315°), from which the north-west wind blows.

Therefore by listing clockwise the eight principal winds are:

NORTH (N)	0°	Tramontana north wind	It is very intense and often in bursts, usually very cold or even frozen. Usually it anticipates dry weather and clear sky.
NORTH-EAST (NE)	45°	Grecale or Greco	It blows from the north-eastern Balkans area although the name indicates an origin further south "from Greece", due to the "Wind rose" position. As the Tramontana north wind, it blows in bursts. It is a cold wind and brings dry weather.
EAST (E)	90°	Levante east wind	It name indicates "where the sun rises" direction. It is rather weak and simply is an advance of the Scirocco and therefore an announcement of deteriorating weather.

SOUTH-EAST (SE)	135°	Scirocco south-east wind	The name indicated the Syria origin. It is a warm wind that creates rough seas and that it becomes very humid in the northern regions due to the passage on the Mediterranean sea. It indicates the arrival of disturbances.
SOUTH (S)	180°	Mezzogiorno or Ostro south wind	It is weak and on the Italian regions not very perceived except in the Adriatic sea.
SOUTH-WEST (SW)	225°	Libeccio south-west wind	The name indicated the Lybia origin. It born in a rapid way reaching also considerable force. It drops suddenly and usually remains a situation of good weather. When it blowing is annoying and dangerous for the navigation: causes a strong wave motion.
WEST (W)	270°	Ponente west wind	It indicates the sinking direction. It is more common in summer and usually blows in the afternoon. It indicates, however, good weather.
NORTH-WEST (NW)	315°	Maestrale north-west wind	The name refers to Rome, "Magistra" for the ancient people. It is a cold wind, stronger and more constant of the Tramontana. It sweeps away the clouds of disturbances and brings good weather, clear skies and dry weather.

These four winds combined with those coming from the four cardinal points form the wind rose to 8 points.

Among the eight points identified above can indicate other eight, intermediate between the earlier, resulting a wind rose to 16 points.

The new eight points are clockwise: north-north-east, east-north-east, east-south-east, south-south-east, south-south-west, west-south-west, west-north-west and north-north-west.

The maximum extension of the wind rose is divided into:

- Four quarters of 90°, which leads to a division into 4 points
- Each quarter is divided into two winds of 45°, thus arriving at 8 points
- Every wind is divided into two half winds from 22°30', thus reaching at 16 points
- Each mean wind is divided into two fourths (or rhombs) from 11°15', thus reaching at 32 points

- Every fourth is divided into two half fourths from 5°37'30", thus reaching at 64 points
- Every half fourth is divided into two fourths from 2°48'45", thus reaching at 128 points

In ancient times each compass had the image of a wind rose to 32 points on the background. The horizon was thus divided into thirty-second parts, which were called the fourth, they were used as the approximate unit during the approach manoeuvres (e.g. lay two fourths starboard). Due to the shape that is created in drawing them, they are also called rhombs.

Once in Italy, cartographic representations included a wind rose pointing to the cardinal points.

Today it is used to indicate the four cardinal directions and the component directions with (clockwise from North) : N, NE, E, SE, S, SW, W, NW, then with the terms Tr (tramontana north wind), G (greco north-east wind) + (a cross pointed to the east), S (scirocco south-east wind), O (ostro south wind), L (libeccio south-west wind), P (ponente west wind), M (maestro north-west wind).



8.13.3 Wind classification

All types of winds existing on our planet.

CLASS	NAME	CHARACTERISTICS
Constant Winds that blow throughout the year, always in the same direction.	Trade winds	They blow in the areas between the equator and the tropics: from north-east to south-west in the southern hemisphere, they are generated in tropical anticyclonic areas converging towards the equatorial zones.
	Extratropicals	They blow in the equatorial zones where, due to the heating, masses of hot and humid air ascending are formed.
	Westerly winds	They blow between 35° and 60° in correspondence of the temperate zones: from the south-west to north-east in the northern hemisphere, from north-west to south-east in the southern hemisphere. They are regular winds of the temperate zone.
Periodical winds Winds that periodically reverses the direction; they may be seasonal period, as the monsoons and Etesian winds, or in daytime period day as the breezes.	Monsoons (from the Arab word mausim, meaning season)	They are wind systems characteristic of the Indian Ocean and China seas; they blow during the summer semester (April-October) from the ocean (anticyclone) to earth (India and Asia north-eastern, cyclonic areas); during the winter months from India to the ocean (East Africa).
	Etesian winds (from the Greek word étos, meaning year)	They blow during the summer, from the Aegean sea to Egypt, and in the opposite direction during the winter.
	Breezes	Moderate winds in daytime period. They are distinguished into sea and land breezes: blow throughout the day from sea to land and at night from land to sea, mountain and valley breezes: by day blow from the valley to the mountains and by night from the mountain to the valley; lake and shore breezes: they act as the previous.

CLASS	NAME	CHARACTERISTICS
Variable or Local winds Winds that irregularly blow in the temperate zones every time that cyclonic or anticyclonic areas form.	Scirocco south-east wind (from the Arab word shulūq, meaning noon wind)	Warm wind that comes from the Sahara desert, proceeding from the south-west to north, becomes laden with moisture over the Mediterranean and reaches Europe humid and violent.
	Mistral (from ancient Provençal maestral)	Very cold wind that blows from the Central French Massif and reaches the maximum power in the Rhone valley.
	Fohn or west wind (from the Latin Favonius, favère, meaning to make grow)	Hot, dry wind that mainly blows in spring and autumn in the alpine valleys to Austria and Switzerland, and sometimes reaches the Po Valley.
	Ghibli (from the Arab word qibli, meaning southern wind)	Wind of the desert, very hot and filled with sand, which blows for about thirty days a year on the territories of Tunisia, Libya and Egypt.
	Khamsin (from the Arab word khamasin, 50)	Hot, dry wind that blows in the Nile Delta from April to June. Lasts 3 to 5 days.
	Harmattan (from the Sudanese word haameta'n)	Hot dry wind that blows very violent on the territories of West Africa. It coming from the north-west in winter and spring.
	Bora (from the Greek word boréas, north)	Cold and very violent wind that blows from the Illyrian mountains in the former Yugoslavia to the coasts of Istria and Dalmatia and also arrived in Trieste. It blows only in winter.
	Austro south wind (from the Latin auster, south wind)	Warm wind that blows from the south.
	Gregale north-east wind (from the late Latin Graecalis, of the Greeks)	Wind blowing from the north-east to south-west on the central and southern Mediterranean sea during the cold seasons.
	Maestrale north-west wind (from maestro as main)	North-west wind. It is one of the winds that predominate on the Mediterranean sea.
	Tramontana north wind (from Latin trans montanus, beyond the mountains)	Cold wind, sometimes violent, coming from the north in winter season and that can invest across the Italian peninsula.
	Libeccio south-west wind (from Libycos, coming from Lybia)	Wind from the west or from south-west, it is violent in all seasons. It blows over Corsica and on Tyrrhenian Italy.
	Chinook (from the name of a Native American tribes of the north-west of the United States of America)	Hot, dry wind that blows from the north-west on the Rocky Mountains (USA) mainly in spring and autumn.
	Pampero (from pampas)	Cold and humid wind blowing from the west between July and September especially on the Rio de la Plata (Argentina).

CLASS	NAME	CHARACTERISTICS
Irregular or cyclonic winds	Cyclones	They are defined irregular winds and are violently destructive with whirling motion; they take different names by town: Hurricanes in the Antilles and American coasts of the Atlantic, typhoons (from the Chinese t'ai fung, violent) in the Yellow Sea and the Philippines; Tornado (whirl, vortex) in the Great USA Plains and Australia.

8.14 ENGINE EMERGENCY SUCTION FROM THE BILGE

In the engine room there is the bilge emergency draining system, which operates with shunters, which allow using the sea water pumps, driven by the propulsion engines as draining pumps.

The diverters are valves which, in normal position, ensure the sea water suction for engine cooling, through the sea cocks and the sea water strainers. In case of emergency, use the handwheels of both valves, taking them to the emergency position; the suction of the pumps, driven by the engines, is now directly diverted towards the bilge. Should it be necessary to use this draining system, the bilge level must be checked continuously, because in case of complete drainage, the engines will not be cooled down.



CAUTION

The valves for bilge emergency suction have to be handled only in case of engine room flooding.

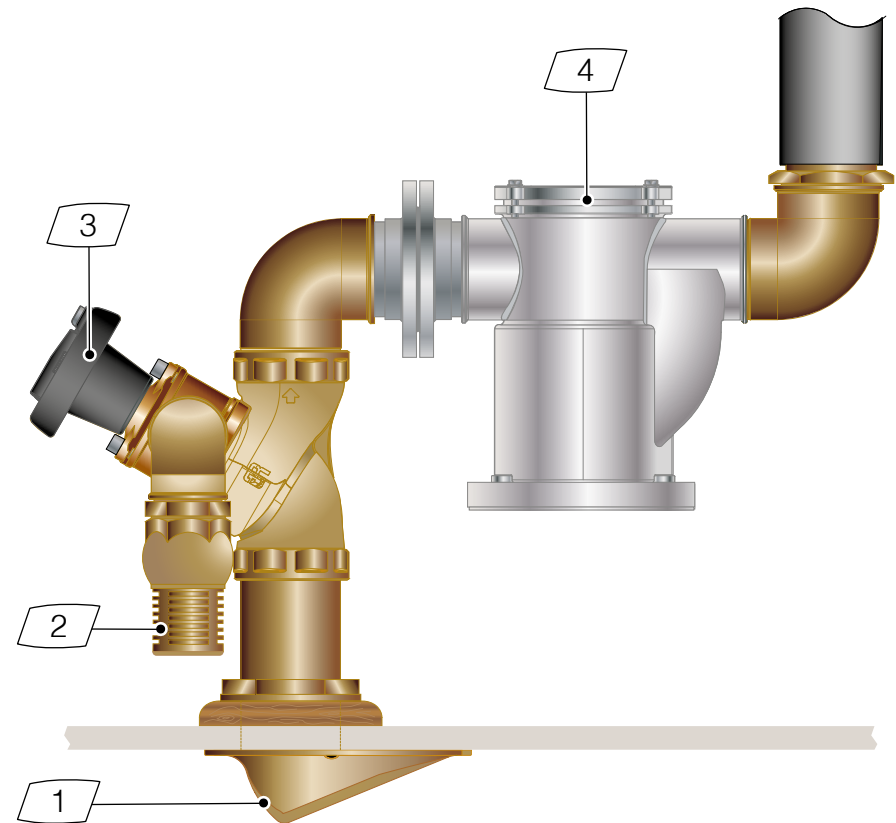


1. Engine sea cock
2. Bilge emergency suction cocks
3. Suction selection handwheel
4. Engine sea cock strainers



CAUTION

When the bilge is empty, remember turning the valves back to sea water intake position, in order to avoid damaging the engines.

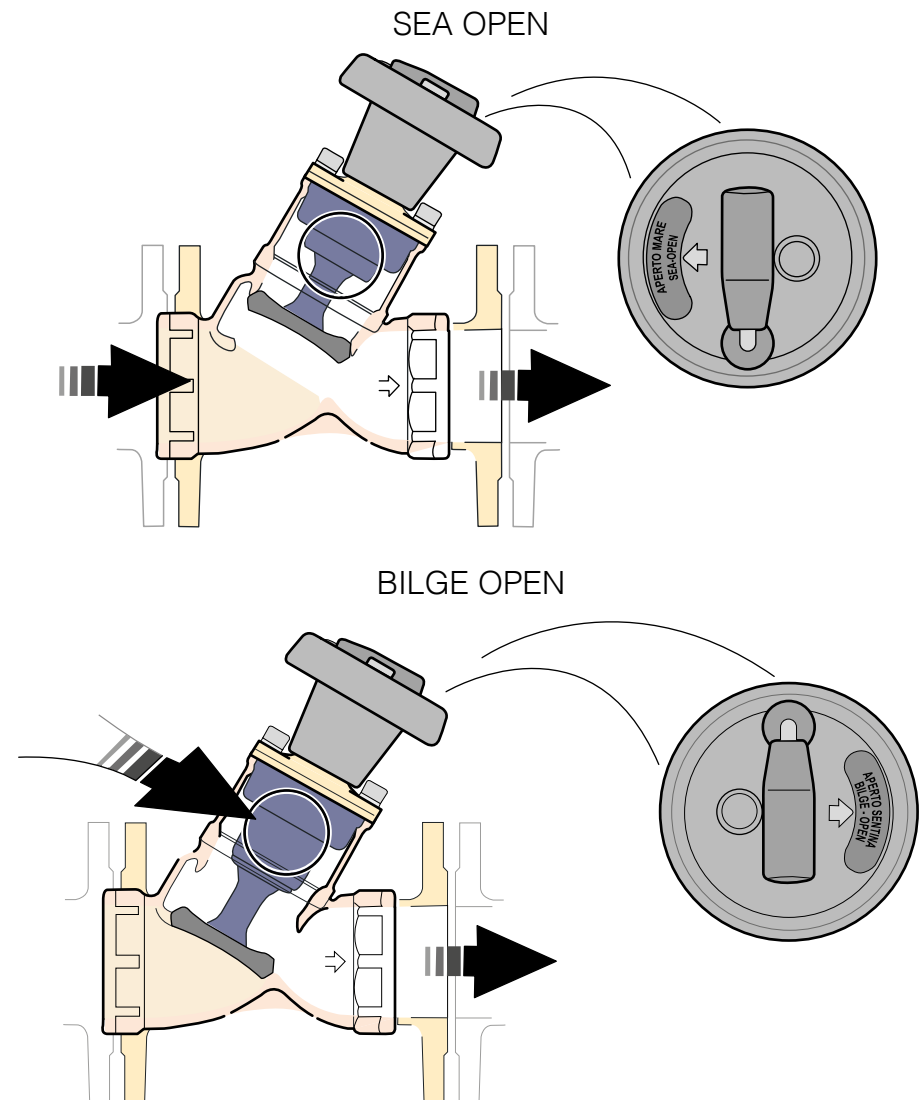


8.14.1 Operating diagram

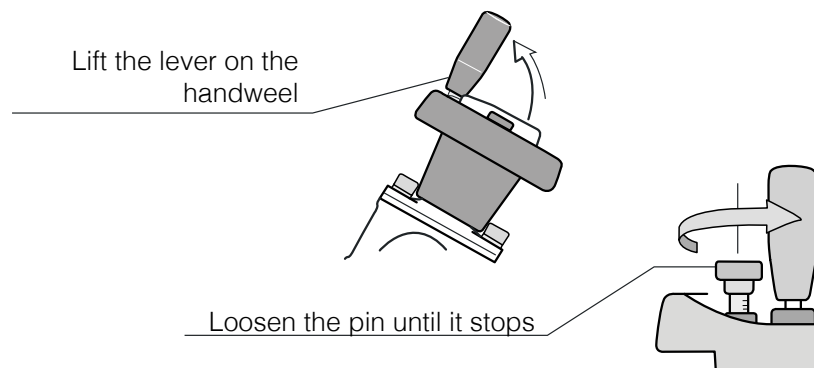
All valves are provided in the SEA-OPEN position. Before proceeding with the installation, visually check the passage and that the wording through the handwheel window reads: **APERTO MARE / SEA-OPEN**.

The direction of the water flow through the valve must align with the arrow on each valve.

The handwheel is provided with a position indicator to simplify its use.

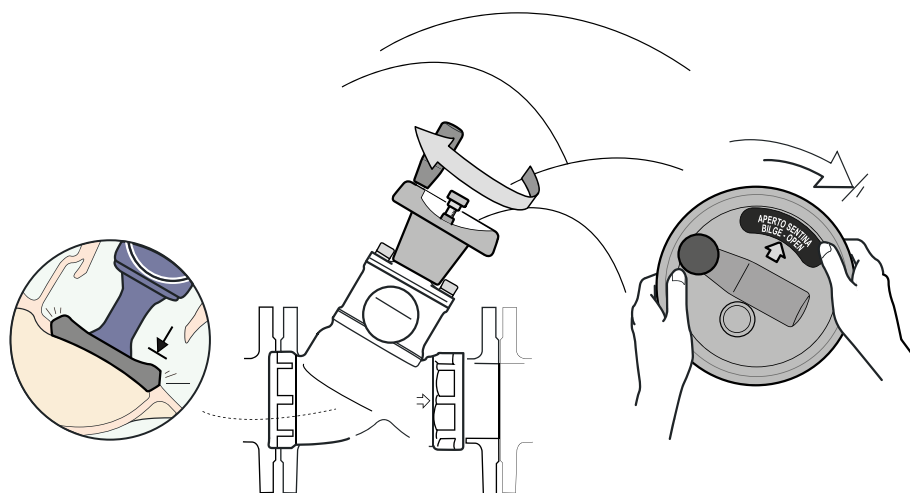
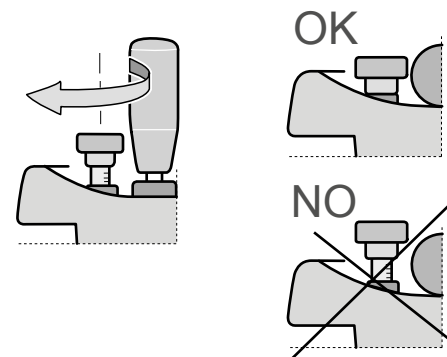


To enable water inlet from **SENTINA / BILGE** proceed as follows:



Turn the handwheel clockwise until it stops. In this phase the shutter, located in its housing, offers resistance. With both hands, close until it mechanically locks. The wording in the handwheel window will read: **APERTO SENTINA / BILGE-OPEN**, which indicates the inlet position.

Tighten the pin until it stops



CAUTION

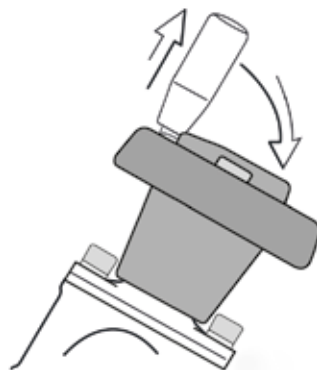
The pin is correctly tightened as shown.
A complete closure of the pin has the purpose of preventing any movement of the shutter.

Lower the handwheel lever into its seat.

To enable water inlet from **MARE**, proceed as described above, turning the handwheel counterclockwise. Once the operation is finished, the wording in the handwheel window will read:

APERTO MARE / SEA-OPEN

which indicates the inlet position.



8.14.2 Maintenance

During ordinary maintenance, which must be carried out while the yacht is in dry shore, it is recommended to extract the valve control block as follows: make sure that the indicator is positioned to **SEA OPEN** (first turn the handwheel counterclockwise). Loosen the screws with an Allen wrench and extract the mechanism (M) from its body, paying special attention to the rubber components (gaskets).

DO NOT remove the handwheel from its seat!

If necessary, clean the rubber components with fresh water and soap, do not use any chemical cleaners and pay attention not to damage the gaskets. If necessary, the control block can be replaced with a new one.

When reassembling, use silicone grease, and pay special attention to the seats of the gaskets.

Make sure to insert the mechanism in **“APERTO MARE - SEA OPEN”** position (first turn the handwheel counterclockwise as indicated in the INSTRUCTIONS).

Tighten the screws with a torque of approx. 9 Nm.

8.15 HAULAGE AND LAUNCH



CAUTION

The lifting method depends on the type of the lifting equipment, therefore it cannot be suggested.



CAUTION

Before the haulage and launching operations, check that no foreign materials are on board, that all items are properly rigged and that nobody is on board.



WARNING

Hauling and launching operations have to be carried out only by skilled personnel and in qualified shipyards.
PERSHING declines any responsibility for damages to things or persons caused by the wrong performance of specified operations.

- The lifting straps must not be worn out, and should be covered with suitable protections to preserve the bulwarks' gel-coat and the bottom hull antifouling paint.
- The travel lift capacity must be greater than the yacht weight.
- If only one crane is available, use a "spacer" to give the lifting straps an angle greater than hull width.
- Test the stability before lifting the yacht, its centre of gravity depends on the load and its displacement.
- When ashore, the yacht must be located on a cradle with five supports at keel of width and size adequate to distribute the yacht weight evenly.
- The hull inclination must be as "natural" as possible, e.g. it must be parallel to the waterline and not to the keel. This to prevent that liquids on board keep a normal level and that rainwater can be drained naturally.



CAUTION

Never position the lifting straps in the areas highlighted on the drawing.



CAUTION

Do not put the lifting straps in way of intakes, of sea exhausts or of other protrusions.

Lifting straps must be positioned according to the loading conditions of the yacht at the moment of its lifting, because these vary remarkably, for instance, when the yacht is unloaded and dry or when the yacht is fully loaded. The lifting straps arrangement must be carefully evaluated each time, in order to prevent any damage to the yacht.



CAUTION

PERSHING declines all responsibility for the location of the lifting straps, the lowering of the yacht to the ground and the support points carried out in other Shipyards.



DANGER

During haulage and launch, never stay underneath or in proximity of the yacht.



WARNING

If you want to cover the yacht with a protection sheet, you must arrange a frame to support the whole covering.
Avoid covering the whole yacht without a supporting frame as it could be loaded by water or snow pockets, etc..

Cradles

PERSHING is capable of providing the cradles for a correct support of the yacht (optional on demand). PERSHING is not responsible for any damage resulting from the use of cradles different from those expressly produced by PERSHING.

Propping

It is a common procedure to use supporting props if no actual storage capacities are available. It is very important to take some basic precautions while positioning the supporting props for the yacht in order to prevent damaging the hull structures, accidental falls of the yacht or injury to the involved personnel. The following list contains useful advice. We also recommend always having propping operations carried out by experienced personnel.

- Use props with adequate strength and stability (each keel prop must support at least 1/5 of the whole weight of the yacht).
- Use correctly dimensioned supporting plates to prevent negative weight concentrations.

- Place the props preferably next to transversal structural reinforcements (stringers).
- Locate the props along the supporting fins of the hull.
- Always place at least 5 props along the keel, 4 props starboard and 4 props port in order to guarantee stability and weight distribution.
- Start positioning the three keel supports along a straight line, appropriately spaced to distribute weight.
 - Distribution of central supports starting from aft: 568 mm → 4035 mm → 4832 mm → 2381 mm
- It is important that the props have the same height in order to prevent that the load is concentrated mainly on one of them.
- Have the yacht lowered very slowly until it almost touches the keel props, adjust the height of the props until they are in contact with the keel, in order to guarantee a uniform load distribution and a neutral trim of the yacht; keep part of the weight supported by the crane.
- Position the adequately spaced lateral props; it is important to remember that the lateral props must guarantee stability, but the whole weight must be supported mainly by the keel props.
 - Distribution of lateral supports starting from aft: 568 mm → 2312 mm → 3761 mm → 3615 mm → 1671 mm
- Check the support for stability, then completely lower the yacht and remove the belts.

The suggestions above are to be considered as being generally valid for propping the yacht without damaging it or harming the personnel involved; however, since the propping conditions may significantly vary depending on the props used and the surface on which the props rest, the above suggestions must be adapted case by case. PERSHING is therefore not responsible for any damage to the yacht occurring while the yacht is at dry shore on props.



CAUTION

PERSHING declines all responsibility for the location of the lifting straps, the lowering of the yacht to the ground and the support points carried out in other Shipyards.

8.16 TOWING OF THE YACHT

In case the yacht needs to be drawn or towed, fasten the towing lines as shown in the figure, in order to distribute the load evenly and pull in the middle.

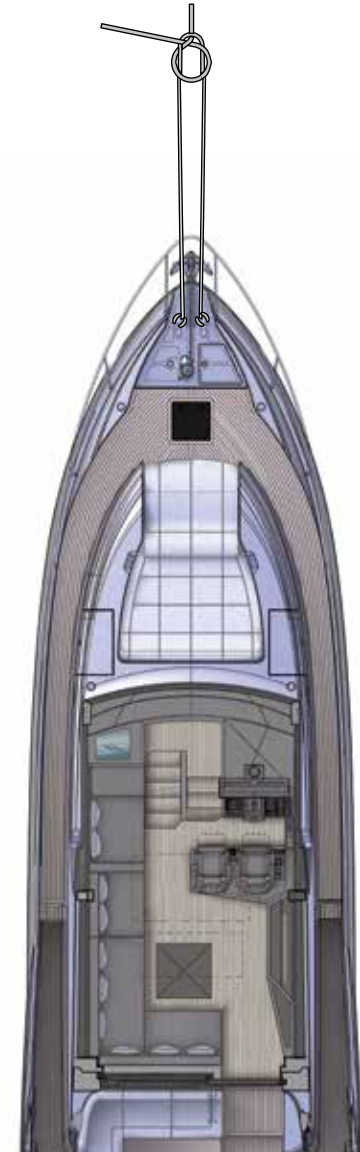
After fastening the lines to the cleats, fasten the rope to the winch in order to load the strongest points only.

The towing rope length depends on the sea conditions, and must be adjusted in such a way to limit the pulling forces without damaging the deck fittings.



DANGER

Do not approach and do not carry out any kind of intervention on transmission during the towing because propeller can turn.





WARNING

The towing navigation can be carried out continuously 8 hrs long unless you have a watch at the gear box oil temperature, that it should not override 80°C (176°F). If the temperature exceeds the 80°C (176°F), stop navigation and wait until temperature lowers. When the engine is shut off, the throttle position is unimportant.



WARNING

In case it is necessary to tow another boat, do this under calm sea and calm wind conditions only, and tow boats with a displacement not exceeding 50% of your yacht displacement; in case of emergency, if towing is not possible, give help by taking the people of the other boat on board, as many as permitted and possible, and reach the nearest harbour. Anyway, inform immediately the Port Authority.



DANGER

During towing navigation, the propeller has to be kept turning by the water flow. We recommend not to carry out any kind of service on the propulsion devices (engines, gear boxes, axes, etc..).



CAUTION

Always tow other boats or let your yacht be towed at low speed. Never exceed the speed of the towing boat when you are being towed.



CAUTION

Fasten your yacht to a towing rope so that it can be released when loaded.



CAUTION

It is the Owner's/the operators' responsibility to make sure that the mooring ropes, the towing ropes, the anchor chain, the anchor lines and the anchor are suitable for the intended use of the yacht, i.e. the resistance of the ropes or chains must not exceed 80% of the resistance to breaking of the relevant strength point. The Owner should also determine which action is necessary when fastening a towing rope on board.



CAUTION

Do not stand near the ropes during drawing (or towing) operations, a rope that breaks can be extremely dangerous ("whip lash effect").

8.17 YACHT STEERING RULES

Ship in sight

We consider three ways of sighting of another yacht at sea:

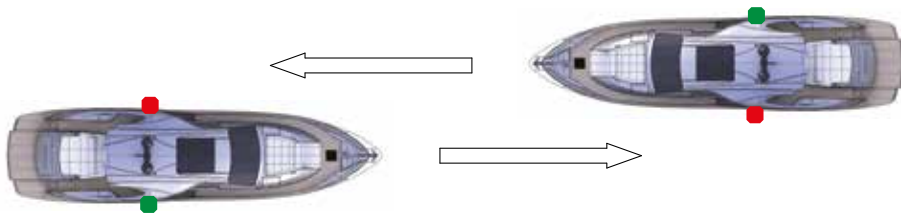
- Encounter, cross and getting ahead

Generally, the yacht with limited ability to manoeuvre has the right of course.

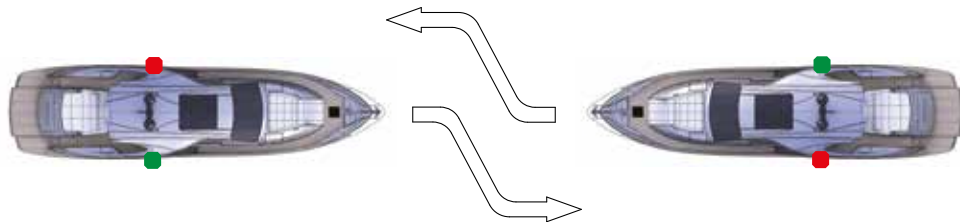
We leave free the course and to pass it to stern. The yacht that has right of course is called privileged yacht. It can maintain its speed and course. The ship penalized is that must adjust their speed and/or course to maintain the due distance from the privileged ship.

Encounter

When you meet another boat that goes in the direction parallel, both boats must adjust their speed and course.

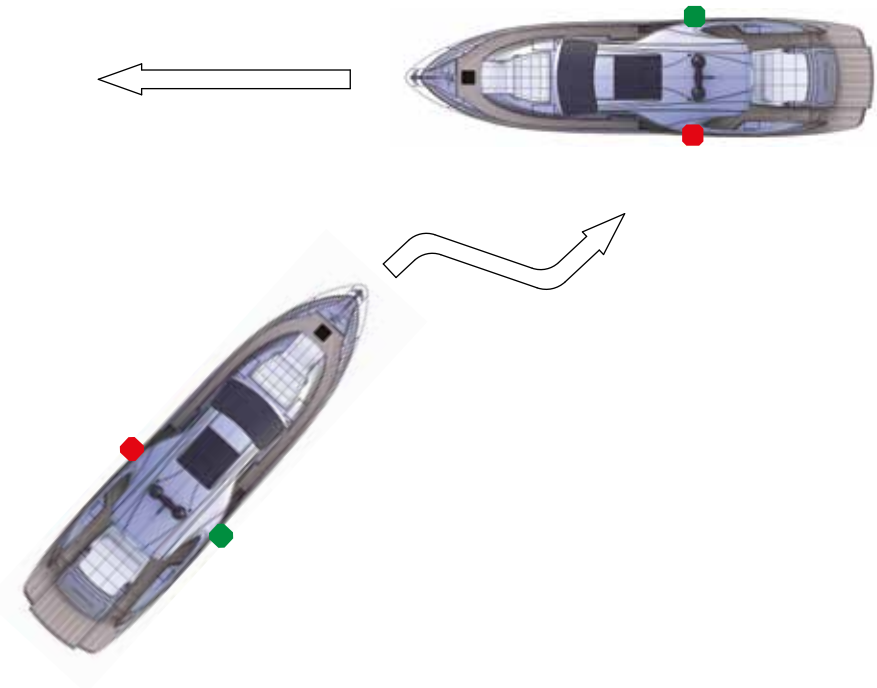


When two mechanical thrust boats are meeting on intersecting or nearly intersecting courses such as to give rise to the risk of collision, each one must change its course to starboard so that each one passes on the left of the other.



Crossing

When two mechanical thrust boats are crossing, creating a risk of collision, the one that has the other boat at its starboard must move away and, if the circumstances so permit, avoid passing on the bow of the other boat.

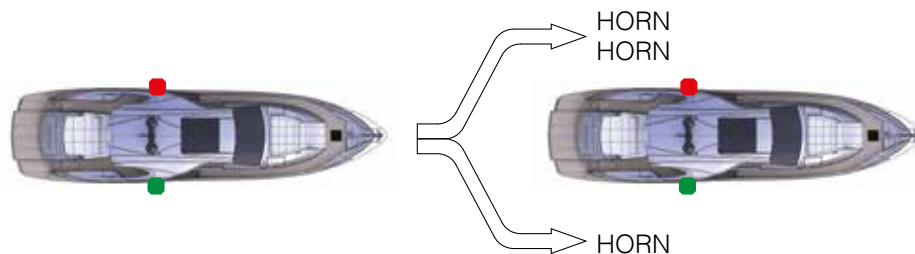


Overtaking

Overtaking is defined as when a boat coming from a direction of more than 22.5 degrees at stern compared to the boat that it plans to overtake, such that it can only see the light of the boat stern but neither of the two side lights.

If you find yourself having to pass a boat proceeding more slowly than you and that is on your course, your yacht is the one penalized. Make all the necessary adjustments to avoid the collision and pass to the bow or starboard. Announce your intentions by sounding the horn twice if you intend to pass on the port, and one time if you intend to pass at starboard. The boat that is reached by another boat takes precedence over the latter and therefore must maintain the same course and the same speed without laying or manoeuvring.

The boat that has the bow within a 135° angle (formed by the boat stern light) is considered the yacht that can be reached.



CAUTION

Having the right of course does not relieve you from the responsibility of avoiding a collision.



CAUTION

Boats with limited ability to manoeuvre usually have the right of course. In the event of an imminent collision, prudence has priority over right of course.

PERSHING

7X

Maintenance

Owner's
Manual

9. MAINTENANCE

9.1 GENERAL MAINTENANCE OUTLINES

The yacht is equipped with high quantity sophisticated devices and systems, which require not only a certain care of use, but also a periodical maintenance to obtain a correct operation.

One of the factors that might determine troubles or faults, is usually the irregular use of the yacht and as a consequence of this, of the on board devices.

The experience indicates that the regular use of the devices gives normally a less quantity of troubles, therefore, we recommend to have all on board devices regularly operate, for short periods.

Daily checks and periodical maintenance are important for maintaining equipment/components in the best efficiency conditions. If the periodical maintenance schedule is not correctly followed, the equipment performance can decrease, causing an efficiency reduction, a shorter life and the occurring of unexpected problems which can compromise safety.

The maintenance schedule is based on time or running hours intervals. For example, if a maintenance task is scheduled every 100 hours or 3 months, such task must be repeated at 200 hours or after 6 months, at 300 hours or after 9 months, and so on.

In case of a long inactivity period (for example during winter) it is advisable to lay up the yacht, possibly under cover.



CAUTION

Some general information about ordinary maintenance tasks, their schedule and procedures is provided herein with.

For further specific information referring to maintenance schedule, see Manufacturer Manuals of on board devices/components, issued by the various Manufacturers.



CAUTION

Look over the maintenance safety rules contained in this manual in order to act with the maximum safety and follow the indications here below.



CAUTION

During the replacements, remove the parts with care and order, in this way the assembly operations are as easy as possible.

Make sure to install genuine spare parts, in this way the system efficiency is not altered.

Sometimes the use of non-genuine spare parts may cause the withdrawal of the Manufacturer's warranty.



CAUTION

Check periodically that all equipment containing water is filled with the correct quantity of anti-freeze.

If the outside temperature drops below 0 °C, all fresh or sea water systems, are exposed to the risk of freezing and consequent breakage.

Systems especially subjected to risks of freezing are all systems and devices containing either fresh or sea water.



WARNING

Before carrying out any maintenance and adjustment operation on the yacht, turn all necessary safety devices on and consider informing all personnel, in particular persons operating nearby. In particular, place warning signs in the concerned areas and prevent that any device, if operated, can cause unexpected hazardous conditions, thus endangering the persons on board and/or property.

Do not scatter any type of waste in the environment, to avoid pollution, and only use the dedicated disposal areas in the harbours.

**CAUTION**

When working in the engine room, switch magneto-thermal switches of the bilge draining pumps off, to prevent that fuel, lubricants and other liquid spilling causes sea pollution.

**CAUTION**

PERSHING declines all responsibility for the installation and operation of electric, electronic and mechanical equipment improperly installed by third parties in a fashion not authorized by the Shipyard.

PERSHING declines all responsibility concerning tampering carried out by third parties on equipment installed in the Shipyard. Such tampering or unauthorized installations will not only immediately void the warranty, but may cause damage to the yacht and injuries to the people on board.

PERSHING declines all responsibility concerning periodical maintenance activities scheduled by the Shipyard or by Manufacturers, but not carried out, of equipment/components, for which it is necessary to refer to their own Technical Manuals.

9.2 LONG YACHT INACTIVITY

Following list only represents a general guide to give the customer an orientation on the ordinary maintenances which should be carried out when the yacht remains stationary for a rather long period without being used. We recommend carefully checking the instruction manuals of the single devices, because they often contain detailed information and very important specifications relevant to the maintenance of each device.

The following instructions NEVER REPLACE the specific instructions concerning each single device and issued by the device's Manufacturer.

- **Engines**

Before winter time let fresh water flow into the sea water circuit, check the antifreeze liquid, the sacrificial anodes against the galvanic currents, remove salt build-ups and spray protective agents.

Carry out the scheduled maintenance of the propulsion engines, indicated in the Use and Maintenance section.

- **Generators**

Use same procedure as for the engines.

- **Gear boxes**

Carry out maintenance schedule for gear boxes.

- **Batteries**

Check and periodically charge the batteries, protect the terminals with vaseline grease; even better would be to disconnect the batteries from the system and to charge them periodically with a separate battery charger, but this is not always possible on yachts.

- **Watermaker (opt)**

A proper procedure provided by the supplier in the instruction manual has to be followed when the water maker is not used for a long time.

- **Washers and Dishwashers**

Carry out a void washing cycle and carefully remove all detergent residues.

- **Sun-deck cushions**

Remove all sun-deck cushions and store them into a dry place.

- **Aluminium and steel**

Wash all metallic parts with fresh water and protect by rubbing with a rug soaked into Vaseline oil.

- **Wood and inner tapestry**

Cover the cushions of sofas with cloths and above all cover all windows with the relevant covering cloths, so that as less light as possible is projected inside, because light fades the wood and tissue colours.

- **Teak wood deck**

Wash with water and neutral soap. If strictly necessary sandpaper.



CAUTION

DO NOT USE mechanical or forced water jet equipment (e.g. pressure washers, etc..) to wash the deck, as this force alters the wood and the caulking sealants (it detaches the microparticles) causing damage in some cases even radical (e.g. detachment of the staves).



CAUTION

DO NOT USE alkaline-based or acid-based detergents or aggressive detergents (soda, solvents, ammonia, etc..) to wash the deck; their aggressive degreasing action corrodes the wood (it eliminates its natural water repellency and whitens its natural colour), while the caulking sealant modifies its physical-chemical qualities, softening the surface, damaging the waterproofing, sealing and anchoring of the deck.

- **Sacrificial anodes**

Verify their wear and if necessary replace the hull anodes, drive system and flaps.

- **LOG Transducer**

Pull out the propeller, clean it and apply the proper propeller plug.

- **Windscreen wiper**

Wash with fresh water and lubricate them with Vaseline oil.

- **Anchor winch**

Check oil level, protect the electrical components with a suitable protective spray and lubricate with silicon grease clutches and wildcat.

- **Grey water tank**

Pour into the washbasin, showers and bidets drains sterilizing products. Empty the tank and clean verifying the floating efficiency.

- **Black water tank**

Pour into the WCs a sanitary product containing Paraformaldehyde and rinse with this mix the tank for a couple of times. Drain the tank completely.

- **Air conditioning**

Before winter:

- Let water flow in the sea water system.

After winter:

- Check the anti-freeze mixture in the fresh water circuit: top-up or replace it if necessary (perform replacement at least every two seasons).
- Carry out the maintenance operations suggested by the Manufacturer.

- **Tender engine**
Wash with the fresh water contained in the cooling system of the engine.
Carry out the maintenance suggested by the supplier.
 - **Bow thruster**
Protect the electrical components with proper spray and check the oil level.
 - **Electro-hydraulic control units**
Protect with proper sprays and check the oil level.
 - **Fire extinguishers**
Verify the loading condition and expiry date of periodical checks.
 - **Safety equipment**
Check the expiry dates of the self-inflatable means, flares etc..
 - **Water tank**
Wash with disinfectant, drain the fresh water circuit, especially if frost is forecasted.
 - **Fuel tank**
Carry out cleaning by means of a decanter especially if there are traces of water into the fuel.
 - **Engine room**
As to the engine room, we suggest to carry out a general cleaning, by removing all traces of salt drifts on devices and protect all electric, mechanic and hydraulic devices, by spraying them with protective agents.
-
- Check all deck lights.
 - Clean all cabins and inspect all dunnages on-board.
 - Check all hatches seals and lubricate their contact with appropriate silicone lubricant.
 - Clean fan coils with an air jet, sucking the dust from the back net.
 - Inspect the outer hull and all components: propeller, anodes, supports, flaps, fan coils, sea cocks, bow/stern thruster.
 - Carry out laying up of the yacht in a sheltered and dry place. If the yacht is stationed outside, cover it with a waterproof sheet, in such a way that allows ventilation. Otherwise the formation of damaging moisture could be helped.
 - Wash the yacht with fresh water.
 - Check all systems and fastenings on the yacht: damages, wear, cracks are signs of unsuitable use. Repair the damaged equipment. If necessary, fit new ones.
 - Check the efficiency of limber holes and that they are not clogged so as to cause the leaking of the bilge system.
 - Check the fastening of the partial or total covering of the yacht.



DANGER

During recharge the batteries produce explosive gas. Do not approach to re-charging area with free flames or sparkles.
Avoid wrong connections; never connect a positive terminal (+) with a negative one (-).

9.3 RE-USE OF THE YACHT AFTER A LONG INACTIVITY

- **Engines**

After the winter, check engines oil, gear boxes and replace them if necessary. Check oil and fuel filters and replace them if necessary.

- Adjust the belt tension of the alternator belts both of engines and generators.
- Fill the fuel tank. Vent the air of the fuel system.
- Start propulsion engines.



CAUTION

After a long yacht inactivity, carry out all above-listed operations and following checks:

- Check the condition of all hoses and connections of the steering system, flaps, gangway.
- Start the engines.
- Stop engines.
- Clean fuel filters. Replace engine oil filters and add oil to the engines if necessary.
- Check all bilge pumps and their operation.
- Check the operation of the black water, grey water and sea water pumps.
- Check the operation of all board instruments used for navigation.

- Let the engine run at middle speed for some minutes, before letting them run at full speed.
- Start the engine of the power generator.
- Verify the hull.
- Have the bottom hull accurately cleaned, as well as the rudders and flaps with brushes (with water) or a jet-cleaner (dry) to remove seaweed and scales.
- Have the paint of the bottom hull checked. If necessary, have 2 coats of suitable antifouling paint applied by specialized personnel.
- Verify the propeller condition and possible leaks from the seals, if necessary adjust them.
- Check the conditions of the sacrificial anodes; if necessary, replace them.
- Check the loading condition of the batteries, and that their terminals and housings are dry and clean.

9.4 HULL MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Bottom hull	Periodical cleaning and check of anti-fouling treatment (as required according to stationary area, but at least every three months) Check/restoration Preparation of the surface of an already treated yacht	The length of the anti-fouling effects depends mainly on the conditions of the waters where the yacht is stationed.  CAUTION To remove the old antifouling, do not use sandblasting methods, as it may damage gel-coat surface and the anti-osmosis resin applied by the Manufacturer. As suggested by the antifouling manufacturers, use paint removers or, as an alternative, wet sanding. The Shipyard uses high-quality ant-fouling paint and applies two layers.  CAUTION Bad maintenance condition (barnacles, etc..) may cause cavitation and damage shaft, rudders, propellers, etc..  CAUTION Small areas of paint may peel off from the propellers even after a short period of operation.

9.4.1 Bottom hull

Antifouling treatment

If scales build up on the hull, these cause a remarkable speed reduction and with time may damage the “gel coat”. When you choose an antifouling paint for your yacht, it is important that you find the proper product, suitable for your yacht and for the waters in which you are going to navigate. Contact PERSHING After sales & Service Department.

Check/restoration

The cleaning and checks have to be carried with yacht at dry shore or with the help of a diver. Have the repairs done only with yacht at dry shore.



WARNING

To clean or check the yacht in water, disable engines and generators start.



CAUTION

There are some hull areas (fastening area of thrusters axis support base, submerged drainage areas, areas around thruster tunnel and shaft exits, etc..) where operations can be carried out after hull pressing; in these areas, fillers are usually used which, over time, may produce local faults, like bubbles or small cracklings. These little faults do not impair the hull mechanical strength at all. To repair them just sandpaper the area, remove the bubbles, and apply fillings suitable for the bottom hull.

- Have the bottom hull accurately cleaned, as well as the rudders and flaps with brushes (water) or a jet-cleaner (dry) to remove seaweed and scales.
- Let check the paint situation of the bottom hull. If necessary, have 2 coats of suitable antifouling paint applied by specialized personnel.

Preparation of the surface of an already treated yacht

Carefully check the old anti-fouling paint to see if it is still good or if it needs a new layer. Verify that the new product is compatible with the old one. Contact PERSHING After sales & Service Department. If the old antifouling is crusty, thick and tends to scale off, then remove it and start the treatment as for a new yacht.



CAUTION

Antifouling is poisonous and should never be burnt, use only authorized disposal procedures and in case of doubts contact the authorities in charge. The sandblasting operations and removal of antifouling must be carried out with suitable clothes and protections.



WARNING

During the application of antifouling, make sure that following parts of the bottom hull are not painted:

- Depth sounder transducer;
- LOG speed sensor propeller;
- Sacrificial anodes;
- Propellers.

9.5 GENERAL MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Gel-coat  CAUTION The alteration of colour and brightness in correspondence of areas which are highly exposed is considered as normal. The necessary polishing has to be considered as normal maintenance. MAINTENANCE At least once a month perform an accurate cleaning of all fibreglass parts. At least once every six months check the status of the fibreglass. When necessary, but at least once every two years, polish all fibreglass parts.	Formation of bubbles Periodical cleaning (as required) Formation of cracks Periodical cleaning (as required)	In some areas of the yacht, bubbles may generate on the gel-coat; these bubbles can break over time, thus exposing the fibreglass underneath. The drawback occurs generally in vicinity sharp angles, and depends on air bubbles that, during fabrication, remain entrapped between fibreglass and gel-coat, although quality checks are carried out by specialised personnel. Broken gel-coat bubbles are easy to repair by filling the voids and touching up with gel-coat that can be requested to the After sales & Service Department.  CAUTION Always wash using neutral products. In case of particularly persistent dirt, do not use products containing ammonia that turn the surface yellowish. When underway, some structural parts of the yacht are subject to bending, and create tension or compression stresses in fibreglass and on the gel-coat; the different elasticity of gelcoat and fibreglass can cause small cracks on the gel-coat surface, in particular in the most stressed areas, e.g. near cleats, stanchions, etc.. This problem, however, does not jeopardize the mechanical and structural characteristics of fibreglass.  CAUTION To remove possible gel-coat, do not use sandblasting methods that may damage the surface of the anti-osmosis resin applied and could expose fibres. As suggested by gelcoat Manufacturers, use suitable products or, as an alternative, wet sand.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Wood and tapestry	Periodical cleaning	The worst enemies of these materials are light and humidity; to protect them, they must be kept away from direct light as much as possible and the interior must be ventilated as soon as the weather conditions allow. The use of external awnings is extremely important because there is no species of wood, either natural or dyed, which, when exposed to the sun's rays, does not undergo a change in colour. The woods used for the yacht's fittings are exclusively natural-based materials carefully selected and the painting cycles with which they are treated comply with environmental regulations. Furniture made of wood, precisely because of the natural origin of both the material and the treatments, may be subject, if not properly treated and maintained, to: • Colour variations due to exposure to direct and continuous light. It is advisable to shade the heavily exposed parts with the internal curtains supplied with the yacht; • Retention of dirt if not cleaned promptly, given the characteristic absorbency of wood fibers. It is recommended to use non-aggressive products; • Scratches and marks if in contact with sharp or metallic objects, due to the inevitable relative "softness" of the wood. Even if the production processes have been carefully studied and tested, the furnishings and fittings made of natural wood may undergo variations in colour over time due to the "natural" maturation of the material due to ageing. Despite the painting cycles developed after many years of experience, wood remains a "living" material, and therefore subject to movement and settlement. Scratches caused by impacts must be repaired immediately, to prevent the blackening of the wood underneath. The technical staff of the PERSHING service centres can advise you on the level of maintenance you should carry out at the end of the season of use. Correct maintenance will protect you from deterioration that could only be repairable at high cost.  CAUTION The extremely precious finishing of the polish-varnished woods used for bathroom floors and cockpit tables is the result of an accurate work, it is water resistant but at the same time delicate and needing accurate maintenance. Such surfaces must therefore be dried after use (see bathrooms) or after the rain and a washing (see cockpit table), and a regular maintenance must be carried out.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Wood and tapestry	Periodical cleaning	 CAUTION Upholstering and wooden parts: the leather and wooden parts have to be treated as natural products, subjected only to colour alteration, particularly if the necessary precautions for a good maintenance are not taken. PERSHING therefore reserves the right to evaluate troubles and its own responsibility each time. MAINTENANCE At least once a week carry out accurate washing and cleaning of all teak outside parts, and at least once a year perform a protective treatment with suitable products.  CAUTION Current use: • Do not walk, nor jump on the cushions; • Prevent the cushions from becoming yellowish due to direct exposure to sun rays; • Prevent the absorption of water or of moisture by leaving the tapestry exposed to bad weather, particularly during periods of inactivity. Cleaning: • Remove ordinary dirt with a warm water solution and neutral soap: do not use detergents or solvents; • Dry with a soft rag, not leaving any residues. Preservation: • Store tapestries clean and dry into a fresh and ventilated room without moisture; • Do not place heavy objects on the tapestries when stored.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Teak	Periodical cleaning (as required)	The teak characteristic is to be very resistant to weathering and therefore does not require maintenance. The teak wood over time tends to assume a particular silver colour that might not like; in this case, wanting to restore the colour that teak does when the yacht delivery, you need to paint it periodically with specific products. If the wood has smears that is not able to remove with normal washing, it is necessary to sand the wood to remove stains, and then repainted with wonder teak. You must use fresh water and manual brush (no hard bristles) at least once a day. This will remove any machinery, common footfall dirt and normal environmental salt. This process, if done regularly, allows a constant maintenance of your teak and caulking. In this case only time and wear will naturally deteriorate this product.  CAUTION Do not clean the teak with stiff brushes, as exercising the longitudinal rubbing the vein, it removes the softer grain of the wood. Non-black caulking could have not the same behaviour compared with the black one. Any aesthetic issues like mildew on the surface, color variation, dirt in the caulking have not be addressed as defects and could be prevented with a regular maintenance and service of the teak surface and caulking.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Teak	Periodical cleaning (as required)	 CAUTION Washing the deck with mechanical equipment or with a jet of pressurised water (hydro-cleaners, for example) IS STRONGLY ADVISED AGAINST since this force alters the wood and the caulking sealants (detaches the micro-particles), causing even radical damage in some cases. Washing the deck with alkaline or acid-based detergents, or however with aggressive agents (soda, solvents, ammonia, etc..) IS STRONGLY ADVISED AGAINST. Their aggressive degreasing action corrodes the wood (eliminates its natural water-repellent properties and bleaches its natural colour), while the physical-chemical properties of the caulking sealant are altered, with its surface portion becoming softened and the impermeability, sealing and anchorage of the deck becoming damaged.  CAUTION Be careful when cleaning the exterior painted parts. The use of alkaline or acid-based soaps or detergents, which are usually used to remove dirt or salt, can settle on the deck and irreparably damage the teak and caulking sealant. Therefore, teak and caulking sealant must be insulated when these washes are carried out. Therefore, when these washes are carried out, it is necessary to isolate the teak and caulking sealant from any deposits, even temporary, of soaps and/or detergents. If it is not possible to cover the deck when cleaning the fibreglass, we recommend wetting the deck with plenty of fresh water. We recommend the same procedure when refuelling. If fuel seeps into the wood or caulking sealant, the teak will be irreparably damaged there. Use a neutral detergent to clean the teak.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Ceilings Panels	Regularly check the planarity of the panels and / or any discontinuities or steps between the ceilings panels.	Whenever the ceilings are dismantled, it is compulsory to check the status of the Fit Lock or/ and 3M Dual Lock fastening systems breakage of the teeth as i.e. and/ or the entire system.  WARNING Do not install ceilings panels with fastening systems damaged, Fit Lock or 3M Dual Lock, due of a possible reduction of their retention power. Damaged parts must be absolutely replaced with new ones. In order to be sure that the ceilings have been reassembled correctly, check the planarity with the other ceilings panels and the absence of discontinuities and steps between one ceiling panel and the others.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Light alloys and stainless steel	Periodical cleaning	It is a good rule to accurately wash the entire yacht after each navigation, in particular all metal parts that may be damaged by salty humidity. Have plenty of fresh water sprayed on handrail, windows, skylights, rub rail, anchors, cleats and ladder. Protect all metal parts with Vaseline oil periodically. MAINTENANCE At least once a year check the fastening of all metallic parts of the yacht.  CAUTION The stern glass door is not watertight, so do not point the bolt of water towards the window, when washing.  CAUTION Never use brushes or abrasive rags on metallic fittings, not even on rusty spots, scratches on the surface result in a less shiny appearance and diminish the mechanical features.

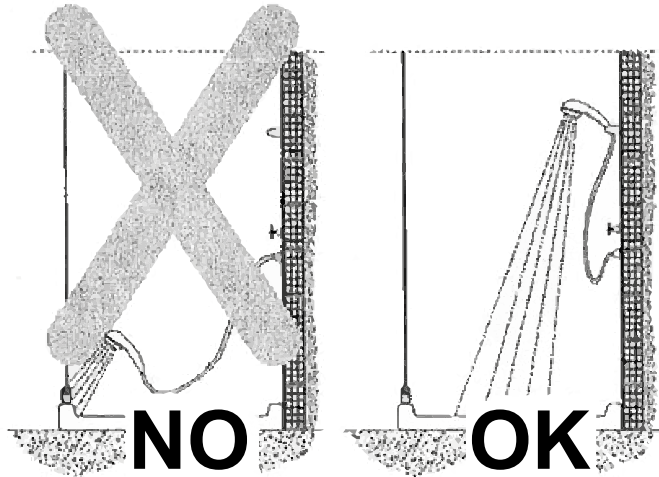
COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Sun-deck cushions	Periodical cleaning (as required) General Care and Cleaning Guide	Remove the cushions from the seats on a regular interval and let their bottom side and the seat surface dry. When washing or when it is raining, remove the cushions and stow them in a covered place; however, when cushions are wet, remove them from their seats, to prevent that water or humidity remain entrapped between cushions and underneath surface. This could affect the gel-coat and also create osmosis bubbles and deteriorate the cushion cover. The cushions must be washed with running water; do not use jet-cleaners, brushes or abrasive sponges. MAINTENANCE At least every 6 months check seams and fasteners. At least every month carry out the washing of the cushions. • For light soiling, a solution of a 10% PH neutral soap in warm water applied with a soft damp cloth. Rinse with clean water and dry. • For heavy soiling, dampen a soft white cloth with a one to one (1:1) solution of an all purpose and dye-free household cleaner water. Rub gently and rinse with water dampened cloth.  CAUTION Do not use alcohol based cleaning agents!  CAUTION Do not use aggressive detergents and/or solvents, which will cause immediate damage and contribute to deterioration of the material.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Windscreen/windows	Periodical cleaning	 CAUTION Rags and doeskins used for cleaning the glasses must be replaced at least every 3 months. The inner side of windows and windscreen can be cleaned with non-aggressive and nonacid detergents for glass and a soft or paper cloth.  CAUTION If after normal cleaning some traces of dirt or light scratches remain, do not try and remove them with mechanical means or by means of aggressive detergents, solvents or abrasive products. Contact the After sales & Service Department.  CAUTION For cleaning the outer side of coloured or mirrored (pyrolytic) windows and windscreen: • Uniformly wet the whole surface of the glass with plenty of fresh water. • Use a neutral detergent or a delicate commercial product (not alkaline) diluted in fresh water. • Spread the solution with a soft and clean cloth. Frequently rinse the cloth in order to prevent deposits of dust or dirt particles which could scratch the glass or its glazed coating. • Rinse the soapy surface with plenty of fresh (or distilled) water. • We recommend drying the glass only with doeskin. For cleaning coloured windows and windscreen it is possible to use the same type of detergent used for internal cleaning (non-aggressive and non-acid).

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Mirrored glass walls	Periodical cleaning	 CAUTION For cleaning mirrored glass walls only use water and neutral soap. Different products could damage the surface coating.
Windscreen wiper and washer	Periodical cleaning (as required)	Wash them carefully with fresh water and coat with Vaseline oil; grease the spring with silicone grease. Check the rubber blades conditions periodically, and replace the blades if worn; this prevents bad visibility problems.
Windscreen and deckhouse glass	Verification of the sealings	 CAUTION At least once every 6 months check the condition of the glass seals. If you deem that the seals have deteriorated due to a wear, please contact our After sales & Service Department.
Light bodies	Periodical cleaning	DO NOT use alcoholic products to clean the light bodies.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Instrumentation and navigation lights	Periodical cleaning (as required)	Use clean wet rags for cleaning. MAINTENANCE At least once a week check the operation of the navigation lights. At least once a week carry out accurate cleaning of glasses and headlights. At least once every six months check the presence of corrosion in the connections of the navigation light cables. At least once every six months, tighten the cable connections of the navigation lights.  CAUTION Do not use chemical or abrasive products. After navigation, cover instrumentation and equipment.
Metallic parts and connectors	Periodical cleaning (as required)	Grease connectors and metal parts of the devices installed and exposed to moist and salty environment to prevent oxidation; pay particular care and attention to the above-mentioned components of the steering system, gangway, hatches and control units, etc..

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Plexiglass	Periodical cleaning (as required)	To clean the plexiglass use only products that do not contain aggressive substances such as alcohol, ammonia or the like. Preference for liquid detergent antistatic.  CAUTION Never use denaturised alcohol or acetone to clean Plexiglas parts; they could crack inside. Use cloth of soft material (such as cotton or felt). To clean, to scour and to polish the plexiglass, spray a small amount of liquid detergent antistatic on the cloth and wipe the surface. The antistatic effect of the cleaner is very useful to prevent dust from being attracted by static electricity generated during the rubbing and that makes very difficult to clean the entire surface smoothly. If the cause of opacity is dirt, simply use an anti-static cleaning fluid and a soft cloth to remove smears: the plexiglass will clean and bright. If opacity is due to the contact with aggressive substances, it means that the surface has been compromised in the structure and the plexiglass can not return as before. If the marks are light and have been caused by wear and not from chemicals, anti-scratch dough can fix it. Even for light scratches anti-scratch dough is suitable.

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Shower	Checking and replacing gaskets	 CAUTION Carry out periodic maintenance and/or replacement of the shower box seals, in order to prevent water leakage.  CAUTION The shower enclosures are made in such a way as to avoid water leaks outside the enclosure, under normal conditions of use of the shower. However, they do not have a watertight seal.  The functionality of the shower cubicles is subject to the use for which it was designed; the water tightness is therefore conditioned by the correct use.
Fenders	Periodical cleaning (as required)	Always keep all the fenders and their socks clean by washing regularly with fresh water, in order to prevent the salt deposited on them scratching the paint of the hull.

9.6 MARBLE MAINTENANCE

THE WORST ENEMIES OF MARBLE ARE:

Some substances damage marble more than others.

Keeping them away from surfaces, or at least removing them promptly as soon as they come into contact with the marble is very important if you want to preserve its appearance.

The worst enemies of marble surfaces are:

1. **Water:** a enemy of marble, especially that with a high presence of limestone. If it settles on marble surfaces and is not dried, it can ruin them in the long run.
2. **Coffee, wine and dyes:** as dark substances, coffee, wine and other food dyes can damage marble when they come into contact with it.
3. **Tomato sauce:** tomato sauce, when it stains, is very difficult to remove, and the same applies to marble.
4. **Polishing wax:** marble should be polished from time to time, but never apply too much wax to avoid risking obtaining the opposite effect, i.e. making it dull.
5. **Sugary substances:** fruit, juices and sweet substances, if deposited on marble, can corrode it, ruining its natural lustre. If they accidentally fall on the marble, they need to be cleaned quickly.

HOW TO CLEAN MARBLE:

1. **Damp cloth:** If the stain to be removed is not particularly stubborn, a damp cloth can be used to clean marble surfaces and achieve an excellent effect. It is important to always remember to dry the surface, otherwise, limescale will damage it.
2. **Marseille soap:** Marseille soap is also perfect for cleaning marble surfaces. Lightly dampen a cloth and rub it lightly on the soap, then wipe the marble. After rinsing, carefully dry the surface, which will look as good as new.
3. **Hydrogen peroxide:** Hydrogen peroxide is another product that can have infinite uses, including cleaning marble. Put a drop of hydrogen peroxide on a damp cloth and rub it on the marble surface to quickly restore its shine.
4. **Baking soda:** Baking soda is another useful substance for cleaning marble. Put a tablespoon of baking soda in a glass or container and mix. The resulting compound is a slightly abrasive paste that will penetrate the marble, freeing it from foreign substances, the stains. Baking soda is also perfect for polishing, so the marble will look shinier after the treatment.

5. **Detergents for marble:** On the market, you can find numerous special detergents for cleaning marble surfaces.

They are very useful for those who have large marble surfaces to wash, such as floors.

Make sure that the detergent is not too acidic and aggressive, or the surface will be weakened over time and more susceptible to stains.

HOW NOT TO CLEAN MARBLE:



CAUTION

Do not use generic household cleaners of any kind.

Cleaning marble with products purchased in non-specialised shops that contain acids, alkalis and other chemicals can mark or damage the surface, leaving the stone more vulnerable to staining.

The most common and popular household cleaners are too aggressive for use on marble and can cause damage.

Trying to save time by using low-end products such as general surface cleaners will only lead to expensive repairs or marble restoration.

**CAUTION**

Do not use vinegar, ammonia or lemon juice.

Powders and even “soft” creams contain abrasives that can scratch and dull the surface.

Detergent soap scum and water are the main contributors to bathroom wear.

Use only specific detergents for marble to avoid most marble cleaning problems.

**CAUTION**

Do not place toiletry products on the worktop.

Hair products, toothpaste, perfumes, colognes, nail products, creams, lotions and potions can stain or mark the surface leaving dots, rings or dull areas.

Protect surfaces by making sure these products do not come into contact with the marble.

9.7 BACK GLASS WALL MAINTENANCE

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
Back glass wall	Cleaning	The stern glass wall shows many functional and aesthetic advantages. The salon door, that overlaps completely the fixed part starboard allows joining the salon and the cockpit into a single, large room. Of course, this glass wall needs a particular care during washing, because an inaccurate washing may cause water to penetrate. To avoid this problem, we advise to take great care to the direction of the water jet for rinsing: it should not be directed frontally and with pressure, but the water should be let flow down from above. MAINTENANCE At least once a week carry out accurate cleaning. At least once a month, check the operation. At least once every six months, check the locking with open door. When necessary have them adjusted.

9.8 SPEED MULTISENSOR MAINTENANCE (LOG SENSOR)

COMPONENT	MAINTENANCE	NOTES AND PRECAUTIONS
LOG - speed multisensor with valve	Periodical check Ordinary Maintenance	We suggest you to keep the LOG propeller always clean, because possible deposits or sea build-ups could alter its rotation and the data sent by the transducer. To carry out cleaning pull out transducer from its seat. When the yacht is not operated for long periods of time it is advisable to remove the transducer from its seat and to use the blanking plug. MAINTENANCE At least once every six months check the correct operation. At least once every six months check the connection of the cables. At least once every six months check the propeller and grease the outer Log.

9.9 GENERATOR MAINTENANCE

MAINTENANCE OPERATION	MAINTENANCE FREQUENCY								
	After first 50Hrs	Every day / 8 Hrs	Every month / 100 Hrs	Every year / 200 Hrs	Every year / 350 Hrs	Every year / 500 Hrs	Every 800 Hrs	Every 2 years	Every 5 years / 2000 Hrs
General Inspection (1)		X							
Check Engine Oil Level		X							
Drain Water From Fuel Filter			X						
Check Battery and Battery Connections (2)			X						
Check V-Belt Tension (3)			X						
Check Siphon Break			X						
Change Oil and Filter (5)	X			X					
Change Fuel Filter						X			
Inspect Sacrificial Anode						X			
Replace Raw Water Pump Impeller						X			
Adjust Valve Lash (4)							X		
Replace Coolant, Pressure Cap, and Thermostat								X	
Inspect Generator Bearing (4)									X
(1) - Includes inspection of Oil Level, Coolant Level, Fuel System, Exhaust System, Batteries and Battery Connections. (2) - See battery manufacturer's recommendations. (3) - Check for slippage, cracking, and wear. (4) - Must be performed by a qualified mechanic. (5) - Perform twice as often when using high sulfur fuel.									

PERSHING

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Troubleshooting

Owner's
Manual

10. TROUBLESHOOTING

10.1 TROUBLESHOOTING

The yacht is equipped with a high quantity of complex devices and installations. These require periodical check and maintenance to keep their operation correct. One of the factors that might determine troubles or faults, is usually the irregular use of the yacht and as a consequence of this, of the on board devices.

The experience indicates that the regular use of the devices gives normally a less quantity of troubles, therefore, we recommend to have all on board devices regularly operate, for short periods.

When a trouble on board is detected, it is essential to carry out a quick verification in order to understand its cause and, if possible, to find out a remedy.

In order to analyse a malfunctioning it is appropriate to answer the following questions:

- Is the malfunctioning caused by a human error or not;
- Is the malfunctioning due to a bad weather condition or not;
- Is the malfunctioning due to a device fail or to a fault of another outer device, but in some way connected with the first one;
- At what stage does the malfunctioning occur: at the start, at steady state, at device switch OFF;
- Does the malfunctioning occur repeatedly; if yes in which way;
- What does the malfunctioning imply from a functional point of view;
- Does the malfunctioning cause the emission of signals (luminous and/ or acoustic: sirens, summers etc..) and/or messages on a display and/ or anomalous noises (like whistles, beats, buzzes, etc..) and/or anomalous smells (burning smell);
- Does the malfunctioning interfere with the operation of other devices;
- The malfunctioning is a real apparent fault (that is: able to clears OFF, after, for instance, a device reset and following switch ON).

The best answer we can give to the previous questions, the most complete will result the malfunctioning analysis.

This Manual section analyses the most likely causes, that may lead to the malfunctioning of a component of the main components/devices on board. For any possible analysed cause a corrective action is advised, in order to solve efficaciously, and as far as possible, the fault.



WARNING

We recommend, to operate in full safety and tranquillity, to take good note of the Safety Rules relevant to Maintenance described in "SAFETY RULES".



WARNING

The corrective actions have to be carried out only by specialized and authorized personnel.

PERSHING declines all responsibility for proposed corrective actions carried out by unskilled personnel.



CAUTION

For more detailed information, please refer to the various Manufacturers's Service Departments or address directly to the PERSHING After sales & Service Department.

10.2 GENERAL NOTES

This section provides some possible causes of defects on the yacht main equipment/machinery on board.

This section suggests also the corrective action for each failure described, as well as the possible damage suffered if the corrective action is not carried out.



WARNING

The corrective actions must be performed by specialized personnel. PERSHING declines all responsibility for actions carried out by unskilled personnel.

10.3 PROPULSION ENGINES

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Engine does not turn when starter is actuated - Battery - Starter - Engine wiring - LOP Local Operation Panel - ECU Engine Control Unit - Engine - Start-interlock limit switch	- Low or defective - Cable connections defective - Engine wiring or starter defective - Faulty - Loose seating of assemblies or connectors - Loose plug-in connections - Gear locked (engine cannot start manually) - Limit switch not installed or defective - Wiring defective	- Charge or replace (see Manufacturer's documentation) - Check if cable connections are properly secured (see Manufacturer's documentation) - Check if cable connections are properly secured, contact Service - Contact Service Department - Visual inspection - Check plug-in connections - Contact Service Department - Check limit switch - Check wiring
2. Engine turns but does not fire - Starter - Engine wiring - Fuel system - ECU Engine Control Unit	- Poor or defective rotation of starter - Faulty - Not vented - Faulty	- Charge or replace battery (see manufacturer's documentation) - Contact Service Department - Check vent - Contact Service Department

Trouble	Cause	Corrective action
3. Engine fires unevenly - Fuel injection equipment - Engine wiring - Fuel system - ECU Engine Control Unit	- Injector defective - Faulty - Not vented - Faulty	- Replace - Contact Service Department - Check vent - Contact Service Department
4. Engine does not reach full-load speed - Fuel supply - Air supply - Fuel injection equipment - Engine wiring - Yacht - Rudder - Propeller	- Shut off - Fuel pre-filter clogged (water/fuel separator) - Fuel filter clogged - Air cleaner clogged - Injector defective - Injection pump defective - Faulty - Yacht too heavy - Yacht's trim position - Marine growths on hull, propeller shaft, propeller, rudder - Rudder position - After propeller replacement: propeller too small/large	- Open shut-off valve before fuel pre-filter (water/fuel separator) - Replace - Replace - Check air cleaner clogging indicator - Replace - Replace - Contact Service Department - Check yacht's load condition, reduce load if necessary - Trim yacht - Clean - Align rudder - Replace only with original spares
5. Engine speed not steady - Fuel injection equipment - Speed sensor - Fuel system - ECU Engine Control Unit	- Injector defective - Injection pump defective - Faulty - Not vented - Faulty	- Replace - Replace - Contact Service Department - Vent - Contact Service Department

Trouble	Cause	Corrective action
6. Charge-air temperature too high - Coolant - Intercooler - Engine room	- Incorrect coolant concentration - Contaminated - Air intake temperature too high	- Check (MAN test kit) - Contact Service Department - Check fans and ventilation air supply
7. Charge air pressure too low - Air supply - Intercooler - Turbo charger exhaust	- Air cleaner clogged - Contaminated - Faulty	- Check air cleaner clogging indicator - Contact Service Department - Contact Service Department
8. Coolant leaks from intercooler - Intercooler	- Leaking, major coolant discharge	- Contact Service Department
9. Exhaust gas black - Air supply - Fuel injection equipment - Yacht	- Air cleaner clogged - Injector defective - Injection pump defective - Overload	- Check air cleaner clogging indicator - Replace - Replace - Contact Service Department
10. Exhaust gas blue - Engine oil - Exhaust turbocharger, piston rings, cylinder liner, cylinder head	- Too much oil in engine - Oil separator clogged - Faulty	- Drain engine oil - Replace - Contact Service Department
11. White exhaust gas - Engine - Fuel system - Intercooler	- Not at operating temperature - Water in fuel - Leaking	- Run engine to reach operating temperature - Check fuel pre-filter (water/fuel separator filter) and drain pre-filter - Contact Service Department

10.4 GEARBOX

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Transmission oil temperature too high	- Insufficient water flows through oil heat exchanger - Drain sludge from oil cooler - Undefined range, clutch slipping	- Increase water flow - Clean oil cooler - Adjust mechanism
2. Transmission oil temperature too low	- Excessive water flow through heater exchanger	- Reduce water flow
3. Oil pressure upstream of oil cooler and filter too high (*)	- Clogged oil filter - Oil cooler dirty	- Clean filter and drain off oil sludge - Clean oil side of oil cooler
4. No operating oil pressure (*)	- No oil in transmission - Wrong rotation direction at transmission input - Faulty display unit	- Add oil - Use special transmission version - Remedy fault
5. Operating oil pressure too low (*)	- Oil viscosity too low - Incorrect oil pump ratio - Defective oil pump - Pressure relief valve leaking - Time switch for pressure modulation defective	- Use a prescribed oil grade - Adjust oil pump ratio to suit engine operating speed range - Replace oil pump - Remedy the fault - See "Clutch slipping" fault
6. Operating oil pressure too high (*)	- Oil viscosity too high - Incorrect oil pump ratio	- Use a prescribed oil grade - Adjust oil pump ratio to suit engine operating speed range
7. Drive interrupted between transmission input and transmission output; clutch not transmitting torque	- Mechanical transmission actuation: incorrect shift angle - Electrical transmission actuation: electrical system fault - Defective solenoid valve - Longitudinal valve stuck - No operating oil pressure	- Adjust setting - Remedy electrical system fault - Replace - Remedy fault - See "No operating oil pressure" or "Oil pressure too low"

(*) see monitoring data.

Trouble	Cause	Corrective action
8. Drive between transmission input and transmission output cannot be interrupted; clutch does not disengage	- For possible causes and remedial actions, see "clutch not transmitting torque" fault	- Use a prescribed oil grade - Adjust oil pump ratio to suit engine operating speed range
9. Clutch slips at high engine speed	- Operating oil pressure too low (*)	- See remedy for "Operating oil pressure too low". If the fault cannot be remedied on board, proceed at reduced engine speed - so that the clutch does not slip - until repairs can be carried out. Avoid changes in direction or only change direction with the propeller almost at a standstill and with engine idle speed as low as possible
10. Oil level decreases rapidly (as indicated on the dipstick). See maintenance job "Oil level check"	- Leaks on housing joints or oil lines, oil escaping from shaft seals - Oil cooler leaking into cooling system	- Correct mechanical fault - Remedy fault, replace oil cooler if necessary
11. Oil level increases. See maintenance job "Oil level check"	- Water entering cooling system	- Correct mechanical fault
12. Transmission is too loud at certain speed ranges	- Torsional vibration resonance of propulsion system in engine idle speed range	- Avoid critical speed range. Use more suitable flexible coupling (see Manufacturer's document)
13. Transmission too loud at engine idle speed range	- Torsional vibration resonance of propulsion system in engine idle speed range	- Increase engine idle speed range
14. Engine stalls following rapid change from "Ahead" to "Astern"	- Engine idle speed too low - Change in direction effected too quickly or effected at excessive yacht speed	- Increase engine idle speed range - Change direction (see Manufacturer's document)

(*) see monitoring data.

If the fault cannot be remedied, also the transmission lubricating oil supply is at risk. Proceed at reduced engine speed only until repairs can be carried out.

(*)see monitoring data.

10.5 GENERATOR

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Fluctuating or low oil pressure	- Oil level too low - Dirty oil	- Stop the generator immediately and top up with suitable oil - Replace dirty oil with new suitable oil
2. Cooling water temperature too high	- Excessive load - Air in the cooling circuit - Coolant low level or wrong mixture - Sea water intake is obstructed or sea water intake strainer is clogged	- Reduce the load - Bleed the circuit - Restore the cooling water level and correct percentage - Clean sea cock and strainer
3. Black smoke	- Engine room insufficient ventilation - Excessive load - Unsuitable fuel - Cooling water temperature too high - Lack of maintenance	- Check that air intakes are not obstructed - Reduce the load - Replace with suitable fuel - See step 2 - Have the scheduled maintenance operations carried out
4. Blue smoke	- Excessive oil - Dirty oil - Lack of maintenance	- Discharge the excess oil by draining oil filters - Replace dirty oil with new suitable oil - Have the scheduled maintenance operations carried out
5. White smoke	- Cold generator - Generator with too low load	- Let the generator warm up - Increase the generator load
6. Lack of power	- Engine room insufficient ventilation - Fuel filter clogged - Unsuitable fuel - Cooling water temperature too high - Lack of maintenance	- Check that air intakes are not obstructed - Clean - Replace with suitable fuel - See step 2 - Have the scheduled maintenance operations carried out

Trouble	Cause	Corrective action
7. Excessive or unusual noise	- Insulation cover not properly fastened - Leakage from the exhaust - Exhaust not properly fastened - Lack of maintenance	- Check - Check the exhaust - Check the exhaust - Have the scheduled maintenance operations carried out

10.6 BATTERY CHARGER

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. No output voltage and/or current	- No AC voltage or fuse valve is blown - Network or generator output too low	- Check fuse valve, replace if necessary - Check the input voltage; it should be between 190 and 260 V (120/240 V rated)
2. Output voltage too low but charger supplies max. current	- The battery consumes more than the charger can supply, battery voltage can no longer increase - Batteries not 100% charged	- Decrease the battery load demand - Measure the battery voltage after a while, this will be higher
3. Charge current too low	- Batteries almost fully charged - High room temperature - Mains current too low	- Check if the charger is in the absorption mode. In this way, the charging voltage decreases slowly - If the room temperature is higher than 40 °C, the maximum charge current will automatically be reduced - When the mains is lower than 190 V, the charger will regulate the current down
4. Batteries not fully charged	- Charge current too low - Current to load too high - Charge time too short - Battery temperature too low - Defective battery (short circuit in cell)	- See "charge current too low" - Decrease the battery load - Replace the battery - Use temperature sensor - Replace the battery
5. Battery loses charge quickly	- Battery capacity reduced because: • Wastage • Sulphating/stagnation	- Replace batteries - Charge/discharge several times, this might help, otherwise replace batteries
6. Batteries are warm	- Defective batteries (short circuit in cell) - Battery temperature too high - Charge voltage too high	- Replace batteries - Use temperature sensor - Check the switches setting

10.7 INVERTER

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Failure to start the inverter at power-up	- Battery voltage is too high or too low	- Make sure the battery voltage is within the correct range.
2. The inverter does not work	- The processor is in non-function mode.	- Deactivate the front switch, wait 4 seconds Activate the front switch
3. Alarm LED flashes	- Pre-alarm, case 1. Low DC input voltage - Pre-alarm, case 2. Ambient temperature too high. - Pre-alarm, case 3. Inverter load higher than rated load. - Pre-alarm, case 4. Ripple voltage on DC input higher than 1.25V rms	- Charge the battery or check its connections - Place the inverter in a cool, well-ventilated room or reduce the load - Reduce the load - Check cables and battery terminals. - Check battery capacity and increase if necessary.
4. The alarm LED flashes intermittently	- Pre-alarm, case 5. Low battery voltage and too high load	- Charge the batteries, reduce the load or install batteries with higher capacity. Install shorter and/or thicker battery cables
5. Alarm LED is on	- The inverter has switched off following a pre-alarm	- Verify on the table the action to be taken

10.8 SERVICES

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. A connected user will not receive power supply	- Power line fuses blown - Wiring disconnected - Connections oxidised and lack of maintenance	- Check the line and replace the fuses - Check wiring connections - Check and carry out proper maintenance

10.9 FUEL SYSTEM

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Irregular fuel supply to engines and generators	- Circuit valves closed or not fully open - Dirty filters	- Check/Open - Clean

10.10 BLACK OR GREY WATER DRAINING SYSTEM

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Holding tank or grey water tank drain irregular	- Circuit valves closed or not fully open - Lack of maintenance - Abnormal pump operation	- Check/open - Carry out maintenance - Check

10.11 HOT/COLD FRESH WATER SYSTEM

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. No water to outlets	- Circuit valves closed or not fully open - Tanks empty - Pump not receiving electric power supply - Protection pump mode	- Check/open - Fill the tanks and bleed the circuit - Check - Reset
2. Pump starts also with outlets closed	- Circuit leaking	- Eliminate leakage
3. The pump gets continuously on/off	- The tank has no air inside the membrane	- Check for pressure inside the membrane

10.12 BILGE PUMPS

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. Bilge pump does not run. No water pumped	- Wire connections - Blown fuse	- Check wire connection integrity, make sure wire connections are not corroded - A visual check may not be enough, a slight pull on each wire will indicate if wires are still connected - Check to ensure that no wire joints are hanging down into the water - Verify correct fuse size (fuse size is printed on the side of the bilge pump) - If fuse size is correct, check impeller through the inlet opening to be sure it is not jammed or stuck with debris
2. Repeated blown fuse	- Fuse rating or clogged impeller	- Re-check fuse to verify compliance to pump specifications - Also examine impeller area & clean any obstructions
3. Pump runs without water output	- Airlocking/cavitating - Pump strainer & impeller area clogged with debris	- Inspect & reposition hose for short vertical discharge - We suggest installing pump below water line to ensure sufficient water flow - Faulty or clogged check valve may add to pump air locking - Disconnect pump & clean outside of strainer, clean debris around impeller, & reattached & re-hook wiring
4. Pump axis corroded	- Electrolysis, cracked housing	- Inspect pump housing for cracks which can cause leakage into engine cavity causing corrosion - Possible errant current running through wiring causing corrosion.
5. Pump stays on after water is pumped out	- Wire connections may be incorrect, automatic pumps may have faulty circuit, possible electrical short	- On bilge pumps check for correct positive and negative battery connections

Trouble	Cause	Corrective action
6. Nozzle breakage	- Hose clamp fastened too tightly	- Suggest using plastic style hose clamp, do not use pvc hose
7. Pump impeller spins backward	- Check wiring	- Switch wiring for correct polarity
8. Wires overheated, melted insulation	- Incorrect size, possible jammed impeller	- Inspect & clean impeller area of any debris - Make sure that impeller is free to rotate - Check to make certain correct fuse rating is installed - REPLACE ALL DAMAGED WIRING

10.13 ELECTRO-HYDRAULIC POWER PACK FOR STEERING SYSTEM AND FLAPS

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. The steering system operation is difficult	- Insufficient pump delivery	- Check if the engine is running - Check the pumps
2. The wheel of the power steering is idling	- Insufficient pressure	- Check the pumps
3. Overheating of oil in the tank	- Insufficient cooling of the heat exchanger	- Check the temperature of the inlet water
4. The autopilot is not operating	- Electric failure - Damaged selector valve	- Check the electric system - Check the selector valve
5. The trim tabs are not operating	- Electric failure	- Check the electric system - Check if the engine is running
6. Water in drive (oil looks milky and brown). It can be seen on the oil tank	- Leaks from the thrust support - Leaks from the rear seals of the pump body	- Find the leak - Remove and replace the seals - Change the lubricating oil - Tighten and/or replace the plugs

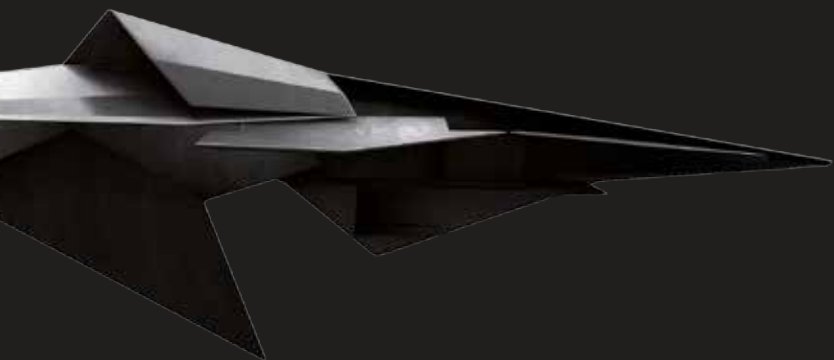
10.14 AIR CONDITIONING SYSTEM

For further information, please refer to PERSHING After sales & Service Department.

Trouble	Cause	Corrective action
1. High crankcase temperature	- Overheating - Poor circulation of treated water (winter cycle) or condensation water (summer cycle)	- Check coolant charge - Correct circulation
2. Low suction pressure	- Low coolant charge - Poor circulation of condensation water (winter cycle) or treated water (summer cycle)	- Add - Correct circulation
3. System noisy	- Loose hold down bolts - Unit base improperly insulated - Improper support or insulation of piping - Piping vibrations	- Tighten bolts - Insulate foundation - Use correct piping techniques and support piping with suitable hangers - Clip pipes correctly. Check the couplings
4. Compressor does not start	- Power off - Thermostat misadjusted - Pressure switch open - Faulty wiring - Pumps not operating - Flow-switch does not close - Gas discharging unit	- Check the supply. Check fuses and/or magneto-thermal switches - Adjust thermostat - Reset switch and check proper calibration, 20 bar (h.p.) and 2.5 bar (l.p.) - Check diagram and rewire - Check pumps free rotation. Check the magneto-thermal switches - Restore correct treated water circulation - Check coolant circuit for possible breaks due to transport and installation
5. Compressor cycles intermittently	- Low pressure switch erratic in operation - Low coolant charge - Internal protection (Klixon) tripped	- Check pressure switch setting. Check good circulation of condensed water - Add - Check for any voltage drop, correct

Trouble	Cause	Corrective action
6. High delivery pressure with compressor stop (high pressure switch)	- Coolant overcharge - Insufficient or no condenser water flow; clogged condenser or sea-water strainer - Condensed water pump off - Poor treated water circulation (winter cycle) - Air in coolant circuit	- Remove excess coolant - Adjust water regulating valve to condenser; clean condenser or sea-water strainer - Check pump and start - Check for air in the circuit. Check for possible clogging - Restore vacuum and refill with coolant

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