Riva

Owner's manual

90 ARGO

This manual has been drafted in compliance with standard UNI EN ISO 10240.
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FOREWORD

CHAPTER 1

1.1 GENERAL INFORMATION

NAME OF THE YACHT _____ **90 ARGO**
TYPE OF YACHT _____ **FLY BRIDGE**
PROJECT CATEGORY _____ **A**

CAUTION
Category A: This yacht is designed to navigate in conditions where the wind force may be greater than 8 on the Beaufort scale and, 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 using 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 cruising, 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 Service Department.

1.1.2 Layout of the manual

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

FOREWORD
SAFETY RULES
SAFETY DEVICES AND EQUIPMENT
DESCRIPTION OF THE YACHT
HELM STATIONS
WATER SYSTEMS
ELECTRIC SYSTEM
PROPULSION SYSTEMS
STEERING SYSTEMS
AIR CONDITIONING SYSTEM
AUXILIARY EQUIPMENT ON BOARD
INFORMATION FOR USE
HULL AND FURNITURE MAINTENANCE
TROUBLESHOOTING

CAUTION
Please keep this manual carefully in a safe, dry and easily accessible place for an easy consultation. When you decide to change the yacht, deliver this manual to the new owner in its integrity.

1.2 MANUAL INTRODUCTION

The documentation provided by RIVA to the Owner consists of two types of documents:

- The "**Owner's Manual**", edited by experienced professional staff in compliance with the regulations in force;
- The **Technical Document Collection**, concerning the on-board devices/systems (engines, air conditioning, etc..): it consists in a series of independent manuals, delivered by the relevant Manufacturer and/or Suppliers.

The Owner's manual is the Main Document and must be read in whole, in any case before considering the documents in the Technical Document Collection.

The associated Technical Documentation Collection makes up the set of the Reference Documents that are required to complete the information provided in the Owner's Manual. Since these documents are independent and aimed at giving information on specific single components, it is necessary to refer to them when indicated by the Main Document.

CAUTION

RIVA recommends carefully reading the whole documentation delivered by the Manufacturers of the various components.

For all problems concerning the use and the maintenance of components you can refer directly to the Service Departments listed in the documents delivered by the Manufacturers.

Anyway, in case of need, some little interventions can be carried out by the staff on board, after consulting the operation manual.

This manual has been drawn up by RIVA 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 contains a detailed description of the yacht, of the systems and devices installed and practical information about its use and maintenance.

Always use trained and competent persons for maintenance, repair and modifications. The modifications that may affect the safety features of the yacht should be evaluated, carried out and documented by competent people. The manufacturer of the yacht can not be held responsible for changes that are not approved.

We highly recommend to read it carefully and 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".

CAUTION

Make sure that the conditions of wind and sea correspond to the design category of your yacht and that you and your crew are capable of manoeuvring the yacht in such conditions.

Even when your yacht is classified accordingly, the conditions of sea and wind corresponding to design categories A, B and C ranging from storm conditions for category A to the conditions of wind and sea strong for the upper limit of category C, exposed to the dangers of a tidal wave or a wind gust. These are therefore dangerous conditions, where only a competent crew, coached and trained on well-maintained yacht can operate satisfactorily.

The height of the significant wave height is the average height of the waves making up the highest clear of the waves, which is approximately the height of the wave estimated by an experienced observer. Some waves are twice this height.

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, RIVA WILL ALWAYS BE ABLE TO SUPPLY YOU WITH A NEW COPY OF IT.

CAUTION

RIVA 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 our 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

In some countries, a license or permit to drive are required, or specific regulations are in force. This yacht may be conducted exclusively by authorized personnel to command and to the conduct of pleasure yacht in relation to the same class of the yacht.

CAUTION

All yachts, regardless of their strength, may undergo serious damage if used improperly. This is not compatible with safe navigation.
Always adjust the speed and course of the yacht under the terms of sea.

CAUTION

If the yacht is equipped with a life raft, carefully read the operating manual. The yacht should have onboard the appropriate safety equipment (life jackets, safety line, etc..) depending on the type of yacht, to the weather conditions, etc.. This equipment is mandatory in some countries. The crew should be familiar with the use of all safety equipment and emergency manoeuvring (man overboard recovery, towing, etc..), cruising schools and clubs regularly organize training sessions.

CAUTION

All persons should wear a suitable buoyancy aid (life jacket / personal flotation equipment) when they are on the deck.
Note that, in some countries, it is a legal requirement to always wear a buoyancy aid that complies with the applicable regulations.

1.3 SERVICE REQUEST PROCEDURE - WARRANTY

The extensive RIVA 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:

RIVA AFTER SALES & SERVICE DEPARTMENT
Via Ansaldo 7 - 47100
Forlì - Italy
Tel +39 0543 474445
Fax +39 02 70058589
customer.service@riva-yacht.com

RIVA 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.

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 RIVA After Sales & Service Department.

CAUTION
RIVA declines all responsibility for damage due to improper preservation and poor maintenance.

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

WARNING
RIVA 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.

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 RIVA 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. RIVA will not be liable for undelivered Warranty Certificates.

1.4 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

Draws your attention on information and important memos.

MAINTENANCE

This symbol indicates the maintenance schedules on the various on board devices.

1.5 SPECIFIC SAFETY WARNINGS

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.

1.6 CERTIFICATION, CLASSIFICATION AND IDENTIFICATION

RIVA has been operating in the international market for many years, with the purpose of building safe and high-quality yachts; for this reason, their yachts undergo rigid and accurate tests required by the international Authorities to issue a CLASSIFICATION CERTIFICATE.

1.6.1 Yacht identification specifications

Manufacturer	**FERRETTI S.p.A.**
Model	**RIVA 90 ARGO**
Type of yacht	**FLY BRIDGE**
Identification number CIN (Craft Identification Number)	**IT-FERRAR37A626**
Navigation class	**A (open sea navigation): the wind force can be higher than 8 and the wave height can exceed 4 metres**
Certification forms	**B+F+A1 (sound emission)**
Classification	**“EC” conformity according to the standards stated by the Directive 2013/53/EU**

In the figure aside you will find two plates shown in detail: Manufacturer plate and yacht identification code plate.

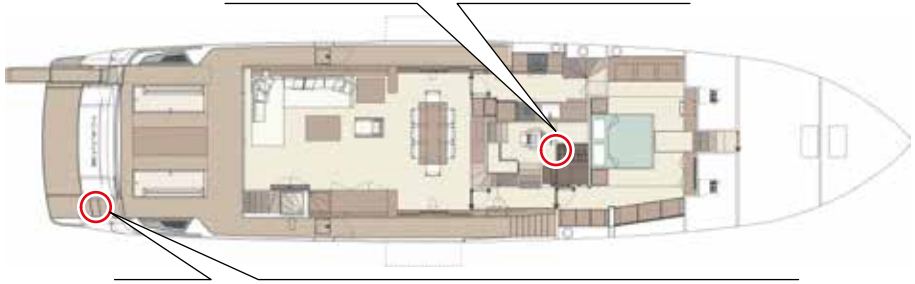
CAUTION

Manufacturer's plate - Part of the information is provided on the name-plate affixed to the yacht. A full explanation of this information is provided in the relevant sections of this manual.
Always keep the plate readable, and, if impaired, or tampered with, contact RIVA.

CAUTION

Category A: This yacht is designed to navigate in conditions where the wind force may be greater than 8 on the Beaufort scale and, 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.

The significant wave height is the average height of the waves that make up the highest third of the same, which is approximately wave height estimated by an experienced observer. Some waves know no twice this height.



1.7 LOAD CAPACITY

Maximum number of passengers	20
Maximum load	kg 3700 (passengers + equipment)
Safety equipment (standard)	n° 20
Berths	n° 12

Located in:

- 2 in Owner's cabin (double bed);
- 2 in VIP cabin (double bed);
- 2 in port guest cabin (double bed);
- 2 in starboard guest cabin (double bed);
- 2 in starboard crew cabin forward (single beds);
- 2 in port crew cabin forward (single beds);

WARNING

Do not exceed the maximum recommended number of persons.
Regardless of the number of person on board, the total weight of persons and equipment must never exceed the maximum recommended load.
Always use the seats/seating spaces provided.
Be careful to distribute materials and people on board properly.

CAUTION

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

CAUTION

The maximum load recommended by the manufacturer excludes the mass of the contents of the fixed fuel and water tanks when full.
It must exceed the total load that can be added to the displacement to discharge and dry yacht.

CAUTION

The maximum load carrying-capacity includes the weight of all persons on board, all their luggage and personal effects and any other equipment not included in the unladen displacement.

CAUTION

When loading the yacht, never exceed the maximum transportable load.
Always be careful when you load the yacht and try to distribute loads appropriately to maintain the expected structure.
Avoid placing heavy loads on top.

CAUTION

The safety equipment provided by the manufacturer are provided for the maximum number of transportable persons.
Before cruising, check that the number of safety equipment is always greater than or equal to the number of persons on board.

CAUTION

Changes in the arrangement of the on-board masses, such as the addition of weights at the top, a structure, or the replacement of components with different specifications, can significantly affect the stability, trim, and performance of the yacht.
In such cases, contact RIVA Support.

SAFETY RULES

CHAPTER 2

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 yachts.

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

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.

- 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 cruising and compare the tanks' capacity with the engines' consumption and the length and the expected type of cruise;
- Check the expected weather conditions in your cruising area;
- 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 its stability may be suddenly affected by the sea waves;
- Persons on board must know the location of life jackets for accommodation, as you wear and the location of fire extinguishers (see safety equipment) and of the life raft;
- All passengers must be aware of the risks caused by the fires and the 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 raft 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.
- It is the responsibility of the owner / user to have at least a baler / a board bucket, fixed so as to prevent accidental loss.

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.

CAUTION

Always place the necessary attention while navigating, especially in adverse weather conditions or breaking waves.

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. 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 yacht 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 environment and of people.
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

In the case of using a jet-ski, every passenger must wear a life jacket; the driver must also possess a valid license and follow the rules of the country where it is located.

CAUTION

Close portholes, windows and skylights during navigation, especially in poor weather conditions.
Also, make sure that you have closed or locked doors to prevent collisions with objects or people.

CAUTION

Any changes in the distribution of the masses on board, such as the addition of weights on top, a structure or the replacement of components with different specifications, can significantly affect the stability, trim and performance of the yacht.
In these cases, contact Customer RIVA.

CAUTION

Pay maximum caution in the towing phase and / or weight lifting with a crane or boom, as the stability of the yacht can be significantly reduced.

CAUTION

The bilge water is to be reduced to a minimum.
The yacht's stability is compromised with the addition of weights on top.
In the event of rough seas: cabinets and doors must be closed to reduce the risk of flooding.
Crashing waves are a serious danger to stability.

CAUTION

Avoid sudden maneuvers at high speeds.

CAUTION

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

CAUTION

Do not remove or move any weight placed under the floorboards in the deck floor.

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 a 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 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 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.
You must therefore read and understand the information given before activating the controls.

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 gas: 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 voltmeter.

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: do not use petrol, fuel or oil.

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 **interceptors** periodically, to remove possible dirt build up, which can jeopardize their efficiency.

CAUTION

The **cleaning** of the 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 glasses**. Move away from the area or protect possible flammable materials, which could catch fire from sparks.

2.2.1 Fire prevention rules

DANGER

On all yachts, fire is a major danger.
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 the figure: “Safety equipment arrangement”.

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

- Having the fire extinguishers and fire-fighting equipment overhauled as scheduled on their labels, and having them replaced, as required by the rules in force, with similar or equivalent or higher capacity ones;
- 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.

CAUTION

The engine room is equipped with a gas fire-fighting system!

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 various rooms;
- Leave the yacht unattended, when burners or heat generating equipment are on;
- Use naked flames;
- Modify electric or fuel supply systems, without consulting RIVA 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 bilge clean and check it frequently for any oil or fuel leaks.

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 harm.
Clean out any fire extinguishing powder out very carefully.

In addition to these requirements, RIVA recommends the following:

- Avoid smoking 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 leak cause and, if possible, repair it after closure of supply 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 yacht 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, and 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, following standard fire extinguishing techniques.

DANGER

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

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.

2.3 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 while cruising into open sea or by means of special drainage systems fastened to the shore or wheel-conveyed (with optional black water tank).

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 into open sea any non biodegradable product, beither of food or commercial origin, into the open sea.

- In the harbour, normal waste is considered as urban waste that must be hermetically sealed in plastic bags and thrown into waste dumpsters.

- Special waste must be disposed of into 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

When cruising, 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 into the sea: plastic materials, synthetic cables, fishing nets, waste bags, floating packaging materials, cordage, paper, rags, glass, metals, bottles, galley utensils and similar.
Non-comminuted or ungrounded food waste can only be disposed of beyond 12 miles.

CAUTION

It is forbidden to use toilets or holding tanks near the shore or in any prohibited area. Use the facilities of the suction port or marina to empty the holding tank before leaving port.

ENVIRONMENT

Always consider and comply with local and international environmental laws against marine pollution (MARPOL).
It is advisable to consider the local environmental laws and to respect the rules of good practice.

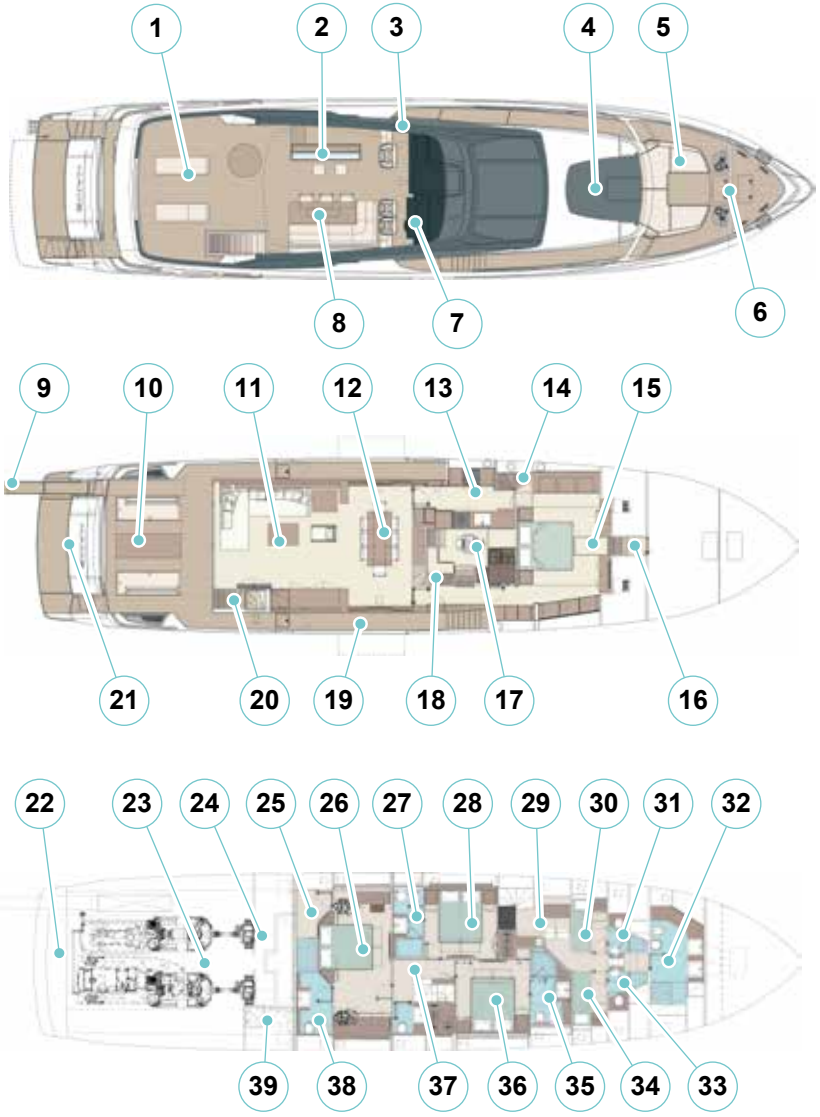
Although discharge at sea, except in special areas, of a wide range of ship-generated garbage is permitted at specified distances from the nearest land, preference should be given to disposal at shore reception facilities.

SAFETY DEVICES AND EQUIPMENT

CHAPTER 3

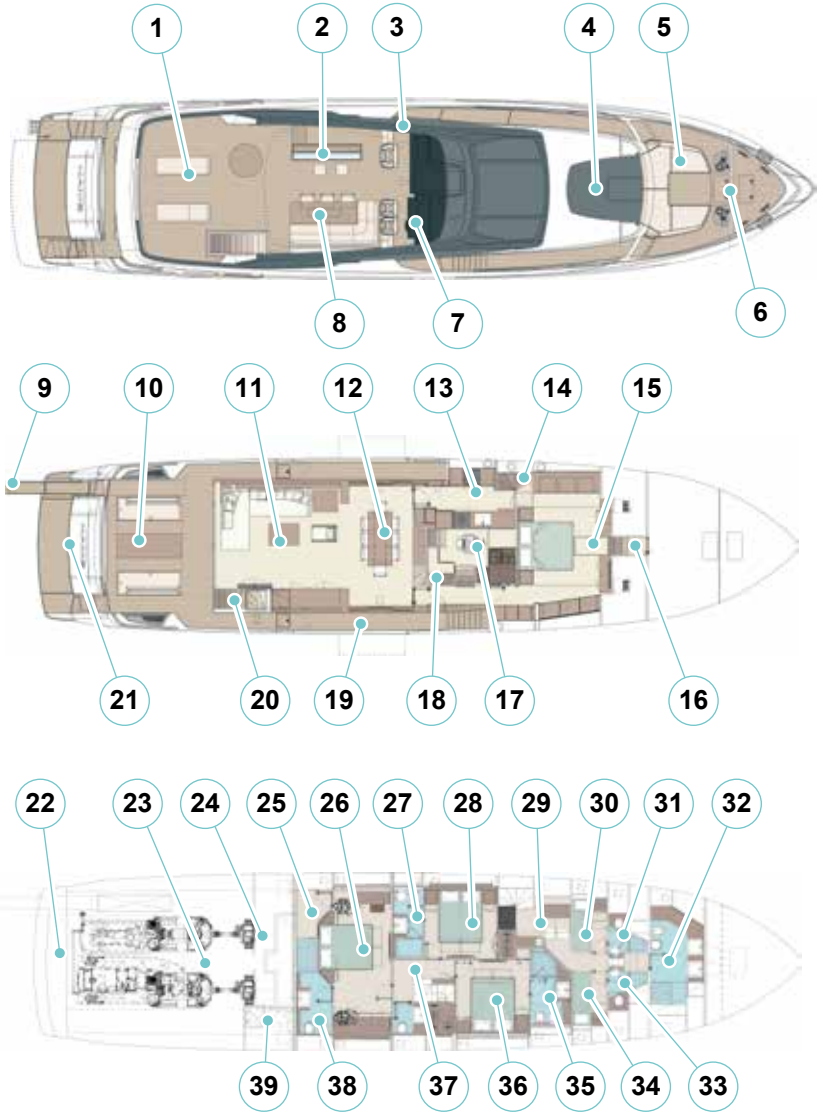
3.1 YACHT'S AREAS

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



1. Fly bridge sun-deck area
2. Bar unit
3. Side walk-around access door
4. Bow sun-deck area
5. Bow sofa
6. Anchorage and mooring area
7. Fly bridge helm station
8. Fly bridge dining room
9. Gangway
10. Stern cockpit
11. Salon area
12. Dining room area
13. Galley area
14. Crew area access ladder
15. Owner's cabin
16. Owner's bathroom access ladder
17. Pilot house
18. Guest area access ladder
19. Walk-around
20. Fly bridge access ladder
21. Garage hatch
22. Garage
23. Engine room area
24. Technical room
25. VIP cabin wardrobe
26. VIP cabin
27. Port guest cabin bathroom
28. Port guest cabin
29. Crew galley

30. Port crew cabin
31. Port crew cabin bathroom
32. Owner's bathroom
33. Starboard crew cabin bathroom
34. Starboard crew cabin
35. Starboard guest cabin bathroom
36. Starboard guest cabin
37. Guest lobby
38. VIP cabin bathroom
39. Engine room and technical room access ladder



3.2 ESCAPE ROUTES

In order to deal with the different 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 an d most secure, as well as the quickest, paths (from any yacht area) for taking shelter and reaching the “muster stations”, outdoors, from which it will be easier to leave the yacht.

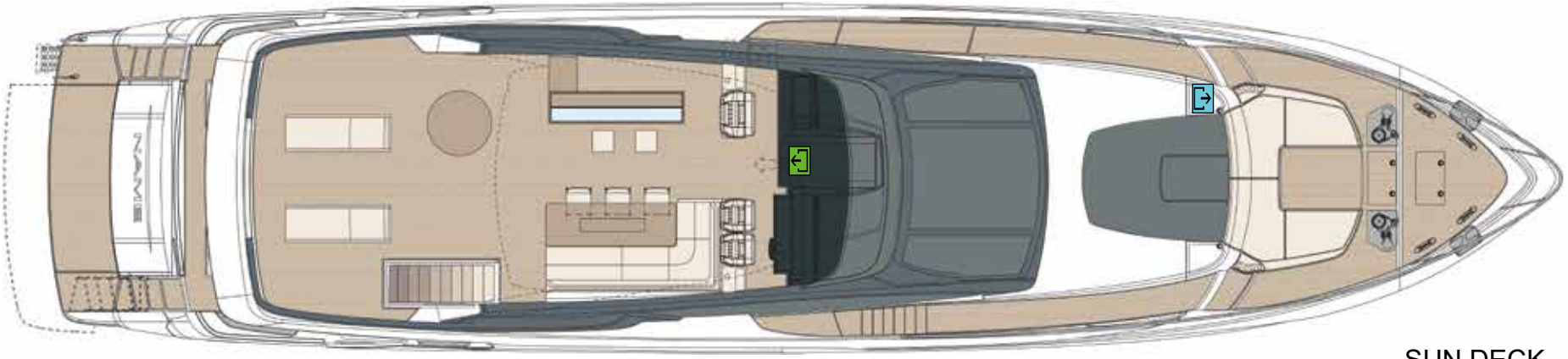
WARNING
During navigation it is necessary to unlock the safety retainer of the bow skylight.

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

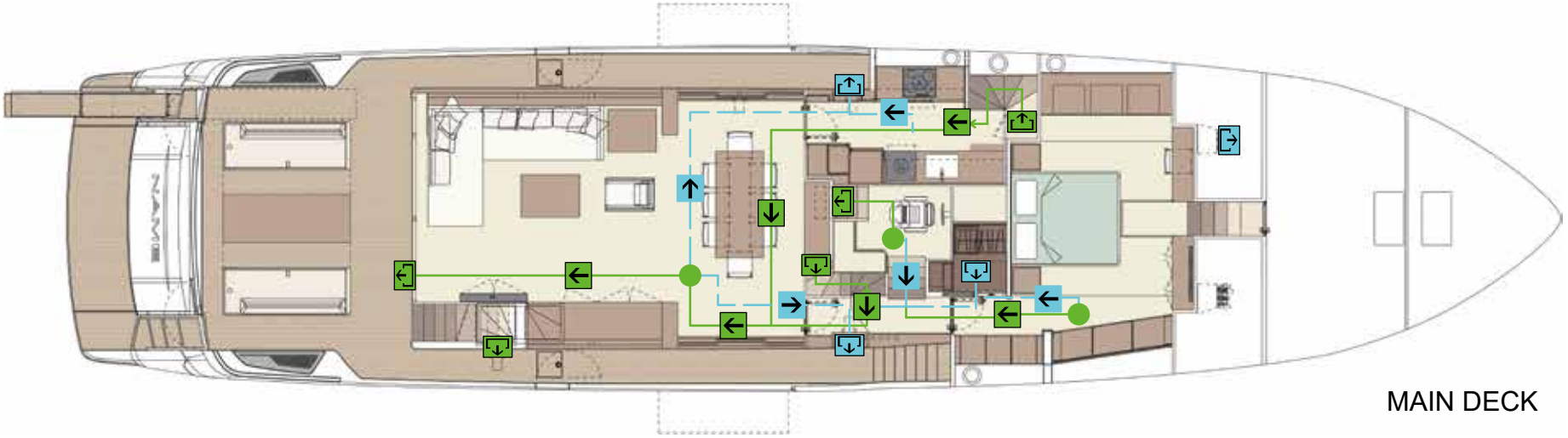
DANGER
The various yacht’s areas have more than one escape route. It is therefore necessary, according to the nature and position of the danger or fire source, to choose the safest and most suitable escape route very carefully.

DANGER
For safety reasons the access door to the engine room must be kept closed at all times and in all situations. Must only be open when crossing.

WARNING
Ladders shall be used with care when navigating.



SUN DECK



MAIN DECK

LOWER DECK

Primary escape route

Secondary escape route

Means of escape

3.2.1 External areas forbidden during navigation, with restricted access

Red Area (forbidden)
Areas that cannot be used during navigation.

Orange Area (restricted)
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”.

3.2.2 External areas accessible with circumspect during navigation

Green Area (free-working deck)
Deck areas for normal transit or stopping when navigation and sea conditions so allow.

Cleats
As hooking points.

Stanchion
As hooking points.

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.

DANGER

Unidentified external areas of the yacht: 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 exclusively allowed to trained and expert crew, prepared for the risks and equipped with proper safety devices.
- **Flying bridge:** outer area with protections against falls with reduced height and extension. Therefore be extremely careful when leaning out during the manoeuvres of the yacht and during navigation, especially with rough sea.
- **Stern platform:** outer area not 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.

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

- Life buoy;
- Individual life jackets.
- Re-boarding ladder.

The easiest way to get on board is from the stern platform by means of the re-boarding ladder, which is stowed inside the technical room - system room when not in use.

CAUTION

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

CAUTION

The pilot is responsible for ensuring boarding with the pilot’s ladder provided and properly set up every time the yacht is NOT IN OPERATION (meaning not navigating) ALTHOUGH ATTENDED.

3.3 STANDARD SAFETY EQUIPMENT

Everybody on board must know the location and the use of safety equipment, that is: life jackets, life buoys, life buoys with line for “man overboard”, life rafts, extinguishers and fire extinguishing systems (i.e. in engine room, etc..) and radiotelephone.

CAUTION

The diagram shows the position indicated by the manufacturer for safety equipment; therefore represents a useful guide the placement and number.
It is the owner’s responsibility to adapt and place the safety equipment in accordance with local, national, and international laws.

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

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

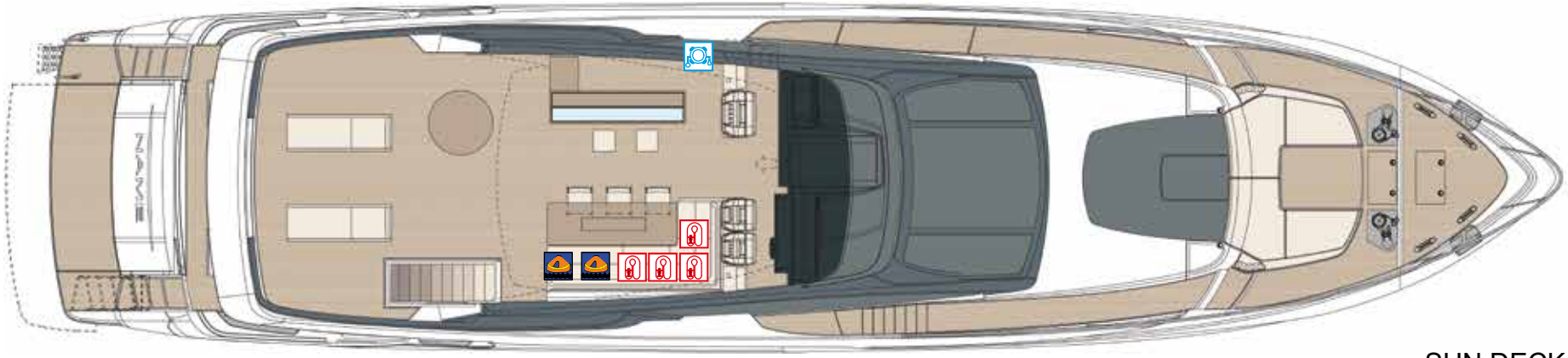
CAUTION

To navigate at a distance of over six miles from the coast, pleasure yachts both with and without EC mark must have a deviation chart officially authorized by Maritime Authorities. To this purpose, the compass installed on board must be compensated by personnel authorized by the Harbour Master who, after completing the operation (compass turns), will issue the chart with residual deviations. These charts do not have an expiry date, and are therefore not renewed when periodic inspections are made for the renewal of the Safety Certificate. It is one of the responsibilities of the captain of the yacht to verify correct compass operation and to update deviation values.

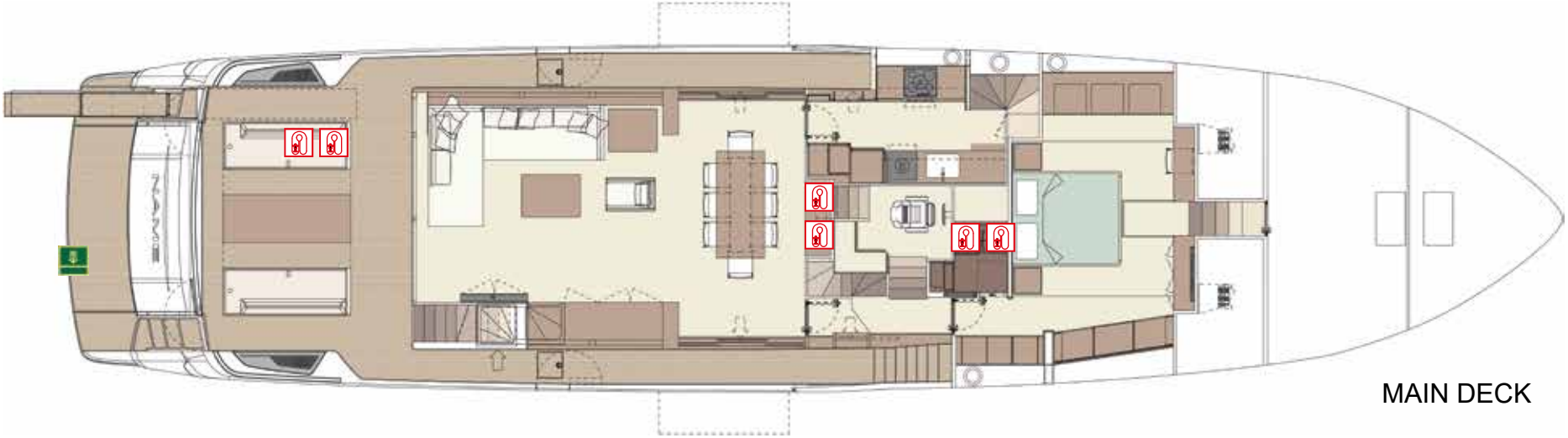
DANGER

Periodically inspect the wear conditions of safety equipment and check servicing or replacement dates, so that the equipment is always in perfect working order.

3.3.1 Location of safety equipment



SUN DECK



MAIN DECK

LOWER DECK

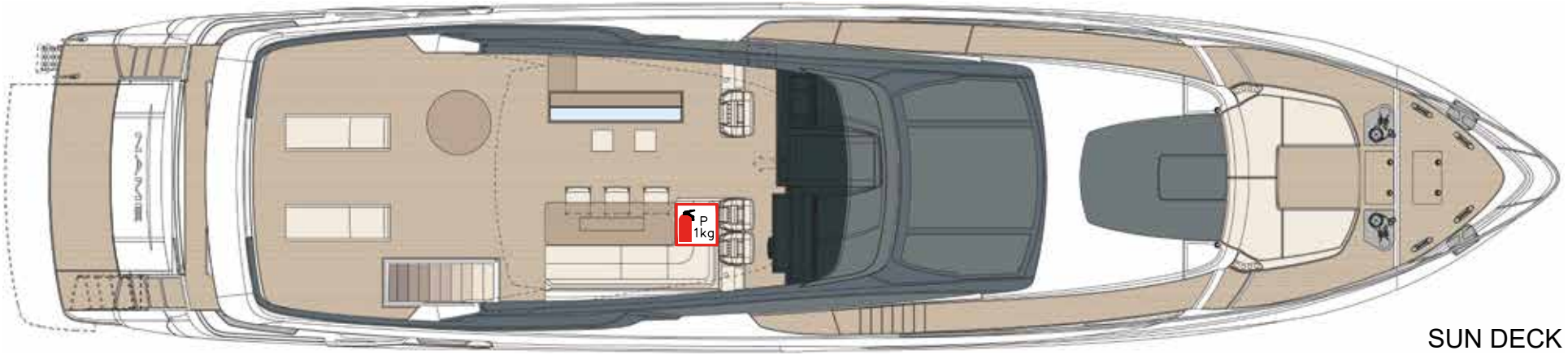
Rafts

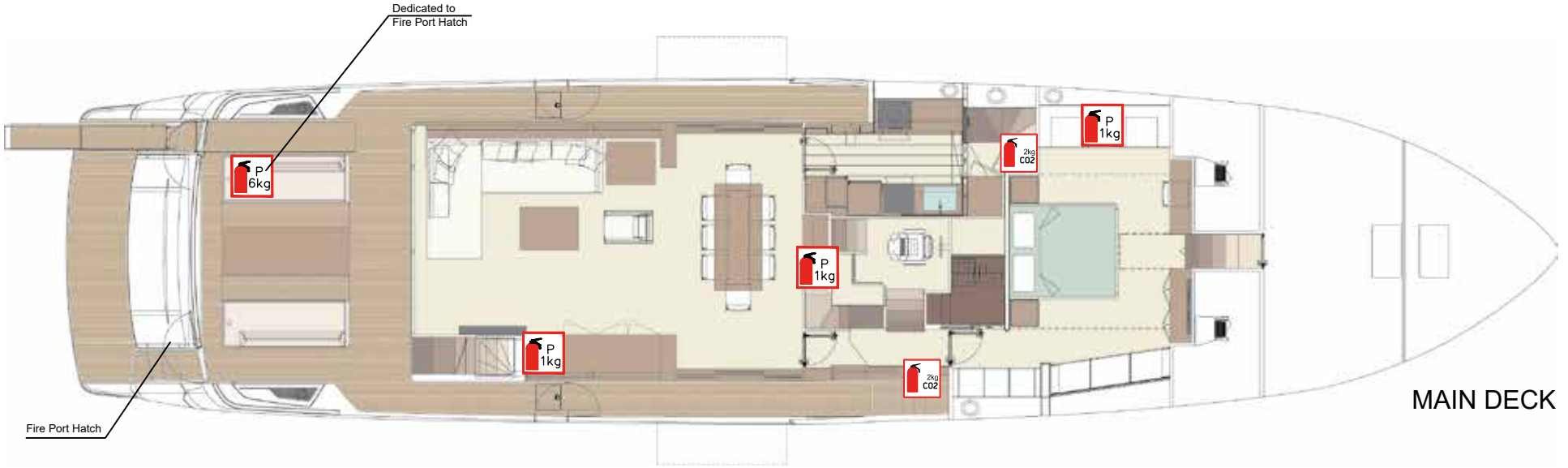
Lifebuoy

Life jacket

Re-boarding ladder

3.3.2 Extinguisher position





LOWER DECK

SYMBOL	DESCRIPTION	QTY
	Powder extinguisher 6 Kg: 1 pc - Engine room	1
	Powder extinguisher 1 Kg: 3 pc - Guest cabins 2 pc - Crew cabins 1 pc - Owner's cabins 2 pc - Saloon MD 1 pc - Bridge SD	9
	CO2 fire extinguisher 2 Kg: 1 pc - Galley 1 pc - Under wheelhouse	2

⚠ WARNING

THIS EXTINGUISHER USES $CO_{2H0,5X}$

AS AN EXTINGUISHING MEDIUM
IT SHALL BE USED ONLY TO FIGHT
ELECTRIC OR GALLEY FIRES.

TO AVOID ASPHYXIATION
ASFER DISCHARGE
LEAVE THE AREA IMMEDIATELY AND
VENTILATE BEFORE ENTERING

DANGER

CO_2 extinguisher uses $CO_{2H0.5x}$ as an extinguishing medium it shall be used only to fight electric or galley fires.

DANGER

To avoid asphyxiation after discharge leave the area immediately and ventilate before entering.

3.3.3 Self-inflatable life raft

WARNING
Before any trip, check that there are no impediments to its immediate use.

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 for shoes that could injure other shipwrecked persons or damage the life raft;
- Embark possible clothes and supplies;
- If somebody falls overboard, help them 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.

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).

Differently from a life yacht, the life raft cannot self-propel to the shore, unless blown there by favourable winds. 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.
- You can perform minor repairs, by using the glue provided with the kit. 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

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.

3.3.4 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 air plane or to see persons on the shore or on other boats.
- Store the signalling rockets away from flammable liquids and from other fuels.
- As the content of the signalling rockets absorbs the moisture, make sure to have them located in a dry and accessible place.
- All persons boarded must know the place of the signalling rockets and the method of use.
- Carefully follow the activation instruction for all signalling rockets.

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.

3.3.5 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 for external use;
- Ammonia;
- Bandages of various sizes;
- Plasters;
- Medicated plasters;
- Cotton wool;
- 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.

3.3.6 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 (**1**) 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 fighting;
- If the fire is big the operators must abundantly wet their clothing;
- The engines must be shut-off immediately and the fuel must be cut-off;
- 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.

DANGER

CO2 extinguisher uses $CO_{2H0.5x}$ as an extinguishing medium it shal be used only to fight electric or galley fires.

DANGER

To avoid asphyxiation after discharge leave the area immediately and ventilate before entering.

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.

WARNING

For further information relevant to the use of the different systems and equipment, see the various manufacturers manuals, delivered separately.

3.3.7 Portable fire-extinguishers maintenance

Component	Maintenance	Notes and precautions
Portable fire 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. Have fire extinguishers recharged even after partial use. **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.

3.3.8 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 firmly tied by means of strong laces.
It is important to learn, particularly for children, how to float in water with the life jacket.
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 boarded must know the location of the 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 are firmly secured and that the light battery has not yet expired.

MAINTENANCE

Wash in warm soapy water after use.
Dry thoroughly.
Store in a dry, ventilated area away from direct sunlight and harmful chemicals.
Check the life jacket regularly to make sure it is in good working condition.

CAUTION

Do not use the life jackets as pillows.
Practice of their use before you start navigating.
For people with problems may not be suitable.
With waterproof clothing or similar you can not reach the optimal use.
The use of life jackets does not guarantee total safety and the final rescue of the wearer, but it does support in water for a long period.

3.3.9 Life buoy

The life buoy is equipped with a life-line 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.

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”.

3.3.10 VHF-Radiotelephone (standard)

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, follow 6 minutes of silence, 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 "**MAYDAY**" 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 making 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.

CAUTION

For more details on the operating instructions's VHF, refer to the manual provided by the manufacturer.

MANUAL DISTRESS CALL:

- Select the distress channel by pressing key 16/9 or by scrolling the channels with the volume keys.
- Press the transmission key "PTT" on the radiotelephone and make the call.

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

MAYDAY THIS IS:
repeat the yacht's name.

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.
- When you receive an answer, continue the conversation:
  - Hold down "PTT" while talking.
  - Release "PTT" while listening.
- It may be required to switch to a working channel.

AUTOMATIC DISTRESS CALL:

- Lift the cover and press the DIST key; the display will show the wording "Distress call Undefined".
- DIST hold for about 3 seconds, then displays the message: "DISTRESS CALL SENDING" and the radio beeps.

- The distress message will be sent automatically and repeated at irregular intervals on Channel 70. Channel 16 will be available for communication after each transmission.
- If you receive no response after a short time, try to send the distress message manually.

WARNING

After the automatic SOS has been activated, it must be turned off by pressing the ON / C, otherwise the help message continues to be transmitted. The SOS function is automatically locked until the number of DSC has not been entered. Consult the manual provided by the manufacturer for the correct entry operations.

You can press ▲ or ▼ to scroll troughs the transmitted Distress call information.

- You now have the following soft-key options

RESEND

Displays “HOLD DISTRESS 3 SECONDS TO SEND”. You can then:

- Hold down the red “DISTRESS” key for 3 seconds to resend the call, or
- Press the “EXIT” soft key to return to waiting for an acknowledgement.

PAUSE

Pauses the call repeat mode. You can then:

- Press the “EXIT” soft key to resume the same call.

CANCEL

Displays “DISTRESS CALL SEND CANCEL.” You can then:

- Press the “NO” soft key to send the DISTRESS CANCEL signal.
- Press “PTT” and report your situation using the handset.
- When finished talking, press “X” to return to standby mode.

NOTE

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

3.3.11 Emergency boarding system

If you are in the water and in the event of an emergency or fall, you can use the emergency boarding system, consisting of a “ladder” positioned under the stern platform on the starboard side, to get back on board the yacht safely and easily.

To do so, unlock the ladder and pull it up until you can place it into vertical position.

WARNING

After the use of the ladder for climbing on board, place it back to its correct position and lock it.
The emergency boarding system is a safety device and must be used only in case of emergency.

DANGER

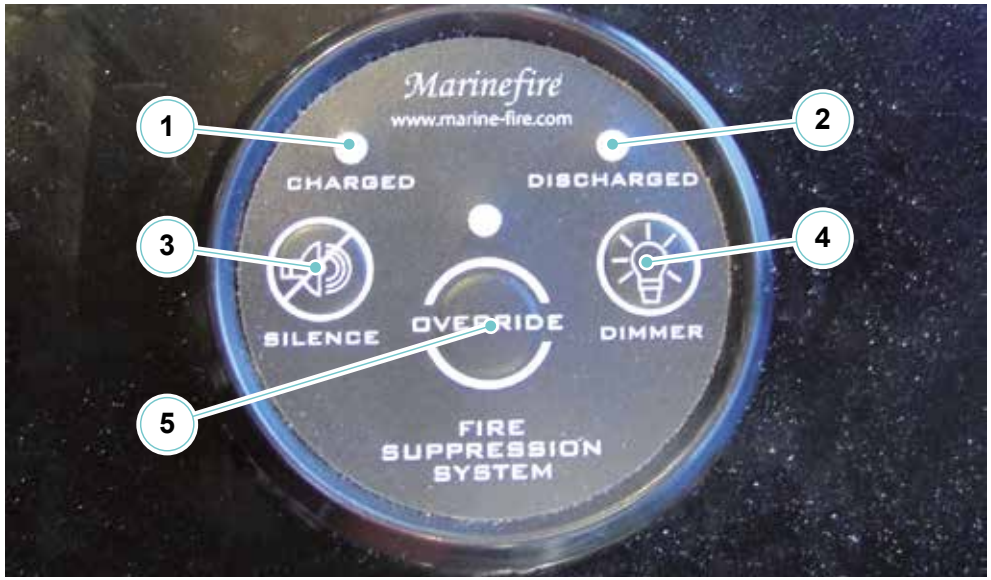
It is the responsibility of the captain, when the yacht is manned but not under way, to ensure the possibility of returning on board by extracting the safety ladder.

3.4 ENGINE ROOM FIRE-FIGHTING SYSTEM

The engine room and the technical room is protected by its own fire-fighting system, with automatic or manual activation, which uses type FM200 gas as as extinguishing agent. The cylinder is installed on the bow bulkhead of the engine room.
he cylinder is installed on the stern bulkhead of the technical room.

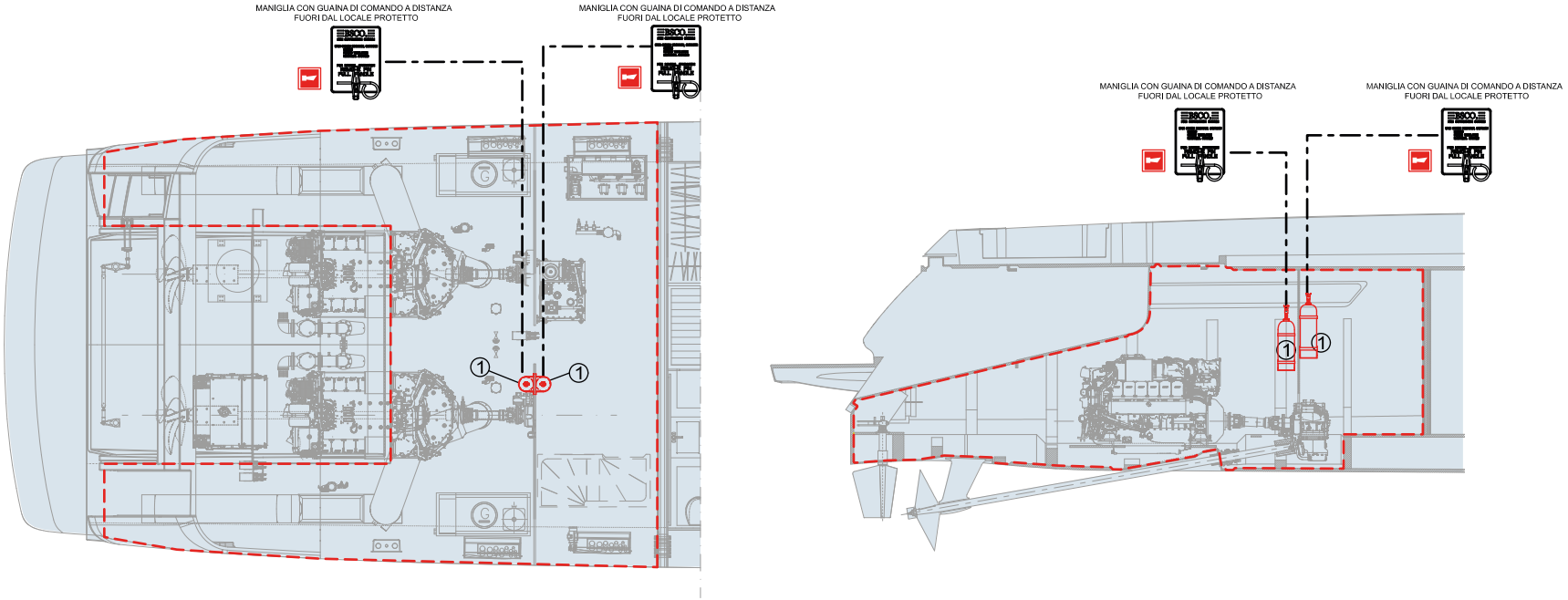
The discharge is automatically activated by means of a glass flask filled with liquid; when the temperature rises, the liquid expands until the flask breaks, and the extinguisher discharge activates.
The flask is fitted on the same cylinder. The extinguishers can also be activated manually; its discharge is controlled by tie rod located on the technical room access ladder.
The system is equipped with a control unit which in case of discharge, automatically stops the engines, the generators and the extractors in the engine room.
In the main helm station there is a panel for the control of the firefighting system, described hereunder:

1. **Green light**
   Indicates that the extinguisher is full.
2. **Red light**
   Indicates that the extinguisher is empty.
3. **SILENCE button**
   It turns off the acoustic signal which indicates that the system is operating and that the extinguisher is releasing gas.
4. **DIMMER**
   It varies the brightness of the control lights of the CHARGE/ OVERRIDE panel.
5. **OVERRIDE button**
   - When this button is pressed, the control unit which, in case of extinguisher discharge, stops the engines, generators and electric extractors, is cut off.
   - In OVERRIDE position the control unit is disabled.



WARNING
The OVERRIDE 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.

CAUTION
The OVERRIDE button must only be used in case of real emergency.



Discharge cable

Engine room fire zone

① Cylinder

Engine room fire zone

3.4.1 Fire-fighting system operation

The fixed fire-fighting system operates automatically when the temperature exceeds 79°C. The discharge is driven by an automatic system consisting of a glass flask filled with liquid and installed on the extinguisher cylinder. When the temperature around the flask reaches the preset level, the liquid expands until the flask breaks and the extinguisher activates. The system can also be activated manually.
By pulling the tie rod, the system stops the engines, the generators and the electric extractors automatically.
A panel located in the main helm station on the main deck it allow extinguisher discharge monitoring.
In case of fire in the engine room, operate as follows:

- Shut down both engines and generators, if running, by means of push-buttons in the helm stations;
- Turn off the battery breakers and all magneto-thermal switches of the AC;
- Remove the security pin from the fire-fighting tie rod, by slipping it off;
- Pull tie rod safety (**2**) for extinguisher discharge. The extinguisher can be automatically discharged, but pull the tie rod anyway.

CAUTION
If the fire breaks out underway, perform the distress call “**MAY DAY**”; if the yacht is in the harbour, advise the Port Authority and evacuate all unnecessary personnel.

CAUTION
Do not delay the fire fighting because of a rescue call.

CAUTION
To shut OFF the engines, do not only push the stop buttons but also always turn the keys.

CAUTION
Keep the fire fighting control tie rod efficient; service them and check for their operation at regular intervals (as per rules in force).

CAUTION
Before setting up for navigation, it is necessary to open the lock and to have the crew access free and the fire-fighting control panel as well.
Also check that the safety pin of the cylinders has been removed.

DANGER

The automatic fire-fighting system, covering exclusively a section of the engine room, under special fire conditions could not activate, for this reason IT IS ALWAYS COMPULSORY TO ACTIVATE THE SAFETY TIE ROD.

WARNING

When operating the fire extinguishing system, disconnect the engine room extractors and close the air intakes. Once the fire is extinguished, ventilate the room for a long time before going inside without activating the extractors. Clean out all the powder very carefully, to prevent corrosion.

CAUTION

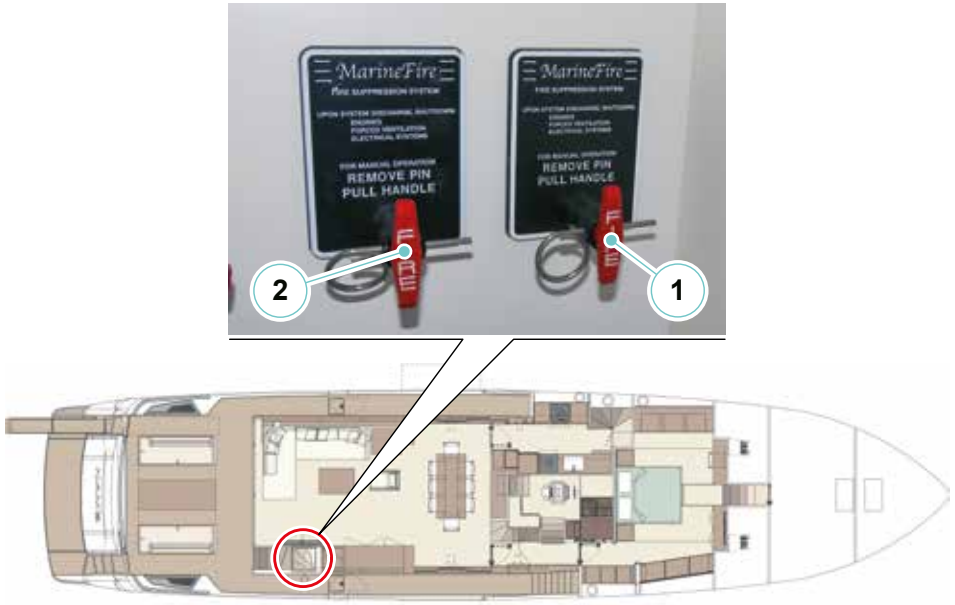
The automatic system is calibrated to detect the fire when they reach 79°C, therefore, if a beginning of a fire is found, it is absolutely necessary to actuate manually the system in order to limit damage to a minimum.

3.4.2 Fire-fighting system control tie rod

1. **Fire-fighting control tie rod engine room**
2. **Fire-fighting control tie rod system room**
   It drives the automatic discharge of the extinguishers in the engine room and system room.

WARNING

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



DANGER

Before activating the fire-fighting system, make sure nobody is inside the engine room and system room. Once checked that the fire is totally extinguished, before entering the room, ventilate it for a long time by opening the hatches, and remove any powder FM-200 deposits carefully.

DANGER

The automatic fire extinguishing system does not block the possible escape of oil, only suitable tie-rods are able to block this.
Always apply the tie rods “FUEL” in the event of a discharge.

DANGER

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.

DANGER

The safety pin inserted prevents the activation of the manual release (via the tie rod).

WARNING

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

WARNING

Before entering in the engine room and system room after a fire, make sure that this has been completely extinguished. Before entering those room ventilate them by opening the hatchways.

DANGER

The fire-extinguishing cylinder/s has a safety pin. Check that the above-mentioned pin has actually been removed. If this is not the case, should fire spread out, the cylinder/s would be jammed and would not discharge with consequent possibility of heavy damages to your yacht up to its sinking.

3.4.3 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:
  - 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 SUB PRODUCTS FOR FIRE FIGHTING.
Avoid inhaling fumes 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.

CAUTION

Carefully read 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

Check that at environment temperature the cylinders pressure gauge is set to correct actuation position indicated by the supplier.

3.4.4 Restoring the fire-fighting system in the engine room

If the fire-fighting system of the engine room has been activated and a fire has been extinguished, it is necessary to restore the essential conditions for navigation, in order to quickly reach the nearest harbour in which to carry out the due checks.
To resume navigation, the ventilation system of the engine room and the fuel system of the propulsion engines must be brought back to normal working condition.

DANGER
Before entering the engine room, ventilate the room properly, to avoid risks due to high temperatures and noxious gases suspended in the air.

DANGER
These operations have to be carried out directly from the engine room; therefore before carrying out any operation, carefully read the safety instructions 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 FM-200 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 the starting of the propulsion engines, it is necessary to manually activate the engine supply valves, located on the fuel tank in the engine room.

For this purpose, it is necessary to open the fuel delivery valves, previously closed by the fire-fighting handle for fuel cut-off, by turning them anticlockwise.

The fuel cut-off valves are not to be left in intermediate positions but they must be completely open, when the red handle is parallel to the longitudinal axis of the piping.

3.4.5 Fire-fighting system in the engine room

Checks and tests

To make sure that the fire extinguisher is operational, the pressure gauge must be in the green field.

CAUTION

Accidental discharge during handling or installation may cause serious injury. Re-insert the safety pin fitted by the Manufacturer on the sensing/ detecting valve of the cylinder up to complete and controlled installation. Protect eyes during the installation or maintenance.

WARNING

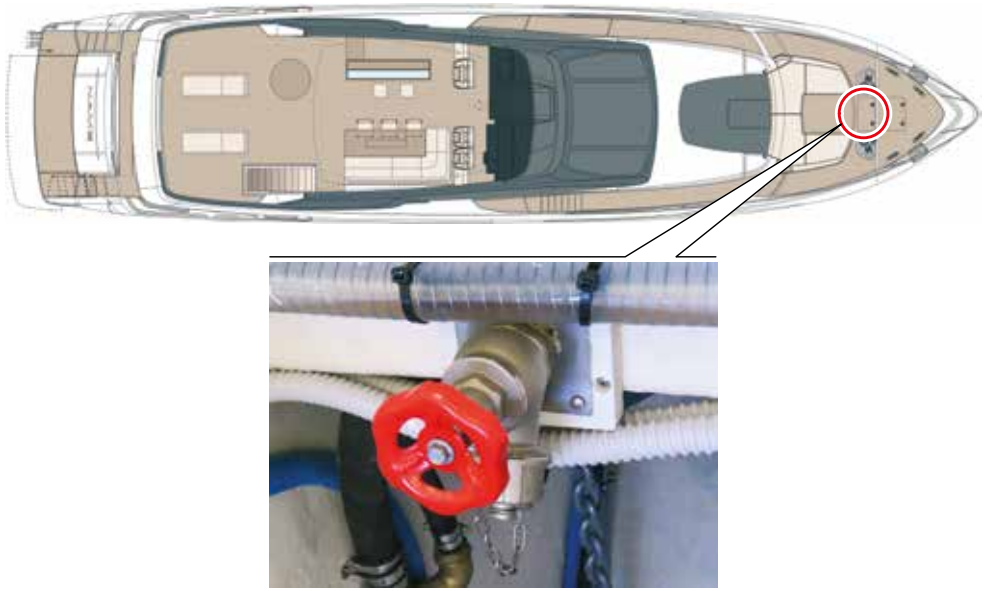
During maintenance operations, pay attention not to break the flask located on the cylinder, because, even if the safety pin is inserted, if the flask breaks, the fire-fighting system activates.

MAINTENANCE

At least once a month, and in any case, before each navigation, check the charge status of the fire extinguisher.
At least once a month, and in any case, before each navigation, check the external condition of the fire extinguisher. At least every 6 months check the fastening of the fire extinguisher.

3.4.6 Fire hoses

On board there are many fire hoses that allow the fire extinguisher.
To put under pressure the fire hose system, push the button at bow.



NOTE

When the button is pressed, is also activated the chain washer.

3.5 GARAGE FIRE-FIGHTING SYSTEM

The garage is protected by its own manually activated fire-fighting system.
The system allows to extinguish a fire in the garage without having to enter.

The system is composed of:
- A powder fire extinguisher 6 kg, placed under the starboard seat of the stern cockpit;
- An opening (fire-port).

The fire port is located near the first step of the port ladder to access on the stern platform.

To activate the discharge you need to break the glass present in the “FIRE-PORT protection”, insert the nozzle of the extinguisher and activate.

DANGER

Chemical elements to put out fires and debris of a discharge system are toxic. To prevent illness, injury or death caused by the inhalation of fumes, make sure that nobody is on the premises during discharge system.

MAINTENANCE

At least monthly, and before each sea trip, check the state of charge of the extinguisher.
At least monthly, and before each sea trip, check the external condition of the extinguisher.
At least every 6 months to check mounting extinguisher.

3.6 ALARM DEVICES

The alarm devices include a fire detection control unit **(1)**, a flashing warning light group with alarm siren **(2)** and a high water alarm siren in the bilge.

These devices will operate if smoke is detected by sensors in the engine room and other areas of the yacht, or by manual activation buttons.

It is also possible to monitor the presence of fumes in the yacht from the touch screen control panel on the control panel.

MAINTENANCE
Perform a function test at least once a month.

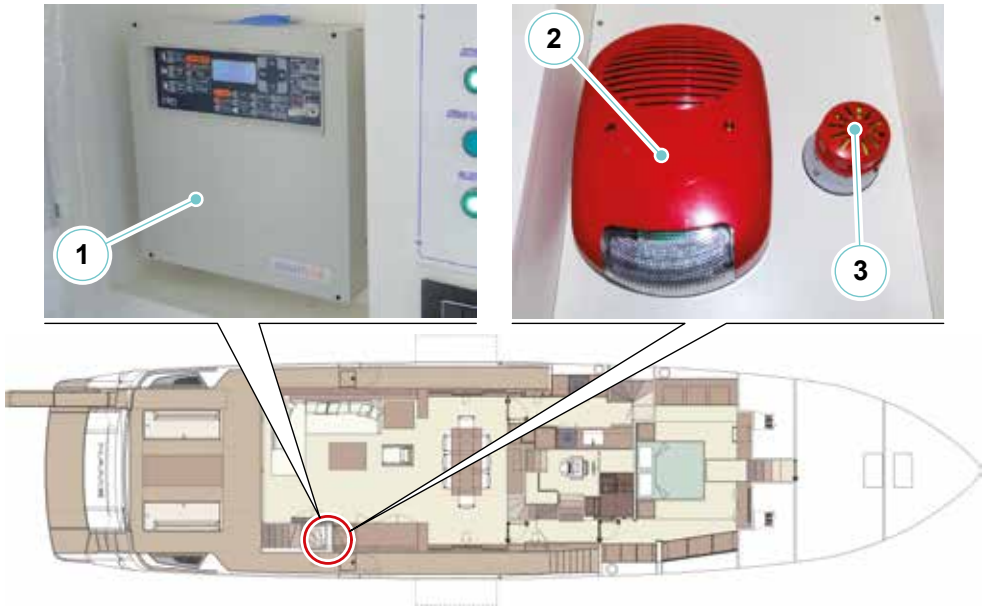
3.6.1 High water bilge alarm system

There is a siren type alarm device to signal high bilge water **(3)** operated by float switches located in the various bilge compartments of the yacht.
The alarm is present on the dashboard in the monitoring system and in the backplane by means of an indicator/beeper

MAINTENANCE
Check the operation of the float switch and siren at least once a week.
Clean the floating switches at least once a month.

CAUTION
To prevent false alarms, ensure that the system is isolated and disabled before proceeding with maintenance and cleaning of smoke detectors.
Once periodic maintenance of all detectors is completed, power and rehabilitate the system.

CAUTION
For further information on the various devices installed on the yacht, consult the relative use and maintenance manuals supplied separately by the Manufacturer.



3.6.2 Smoke detection control unit

Designed and built in accordance with current standards, is a central fire detection.
It is able to identify and diagnose abnormal situations by offering a spectrum of visual signals: alarm, pre-alarm, fault, bypass, test, monitor. All reports are visible both on display and on both LEDs.

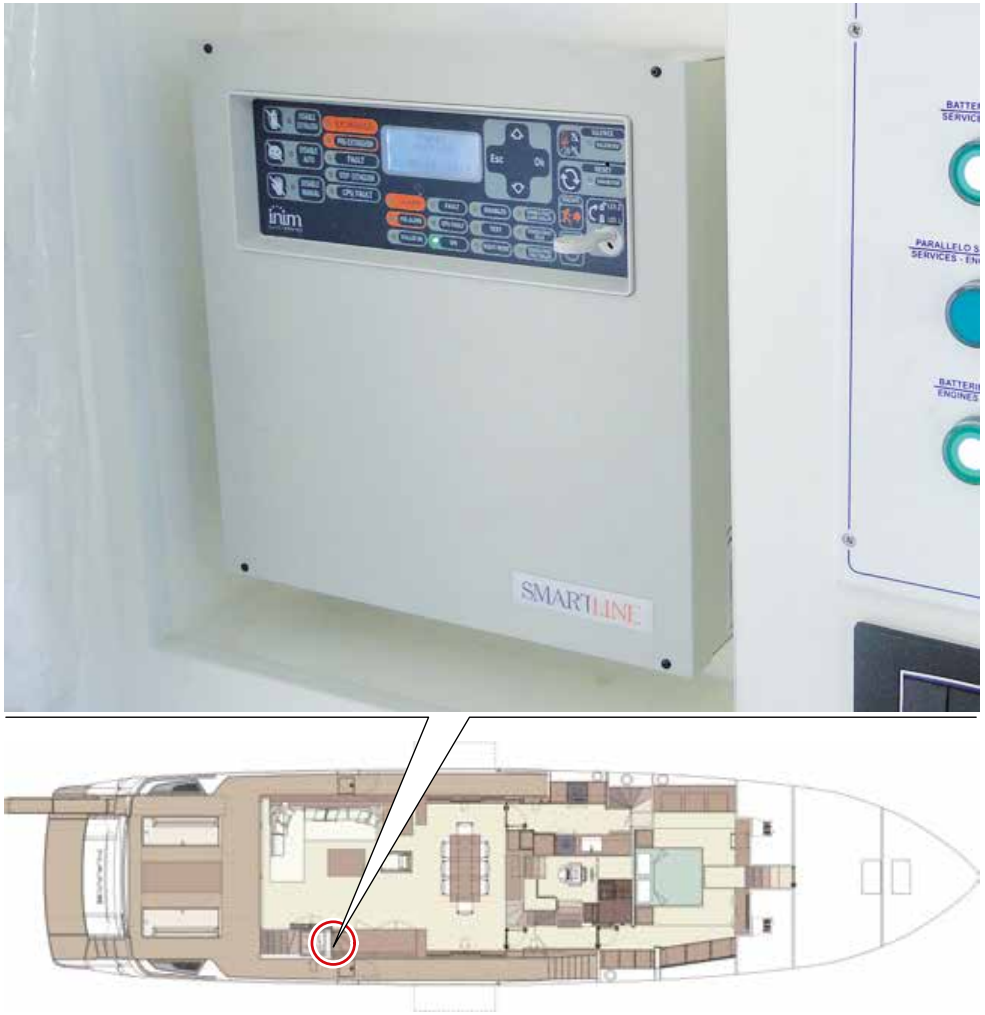
The control panel has a number of areas which can be connected to the detectors.

Each detection unit is equipped with its own output of alarm repetition, allowing the alarm to be repeated on the monitoring system. Both the smoke control unit and the signal light/acoustic alarm unit are supplied with a buffer battery, in this way danger can be detected even without power supply.

If the main 24 V power supply of the control unit should fail, the malfunction is indicated visually (alarm warning light) on its control panel.

If both power supplies (main and buffer battery) should fail, the control unit activates the smoke alarm siren.

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



CAUTION
The control unit has been set and tested by RIVA; do not alter the programming controls, read the user manual for a correct operation reset, or better, address RIVA After Sales & Service Department.

CAUTION

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

3.6.3 Use of the smoke control unit and of the signal light/ acoustic alarm unit

The batteries fitted to these units are maintenance free, they do not need to be filled with distilled water. Keep the terminals on the battery top clean at all times to prevent the battery discharge. Check the battery terminals, they should not be loose and must not have any sign of rust or oxidation.
Apply some Vaseline on the terminals to prevent their corrosion.

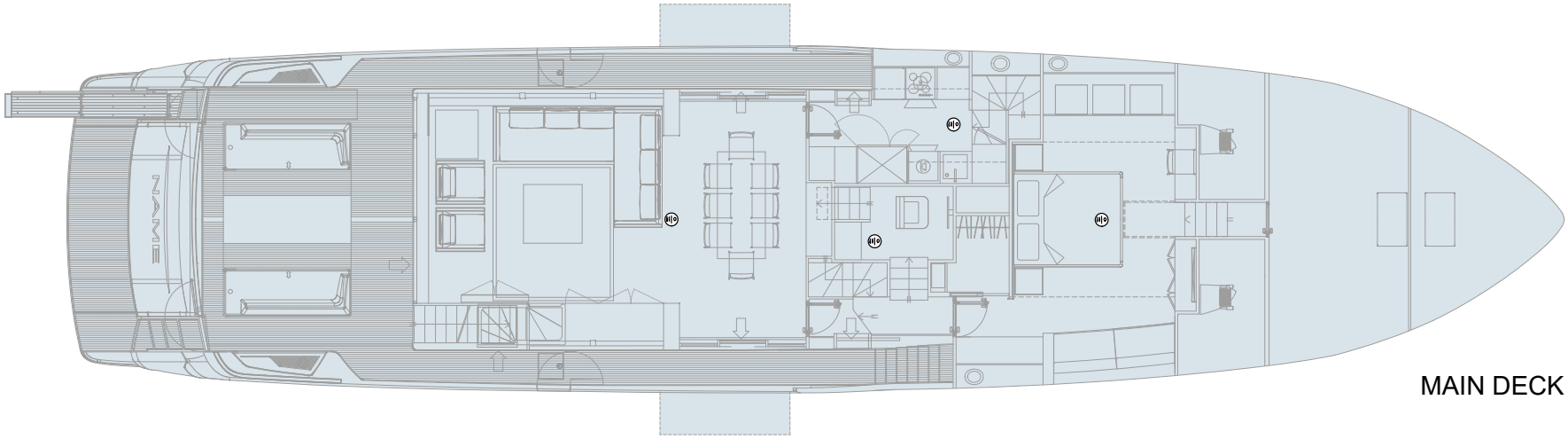
ENVIRONMENT

Handle and dispose of batteries according to the rules in force. Use only authorised disposal procedures. In case of doubts, contact the Port Authority.

WARNING

If possible, keep spare batteries on board with the same characteristics as those installed.

3.6.4 Fire detection system diagram



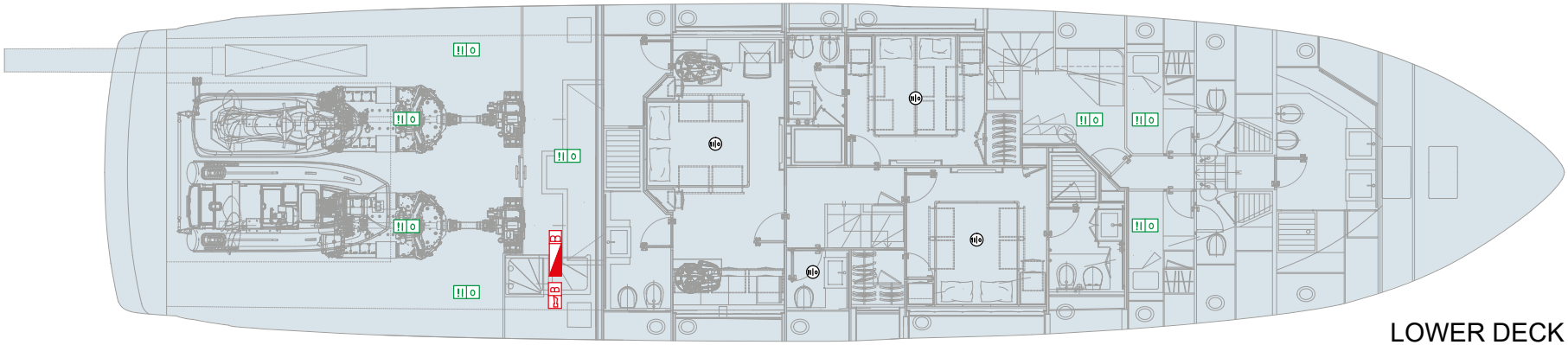
MAIN DECK

B — Fire detection unit

B — Alarm

Optical smoke sensor

Glass optical smoke sensor



LOWER DECK

Fire detection unit

Alarm

Optical smoke sensor

Glass optical smoke sensor

3.7 FIRE PREVENTION

DANGER

On all yachts, fire is one of the greatest dangers on board. For this reason, all necessary precautions must be taken to prevent the occurrence of fire.

Before operating a yacht, the captain must be familiar with the following fire prevention regulations.
This yacht must always be fitted with portable fire extinguishers positioned as shown in the figure “Safety Equipment Arrangements”.

CAUTION

- Battery gas may explode. Keep sparks and flames away from batteries. Using a pocket bulb to check the electrolyte level.
- Sulphuric acid in the battery electrolyte is poisonous. It can burn skin, corrode clothing and cause blindness if splashed into the eyes.
- To avoid hazards:
  - Refill batteries in a well ventilated area.
  - Wear safety goggles and rubber gloves.
  - Avoid breathing vapours when adding distilled water.
  - Avoid spilling or draining the electrolyte.
- If the acid comes into contact with the body:
  - Wash skin with water.
  - If it has splashed into the eyes, wash with water for at least 15 minutes.
  - Seek medical attention immediately.
  - If acid has been ingested, seek medical attention immediately.

It is the direct responsibility of the owner and the master of the yacht to do the following:

- Have fire extinguishers and fire-fighting systems serviced by the date marked on them and replace them, when required by current regulations, with similar ones or ones of at least equivalent capacity if not higher;
- Inform crew members of the location and use of fire extinguishers, fire protection systems and emergency exits.;
- Ensure that fire extinguishers are also accessible in passenger cabins.

WARNING

NEVER DO THE FOLLOWING:

- Block access to passages and emergency exits;
- Block access to safety devices such as fuel valves, electrical switches, etc..;
- Block access to fire extinguishers located inside lockers;
- Leave the yacht unattended when the stove or other apparatus that emits heat is on;
- Use naked flames;
- Modify electrical or fuel supply systems without first consulting RIVA;
- Smoke near or when handling flammable materials;
- Store highly flammable materials (such as combustibles, thinners, etc..) near heat sources such as engines, cookers, etc.., in order to avoid damage;
- Store flammable material in the engine room. Any non-combustible material may only be stowed if securely secured so that it cannot accidentally end up against rotating engine parts or cause difficulty of access to the engine room.

Keep bilge clean and frequently check for oil and fuel leaks.

CAUTION

The engine room of this yacht shall be equipped with an FM-200 fire-fighting system.

CAUTION

If a fire occurs in the vicinity of electrical equipment, never use water, but hand-operated powder extinguishers. To avoid asphyxiation and physical damage, leave the area immediately after use and then ventilate it thoroughly before entering again.
Thoroughly clean the deposited dust.

In addition to the above standards, RIVA recommends the following:

- Avoid smoking in the lower deck and especially in the garage, systems room and engine room.
- Keep bilge clean and avoid spilling liquids, especially in engine room. If fuel leaks from engines or generators occur, do the following:
  - Stop all engines immediately;
  - Locate the source of the leak and repair it if possible after closing the supply valves;
  - Dry and clean bilges before restarting engines without discharging into the sea or harbour..
- Take care not to place any flammable objects near heat sources such as engines, cookers, halogen lamps, etc.
- If there is a leak in the yacht try to stop it with turafleal swabs and/or rags by intervening, if possible, from outside.
- If a system (pipe) breaks in the yacht, all the hull valves should be closed, the leak detected and, if possible, repaired. Remember to reopen the hull valves that are not affected.

CAUTION

The master of a yacht shall have knowledge of basic fire fighting techniques and the use of fire extinguishers.

In case of fire, follow these procedures:

- Keep calm and avoid panic among passengers;
- Stop the yacht, close the sea connections and the drains;
- Set the battery breaker to “OFF”;
- Close engine room air intakes;
- Locate the point of fire and its origin;
- Avoid aspirating smoke;
- Extinguish the fire using standard fire extinguishing techniques;
- For engine room and garage fires see “engine room and garage fire fighting system” on the following pages of this manual.

DANGER

If the yacht sinks, close the fuel taps and the black water taps.

CAUTION

It is recommended that you read this section where the information the master of your yacht needs to know is collected.

3.7.1 General information to prevent fire

Regular and correct maintenance of the systems and a prudent behaviour of all passengers are indispensable measures for preventing any risk of fire. 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 small 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;
- 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.

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).

3.8 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.

The fire extinguisher plates are located adjacent to each fire extinguisher (see sprinklers).

CAUTION
It is forbidden to remove the plates attached to the yacht.

3.9 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 to 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 RIVA, 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 there are 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.

WARNING

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

CAUTION

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

3.10 ITEMS USEFUL TO HAVE 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
- 2 kg of hydraulic oil for the interceptor
- 5 kg of anti-freeze liquid
- 1 kg of oil for the bow thruster
- 10 kg of oil for the electro-hydraulic system
- 1 set of navigation light bulbs
- Replacement spotlights
- Spare 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
- 1 watermaker spare parts kit
- Battery for smoke detection system
- Signal light battery
- Noise-proof earphones

3.11 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.

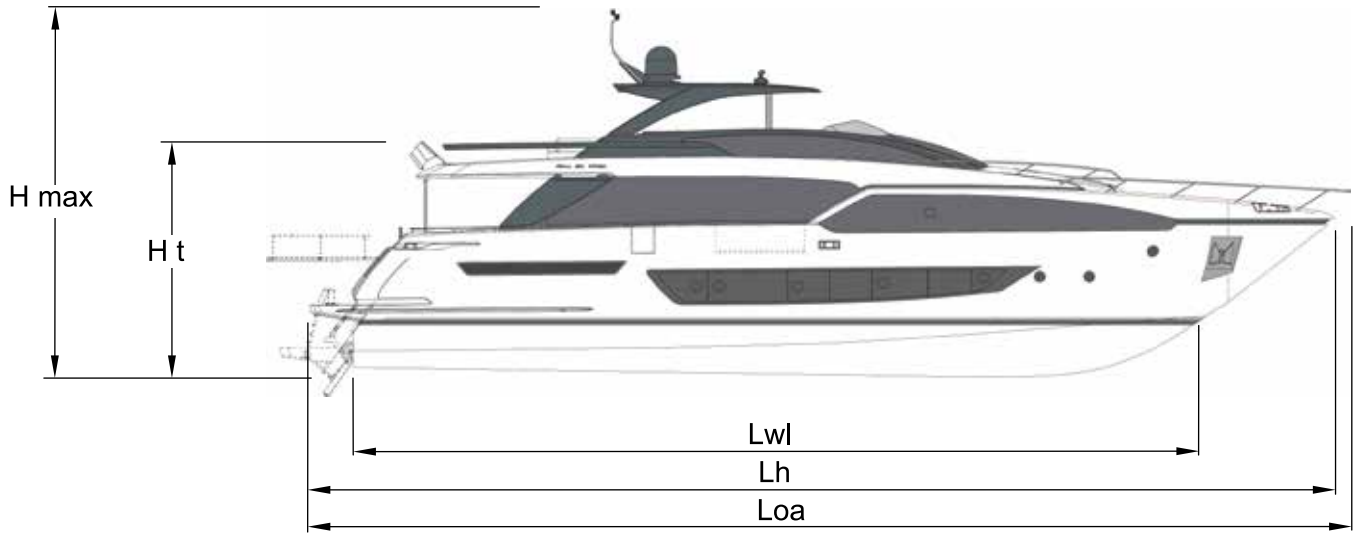
	2027	2028	2029	2030	2031	2032	2033	2034	2035
Self-inflatable life raft (for all persons on board)									
Individual life buoy (for each person on board)									
Life jacket with rope (1) (floating type)									
Light buoy (1)									
Smoke buoy (3)									
Red light hand fires (4)									
Red signal rockets with parachute (4)									
Compass and deviation schedules									
Nautical charts									
First aid kit									
RTF inspection									
Property tax									
Insurance									
License (pilot)									
Portable fire extinguishers									
Fixed fire extinguisher in the engine room									
E.P.I.R.B.									

DESCRIPTION OF THE YACHT

CHAPTER 4

4.1 MAIN DIMENSIONS AND CHARACTERISTIC DATA OF THE YACHT

4.1.1 Main dimensions



(Loa) Overall length	28,49 m	93 ft 6 in
(Lh) Hull length	23,98 m	78 ft 8 in
(Lwl) Waterline length (yacht fully laden)	23,10 m	75 ft 9 in
Maximum beam	6,50 m	21 ft 4 in
Hmax = Overall height from keel to rollbar	8,60 m	28 ft 3 in
Ht = Minimum transport height from keel	6,82 m	22 ft 5 in
P= Pulpit + transom	4,51 m	14 ft 10 in
Depth under propellers (yacht fully laden)	2,15 m	7 ft 1 in
Displacement unladen	85000 kg	187393 lbs
Displacement laden	98000 kg	216053 lbs
Stern rail	1,19 m	3 ft 5 in

Features		
Hull type		warped hull with spray rails and aft deadrise 12°
Construction material		GRP
Propulsion	Model	MTU 2000 M96X
	Configuration	12 cylinders a V
	Power	1472 kW (1974 hp)
	rpm	2450
Weight (dry)	Kg (lb)	2810 (6195)
Displacement	lt (cu in)	26,8 (1635)
Inverter	Model	2 x ZF 3050
Fuel tank capacity	lt (Gal) approximately	8700 (2298)
Fresh water tank capacity	lt (Gal) approximately	1320 (349)
Black water tank capacity	lt (Gal) approximately	535 (141)
Grey water tank capacity	lt (Gal) approximately	535 (141)
Total weight of liquids (full tanks)	Kg (lb) approximately	9567 (21093)
On-board power supply	(V)	230 from generator sets
	(V)	24 by batteries
Power generator (no. 2)	Model	2 x Onan MDKDS/T/U
	Tension (V)	Three-phase 400
	Frequency (Hz)	50
	Power (kW)	27+27
Batteries	Engine (N°)	4
	Services (N°)	12
	Generator (N°)	2
	Radio (No.)	2
	Emergency (No.)	6

Features		
Bilge pumps	VIP booth (No.)	2
	Crew sector corridor (No.)	1

CAUTION

RIVA yachts 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 loads appropriately to maintain design trim (approximately level).

4.2 GENERAL ARRANGEMENTS

4.2.1 Arrangements and operation

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 different 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
- Fly Bridge
- Hard-top
- Engine room
- Starboard profile
- Port profile

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.

4.2.2 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 into a list if you need another copy.

The other locks on the yacht are of the universal type; the same key opens all 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 RIVA in case of deteriorated or altered locks.

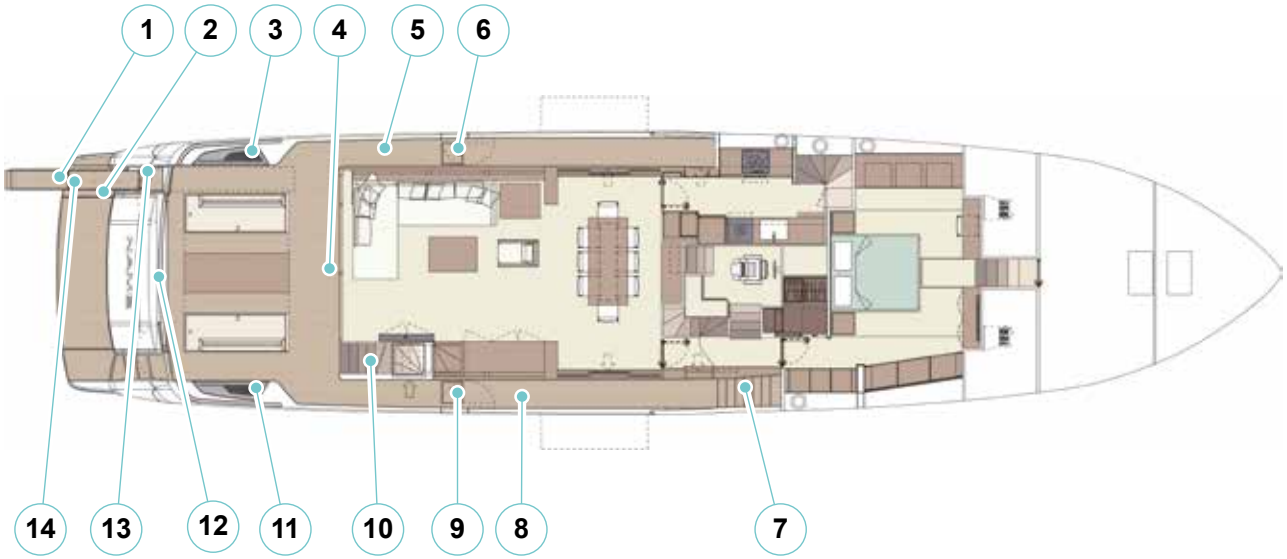
In addition to the different keys, the yacht is equipped with a remote control allowing to control the gangway remotely.

On the starboard side of the aft transom there is a receiving photocell, which detects the signal sent by the remote control and forwards it to the hydraulic control unit. The radio control must be directed towards the photocell and no obstacles must stay in their way.

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

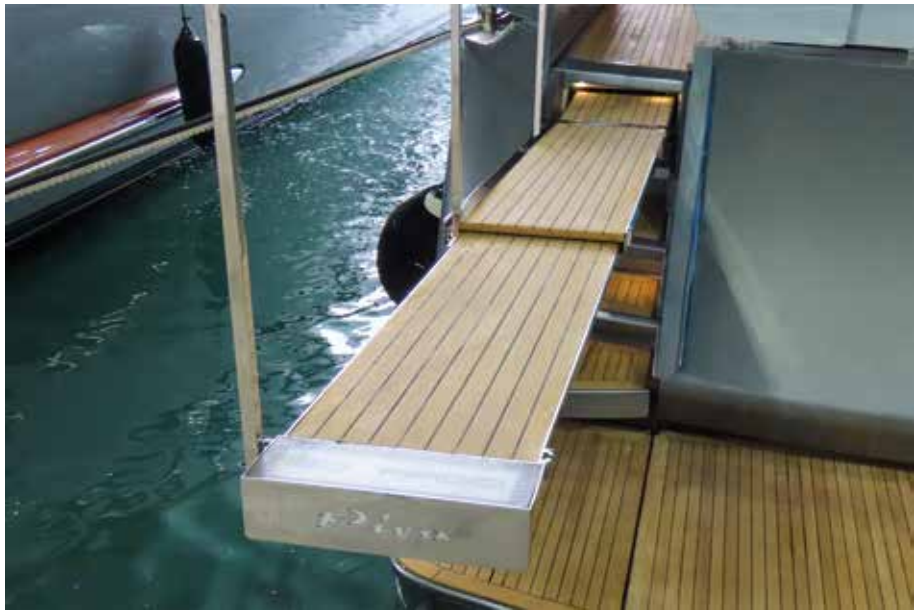
4.3 MAIN DECK - EXTERIOR

1. Hydraulic gangway
2. Stern platform
3. Port mooring furniture
4. Stern cockpit
5. Port side walk-around
6. Fuel filling nozzle
7. Bow access ladder
8. Starboard side walk-around
9. Fuel filling nozzle
10. Fly bridge access ladder
11. Right mooring cabinet
12. Garage hatch
13. Shoreside power sockets
14. Swim ladder



4.3.1 Access to main deck - exterior

The access to the yacht from shore is enabled by a gangway located on the port side and stowed under the steps.



CAUTION

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

From the water, on the other hand, it is possible to go back on board through the swim ladder on the left side of the stern platform, from where you can reach the bridge through the two side ladders.

The transom houses the garage hatch, inside which it is possible to accommodate a tender. The garage hatch can be operated with a switch located in the stern well on the starboard side.

DANGER

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

DANGER

Never start navigation with gate, swim ladder, gangway and garage hatch not correctly retracted or closed.

DANGER

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

DANGER

As the opening/closing of the garage hatch is performed by an electronic mechanisms, always check that no obstacles or persons are standing nearby before its activation, this operation has to be performed exclusively by skilled crew.

CAUTION

Periodically check that groundings are in order. Keep connections dry and protected with anti-corrosion grease.

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

Stop using the on-board handlings if the sea-weather conditions (wind, currents, weather factors) could jeopardize the yacht's stability.

Stern cleats and mooring winches are located on both sides of the yacht and are located inside the mooring furniture.

CAUTION

Do not use the mooring winches as a permanent mooring point.

On the starboard mooring cabinet, inside a locker. is contained the third command station.

On the right side walkway there's the access to the engine room and contains the third helm station.

The left and right side walkways are protected by a perimeter handrail.

WARNING

When resting on the perimeter handrail, lend caution to prevent falling into the sea.

The right side walkway leads to the bow area.

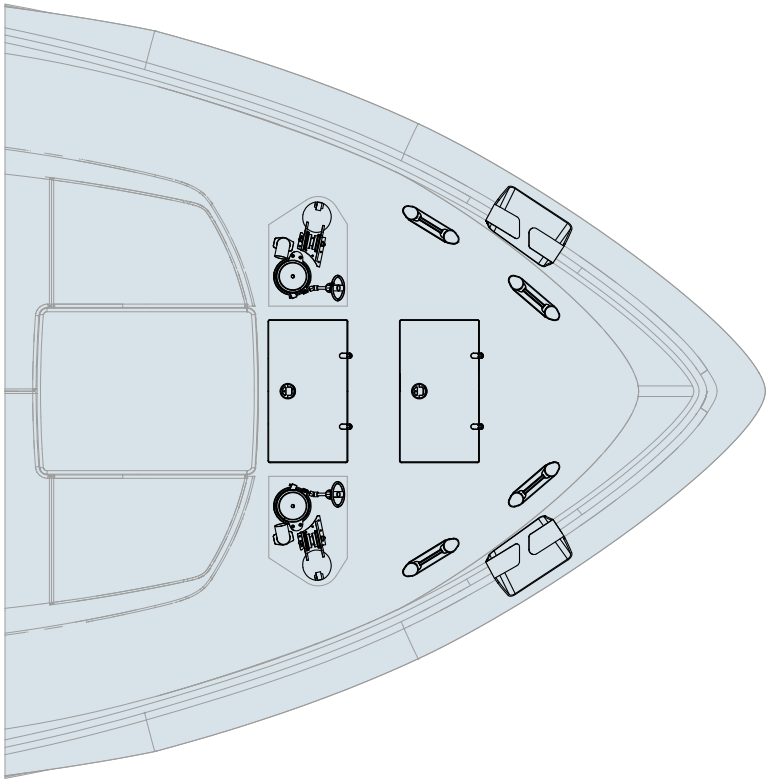
The group dedicated to anchorage is located on the bow of the yacht.
The winches still winch are centrally positioned.

The four side cleats are also positioned forward.

In the fore peak there is the remote control of the anchor winch, the connection for the bridge washing hose.

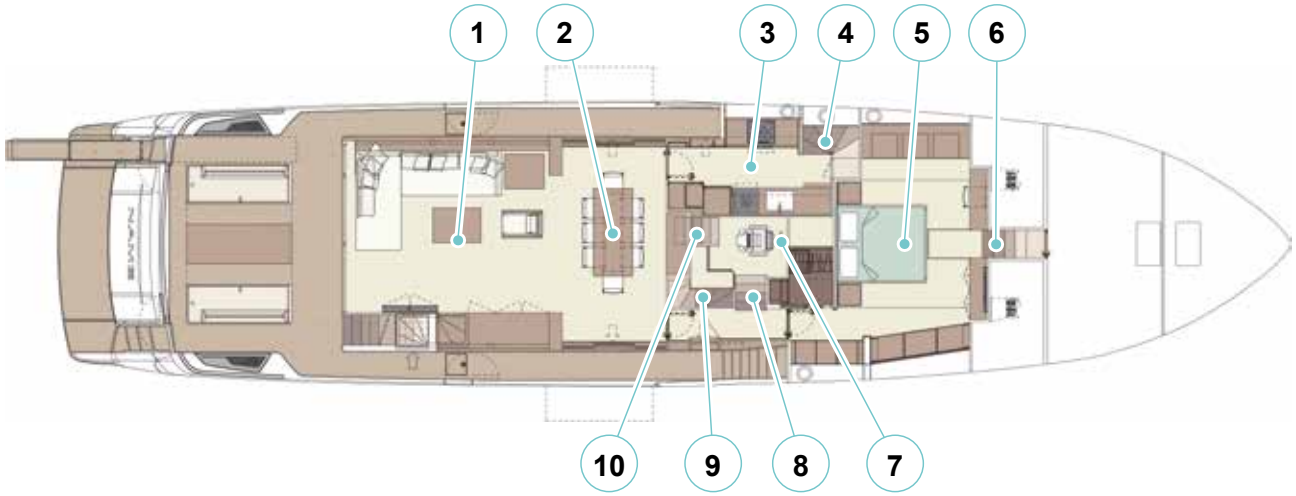
DANGER

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



4.4 MAIN DECK - INTERIOR

1. Living room with sofa and table
2. Dining room
3. Galley
4. Crew area access ladder
5. Owner's cabin
6. Owner's bathroom access ladder
7. Helm station
8. Helm station access ladder
9. Lower deck access ladder
10. Fly bridge access ladder



4.4.1 Access to main deck - interior

A wide salon door allows the access to the salon of the yacht. The salon door consists of a stainless steel frame and of shading and refracting glasses, which protect from the reflections of sun rays and, at the same time, allow the outside view.

The salon door is adjustable; the adjustment is performed at sea after the navigation tests carried out by RIVA; any modification performed by unauthorized personnel is strictly forbidden.

CAUTION
For the adjustment of the salon door, refer to the RIVA After Sales & Service Department.

CAUTION
Never start navigation with salon door unlocked. Its structure, if free, might develop an inertial force causing dangers of cuts or crushing.

Entering the saloon on the left side, there's a comfortable sofa.

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.

The galley is forward on the left side and the dining room in the middle of the yacht.

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
Do not leave anything on the door of the TV cabinet.
Make sure that nothing can fall into the TV cabinet.

4.4.2 Galley

When navigating, it is advisable to close all the doors well.
The dishwasher uses water from the cold fresh water system.
In the galley, above the electric plates, there is a suction nozzle, to eliminate galley odours.

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

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

CAUTION
Do not put liquid foods into the microwave oven.

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

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

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

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.

4.4.3 Main helm station

The access to the helm from the inside is possible through the starboard ladders, while, from the outside, it is possible from the bow ladders on the Fly Bridge.

The main helm station allows the use and oversight of the whole yacht steering instrumentation.

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.

WARNING

To prevent circumstances that could lead to property damage, injury or death due to the improper use of the helm and its controls, the yacht's owner/operator must ensure that inexperienced or unauthorized persons are never permitted to be at the helm station.

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.

NOTE

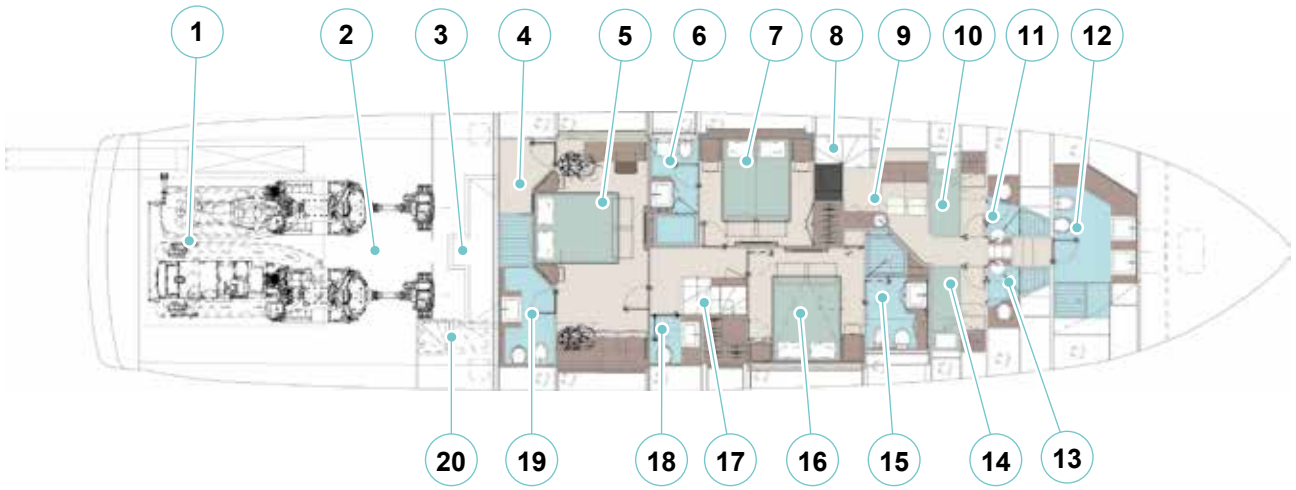
Normal yacht motion in a seaway can cause accidental movement of staterooms doors and other access doors and hatches. Personal injury can result if doors and hatches move suddenly. Before getting the yacht underway, close and secure all access and staterooms doors and hatches.

WARNING

When navigating, the yacht's normal movement in the water can cause the slipping or falling of persons with the potential hazard of serious injury or even death. Persons should remain seated in secure locations when the yacht is underway.

4.5 LOWER DECK

1. Garage
2. Engine room
3. Technical room equipment room
4. VIP cabin wardrobe
5. VIP cabin
6. Port guest cabin bathroom
7. Port guest cabin
8. Main deck access ladder
9. Crew area galley
10. Port crew cabin
11. Port crew cabin bathroom
12. Owner's cabin bathroom
13. Starboard crew cabin bathroom
14. Starboard crew cabin
15. Starboard guest cabin bathroom
16. Starboard guest cabin
17. Main deck access ladder from technical room
18. Service bathroom
19. VIP cabin bathroom
20. Main deck access ladder from equipment room



4.5.1 Access to lower deck

The lower deck consists of two areas, which are accessible from different not-connecting places. The areas are:

- Galley and cabins with bathroom:
  - Guests;
  - VIP.
- Engine room;
- Crew cabins with bathroom.

CAUTION

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

4.5.2 Crew cabin and bathroom

The crew cabins can be accessed via the stairs of the galley.

The bow cabins have two beds arranged with a bunk structure and independent bathroom. In addition, on the left side is the master cabin, which has a bed.
The cabins are equipped with portholes for ventilation of the rooms.

CAUTION

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

The cabin is equipped with air conditioning system with autonomous regulation.

In the crew area there is a multifunction display where it is possible to view the main information of the on-board monitoring system.

4.5.3 Cabins with bathroom: Guests and VIP

After descending the stairs, which are illuminated by spotlights, the access doors to the VIP cabins are on the stern.

The VIP cabin is equipped with a double bed, a desk, a sofa and various cabinets with large compartments.

Inside the VIP cabins there is also a large wardrobe and hanger rod.
Bathrooms with a large shower can be accessed from the VIP cabins.

Towards the bow and the port side, you enter the guest cabins.
The guest cabins are located to the left and right of the yacht and are equipped with double bed and private bathroom.

All cabins are equipped with air conditioning with independent regulation.

4.5.4 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. 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 skylights and portholes when the yacht is navigating or when it is left unattended for a long time.

4.6 FLY BRIDGE

1. Sun-deck area
2. Service furniture
3. Main helm station
4. Pilot seat
5. Sofa
6. Access from the cockpit

WARNING

When the fly helm station is not used, it is advisable to protect its instruments with relevant covers and let the dashboard return in its shelter.

MAINTENANCE

FLY BRIDGE LIGHTING SYSTEM

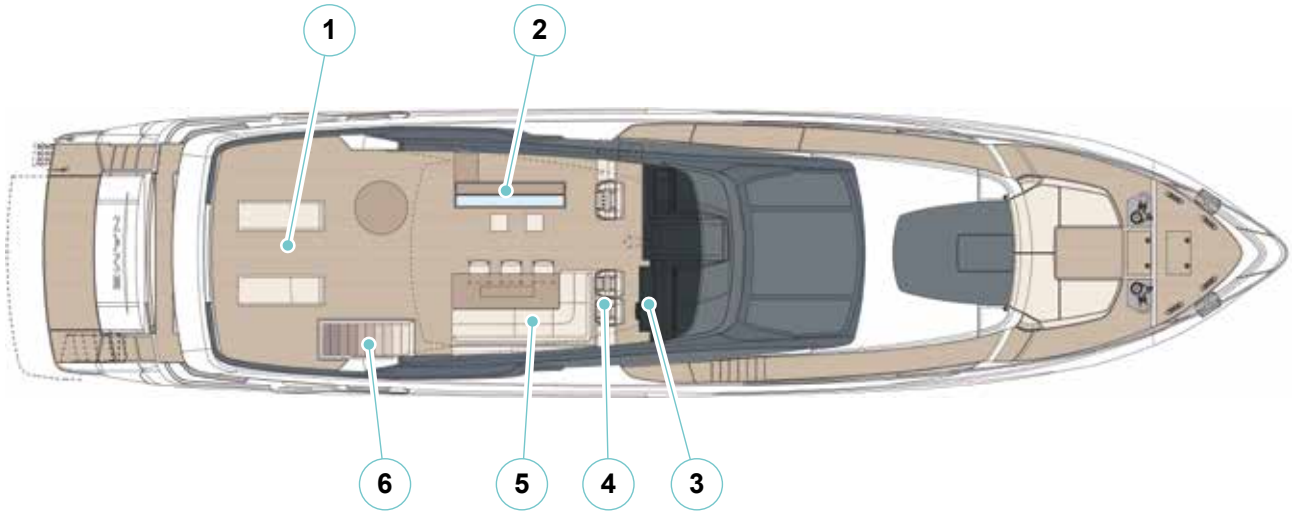
At least once a week carry out an accurate cleaning.
At least once a month check the operation.
At least once every three months check the presence of corrosion.

WARNING

The use of lateral closing systems, such as Cristal or similar, is not permitted during navigation.

CAUTION

The removable awnings and their support poles must always be dismantled and stored in the appropriate places before starting navigation. When the poles are not in use, they should be stored in the appropriate places. The awnings should only be installed when the yacht is at a standstill and the weather conditions are favourable. Do not leave the awnings open in case of heavy rain. Not leave the awnings installed unattended. Do not let them stagnate the water on the curtain fabric. When not using the awnings keep the holes to engage the poles closed with the appropriate lids.



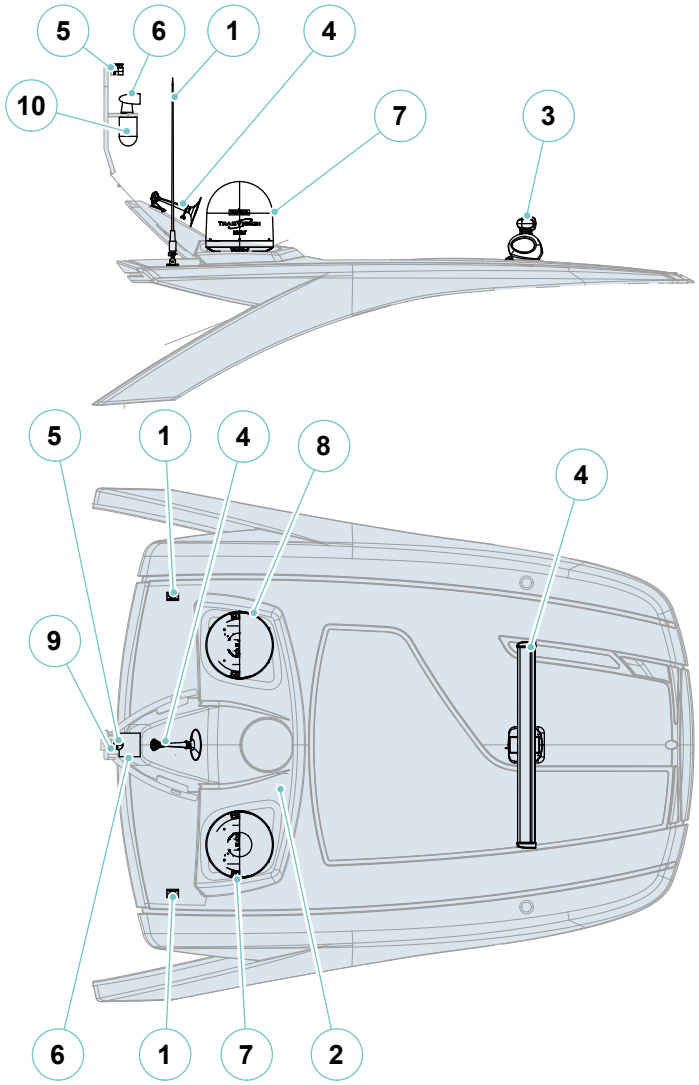
4.7 ANTENNAS PLAN

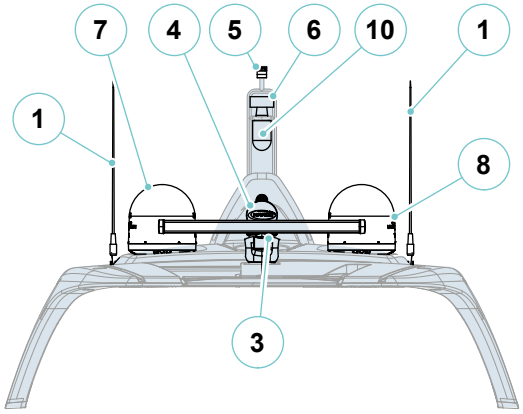
CAUTION

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

WARNING

Access the Hard Top only with safety belt by qualified/trained technical personnel for work at height.





1	VHF Antenna
2	GPS Antenna
3	Radar Antenna
4	Horn
5	Master headlight
6	Adjustable searchlight
7	AIS NAIS receiver
8	TV SAT KVH TV6 Antenna
9	Meteo station (optional)
10	Thermal camera (optional)

4.7.1 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 caused by 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.

DANGER
Solvents may damage the lens of the navigation lights.
The lights must exclusively be cleaned with fresh water not containing solvents or abrasive substances.
Remove the bulbs before the application of any paint.

CAUTION
Before undertaking any navigation, the Captain should make sure that all navigation lights are operating correctly. Use the navigation lights in compliance with the regulations in force.

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.

The use of headlights during the various situations of use of the yacht during night navigation are illustrated below:
- **Navigation:** Masthead lights, side lights and stern lights on.
- **At anchor:** Anchor lights on.
- **Drifting:** Two red lights on (no command mast installed).
- **Stranded:** Anchor light and two red lights on (no command mast installed).

CAUTION

The positioning of the navigation lights is optimised by adapting the regulatory requirements to the geometry of the yacht, providing lights where they are most easily visible.
Non-steering lights (N.U.C. = Not Under Command) 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 yacht 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.

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

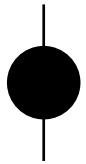
The combined use of shapes, sound signals and navigation lights increases the visibility of the yacht, reducing the risk of collisions.

Daytime signals have the same function as navigation lights but are more visible during the day than navigation lights.

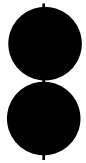
Depending on the situation, appropriate signalling templates shall be used.

Hereunder is a list of the most common ones to adopt after installing the relevant mast:

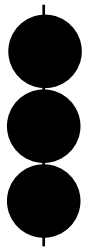
- Yacht at anchor:



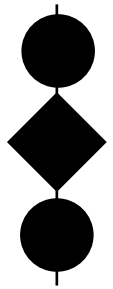
- Not under command yacht:



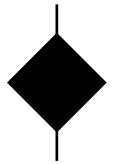
- Stranded yacht:

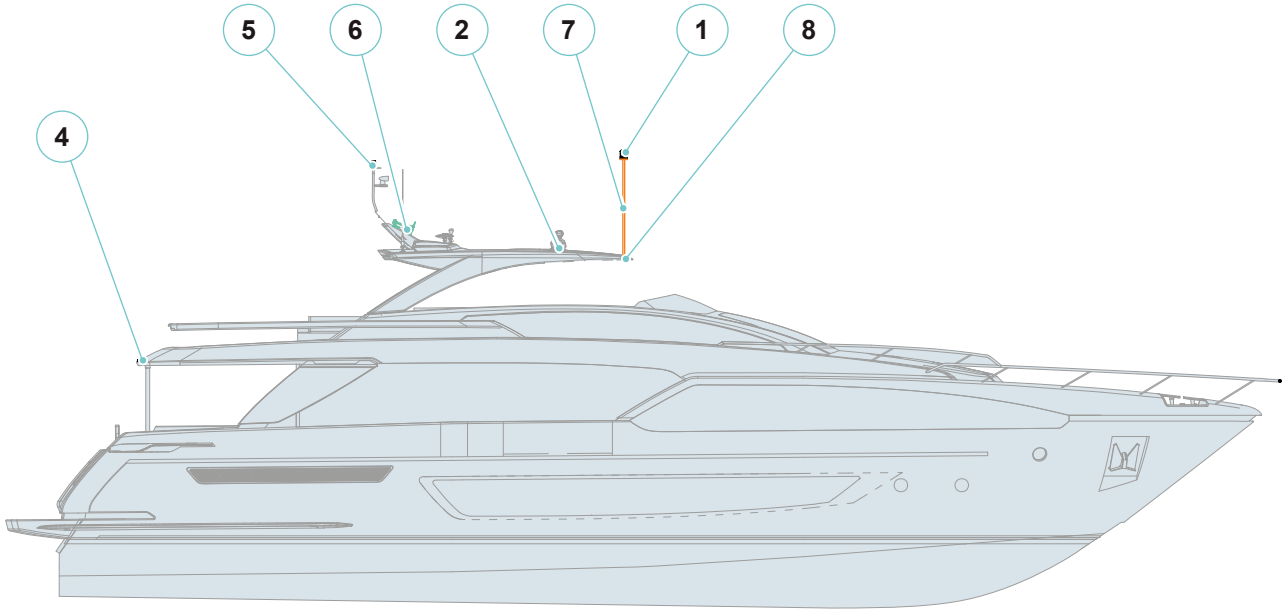


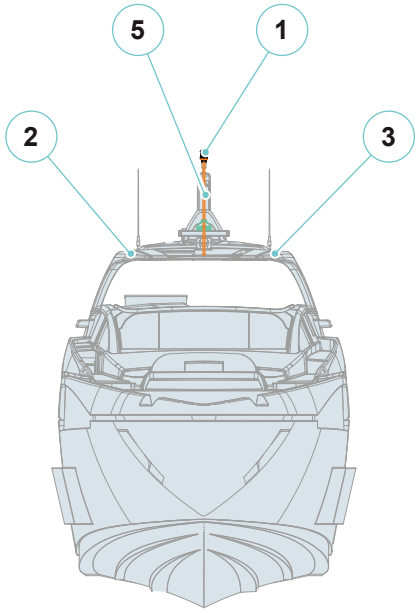
- Yacht with limited manoeuvrability:



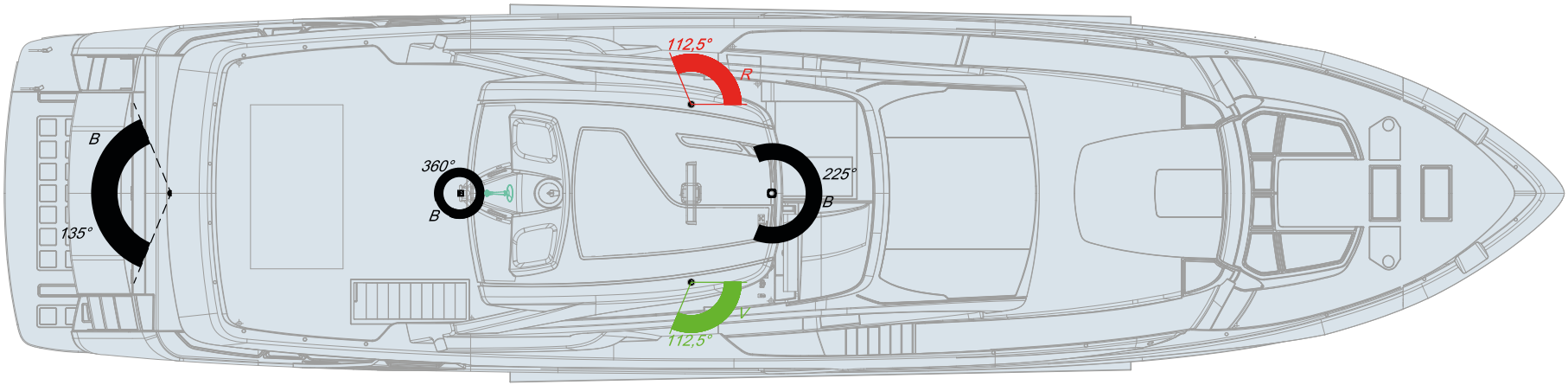
- Yacht to trailer or towed:







N°	Description	Degree	Colour	Electrical characteristics	Visibility
1	Master headlight	225°	White	25W - 24V	5 miles
2	Starboard light	112.5°	Green	24V	2 miles
3	Left light	112.5°	Red	24V	2 miles
4	Stern light	135°	White	10W - 24V	2 miles
5	Anchor light	360°	White	10W - 24V	2 miles
6	Horn	/	/	PW3 24V	/
7	Day signal pole	/	/	Removable pole	/
8	Removable pole supports	/	/	/	/



R = RED
B = WHITE
V = GREEN

N°	Description	Degree	Colour	Electrical characteristics	Visibility
1	Master headlight	225°	White	25W - 24V	5 miles
2	Starboard light	112.5°	Green	24V	2 miles
3	Left light	112.5°	Red	24V	2 miles
4	Stern light	135°	White	10W - 24V	2 miles
5	Anchor light	360°	White	10W - 24V	2 miles
6	Horn	/	/	PW3 24V	/
7	Day signal pole	/	/	Removable pole	/
8	Removable pole supports	/	/	/	/

4.8 ENGINE ROOM AND SYSTEMS ROOM

The engine room can be reached by descending into the system room through the access located in the left-hand cabinet. The engine room can be accessed from the systems room via a watertight door.

Before entering, switch on the engine room lighting.

DANGER

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

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.

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.

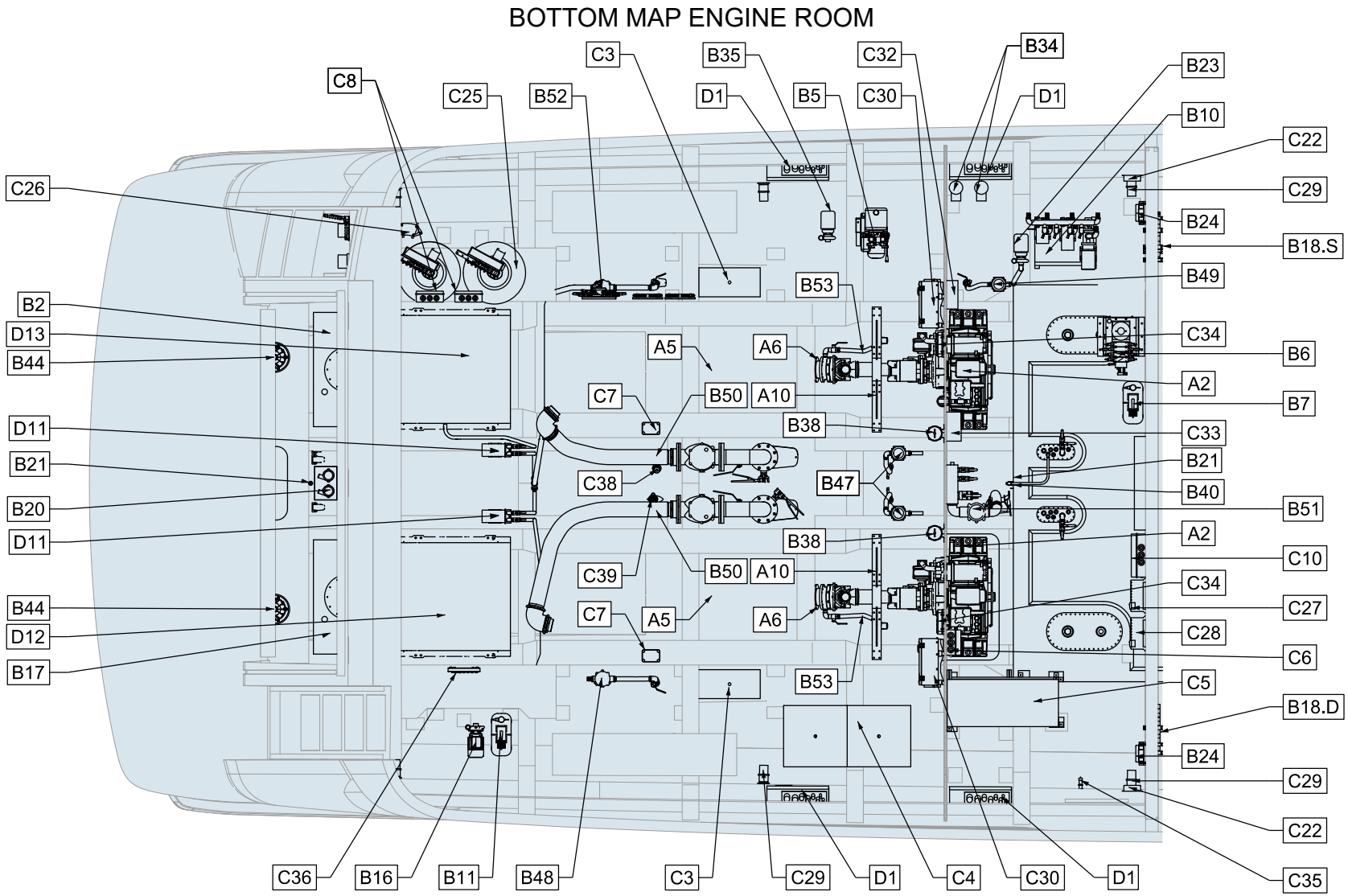
DANGER

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 during the passage.

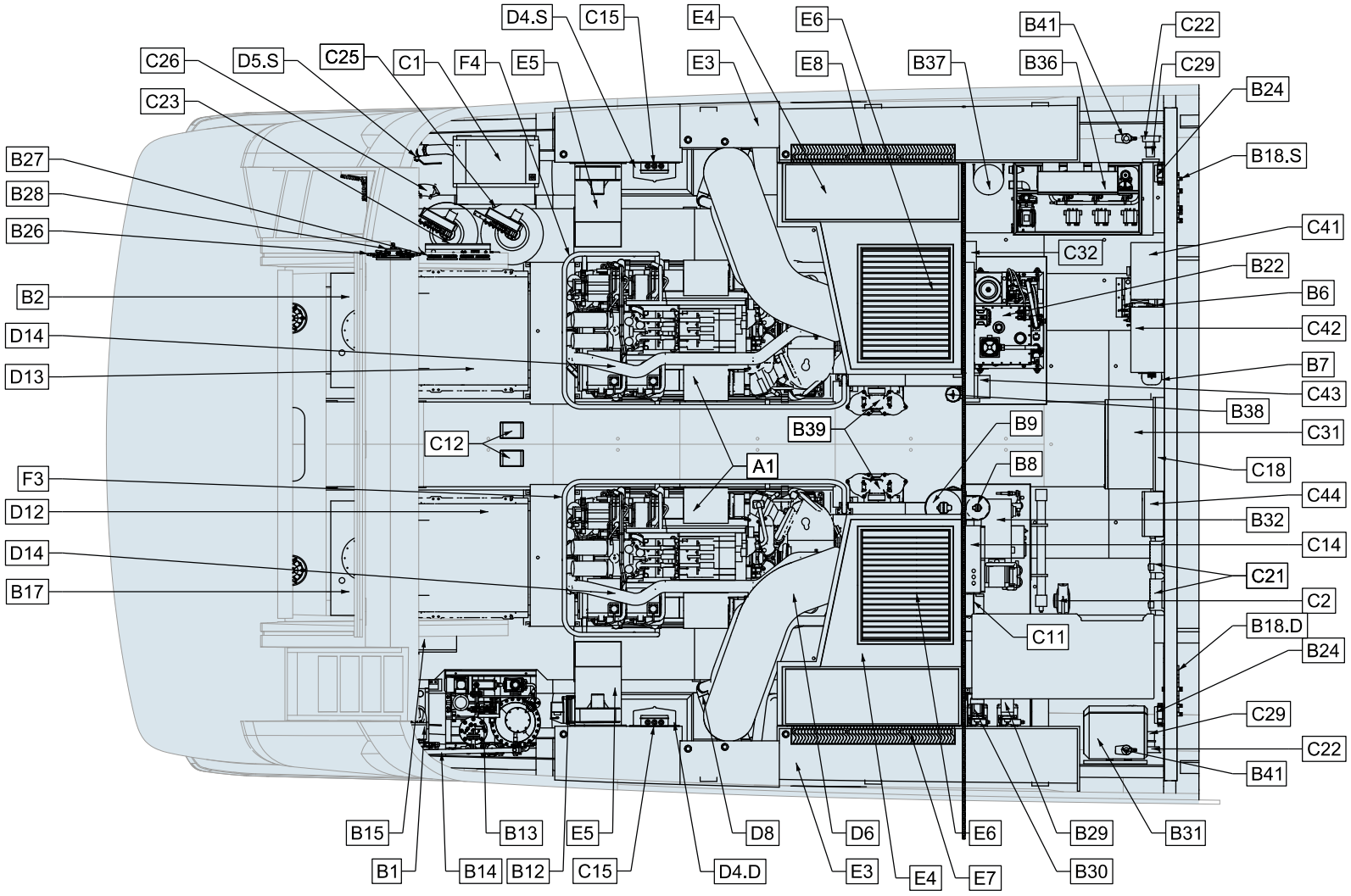
MAINTENANCE

At least once every three months tighten of the discharge raiser bolts.

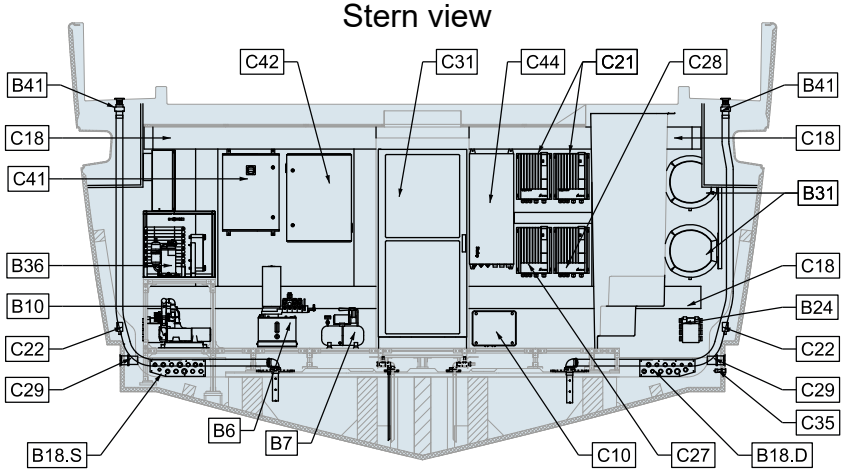
4.8.1 Engine room layout



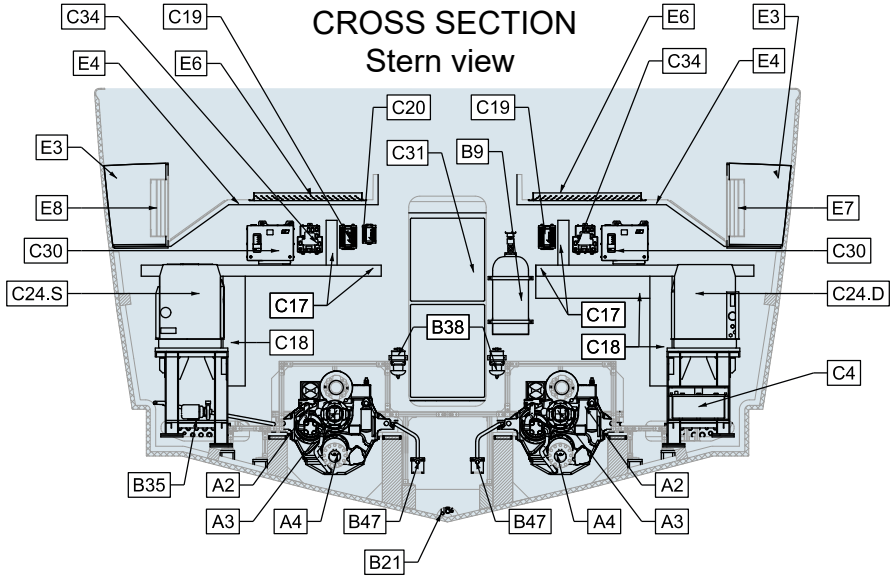
FULL MAP ENGINE ROOM



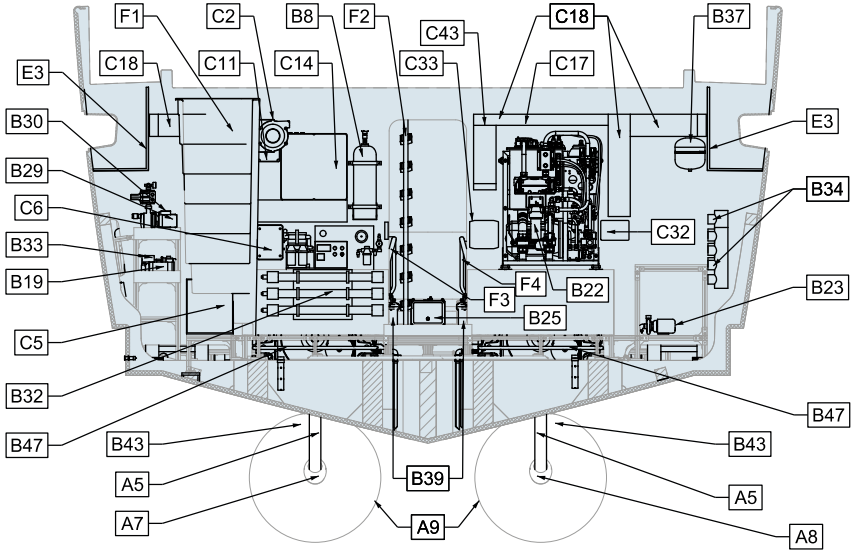
CROSS SECTION
Stern view



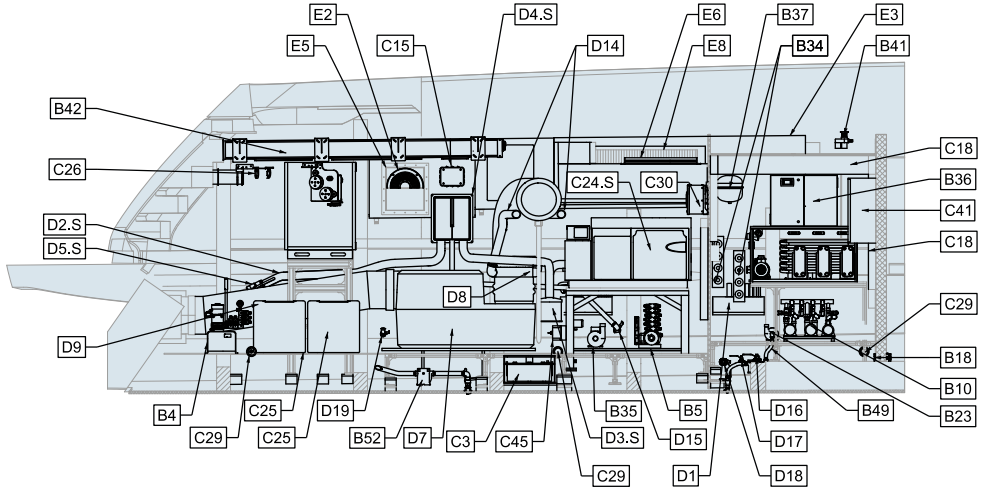
CROSS SECTION
Stern view



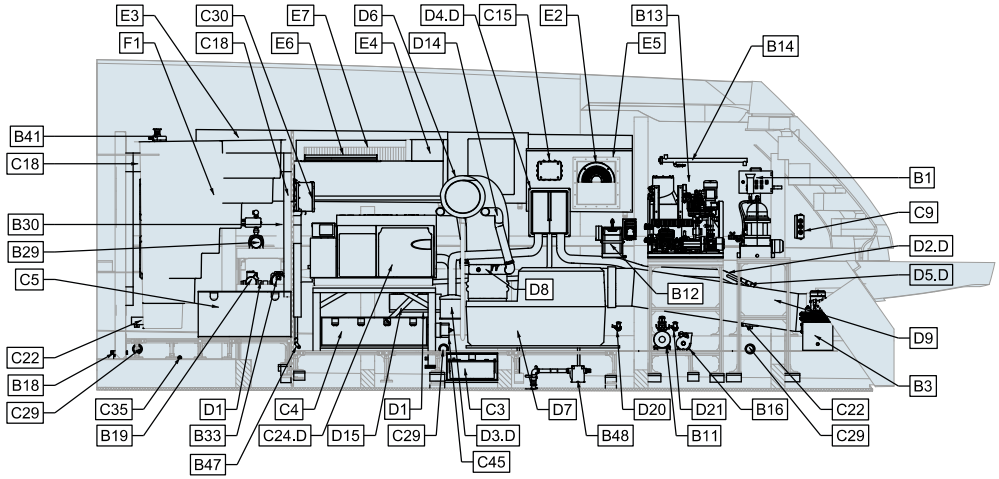
CROSS SECTION
Bow view



LONGITUDINAL SECTION
Port side View from centerline



LONGITUDINAL SECTION
Starboard side View from centerline



ENGINES AND GENERATORS:

A1 Engines
A2 Inverter ZF-3060 V
A3 Cardan joint
A4 Mancione
A5 Propeller shaft
A6 Fluiten Seals
A7 Right shaft support foot
A8 Left shaft support foot
A9 Propeller
A10 Cardan Protection
B1 Fuel treatment (opt)
B2 Sludge /oil tank (opt)
B3 Electro-hydraulic power pack for wheelhouse
B4 HB control unit for garage hatch handling tank
B5 Hydraulic power pack for gangway
B6 Terrace control unit
B7 Compressor
B8 Fire extinguisher
B9 Fire extinguisher
B10 Pre-assembled Group Black Multipurpose Pumps Grey

Hamann (opt):

B11 Compressor (opt)
B12 Dosing Station (opt)
B13 HLCP (opt)
B14 UV Disinfection System (opt)
B15 Switch Cabinet (opt)
B16 Sea Water Pump (opt)
B17 Sludge tank System (opt)
B18.D Bulkhead
B18.S Bulkhead
B19 Sea water Pump / Firefighter
B20 Bilge pump
B21 Soother
B22 Rack units for fins/propeller maneuvers
B23 Thruster Cooling pump
B24 Proportional valve
B25 Air unit Kit Interceptor
B26 Valve plate lift
B27 Valve plates locking piston
B28 Valve plates for garage hatch centring system

Fresh water system

B29 Freshwater autoclave
B30 Freshwater autoclave
B31 Water heater
B32 Watermaker
B33 Watermaker pump

Air conditioning system

B34 Collectors Piping System
B35 PUMP
B36 AC
B37 Expansion vessel

Diesel system

B38 Filter
B39 Diesel pre-filters.
B40 Visual Level Fuel
B41 Vetus
B42 Gangway

Wheelhouse

B43 Rudder
B44 Bar
B45 Camicia
B46 Shank
B47 Sea Socket Generators Line
B48 Hamann Sea Take-Off Line (opt)
B49 Sea intake line Hydraulic system
B50 Engine Sea Take-Off Line
B51 Services Sea Take-Off Line
B52 sea intake line (opt)
B53 Sea intake line Seals

C1 Converters (opt)
C2 Cable reel with light
C3 Battery generator
C4 Engine battery
C5 Services battery
C6 Box fuses batteries services
C7 Alternator junction box
C8 Glendinning junction box
C9 Cockpit panel interface box
C10 Negative Box
C11 Instant parallel box
C12 pump protection box
C13 Hydraulic steering relay box
C14 Battery disconnection box
C15 Mooring box
C16 Electric Box Kit Interceptor
C17 Electrical channel
C18 Electrical channel
C19 Charger generator
C20 Battery Chargers Engine
C21 Chargers Services
C22 Diving Light Drivers
C23 Electronic box
C24.SGenerator
C24.D Generator

Glendinning

C25 Container Cable Shore
C26 Pipe Extension
C27 Fridge inverter
C28 Inverter services
C29 Sub light
C30 MTU boards
C31 Electrical panel 24V 230V
C32 Controller and driver for powerpack
C33 ECU
C34 Smart Command
C35 Galvanic probe
C36 Electric steering Main Control Board
C37 Electric steering
C38 Trasductor
C39 Trasductor
C40 Single Terrace Board
C41 Switchboard Telerectors Platform
C42 VFD unit
C43 Panel
C44 Battery breaker for generator

Exhaust Gas Generators

D1 Centralized discharge
D2.S Tube Exhaust Gas Generators
D2.D Tube Exhaust Gas Generators
D3.S Generator muffler
D3.D Generator muffler
D4.S Separator Gas-Water
D4.D Separator Gas-Water
D5.S Ball valve
D5.D Ball valve

Exhaust Gas Engines

D6 Exhaust Gas Piping Engines
D7 Muffler
D8 Riser
D9 Exhaust pipe
D10 System (opt)
D11 cooling pump (opt)
D12 Gyro stabilization (opt)
D13 Gyro stabilization (opt)
D14 Engine Water Discharge
D15 Drain Water Generators
D16 Water Drain Chiller
D17 Water discharge
D18 Black water discharge
D19 Water discharge (opt)
D20 Water discharge (opt)
D21 Water Discharge (opt)

E1 Ventilation of engine room
E2 Blower
E3 Ventilation box
E4 Defence Air intake left/right
E5 Defence Air Extraction Inox
E6 Grids
E7 Right hand separator
E8 Left separator

F1 Access ladder to engine room
F2 Escaped ladder Engine Room
F3 Maintain Engines
F4 Maintain Engines

HELM STATIONS

CHAPTER 5

5.1 HELM STATIONS

Your yacht is equipped with two helm stations: the helm station with the rudder in the steering bridge and the helm station on the fly bridge.
The various controls, instruments and navigation devices are mounted at the two helm stations.
A third helm station is located in the cockpit.

CAUTION
Herewith only general information for first start-up is given: for the practice and the specific use of the individual systems, consult the manuals of the Manufacturers or the RIVA After Sales & Service Department.

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

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
HORIZONTAL FIELD OF VIEW - Stern Visual.
Yachts equipped with an autopilot. Manoeuvres that require visibility towards the stern are to be carried out by the helm station on the fly bridge, in accordance with the provisions of standard ISO11591.

CAUTION
The main steering position is on the Fly Bridge, as visibility is reduced from the steering position on the steering bridge.
A special plate affixed by the Manufacturer will recall the CAUTION.

5.2 FLY BRIDGE

In order to make the description of the control devices on the fly bridge easier, the following main sections have been identified:

A. Engines check and navigation instruments, display

B. Control and operating levers, control switches

5.2.1 SECTION A

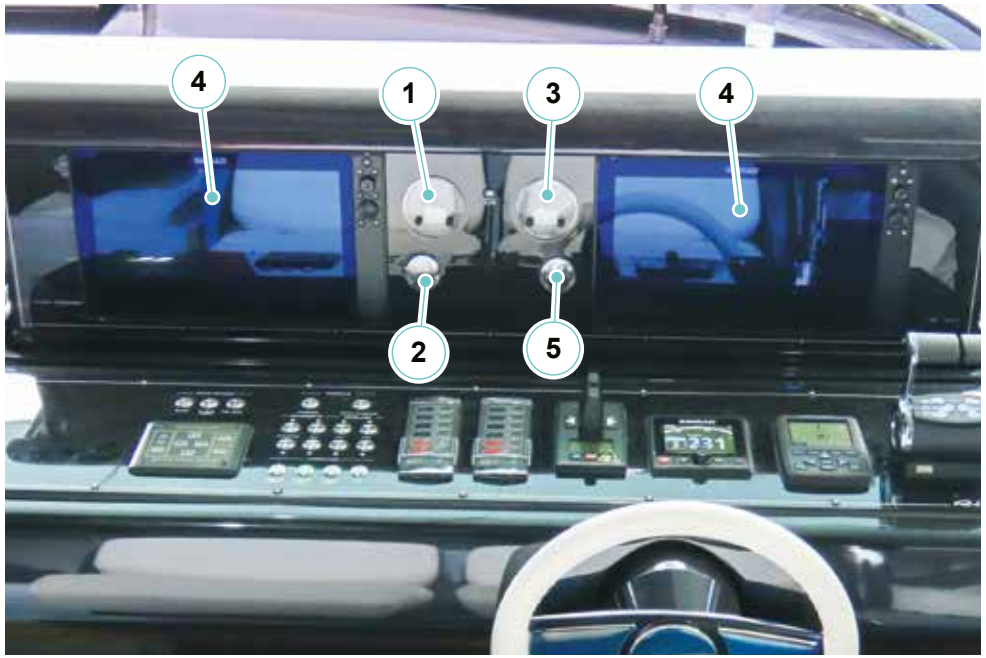
1. **Left engine rpm counter**
   It indicates the engine's rpm.

2. **Left engine temperature counter**
   It indicates the engine's temperature.

3. **Right engine rpm counter**
   It indicates the engine's rpm.

4. **Multifunction display**
   It allow to set and visualize the navigation functions.

5. **Right engine temperature counter**
   It indicates the engine's temperature.



5.2.2 SECTION B

1. **VHF-DSC radiotelephone**
   This is a Digital Selective Calling (DSC) radiotelephone. The emergency and call buttons are protected against accidental use. Individual or group calls can be adequately made from the keypad using either the internal list or by entering the number directly.

2. **Steering control button**

3. **Command panel manage button**
   It allows to lift and lower the command panel.

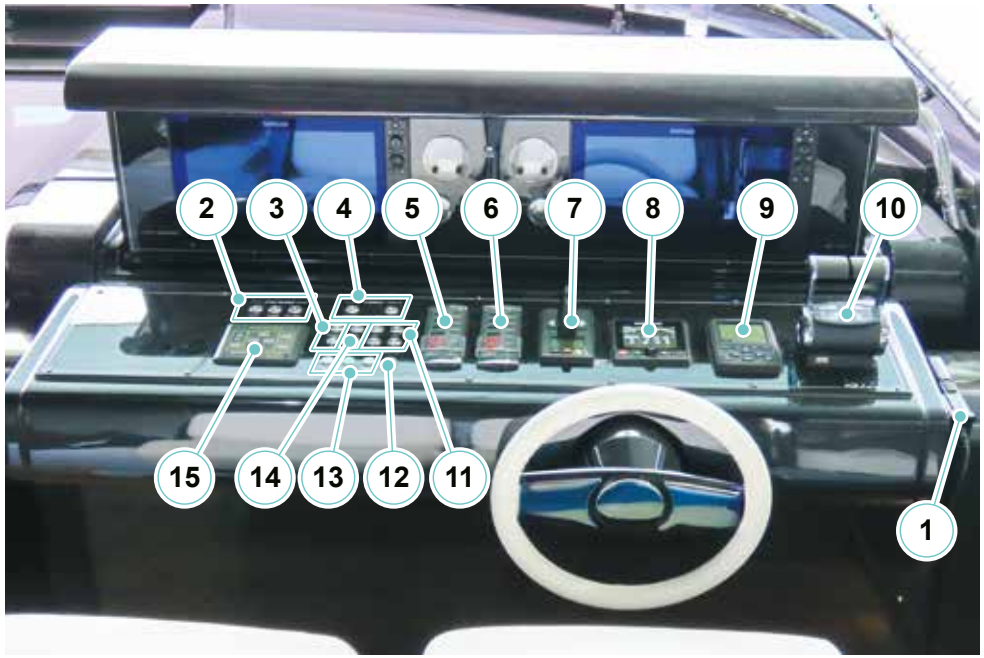
4. **Chain washer controls**
   It allows the management of the chain washer system, through the controls.

5. **Left Engine Management Buttons**
   They allow the starting and stopping, also in emergency, of the engine.

6. **Right Engine Management Buttons**
   They allow the starting and stopping, also in emergency, of the engine.

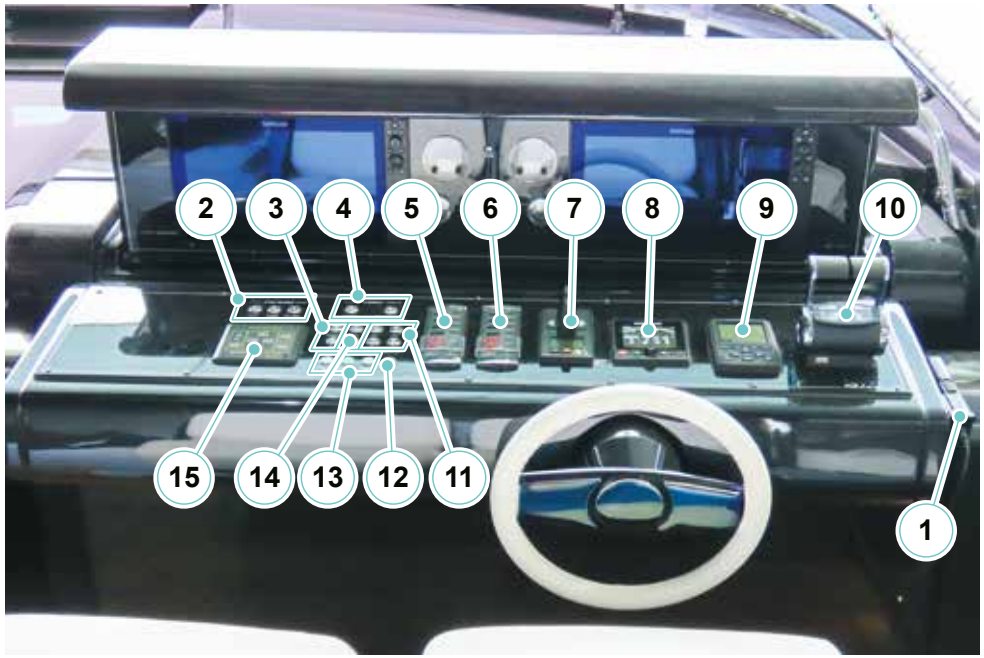
7. **Interceptors control panel**
   It allows to adjust the right and left interceptors.

8. **Autopilot control**
   It allows setting the display of the autopilot instruments.



CAUTION

When navigating with the autopilot enabled and if there is an obstacle in front of the yacht's bow, the best thing to do is to switch the device to standby mode in order to definitively take control of the yacht. Once having bypassed the obstacle the device can be switched on by setting the track again.



9. Thrusters command
Buttons and levers for thrusters manage.

10. Throttle
It manages, by means of electrical signals, the revolutions of the propulsion engines and the gears of the inverters.

11. Anchor winch control panel
They allow to control and mange the anchor winch.

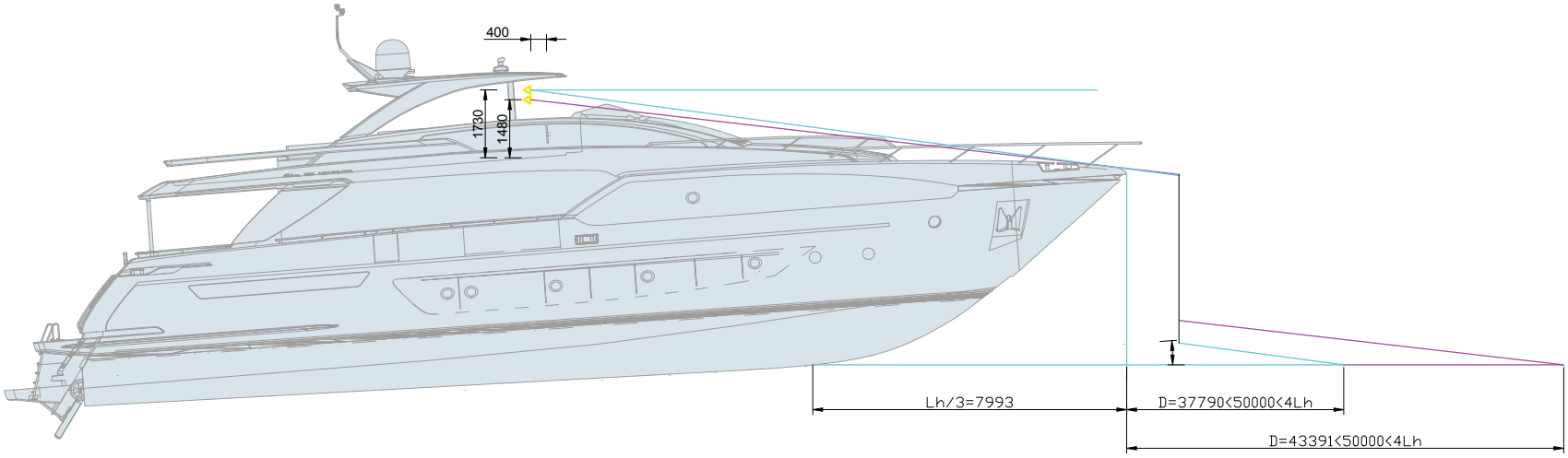
12. Horn activation button

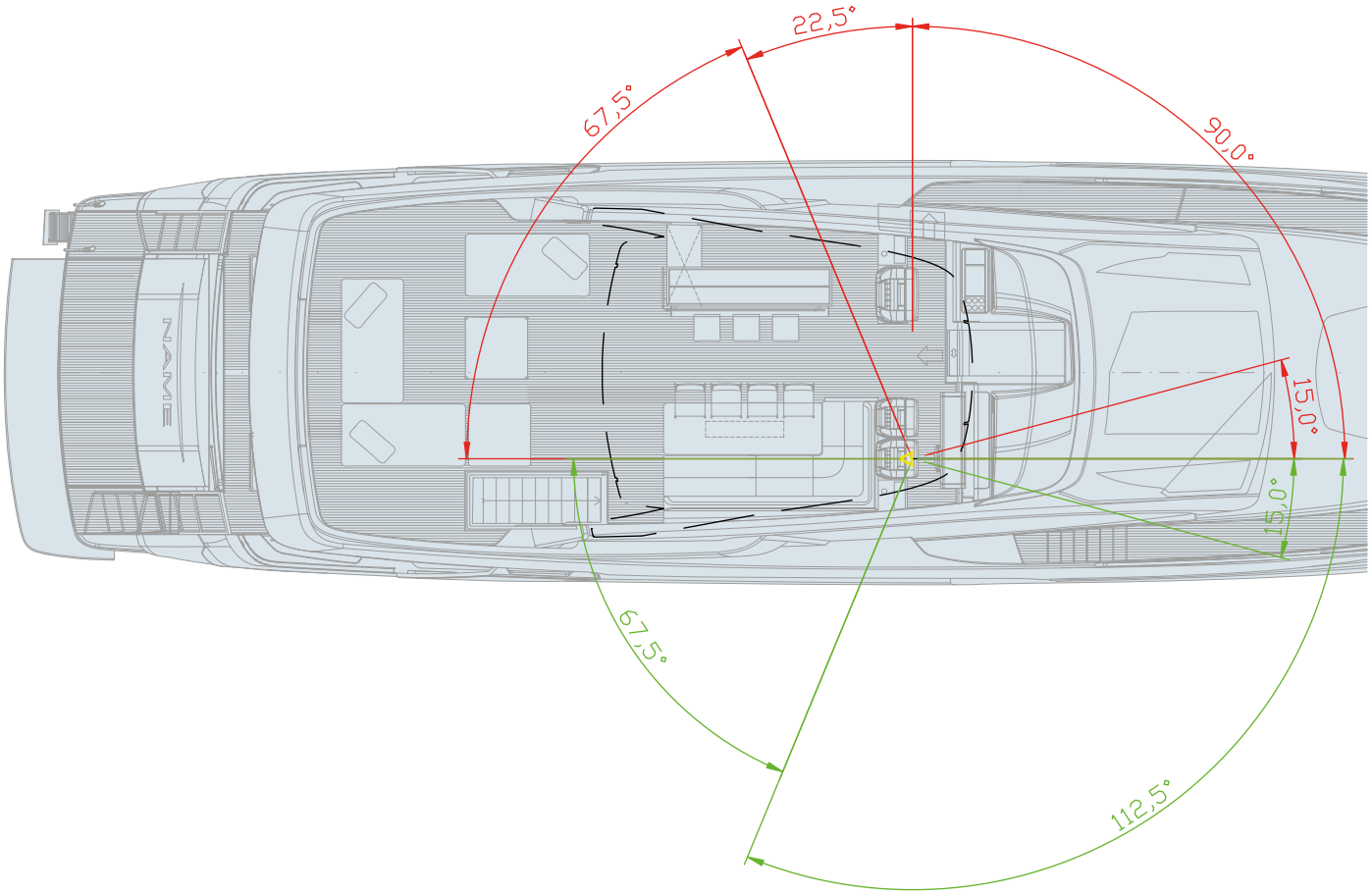
13. Light switch button
It allows to switch on the following lights:
- Hard top;
- Courtesy;
- Sun deck.

14. Pilot seat command button
It allows to lift and lower the pilot seat.

15. Searchlight control panel
It allows you to operate and move the searchlight.

5.2.3 Field of view from main helm position




22,5°
67,5°
90,0°
15,0°
15,0°
67,5°
112,5°

5.3 WHEELHOUSE DECK

In order to make the description of the control devices on the main helm station easier, following main sections have been identified:

A. Upper helm dashboard

B. Central helm dashboard commands

C. Left dashboard controls

WARNING
It is a good rule to keep the screens clean by washing them with wet and clean rags, avoiding to use chemical or abrasive products.

CAUTION
The main helm station is placed on the Fly Bridge, since from the helm station positioned on the Upper Deck the visibility is reduced.
A special plate affixed by the manufacturer draws the attention.

5.3.1 SECTION A

1. **Multifunction monitor**
2. **Multifunction monitor**
3. **Multifunction monitor**
4. **Multifunction monitor**
   Multifunction navigation display of chartplotter, radar, fishfinder, navigation data monitor and video

5. **Magnetic compass**

5.3.2 SECTION B

1. **VHF-DSC radiotelephone**
   This is a Digital Selective Calling (DSC) radiotelephone. The emergency and call buttons are protected against accidental use. Individual or group calls can be adequately made from the keypad using either the internal list or by entering the number directly.

2. **Searchlight controls**
   They allows to move and operate searchlights.

3. **Anchor winch controls**
   They allow to manage and operate the anchor winch.

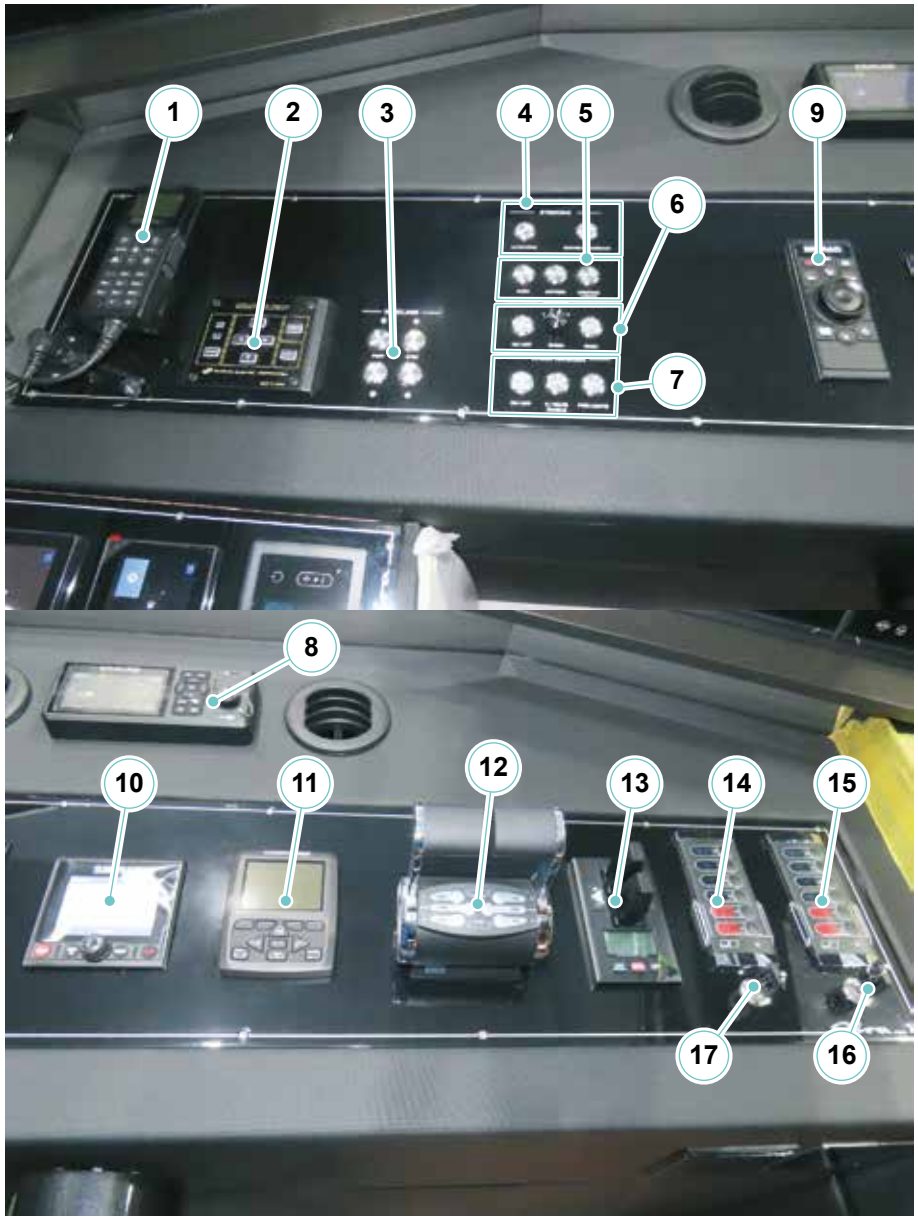
4. **Steering control button**

5. **Various commands:**
   These buttons allow you to activate:
   - The horn;
   - Parallel connection of the batteries;
   - Turn on/off the compass light.

6. **Windscreen wipers command buttons**
   They allow to activate and manage the windscreen wipers.

7. **Chain washer controls**
   It allows the management of the chain washer system.

8. **AIS system control panel**
   It allows to control the Automatic Identification System.
   AIS (automatic identification system) is a communication system for the exchange of navigation data.



9. Autopilot control
It allows setting the display of the autopilot instruments.

CAUTION
When navigating with the autopilot enabled and if there is an obstacle in front of the yacht's bow, the best thing to do is to switch the device to standby mode in order to definitively take control of the yacht. Once having bypassed the obstacle the device can be switched on by setting the track again.

10. Multifunction display control panel
It allows you to set the display of the multifunction display.

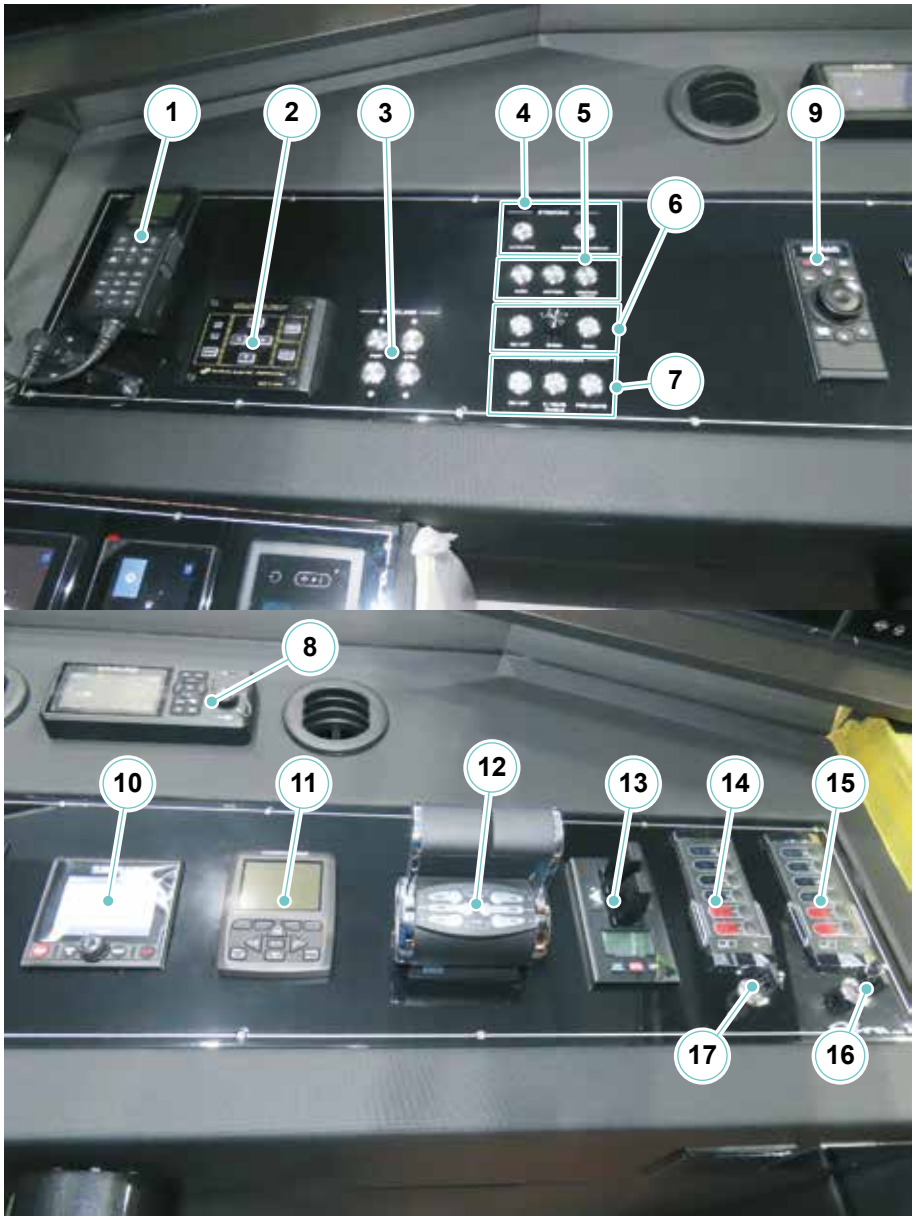
11. Interceptors control panel
It allows to adjust the right and left interceptors.

12. Throttle
It manages, by means of electrical signals, the revolutions of the propulsion engines and the gears of the inverters.

13. Thrusters commands
Push buttons and levers to control the operating thrusters.

14. Port Engine Management Buttons
15. Starboard Engine Management Buttons
They allow the starting and stopping, also in emergency, of the engine.

16. Starboard engine ignition keys
17. Port engine ignition keys
They allow the ignition the engine.



5.3.3 SECTION C

1. **Fire-fighting system control panel**

2. **Synoptic panel**

3. **Fins stabilizer control panel**

4. **Gyroscopic stabilizer control panel**

5. **12V Socket**
   Cigarette lighter 12V socket.

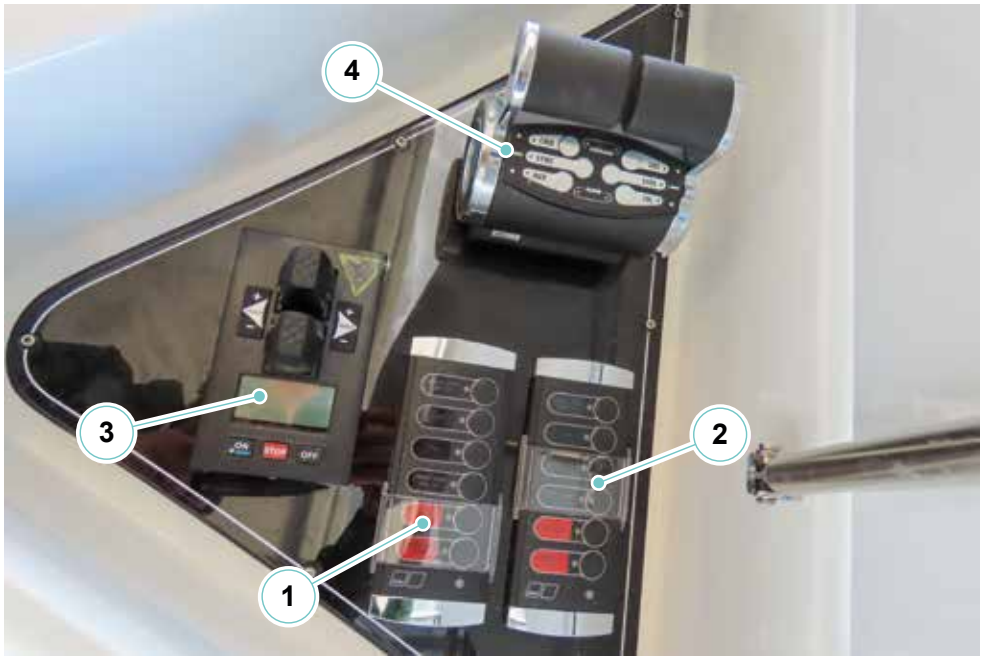
6. **Thermal camera control panel**

5.4 THIRD COMMAND STATION

1. **Port engine management button**
2. **Starboard engine management button**
   It allows switching ON and OFF of the engine also, even in emergency mode.

3. **Thrusters control panel**
   This panel carries the controls for the thrusters.

4. **Throttle**
   This block controls, by means of electric signals, the revolutions of the propulsion engines and the speeds of the gear boxes.



5.5 INSTRUMENTATION

5.5.1 VHF-DSC Radiotelephone (standard)

Operate the radiotelephone according to following instructions:

- Supply the radiotelephone with the magneto-thermal switch located on the main electrical panel.
- Turn the power on control; as default setting the device switches on the priority channel (16) frequency.

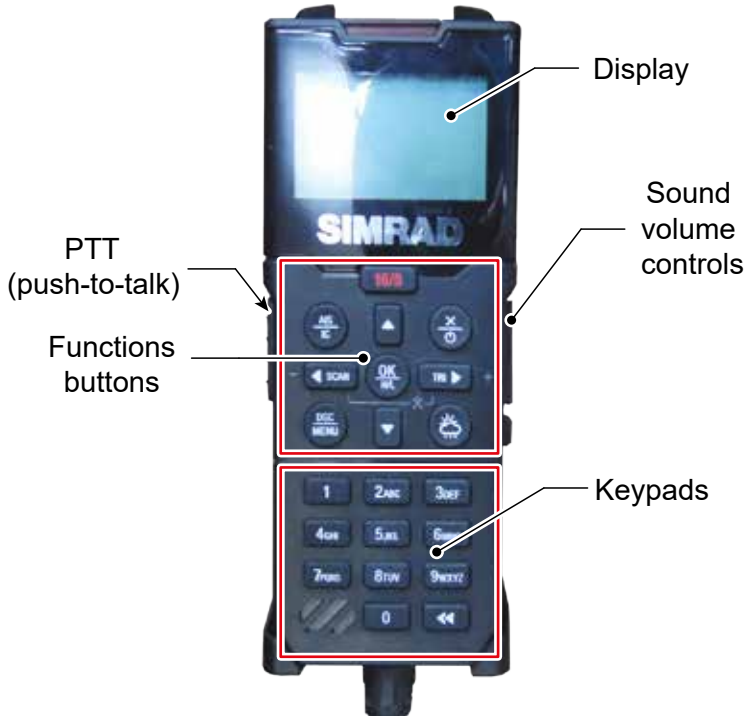
The display shows the channel number, the volume, and squelch levels.

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, of the squelch and of the scanning function.
The MENU key allows the access to the secondary functions.
The PTT key (push to talk) located on the port side of the device, is activated when the receiver is unhooked from the holder.
Key CH16 allows selecting the channel for vocal rescue request. It is however possible to carry out selective digital calls, quicker and simpler than the traditional calls. To obtain this, lift the protection flap placed on the front side of the radiotelephone. Then press the DISTRESS key to get access to the various functions.

Radiotelephone keyboard



Use keys ▲ and ▼ to scroll the various distress grades available:

- Not defined (default setting)
- Abandonment
- Piracy
- Man overboard (MOB)
- Fire
- Flooding
- Collision
- Grounding
- Listing
- Sinking
- Adrift

Keep DISTRESS key pressed to to start countdown (4 seconds) before the message is sent.

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.

5.5.2 Throttle

The throttle is a system designed to control the revolutions of the engines and the speeds to the gear boxes by means of an electric signal.
The throttle have following performance features and functions.

- Sequence setting of gear box with engine speed.
- Start interlocking.
- Low/high idle run.
- Synchronization of engines for several propellers.
- Trolling solenoids control.
- Emergency control against back run.
- Gear box oil pressure interlocking (optional).

These features and operations facilitate the use of the throttles.

- Helm station indicator.
- Six two-coloured LEDs indicating the status and operation mode of control system.
- Acoustic transducer for indication of system status.

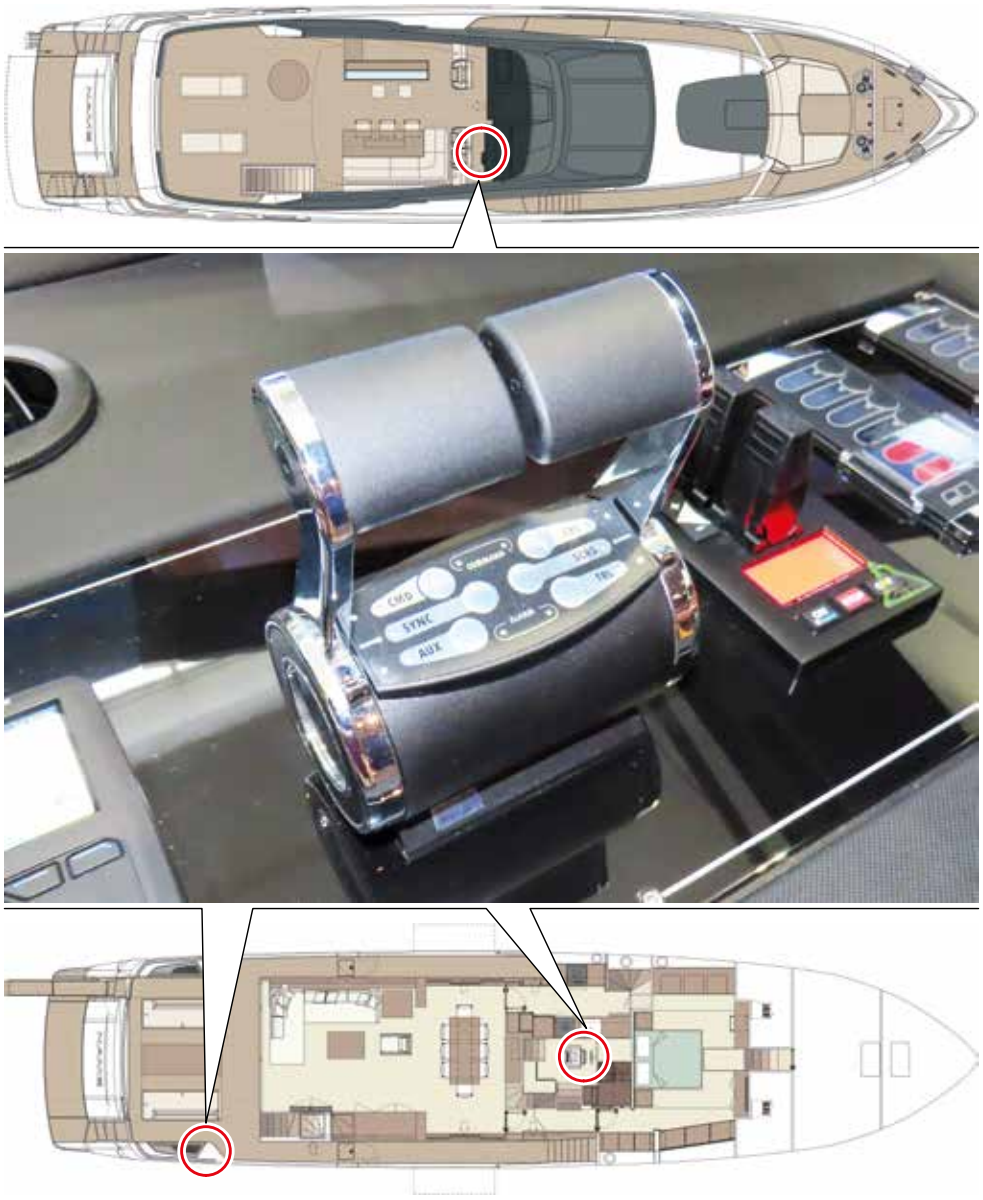
Advanced control modes

The throttle provides different advanced control modes:

- **EASIDOCK**: mode giving the answer for a safe action of the gear box and ensuring a easy and accurate manoeuvrability during mooring phases with limited room.
- **AUTOTROLL**: mode keeping the propeller revs per minute constant when a complete range of shaft speed controls is available.
- **WARM UP**: heating mode increasing the engine rpm when the transmission is stalling on idle.
- **ONE LEVER**: one-lever mode which allows activating more propellers with gear shift and acceleration by means of a single lever control.

Taking control phases

- Set levers of throttle to idle position. The station cannot take control with throttles set to other positions. You hear the acoustic sequence of initialization.



- Press **CONTROL/SET** near the station. The **CONTROL LEDS** are steadily green to indicate that the station is taking control and that the operator is sending the idle run control. The acoustic signal is squelched in all stations.

WARNING
The next shifting of the handle will engage the speed.

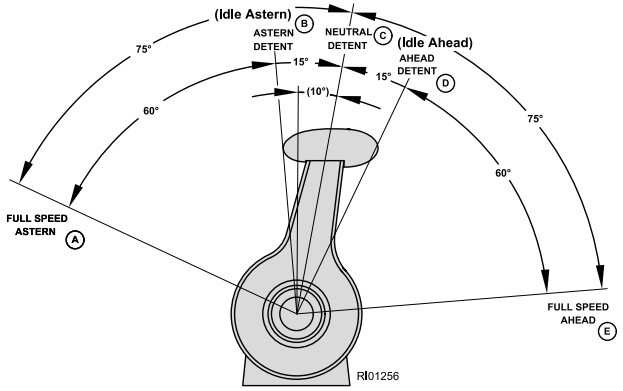
- Start the engine while sending the idle run control. If the levers of the throttle are not set to idle run, the interlocking start switch will prevent engine start.
- Shift the levers on the forward or backward retainer. The transmission starts and **CONTROL** LEDS are steadily red to indicate that the station has taken control and that the operator is sending the forward or backward run control.

CAUTION
Only one helm station can be enabled at a time.

Basic operation
The throttle has three detents: astern, idle and ahead.
With levers positioned on idle detent, the system sends idle run and minimum rpm control to the engines.
By shifting one lever forwards or backwards by 15°, the forward or reverse clutch engages. The engine holds the minimum rpm.
By shifting same lever further, the engine's rpm increase proportionally to the shifting range.

Throttle detents

Indicator	Lever position
A	Full speed astern
B	Astern detent (idle astern)
C	Neutral detent
D	Ahead detent (idle ahead)
E	Full speed ahead



CAUTION
The idle detent (central position in relation to throttles shifting) is 10° ahead. The shifting degrees are measured according to this position, not to vertical position of the throttles.

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

5.5.3 Steering wheel

The steering wheel is connected to the rudder bar by means of an hydraulic driven system (cylinders) able to develop a greater force, making steering easier during navigation. The fly steering pump is connected in parallel to the dashboard pump. It is always ready to operate without having to perform any valve disposal manoeuvres.

NOTE

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

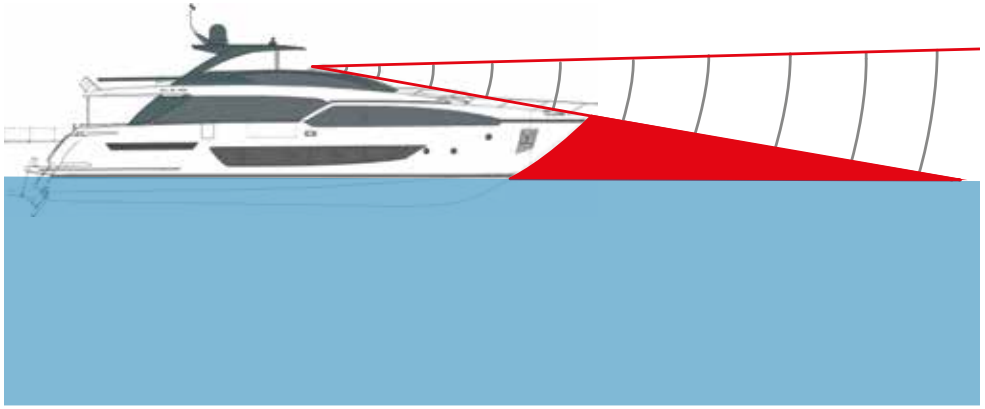
The communication between the rudder wheel and the hydraulic unit is made by means of electrical signals, which are interpreted by a main control unit.

CAUTION

The wheels of the rudder from the control rooms are not interlocked . Before starting the operation to make sure that the remote helm station is not used , there are people who can operate the steering wheel.

5.5.4 Radar / Chartplotter / Depth sounder

The radar/chartplotter interlocks radar, depth sounder, plotter, ais, autopilot.



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 40 in.

During the radar operation it is necessary to keep out of the aerial transmission flow; therefore steer the yacht exclusively from the inner main helm station. Switch off the radar if not expressly necessary to navigation.

WARNING

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

CAUTION

The electronic chart is an aid to navigation, designed to facilitate the use of authorized steering charts, not to replace them. Only official steering 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.

MAINTENANCE

At least once a week carry out the cleaning of the LCD.

At least once every six months check the connection and the presence of corrosion on the cables.

NOTE

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

5.5.5 WATCHIT system (optional)

WATCHIT is an advanced system intended to assist the captain in operating the yacht 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 in 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. Incase the system has detected the yacht is drifting, it will popup a Drifting Notification. After 5 minutes incase 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.

5.6 INTERNATIONAL STANDARDS FOR THE PREVENTION OF COLLISIONS AT SEA (COLREG 1972)

The pneumatic whistle (horn) installed on board the yacht adequately meets the requirements of the regulations against collisions at sea (Colreg 1972). Below is an excerpt from the “Rules for the prevention of collisions at sea”.

- **Application** (Rule No. 1): These Regulations apply to all ships on the high seas and in all communicating waters accessible to maritime navigation.

- **Responsibility** (Regulation No. 2): Nothing in these rules shall relieve a ship, the Owner or the crew itself of the consequences of any negligence in the application of the rules.

- **Definitions** (Rule No. 32):
  - – “Short sound” means a sound lasting approximately one second;
  - — “Prolonged sound” means a sound lasting from four to six seconds.

- **Warning and operating signals (Rule No. 34):**
  - – a short sound “I’m going to starboard”;
  - – – two short sounds “I’m going to the left”;
  - – – – three short sounds “I go back with the machines”;
  - — — – two long sounds and a short one “I intend to pass you on the straight side”;
  - — — – – two long sounds and two short “I’m going to overtake you on the left side”;
  - — – — – one long, one short, one long and one short sound “is fine for overtaking”;
  - – – – – – five short sounds “I have doubts about the manoeuvre”;
  - — a prolonged sound “ship approaching a channel elbow”;
  - — a prolonged sound ‘ship responding to previous signal’.

- **Signs in conditions of reduced visibility (Rule No. 35 and No. 37):**
  - — a prolonged sound at intervals of two minutes ‘ship propelled by mechanical means in a speedboat’;
  - — — two prolonged sounds at two-second intervals, repeated every two minutes, “ship propelled mechanically under way, with machinery stationary and without rudder”;
  - — – – one prolonged and two short beeps at two-minute intervals “ship steering rough or having difficulty manoeuvring or towing”;
  - — – – – one prolonged and three short sounds at two-minute intervals ‘last towed yacht sounding in response to the tugboat’;
  - – — – a short, long and short sound ‘ship at anchor’ means its position as approaching ship with risk of collision;
  - – – – – – five seconds of continuous sound at one-minute intervals “yacht at anchor indicating its position”;
  - – – – three short sounds in rapid succession “signaling a stranded ship”;
  - – – – – four short sounds “pilot ship in service”;
  - ——— a continuous sound “danger and need for help”.

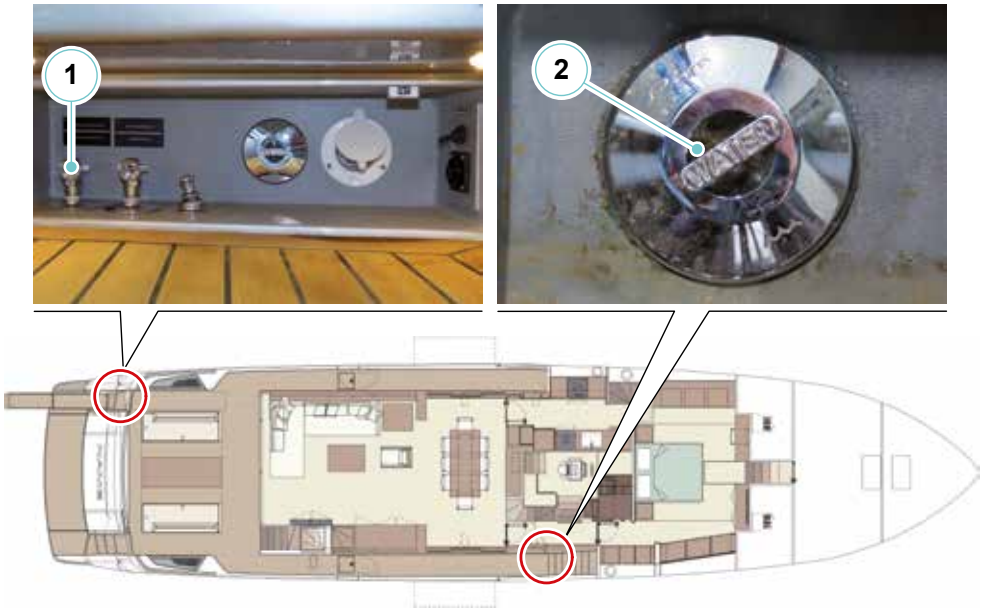
WATER SYSTEMS

CHAPTER 6

6.1 FRESH WATER SYSTEM

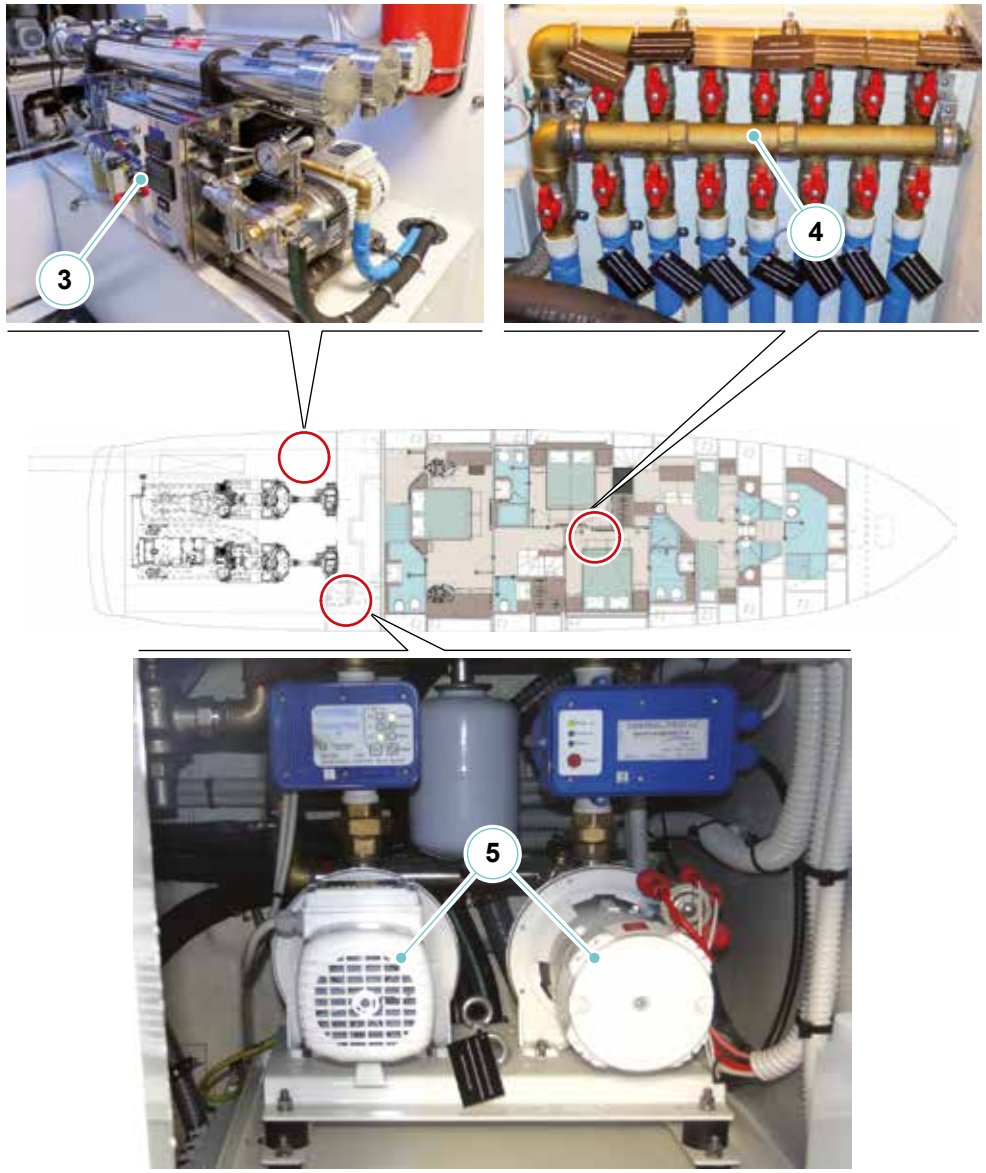
The fresh water system, provides 1 tank with a total capacity of 1320 liters, located under the atrium of the guest compartment.
The following connections are installed:

- **Water inlet**
  It is located on the main deck on the walk-around right and left.
- **Fresh water tank vent**
- **Freshwater suction**
  Provides water to the 230 V pumps that keep the entire cold/hot water circuit under pressure. In order to operate, the autoclave pumps must be powered by the magneto-thermal switch located on the main electrical panel.
- **Tank water level transducer**
  Detects the level of fresh water in the tank. The water level inside the tank can be monitored via the operating panel on the dashboard.
- **Watermaker**
  The tank can be filled not only by the water intake but also by the watermaker. It removes the salt from the seawater and makes it drinkable.



The system can also be supplied from shore.
The various uses can thus be served without the help of the autoclave on board thanks to the pressure of the system from the shore.

1. Shore connection
2. Fresh water boarding
3. Watermaker + water purifier
4. Water collector
5. Autoclave pumps



The fresh water system is equipped with two autoclave pumps with electronic regulator.

- Less use of batteries as the pump only switches on at high flow rates;
- Continuous pump operation eliminates the need for coupling and uncoupling;
- The stop of the pump in case of lack of water is present on both pumps;
- Starting the pump at the minimum set pressure value.

When a user opens, the device automatically starts the pumps, which stop when the user closes, after having brought the system back under pressure.

CAUTION

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

CAUTION

The fresh water circuit, and particularly the tanks, 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

On yacht equipped with direct connection to shore fresh water, the maximum operation pressure should not exceed 2.8 bar and the pipes must be disconnected for safety reasons, if the yacht is left unattended.
Notwithstanding the presence of a pressure limiter, check pressure on the pressure gauge installed on the regulator.

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 pressure regulator at pumps output is set at the factory; do not modify.

CAUTION

To avoid damage to the system and tanks, it is recommended to fill by dropping and not by pressure.

WARNING

It is a good norm to optimise the use of water, especially if navigating at open sea!

CAUTION

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

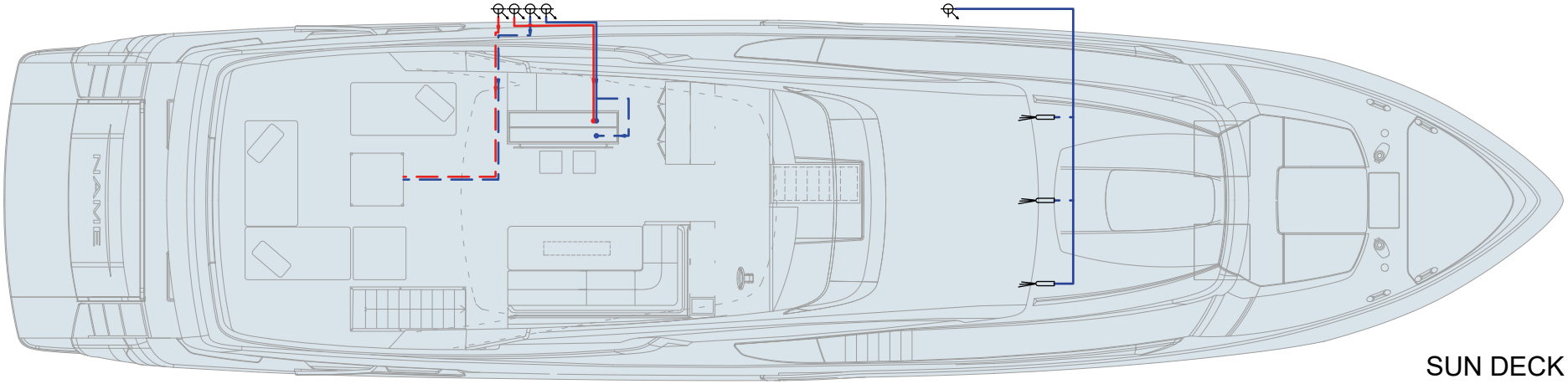
CAUTION

RIVA declines all liability for tampering made by third parties to equipment installed by the Shipyard itself.
These unauthorized manipulations, as well as in immediate cancellation of the warranty, can cause damage to the yacht itself and the people who are on board.
RIVA declines all liability for periodic maintenance activities not executed but planned by the Shipyard or by the Manufacturer of the devices or components and for which reference should be made to the consultation of the manuals provided relative Technician Manuals.

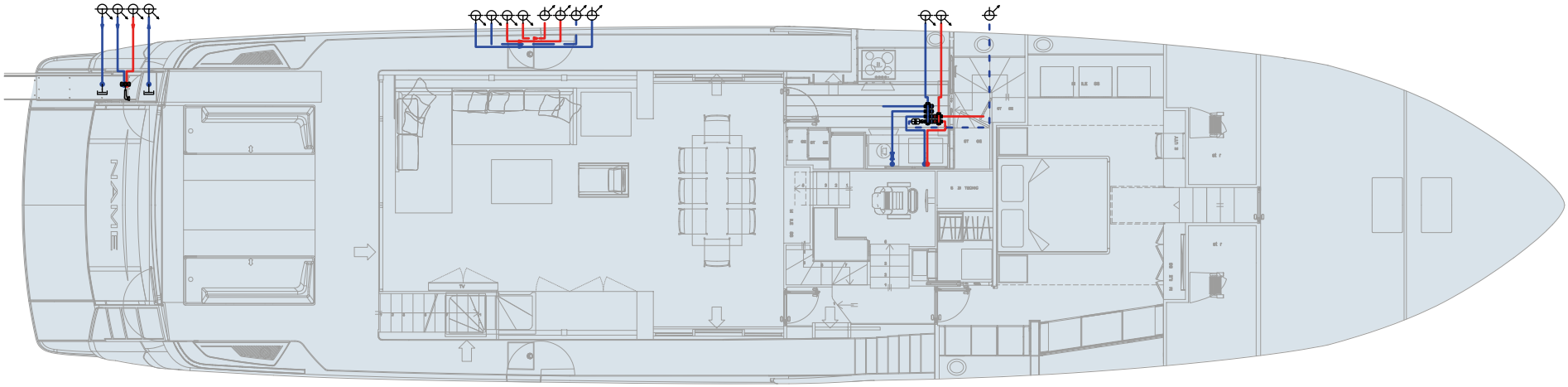
MAINTENANCE

Always use original spare parts for the maintenance of the activated charcoal filter and the softener. For the correct specifications on the maintenance of the activated charcoal filter and the softener, refer to the manufacturers' manuals supplied separately.

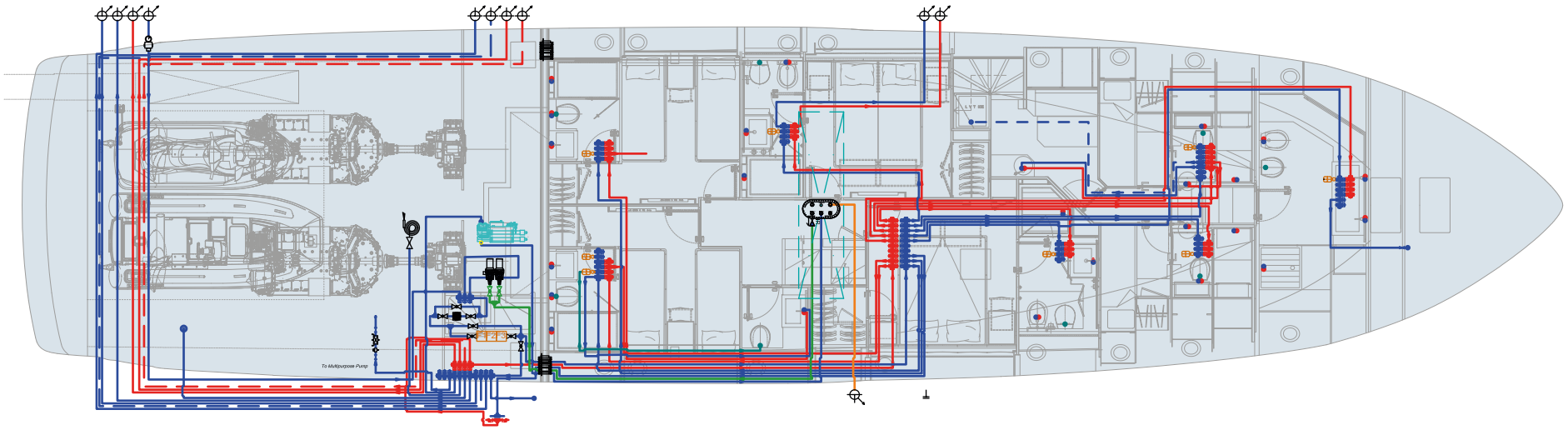
Fresh water system diagram



SUN DECK

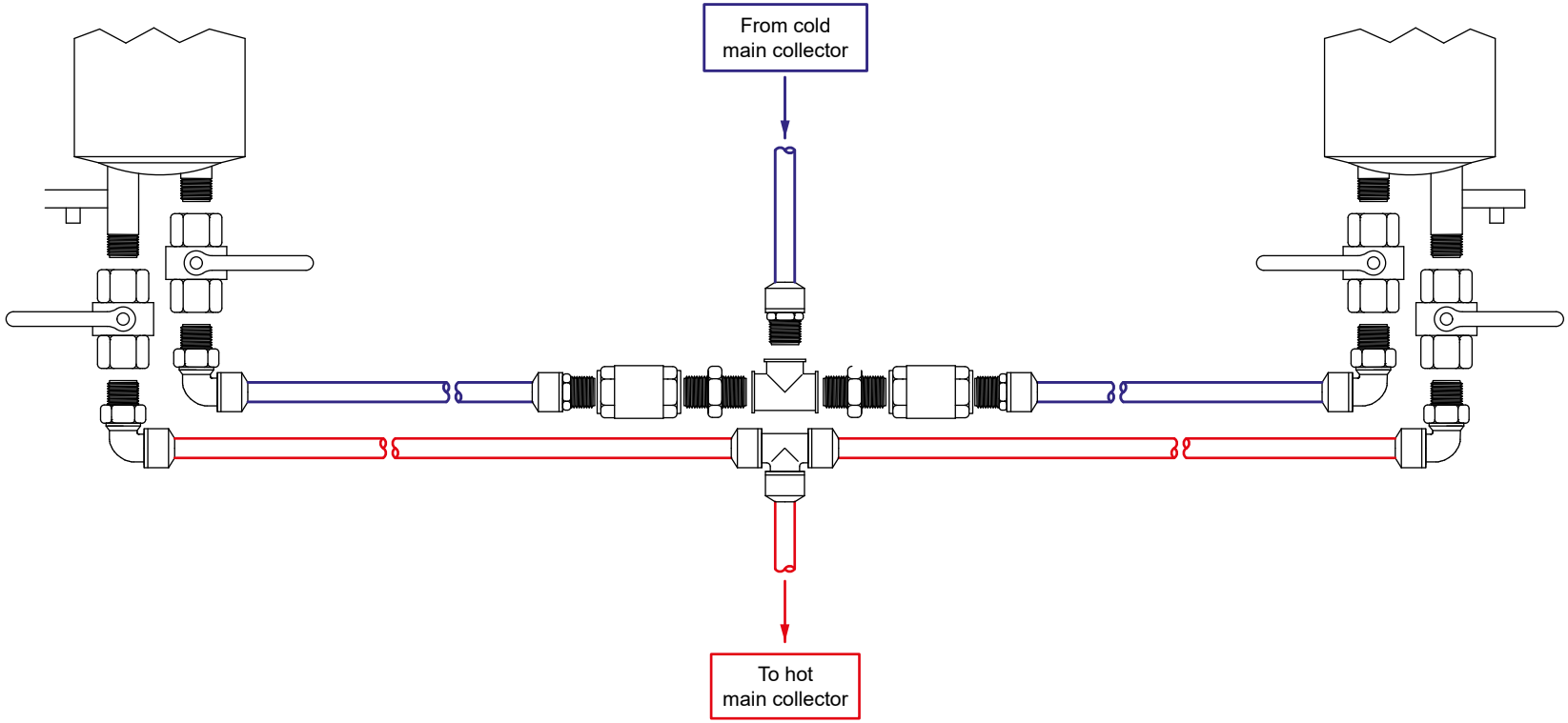


MAIN DECK



LOWER DECK

- Centralized overboard
- Watertight bulkhead pnetreation
- Fresh water shore connector
- Pressure reducer
- Ball valve
- Check valve
- Deck washing
- Anti pollution valve
- Hot water recirculation pump
- Hose
- Double pump unit
- Filter
- Watermaker
- Water heater
- F1 Water softner
- F2 Carbon filter
- F3 UV sterlizer
- Black water treatment system
- Tee
- Manifold with valves
- Acorn manifold with valves
- Solenoid valve with filter
- Washer nozzle
- Hand shower
- Cover
- Feeding pump
- Sudge tank
- Fresh water
- Hot fresh water
- Fresh water filling line
- From fresh water tank
- Fresh water tank vent
- To lower deck
- To upper deck


From cold
main collector
To hot
main collector

6.1.1 Watermaker

In order to solve the problem of water supply and to ensure constant availability even during long voyages, the yacht has been equipped with a watermaker system.
The watermaker is installed in the systems room and sucks the sea water through the centralized sea inlet by means of an electric pump and, after having filtered and treated it, sends it to the onboard tank.
The sea water, before being desalted, is filtered allowing to retain everything that can be called “suspension”, such as small algae and impurities of the water, which can cause clogging of the internal membranes of the watermaker even in short times.
The watermaker is capable of producing bacteriologically pure water and can therefore be used for on-board applications as well as for drinking and cooking. Excess water and saline concentrate are drained out of the board.
In order to avoid the problem of salts depositing on the internal membranes and their crystallization over time, the system is equipped with a manual fresh water flushing system. Because of the importance of this operation, clean the internal membranes of the watermaker according to the procedures and intervals specified by the manufacturer.
On the general electrical panel located in the engine room, there is a special magneto-thermal switch that supplies and protects the watermaker system.

NOTE

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

CAUTION

The watermaker 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 on-board use.

CAUTION

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

CAUTION

In order to prevent premature clogging of the watermaker filters and membranes, do not use the system where sea water is dirty or contains suspended sand.

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 filter.

CAUTION

The watermaker should be used only in surely clean water, to prevent contaminating its membranes, reservoirs and the entire circuit.

6.1.2 Cold fresh water system

The system is kept under pressure by the autoclave pump.
The pump feeds the system by sucking water from the tank, which supplies the following uses through pipes and distribution manifolds:

- Owner's bathroom;
- VIP bathroom;
- Guest bathroom left and right;
- Service bathroom;
- Crew area bathroom;
- Stern shower;
- Bow shower;
- Galley sink;
- Windscreen wipers;
- Air conditioning group;
- Washing machines;
- Dishwasher;
- Water heater;
- Faucet in engine room;
- Icemaker;
- Washing watermaker membranes;
- Tender washing faucet;
- Whirlpool.

Cold water, both coming from the pump and from the shore water system, before being sent to the yacht's equipment, is filtered by an appropriate filter which retains the retaining impurities with standard filtration grade of 60 micron.

When the filter clogs, you need to clean the filter cartridge.

NOTE

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

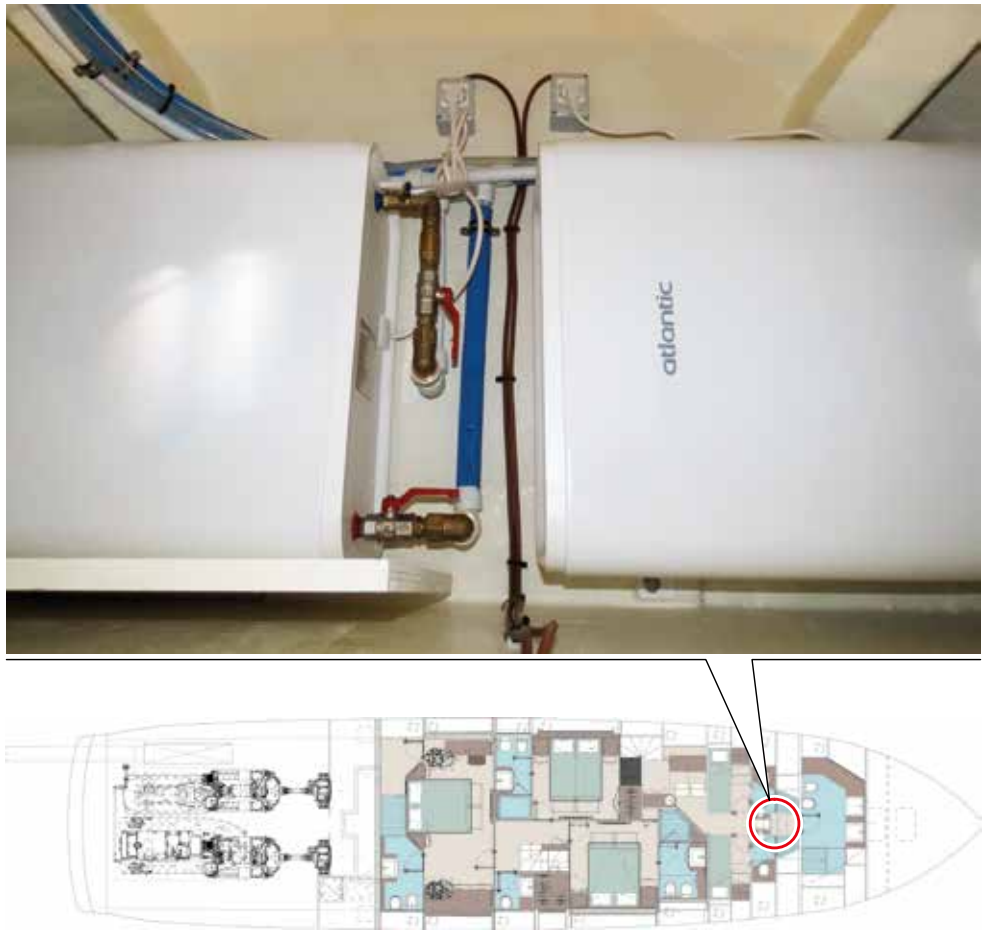
6.1.3 Hot fresh water system

Water is drawn from the tank by mean of pump and delivered to the water heater to be hated. The surge tank pump keeps the circuit under pressure continuously.
The thermostatic valves installed on the water heater allow the setting of the hot water temperature at the taps.

In order to use hot water, it is necessary to:
- The magneto-thermal switches of the water heaters and autoclaves, in the main electrical panel, are in the ON position;
- A power source (generator or shore) is active;
- Make sure the service battery breaker is in the ON position.

The water heaters are powered by 230V AC, taken from the shore or from the on board generating sets. The hot water is sent to the following consumers via a distribution manifold:
- Bathrooms VIP cabins;
- Service bathroom;
- Bathroom cabin guests;
- Bathroom owner's cabin;
- Galley sink;
- Stern shower;
- Mobile bar on fly bridge;
- Bathrooms crew area.

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



6.1.4 Fresh water manifolds

On board there are some manifolds for the hot and cold fresh water distribution throughout the yacht.

6.1.5 Maintenance fresh water system

Component	Maintenance	Notes and precautions
Fresh water tank	Cleaning and checks	At least every month, drain the fresh water tank completely and rinse them a couple of times with clean fresh water for change completely the water stowed in the storing tanks and at the same time to wash them too. Periodically pour a specific disinfectant, in the quantity recommended by the Builder, into the tanks, through the intake filler, in order to prevent the formation of bacteria in the system.
Electric water heater	Cleaning and checks	**MAINTENANCE** Check the operation of the water heaters at least once a month. 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. **CAUTION** If there is no hot water available, due to emptying of the fresh water system, switch off the water heaters to avoid damage to the heating elements.

Component	Maintenance	Notes and precautions
Fresh water system	Checks	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 uses, 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 the winter, if you do not use the yacht, it is advisable to drain all the circuits where there is fresh water to avoid cracks due to frost.

Component	Maintenance	Notes and precautions
Autoclave pump	Cleaning and checks	The maintenance of 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. • To Direct Current motors the brushes must be periodically checked for consumption and spring pressure. Protect electric components of the pump with proper products. **NOTE** For further information on use and maintenance, please refer to the manufacturer's manual. **WARNING** During the winter, if you do not use the yacht, it is advisable to drain all the circuits where there is fresh water to avoid cracks due to frost.

Component	Maintenance	Notes and precautions
Autoclave pump	Cleaning and checks	**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). **WARNING** If the control panel shows the operation of the pump is active but nobody is using the subservient uses, check for leaks. **DANGER** Before carrying out maintenance on the fresh water pump, avoid its accidental priming.

6.2 SEA WATER SYSTEMS

The sea water systems on board are:

- **Engine cooling system**
  consisting 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 drawn by the engines flows through the strainers and is then conveyed to the heat exchangers of the engines and gearboxes and later discharged overboard by means of engine exhausts.
- **The power generator cooling system**
  consists of two circuits, one for each power generator. Sea water is sucked directly by the pump of each generator, by means of a sea cock equipped with cut-off valve and strainer. After going through the strainers, the water sucked by the generators is delivered to the heat exchangers and then discharged overboard through the exhaust consisting of a muffler and fume/water separator.
- **Services system**
  The circuit is composed of an aspiration to sea with shut-off valve, a strainer sea water and inspected by a valved manifold for distribution to the group of air conditioning, the pump sea water and the watermaker.

CAUTION
When the yacht is not operated for long periods of time the autoclave should be drained by means of relevant magneto-thermal switch.

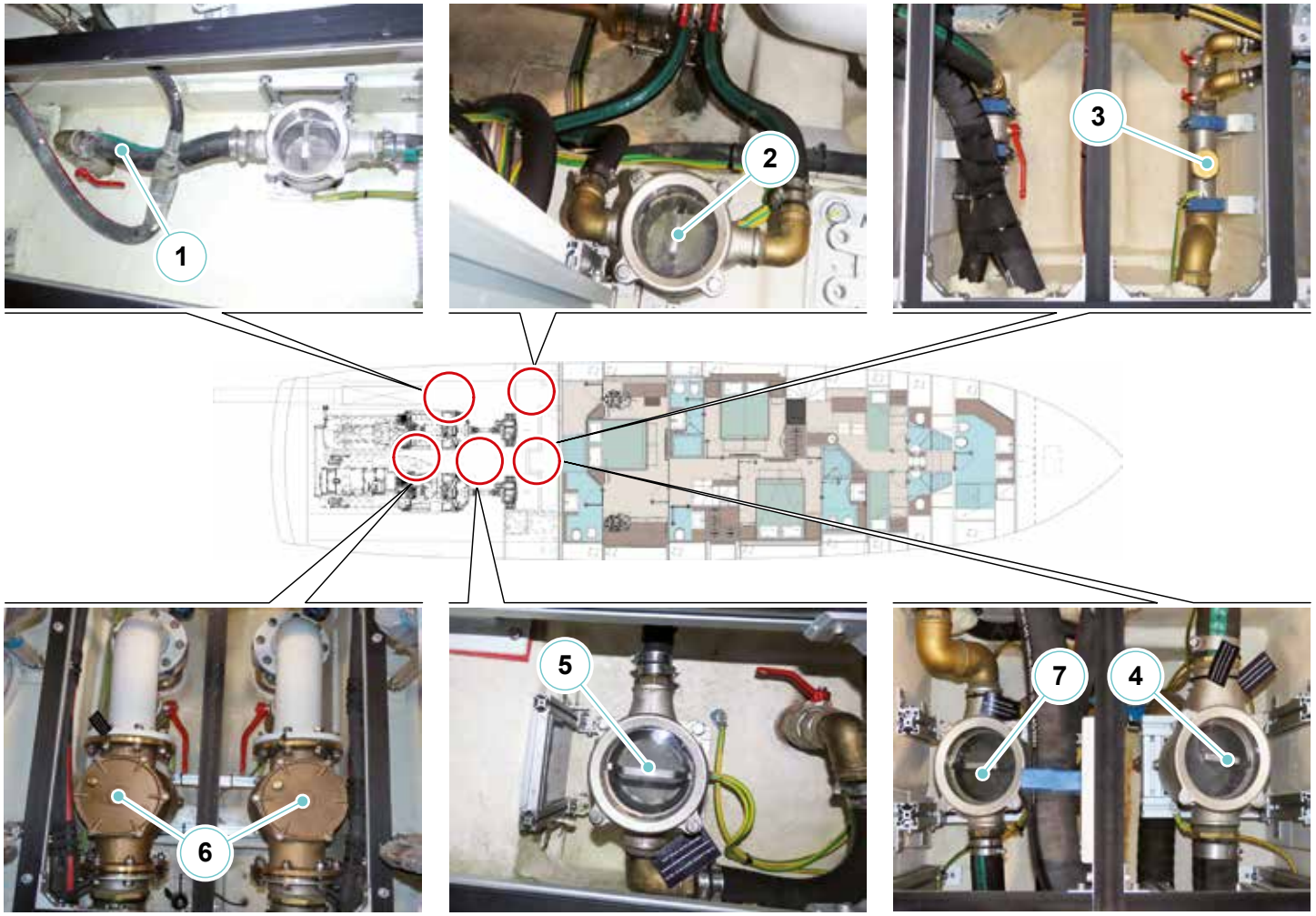
CAUTION
Before carrying out cleaning of the sea cock strainer, check that uses supplied with sea water are not on and used: sea water pump, watermaker, air conditioning unit.

The cleaning of the strainers of the inlet valves must be carried out at a frequence based on the use of the system and to the conditions of the sucked water.

- Close the valve of the relevant sea inlet.
- Close any valves upstream of the affected strainer.
- Remove the strainer cover by unscrewing the screws.
- Remove the strainer bucket and clean up any impurities with fresh water. Replace the strainer if necessary.
- Refit the basket and strainer cover.
- Open any valves upstream of the affected strainer.
- Before restarting the system circuit, make sure that the screws and their washers are correctly tightened with the ring and disc on the strainer housing.
- Fully open the sea inlet valve and check for leaks in the strainer cover.

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

1. Seawater inlet gyroscopic stabilizer
2. Seawater strainer hydraulic system
3. Seawater distribution manifold
4. Fire fighting seawater strainer
5. Seawater inlet generators
6. Seawater intakes for engines
7. AC seawater strainer



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.

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 covers.

WARNING

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

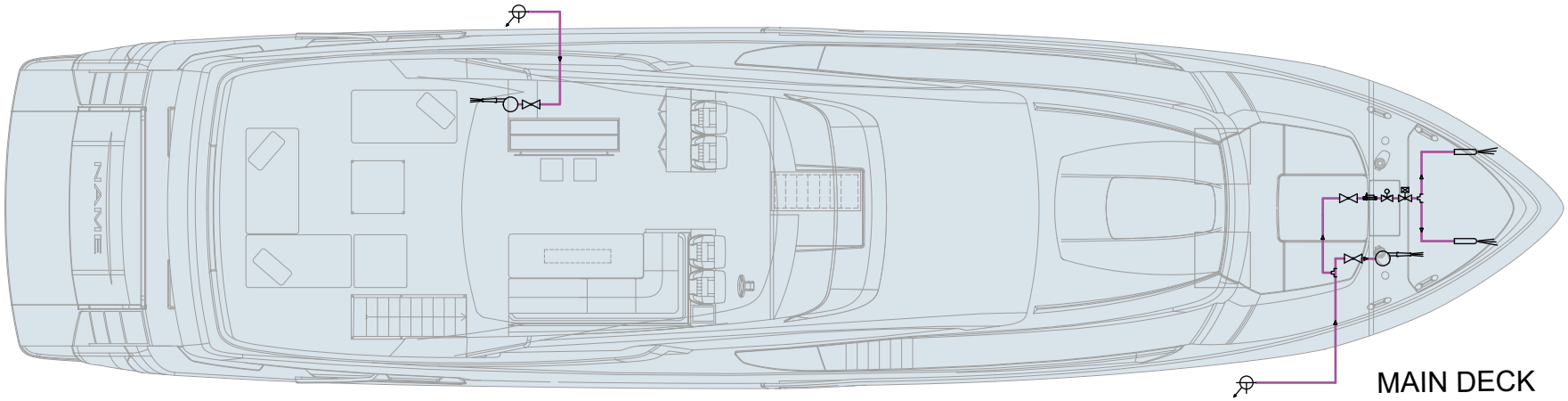
6.2.1 Maintenance seawater intakes and strainers

Component	Maintenance	Notes and 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 signs 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). **DANGER** Before carrying out maintenance on the fresh water pump, avoid its accidental priming. Inspection and cleaning valves and strainers • Cleaning is to be carried out more frequently if the water drawn in is particularly 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 and 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 as 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 or 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 uses. Before restarting the uses, 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.

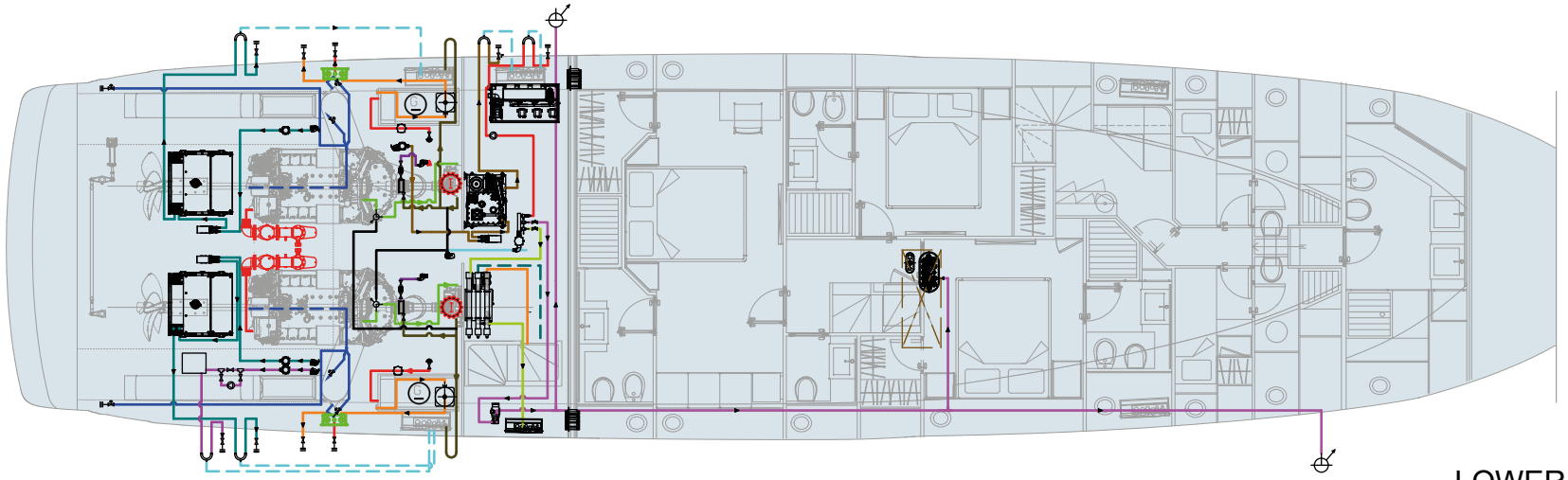
Component	Maintenance	Notes and precautions
Electric pump	Inspection and cleaning	Check pump operation at least weekly. **WARNING** The pump is self-priming but, in order to operate, it needs to have its body filled with liquid. For a correct use, we recommend at first priming or after a long idling 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 uses 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 filter clean. • Check that the electric power supply cables are in good conditions. **NOTE** For further information on use and maintenance, please refer to the manufacturer's manual.

Engines cooling and sea water distribution system diagram - Main deck



- Strainer
- Diesel engine
- Smoke separator
- Generator
- Muffler
- Inverter
- Ball valve
- Non-return valve
- Suppression valve
- Sea discharge
- Centralized discharge
- Solenoid valve
- Gate valve
- Engine sea water line
- Generator sea water line
- Gyroscopic stabilizer line
- Services sea water line A/C
- Fire fighting sea water line
- Hydraulic system cooling line
- Steering gear system cooling line

Engines cooling and sea water distribution system diagram - Lower deck

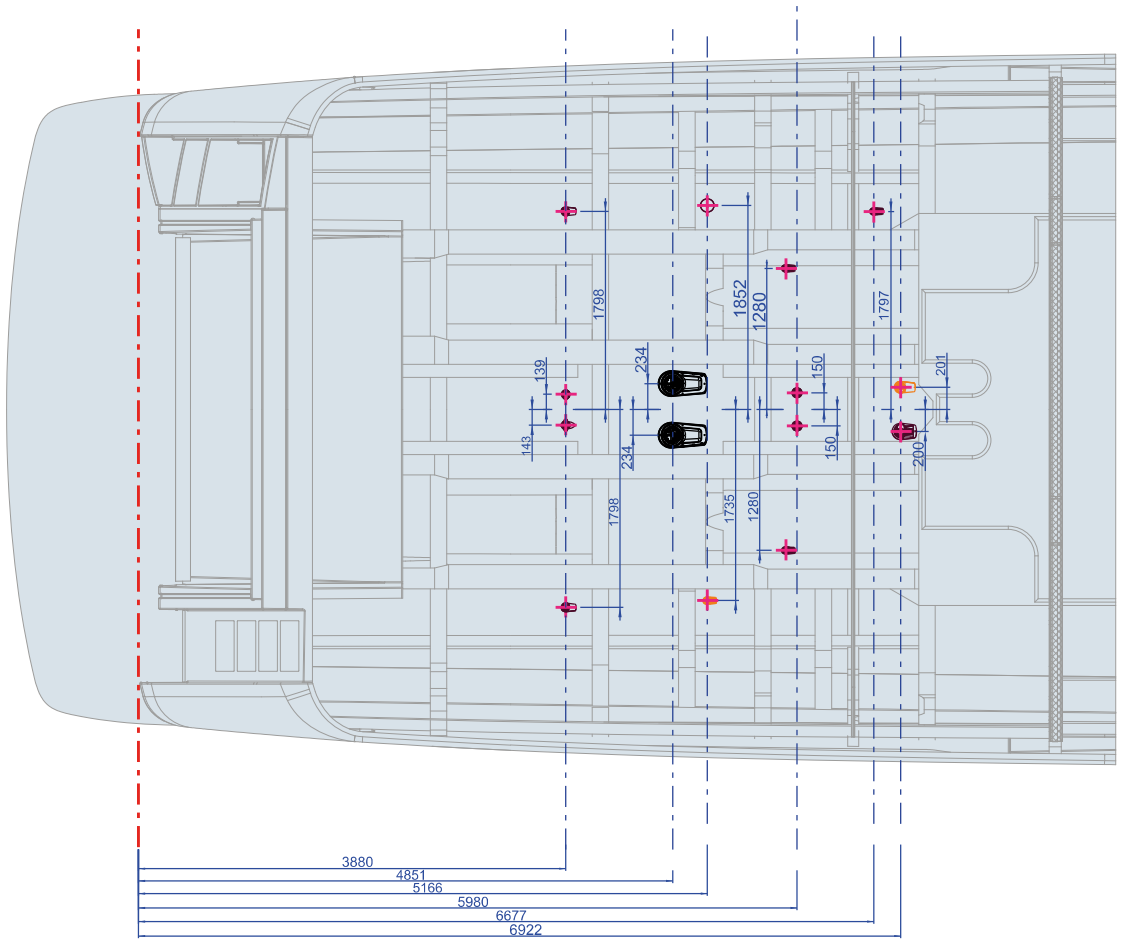


LOWER DECK

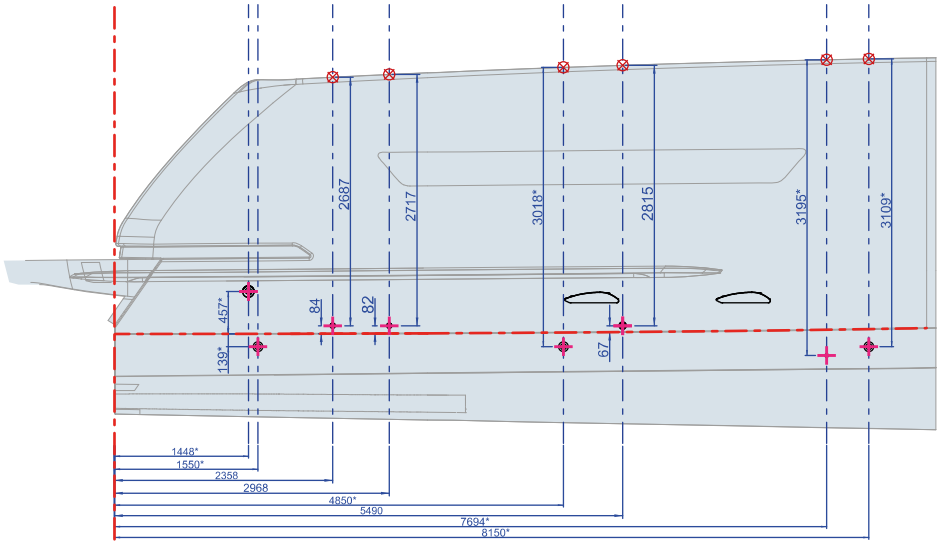
- Strainer
- Diesel engine
- Smoke separator
- Generator
- Muffler
- Inverter
- Ball valve
- Non-return valve
- Suppression valve
- Sea discharge
- Centralized discharge
- Solenoid valve
- Gate valve
- Engine sea water line
- Generator sea water line
- Gyroscopic stabilizer line
- Services sea water line A/C
- Fire fighting sea water line
- Hydraulic system cooling line
- Steering gear system cooling line

Hull passes diagram

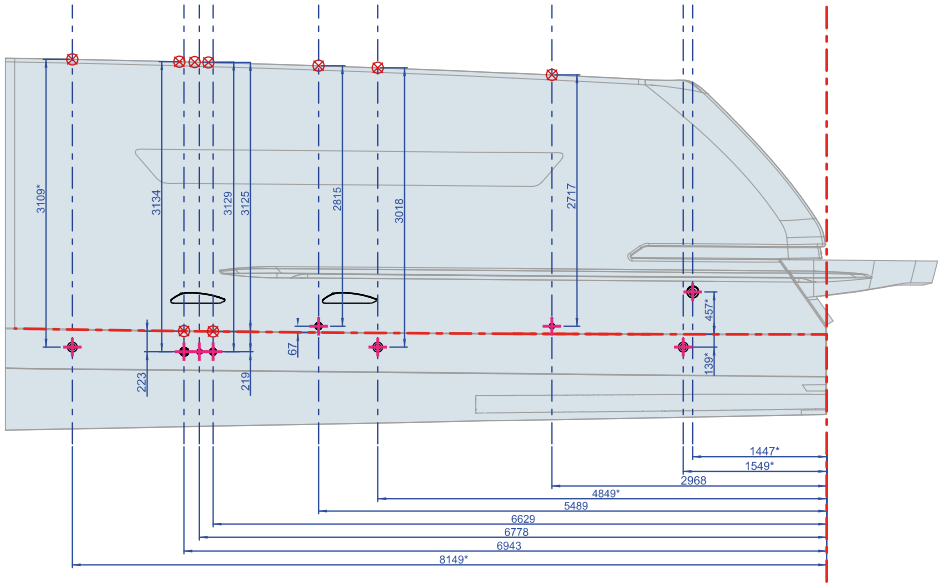
TOP VIEW



STARBOARD WALL VIEW



PORT WALL VIEW



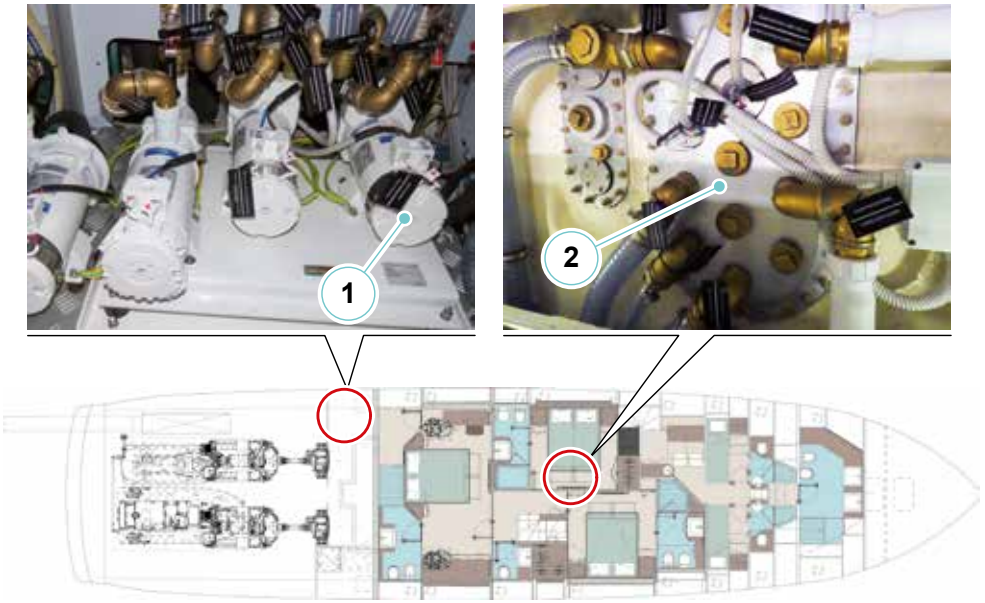
6.3 GREY WATER SYSTEM

The waste water from the showers and sinks is collected by an 535 l waste water tank located under the left-hand guest cabin and it's connected to the evacuation pump located in the engine room.

ENVIRONMENT

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

The grey water pump, in automatic mode, primes when the liquid level reaches the float and is switched off by a timer. It has to be remembered that the float inside the grey water tank is equipped with a circuit delaying for some second, both the pump switching on and off.
The start delay prevents that, in case of yacht rolling, the pump primes with the wake.
The switching off delay ensures that the pump sucks also the residual liquids below the float level.



1. Grey water pump
2. Grey water tank

In manual mode the grey waters pump can be controlled by means of a switch located on the synoptic panel of the control panel.

NOTE

It is advisable to always check the level of the tank through the monitoring system on board or in any case to empty it manually before entering the port, to avoid having to make a new outing at sea to perform emptying.

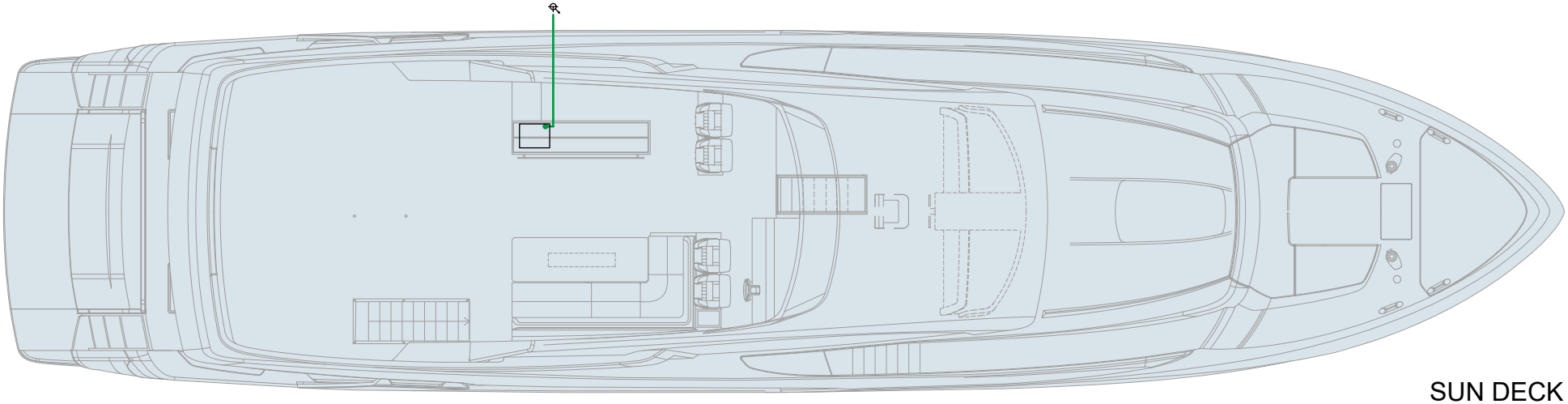
Condensate of the fan coils are collected in special boxes.

MAINTENANCE

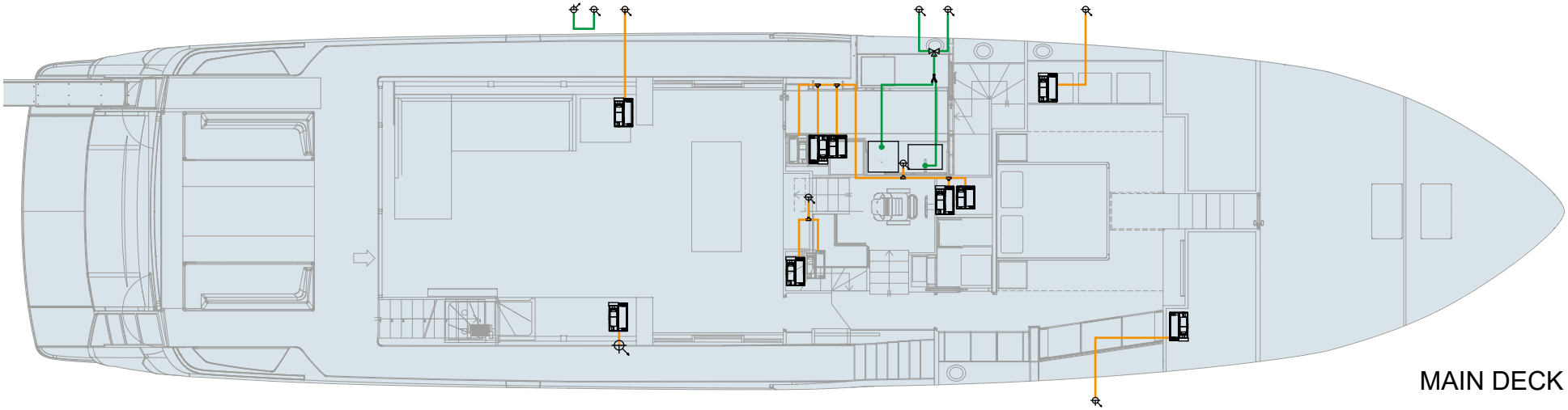
At least once every 3 months:
- Carry out a complete cleaning of the tank;
- Carry out a complete cleaning of the pump;

Check the status of the pump at least once every 6 months.

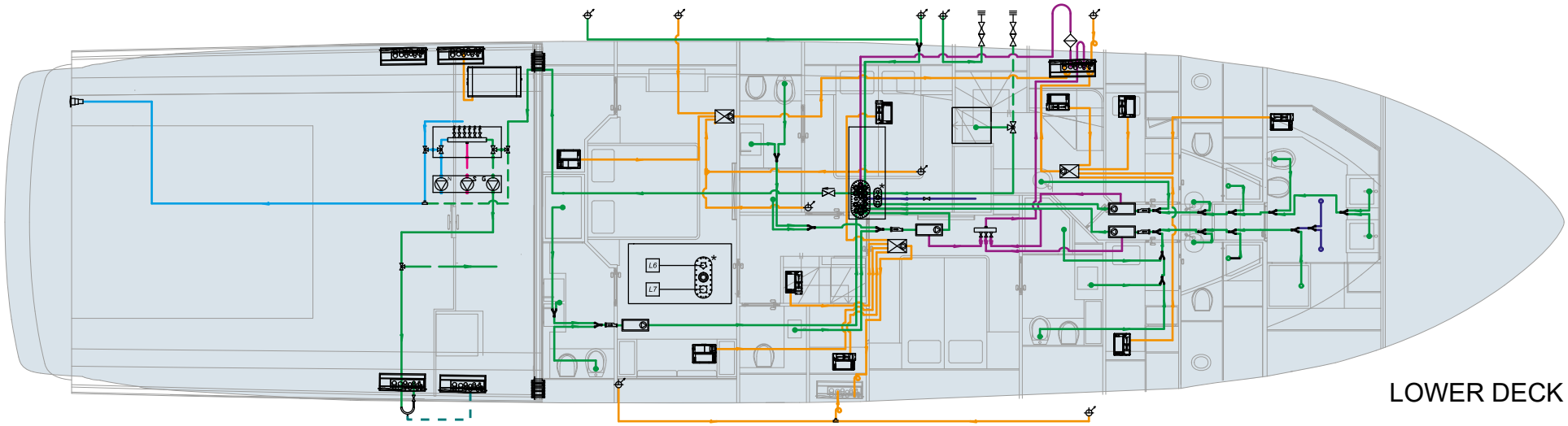
Grey water system diagram



SUN DECK



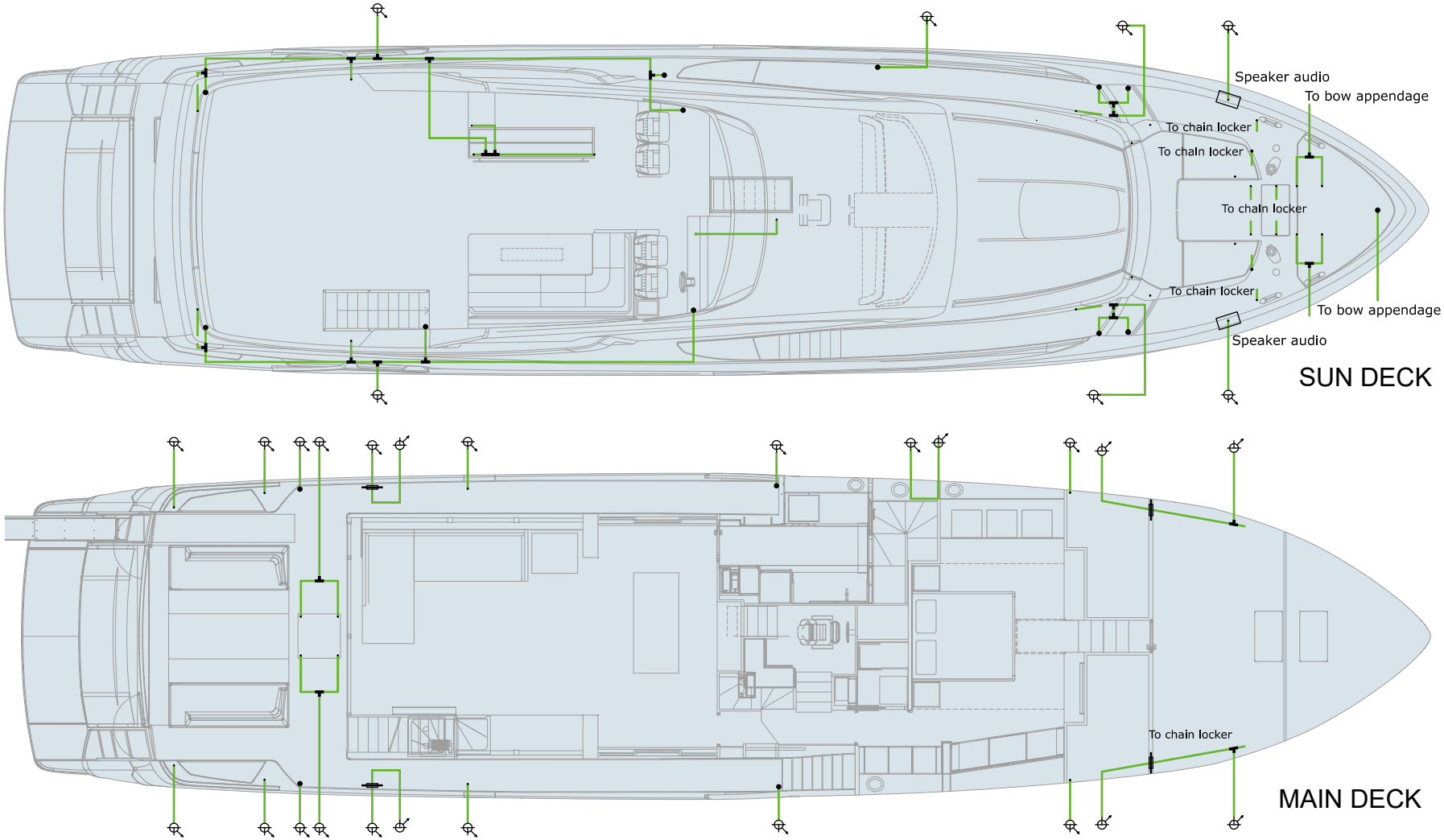
MAIN DECK

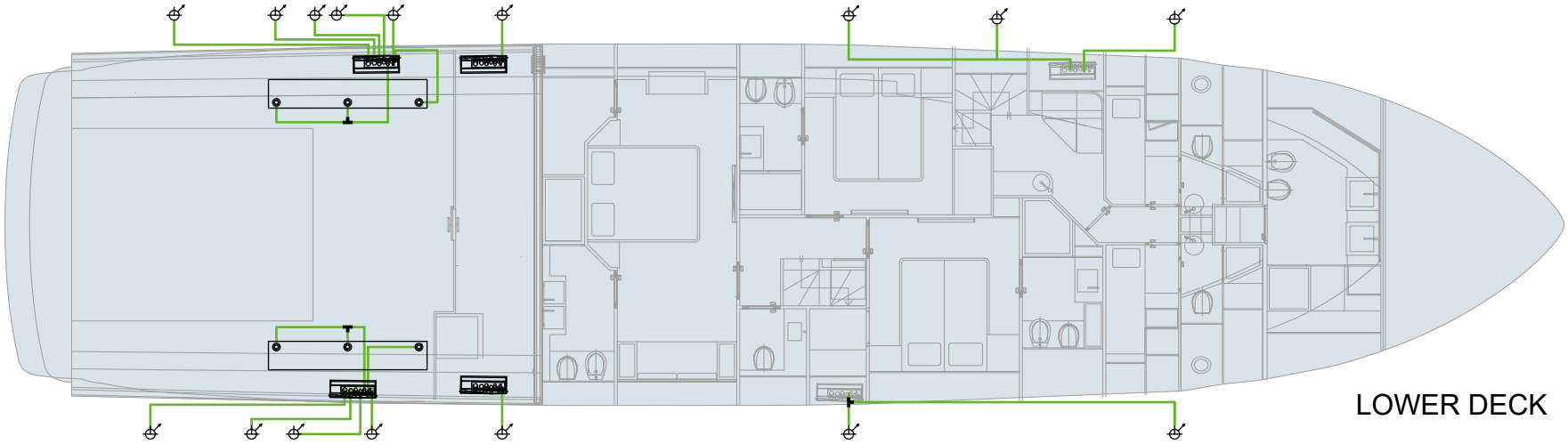


LOWER DECK

- To upper deck
- To lower deck
- Centralized overboard
- Watertight bulkhead penetration
- Pump out flange
- Ball valve
- Check valve
- Three-way valve
- Tee
- Y
- Manifold
- Overboard
- Siphon break
- Fan coil unit
- Multi-purpose unit:
  Bilge pump
  Grey water pump
  Black water pump
- Odor removing filter
- Grey water pumping unit
- Condensation pumping unit
- Odor removing siphon
- L1 Three-contact sensor
- L2 Black water level gauge
- L3 Black tank Hamann level (OPT)
- L4 Sludge tank level (OPT)
- L5 Stainless steel level (OPT)
- L6 Three-contact sensor
- L7 Grey water level gauge
- Black water treatment system (OPT)
- Dosing unit (OPT)
- Feeding pump (OPT)
- Air compressor (OPT)
- Sludge tank (OPT)
- Compressed air tank (OPT)
- Black water line
- Grey water line
- Fan coil drainage line
- Dosing unit line
- Compressed air line
- Hamann sludge line
- Fresh/sea water line
- Vent line

6.3.1 Scuppers diagram





LOWER DECK

Junction connection

3 Way valve

Check valve

Overboard

Ball valve

To lower deck

To upper deck

Flexible hoses

Centralized overboard

6.4 BLACK WATER SYSTEM

The system essentially consists of a tank and a black water pump which discharges outboard. The water used for washing the WCs is drawn from the cold water circuit via the distribution manifold.
On the manifolds are installed solenoid valves for each WC, which allow the input of water every time you press the keys “BEFORE USE” or “AFTER USE”.
Each WC has a macerator pump that conveys the black water into the collecting tank. The tank is located in the bilge below the starboard guest room.
A pump in the systems room empties the tank via a suction line, which discharges outboard.
The tank is equipped with float minimum, early warning and maximum level for the automatic start/stop of the black water pump and for the alarm signals on the dashboard and WC block.
The exhaust control can be operated in manual and automatic mode by means of the buttons on the synoptic panel on the dashboard.

Please remember that a circuit to delay of some seconds both the activation and the deactivation of the pump has been installed on the float inside the holding tank.

- The start delay prevents that, in case of ship rolling, the pump primes with the wake.
- The switching off delay ensures that the pump sucks also the residual liquids below the minimum level float.

The black water pump, in automatic operation, starts and stops every time the expected level is reached.
The black water pump can be activated manually by means of the relative screen on the on-board monitoring system or by means of the buttons on the main electrical panel in the technical room.

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

Before entering port it is recommended to monitor the status of the tank and assess whether to unload at sea or use port services by checking in advance if the port to which you are heading has the ability to empty the tank through the outlet.

CAUTION
Within 12 nautical miles from the coast it is forbidden to discharge into the sea the black water tank: it is necessary to keep the drain pump deactivated, to exclude the automatic activation if present.

Procedure for emptying through the shoreside nozzle.

- Handle the tube with caution so as not to dirty the teak on the bridge, wet it beforehand.
- Insert the drain nozzle correctly and secure it.
- Use port’s sewage collection service with vacuum.
- After completing the operation, disconnect the tube correctly and place caution again so as not to dirty the teak of the bridge, rinse if necessary.
- Correctly reposition the valves in the black water inlet position in the tank.

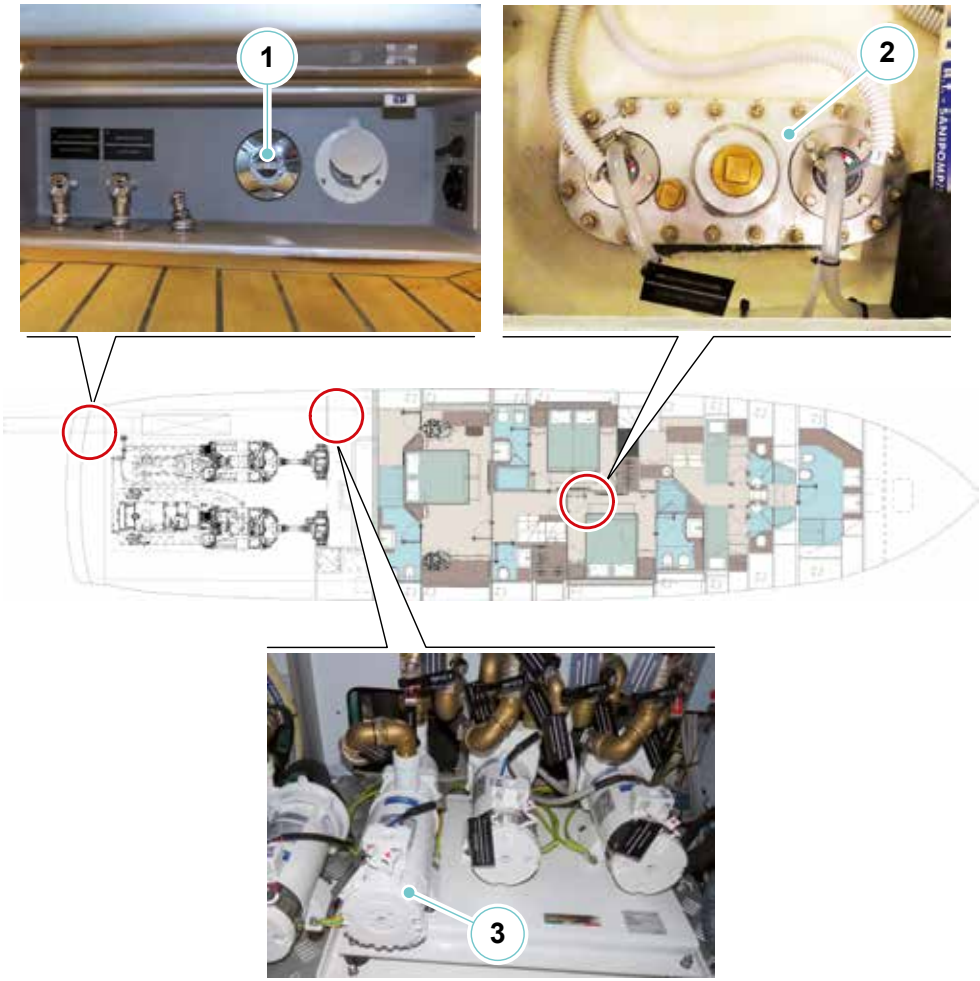
CAUTION

For all pleasure yacht, 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.

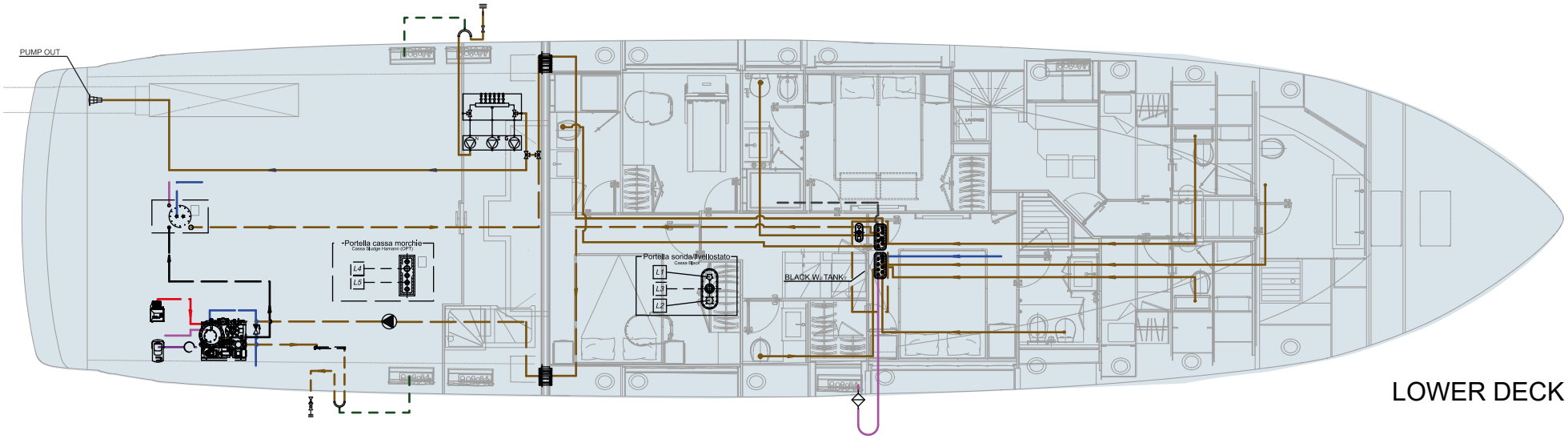
CAUTION

All pleasure yachts, 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.

1. Waste water collector on the shore
2. Black water tank
3. Black water pump



Black water system diagram - Lower deck



- To upper deck
- To lower deck
- Centralized overboard
- Watertight bulkhead penetration
- Pump out flange
- Ball valve
- Check valve
- Three-way valve
- Tee
- Y
- Manifold
- Overboard
- Siphon break
- Fan coil unit
- Multi-purpose unit: Bilge pump Grey water pump Black water pump
- Odor removing filter
- Grey water pumping unit
- Condensation pumping unit
- Odor removing siphon
- L1 Three-contact sensor
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- L5 Stainless steel level (OPT)
- L6 Three-contact sensor
- L7 Grey water level gauge
- Black water treatment system (OPT)
- Dosing unit (OPT)
- Feeding pump (OPT)
- Air compressor (OPT)
- Sludge tank (OPT)
- Compressed air tank (OPT)
- Black water line
- Grey water line
- Fan coil drainage line
- Dosing unit line
- Compressed air line
- Hamann sludge line
- Fresh/sea water line

6.4.1 Toilet operation

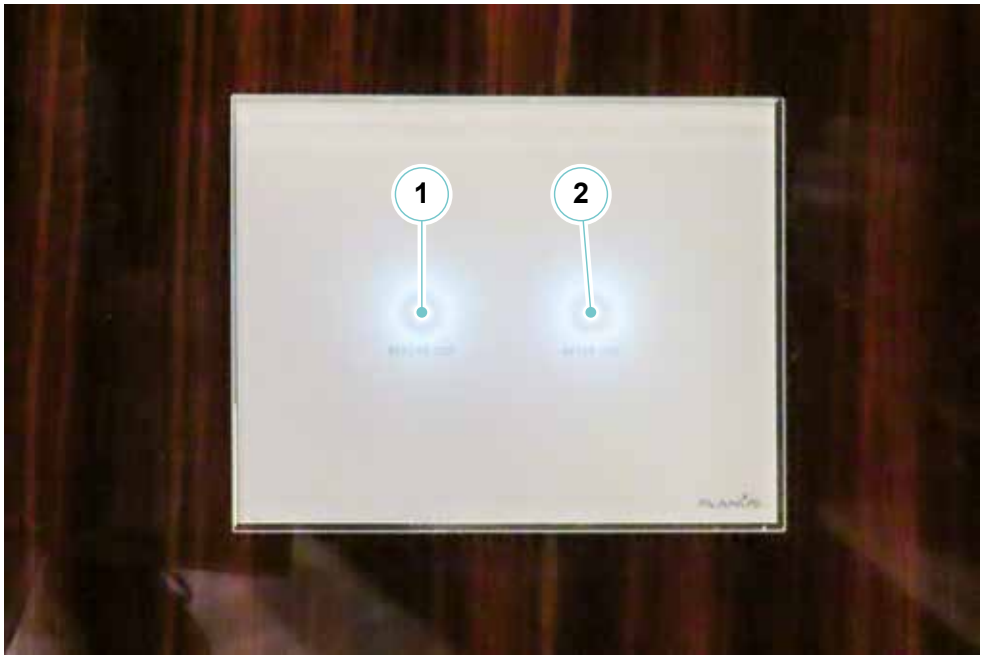
The bathroom toilets are made of ceramic and their control panels contain two backlit buttons:

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 toilet control.



CAUTION

We suggest not to use the **residential function** of the toilet, as the water inside the toilet 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 overfill of the tank.

CAUTION

The full tank condition is indicated by the red icon light on the synoptic control panel. The toilet operation is disabled.

CAUTION

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

NOTE

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

6.4.2 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 the RIVA 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	Replacement of impeller and mechanical seal	This is a complex operation and should only be undertaken by skilled personnel. **CAUTION** The electric motor may become hot when running (see manual of the electric pumps). 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 is relieved of any responsibility and warranty is void and null.

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, 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 motor 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 motor; 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.

6.5 BILGE SUCTION SYSTEM

The bilge suction pumps suck the water from the bilge and send it to the overboard drains located on the sides.
For each suction point there are two alarm activation floats, connected in parallel, which activate the alarm sirens located in the engine room, in the system room access ladder.
The pumps are connected directly to the batteries and can therefore also be activated with the battery breaker OFF, thus ensuring the expulsion of water at any time (keep the magneto-thermal switches in the main electrical panel switched ON).
The suction of the pumps are equipped with a filter whose purpose is to prevent the entry into the system circuit of foreign bodies that could damage or inhibit the pump or cause the occlusion of the pipes.
The bilge pumps can only be operated in manual mode after visually verifying the absence of oil in the water.
To activate the pumps manually, push the respective buttons on the onboard monitoring system, or the switches on the main switchboard located in the systems room. In order for the bilge pumps to work, it is necessary to activate the relative magneto-thermal switches placed also on the electrical panel.

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

Should the bilge pumps of the engine room as well as not be able to drain the bilge water, the engine room is equipped with the bilge emergency draining system, operating by means of valves with manual activation, allowing to use the sea water pumps of the propulsion engines, as draining pumps. 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 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.

On board there is a bilge pre-alarm system for engine room partitioning.
The bilge pre-alarm float is positioned lower than the starting float of the main bilge pump in the engine room.

The activation of this float activates an optical/acoustic alarm located in the engine room (with a different sound from the bilge alarm itself and repetition on the bridge on the Monitoring System) powered at 24V after service battery disconnection.

It is possible to silence the alarm, which is still activated visually, by pressing the appropriate button located at the entrance of the Control Room on the separation bulkhead with the engine room.

DANGER

SINKING HAZARD - Make sure that the pump operates correctly.

CAUTION

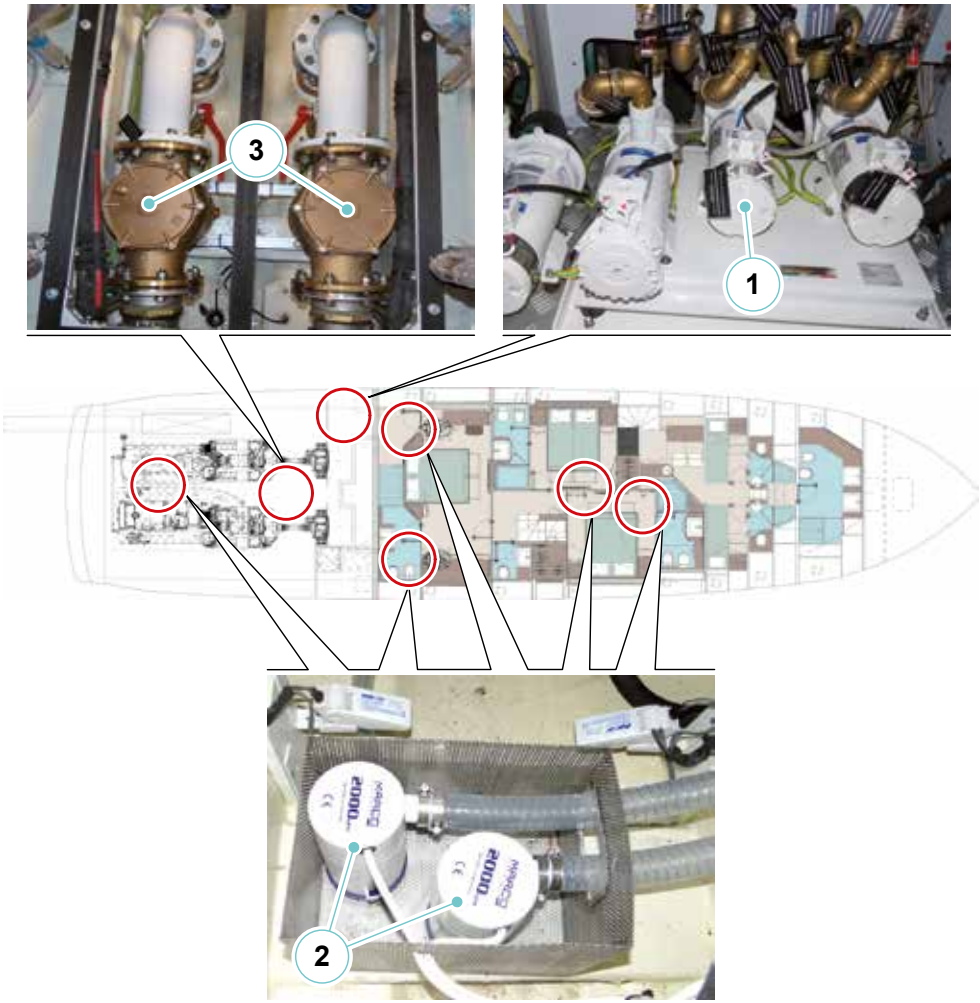
In order to avoid oil pollution, when using fire-fighting systems through the use of the main bilge pump, be sure to preventively wash the pipes before operating the by-pass.

CAUTION

In case of engine room bilge suction: Load a lot of caution to return the engine valves to the sea suction position when the engine room bilge water level is under control, in order not to compromise the engine parts.

CAUTION

In case of presence of water in some rooms below deck, before alarming, check if the bilge water is sweet or salty will be of fundamental help in the analysis of its origin.



1. Centralized bilge water suction pump;
2. Automatic bilge water suction pumps;
3. Suction of bilge water in the engine room emergency.

ENVIRONMENT

Any oil or fuel in the bilge must be collected and stowed. It is forbidden to discharge bilge water mixed with oil or fuel into the sea, as it causes pollution. Discharge these waters only in marinas, ports or other bodies designated for the treatment of these highly polluting waters.

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.
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 total capacity of the system is not designed to drain the yacht in case of damage.

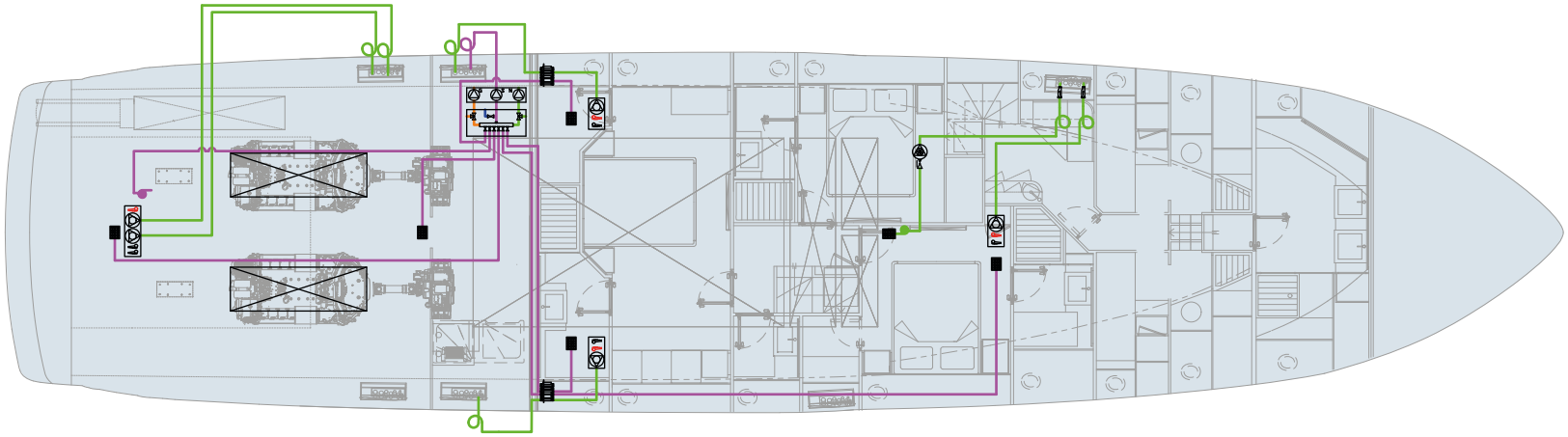
ENVIRONMENT

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.

Bilge system diagram



Level switch
Level switch
Bulkhead
Ball valve
3 Way valve
Pre-assembled unit:
Bilge pump
Grey water pump
Black water pump

No smell siphon
Rotating bilge pump
Bilge pump
Centralized dicharge
Bilge suction piping
Primary bilge system
Secondary bilge system

6.5.1 Maintenance of bilge suction system

Component	Maintenance	Notes and precautions
Bilge pumps	Operation check Bilge pump operation check	**MAINTENANCE** At least once a week check the operation of pumps and floaters. At least once a month: • Check the condition of connections; • Carry out an accurate cleaning of pumps and floaters; • Carry out an accurate cleaning of the bilge. At least once every six months check the presence of clogging in the piping.
Non-return valves		

6.5.2 Bilge pumps checks

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 shaft turns freely (this is possible by inserting a screwdriver in the back end of the engine shaft). Fill the pump body with liquid so as to allow the pump to prime. This operation is very important and must be carried out at the first pump start and each time the pump body is empty, to avoid pump damaging.
Check the rotation direction, that the pump motor 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 motors, 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 motor; 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

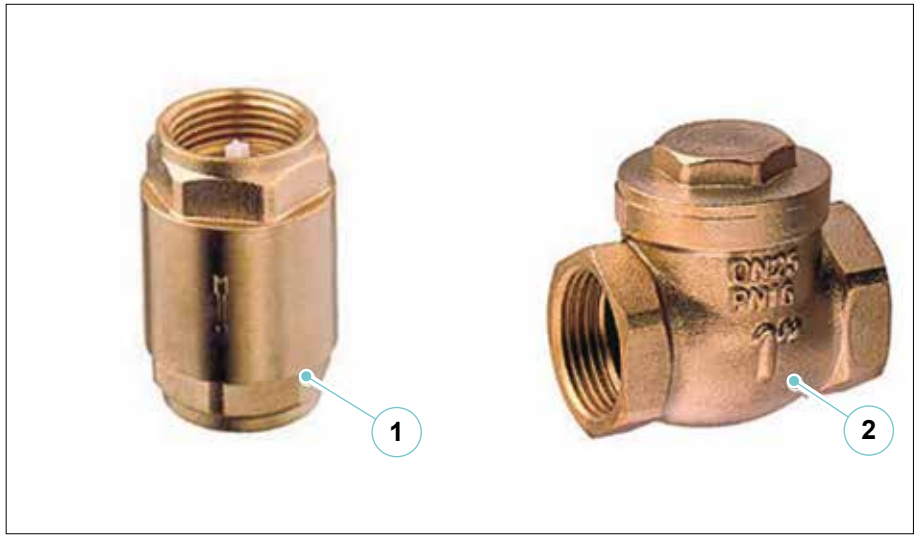
Never run the electric pumps dry.

CAUTION

Check all bilge pump operation at regular intervals. Clean the pump intakes.

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.



ELECTRIC SYSTEM

CHAPTER 7

7.1 ELECTRIC SYSTEM

To ensure sufficient visibility in all weather conditions, your yacht is equipped with an efficient windscreen wiper system.
The system is supplied with 24V and allows the wiper blades to be operated through mechanical arms and variable speed. The windscreen wiper system is controlled by the on-board monitoring system.

The electrical system of the yacht consists of three separate sections.

- Service network powered by a nominal voltage of 24V DC provided by twelve 2V DC accumulator batteries. - 640 Ah each, connected in series and parallel to each other. This battery bank is recharged by the 100 A output of the service charger and by the alternator driven by the engine.
- Engine network powered by a nominal voltage of 24V DC supplied by 12V DC battery packs. - 220 Ah each, connected in series and parallel so as to form a bench at a voltage of 24V. This battery bank is recharged by an output of the engine charger as well as by the alternator. The engine charger automatically disconnects when the engines are started.
- 230V utility grid powered from the shore network or, alternatively, from the two generators present in the yacht (main generator power 27 kW, secondary generator power 27 kW). Each generator set is powered by a 12V - 180 Ah battery located near the generator itself and is recharged by an alternator driven by the generator itself or by dedicated battery chargers.

The system is made with PVC insulated cables, and further protected by sheaths and/or ducts in self-extinguishing PVC.
The protection of the single portions of system is entrusted to fuses and magneto-thermals of different capacity and sizes according to the absorptions of the single uses to be protected as well as to the section of the cables used for their power supply. All wet metal parts are interconnected with equipotential bonding and connected to sacrificial anodes on the submerged structure.
A monitoring and control system for user status, levels and navigation parameters is connected to the normal electrical system.
The most important contribution to safety will come from the way the system is used and its regular maintenance. It should not be forgotten that the electrical system, like any other on-board system, is subject to the stresses and vibrations of the hull, and is located in an environment characterized by high salt moisture and therefore requires periodic checks to confirm its good condition.

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

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

Never start navigation without having set to ON both the engines batteries switch and the service batteries switch and do not disconnect them during navigation.

CAUTION

If, during navigation, a remarkable and continuous voltage drop of one nor 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 chargers.

CAUTION

The parallel connection system between the batteries sets, driven by a button located in the main helm station, 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 services 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 engines checking 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

Use electrical equipment with double insulation or grounding.

CAUTION

If you are forced to use the “parallel batteries” it is advisable to switch off the electronic equipment to avoid compromising its proper functioning. In an emergency situation, the parallel batteries should be used as quickly as possible.

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).

WARNING

To reduce to the lowest the hazard of electrocution or fire:

- Turn off switch for connection to shore supply of the yacht, before connecting or disconnecting the shore power supply cable;
- Connect the shore power supply source;
- First disconnect the power supply cable from the shore power supply source (shore column), then from the services.

DANGER

We recommend, in order to operate in complete safety, to carefully read the safety rules relevant to the maintenance and contained into the “Safety rules”.

CAUTION

Disconnect the shore power supply connections when the system is not in use.

WARNING

Do not allow the 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.

DANGER

The 230V AC 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

Switch off the generators, disconnect the magneto-thermal switches, the shore sockets and the inverters, before opening the electrical panel cover.

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 overcurrent;
- Install or replace electric equipment or devices with components exceeding the rated current intensity of the circuit;
- Leave the yacht unattended with electric system under tension, except for the circuits of the bilge automatic suction pumps, of fire-fighting protection and of alarm.

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!

The on-board uses are supplied by separate electric systems with different features:

- 24V Continuous Current
- 230V Alternating Current (50 Hz)

CAUTION

RIVA suggests examining the whole documentation provided by the manufacturers of the various components very carefully; for any problem regarding maintenance, please directly contact the RIVA After Sales & Service Department.

NOTE

For a detailed description refer to the electric installation manual.

WARNING

Before stopping the power generators, disconnect the various on-board uses supplied by them; stopping the power generators under load can irreparably damage the electronic control units of the various uses and have a negative influence on the generators' operation.
However, please refer to the manuals of the power generators to obtain more detailed information about the starting and stopping procedures.

WARNING

Before performing any maintenance, disconnect all sources of electric power.

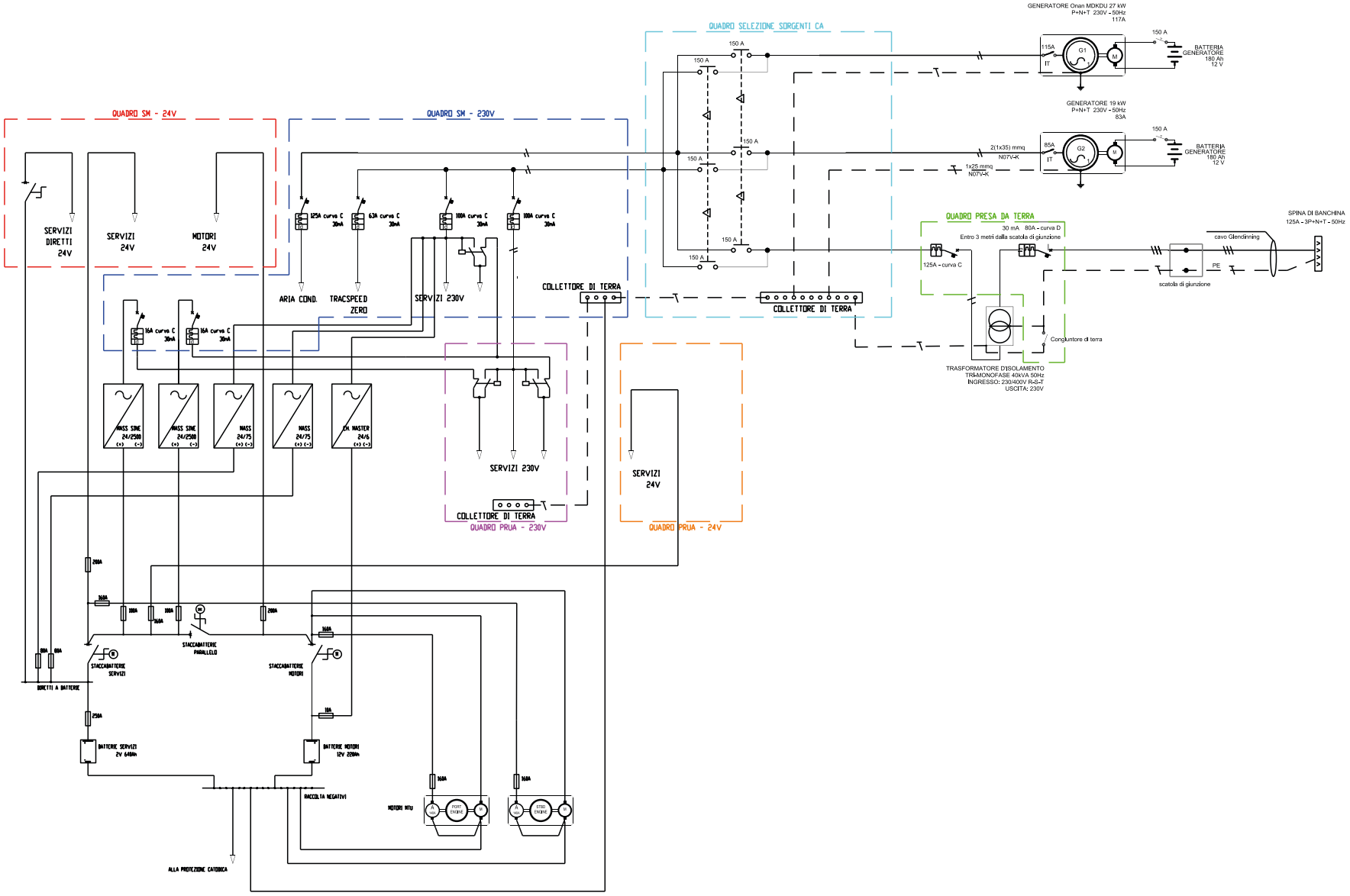
CAUTION

It is forbidden to use pressurized water on light appliances installed outside.

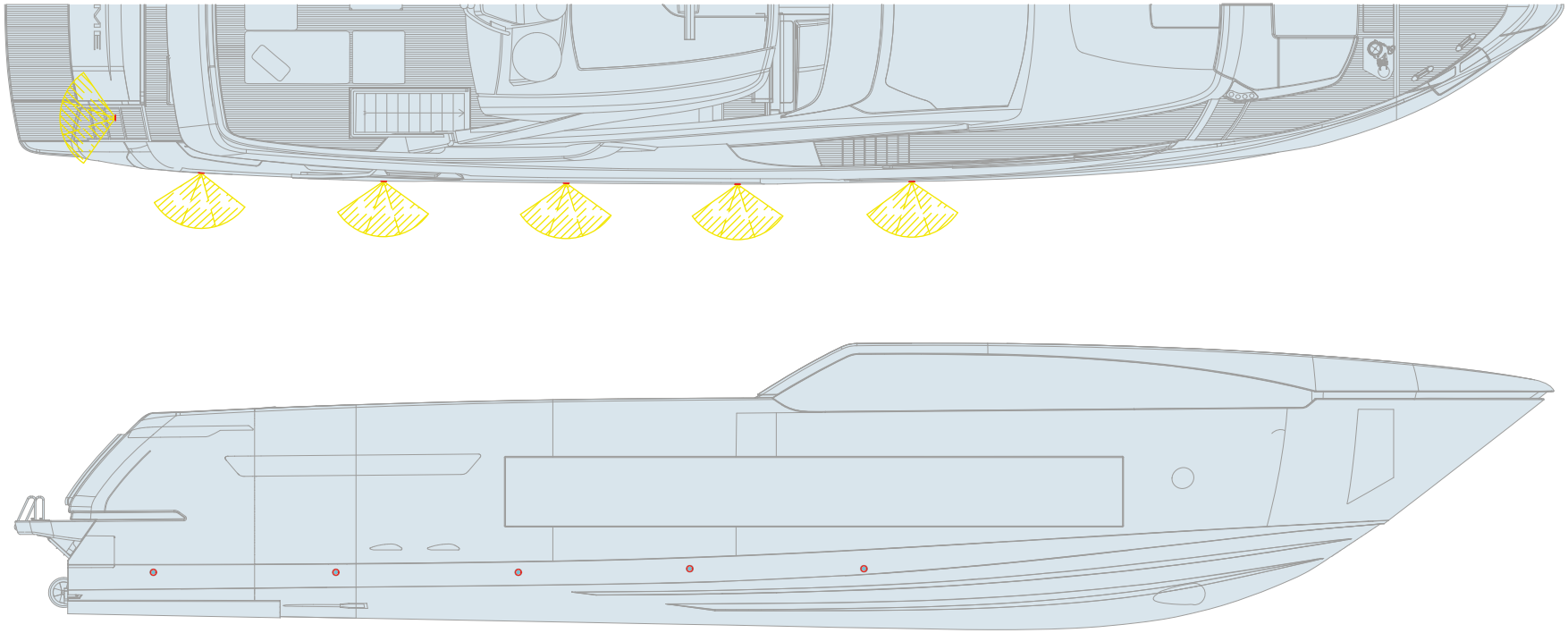
7.1.1 Maintenance of the electric system

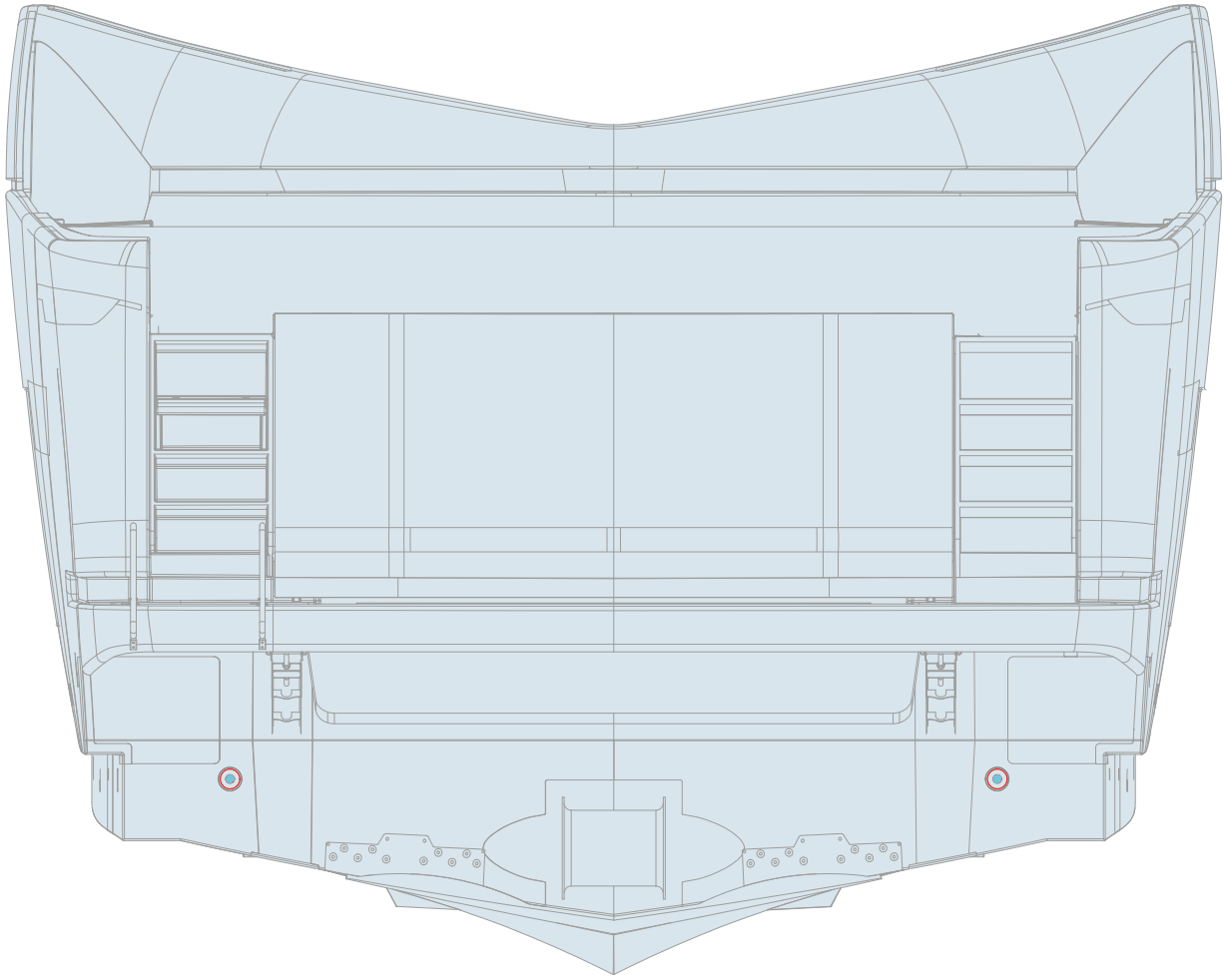
Component	Maintenance	Notes and precautions
Equipment and circuits	Cleaning and checks	Have the condition of connections on electric boards, panels and boxes checked periodically by skilled and equipped staff. Make sure that ground connections of electric equipment and electrical panels are tight and not oxidized. Have the absorption of the different electric motors periodically checked by skilled personnel. When cleaning the bottom hull, carefully clean the electronic instrument ground static dischargers; 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** Before starting to work on electrical panels or devices, prevent the generators' operation by disconnecting the electric power supply from shore and the inverters. **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.

7.1.2 AC/DC distribution diagram



7.1.3 Underwater lights





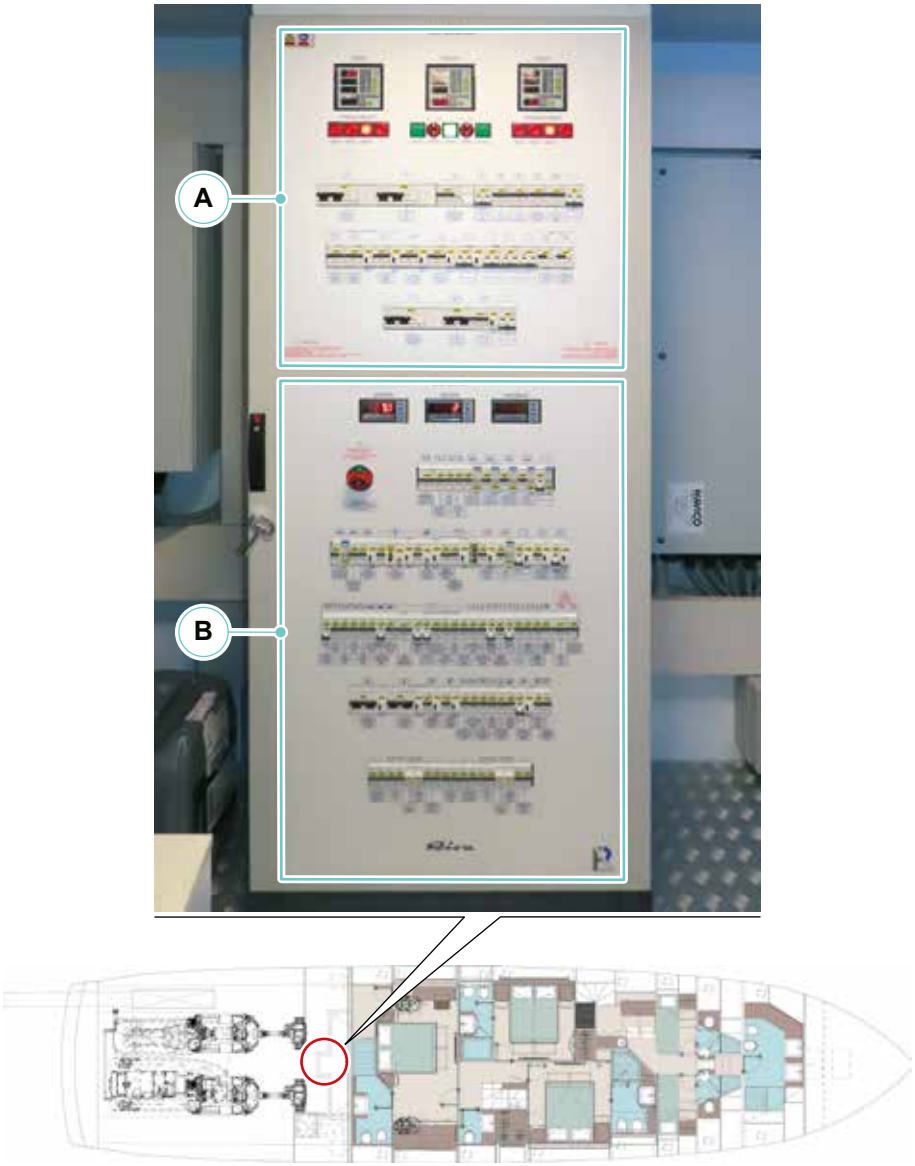
7.2 ELECTRICAL PANELS

Main electrical panel:
The electrical system is controlled from the control panel located in the system room.
To simplify the descriptions of the electrical panel, the following main sections have been identified:

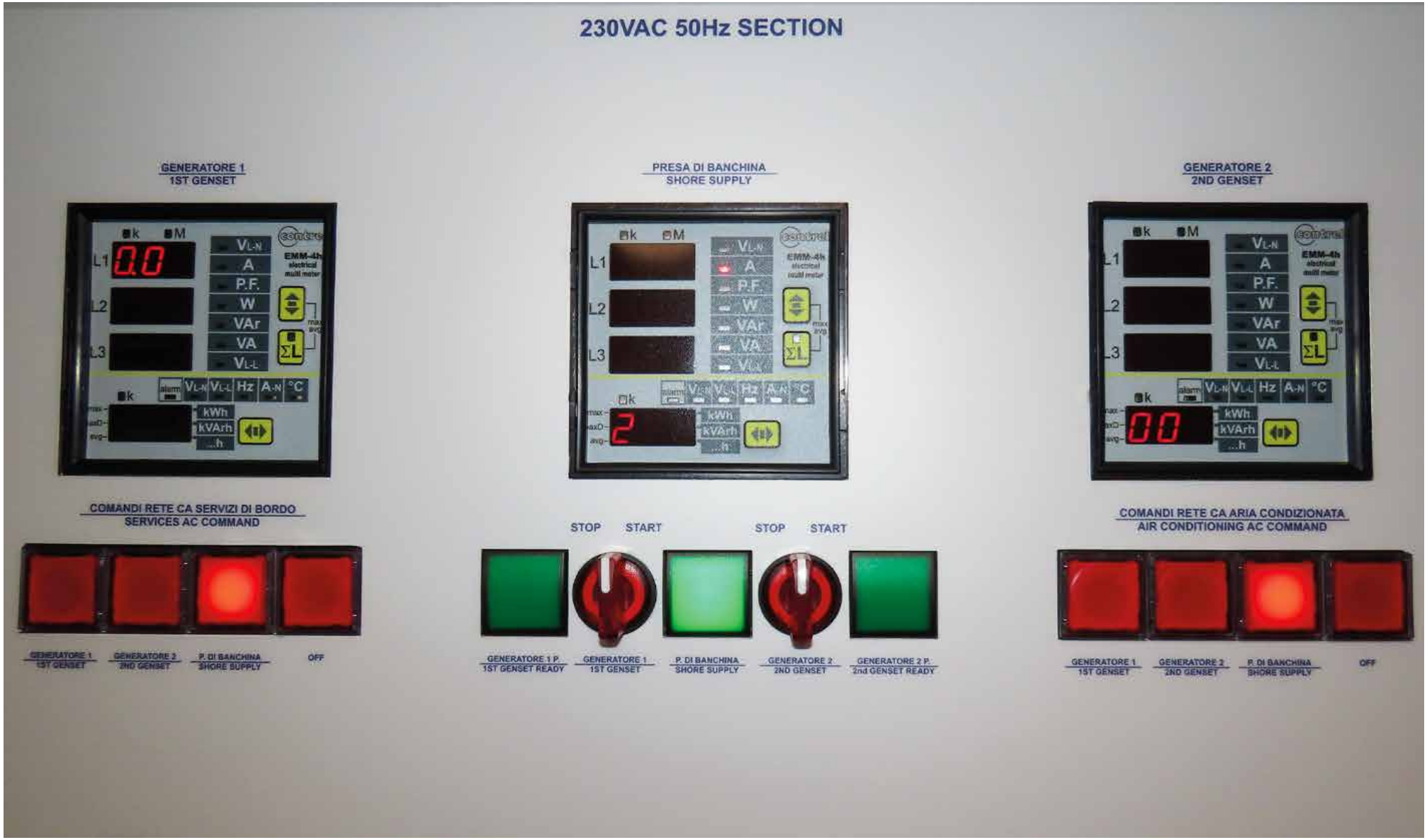
A. 230V AC 50Hz Section
B. 24V DC Section

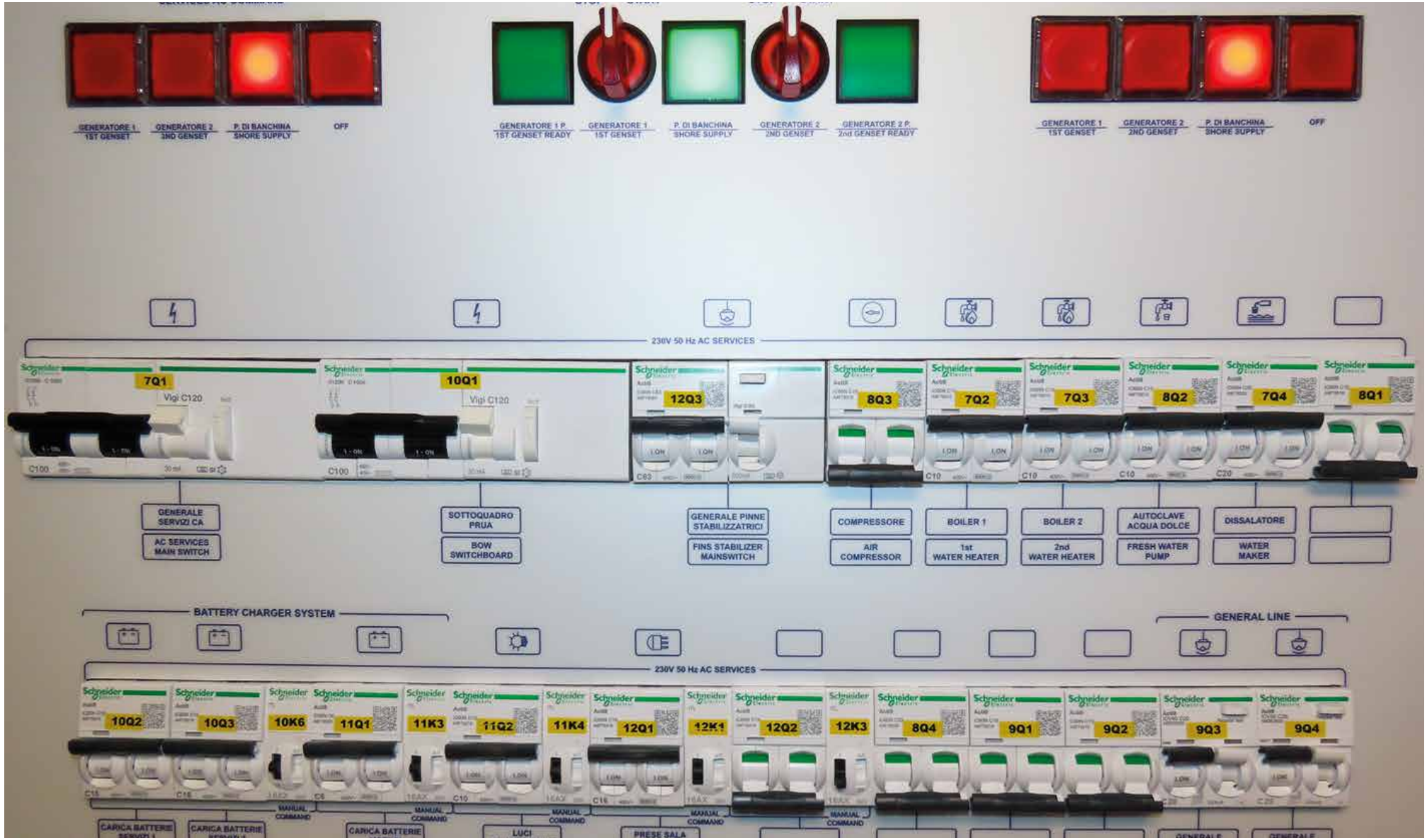
CAUTION
Before removing the front panel for maintenance, stop the power generators, disconnect the shore sockets and the inverter.

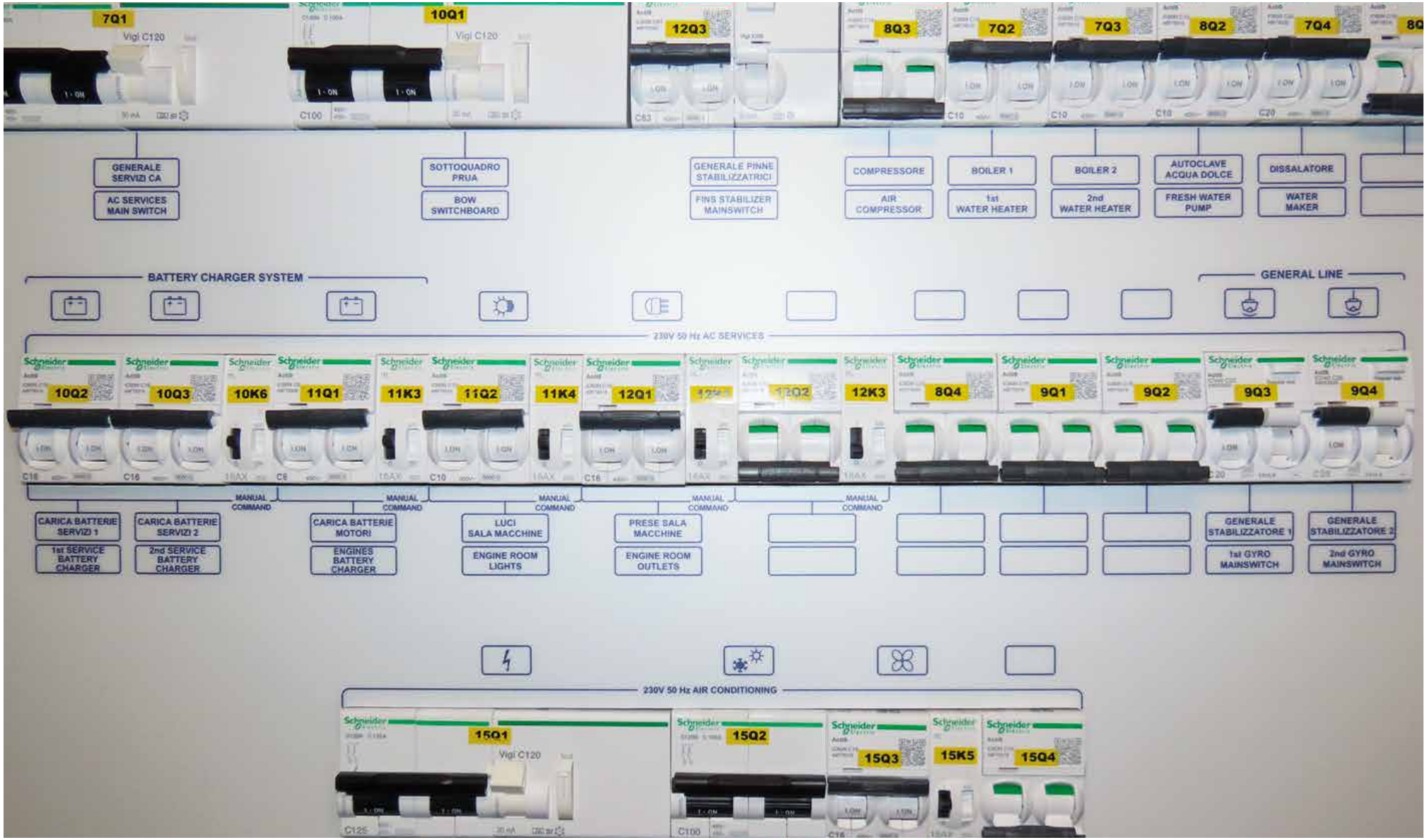
NOTE
For a detailed description refer to the electric installation manual.

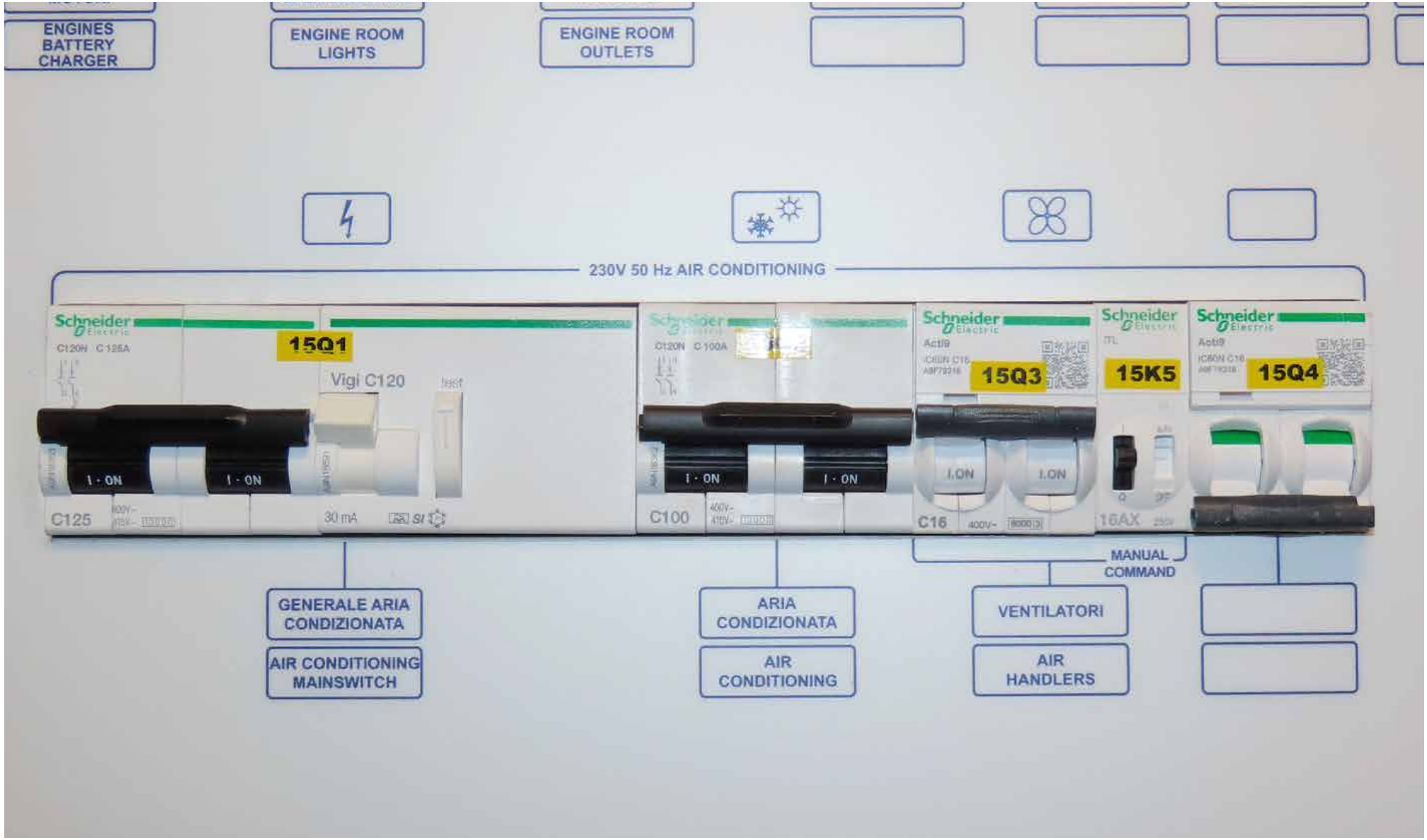


230V AC 50Hz Section

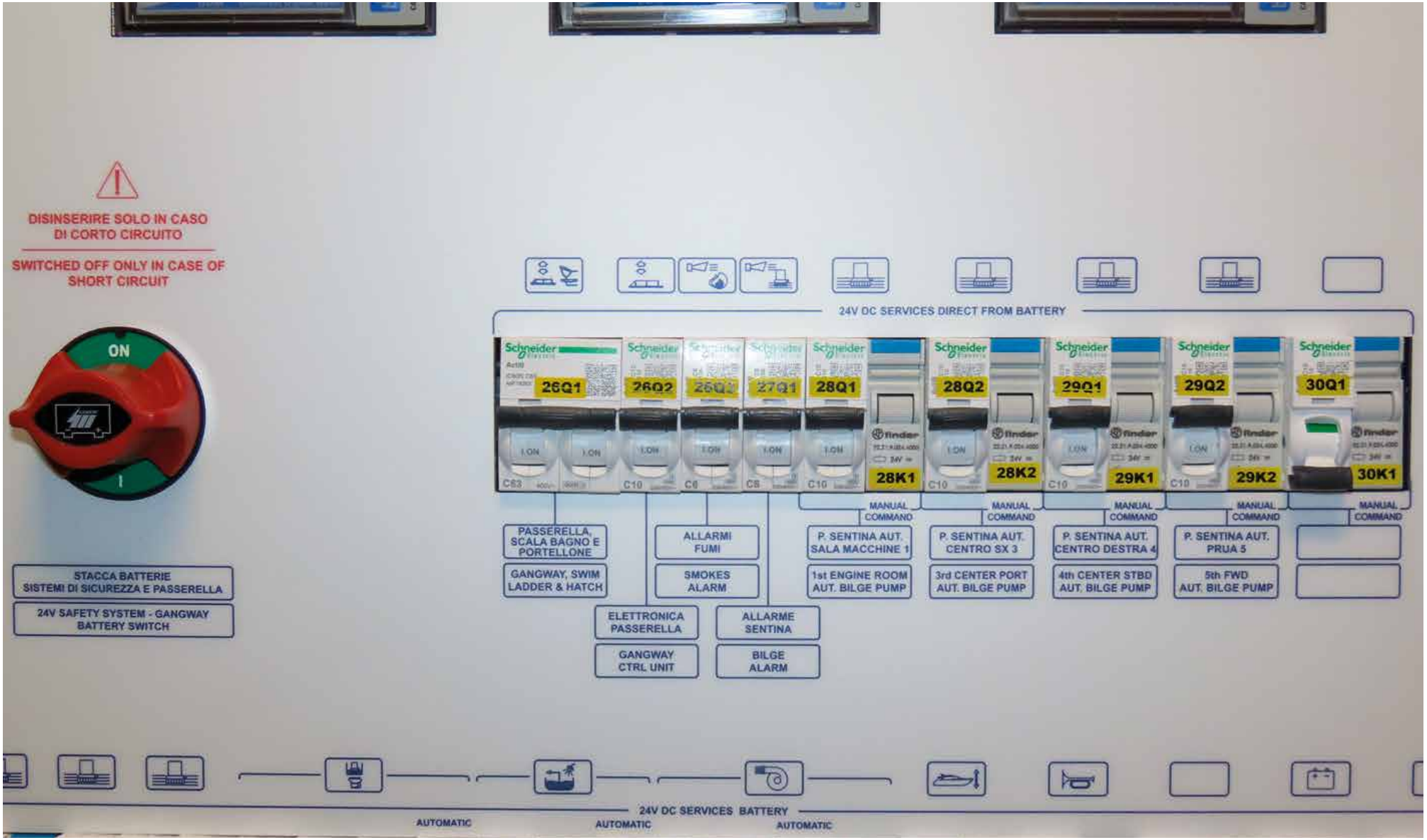


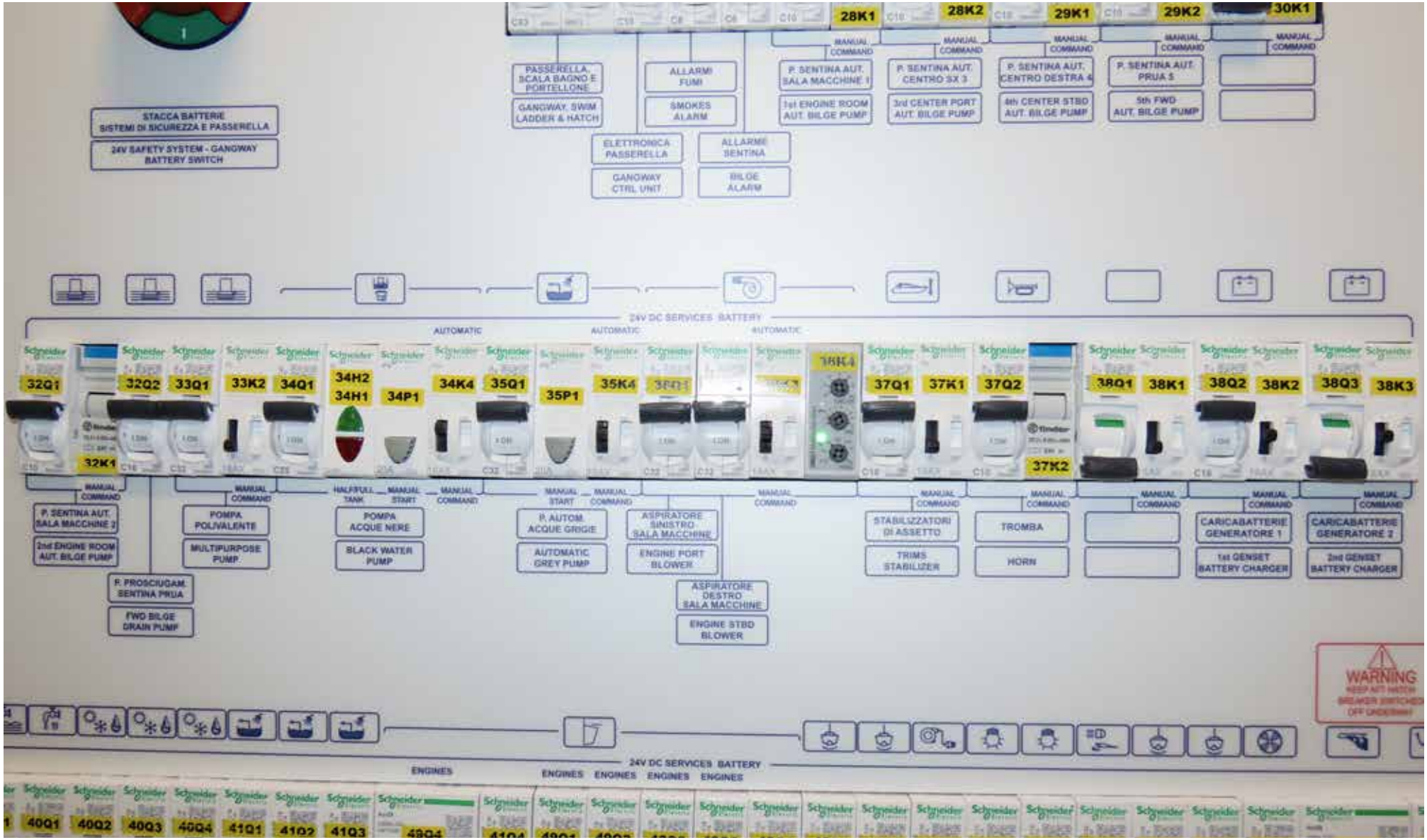

GENERATORE 1
1ST GENSET
GENERATORE 2
2ND GENSET
P. DI BANCHINA
SHORE SUPPLY
OFF
GENERATORE 1 P.
1ST GENSET READY
GENERATORE 1
1ST GENSET
P. DI BANCHINA
SHORE SUPPLY
GENERATORE 2
2ND GENSET
GENERATORE 2 P.
2nd GENSET READY
GENERATORE 1
1ST GENSET
GENERATORE 2
2ND GENSET
P. DI BANCHINA
SHORE SUPPLY
OFF
230V 50 Hz AC SERVICES
7Q1
Vigi C120
10Q1
Vigi C120
12Q3
8Q3
7Q2
7Q3
8Q2
7Q4
8Q1
GENERALE SERVIZI CA
AC SERVICES MAIN SWITCH
SOTTOQUADRO PRUA
BOW SWITCHBOARD
GENERALE PINNE STABILIZZATRICI
FINS STABILIZER MAINSWITCH
COMPRESSORE
AIR COMPRESSOR
BOILER 1
1st WATER HEATER
BOILER 2
2nd WATER HEATER
AUTOCLAVE ACQUA DOLCE
FRESH WATER PUMP
DISSALATORE
WATER MAKER
BATTERY CHARGER SYSTEM
GENERAL LINE
230V 50 Hz AC SERVICES
10Q2
10Q3
10K6
11Q1
11K3
11Q2
11K4
12Q1
12K1
12Q2
12K3
8Q4
9Q1
9Q2
9Q3
9Q4
MANUAL COMMAND
CARICA BATTERIE
CARICA BATTERIE
CARICA BATTERIE
LUCI
PRESE SALA

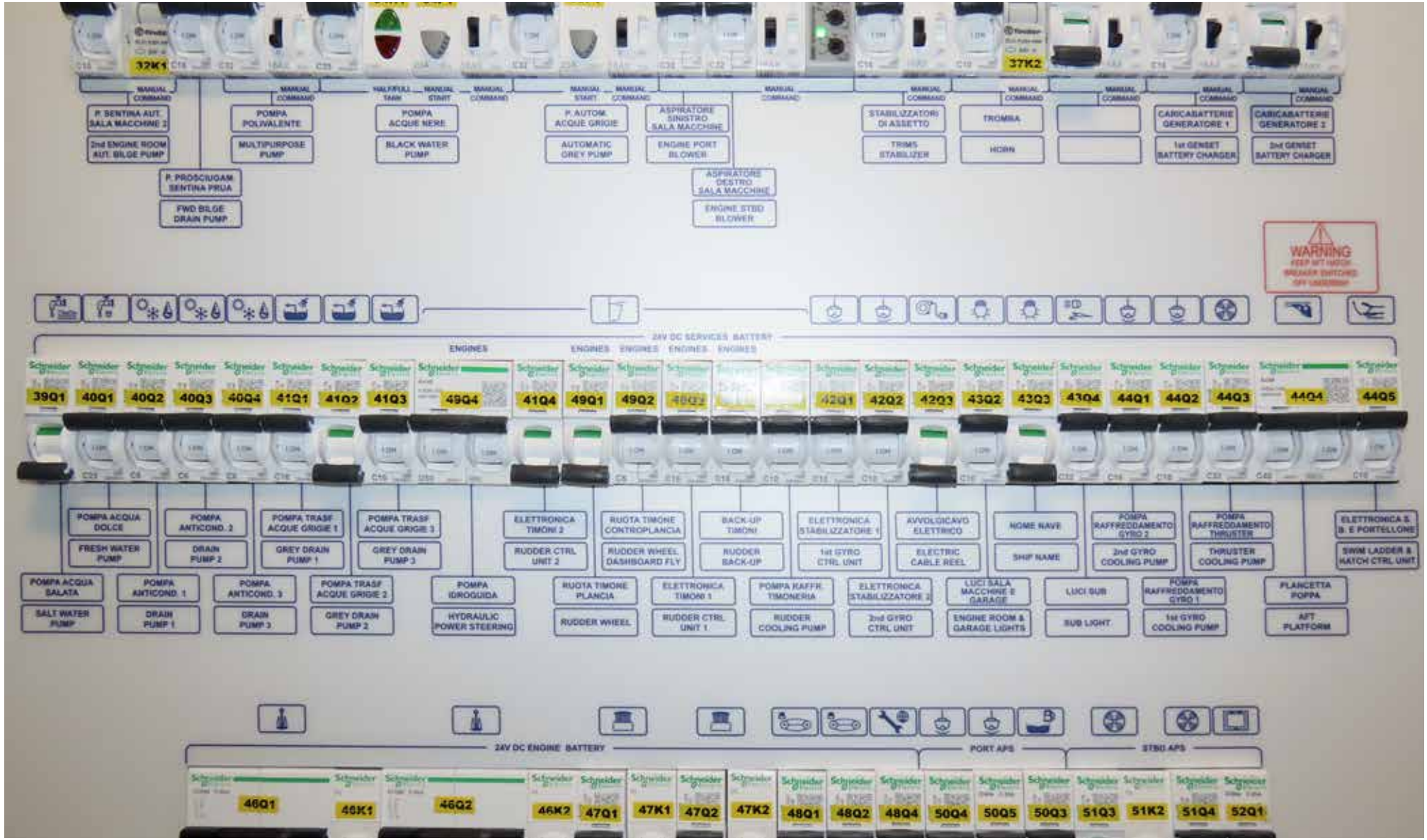

7Q1
Vigi C120
10Q1
Vigi C120
12Q3
8Q3
7Q2
7Q3
8Q2
7Q4
GENERALE SERVIZI CA
AC SERVICES MAIN SWITCH
SOTTOQUADRO PRUA
BOW SWITCHBOARD
GENERALE PINNE STABILIZZATRICI
FINS STABILIZER MAINSWITCH
COMPRESSORE
AIR COMPRESSOR
BOILER 1
1st WATER HEATER
BOILER 2
2nd WATER HEATER
AUTOCLAVE ACQUA DOLCE
FRESH WATER PUMP
DISSALATORE
WATER MAKER
BATTERY CHARGER SYSTEM
GENERAL LINE
230V 50 Hz AC SERVICES
10Q2
10Q3
10K6
11Q1
11K3
11Q2
11K4
12Q1
12K3
8Q4
9Q1
9Q2
9Q3
9Q4
MANUAL COMMAND
CARICA BATTERIE SERVIZI 1
1st SERVICE BATTERY CHARGER
CARICA BATTERIE SERVIZI 2
2nd SERVICE BATTERY CHARGER
CARICA BATTERIE MOTORI
ENGINES BATTERY CHARGER
LUCI SALA MACCHINE
ENGINE ROOM LIGHTS
PRESE SALA MACCHINE
ENGINE ROOM OUTLETS
GENERALE STABILIZZATORE 1
1st GYRO MAINSWITCH
GENERALE STABILIZZATORE 2
2nd GYRO MAINSWITCH
230V 50 Hz AIR CONDITIONING
15Q1
Vigi C120
15Q2
15Q3
15K5
15Q4

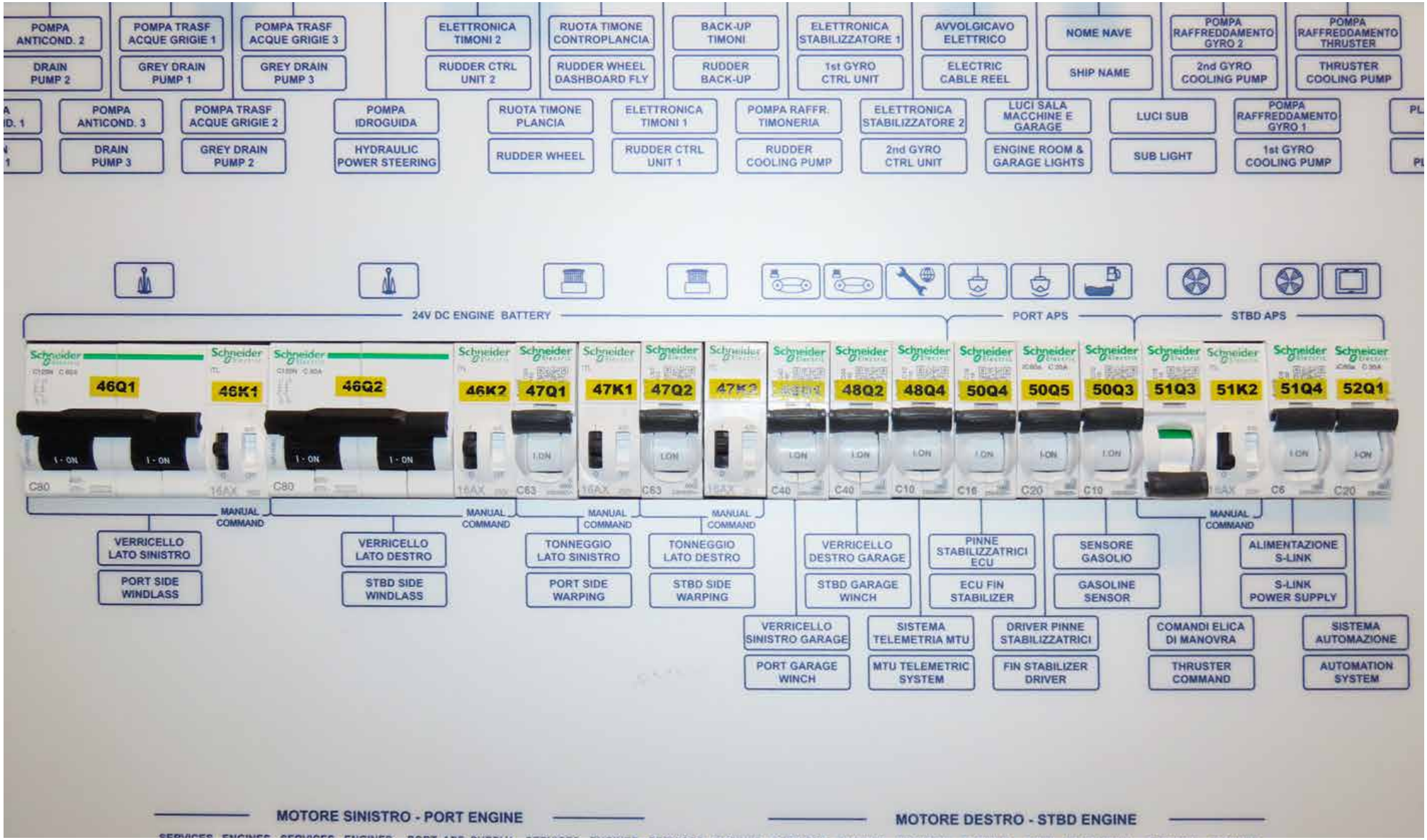

ENGINES BATTERY CHARGER
ENGINE ROOM LIGHTS
ENGINE ROOM OUTLETS
230V 50 Hz AIR CONDITIONING
15Q1
Vigi C120
15Q3
15K5
15Q4
C125
30 mA
C100
C16
16AX
MANUAL COMMAND
GENERALE ARIA CONDIZIONATA
AIR CONDITIONING MAINSWITCH
ARIA CONDIZIONATA
AIR CONDITIONING
VENTILATORI
AIR HANDLERS

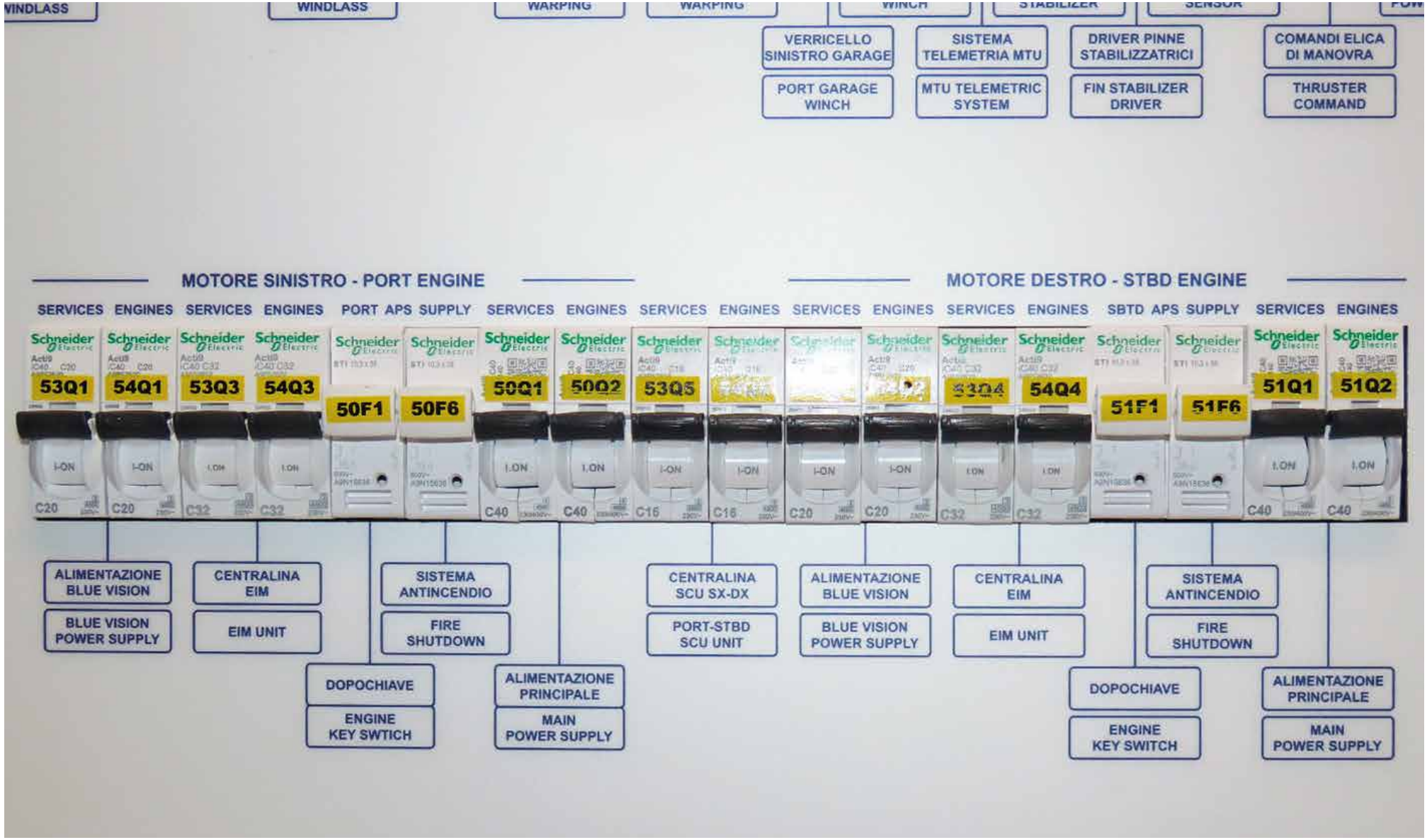
24V DC Section


DISINSERIRE SOLO IN CASO DI CORTO CIRCUITO
SWITCHED OFF ONLY IN CASE OF SHORT CIRCUIT
ON
I
STACCA BATTERIE SISTEMI DI SICUREZZA E PASSERELLA
24V SAFETY SYSTEM - GANGWAY BATTERY SWITCH
24V DC SERVICES DIRECT FROM BATTERY
26Q1
26Q2
26Q3
27Q1
28Q1
28Q2
29Q1
29Q2
30Q1
28K1
28K2
29K1
29K2
30K1
MANUAL COMMAND
PASSERELLA, SCALA BAGNO E PORTELLONE
GANGWAY, SWIM LADDER & HATCH
ALLARMI FUMI
SMOKES ALARM
P. SENTINA AUT. SALA MACCHINE 1
1st ENGINE ROOM AUT. BILGE PUMP
P. SENTINA AUT. CENTRO SX 3
3rd CENTER PORT AUT. BILGE PUMP
P. SENTINA AUT. CENTRO DESTRA 4
4th CENTER STBD AUT. BILGE PUMP
P. SENTINA AUT. PRUA 5
5th FWD AUT. BILGE PUMP
ELETTRONICA PASSERELLA
GANGWAY CTRL UNIT
ALLARME SENTINA
BILGE ALARM
24V DC SERVICES BATTERY
AUTOMATIC
AUTOMATIC
AUTOMATIC


STACCA BATTERIE SISTEMI DI SICUREZZA E PASSERELLA
24V SAFETY SYSTEM - GANGWAY BATTERY SWITCH
PASSERELLA, SCALA BAGNO E PORTELLONE
GANGWAY, SWIM LADDER & HATCH
ALLARMI FUMI
SMOKES ALARM
ELETTRONICA PASSERELLA
GANGWAY CTRL UNIT
ALLARME SENTINA
BILGE ALARM
28K1
28K2
29K1
29K2
30K1
P. SENTINA AUT. SALA MACCHINE 1
1st ENGINE ROOM AUT. BILGE PUMP
P. SENTINA AUT. CENTRO SX 3
3rd CENTER PORT AUT. BILGE PUMP
P. SENTINA AUT. CENTRO DESTRA 4
4th CENTER STBD AUT. BILGE PUMP
P. SENTINA AUT. PRUA 5
5th FWD AUT. BILGE PUMP
24V DC SERVICES BATTERY
AUTOMATIC
32Q1
32Q2
33Q1
33K2
34Q1
34H2
34H1
34P1
34K4
35Q1
35P1
35K4
35Q1
38K4
37Q1
37K1
37Q2
37K2
38Q1
38K1
38Q2
38K2
38Q3
38K3
32K1
MANUAL COMMAND
P. SENTINA AUT. SALA MACCHINE 2
2nd ENGINE ROOM AUT. BILGE PUMP
POMPA POLIVALENTE
MULTIPURPOSE PUMP
HALF FULL TANK
MANUAL START
POMPA ACQUE NERE
BLACK WATER PUMP
P. AUTOM. ACQUE GRIGIE
AUTOMATIC GREY PUMP
ASPIRATORE SINISTRO SALA MACCHINE
ENGINE PORT BLOWER
ASPIRATORE DESTRO SALA MACCHINE
ENGINE STBD BLOWER
F. PROSCIUGAM. SENTINA PRUA
FWD BILGE DRAIN PUMP
STABILIZZATORI DI ASSETTO
TRIMS STABILIZER
TROMBA
HORN
CARICABATTERIE GENERATORE 1
1st GENSET BATTERY CHARGER
CARICABATTERIE GENERATORE 2
2nd GENSET BATTERY CHARGER
WARNING
ENGINES
40Q1
40Q2
40Q3
40Q4
41Q1
41Q2
41Q3


32K1
37K2
MANUAL COMMAND
P. SENTINA AUT. SALA MACCHINE 2
2nd ENGINE ROOM AUT. BILGE PUMP
P. PROSCIUGAM. SENTINA PRUA
FWD BILGE DRAIN PUMP
POMPA POLIVALENTE
MULTIPURPOSE PUMP
HALF/FULL TANK
MANUAL START
POMPA ACQUE NERE
BLACK WATER PUMP
MANUAL START
MANUAL COMMAND
P. AUTOM. ACQUE GRIGIE
AUTOMATIC GREY PUMP
ASPIRATORE SINISTRO SALA MACCHINE
ENGINE PORT BLOWER
ASPIRATORE DESTRO SALA MACCHINE
ENGINE STBD BLOWER
STABILIZZATORI DI ASSETTO
TRIMS STABILIZER
TROMBA
HORN
CARICABATTERIE GENERATORE 1
1st GENSET BATTERY CHARGER
CARICABATTERIE GENERATORE 2
2nd GENSET BATTERY CHARGER
WARNING
24V DC SERVICES BATTERY
ENGINES
39Q1
40Q1
40Q2
40Q3
40Q4
41Q1
41Q2
41Q3
49Q4
41Q4
49Q1
49Q2
42Q1
42Q2
42Q3
43Q2
43Q3
43Q4
44Q1
44Q2
44Q3
44Q4
44Q5
POMPA ACQUA DOLCE
FRESH WATER PUMP
POMPA ANTICOND. 2
DRAIN PUMP 2
POMPA TRASF ACQUE GRIGIE 1
GREY DRAIN PUMP 1
POMPA TRASF ACQUE GRIGIE 3
GREY DRAIN PUMP 3
ELETTRONICA TIMONI 2
RUDDER CTRL UNIT 2
RUOTA TIMONE CONTROPLANCIA
RUDDER WHEEL DASHBOARD FLY
BACK-UP TIMONI
RUDDER BACK-UP
ELETTRONICA STABILIZZATORE 1
1st GYRO CTRL UNIT
AVVOLGICAVO ELETTRICO
ELECTRIC CABLE REEL
NOME NAVE
SHIP NAME
POMPA RAFFREDDAMENTO GYRO 2
2nd GYRO COOLING PUMP
POMPA RAFFREDDAMENTO THRUSTER
THRUSTER COOLING PUMP
ELETTRONICA S. B. E PORTELLONE
SWIM LADDER & HATCH CTRL UNIT
POMPA ACQUA SALATA
SALT WATER PUMP
POMPA ANTICOND. 1
DRAIN PUMP 1
POMPA ANTICOND. 3
DRAIN PUMP 3
POMPA TRASF ACQUE GRIGIE 2
GREY DRAIN PUMP 2
POMPA IDROGUIDA
HYDRAULIC POWER STEERING
RUOTA TIMONE PLANCIA
RUDDER WHEEL
ELETTRONICA TIMONI 1
RUDDER CTRL UNIT 1
POMPA KAFFR. TIMONERIA
RUDDER COOLING PUMP
ELETTRONICA STABILIZZATORE 2
2nd GYRO CTRL UNIT
LUCI SALA MACCHINE E GARAGE
ENGINE ROOM & GARAGE LIGHTS
LUCI SUB
SUB LIGHT
POMPA RAFFREDDAMENTO GYRO 1
1st GYRO COOLING PUMP
PLANCETTA POPPA
AFT PLATFORM
24V DC ENGINE BATTERY
PORT APS
STBD APS
46Q1
46K1
46Q2
46K2
47Q1
47K1
47Q2
47K2
48Q1
48Q2
48Q4
50Q4
50Q5
50Q3
51Q3
51K2
51Q4
52Q1


POMPA ANTICOND. 2
DRAIN PUMP 2
POMPA TRASF ACQUE GRIGIE 1
GREY DRAIN PUMP 1
POMPA TRASF ACQUE GRIGIE 3
GREY DRAIN PUMP 3
ELETTRONICA TIMONI 2
RUDDER CTRL UNIT 2
RUOTA TIMONE CONTROPLANCIA
RUDDER WHEEL DASHBOARD FLY
BACK-UP TIMONI
RUDDER BACK-UP
ELETTRONICA STABILIZZATORE 1
1st GYRO CTRL UNIT
AVVOLGICAVO ELETTRICO
ELECTRIC CABLE REEL
NOME NAVE
SHIP NAME
POMPA RAFFREDDAMENTO GYRO 2
2nd GYRO COOLING PUMP
POMPA RAFFREDDAMENTO THRUSTER
THRUSTER COOLING PUMP
POMPA ANTICOND. 3
DRAIN PUMP 3
POMPA TRASF ACQUE GRIGIE 2
GREY DRAIN PUMP 2
POMPA IDROGUIDA
HYDRAULIC POWER STEERING
RUOTA TIMONE PLANCIA
RUDDER WHEEL
ELETTRONICA TIMONI 1
RUDDER CTRL UNIT 1
POMPA RAFFR. TIMONERIA
RUDDER COOLING PUMP
ELETTRONICA STABILIZZATORE 2
2nd GYRO CTRL UNIT
LUCI SALA MACCHINE E GARAGE
ENGINE ROOM & GARAGE LIGHTS
LUCI SUB
SUB LIGHT
POMPA RAFFREDDAMENTO GYRO 1
1st GYRO COOLING PUMP
24V DC ENGINE BATTERY
PORT APS
STBD APS
46Q1
46K1
46Q2
46K2
47Q1
47K1
47Q2
47K2
48Q2
48Q4
50Q4
50Q5
50Q3
51Q3
51K2
51Q4
52Q1
MANUAL COMMAND
VERRICELLO LATO SINISTRO
PORT SIDE WINDLASS
VERRICELLO LATO DESTRO
STBD SIDE WINDLASS
TONNEGGIO LATO SINISTRO
PORT SIDE WARPING
TONNEGGIO LATO DESTRO
STBD SIDE WARPING
VERRICELLO DESTRO GARAGE
STBD GARAGE WINCH
PINNE STABILIZZATRICI ECU
ECU FIN STABILIZER
SENSORE GASOLIO
GASOLINE SENSOR
ALIMENTAZIONE S-LINK
S-LINK POWER SUPPLY
VERRICELLO SINISTRO GARAGE
PORT GARAGE WINCH
SISTEMA TELEMETRIA MTU
MTU TELEMETRIC SYSTEM
DRIVER PINNE STABILIZZATRICI
FIN STABILIZER DRIVER
COMANDI ELICA DI MANOVRA
THRUSTER COMMAND
SISTEMA AUTOMAZIONE
AUTOMATION SYSTEM
MOTORE SINISTRO - PORT ENGINE
MOTORE DESTRO - STBD ENGINE

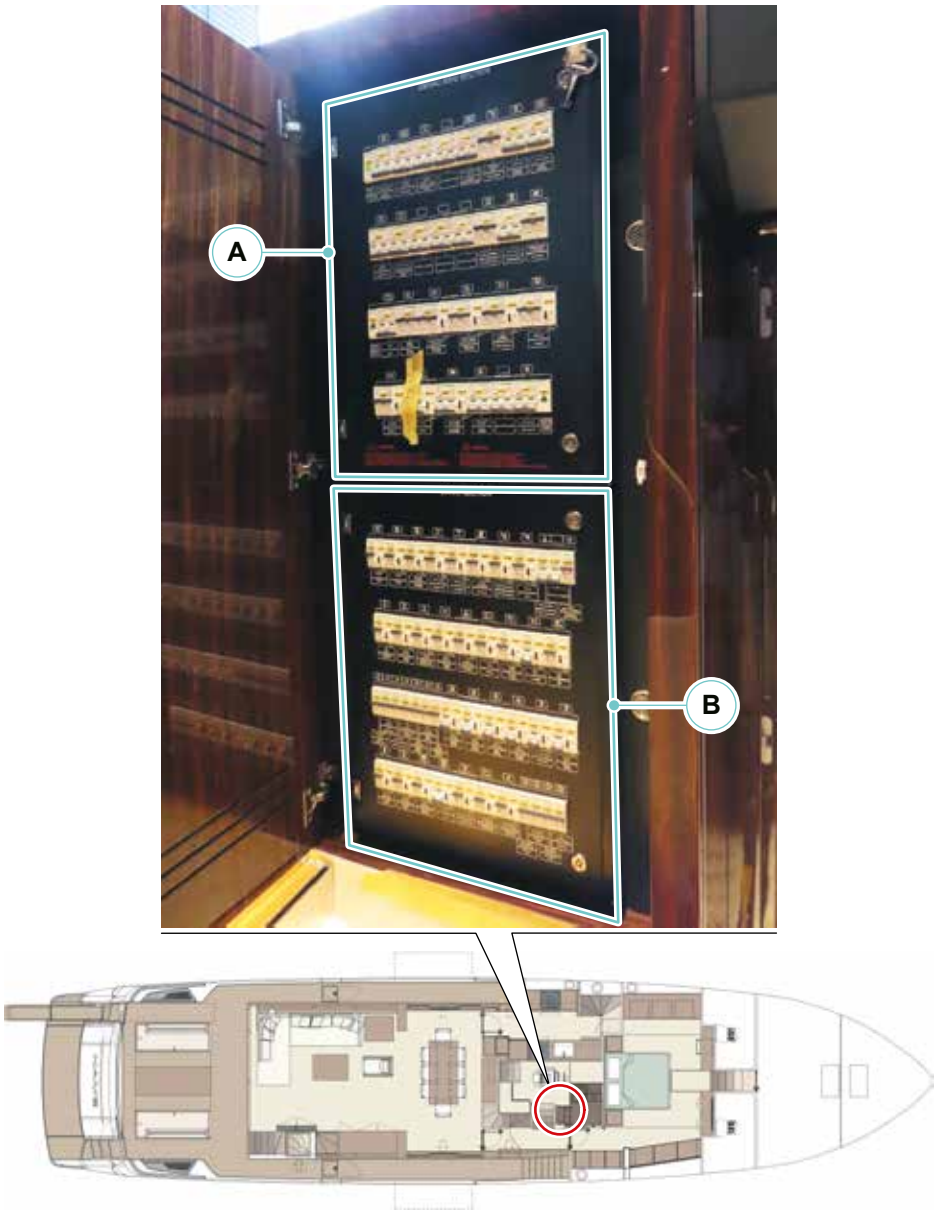

WINDLASS
WINDLASS
WARPING
WARPING
WINCH
STABILIZER
SENSOR
VERRICELLO SINISTRO GARAGE
PORT GARAGE WINCH
SISTEMA TELEMETRIA MTU
MTU TELEMETRIC SYSTEM
DRIVER PINNE STABILIZZATRICI
FIN STABILIZER DRIVER
COMANDI ELICA DI MANOVRA
THRUSTER COMMAND
MOTORE SINISTRO - PORT ENGINE
MOTORE DESTRO - STBD ENGINE
SERVICES
ENGINES
SERVICES
ENGINES
PORT APS SUPPLY
SERVICES
ENGINES
SERVICES
ENGINES
SERVICES
ENGINES
SERVICES
ENGINES
SBTD APS SUPPLY
SERVICES
ENGINES
53Q1
54Q1
53Q3
54Q3
50F1
50F6
50Q1
50Q2
53Q5
53Q4
54Q4
51F1
51F6
51Q1
51Q2
C20
C20
C32
C32
C40
C40
C16
C16
C20
C20
C32
C32
C40
C40
ALIMENTAZIONE BLUE VISION
BLUE VISION POWER SUPPLY
CENTRALINA EIM
EIM UNIT
SISTEMA ANTINCENDIO
FIRE SHUTDOWN
DOPOCHIAVE
ENGINE KEY SWTICH
ALIMENTAZIONE PRINCIPALE
MAIN POWER SUPPLY
CENTRALINA SCU SX-DX
PORT-STBD SCU UNIT
ALIMENTAZIONE BLUE VISION
BLUE VISION POWER SUPPLY
CENTRALINA EIM
EIM UNIT
SISTEMA ANTINCENDIO
FIRE SHUTDOWN
DOPOCHIAVE
ENGINE KEY SWITCH
ALIMENTAZIONE PRINCIPALE
MAIN POWER SUPPLY

Main deck electrical panel:
To the right of the ladder leading to the pilothouse, there is an electrical panel equipped with various magneto-thermal switches to protect the various uses in the galley and on the main deck.
To make the description of the electrical panel more understandable, the following main sections have been identified:

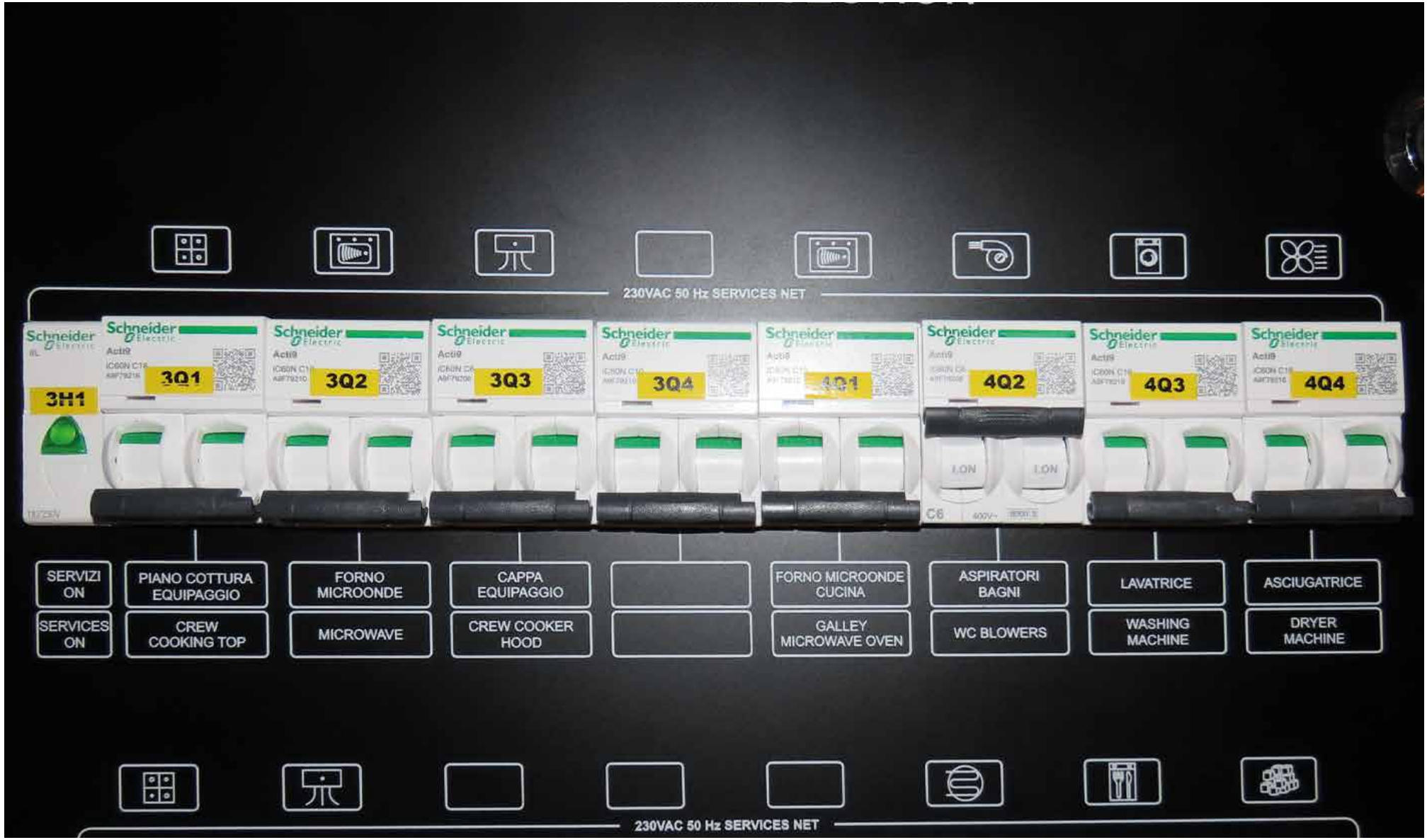
A. 230V AC 50Hz Section
B. 24V DC Section

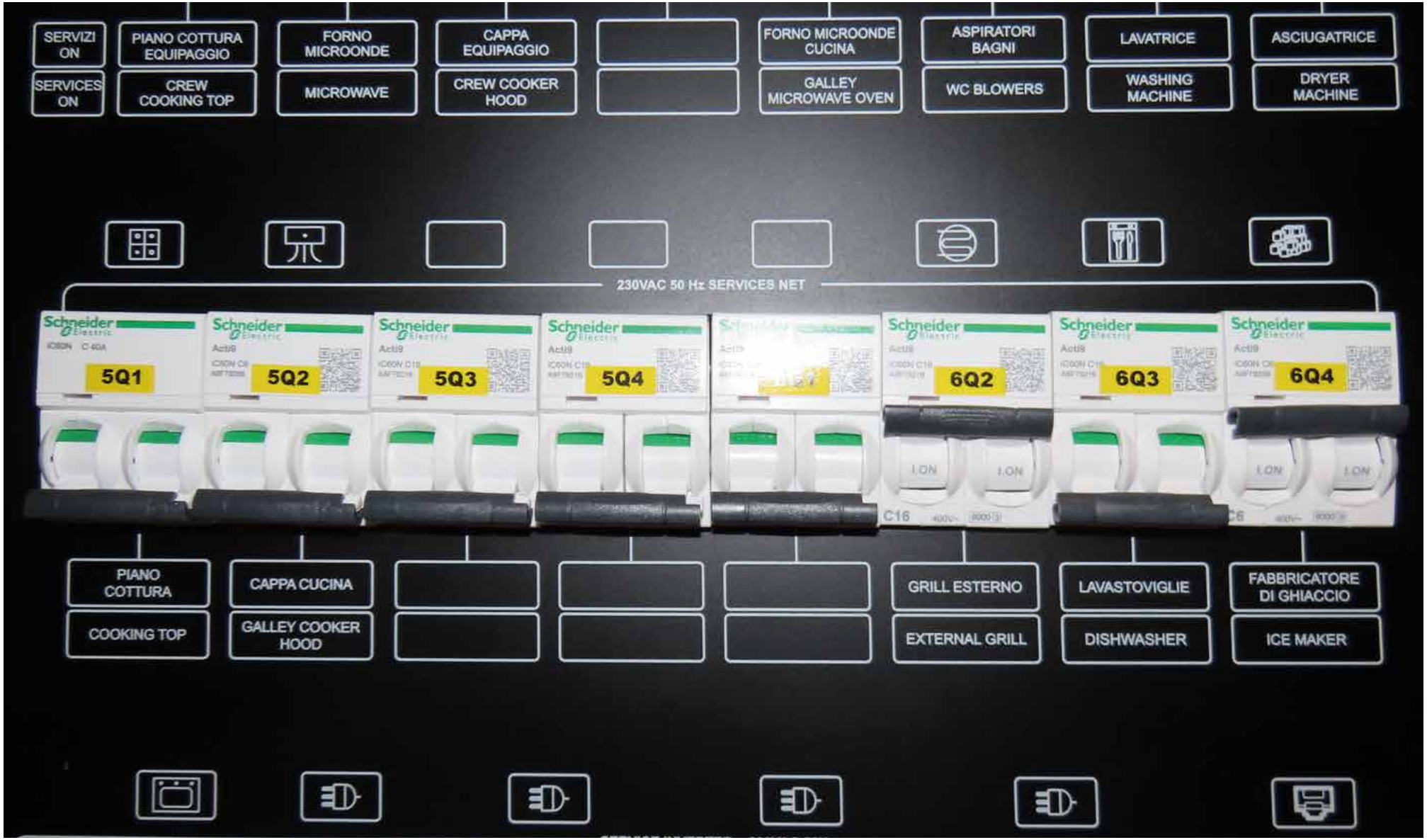
CAUTION
Before removing the front panel for maintenance, stop the power generators, disconnect the shore sockets and the inverter.

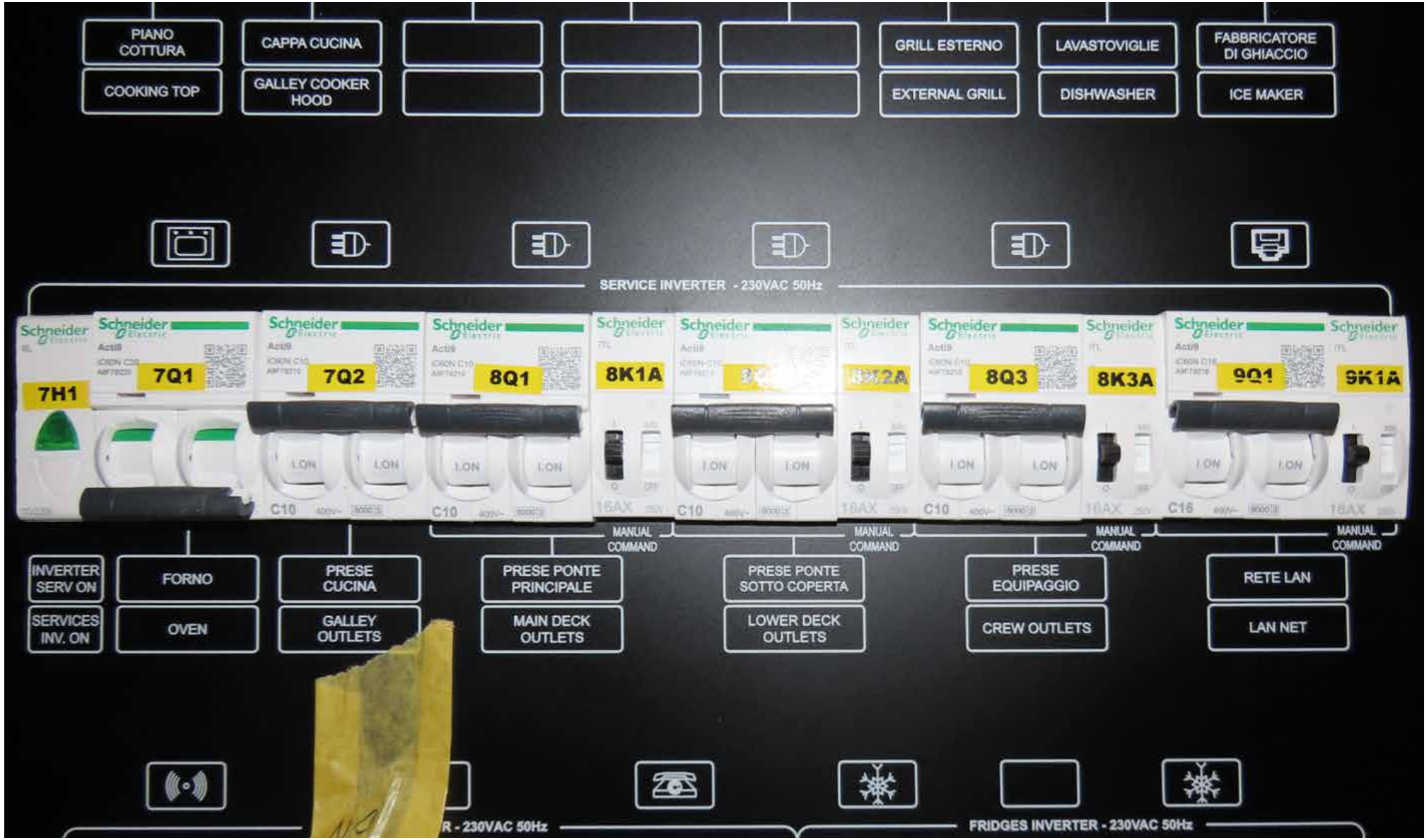
NOTE
For a detailed description refer to the electric installation manual.

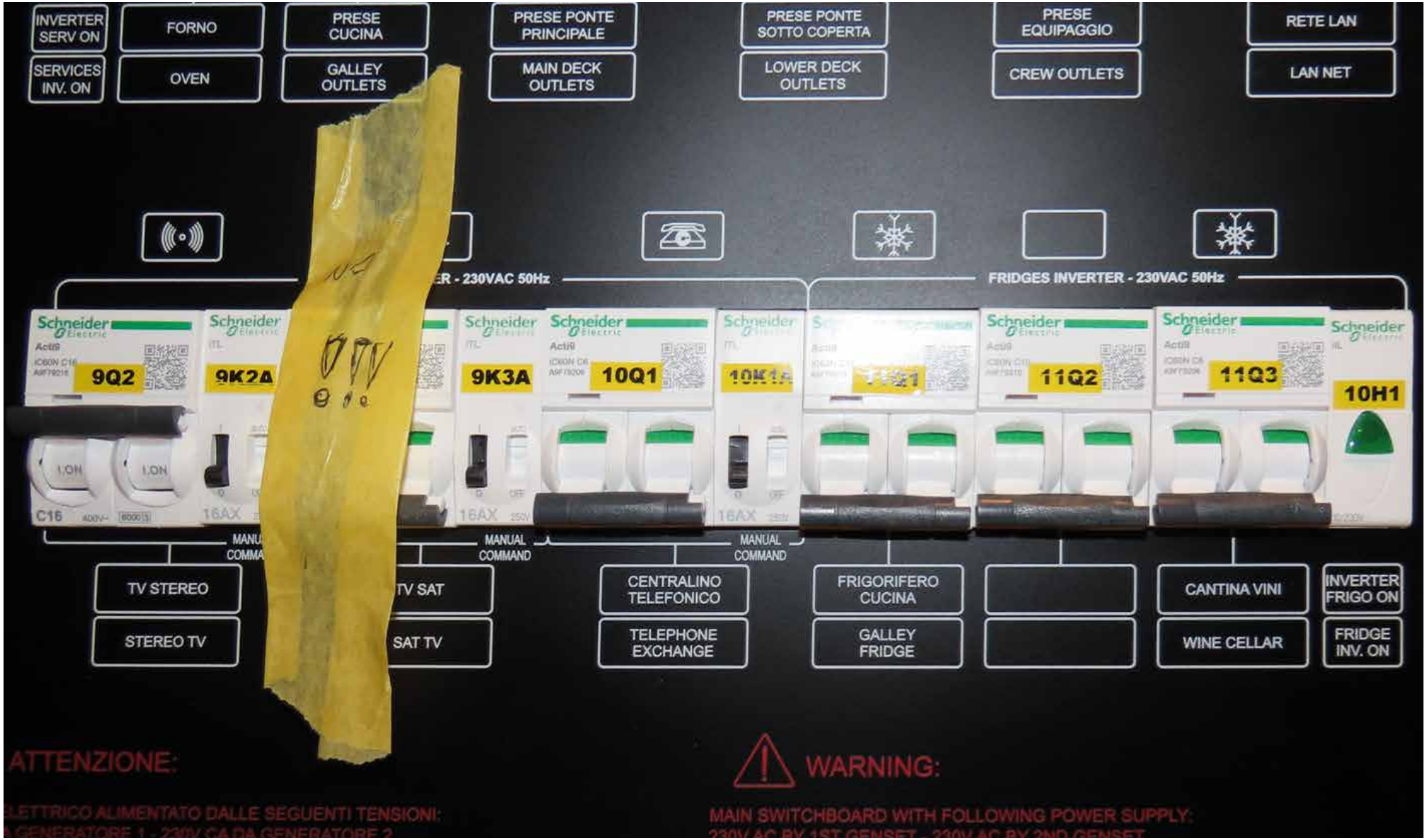


230V AC 50Hz Section

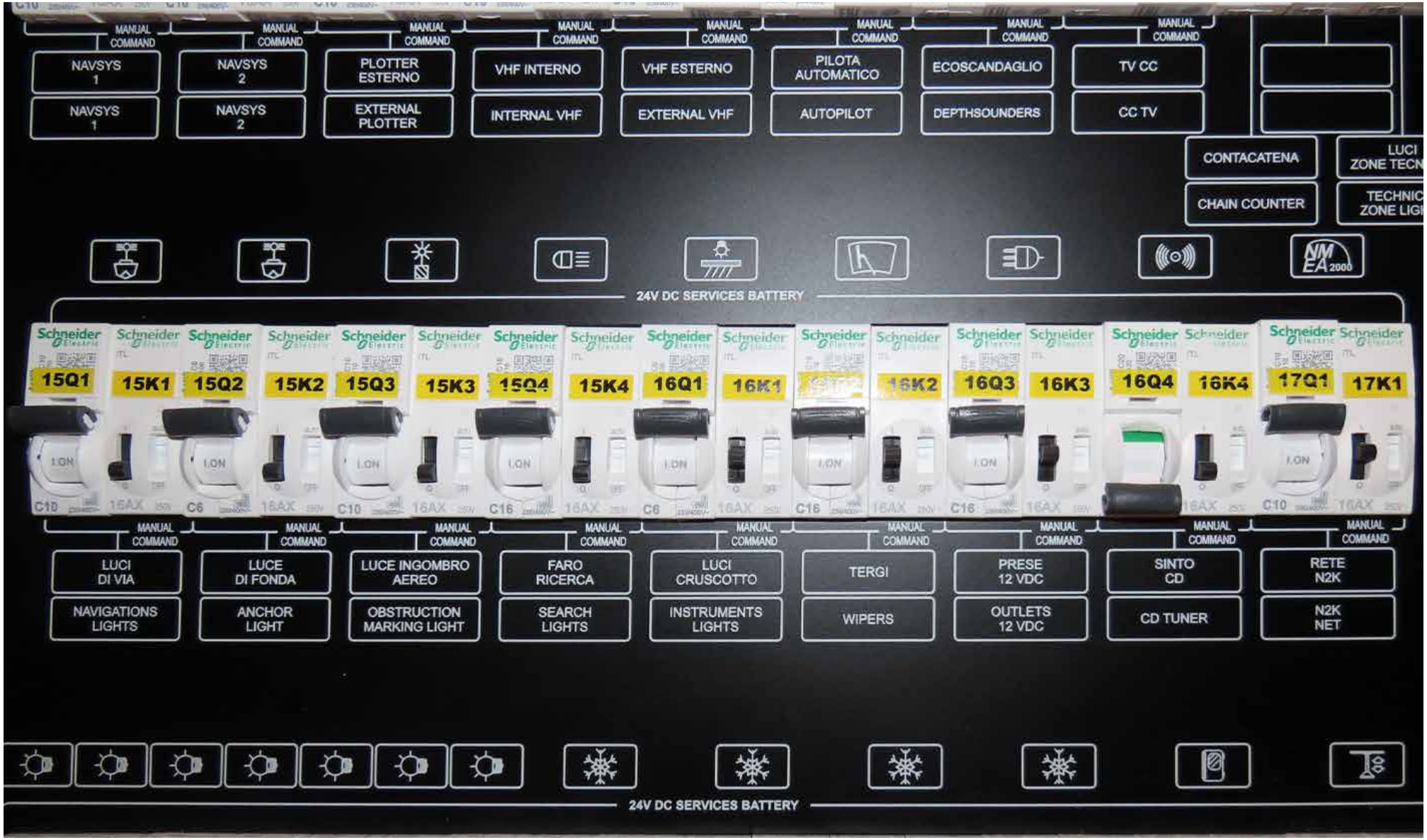


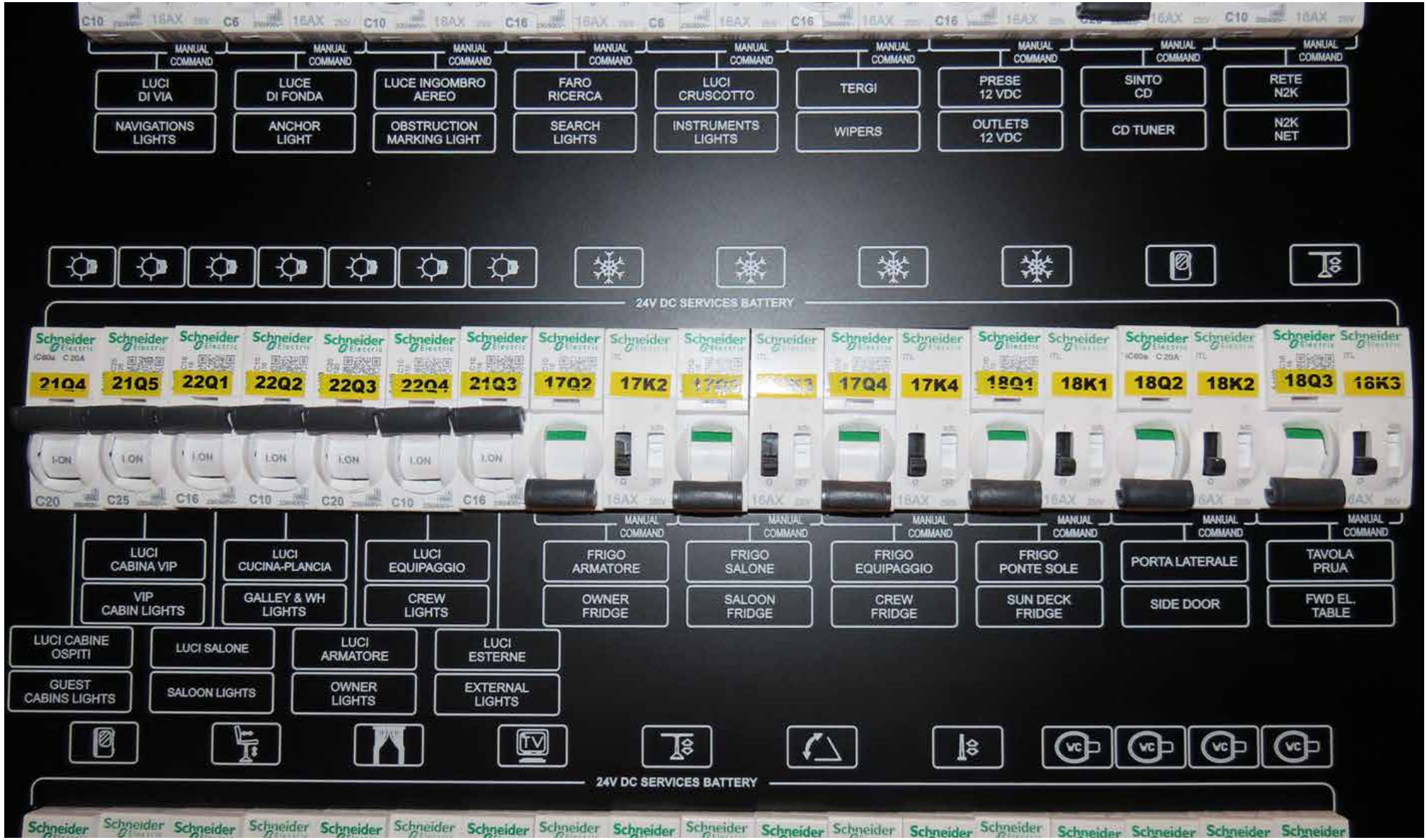

SERVIZI ON
SERVICES ON
PIANO COTTURA EQUIPAGGIO
CREW COOKING TOP
FORNO MICROONDE
MICROWAVE
CAPPA EQUIPAGGIO
CREW COOKER HOOD
FORNO MICROONDE CUCINA
GALLEY MICROWAVE OVEN
ASPIRATORI BAGNI
WC BLOWERS
LAVATRICE
WASHING MACHINE
ASCIUGATRICE
DRYER MACHINE
230VAC 50 Hz SERVICES NET
5Q1
5Q2
5Q3
5Q4
6Q2
6Q3
6Q4
PIANO COTTURA
COOKING TOP
CAPPA CUCINA
GALLEY COOKER HOOD
GRILL ESTERNO
EXTERNAL GRILL
LAVASTOVIGLIE
DISHWASHER
FABBRICATORE DI GHIACCIO
ICE MAKER

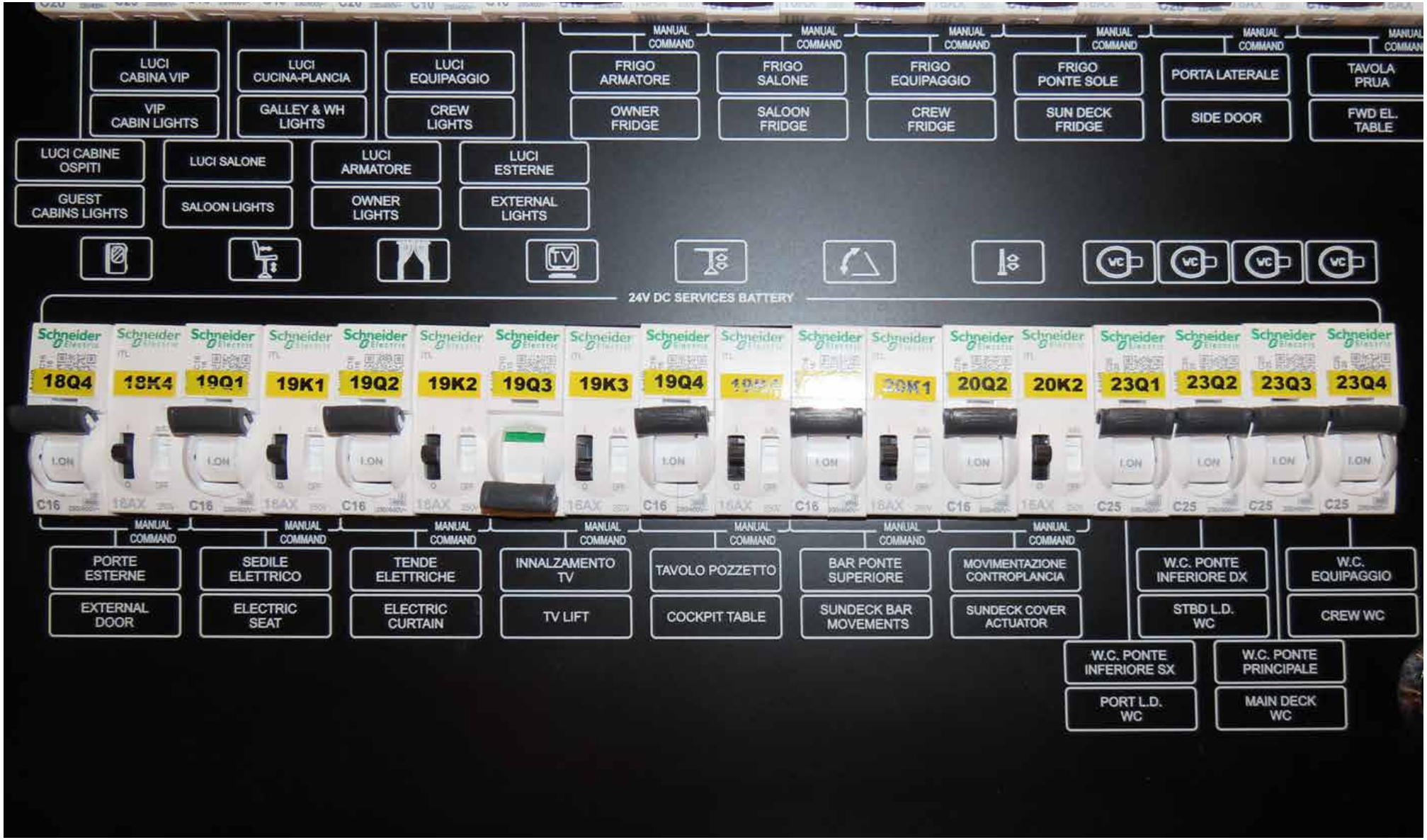

PIANO COTTURA
COOKING TOP
CAPPA CUCINA
GALLEY COOKER HOOD
GRILL ESTERNO
EXTERNAL GRILL
LAVASTOVIGLIE
DISHWASHER
FABBRICATORE DI GHIACCIO
ICE MAKER
SERVICE INVERTER - 230VAC 50Hz
7H1
7Q1
7Q2
8Q1
8K1A
8Q3
8K3A
9Q1
9K1A
MANUAL COMMAND
INVERTER SERV ON
SERVICES INV. ON
FORNO
OVEN
PRESE CUCINA
GALLEY OUTLETS
PRESE PONTE PRINCIPALE
MAIN DECK OUTLETS
PRESE PONTE SOTTO COPERTA
LOWER DECK OUTLETS
PRESE EQUIPAGGIO
CREW OUTLETS
RETE LAN
LAN NET
FRIDGES INVERTER - 230VAC 50Hz


INVERTER SERV ON
SERVICES INV. ON
FORNO
OVEN
PRESE CUCINA
GALLEY OUTLETS
PRESE PONTE PRINCIPALE
MAIN DECK OUTLETS
PRESE PONTE SOTTO COPERTA
LOWER DECK OUTLETS
PRESE EQUIPAGGIO
CREW OUTLETS
RETE LAN
LAN NET
FRIDGES INVERTER - 230VAC 50Hz
9Q2
9K2A
9K3A
10Q1
11Q2
11Q3
10H1
MANUAL COMMAND
MANUAL COMMAND
MANUAL COMMAND
TV STEREO
STEREO TV
TV SAT
SAT TV
CENTRALINO TELEFONICO
TELEPHONE EXCHANGE
FRIGORIFERO CUCINA
GALLEY FRIDGE
CANTINA VINI
WINE CELLAR
INVERTER FRIGO ON
FRIDGE INV. ON
ATTENZIONE:
WARNING:
MAIN SWITCHBOARD WITH FOLLOWING POWER SUPPLY:

24V DC Section


MANUAL COMMAND
NAVSYS 1
NAVSYS 1
NAVSYS 2
NAVSYS 2
PLOTTER ESTERNO
EXTERNAL PLOTTER
VHF INTERNO
INTERNAL VHF
VHF ESTERNO
EXTERNAL VHF
PILOTA AUTOMATICO
AUTOPILOT
ECOSCANDAGLIO
DEPTHSOUNDERS
TV CC
CC TV
CONTACATENA
CHAIN COUNTER
LUCI ZONE TECN
TECHNIC ZONE LIGI
NMEA 2000
24V DC SERVICES BATTERY
15Q1
15K1
15Q2
15K2
15Q3
15K3
15Q4
15K4
16Q1
16K1
16K2
16Q3
16K3
16Q4
16K4
17Q1
17K1
LUCI DI VIA
NAVIGATIONS LIGHTS
LUCE DI FONDA
ANCHOR LIGHT
LUCE INGOMBRO AEREO
OBSTRUCTION MARKING LIGHT
FARO RICERCA
SEARCH LIGHTS
LUCI CRUSCOTTO
INSTRUMENTS LIGHTS
TERGI
WIPERS
PRESE 12 VDC
OUTLETS 12 VDC
SINTO CD
CD TUNER
RETE N2K
N2K NET
24V DC SERVICES BATTERY


MANUAL COMMAND
LUCI DI VIA
NAVIGATIONS LIGHTS
LUCE DI FONDA
ANCHOR LIGHT
LUCE INGOMBRO AEREO
OBSTRUCTION MARKING LIGHT
FARO RICERCA
SEARCH LIGHTS
LUCI CRUSCOTTO
INSTRUMENTS LIGHTS
TERGI
WIPERS
PRESE 12 VDC
OUTLETS 12 VDC
SINTO CD
CD TUNER
RETE N2K
N2K NET
24V DC SERVICES BATTERY
21Q4
21Q5
22Q1
22Q2
22Q3
22Q4
21Q3
17Q2
17K2
17Q4
17K4
18Q1
18K1
18Q2
18K2
18Q3
18K3
LUCI CABINA VIP
VIP CABIN LIGHTS
LUCI CUCINA-PLANCIA
GALLEY & WH LIGHTS
LUCI EQUIPAGGIO
CREW LIGHTS
FRIGO ARMATORE
OWNER FRIDGE
FRIGO SALONE
SALOON FRIDGE
FRIGO EQUIPAGGIO
CREW FRIDGE
FRIGO PONTE SOLE
SUN DECK FRIDGE
PORTA LATERALE
SIDE DOOR
TAVOLA PRUA
FWD EL. TABLE
LUCI CABINE OSPITI
GUEST CABINS LIGHTS
LUCI SALONE
SALOON LIGHTS
LUCI ARMATORE
OWNER LIGHTS
LUCI ESTERNE
EXTERNAL LIGHTS
24V DC SERVICES BATTERY


LUCI CABINA VIP
VIP CABIN LIGHTS
LUCI CUCINA-PLANCIA
GALLEY & WH LIGHTS
LUCI EQUIPAGGIO
CREW LIGHTS
MANUAL COMMAND
FRIGO ARMATORE
OWNER FRIDGE
FRIGO SALONE
SALOON FRIDGE
FRIGO EQUIPAGGIO
CREW FRIDGE
FRIGO PONTE SOLE
SUN DECK FRIDGE
PORTA LATERALE
SIDE DOOR
TAVOLA PRUA
FWD EL. TABLE
LUCI CABINE OSPITI
GUEST CABINS LIGHTS
LUCI SALONE
SALOON LIGHTS
LUCI ARMATORE
OWNER LIGHTS
LUCI ESTERNE
EXTERNAL LIGHTS
24V DC SERVICES BATTERY
18Q4
18K4
19Q1
19K1
19Q2
19K2
19Q3
19K3
19Q4
20K1
20Q2
20K2
23Q1
23Q2
23Q3
23Q4
C16
C25
PORTE ESTERNE
EXTERNAL DOOR
SEDILE ELETTRICO
ELECTRIC SEAT
TENDE ELETTRICHE
ELECTRIC CURTAIN
INNALZAMENTO TV
TV LIFT
TAVOLO POZZETTO
COCKPIT TABLE
BAR PONTE SUPERIORE
SUNDECK BAR MOVEMENTS
MOVIMENTAZIONE CONTROPLANCIA
SUNDECK COVER ACTUATOR
W.C. PONTE INFERIORE DX
STBD L.D. WC
W.C. EQUIPAGGIO
CREW WC
W.C. PONTE INFERIORE SX
PORT L.D. WC
W.C. PONTE PRINCIPALE
MAIN DECK WC

7.3 BATTERY SET

The batteries are normally charged by the alternators during the operation of the engines. As an alternative, you can recharge them with the battery charger from shore or with the generator.

Description	Element number	Features element
Engine start	4	12 V 220 Ah
Generator start	2	12 V 180 Ah
Thruster battery	/	48 V
Services batteries	12	12 V 640 Ah

WARNING
The batteries left unloaded over long periods of not operation, loose progressively their charge, until they become completely flat and get irreparably damaged.

WARNING
The thruster battery set must be replaced only with sealed batteries type VRLA.

DANGER
NEVER obstruct the air intakes of the battery boxes as natural ventilation must always be allowed so that the batteries do not overheat.

WARNING
Do not lay objects on the cases containing the batteries.

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 gas: do not approach flames, sparkles or smoke near it. If the battery is used or charged in a closed area, ensure ventilation. Do not check the battery charge by short-circuiting the terminals with metal tools: use a densimeter 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.

7.3.1 Maintenance of the batteries

Component	Maintenance	Notes and precautions
Batteries	Battery check (accumulators)	When the yacht is not in use, have the battery terminals disconnected, or leave them all connected and have periodically all batteries charged (generator included).

CAUTION

In case of contact with the batteries electrolyte wash contaminated part with fresh water for at least 15 minutes and ask for a doctor.

CAUTION

Remove the bracelets, rings and any other jewellery before working on the batteries.

CAUTION

It is necessary to keep the batteries charged at all times and to recharge them periodically even when the yacht is left unattended. If the charge level drops to a minimum, it may be irreparably damaged.

CAUTION

Monitor the voltage of the engine and services 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 has to be monitored and if this situation lasts for too long, the magneto-thermal switches of the battery chargers must be disconnected.

CAUTION

Check the state of the batteries checking that there are no traces of electrolytic corrosion on the poles and terminals of the connections; in this case, contact SERVICE and replace the elements that present the problem.

7.3.2 Battery check

Carry out following checks:
Terminal 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;
- Identify positive and negative cables, prior to connecting (connect the positive terminal first and then the negative, in order to avoid sparkles).

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.

DANGER

Always remove the negative terminal (-) for ground connection first and connect it last.

DANGER

Electrolyte may cause burns and serious injuries to eyes. Wear safety goggles and protective clothing.

7.4 BATTERY BREAKER PANEL

The manually operated battery disconnection panels is located on the system room access ladder.
The battery isolator panels are divided as follows:

- Engine battery breaker panel;
- Parallel batteries service-engines;
- Service battery disconnection panel.

CAUTION

Do not disconnect the battery breaker switches with the engines running because the engine alternators might get damaged.

CAUTION

Use the “Uses-engine parallel connection” breaker only if strictly necessary and disconnect it as soon as possible.

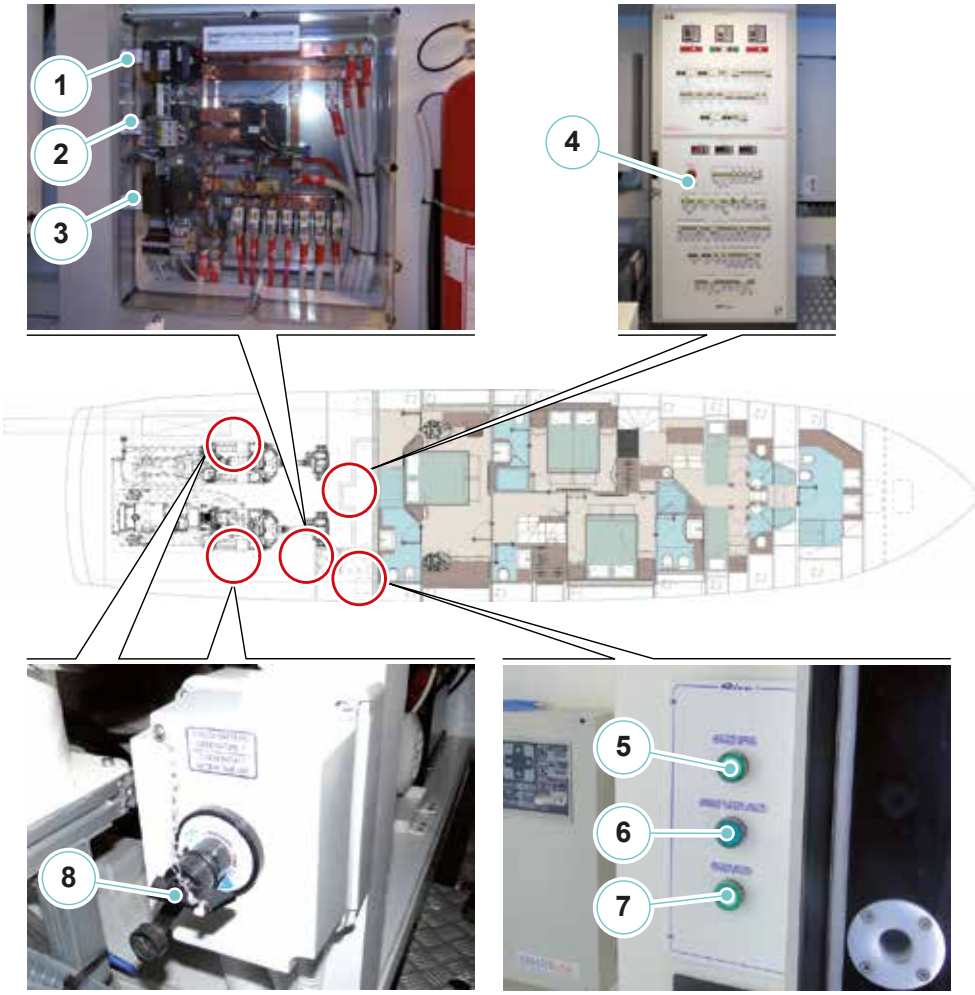
CAUTION

The battery switch parallel services / engines must be used only if the engine batteries are not charged enough. The switch parallel batteries must be operated only with the switches in banks link button batteries services and engines ON.

DANGER

Keep the breaker switch of the consumers direct to the service battery in the ON position. Section only in case of maintenance.

1. Manual engine battery breaker
2. Parallel manual service-engines breaker
3. Manual battery breaker services
4. Battery breakers for safety systems and gangways
5. Battery breaker services
6. Parallel services - engines
7. Battery breaker engines
8. Battery breaker generators



7.5 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..
- Does not 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.

To be able to supply the yacht's electrical system in order to provide for the operation of the various on-board systems, a connection has been provided for the electrical connection from the 230V 100A 2-poles plus ground 50 Hz shore located on the port side in the area below the 2nd step that access the aft cockpit. The connection is tin-tight and guided in compliance with standards and safety technologies.

By means of the control panel, place in engine room, it is possible to check and to monitor the electric parameters, this facilitates the prevention of possible faults and malfunctioning and increases the safety of navigation.

To use the electric power supply from shore:

- Open (OFF) the general AC switch for shore-side socket.
- Open (OFF) the switch on the column on the quayside.
- Connect the power cord.
- Turn ON the switch on the shore column.
- Turn ON the shore magneto-thermal switch.
- Close (ON) the general magneto-thermal on the shoreside electrical panel in engine room.
- Before closing the thermals of all the uses, check on the multimeters the correct voltage present.

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.

CAUTION

To cut the electric power supply from shore:

- Set to off the magneto-thermal switch relevant to the shore socket in use inside the steering gear compartment;
- Place to off the button on the main electrical panel;
- Set to off the protection on shore column;
- First disconnect the power supply cable from the shore power supply source (shore column), then from the services.

CAUTION

If the warning lights on the synoptic panel and on the shoreside electrical panel are lit, this means that the electric socket for shore power supply is plugged.

It occurs very often to find shore plugs with dimensions not compatible with those on the ship; in this case it is necessary to address to the Port Authority and to get a new plug or an adapter.
Follow the opposite procedure to disconnect shore electric power supply.

To perform maintenance on the power supply from shore:

- In a marine environment, all exposed metallic segments of cables and ducts, must be cleaned periodically with fresh water, while the shore power supply is not in use. Dry and spray with an anti-humidity product.
- Periodically apply a vinyl protector on the cable cover.

DANGER

Do not leave shore power supply connected if nobody is on board.

WARNING

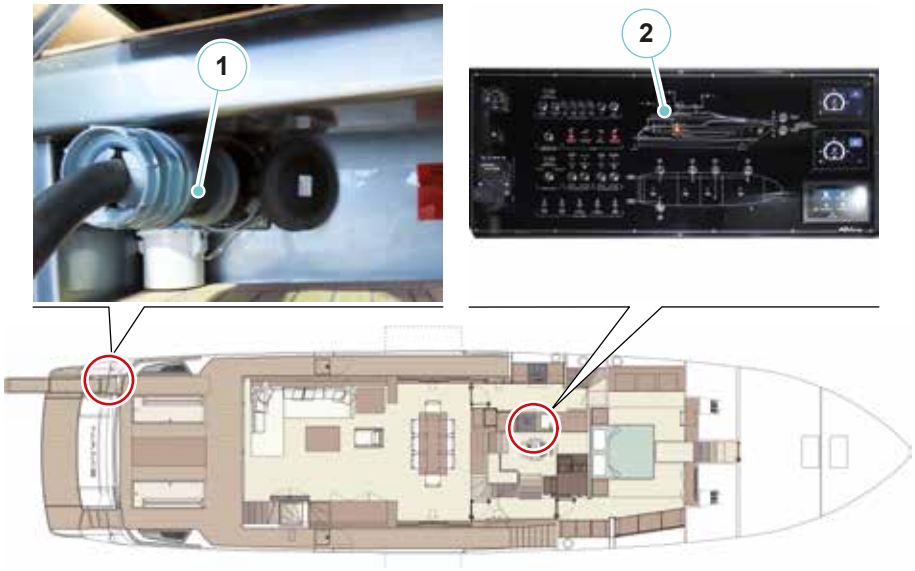
Do not allow that cable end of shore power supply to floats in the water. This can cause an electric field and following injuries or even the death of the swimmers nearby.

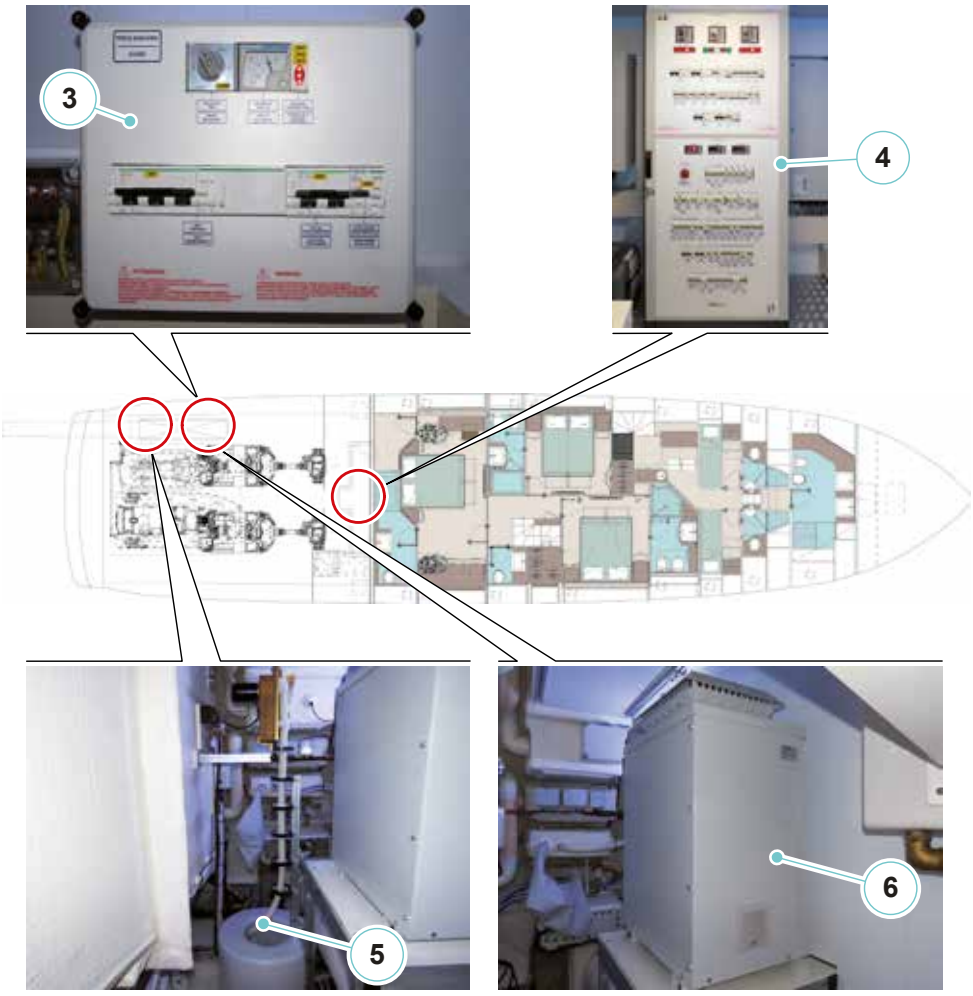
MAINTENANCE

At least once a month check the status of the outer sheath.
At least once a month check the status of the electric contacts and eventually protect them with proper products.
At least once a month check the status of the shore socket and eventually clean it.

CAUTION

Disconnect the shore power supply connections when the system is not in use.





1. Shoreside socket
2. Power supply indicator from shore on synoptic panel
3. Shoreside electrical panel
4. Main electrical panel
5. Shore connection cable reel (optional)
6. Transformer

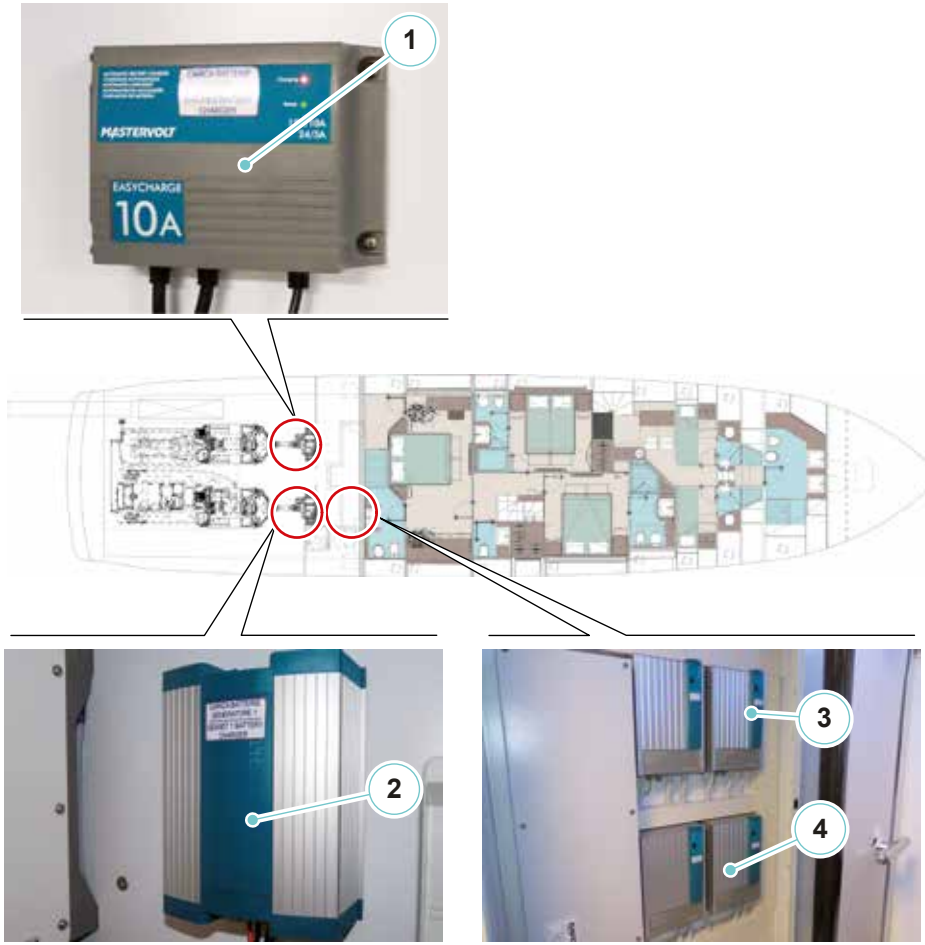
DANGER

Before carrying out any intervention on the electric system, disconnect all circuits and the shore plug.

DANGER

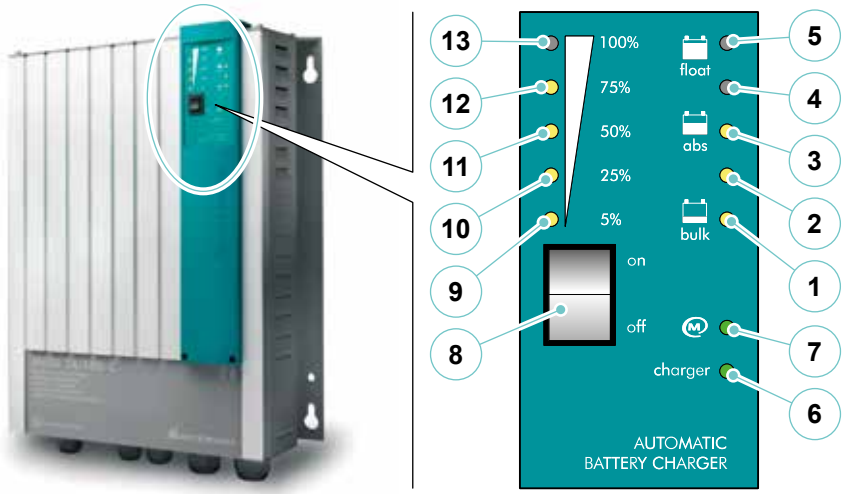
Risk of electric shock from leakage currents. Never swim in waters near harbours or marinas.

7.6 BATTERY CHARGER



1. Engine battery chargers
2. Generator battery charger
3. Service battery charger 1
4. Service battery charger 2

At the edge of your yacht there are three fully automatic high-efficiency battery chargers. They feature an optimized charge technique to charge batteries quickly and safely, while feeding the connected uses. In addition, they are protected against short circuits, overload and high temperatures (engine room).
On the front side of the chargers, a capacity gauge gives you some information on the residual capacity of the batteries, like the fuel level gauge of a car. The more LEDs are lit, the more the battery is charged.



Energisation
The battery charger is energized when the switch (8) 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 (8) 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 uses/loads.

CAUTION
Disconnect the shore power supply connections when the system is not in use.

LEDs on	Meaning
Normal operation: the green light of LED no. 6 turns on	
1	Battery charger On
1+2	U output > 27.6V
1+2+3	U output = absorption (28.5V)
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

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

7.6.1 Battery charger maintenance

Component	Maintenance	Notes and precautions
Battery charger	Inspection Charge output	At least two or three times a year, have the connection of each wire checked by skilled personnel for looseness or oxidation. Keep the battery charger dry, clean and away from dust in order to ensure a good dissipation of heat. Periodically check the good condition of the cooling fan.

DANGER

Do not work on the battery charger or on the electric system if they are still connected to a current source. Disconnect the mains supply before connecting or disconnecting the battery.
Modification to the electric system must be carried out exclusively by skilled personnel and only after the approval of RIVA.

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

EXPLOSIVE GASES - AVOID FLAMES OR SPARKLES
Position the battery in a well ventilated area.

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.

7.6.2 Battery charger check

DANGER

Before operating on the battery charger, disable the generators start and cut-off the shore power supply.

This device can operate in a reliable and optimal way, only if following operations are performed:

- Check that all breakers and indicator lights are working, the wiring does not present any signs of cuts and all parts are clean and free from oxidation;
- Remove the chassis and check the electronic boards for oxidation. Clean with deoxidiser if necessary;
- Protect the electric contacts by using an appropriate product (DC4);
- Reinstall the casing after cleaning;
- Check at least once a year the connection of each cable (for loose connections, etc.);
- Keep the battery charger dry, clean and in a dedusted area to ensure a good dissipation of heat.

WARNING

All maintenance operations listed must be performed only by skilled personnel.

DANGER

NEVER obstruct the air intakes of the battery boxes, as natural ventilation must always be allowed so that the batteries do not overheat.

Charge output

For a good operation, batteries must not be discharged below 30-40% of their capacity, therefore, always start recharging them, when this charge level is reached.
The battery charger is equipped with a temperature sensor located close to the batteries. According to the temperature value detected, together with the value of residual capacity of the batteries, the charger automatically adjusts the charging voltage according to temperature, thus remarkably increasing battery life. Moreover, besides the thermal compensation, the battery charger can also compensate the voltage drop due to the dispersion of the connection cables. The battery charger is provided with an integrated warning light which activates in case certain adjustment values are exceeded.

WARNING

With running engines, the alternators are charging the batteries; so it is advisable to keep the charger switch set to OFF, in order to damaging the alternators.

CAUTION

Should the battery voltage drop under 18V, the battery charger will supply a current corresponding to the 25% of the maximum one and the recharge time will consequently increase.

7.7 INVERTER SERVICES AND FRIDGE

7.7.1 Operation

The inverter is a completely automatic high-efficiency device. The inverter transforms the 24V DC voltage into 230V 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**
  Light lights up when 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 heavy surge load 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 that 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 restart 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.

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

7.7.2 Inverter services maintenance

Component	Maintenance	Notes and precautions
Inverter (Services / refrigerators)	Maintenance and check	At least once a year, have the cable and wire connections checked by skilled personnel; they should still be tight and not oxidized. Keep the inverter/battery charger dry, clean and away from dust to ensure a good heat dissipation. Periodically check the good condition of the cooling fan. If the device is off during the maintenance and/or repair works, it should be set to prevent an unexpected or unintentional activation: • Switch off the connection with the batteries or remove the inverter fuse; • Make sure that nobody can tamper with the precautions taken.

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 RIVA.

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 uses supplied by the inverter highly stress the batteries that could discharge as a result

MAINTENANCE

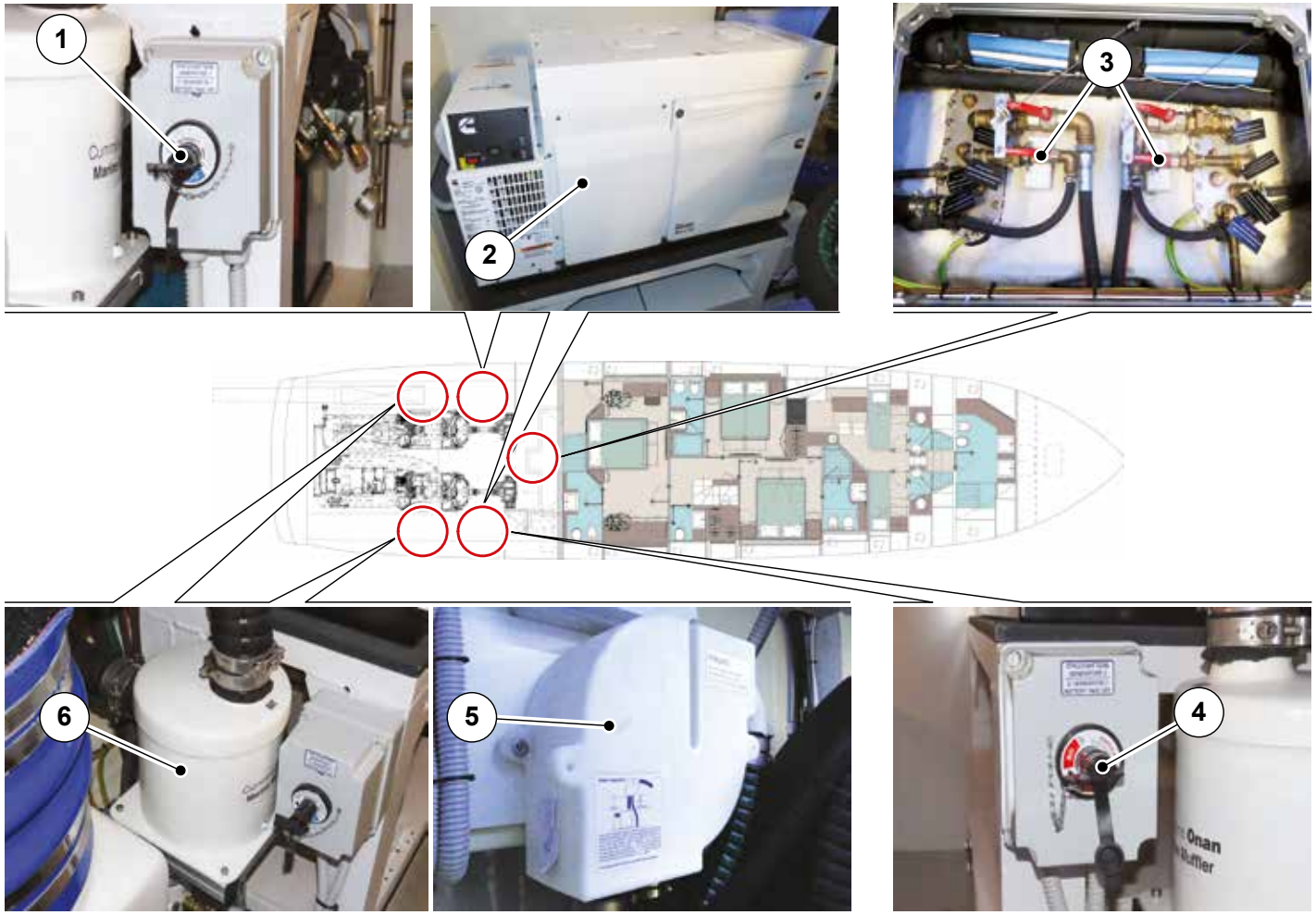
At least once a month check the correct operation of the inverter.
At least once a month carry out the complete cleaning.
At least once every six months protect the contacts with proper products.

7.8 GENERATORS

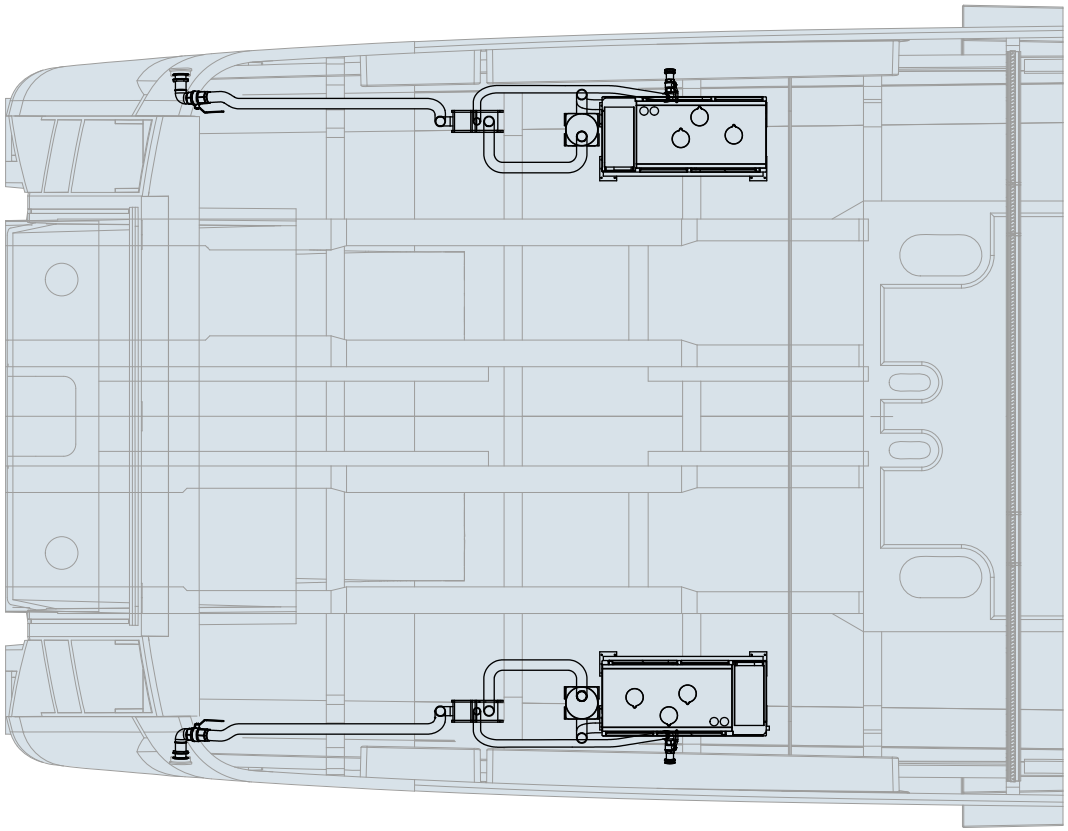
On board your yacht, two generators (29kW+29kW) are installed one on each side of the engine room, at the entrance of the engine room.
On the fuel tank flange, you can easily see the power generators, which can be cut-off by means of the two suction valves, on which you can handle quickly to cut-off the fuel lines in case of emergency in order to disconnect the generators. The connections from the generators to the collector are those for fuel return.
The fuel, before reaching the generators, is led through the separator filters that hold the dirt particles and separate possible water.
The exhaust gases, instead of being discharged directly overboard, are conveyed through mufflers, one on each generator placed next to them.
These mufflers, 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 separators.
The separators 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 then conveyed and discharged overboard.
The sea cocks of the cooling circuit are installed on the hull with the sea water strainers, fastened to a surface close to the sea cocks valves.
Clean the sea cock strainers according to the use frequency and to the condition of the sucked waters (seaweeds, mucilages, etc..).
Before cleaning the strainers, remember to close the sea cock valves, to stop the generators and then to proceed with maintenance. Once this cleaning operation is completed, reopen the valves supplying the cooling circuit.
As to the yacht supply, on each power generator set is located the control panel for the check and start/stop operations.

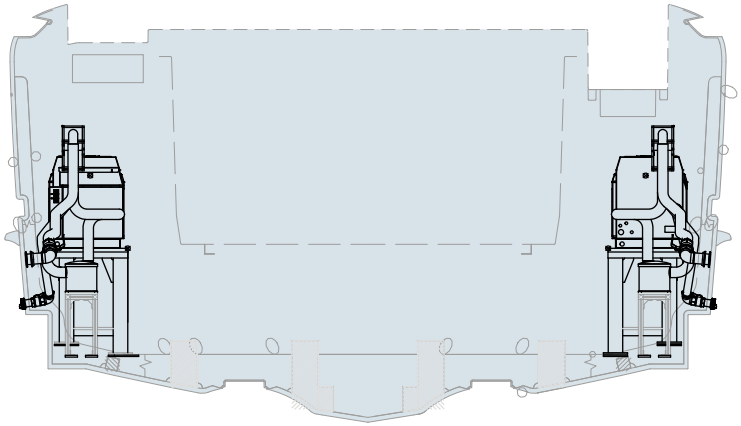
The generators are also equipped with battery breaker switches.
The dashboard control panel monitoring and controlling the main operating parameters (oil pressure, coolant temperature, rpm, etc..) of the generators, in order to detect any alarm situation or potential risk.

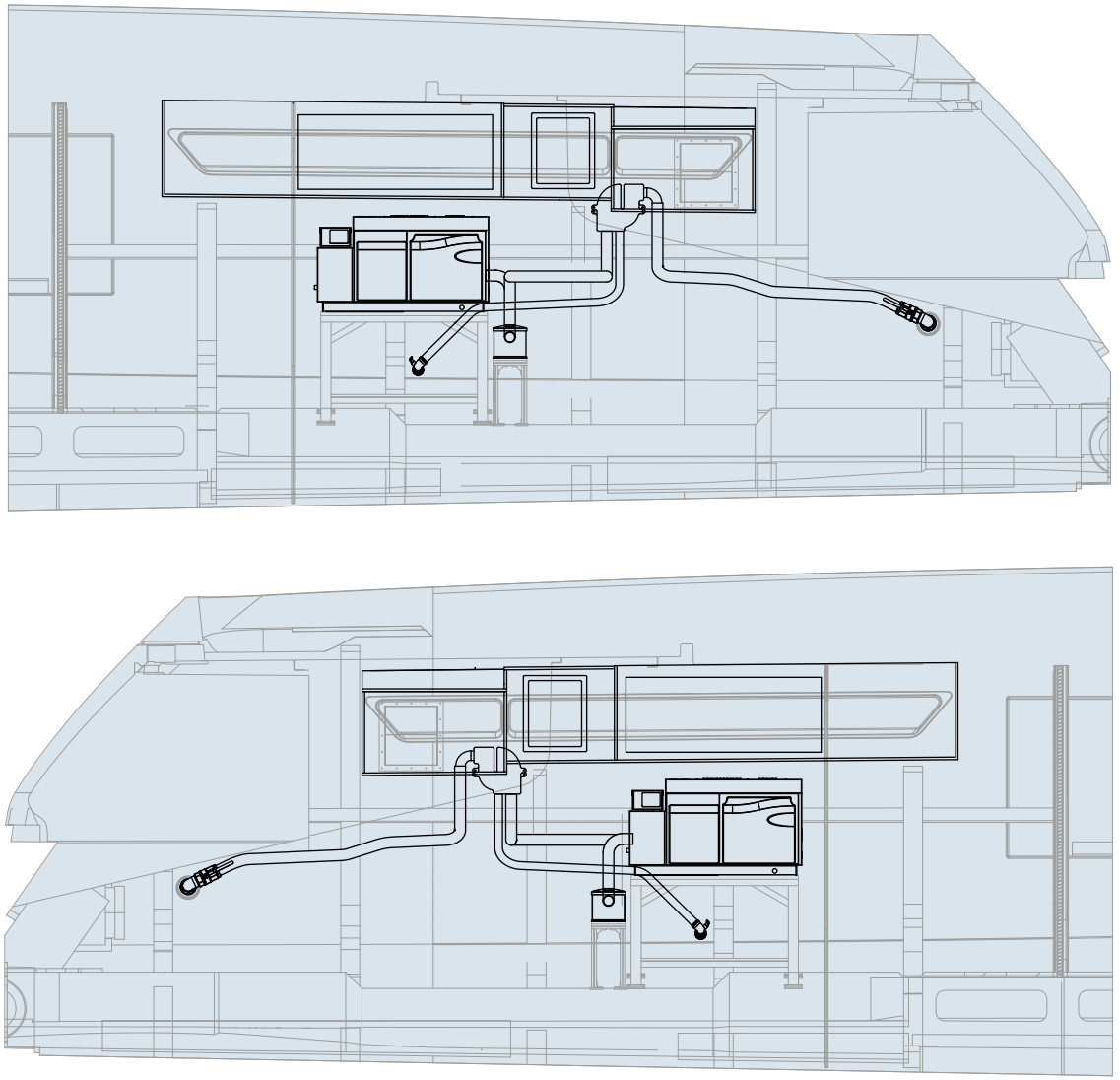
NOTE
For further information on use and maintenance, please refer to the manufacturer's manual.



1. Port generator battery breaker
2. Generators
3. Generator fuel delivery
4. Starboard generator battery breaker
5. Gas/water separator
6. Generator mufflers







7.8.1 Power generator control panel

Description

A control panel is located on the genset to carry out the starting and stopping controls and operations.
A display indicates the hours of operation.

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

WARNING
Before stopping the power generators, disconnect the various on-board uses supplied by them; stopping the power generators under load can irreparably damage the electronic control units of the various uses, beyond having a negative influence on the generators' operation.
However, please refer to the manuals of the power generators to obtain more detailed information about the starting and stopping procedures.

DANGER
CARBON MONOXIDE POISONING:
Start the generator only in a well ventilated area. The carbon monoxide, generated by the inner combustion of engines, is extremely toxic.

CAUTION
Explosion/fire hazard
Check for the presence of fumes in the generator area.

7.8.2 Generator Maintenance

Component	Maintenance	Notes and precautions
Lubrication system	Oil specifications	Use specified oils according to Manufacturer's indication.
	Oil check	Check the oil level in the crankcase daily or before each start-up to ensure that the level is in the safe range. Remove the dipstick and wipe the end clean, reinsert as far as possible, and remove. Maintain the oil level between the marks (Min and Max).
	Oil change	To change the oil, open the oil drain plug. Place one in the oil receiver. Remove the oil fill plug. Open the oil draining valve located on the engine and drain the oil completely in the container. Change oil according to intervals suggested by the Manufacturer. **CAUTION** Do not mix different oils.
	Oil filter change	Remove the oil filter by turning it counter clockwise by means of a suitable wrench. Apply a thin layer of oil to the rubber seal of the new filter. Replace the oil filter according at time intervals recommended by the Manufacturer.
Fuel system	Cleaning and replacement of fuel pre-filter	Replace fuel pre-filter at time intervals recommended by the Manufacturer.
	Cleaning and replacement of fuel filter	Close the fuel supply valve. Loosen the fuel filter by turning it counter clockwise. Remove the filter and clean the contact surface. Tighten the filter on the adapter until the seal comes in contact. Replace fuel filter within the intervals indicated by the Manufacturer.

Component	Maintenance	Notes and precautions
Cooling system	Cleaning / replacement of the air cleaner	Stop the generator and allow it to cool before filling the cooling system. Close the bleed nipples. To relieve the pressure, slowly turn the cap clockwise until it stops for the first time. Remove the cap after the pressure has been completely removed.
	Cooling liquid top up	Before filling the cooling system stop the generator and let it cool down. Close the draining taps. In order to discharge the pressure turn slowly the plug clockwise up to the first stop. Remove the plug after the pressure has been completely released.
	Sea water strainer	At least once a week check for the correct water flow through the strainers. At least once a month check the integrity of the strainers. At least once a month clean the suction strainer. At least once every six months check the condition of the cover seal.

ENVIRONMENT

Recover all waste materials (engine oil, fuel, strainer, etc..) according to the rules in force concerning the special waste disposal.

CAUTION

Failure to observe the oil specifications may cause inadequate lubrication/oil pressure and cold-starting difficulties.

DANGER

Hot coolant and steams may cause heavy injuries or even death.

CAUTION

If the oil level is not positioned between the two reference notches do not activate any device.

CAUTION

Pay special attention to the coolant level. After the coolant drains, allow coolant to completely refill the engine water jacket. Check the coolant level as prescribed in the Pre-start Checklist.

NOTE

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

CAUTION

Damage due to sea water. Sea water quickly deteriorates metals.
Wipe up sea water on and around the generator set and remove salt deposits from metal surfaces.

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.

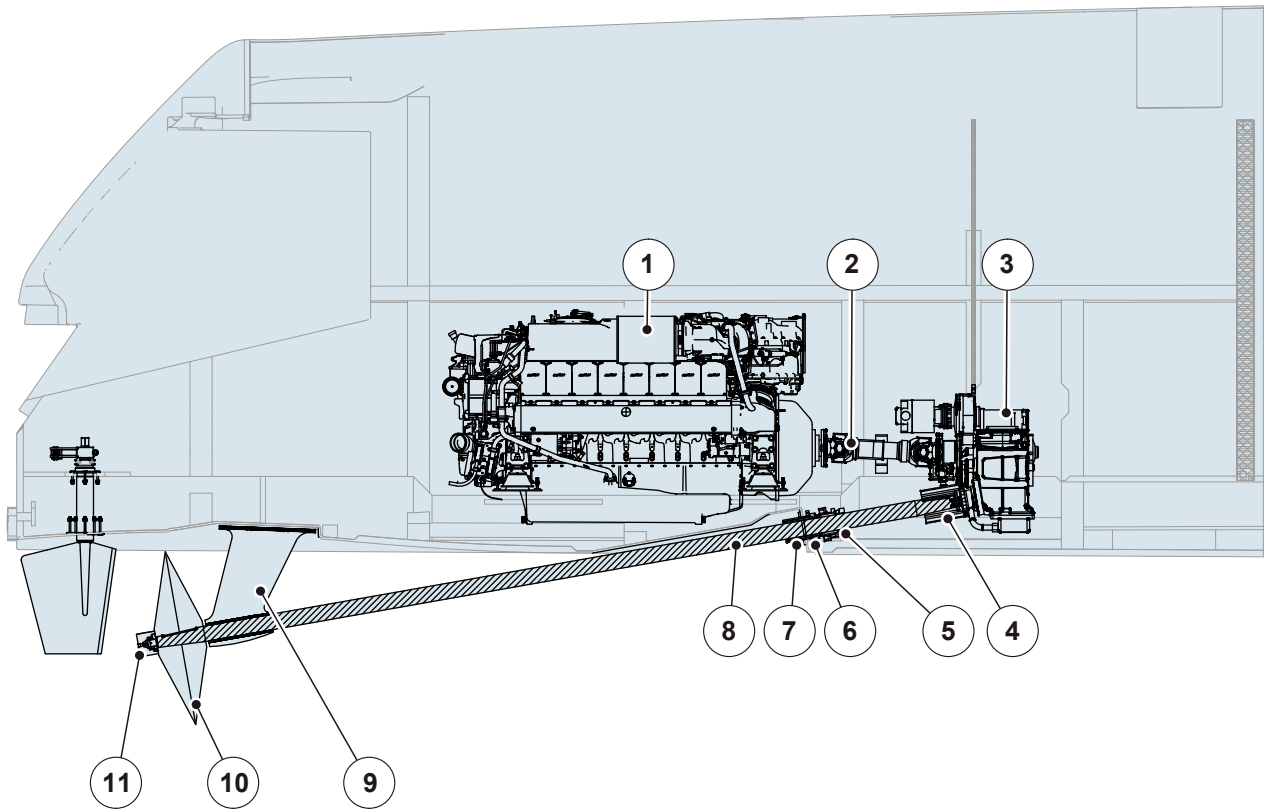
PROPULSION SYSTEM

CHAPTER 8

8.1 PROPULSION SYSTEMS

Inside the engine room, in the icebreaker and in the system room all the components for the propulsion of the yacht are assembled.
The propulsion apparatus is based on two equal groups.
Each of them is composed of:

1. MTU engine mod. M96X 12V 2000 1974 mhp / 1472 kW ET3
2. Cardan joint
3. ZF3050 V Inverter
4. Deep sea seals
5. Fluiten seal
6. Hydrostop for Fluiten seals
7. Fluiten sealing through-hull
8. Propeller shaft
9. Shaft support
10. Propeller
11. Gooseberry nuts



8.2 ENGINES

They have following features:

- Model 12V 2000 M96X
- Make MTU
- No. of cylinders 12
- Effective output 1472/1974 kW/mhp
- Rated speed 2450 rev/min
- Dry weight 2810 kg (6195 lb)

For any problem related to the use or maintenance of the engines, refer to the specific manuals or directly to the Service Centres.

NOTE

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

CAUTION

Do not operate the yacht with an engine of rated power exceeding the maximum recommended power (actual power engine series).

Among all the possible interventions to carry out on the engines in case of need (see the operating instruction manual) hereunder 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 supports, which absorb vibrations and allow the minimal motion of the engines; in this way structures and devices connected with them are not damaged.

Besides, the elastic supports easy engine position adjustment, both for a new installation or after the required run in.

8.3 ENGINE CONTROL PANEL

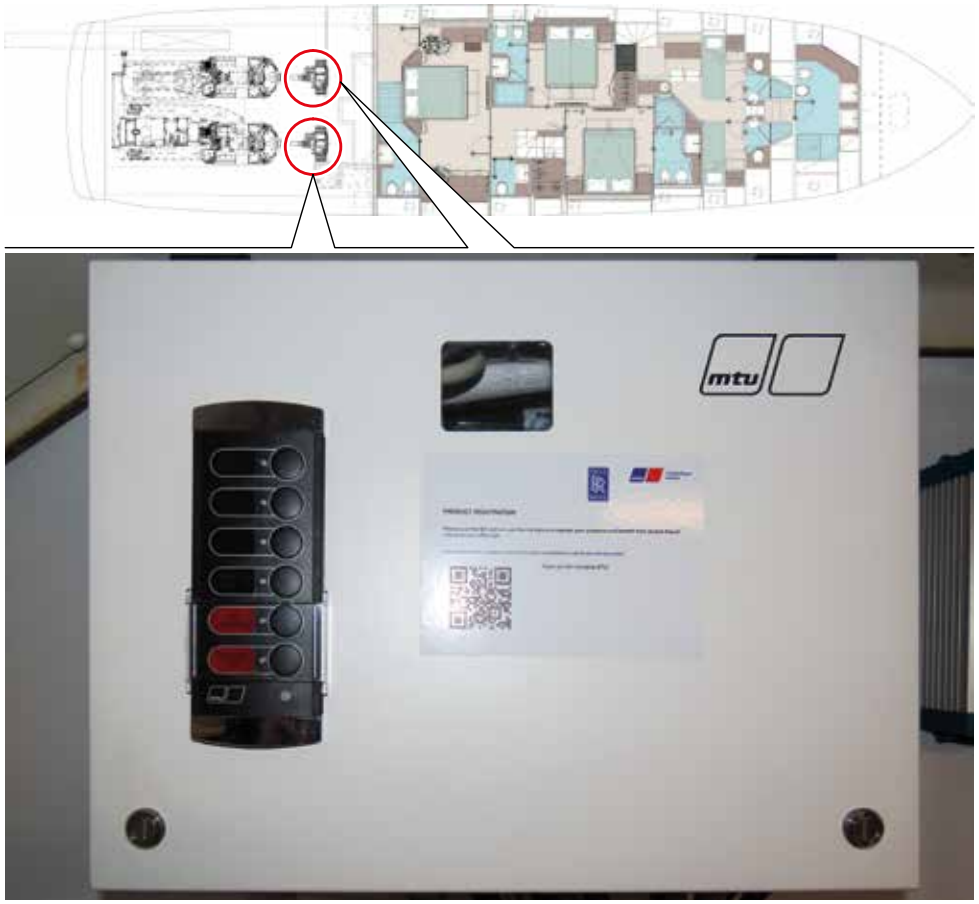
This station must be used only in case of emergency. The controls on the panel allow all procedures for yacht navigation to be executed in “Local” mode.

CAUTION

When driving the yacht at “local” station, three people are required: one for the yacht’s controls, the second on the engine room door transmitting the indications to the third person controlling the LOP.

NOTE

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



8.4 START OF PROPULSION ENGINES

Commissioning
When setting a new or overhauled engine into operation pay attention to the “Manufacturer’s technical publication”. During the first service hours it is advisable to have new engines run below 75% of their maximum load and at variable speeds. After this initial run-in, the engine should be brought up to full output gradually.

CAUTION
Use only approved technical fluids; otherwise the Manufacturer’s warranty will become null and void and the engines can get seriously damaged.

Daily start-up
Before daily starting of the engine, check fuel level, coolant level and engine oil level and replenish, if necessary. 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 must be set at minimum speed.

DANGER
Before starting an engine, ensure that nobody is standing in the dangerous area of the engine room.

Cooling liquid
Fill the cooling system of the engine with a mixture of drink water and antifreeze or anti-corrosion agent.

- Pour in coolant slowly in the expansion tank through proper filler.
- For the quantity of coolant, refer to the relevant manufacturer’s documentation.

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 proper quantity of lubricating oil, see Manufacturer’s manual delivered.

Sea water suction pumps

CAUTION
Do not let raw water pump run dry! Make sure that all valves of the raw water circuit are open.

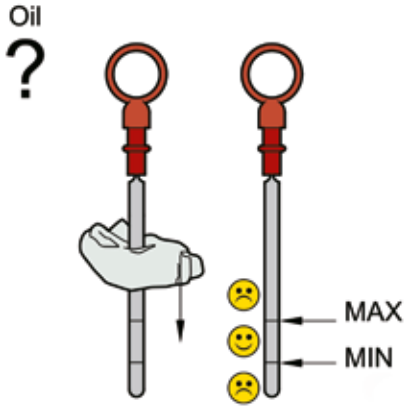
Waste oil drain
It is possible to drain the used oil from the propulsion engines by using a manual pump activated by means of the relevant lever

CAUTION
Do not top up oil exceeding the MAX notch of the dipstick. If the oil level is too high, damage to the engines may occur!

Oil level check
Check engine oil level only approx. 20 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 be between the two notches in the dipstick and must never fall below the MIN notch. Top up oil as necessary.
Ensure outmost cleanliness when handling fuels, lubricants and coolants.



Procedures for start-up

- Check that the main electrical panel in the SYSTEMS ROOM and the engine electronic power supply panels in the engine room are fitted with the following functional uses for the yacht: engine starter, aspirators, street lights, dashboard lights, manoeuvring thrusters, mooring, interceptors, winch, horn, hydroguide, VHF, radar, automatic pilot, control panel, GPS/ Navigator, plotter fly, fishfinders and control levers.
- Move the control levers (**4**) and (**5**) to the neutral position.
- Turn the right-hand engine start key (**6**) to the “ON” position, a short beep will sound from the handcuffs, and then press the “CMD” key (**7**). When the “COMMAND” indicator light (**8**) on the handcuff lid illuminates, this indicates that the control is now held at this operating position. The control system is ready for operation. Then proceed by pressing the “START” button (**9**) for engine start.
- Check that the oil pressure has settled to the normal value within 10 seconds.
- Check that the cooling water is circulating correctly.
- The first engine is started and the second engine is started only after it has been checked that it is running properly.
- Start the left hand engine as described for the right hand engine.
- Turn the left-hand engine start key to the “ON” position (**10**), a short beep will sound from the handcuffs, and then press the “CMD” key (**7**). When the “COMMAND” indicator light (**8**) on the handcuff lid illuminates, this indicates that the control is now held at this operating position. The control system is ready for operation. Then press the “START” button (**12**).
- Heat the engines for about 2-3 minutes at 1000 rpm maximum.
- Check alternator charging.
- Activate the operating propellers using the control panel on the helm station.

Throttles operation

- Move both throttles to the “Neutral” position (vertical single lever).
- Press the “CONTROL/SET” button from the location you want to use (the transfer indicator lights will light).
- Press the “MODE” button according to the mode you want to activate:
- EASIDOCK
- AUTOTROLL
- LEVER HONES
- WARM UP

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 more 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.

8.4.1 Engine drive

Despite the efficiency and the high performances of the yacht, and in particular the sensitivity to rudder motion, which allow an immediate response to the controls, the use of this yacht requires a careful and responsible behaviour.
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.
Minimum glide speed is influenced by displacement, weight distribution on board, position of interceptors, stabilizing fins and sea conditions.
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 run for a long period of time; this to prevent them from getting “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 Assistance Service.

CAUTION

Even if the automatic pilot controls the route, navigation must be supervised in any case.

CAUTION

During navigation, the rear and side doors shall be kept closed at all times to prevent, in particular conditions of wind direction and force, exhaust gases and any splashes of water from entering the deck spaces.
This will improve comfort for the passengers and silence inside the compartments.

CAUTION

Set the speed of the yacht and the interceptors 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.

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 exhaust pipes due to reduced cooling water circulation.

8.4.2 Checks after start of propulsion engines

- Check that water comes out of the exhaust pipe and, in case it does not, slightly accelerate with engine idling for a few seconds.
- Otherwise stop engines, troubleshoot the problem or call for Assistance Service.
- Run the engines slightly higher than idle run until they have reached the operation temperature.
- Check for abnormal noises or excessive smoke.
- Otherwise stop engines and call for Assistance Service.
- Check that alternators load the batteries.
- Verify the efficiency of the instrument system from the plotter to the radar, VHF, compass, etc..
- Plug out the shore cable if connected.
- Remove moorings and check for loose mooring ropes or floating objects hindering the propellers' movement.

DANGER

Make sure that no crew stands in front of gas exhausts and near the mooring ropes.

8.5 STOP OF PROPULSION ENGINES

Do not immediately stop the engines after a full-load operation, but let them run low (about 5 minutes) to balance the temperature differences.

From inner helm station

- Recall levers **(1)** and **(2)** to the middle neutral position of the inverter.
- Press the “STOP” button **(3)** and **(4)**.
- Turn the keys **(5)** and **(6)** to the OFF position.
- Disconnect the magneto-thermal switches for the starter keys of the two engines.

CAUTION

With engines stopped carry out following:

- Disconnect all unnecessary electric uses and check the general status of the switchboard as well as the voltmeters and ammeters indications;
- Check the switches of the bilge pumps and their regular operation;
- Check for possible leaks from the shaft lines seals;
- Rinse the yacht with fresh water;
- Connect the shore electric power supply;
- Keep the engine room extractor running for about 30 minutes, for ventilation and air cooling.

From fly helm station and/or third station

- Recall levers **(1)** and **(2)** to the middle neutral position of the inverter.
- Press the STOP **(3)** and **(4)** buttons.
- Go to the inside of the dashboard and turn the keys to the OFF position.
- Disconnect the magneto-thermal switches for the starter keys of the two engines.

DANGER

Make sure that the engines cannot be started by unauthorized staff.

8.6 ENGINE EMERGENCY PROCEDURE

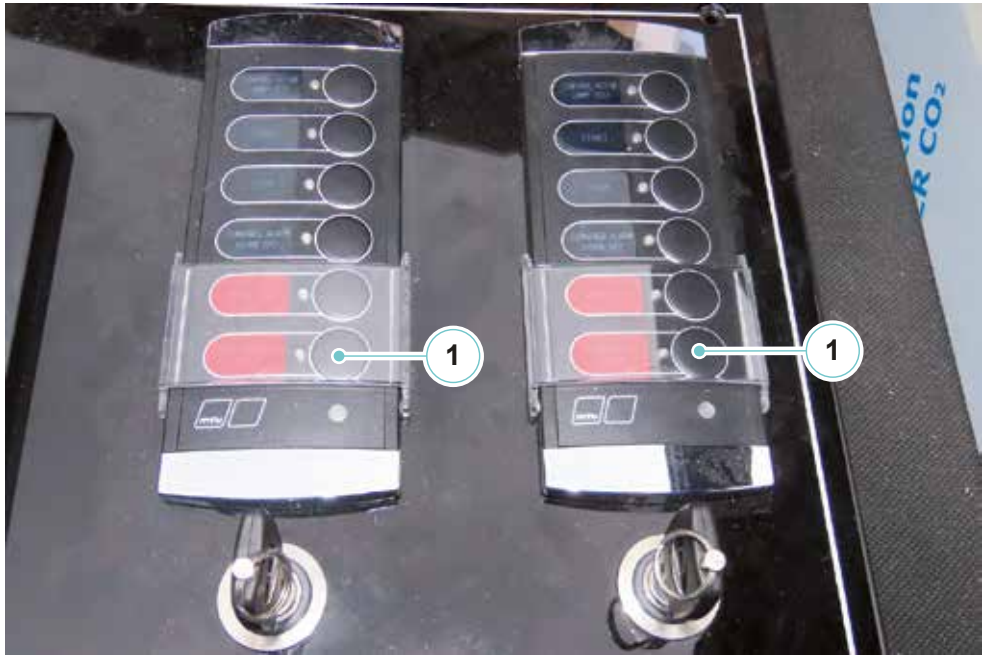
Due to a mechanical or electrical fault, the normal procedures for engine stop might not be sufficient; it is therefore necessary to stop the engines with the EMERGENCY procedures.

- **EMERGENCY STOP buttons**
  All helm stations have EMERGENCY STOP buttons **(1)** positioned on them: keep them pressed until the engines actually stop.
- **From the engine room with LOP Station**
  Reach the engine room and access the engine control panel; press the EMERGENCY STOP button **(1)**.
  This will illuminate the button and activate the siren.
  After stopping the engines with this emergency procedure, to return the system to normal operation, press the “COMBINED ALARM HORN OFF” key to stop the acoustic and visual signals.

CAUTION
The emergency stop causes heavy stress on the engines with consequent hazard of component damage. Use only in case of real need.

DANGER
Before restarting the engines after an emergency stop, make sure to find and to clear the reason of the fault.

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.



8.7 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.
	Diaphragm check and replacement	Check if the diaphragm is damaged; in this case replace it.
	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 no 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.
	Check and replacement of air cleaner clogging gauge	Check the condition of the gauge; if it does not reset easily, replace it with a new one. Replace the gauge according to the intervals suggested by the Manufacturer.
Cooling system	Coolant check	Make sure the coolant is in the tank (lever sensor, reference plate, built-in eyelet).
	Cooling system filling	For coolant features refer to the User's Manual of the Manufacturer.
	Cooling system drainage	Drain the coolant only when the engine is stopped; follow the procedure indicated by the Manufacturer.

DANGER

A wrong use, a wrong maintenance, tampering and replacement of pieces, can cause serious damages or lethal 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.

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.

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.

CAUTION

Use only approved fuels, otherwise the Manufacturer's warranty will become null and void.

CAUTION

Do not top up oil exceeding 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. Regularly check the integrity of the system.

CAUTION

It is absolutely necessary to view with RIVA 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 in a hot engine causes thermal stress with the risk of formation of cracks in the components. Fill/top up only a cold engine.

CAUTION

If the oil level is not positioned between the two reference notches do not activate any device.

8.8 FUEL SYSTEM

The fuel tank is made of fiberglass in accordance with ISO 10088 and is located forward of the engine room, below the VIP cabin.
The tank is filled through two filler necks, located inside two suitable peaks placed along the side walk-arounds of the yacht.
The fuel level is detected by a sensor and is visible by means of the control panel, located in the main station.
It is possible to monitor the level in the tank also by means of a visual gauge.

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.

NOTE
The level indicated without operating the valve refers to the last check.

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.

The fuel is sucked directly from the tank and is sent to the distribution manifold, which supplies the engines and the generators.

The fuel sucked, before reaching the uses, flows through the water/fuel separator filters holding impurities and separating possible water in the fuel.
During boarding, the fuel flow produces a lot of foam; if this comes out, you might think the tank is full. Therefore, it is good to wait for a few minutes and then top up, in order to be sure that the tank has been filled correctly.
The particular geometric shape of the tank allows the decantation of impurities in the fuel tank.
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 means of a tap with a manually operated valve located on the straight suction pipe up to the bottom of the tank, which allows any deposits that may have formed to be separated.

CAUTION
The bleed must never be conveyed into the bilge. If the bleed accidentally falls into the bilge, turn the bilge pumps off and clean them carefully.

To avoid fuel fumes, the tank has been equipped with an air vent manifold with flame retina.

When the fire-fighting system is activated, the fuel shut-off valves are closed by actuating the corresponding tie rods.

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.

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.

DANGER

Because of the high temperature in the engine room, oil or fuel leaks can evaporate and create a serious risk of fire.

DANGER

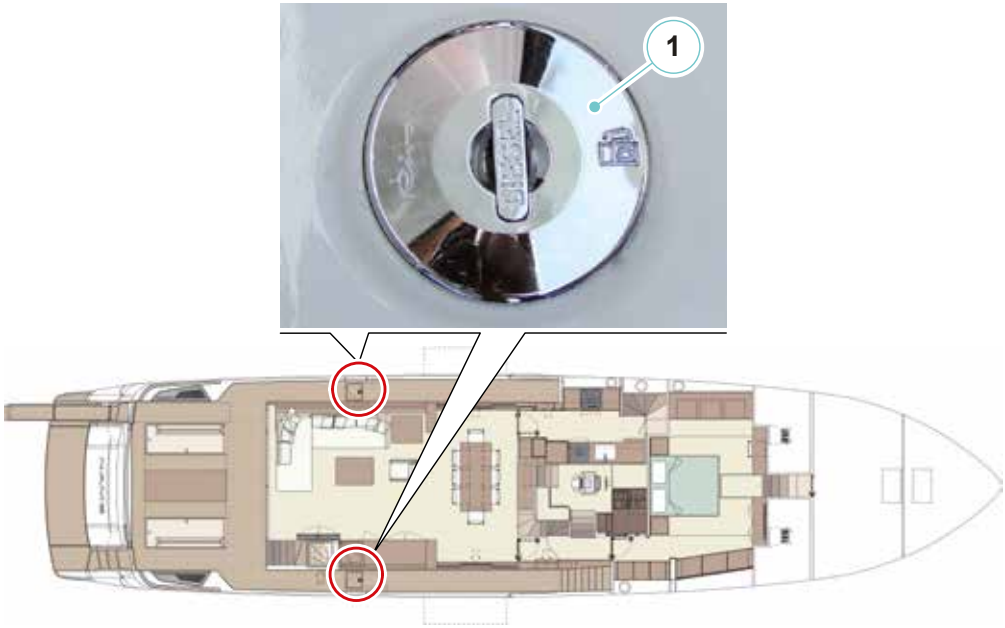
Fuel leak can cause a fire to break. Check regularly the integrity of the system.

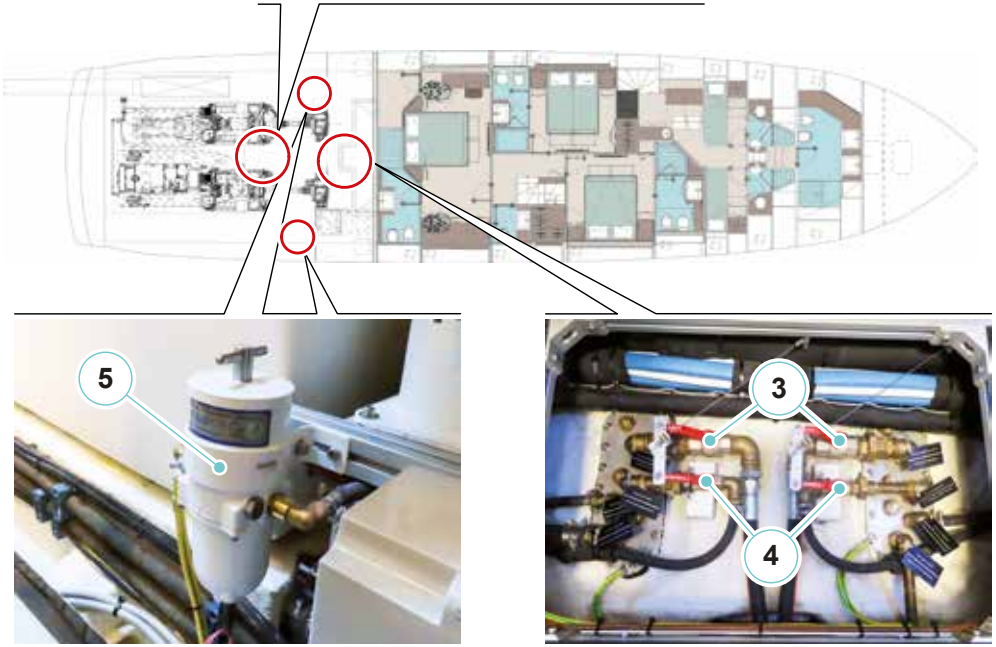
WARNING

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.

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 over flooding, disconnect the magneto-thermals switches of the bilge pump, to avoid accidental spills, until the tanks have been completely drained in accordance with the environmental legislation. During the maintenance operation in the engine room, it is compulsory to disconnect the magneto-thermals of the bilge pumps suction system, avoiding in this way accidental spills.





1. Fuel boarding nozzle
2. Engine fuel pre-filters
3. Fuel supply for engines
4. Generator fuel supply
5. Generator fuel pre-filters (optional)

DANGER

EXPLOSION/FIRE DANGER

- 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.
- Avoid contact of flammable materials with hot parts.

DANGER

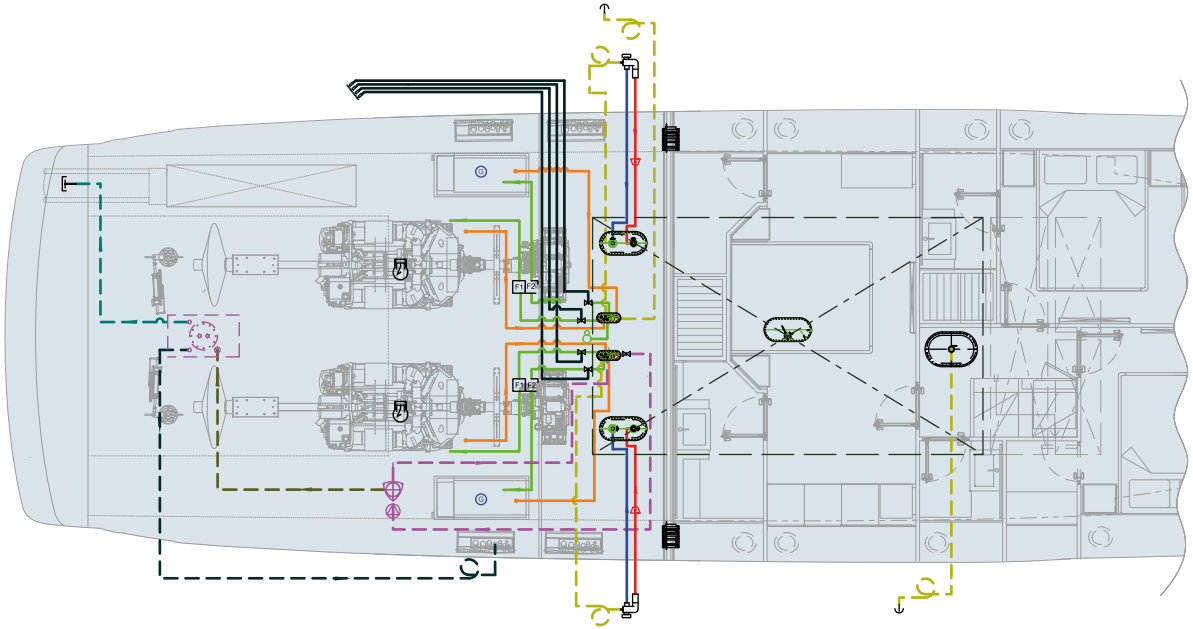
EXPLOSION/FIRE/POLLUTION DANGER

Fuel system connections that are too loose or too tight can leak, resulting in fuel loss, environmental pollution and explosion/fire danger.

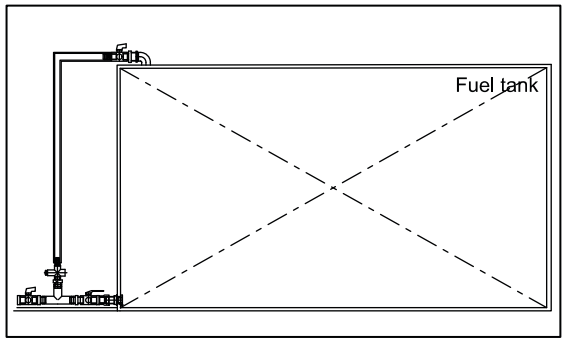
CAUTION

Be careful not to accidentally damaging the fuel system pipes.
Periodically carry out the verification of all the fuel pipes.

Fuel system diagram



Detail of tank connections for visual level and purging



- Engine delivery
- Generator delivery
- Generator regurgitation
- Tank reflow
- Fuel boarding
- Tank vent
- Engine regurgitation
- Visual probe
- Alfa Laval line (opt)
- F1 Diesel pre-filter
- F2 Additional oil pre-filter
- Fuel boarding nozzle
- G Generator
- Ball valve
- Centralized discharge
- Diesel engine
- Alfa laval

8.8.1 Fuel boarding

The fuel is loaded by means of the special pipe unions on the side walkways.
Fuel may leak during refuelling if the tank is already practically full.

CAUTION

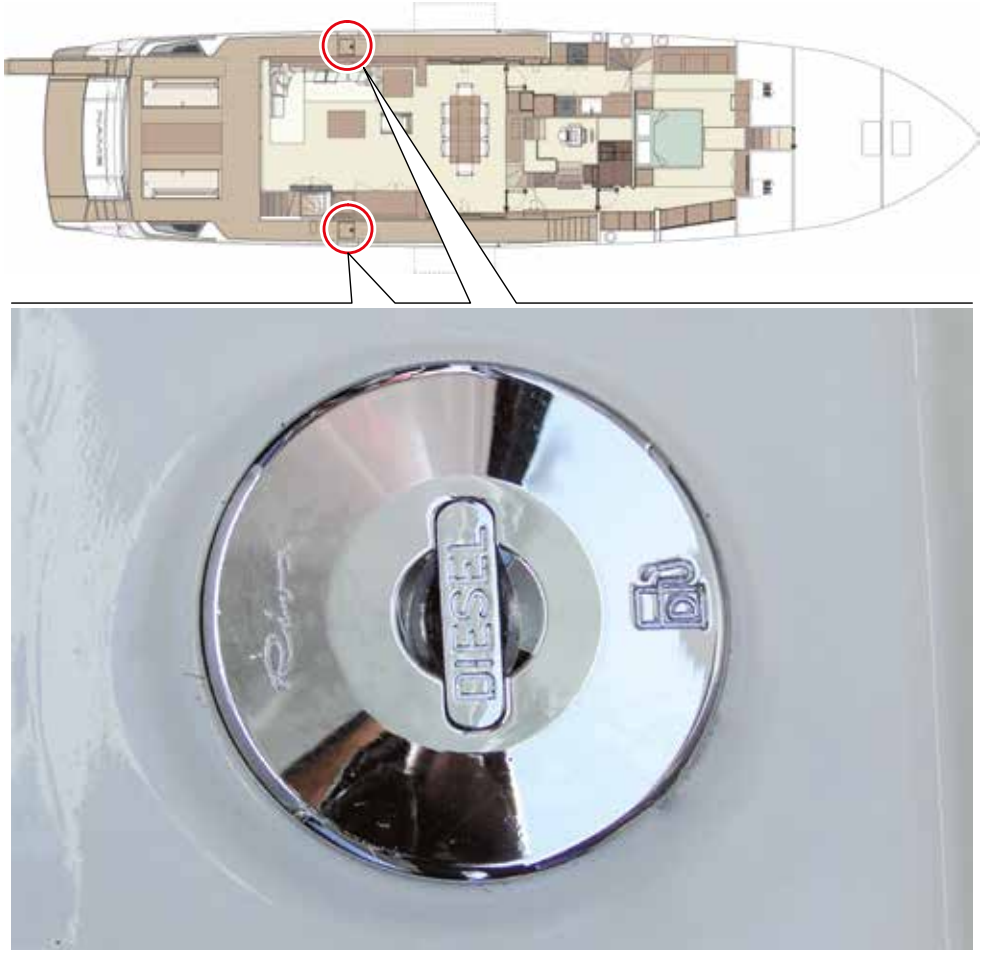
The inlet plug carries the indication “DIESEL” to avoid accidental input of different fuels.
Filling lines pressure must be kept constantly under 0.3bar during bunkering operations.

CAUTION

Before refuelling, wash the teak with fresh water to avoid its contamination with fuel.

DANGER

During refuelling operations, do not approach open flames to the yacht; do not smoke. Carry out refuelling with engine shut off. The lack of consideration of these precautions can cause accidents and injuries.



8.8.2 Fuel quality

The quality of the fuel is crucial for a good performance of the engines installed. Fuel should be purchased from reliable high-sale filling stations, for both the quality and a probable short stay of fuel inside the shore tank.
The fuels:

- 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 to supply the engines.

If the above type of fuel is not available in some countries, follow the rules indicated in the manual relevant to the engines.

CAUTION
Stop all engines when refuelling.

WARNING
For the type of fuel to be used, follow the manufacturer's recommendations. Diesel engines require very clean fuel. Keep filters clean.

8.8.3 Fuel system maintenance

Component	Maintenance	Notes and precautions
Fuel tank	Bleeding (at least every two or three refuelling and at least once a month)	As shown in the following sequence.
Flow stopper	Fuel checks and cleaning	As shown in the following sequence.
Water/fuel separator filters for engines	Maintenance and check Water drain from collection tank Replacement of filter element Troubleshooting procedure	As shown in the following sequence.
Water/fuel separator filters for generators	Maintenance and water drain Replacement of filter element Troubleshooting procedure	As shown in the following sequence.

8.8.4 Fuel tank

Bleeding

The tank is equipped with a vent with flame retina.

The geometric shape of the tank allows the decantation of possible impurities or water in the fuel. For the drainage of water and possible impurities embarked with fuel, it is necessary to wait for some hours after refuelling, so that the suspended particles have enough time to settle down.

Drain through the opening of drainage valve located underlying the optical level. To this aim take off the blanking plug from the valve, open the valve slowly and let the water and the deposits drain into a container, until only clean fuel comes out. After the operation close the valve, disconnect the hose and reinsert the plug.

During the long periods of inactivity of the yacht, when the tank is empty, we suggest to open the flange and to remove the fuel deposits embarked during refuelling.

WARNING

The bleeding of tank is a special operation, that has therefore to be carried out by specialized personnel. Contact the RIVA After Sales & Service Department to receive suitable help.

NOTE

The crew should always be present during this operation, as fuel leaks may occur in the engine room.

WARNING

During the tank inner cleaning, it is a good norm, to ventilate the room for a long time with the help of fans and to wear all necessary protections, to avoid injuries caused by gas fumes.

During the flange assembly, 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.

These are extraordinary maintenance operations. Contact RIVA After Sales & Service Department in advance.

CAUTION

The bleed must never be conveyed into the bilge. If the bleed falls into the bilge, clean it thoroughly and collect the water in special containers to be treated by the appropriate bodies.

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

We advise to drain and clean the tank periodically, at least once a year.
Please remember that re-used fuel must be filtered.

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 generator 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.

ENVIRONMENT

It is forbidden to discharge bilge water mixed with oil or diesel fuel into the sea, because this can cause of serious pollution. Periodically check the level of possible oily waters inside the collection tanks under the engines; should the level be next to overflowing into the bilge, disconnect the magneto-thermal switches of pumps of the bilge suction system, to prevent accidental spilling, until the bilge is empty, in compliance with current legislation for environmental protection. During the maintenance operation in the engine room, it is compulsory to disconnect the magneto-thermals of the bilge pumps suction system, avoiding in this way accidental spills.

MAINTENANCE

Check periodically the correct operation of the valves.
At least every three months check for the presence of leaks.
At least once every three months drain the tank.
At least once every two years carry out complete cleaning of the tank; check anyway the draining according to the quality of fuel filled.

8.8.5 Fuel flow stopper

Fuel checks and cleaning

Regularly check for the air outlet valve and clean the screen if necessary.
At least each season begin and end carry out the following checks:

- Check that pipes and connections are not leaking and install new pipes and/or clamps if necessary.

CAUTION

First place the filling nozzle as deep as possible into the filling pipe, then use the nozzle to fill the tank.

ENVIRONMENT

Fuel is harmful to the environment. Prevent any spilling. Keep oil absorbent rags within reach as a precaution!

8.8.6 Water/fuel separator filters for engines

Maintenance and check

Bleed frequency or the replacement of the filter element are determined by the contamination level of the fuel. The selector valve (or handle indicator) allows the operator to insulate a filter at a time, so as to carry out maintenance also with engine running.

Water drain from collection tank

Check or drain the water collection tank daily.
The collecting tank must be drained before polluting agents reach the turbine end.

WARNING

If the engine has to carry on running, select the filter to be left in line and carry out maintenance on the other one. This operation is a good procedure even if the engine is not running.

- After having placed a capacious collection container underneath it, open the drain to discharge containments.
- Remove the three screws and detach the filter from the support.
- Fill the device with clean fuel.
- Close the filter and tightly tighten the three screws.

Replacement of filter element

Replace the element according to the time intervals recommended by the Manufacturer or if a power lack is noticed, which indicates namely that the element is clogged.

As a rule when the pressure gauge detects Mercury in quantity between 6 and 10 inches, it is time to carry out maintenance.

- Close the valve.
- Remove the 3 screws Retention of the filter.
- Remove the filter by pulling downwards.
- Replace the filter element with a new one suitable and original having the same filtering properties of the one being replaced.
- Replace the cover seal with that part of the new element. Apply a layer of clean fuel or engine oil on the gasket before reinstalling.
- Fill the device with clean fuel, then place the filter below the respective support.
- Strictly tighten the three screws.
- Open 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 trigger or does not take the minimum, first of all check the tightening of the filter 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, call RIVA.

CAUTION
The separators have to be checked at regular intervals as suggested by manufacturer, so as not to impair the engines operation.

8.8.7 Water/fuel separator filters for generators

Maintenance and water drain from collection tank

Bleed 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.

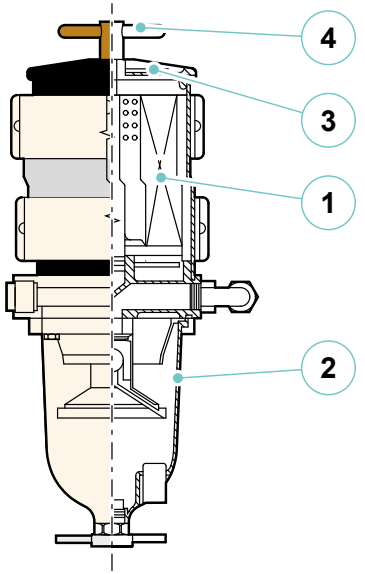
The collection tank must be drained before containments reach the engine.

- After having placed a capacious collection container underneath it, open the drain to discharge containments.
- 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.



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, address to Dealer.

CAUTION

The separators must be checked at regular intervals as suggested by the Manufacturer, in order not to impair the generators' operation.

8.9 EXHAUST SYSTEM

8.9.1 Engine exhausts

The engine exhausts are underwater. This system reduces the smoke that usually tends to soil the yacht's stern.

In order to avoid the counter-pressure to engines with the yacht stopped, at stern sides some by-pass minimum exhausts have been installed and they are accessible from outside of the yacht.

The exhausts have to be checked at regular intervals to avoid the formation of build-ups that could prevent the correct gas ejection.

WARNING

When starting the engines, check that water comes out of the exhausts; this means that the engines cooling system works correctly and that the exhaust is cooled. Accelerate if no water comes out.
If the problem continues, contact the Service Department.

CAUTION

A strong smell and a light smoke from exhaust insulation are normal during the first period of use.

MAINTENANCE

At least once every three months carry out the tightening of the discharge raiser bolts.

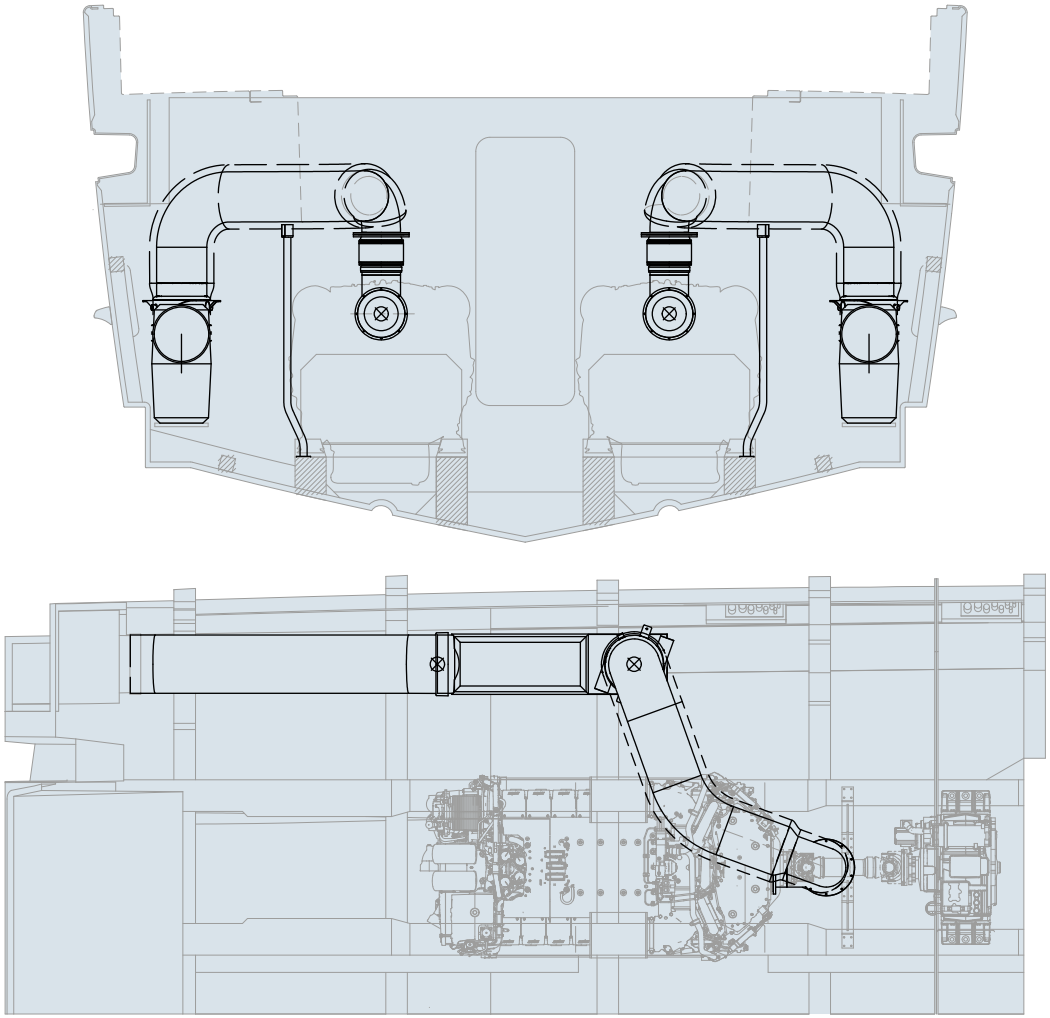
CAUTION

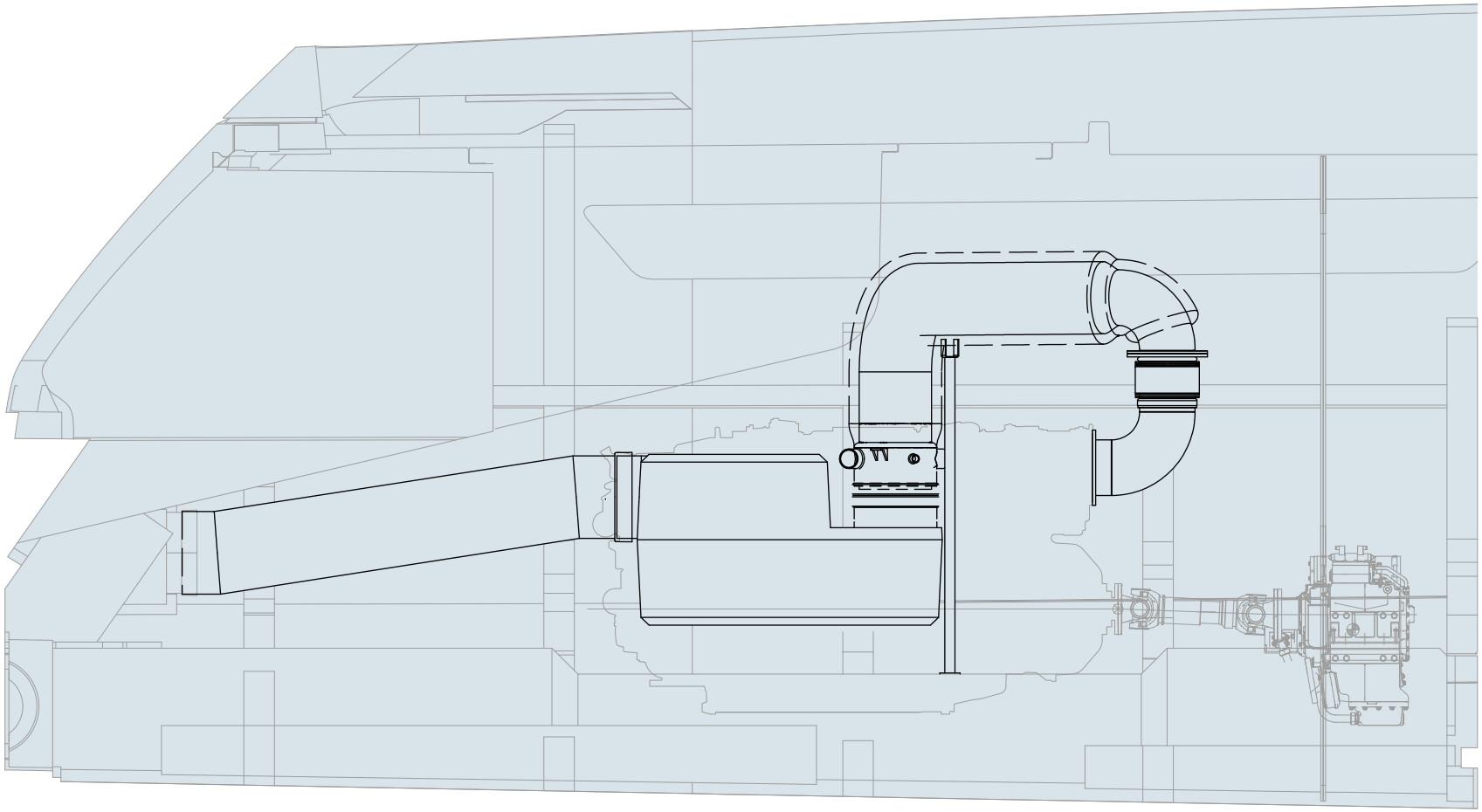
Some temperature sensors have been installed on both engine exhausts, the warning lights are visible on the fly and on the engine control panels in the helm station and they light up to indicate that the temperature inside the exhausts is too high.

WARNING

Avoid prolonged use of engines at low speeds to avoid overheating of exhaust pipes due to reduced cooling water circulation.

Main engines exhaust system diagram





8.9.2 Maintenance of the engine exhausts

Component	Maintenance	Notes and precautions
Exhausts	Periodical check (as necessary, according to the floating area)	Check the underwater exhaust terminal cleanliness conditions periodically. Clean, if necessary. **CAUTION** Carbon deposits, marine growths and fouling may affect the engine regular operation, causing performance degradation and serious damages.

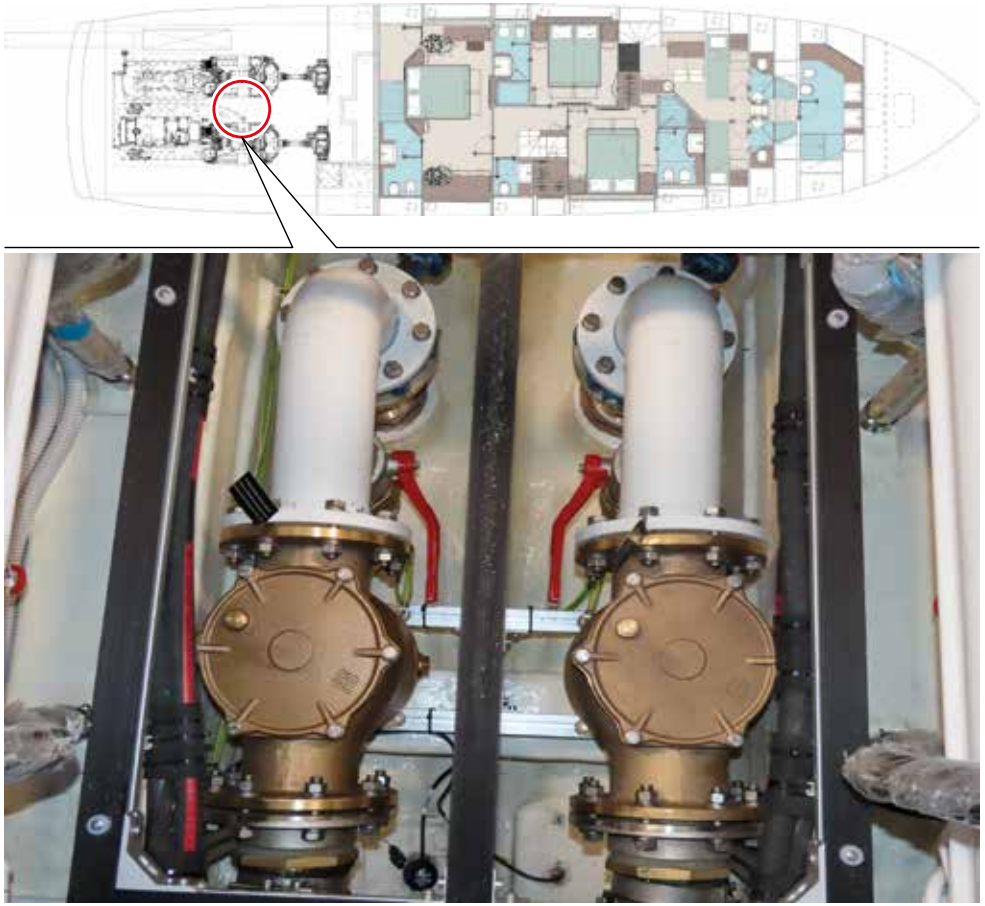
8.10 ENGINE COOLING SYSTEM

The engine cooling fluid is sea water circulated by the engine inner pumps, by means of special water intake.

The sucked water flows through the strainers, is delivered to the engines, gearboxes, heat exchangers and is finally drained overboard.

In case of engine room flooding, it is possible to use this system to suck water from the bilge in large quantity proceeding as indicated at paragraph “Engines suction with bilge emergency”.

When required, turn the valves completely and never to intermediate positions.



CAUTION

When the bilge is nearly dry, remember to turn the valves back to sea water intake position, in order to avoid engine damages.

WARNING

Before opening the sea cock strainer for cleaning, remember to close the cut-off valve in the hull.
If the yacht is not used, close as a precaution, all cut-off valves of the sea cocks; as soon as the yacht is reused, remember to open them.

NOTE

For further information please refer to the chapter “Seawater system”.

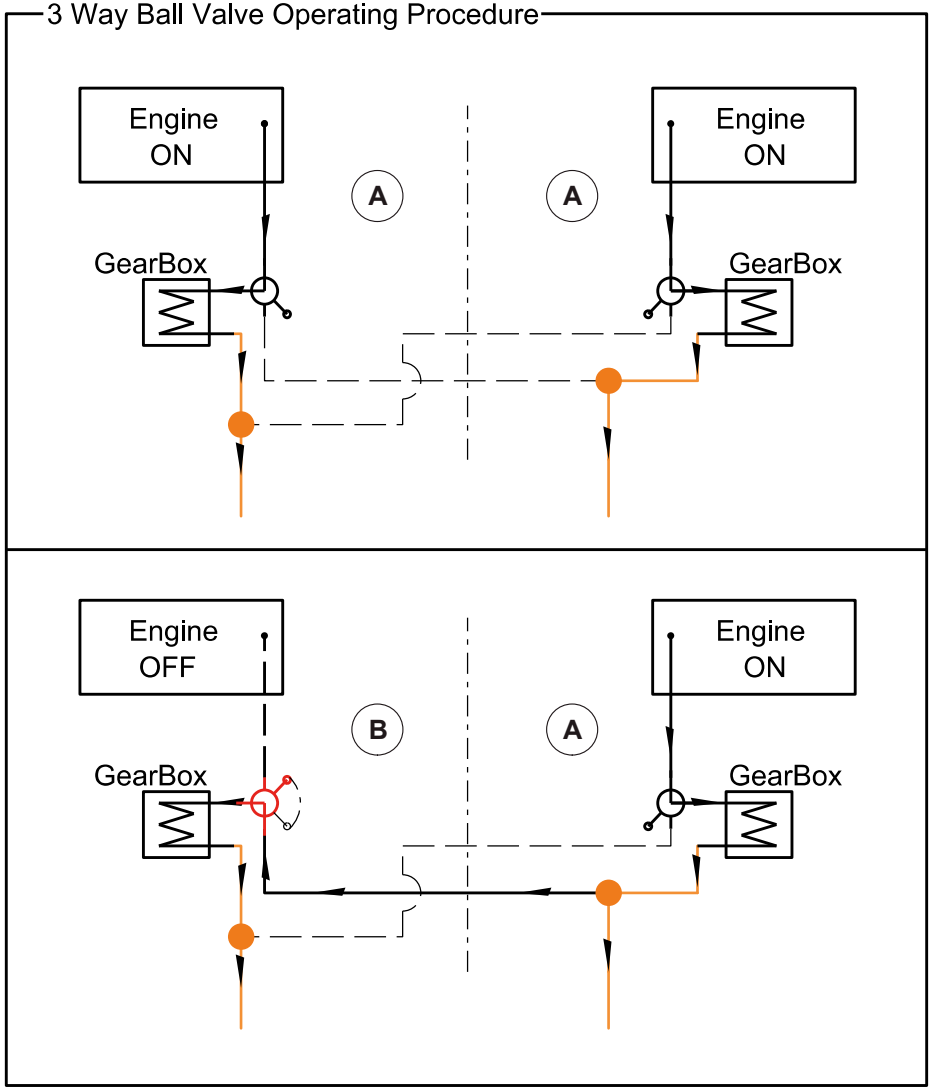
This yacht is equipped with a Trailing Pump on the gearbox module; this system allows navigation with a single engine while safeguarding the mechanical components of the engine switched off. For long distances a “sea water” cooling circuit has been provided with the following modes of use:

For prolonged navigation with one of the two engines switched off, operate as follows:

- With both engines working, the 3-way valves, positioned between the engine and the inverter, must be kept in configuration “A” (no partialization of the water flow towards the other inverter);
- If one of the two engines shuts down or fails (Engine OFF), the corresponding valve must be set to position “B” (the inverter now receives part of the cooling water from the operating gearbox flow).

WARNING

Avoid prolonged use of engines at low speeds to avoid overheating of exhaust pipes due to reduced cooling water circulation.



8.11 VENTILATION SYSTEM

8.11.1 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, in order to keep a safe temperature inside the engine room.

The ventilation system consists of two side ventilation boxes (grids) that allow air to enter the room and prevent water spray from entering, and two extractors to allow air to be extracted from the inside out.

To activate the air extractors it is necessary to act on the magneto-thermal located on the main electrical panel.

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.

CAUTION

The engine room should be adequately ventilated when the engines or the generator are in operation and during cooling; therefore, always leave the vents open and free from obstruction.

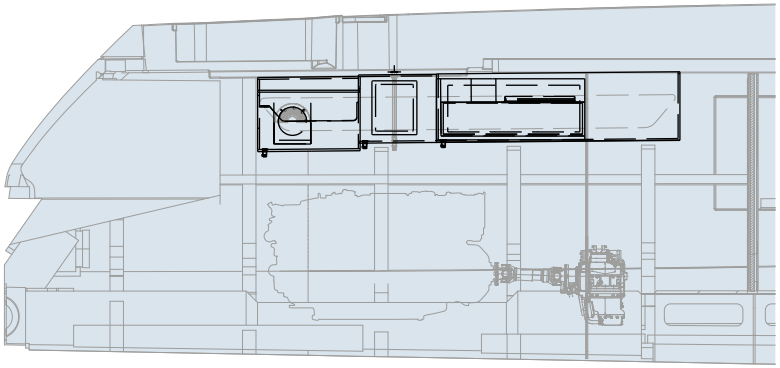
DANGER

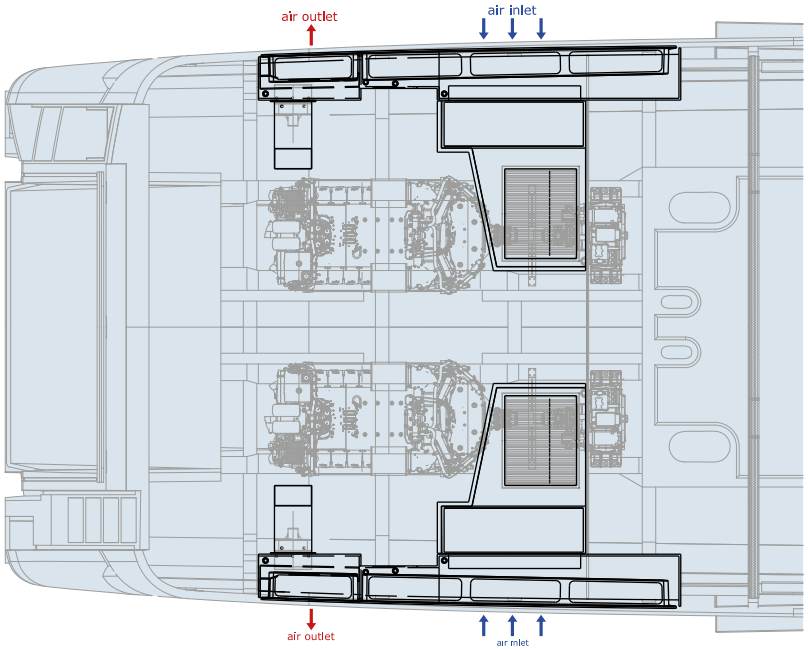
Carbon monoxide poisoning

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).

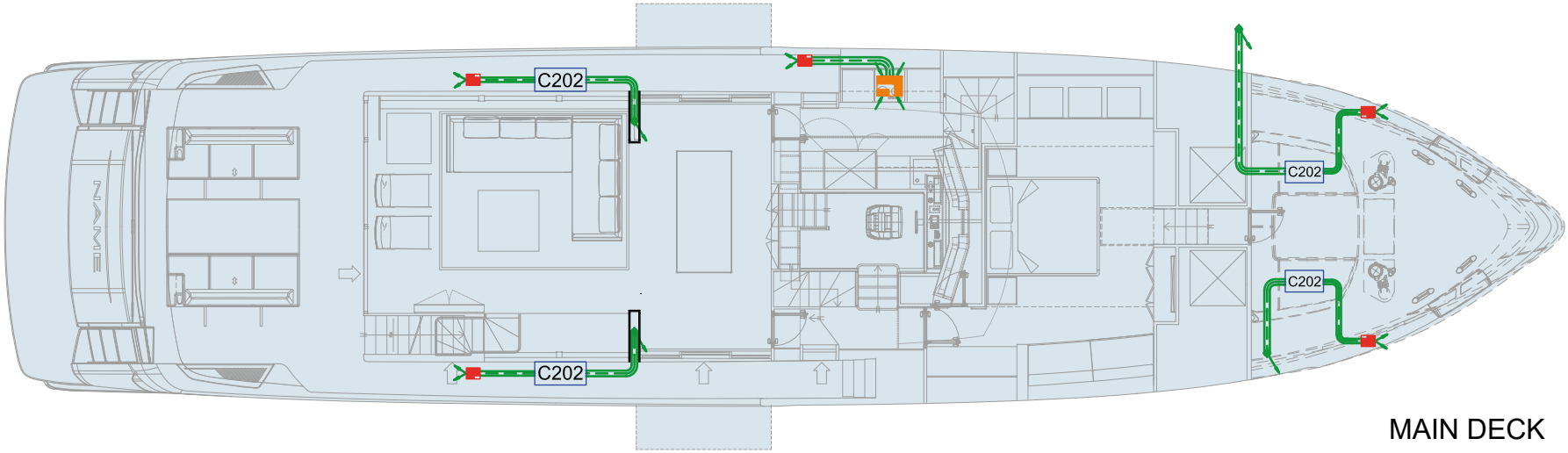
DANGER

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.

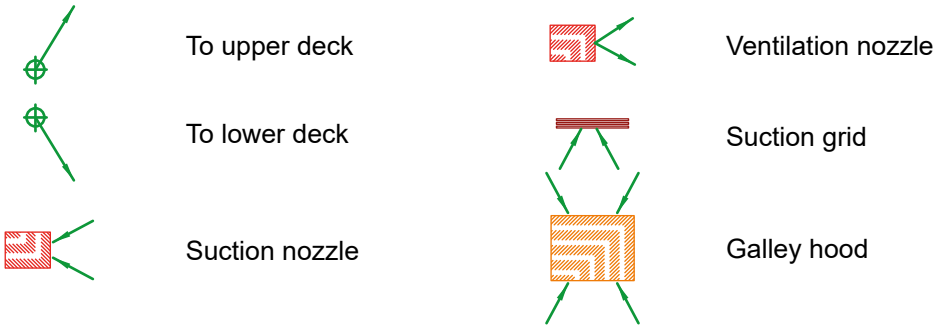


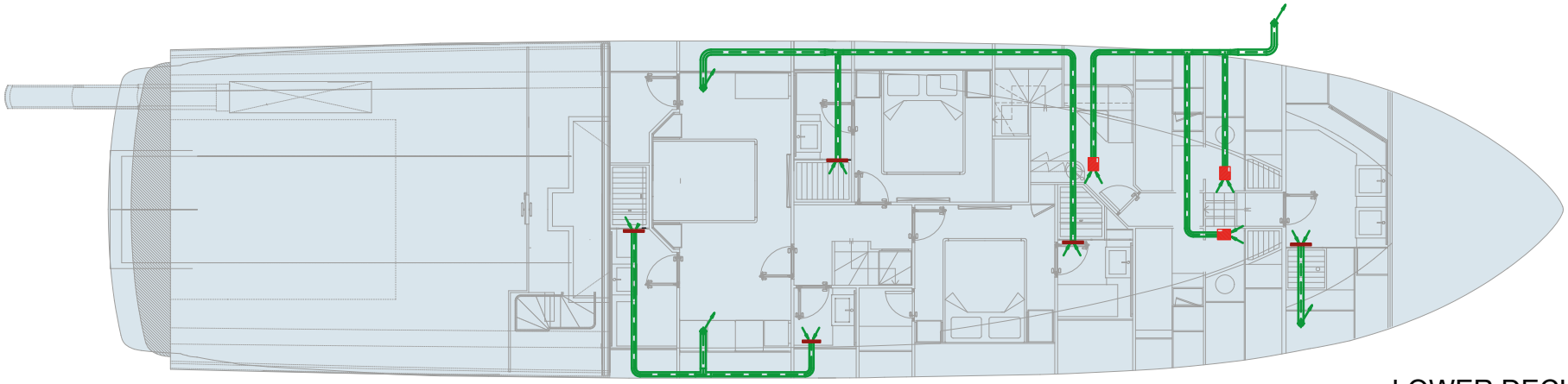

air outlet
air inlet
air outlet
air inlet

8.11.2 Internal local ventilation system diagram



MAIN DECK





LOWER DECK

To upper deck

To lower deck

Suction nozzle

Ventilation nozzle

Suction grid

Galley hood

8.12 GEAR BOX

The main functions of a marine gearbox are the following:
- Couple the engine with the propeller shaft and reduce the number of revolutions of the propeller;
- Reverse the motion direction;
- Interrupt the propeller shaft motion (idle).

The gear boxes are provided with several documents.

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

8.12.1 Gearbox check

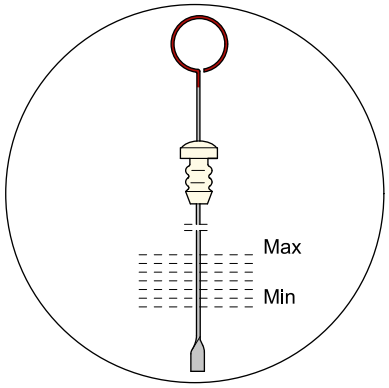
Oil level check
Check the oil level only when the engine is at a standstill. The proper oil level is between the upper and the lower notch of the dipstick.
After the first oil filling, a repair or the cleaning of the oil filter, the gearbox must be run for about two minutes.
Next the oil level check has to be carried out again two 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.

It is possible to drain the used oil from the propulsion engines by using a manual pump activated by means of the relevant lever.

DANGER
Service the gear box only if engine and propellers are stopped and the thermal switch is OFF. Before starting the inverter, 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.



8.12.2 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.
	Suction filter check	Remove the plug upstream of the sump and position it near the connection area of the propeller shaft gearbox. Remove filter and seal. Replace the filter at time intervals recommended by the Manufacturer.
	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.

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.

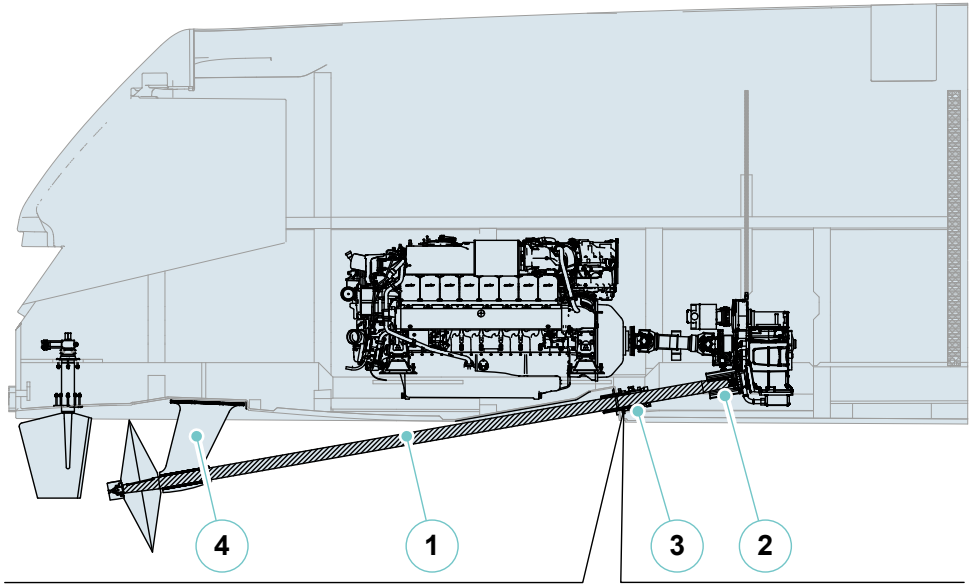
WARNING

Under normal operation conditions, the gear change can be carried out with the engine at low speed.
However, in case of emergency, gear shifting can be carried out with the engine at high speed, thus remarkably reducing clutch life though.

8.13 SHAFT LINE

8.13.1 Propeller shaft and through-hull seal

The propeller shaft **(1)** is fixed to the inverter with the nut **(2)** and is aligned on the three points represented by the inverter, by a sealing through-hull **(3)** lubricated with water and by the shaft support **(4)**. The stuffing box case includes a piece fixed to the hull and an adjustable piece. The adjustable piece is closed to the fixed one, in order to compress the seal, located inside the stuffing box case. It's very important that the seal disposal is compressed, in order to avoid irregular pressures on the seal seat that might compromise life and efficiency of seal disposal. The outer shaft support includes a Neoprene bushing which uses the sea water as a lubricant. Check it every season, as it might get worn quickly during cruising, especially in sandy waters. The bushing wear causes a vibrations increase. When the yacht is on a sandbank, a good technician can easily consider, by moving the shaft, if the wear demands the replacement of the bushing.



1. Propeller shaft
2. Nut
3. Sealing through-hull
4. Shaft support

DANGER
Never approach the shafts while they are rotating.

8.13.2 Maintenance of the shaft line and of the stuffing box seal

Component	Maintenance	Notes and precautions
Shaft support bushings	Periodical checks (at least once a month) Assembly/disassembly	The Neoprene bushing of the shaft support, when cruising in waters with sandy suspensions, may wear rapidly. The bushing wear causes a vibrations increase. With the yacht in a dry shore, a good technician can easily evaluate, by moving the shaft, if the wear is so bad as to need the bushing to be replaced.
Stuffing box seal	Maintenance and check	With yacht moored at the marina, daily and before set up navigation.
Shaft lines	Periodical checks (at least once a month)	It is essential to keep always the propellers and shafts clean; the formation of parasites or the presence of foreign bodies like cables, cloths or plastic bags lead to propulsion power reduction, to propellers cavitation with consequent surface damage, and to vibrations causing damages to the stuffing box seals and to the bushings of the shaft supports. Checking and eventual cleaning may be carried out with the yacht in a dry shore or with the help of a diver. To clean scrape the barnacles, without engraving the metal, polish them with sand paper at thin grain.

MAINTENANCE

At least once a week check for water penetration.
At least once a month carry out the cleaning.
Periodically:

- Check the status of the seals;
- Check the compression of the seal and when necessary carry out the compression;
- Check and service the cooling circuit of the seals in order to prevent dirt, seaweeds and foreign bodies from blocking the cooling water flow, thus causing the seals to overheat and, consequently, their irreparable damage.

8.13.3 Shaft support bushings

Periodical checks

Check the shaft backlash (**1**) trying to move the shaft on a side back and forth to verify the backlash of the shaft supporting bushing (**2**).

Assembly/disassembly

- If the propeller shaft (**1**) shows backlash, the water lubricated neoprene bushing (**2**) could be worn out; in this case replace it.
- Remove completely the antifouling to reveal the screwdriver screws (**3**) which lock the bushing positioned.
- After the propeller (**4**) and the shaft (**1**) have been disassembled, by means of a plastic tube with a slightly smaller diameter, pull out the bushing (**2**).

For reassembly, repeat the above-mentioned operations in reverse sequence.

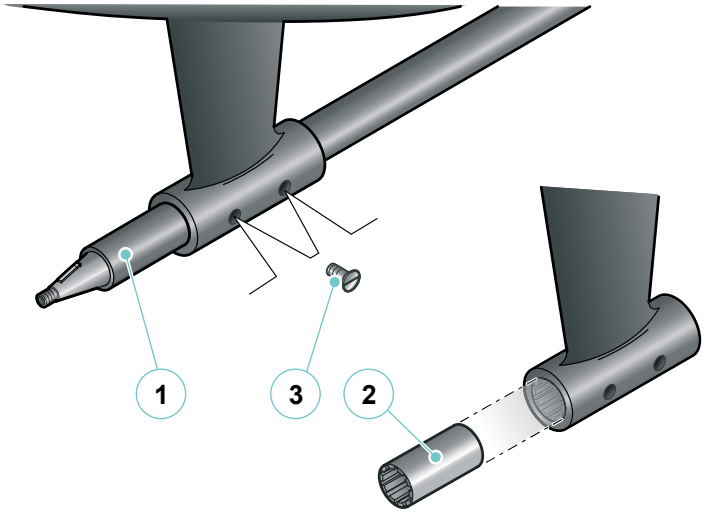
- Do not use grease between propeller shaft and bushing. Remember to fasten the screws (**3**).

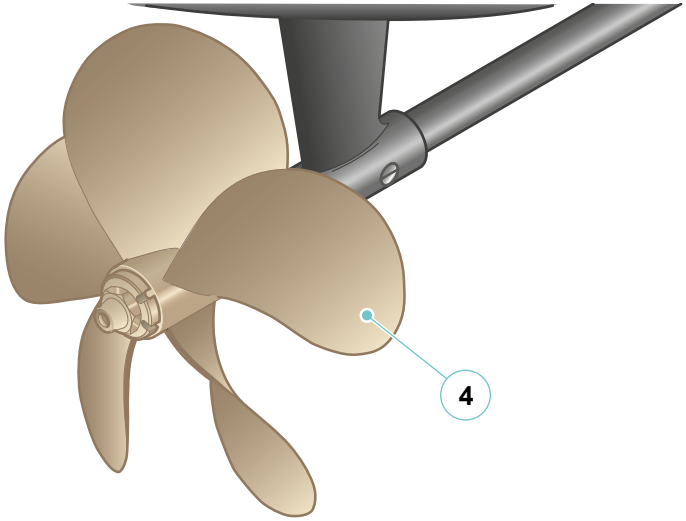
CAUTION

For spare part request contact the RIVA After Sales & Service Department.

CAUTION

Remember to retighten the fixing screws (**3**) of the bushing on the shaft support. Never use grease or other lubricant between propeller shaft and Neoprene bushing.





8.13.4 Mechanical seal

The mechanical seal has the function of preventing sea water from entering the yacht through the space between the propeller shaft and the hull.
It is made up of two sliding rings kept in contact by combined forces. One ring is defined as rotating and rotates with the shaft; the other stationary is bound to the hull.

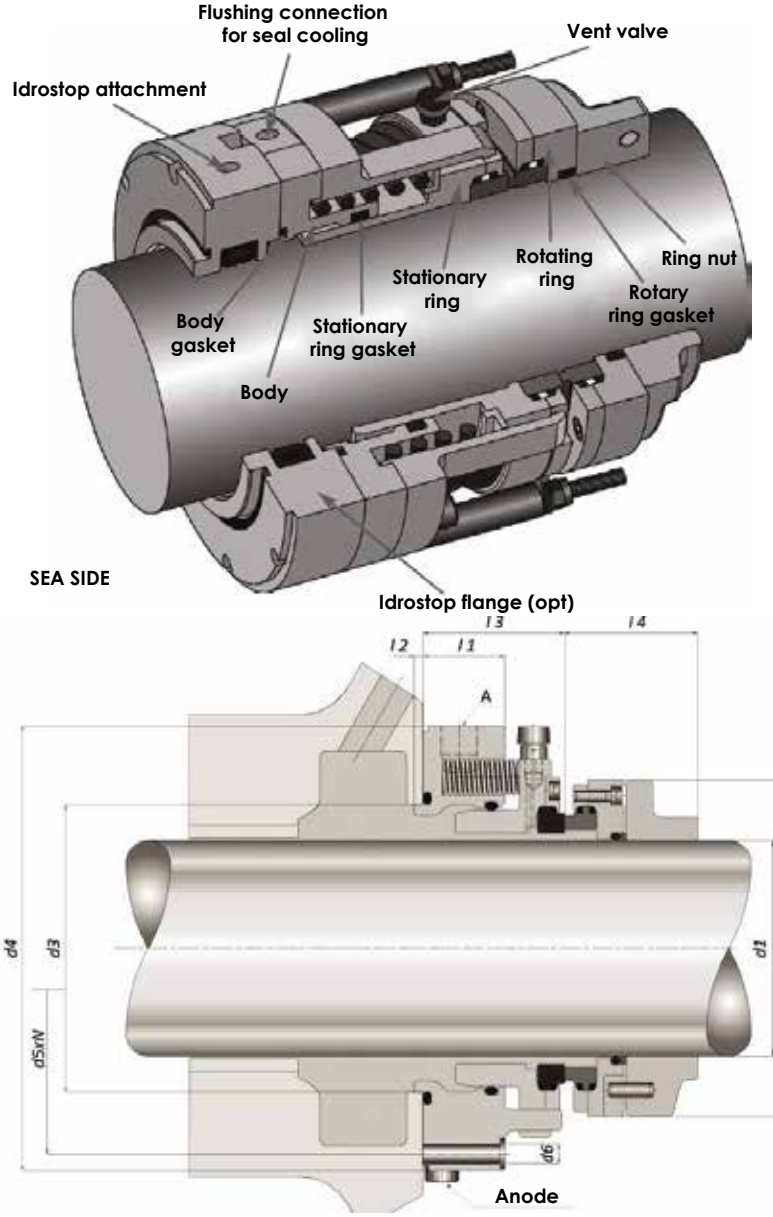
The seal between the parts is made by means of o-rings.

Cooling of the seal is ensured by the access of water through the flushing duct.

On your yacht, between the bulkhead and the stationary element, the idrostop system can be installed (OPT).
In emergency situations and in case of water infiltration from the bulkhead, the IDROSTOP (if present) allows, once pressure has been applied, through the special pneumatic connection (max 3 bar), the return to port in complete safety, keeping the shaft stationary and at reduced speed.

Make sure before starting the engine:
- That the seal is also clean on the outside. If foreign bodies are present, it is advisable to wash thoroughly.
- That the flush water valve is open and there are no leaks from the sealing surfaces.
- Of the sacrificial anode's state of consumption.
- For medium-long periods of yacht downtime, follow the instructions in the supplier's use and maintenance manual.

CAUTION
Install the seal only when the yacht is outside the water.



CAUTION

Never leave sealing surfaces in contact with substances like oil, lubricants or antifreeze.

MAINTENANCE

At least once a week check for water penetration.
At least once a month carry out the cleaning. Periodically:

- Check the status of the seals;
- Check the compression of the seal and when necessary carry out the compression;
- Check and service the cooling circuit of the seals in order to prevent dirt, seaweeds and foreign bodies from blocking the cooling water flow, thus causing the seals to overheat and, consequently, their irreparable damage.

CAUTION

The ongoing navigation and low speed, both forward and in reverse (as in the case of fisheries), it can cause overheating of the seals and their irreparable damage.

CAUTION

After the use of the Idrostop system it is necessary to contact the RIVA assistance service.

NOTE

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

8.14 PROPELLERS

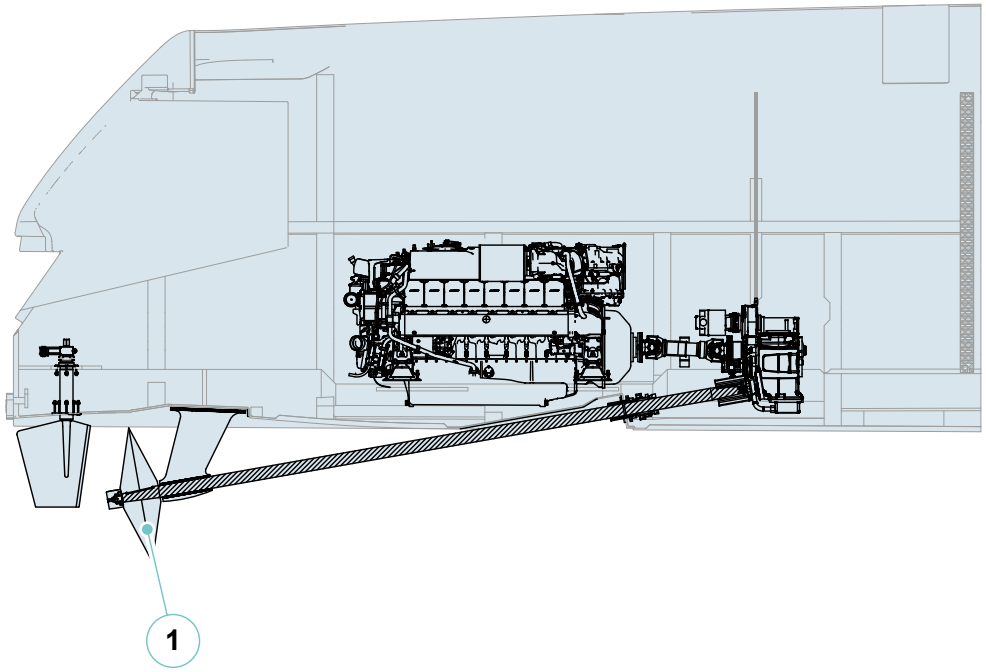
The propellers **(1)** have been designed in order to result lightly “unloaded” with a new yacht, hull clean and without displacement overloads: in this way the engines will develop all their power in average normal operating conditions, with hulls and propellers not perfectly clean and some overloads on board.

Periodically check if the propellers are not too “dirty”, as this leads to a fast performance decrease and to a vibration increase.

In case of impact with the depth or submerged/semi-submerged bodies, check propellers and shafts immediately; in case of considerable vibrations, reduce the revolutions to the minimum and steer toward the harbor for repair, as a vibration increase might damage the propelling devices and the yacht structure.

CAUTION

RIVA yachts are designed to obtain a correct transversal trim with full optional equipment, and with 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.



8.14.1 Maintenance of the propellers

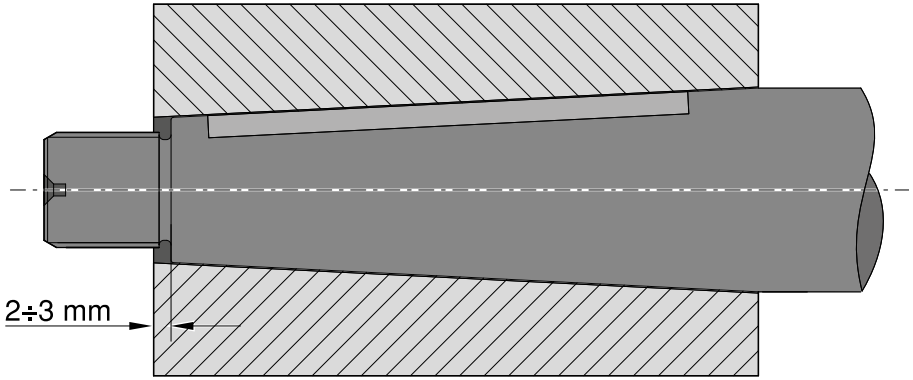
Component	Maintenance	Notes and precautions
Propellers	Periodical checks	The propeller check should be performed according to the floating waters. Inspection and possible cleaning may be carried out with the yacht in a dry shore or with the help of a diver. Check if the propeller blades have notches, 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 the RIVA After Sales & Service Department.

8.14.2 Periodical checks of propellers

DANGER

To clean and check the yacht in water: disable the engines and generators start.

It is advisable to carry out this operation by yacht in dry shore because maintenance is in this way eased. Check if the propeller paddles show notches or breaks, scales or barnacles, which may have a negative influence on the yacht output during navigation. If you notice corrosion, check the anodes conditions and replace the propellers for major failures.



Propellers assembly/disassembly

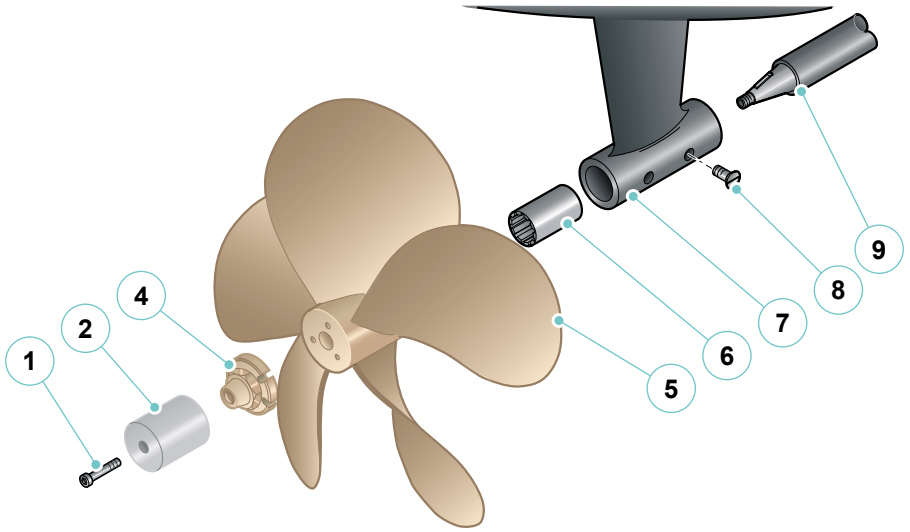
The propellers (starboard and port) are not interchangeable between them; they are bronze meltings according to specific features of your yacht.
The extreme end of the shaft (**9**) is conical and a little key allows the coupling with the propeller (**5**) which must be inserted up to the shaft catch and leaving the propeller stretching out from the shaft plane of 2÷3 mm.

CAUTION

Do not replace the propellers of your yacht with other of doubtful origin.
Contact the RIVA After Sales & Service Department.
Each yacht model has its own propeller.

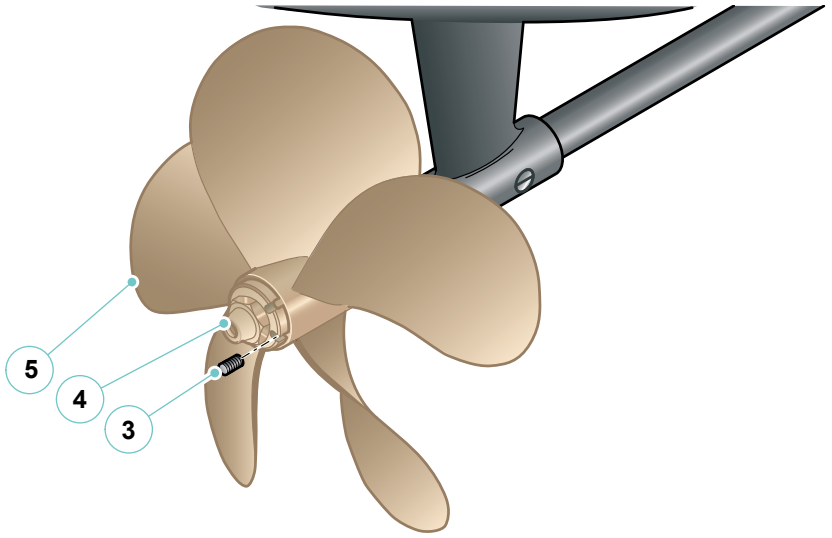
Pieces should not show burrs or dents to make the coupling effective. It is essential to lubricate them with plenty of silicon grease.
Tighten the nut (**4**) locking the propeller on the shaft (**9**);on the propeller hub there are three holes to 120°. Tighten as necessary to insert the dowel (**3**),to avoid natural loosening.
For disassembly keep an extractor at disposal so as not to deform the propeller.
In case of obstacles or excessive sticking, heat the propeller to expand the coupling and ease the removal.

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.



Hereunder a list of the components of shafts and propellers line:

1. Screw
2. Propeller anode
3. Dowel
4. Nut
5. Propeller
6. Shaft support bushing
7. Shaft support
8. Countersunk screws with notch
9. Propeller shaft



STEERING SYSTEMS

CHAPTER 9

9.1 STEERING SYSTEM

The electro-hydraulic steering system contributes to a good maneuverability of the yacht. When the steering wheel in the helm station is turned, a hydraulic pump is operated to activate the piston located in the engine room and connected directly to the rudders, thus maneuvering the yacht.

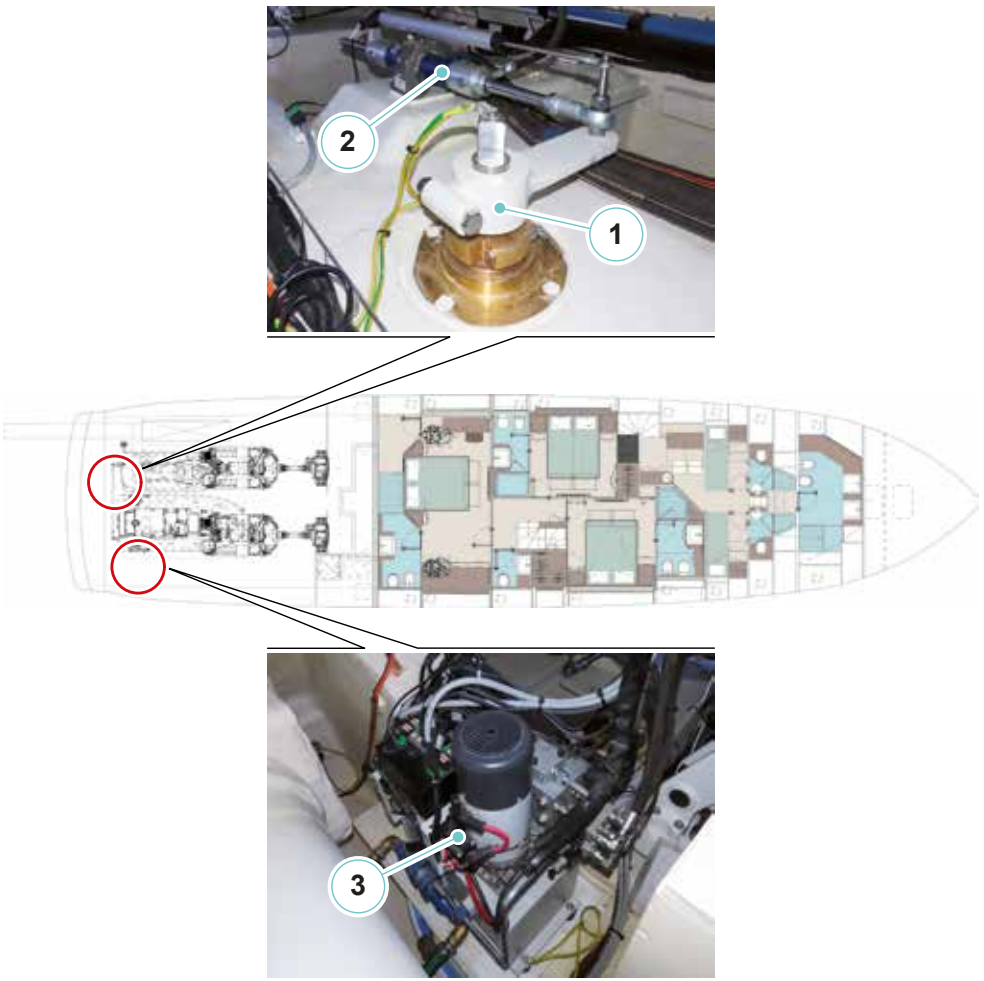
The transfer of the steering control to a secondary control station takes place with the following procedure: require the transfer from the station in operation which will remain active until the consent is given from the receiving station.

The mutual transfer between the different stations can only take place in the absence of propulsion (engines in neutral position).
The steering of a rudder is always guaranteed in case of main electronic system failure by a backup panel.

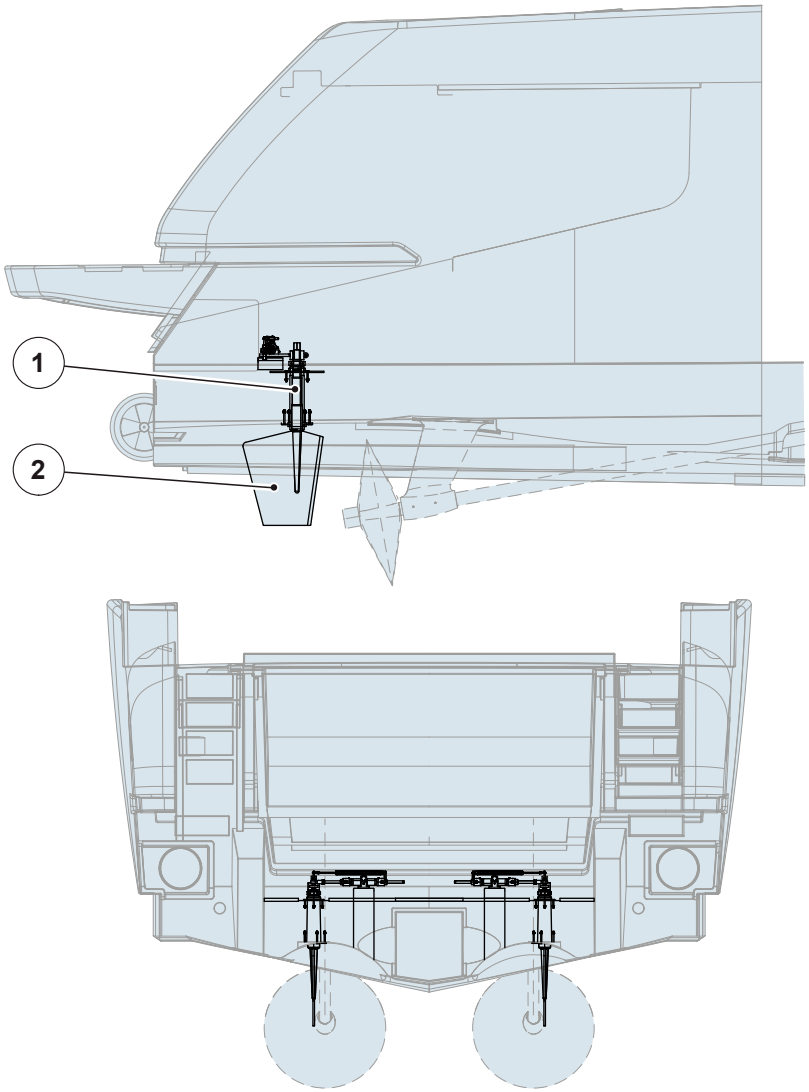
A rudder that cannot be electrically operated can always be released with the power pack by-pass and will be free to move.

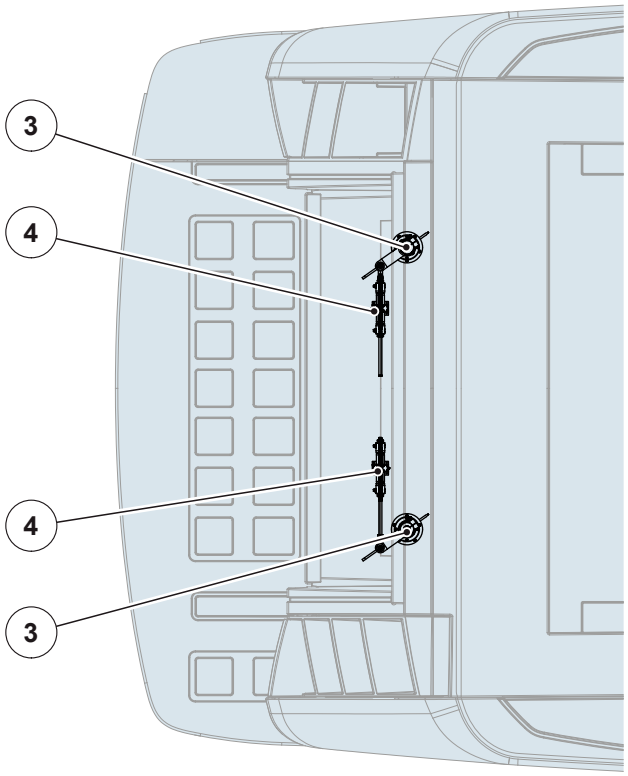
1. Pneumatic cylinder
2. Rudder bar
3. Electro-hydraulic power pack

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



Steering system scheme:





1	Rudder hole
2	Rudder
3	Rudder bar
4	Hydraulic steering

9.2 INTERCEPTORS SYSTEM

The yacht is equipped with two interceptors, which can be controlled from the control post. Each interceptor is driven by an electric motor.

They allow you to vary both the yacht's longitudinal and transverse trim during navigation.

Familiarisation with the use of interceptors is important, as their correct use will improve performance and comfort.
In principle, lowering and raising the interceptors will lower and raise the bow of the yacht respectively.

Correct positioning of the interceptors results in a stable and ideal setup which can increase speed while reducing consumption.

In particular navigation conditions, when, due to lateral forces of the sea, sea currents and wind, the yacht assumes an inclined attitude, to restore normal conditions while maintaining the course, it is necessary to act on the wheel of the rudder or with the offset use of the interceptors.

WARNING

Interceptor are normally used during cruising, both to make it more comfortable and to achieve better performance of the yacht, according to the sea and navigation condition, and the yacht loading.

CAUTION

When using reverse, set the interceptors fully up otherwise they may be damaged.

When one of the buttons on the control panel on the dashboard is pressed, the electronic control unit located in the system room receives an electrical impulse that starts the engine of the interceptor. The motor rotates in the chosen direction and therefore determines the descent or ascent of the interceptor. Pressing the button on the other position determines the opposite movement of the motor. Each button controls the movement of a interceptor. It is possible to visualize, through the monitoring system, the inclination of the interceptors, measured by means of a position transducer placed on each of them.
Some suggestions will be useful in familiarizing yourself with the interceptors:
After the hull has moved to the glide position, adjust the position of the interceptors to find the position most favourable to navigation:

- At high speed, it is advisable not to operate the interceptors simultaneously, one up and the other down, but to perform the operations separately to avoid sudden skids; instead, it is possible to manoeuvre them simultaneously in the same direction;
- In calm seas, the best position for interceptors is to allow maximum speed with less yacht drag;
- In rough "bow" sea, the "down" interceptors will allow you to "beat less" and sail with more comfort even if your speed will be reduced;
- In rough seas "on the stern", the interceptors "up" will tend to raise the bow thus avoiding unpleasant;
- With lateral wave motion or asymmetrical lateral load, the best stability is achieved with staggered interceptors;
- If the yacht is not in motion, place the interceptors all on.

CAUTION

The manual use of Interceptor ("trim assist" function disabled or override), running at high speed, requires special attention and it is normally not recommended.

CAUTION

The Interceptors, as well as transmission systems, can suddenly change the yacht direction if operated too rapidly or with high angles of incidence, especially with increasing yacht speed and during maneuvers (as they are usually sized and optimized for intermediate speed). It is therefore necessary to get well familiar with their use and related devices reactions in any condition and especially at high speeds.

CAUTION

As is good practice on a yacht, always make sure that passengers are seated before performing large adjustment manoeuvres on the interceptors, especially if you are navigating at high speed.

CAUTION

Periodically clean Interceptor to remove any corrosion that may affect their efficiency. To reduce the risk of corrosion, retract the cylinder rods especially when the yacht is stopped for some time in the shore or on the ground.

NOTE

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

9.3 STABILIZING FINS SYSTEM AND MANOEUVRING THRUSTERS

9.3.1 Stabilizing fins

The fins are wing profiles in all respects and take advantage of the speed of water they encounter to create lift on the upper or lower surface, depending on how the fins are rotated with respect to their axis.
Therefore, according to what is imposed to them by the logic of control, they, through actuators, move in such a way as to give an immediate response to the action of roll.
The higher the speed of the hull, the greater the bearing capacity that the fins can create and that, when the ship is stationary, they have practically no influence. The control system includes an electronic control unit.
On leaving the port, all you need to do is activate the system, which independently manages the trim of the yacht in a continuous and efficient manner, thanks to the stabilizing fins mounted under the hull.
The system adapts its interventions according to speed, sea state and wave direction, as well as heeling data from the sensors, of course.
The stabilizing fins of the system are equipped with very robust electromechanical mechanisms, capable of ensuring an effective duration in time.
As for the control unit, it is equipped with a liquid crystal screen on which you can read all the data collected by the sensors, the status of the fins and the system, as well as any alarms needing intervention.
On this yacht there is also the Zero Speed system that allows the operation of the stabilizing fins even with the engines off.

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

DANGER
Stabilizing fins in zero speed mode should not be activated with people swimming around the yacht.

CAUTION
The power supply of the outrigger panel must always be maintained on the main electrical panel; moreover, if the stabilizer fin system is not used, the fins must always be kept in the centre (see display on the helm station).

9.3.2 Manoeuvring thrusters

The thruster is a very simple and robust accessory, but requires some attention: The drive thruster should be used at very low speed, or without rudder; at higher speed, more correct reactions are obtained with the staggered use of the inverters;
Whenever there is a chance to lift the yacht, check the condition of each thruster, the protective anode and the fastening system.

MAINTENANCE
At least once a week check that it is working properly.
At least once every 3 months check the condition of the protective sacrificial anodes plates and replace if necessary.
Add oil when necessary.

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

Using the thruster

After checking that the engine battery breaker is in the ON position, that the battery breaker is extracted (ON) and activating the magneto-thermal switch on the general electrical panel, enable the relative controls through the monitoring system and press the START button on the joystick control panel, from which you intend to manoeuvre (dashboard, fly or third station). The indicator light that illuminates indicates that the equipment is ready for use. Hydraulic thruster motors are controlled via control joysticks.

WARNING

When you are finished using the thruster, press the STOP button on the control panel.

WARNING

On the synoptic panel on the control bridge there is an indicator light which, if lit, indicates that the bow thruster is powered.

CAUTION

For the duration of continuous use of the operating thruster, refer to the operating manual supplied by the Manufacturer.

CAUTION

Always switch off the control when the thruster is not in use.

DANGER

During the bow thruster operation, pay attention to possible swimmers or small yachts which may be close to the thruster openings.
Do not test the thruster when the yacht is outside water, unless you are sure the workers are at safety distance from the thruster tunnel.

DANGER

Always stop the thruster before undertaking inspection or maintenance tasks by disconnecting the switches and possibly also the battery terminals.

CAUTION

Never operate the thruster for more than one second when the yacht is being pulled dry, as this may seriously damage the system.

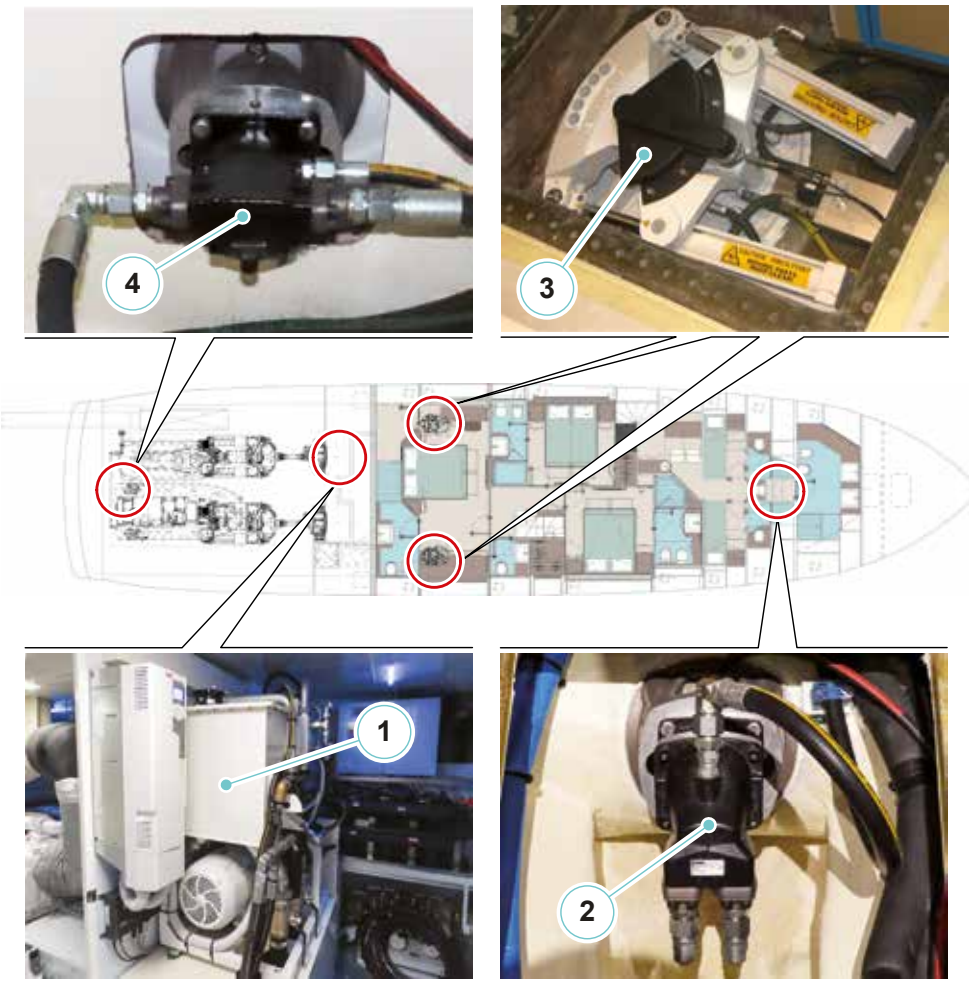
CAUTION

If a fuse needs to be replaced on the system, have a competent naval electrician work on the system.
Be sure to read the manufacturer’s technical operating documentation beforehand or contact RIVA Assistance.

9.3.3 Hydraulic system for thruster and Stabilizing fins

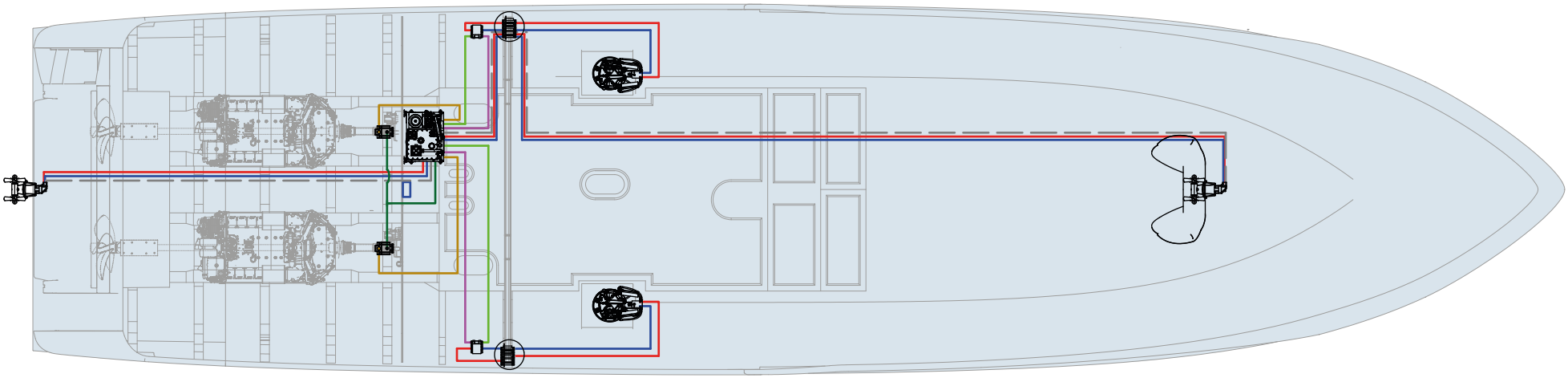
It is an independent system that works by means of a hydraulic pump, which sucks oil from a special tank and then conveys it to a distributor.
Four lines branch off from the distributor: one that feeds the bow thruster, one to the stern thruster (opt), one that feeds the left stabilizing fin and one that feeds the starboard stabilizing fin.
The hydraulic tank is connected to a heat exchanger that uses sea water to cool the oil so as to keep its temperature constant, a pressure gauge to keep the pressure under control and a visual level indicator.

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



1. Power unit
2. Bow thruster
3. Stabilizing fins
4. Stern thruster

Stabilizing fins hydraulic system diagram



PTO Suction line

PTO Turn line

Stabilizing pressure line

Stabilizing turn line

A line

B line

Drainage line

9.4 GYROSCOPIC STABILIZERS

To reduce the annoying effect of the oscillatory motion of the roll, determined by the wave motion, a system has been installed consisting of two gyroscopic stabilizers **(2)** able to generate a rotation equal and opposite to that of the waves. In fact, the system combines a significant reduction in roll both when the yacht is stationary and when cruising with low energy consumption that does not compromise the quality of life on board and leave the performance unchanged.

Thanks to these very important features, the device can be kept active even during the night to maintain greater comfort damping almost completely the annoying motion of roll.

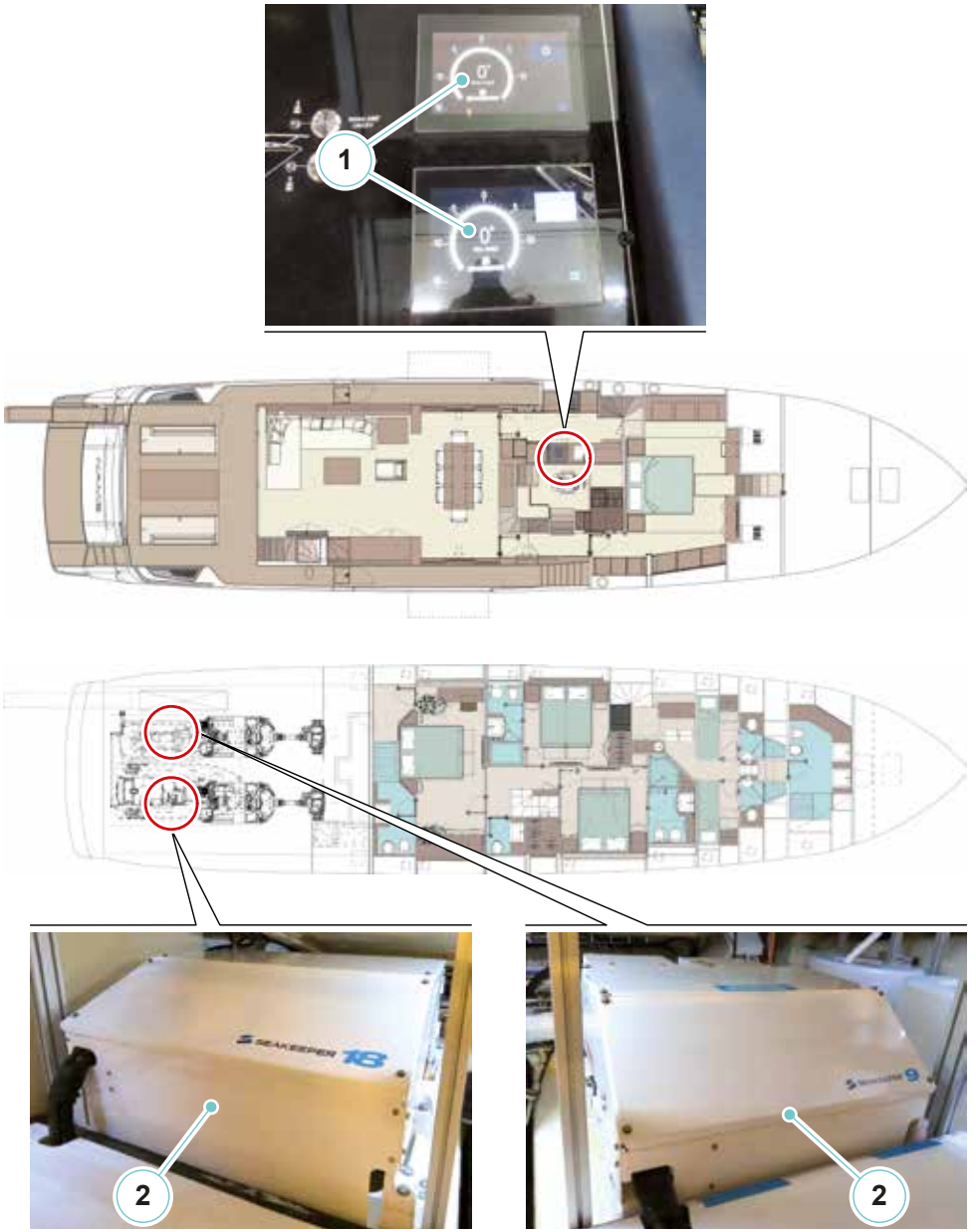
Gyroscopic stabilizers are based on a known physical principle: a gyroscope tends to keep its axis of rotation vertical, parallel to the acceleration of gravity.

When an external cause intervenes to vary its position, such as the roll determined by the wave motion, it opposes with a rotation on an axis perpendicular to its own rotation axis and to that of the cause of the heeling. In the case of gyroscopic stabilizers, this operation generated (roll) is attenuated by the presence of two dampers specially calibrated according to the characteristics of each yacht.

The system consists of two stabilisers positioned next to each other in the engine room under the garage, controlled by two displays **(1)** positioned on the synoptic panel in pilothouse.

NOTE

For further information please refer to the manual supplied by the Manufacturer.



CAUTION

Have the planned PERIODIC INSPECTION carried out by specialised personnel every two years. Contact RIVA for further information.

WARNING

During operation, the gyroscopic stabilizers, the vibration dampers and its housing overheat. Touching the gyroscopic stabilizers may cause burns during operation.

DANGER

The gyroscopic stabilizers housing is not a solid component. If you lay objects or sit on the gyroscopic stabilizers, the gyroscopic stabilizers may be damaged.

CAUTION

The gyroscopic stabilizers is not watertight. If it is submerged in sea water it could be damaged.

AIR CONDITIONING SYSTEM

CHAPTER 10

10.1 AIR CONDITIONING SYSTEM

The air conditioning system consists of a conditioning unit with heat pump equipped with inner heat exchanger that 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 fresh water, by means of a circulation pump, delivers cooled (or heated) water to the fan-coils until it reaches the set temperature.

WARNING
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 with 230V AC, and driven by a magneto-thermal switch located on the main electrical panel. The compressor set is located in the technical room on the port side, while the control panel is located upon to the compressor set.
Each conditioned room is equipped with self-adjusting control panel.

CAUTION
Two magneto-thermal switches for AIR CONDITIONING and FAN COIL BLOWERS are installed on the main electrical panel, both switches must be set to ON, in order to operate the air conditioning system correctly.

For operation and maintenance descriptions and information, please refer to the relevant 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 motor with a screw-driver. 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. Switch on the refrigerator by means of selector placed on the machine front side or on the separated electrical panel.
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. At the compressor start the running the operation on the electrical panel will be indicated and the hour meter will be activated.

Its operation will stop when reaching the temperature of chilled water 7 to 8°C. The temperature of the chilled water can be checked by suitable thermometers placed on the unit. The cooled water temperature can be set by means of the thermostat on the unit's control panel. The chilled water circulation pump will circulate water to the different fan-coils. Fancoils 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 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

Before cleaning the strainer, remember to close the sea cock valve, to stop the generator and then proceed with maintenance. Once this operation is finished, remember to open the valve which supplies the cooling circuit.

CAUTION

When the yacht is connected to one or to both shore sockets, due to the limited power drawn from the 200V - 50 A column (equal to 10 kVA), it is necessary to limit the maximum power absorbed by the A/C unit, by cutting off at least one of the three compressors; this to prevent the thermal protection from activating. The yacht is configured with the third compressor cut off by the Manufacturer.

CAUTION

The suction valve is for centralized sea suction.

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 infirmities due to the great difference of temperature between the yacht inside and the outside.

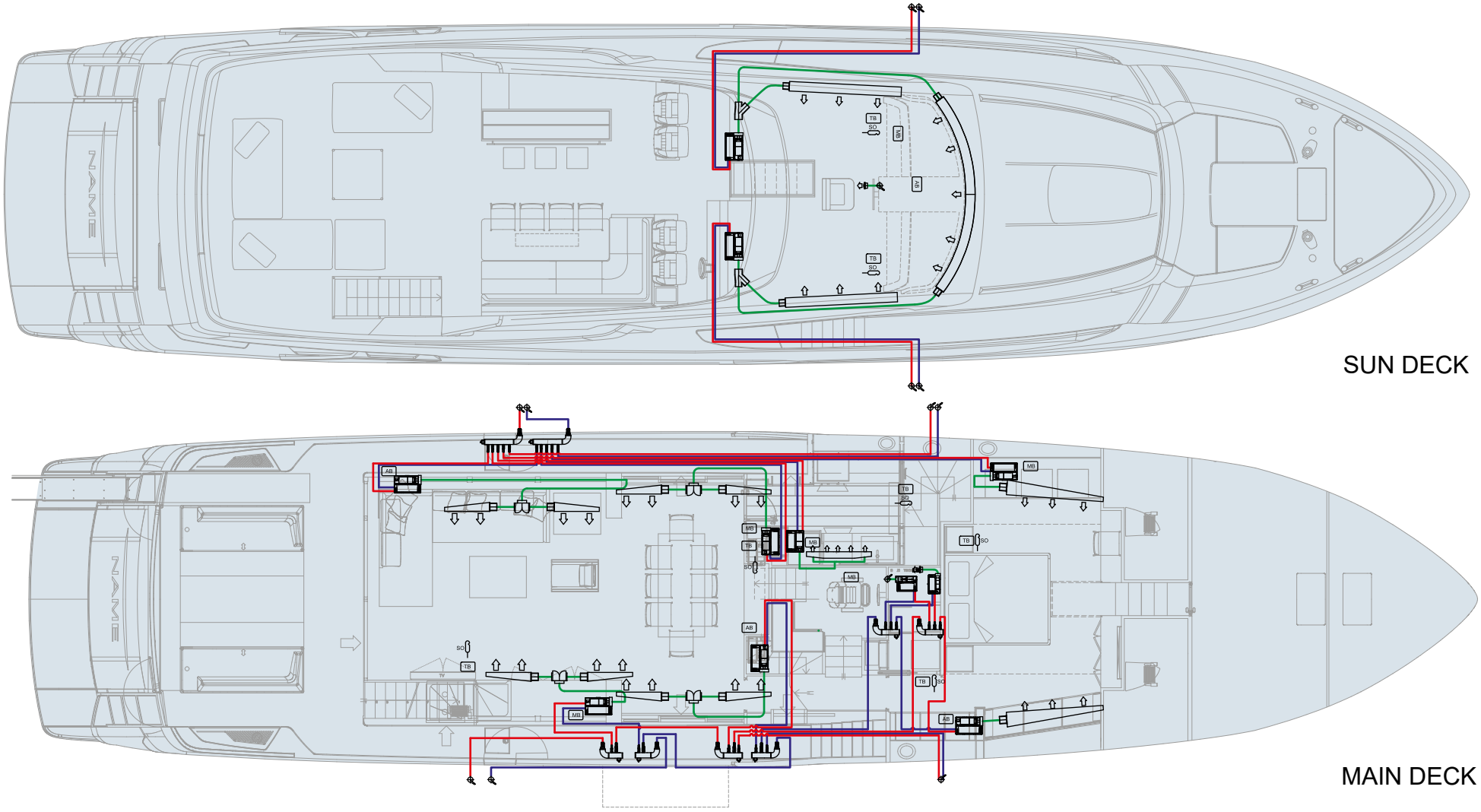
CAUTION

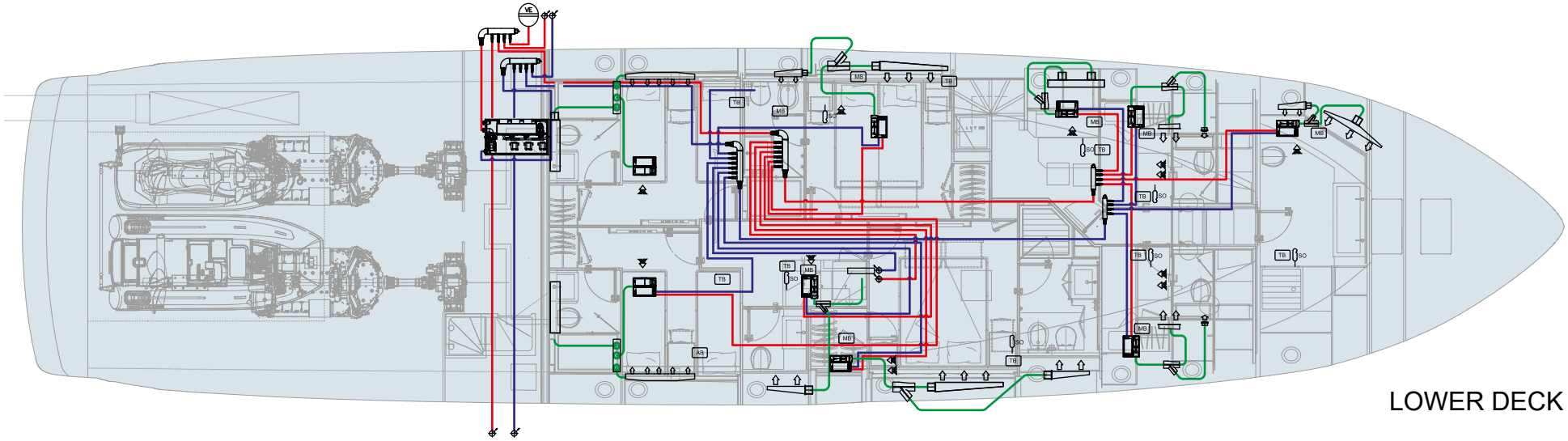
Never clog the temperature sensors located in each air conditioned room; as their clogging could impair the correct operation of the system.

NOTE

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

Air conditioning system diagram





LOWER DECK

	Fan coil suction	SO	Temperature sensor
	Fan coil supply	TB	System regulation panel
	To lower deck	MB	Motherboard
	To upper deck	AB	Auxiliary fan coil board

10.1.1 Refrigerating unit control panel

The control panels of the cooling system located in the engine room and in the main helm station have 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.

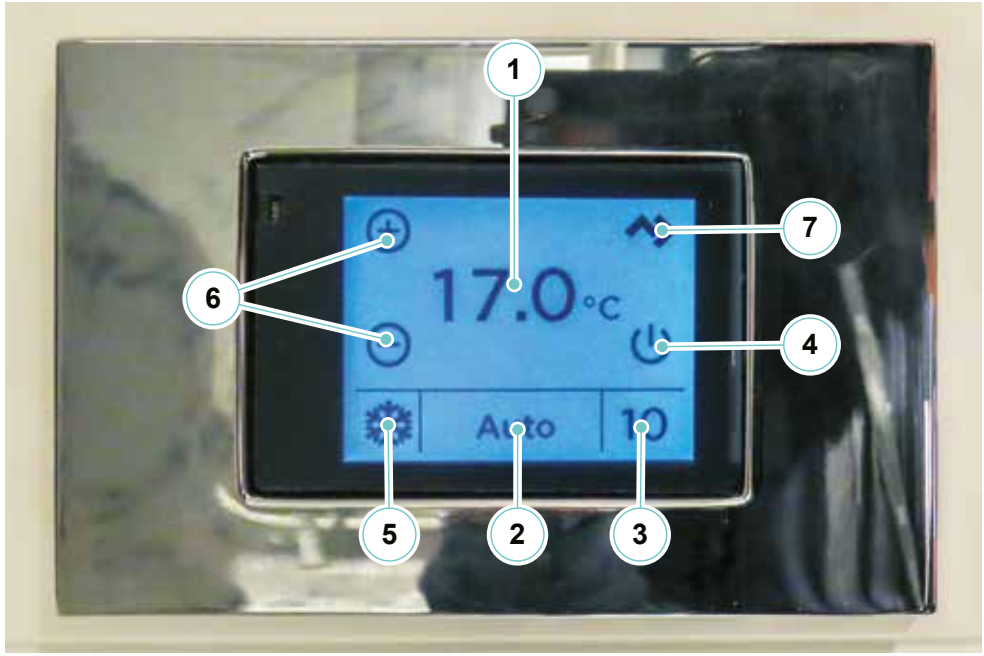
CAUTION
It is strongly recommended NOT TO CHANGE the factory setting. This is possible only in exceptional cases and with the help of RIVA staff and Service Departments.

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 Service Department.

10.1.2 Fan-coil control panel

The new 2.4” colour LCD touch screen display facilitates user interaction. The background colour (white or black), the unit of measurement (°C/°F) and the brightness of the display can be easily set through the new user menu. The main screen contains the following elements:

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. Fan-coil shutdown
6. Temperature reached. By pressing the symbols in the function menu:
   - Cooling
   - Heating
   - Electric Heating
   - Ventilation only
7. Temperature set keys
8. 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.

10.1.3 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. Bleed air by means of the relevant valves installed on the heat exchanger, the fan-coils and the manifolds, keep the bleed 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 and an automatic speed. Select the required mode.

Room temperature setting

To obtain the desired room temperature, set the thermostat to +21, +22°C / +70, +72°F in winter cycle and to +24, +25°C / +75, +77°F in summer cycle. Refer to the instruction manual.

Temperature check of treated water in the fan-coils circuit

The treated water temperature check is performed through two digital control panels. The water temperature inside the fan-coil circuit may vary from 0 °C/32°F +60°C/+140°F and by exactly the water temperature in the fan-coil circuit.

For a good BTU/h performance, the thermometer should indicate +7 + 8 °C/+45, +46°F in summer and +45°C/+113°F in winter 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/37°F in winter cycle or increases by 3°C/37°F in summer cycle. In winter, if the sea water temperature drops below +10°C/50°F, 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-coil 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 groups can produce hot water through a water heater.
Simply set the selector switch to “Heat”.

WARNING

Pay attention not to damage the airtight cooling circuit, because it contains a polluting and irritating gas inside.

CAUTION

The topping-up of the chilling liquid must be carried out by skilled and qualified personnel, according to the indications of the Manufacturer.

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.

AUXILIARY EQUIPMENT ON BOARD

CHAPTER 11

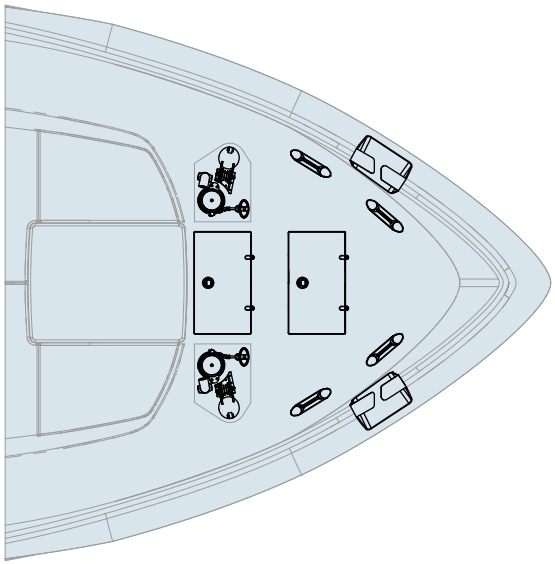
11.1 PREPARATION FOR MOORING

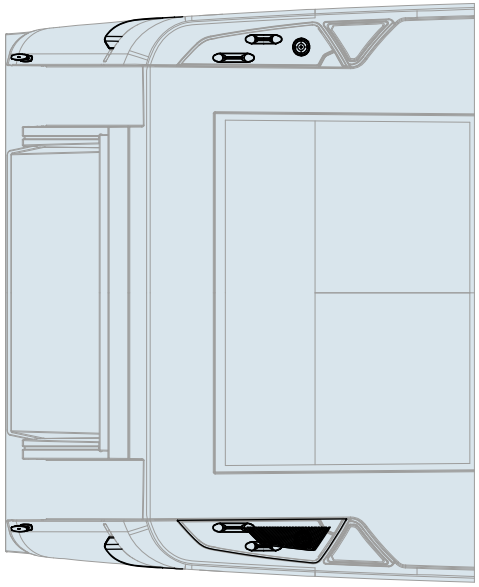
Your yacht is equipped with deck instruments necessary for easy and safe mooring.
In addition to the anchor winch, mooring equipment is located at the bow, on the walk-around and at stern of the yacht, and consists of cleats, fairleads and anchor windlass:

- Each stern mooring furniture is arranged with two cleats and a mooring winch;
- A cleat is arranged on each side of the walk-around of your yacht;
- In the bow mooring area two cleats (two external and one internal to the locker), a fairlead and the windlass are arranged.

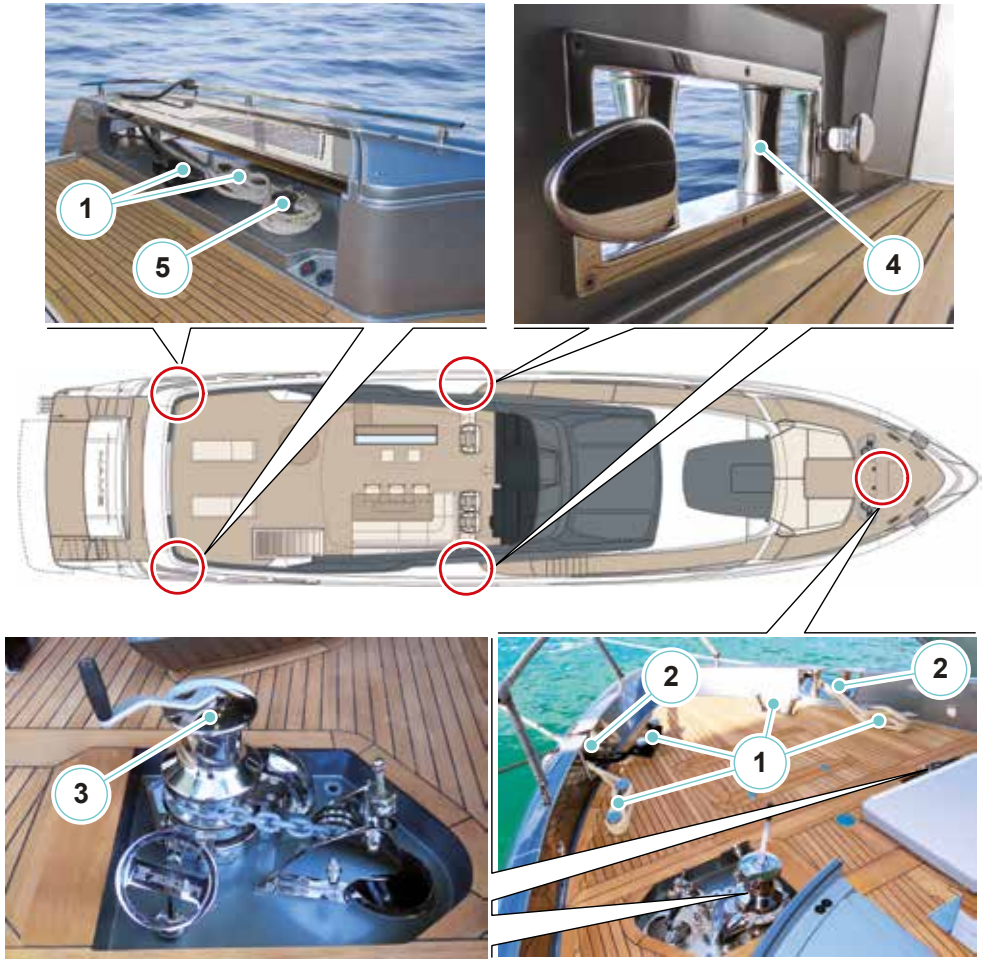
CAUTION

Do not use the stern platform cleats as permanent mooring points.
They should be used only for the service tender or mooring of watercraft.
The stern cleats must never be used for the tender or chase boat towing.



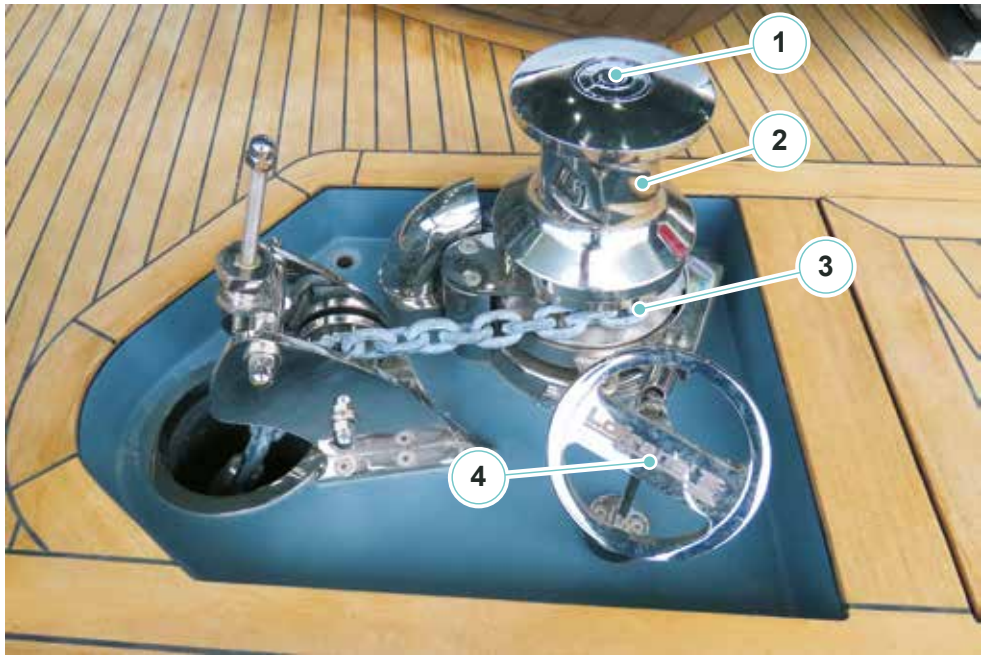


1. Cleats
2. Fairleads
3. Anchor windlass
4. Fairleads with cleats
5. Mooring winch



11.2 ANCHOR WINCH

The yacht is equipped with two winches that moves the anchors housed in the bow.
The anchor chains glides into the yacht through the chain guides and reaches the anchor winches, then winds around the wildcat and glides into the chain pits.
The anchor winches are equipped with control for chain displacement in both directions and with manual brake to lock the chain during mooring.
The winches are equipped with a clutch separating the drive shaft from the wildcat; this allows using it as a warping winch for pulling a line.



1. **Bushing for lever engagement**
   This device allows 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 locking the wildcat rotation for the chain fastening.
5. **Lever**
   Adjusts manually the clutch opening and closing, and releases the wildcat.

CAUTION
RIVA is exempted from any liability for any accidents or damage to persons or property caused by incorrect use of the device.

Anchor winch activation controls

The anchor winch located at bow can be activated either by means of the remote control, located in the bow peak, or by means the digital chain counter, that will measure the length of the chain weighed installed in the main helm station.

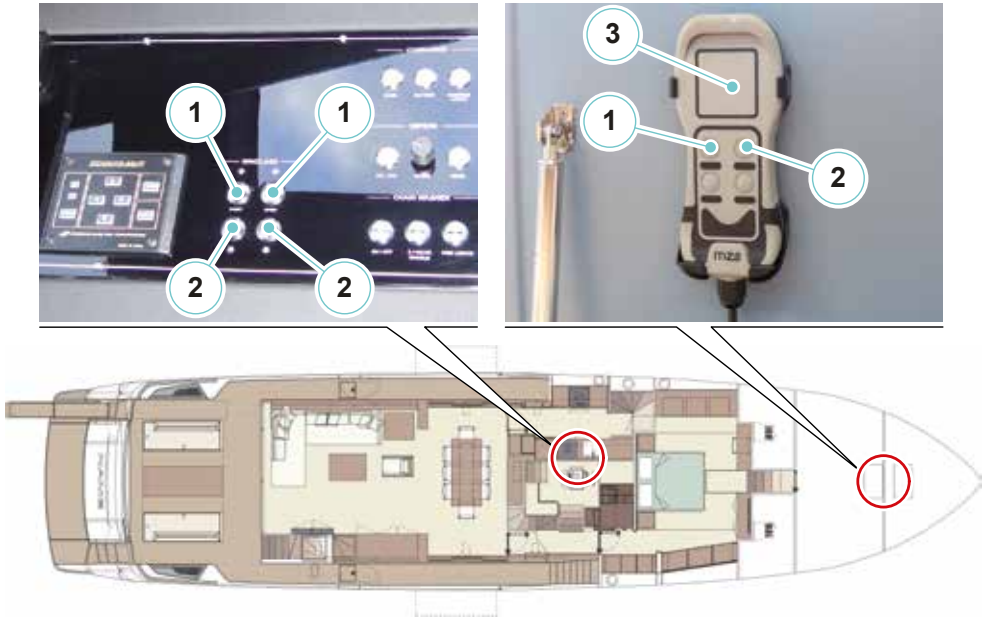
1. **“UP” button**
   This button allows weighing the anchor chain.
2. **“DOWN” button** This button allows lowering the anchor chain.
3. **Remote windlass actuation control**
   Allows the windlass to be operated remotely.

CAUTION

If you wish to use the anchor, loose the wildcat lock and remove the safety wire.

CAUTION

Do not bring body parts or objects near the area where the chain, the line and the wildcat run. Make sure the electric motor is not powered 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
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.

Clutch use
The wildcat is connected to the main shaft 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.

$$\text{Radius} = \frac{\text{Chain length}}{\text{Bow height + water depth}}$$

as it is necessary to know the length of the chain to be used for mooring.

Chain length = (bow height + water depth) x radius

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.

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 shaft 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 damage the yacht bow if the anchor winch is not operated carefully.
We suggest to carry out the operation by means of the remote control located near the anchor winch; this will allow checking the lifting and lowering speed of the chain and the entry and exit of the anchor shaft into the anchor roller. Namely during those operations, an excessive gliding of the chain or a wrong entry or exit of the anchor shaft from the roller may cause damages to the yacht's bow.

Pay utmost attention: never get too close to moving parts to avoid danger and injury.

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 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 dropping the anchor, check the nautical charts: anchoring is prohibited in certain areas, in weeds covered sea bottom, anchoring is unsafe and harmful to the environment, on rocky sea bottom, the anchor may get stranded 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.

CAUTION

The anchor chain is fastened to the yacht by means of a line and an hook system. 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.

Anchoring operations

- Make sure that the engines battery breaker is on;
- Turn the anchor winch switch ON, on the main 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, perform the same operations previously described above, in reverse order.
In windy or strong current conditions, start the engines and keep the bow toward the anchor position to avoid the breakage of the chock.
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.

NOTE

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

11.2.1 Anchor winch maintenance

Component	Maintenance	Notes and precautions
Reduction motor	Check and cleaning (before each navigation) Check and top up	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.

11.2.2 Reduction motor

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 soon 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.

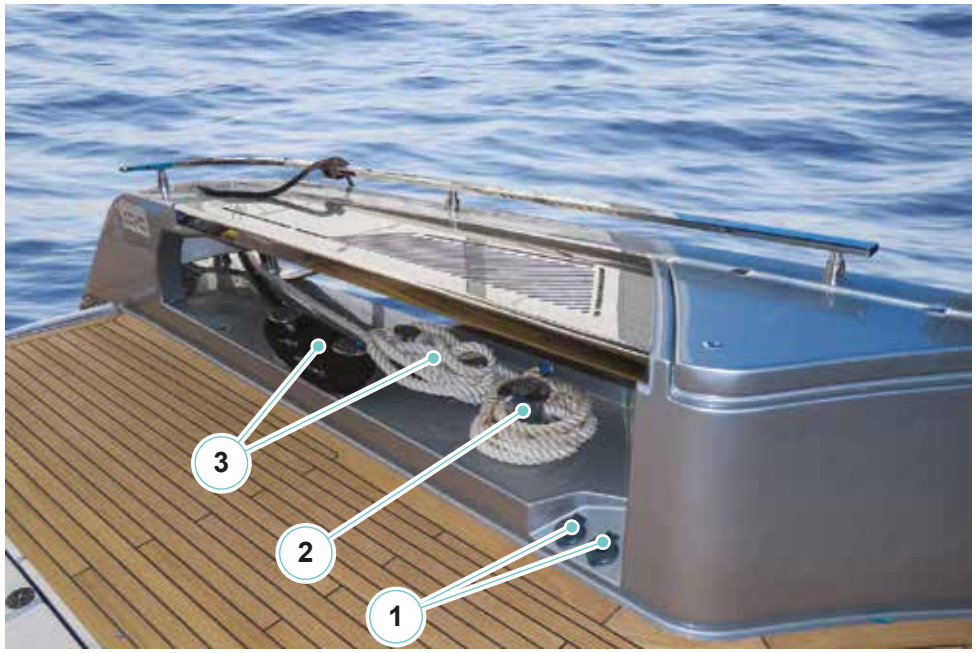
At least once every two months disassemble the exposed parts, clean and check all pieces so that they do not show signs of corrosion and grease the thread of the shaft with sea grease. In case of anchor winch long inactivity, we advice you to have the motor run idle for a couple of minutes in both directions. If the electric motor turns with problems we advice 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.

11.3 MOORING WINCHES

At stern, inside each mooring locker, a warping winch is installed on the side. For their operation it is necessary to wind the line into the barrel and to operate the foot button.

The foot buttons for each winch are located at the base of the relevant mooring locker and can be activated by pressing them with one foot:
- UP: recovers the line;
- DOWN: releases the line.



1. Foot buttons
2. Mooring winch
3. Mooring cleats

Near the warping winches two mooring cleats are fitted.
For a safe anchor mooring, the lines used for warping have to be fastened to the proper cleats.

DANGER
Do not approach your hands to the sliding area of the mooring rope.

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

11.3.1 Warping winches maintenance

Component	Maintenance	Notes and precautions
Reduction motor	Inspection and cleaning	For a correct maintenance and check refer to instruction manual delivered by the Manufacturer.

11.3.2 Reduction motor

Cleaning and checks

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.

DANGER

Do not bring body parts or objects near the area where the rope slides. Make sure that there the electric motor is not powered when manually operating the winch.

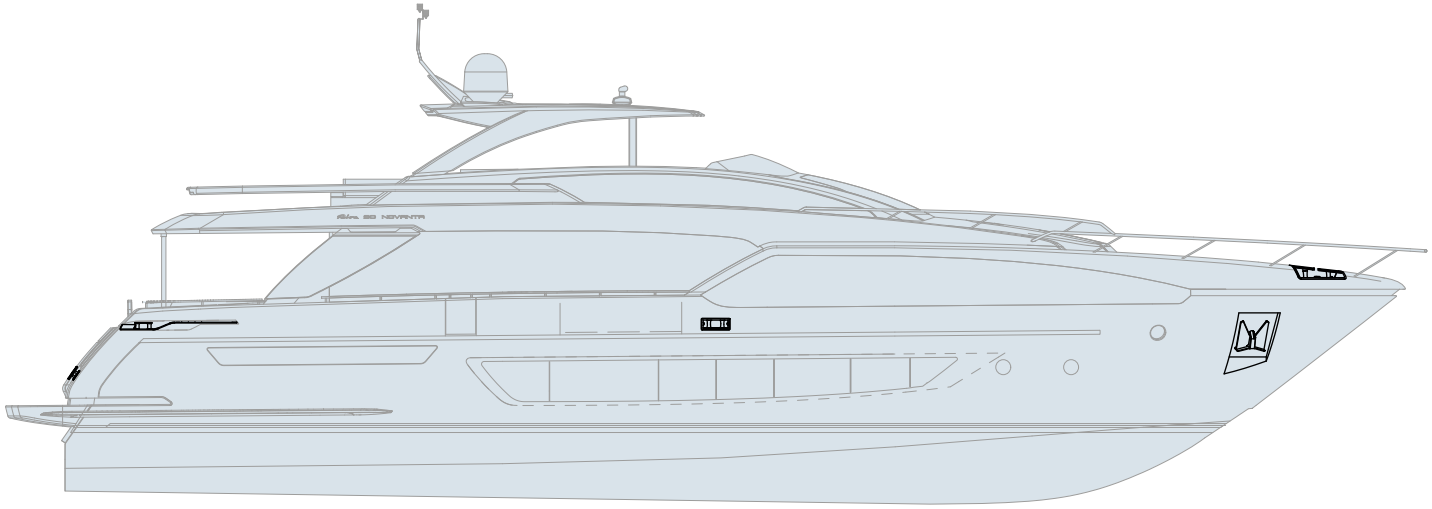
The winches are made of materials resistant to sea environment: it is necessary, in any case, to remove periodically the layer of salt which forms on the outer surfaces, to avoid dangerous corrosion, which could jeopardize its integrity. Wash accurately with fresh water and clean the surfaces, particularly those in which salt remains trapped. Disassemble the barrel according to the service intervals recommended by the Manufacturer.

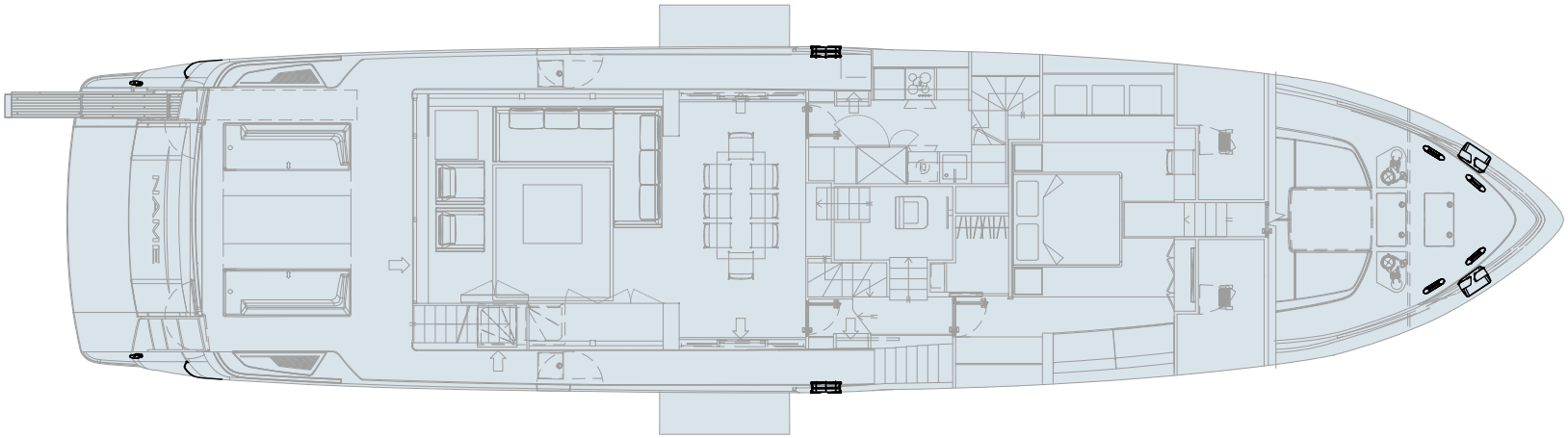
MAINTENANCE

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 motor.
At least once a year disassemble and check the exposed parts.

11.4 MOORING POINTS





11.5 GANGWAY SYSTEM

The gangway is controlled by a multifunction hydraulic power unit located in engine room under the left generator.

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

CAUTION
Use and suggest to passengers comfortable shoes and eventually help them with the boarding.

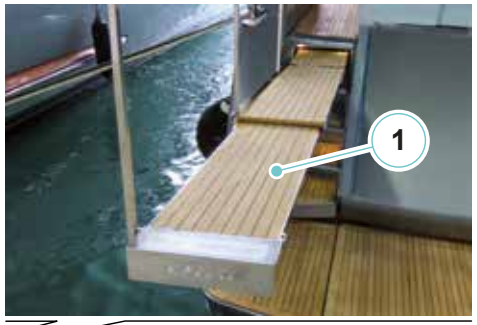
CAUTION
Never use slippery products for the gangway cleaning.

WARNING
Never jump on the gangway.

DANGER
Never use the gangway to lift persons, even though the same is provided and tested to lift high loads.
Always make sure that the maximum load suggested by the Manufacturer is not exceeded.

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.

1. Gangway
2. Gangway hydraulic power pack
3. Gangway control panel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Riva
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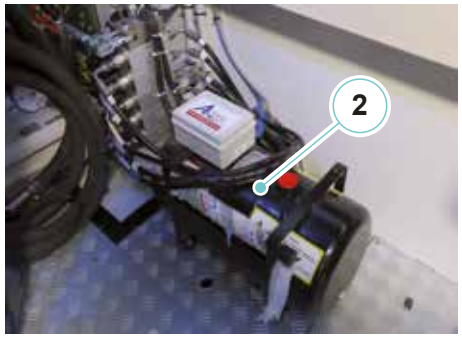
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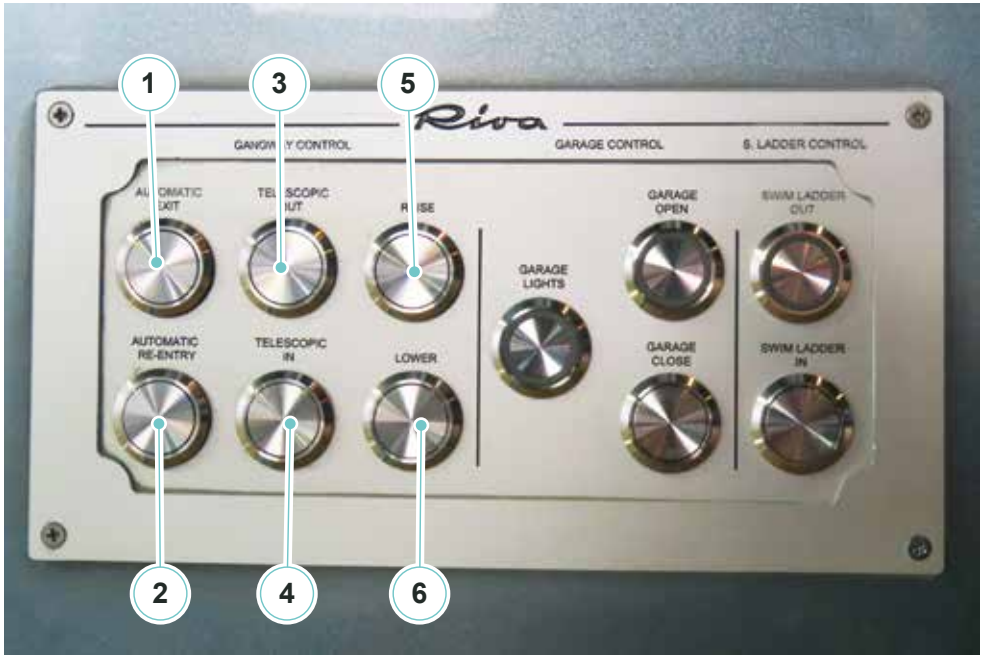
11.5.1 Gangway

The gangway is housed on the port side of the engine room and comes out of stair which gives access to the stern cockpit, through the opening of a stanchion 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 control panel for gangway handling is located in the stern cockpit.
The operations are to be performed by keeping the relevant panel button pressed. It is possible to handle the gangway also with remote control at infrared rays. On the aft transom there is a photocell detecting the signal sent by the radio control and transferring it to the hydraulic control unit.
The radio control must be directed towards the photocell and no obstacles must stay in their way.

1. Automatic gangway exit
2. Automatic gangway retraction
3. Gangway exit
4. Re-entry gangway
5. Lifting the gangway
6. Lowering the gangway



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.

DANGER

Never start navigation if the gangway in not correctly retracted.

Make sure that the gangway, the garage hatch and the are correctly closed, before undertaking the navigation.

CAUTION

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

DANGER

Be careful of moving parts and hands.

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

Always check for the correct gangway position from the shore. Never jump on the gangway.

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.

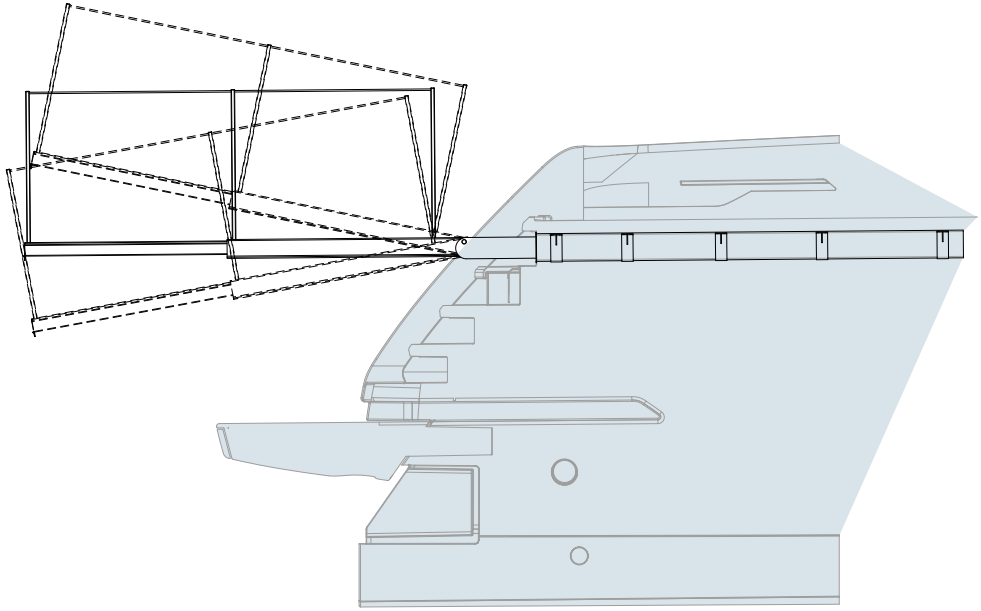
CAUTION

Do not use the gangway as a springboard.

CAUTION

To avoid compromising the seals, perform the wash, avoiding that in the box enters water pressure.

Gangway system diagram



11.5.2 Gangway systems maintenance

Component	Maintenance	Notes and precautions
Gangway control unit	Oil check and top-up	Check monthly and always 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.

11.6 SWIM LADDER SYSTEM

The yacht is equipped with an extractable ladder (**1**) controlled by a multi-function hydraulic control unit (**4**) that allows easy access from the sea to the aft platform, and vice versa.
The swim ladder is placed inside the structure of the stern platform on the left side, so as not to cause any hindrance during navigation, mooring and unmooring operations.
To make access to the sea more comfortable, two grab bars have been installed on the stern platform, inserted in special seats.

DANGER

Pay attention to moving parts and hands.

MAINTENANCE

At least once a week clean with fresh water and a thorough cleaning.
At least once a month:

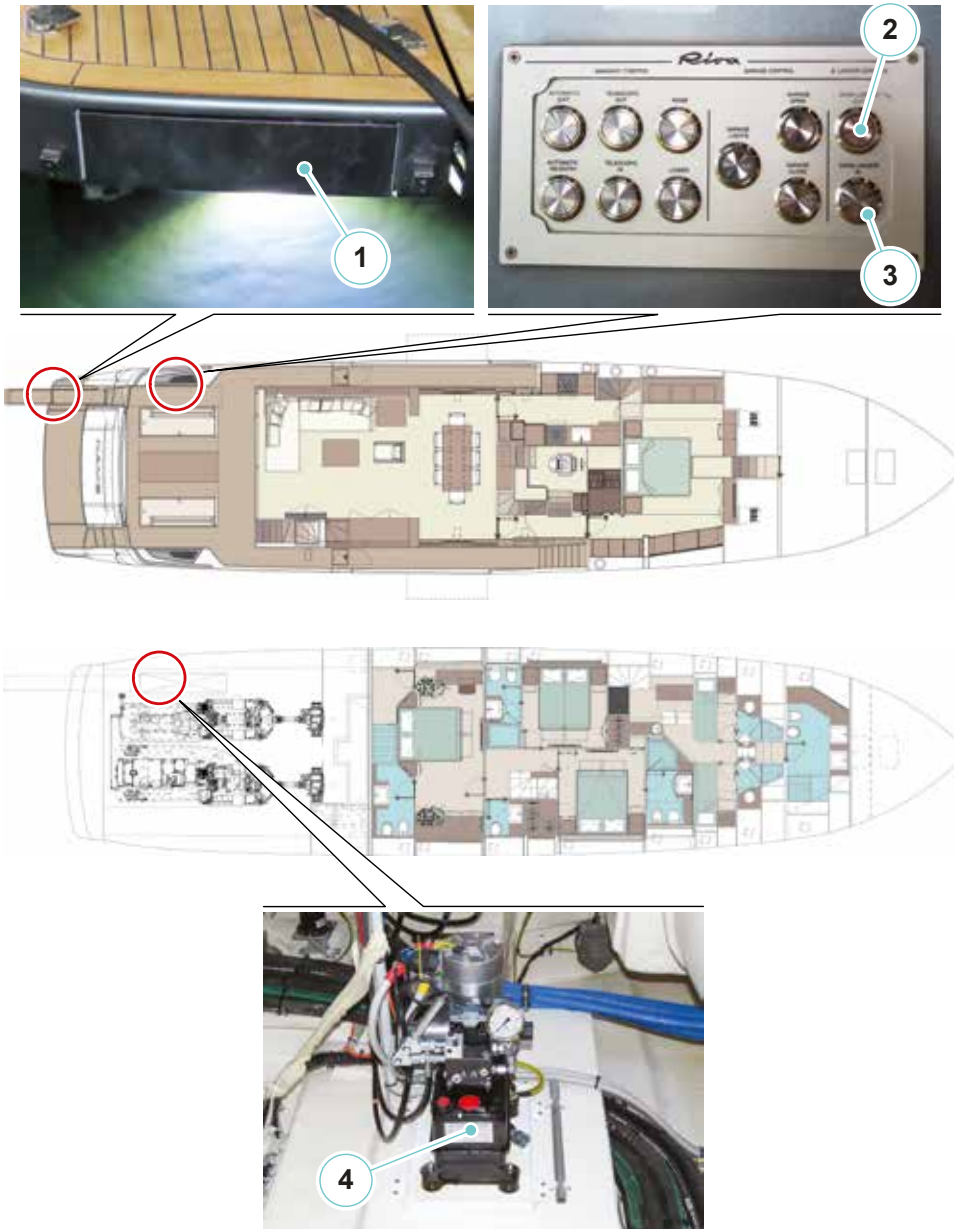
- Check the oil level of the control unit, if necessary top up;
- Check for leaks and leakage of oil;
- Check for corrosion;

At least 1 time every 6 months:

- Grease the joint pins and sliding sleeves;
- Tighten the anchor bolts.

NOTE

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



Swim ladder controls

The swim ladder movement control panel is located on the access ladder to the stern cockpit, left side. The button (**2**) allows the exit of the ladder from its housing to the stop, while the button (**3**) allows the entry of the bathroom ladder.

DANGER
Never use the swim ladder while the motors are running.
Caution must be used to avoid approaching the interceptors and propellers as they may be accidentally operated.

CAUTION
Make sure of the correct exit and position of the swim ladder before going down into the water.

The light on the button (**2**) also on the synoptic panel in the wheelhouse indicates that the swim ladder is not in the correct position.

DANGER
Never navigate with the swim ladder incorrectly stowed.

CAUTION
Pay attention because the ladder can be slippery.
Secure the grip before starting the return on board.

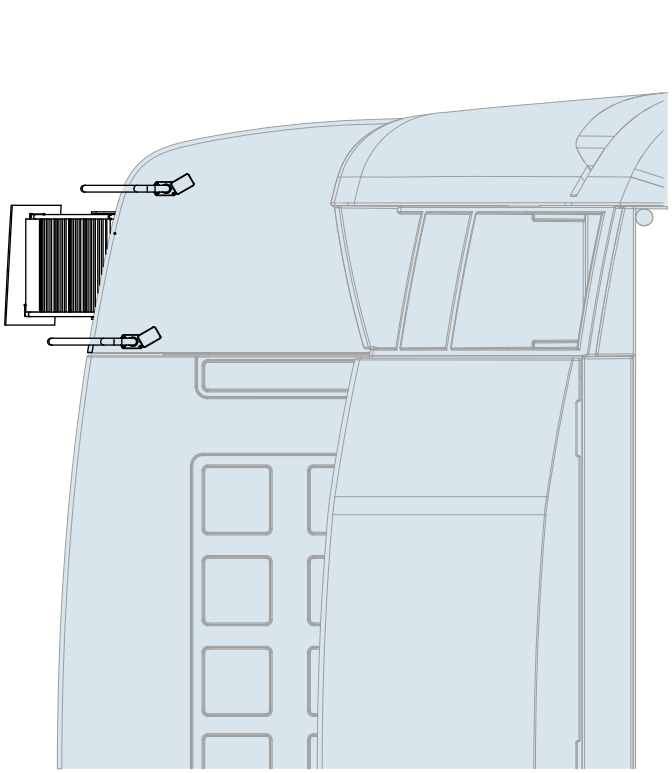
CAUTION
The swim ladder, while easy to manoeuvre, may cause damage to people and property. Use by sufficiently experienced personnel is recommended.

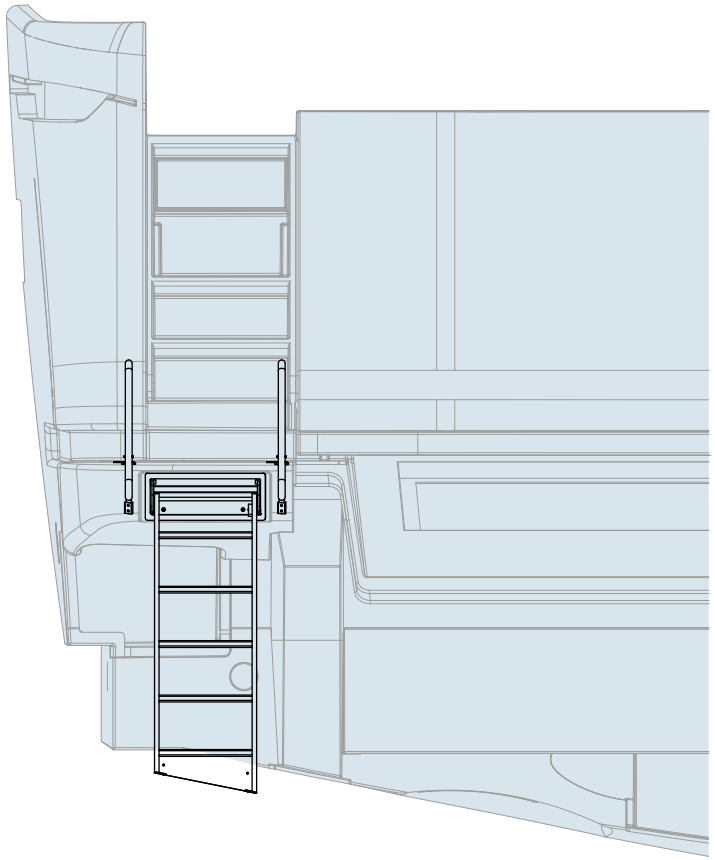
WARNING
To use your yacht safely, always open the swim ladder when you are off and alone on board.

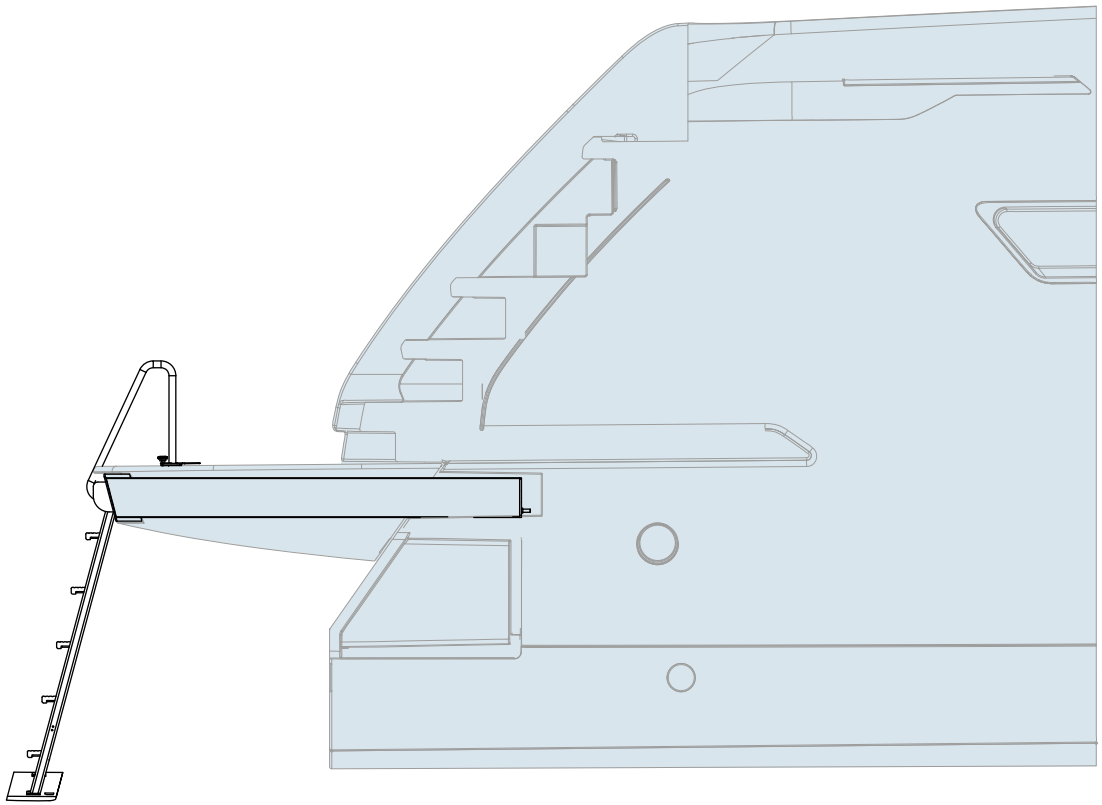
DANGER
Risk of electric shock from leakage currents. Do not swim in water ports or marinas.

CAUTION
Do not use the swim ladder as a springboard.

Swim ladder system diagram







11.7 GARAGE HATCH AND LINEAR LIFT

GARAGE HATCH

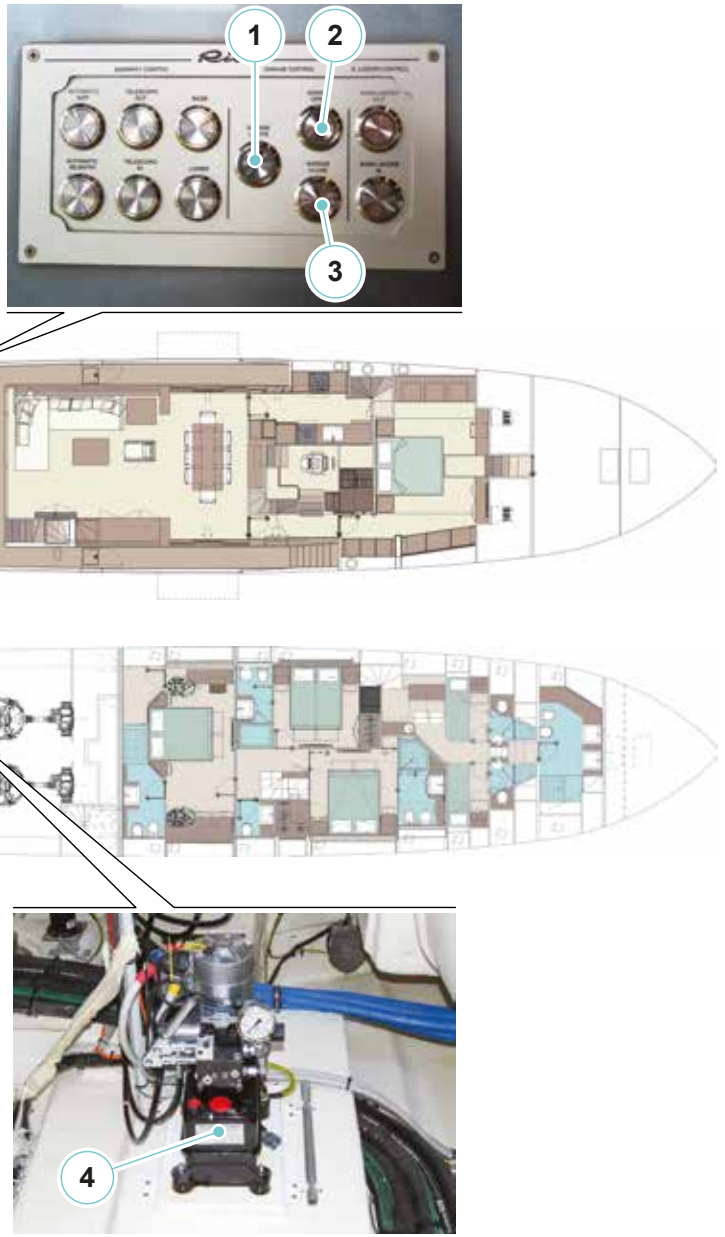
At the stern of the yacht is the garage, capable of accommodating inside a tender and a jet ski.
The garage is accessible through the opening of an electro-hydraulic door.
The operating controls for the system are located on the access ladder to the aft cockpit, port side.

The garage hatch is moved together with the aft platform thanks to an electro-hydraulic control unit (24V) located on the port side in the engine room.

1. Garage light button
2. Garage opening button
3. Garage lock button
4. Electro-hydraulic power pack

DANGER
The garage hatch must always be closed during navigation, making sure that the locking devices are in place.

DANGER
Never navigate with the garage hatch incorrectly and completely closed. This prohibition also applies to low speed manoeuvres with thrusters.



DANGER

Loads inside the garage must be secured with the greatest care.

DANGER

It is forbidden:

- Handle things or people with the garage hatch.
- Open the garage hatch or lower in unfavorable weather conditions.
- Leave the door open or lowered when the yacht is unattended.

DANGER

Leaking fuel can create a risk of fire and explosion. No combustible or other flammable material may be stowed in the garage.

NOTE

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

Opening and closing the garage hatch

CAUTION

The movement of the hatch provides a pressure "in the presence", therefore buttons, it is forbidden to climb on the surface of the door until it is fully open and the locking devices (chestnuts) are inserted.

NOTE

To make the movements, it is necessary to hold the OPEN, DOWN or CLOSE.
Otherwise, the system stops.

Open the garage hatch by acting on the "**OPEN**".

CAUTION

Aperture greater than indicated above may damage the gasket in an irreparable manner.

Proceed to close the hatch in the reverse order:

- Press the "**CLOSE**" button to completely close the garage hatch.

LINEAR LIFT

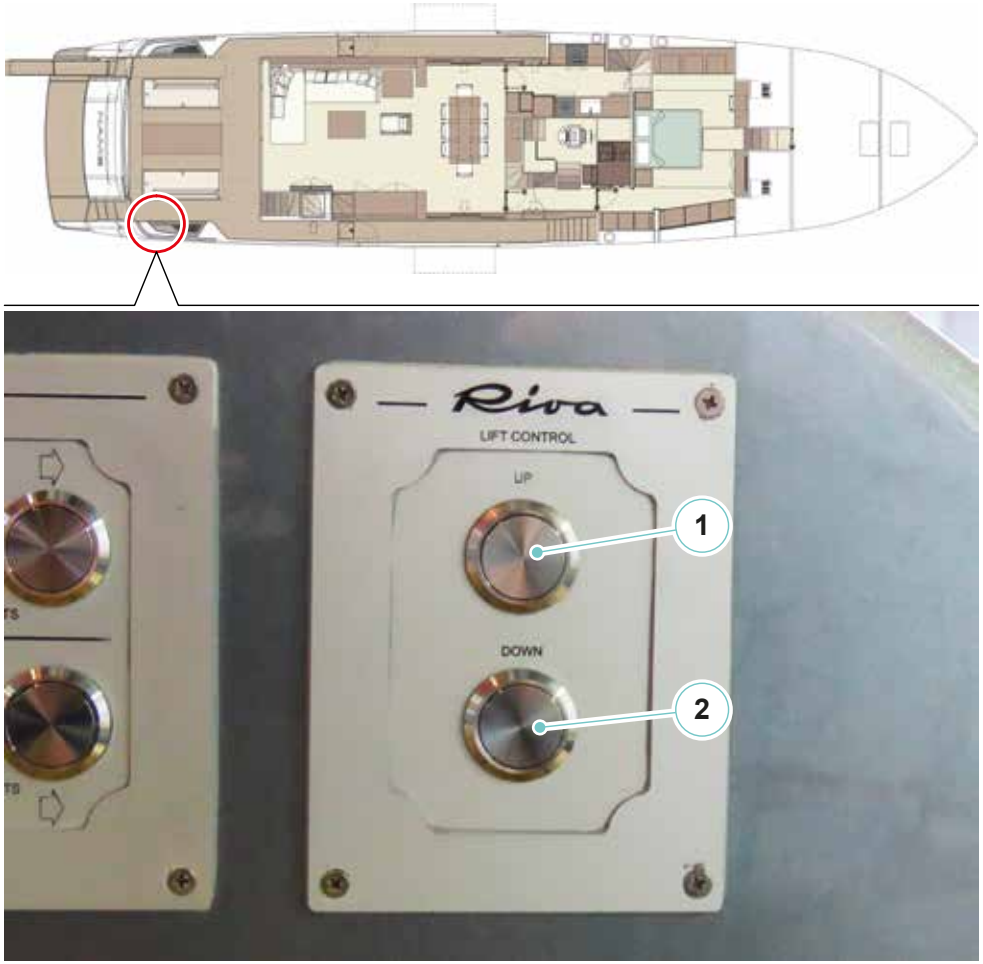
A linear lift is located stern of the yacht, which thanks to the possibility of diving below sea level, allows the launch and hauling of a tender or a jet ski from the garage.

The operating controls are located on the starboard side of the cockpit access ladder.

1. Linear lift ascent
2. Linear lift descent

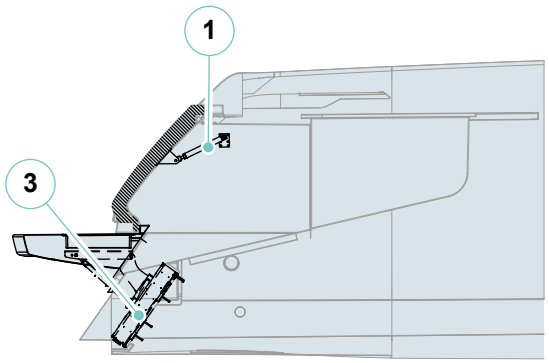
WARNING

For more information, see the relevant specific documentation.

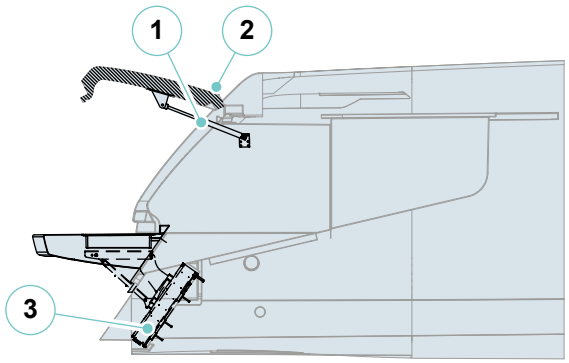


Garage hatch movement system diagram

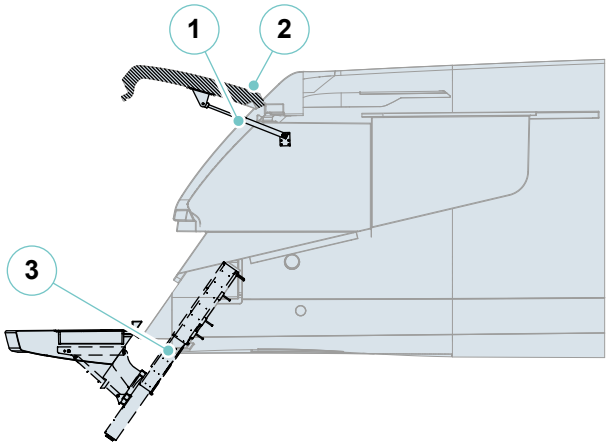
CLOSED HATCH



OPEN HATCH

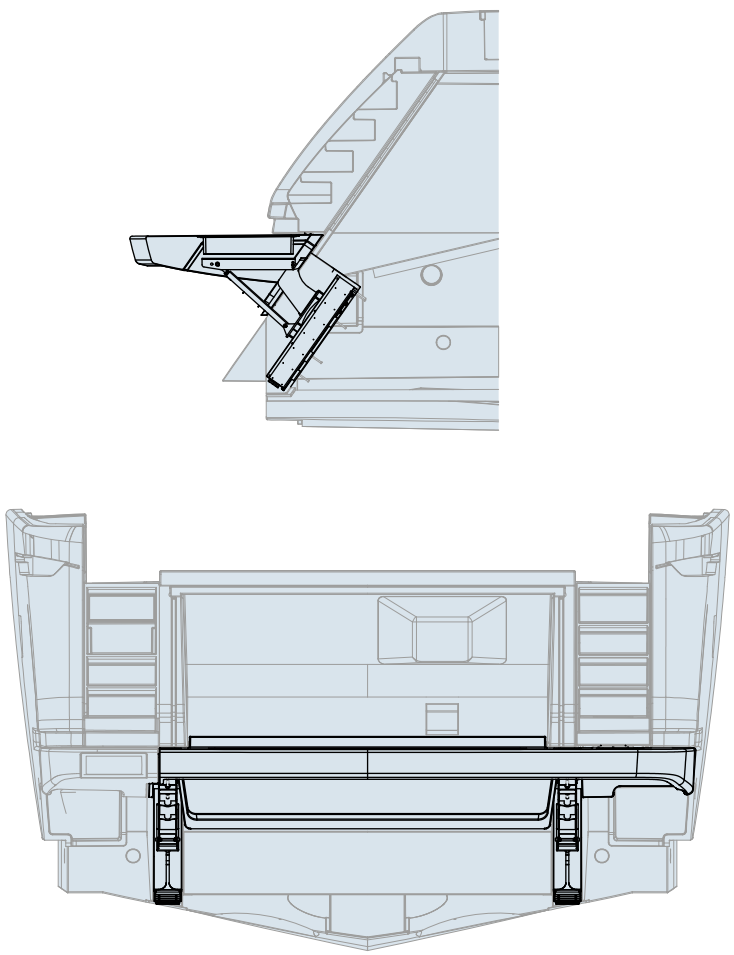


OPEN HATCH



1 Hatch opening kit
2 Hinge
3 Tender lift

Linear lift movement system diagram



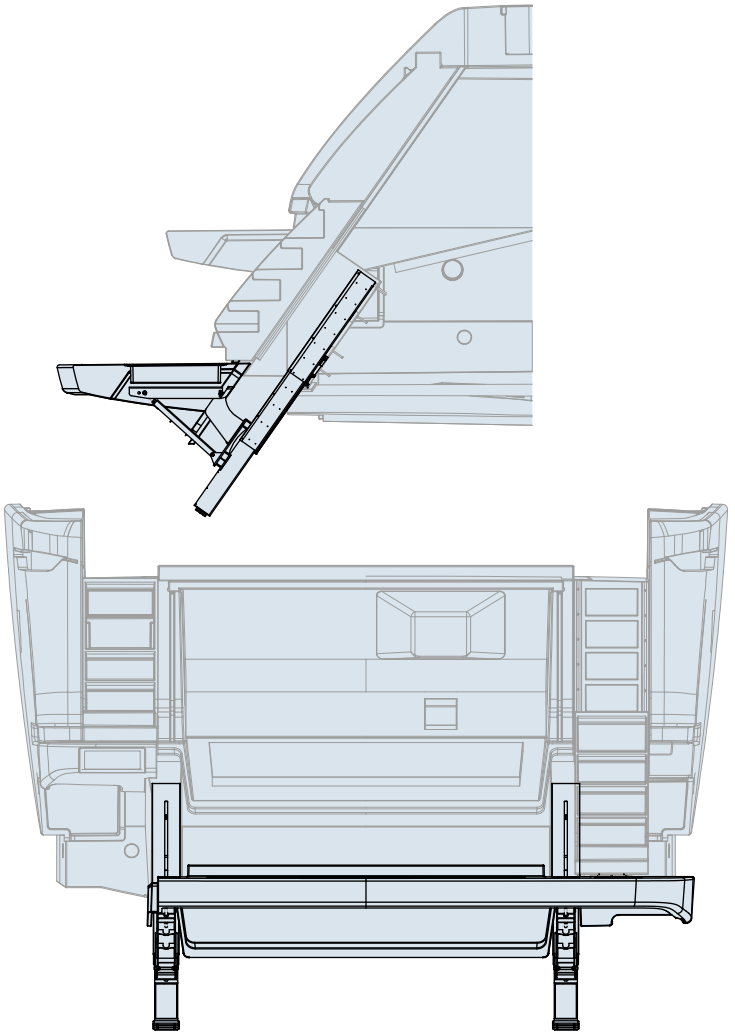
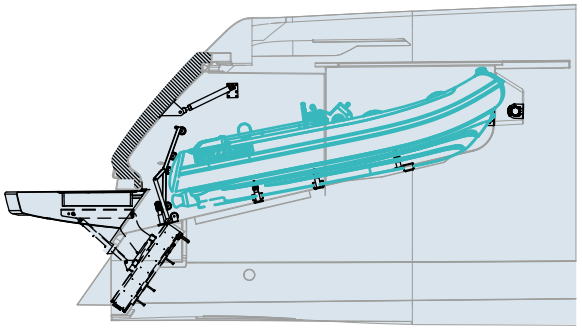
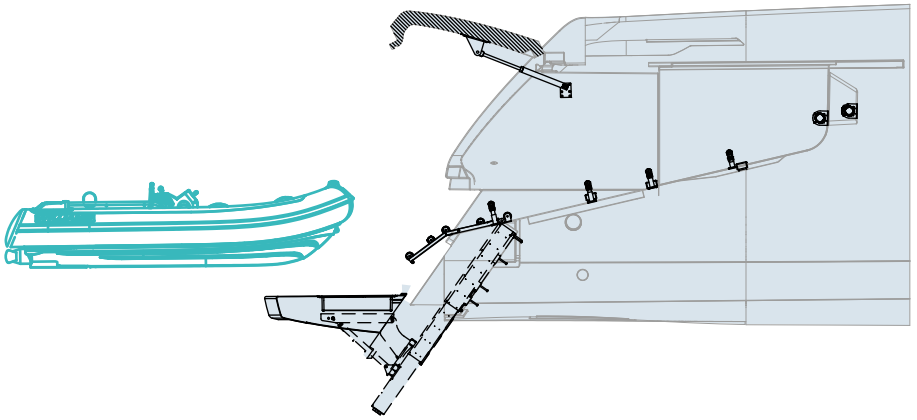


Diagram of the launching and hauling system for watercraft and tenders

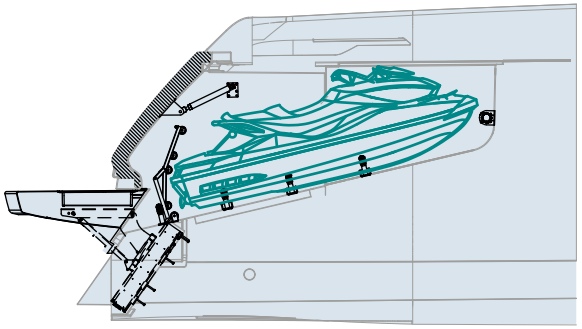
CLOSED HATCH



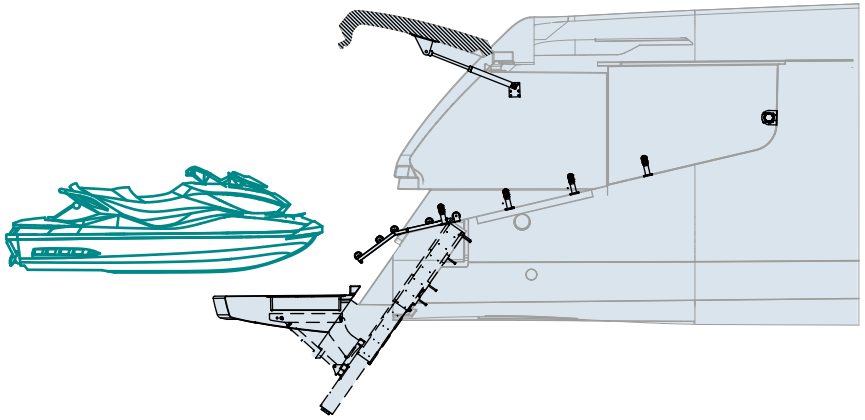
OPEN HATCH

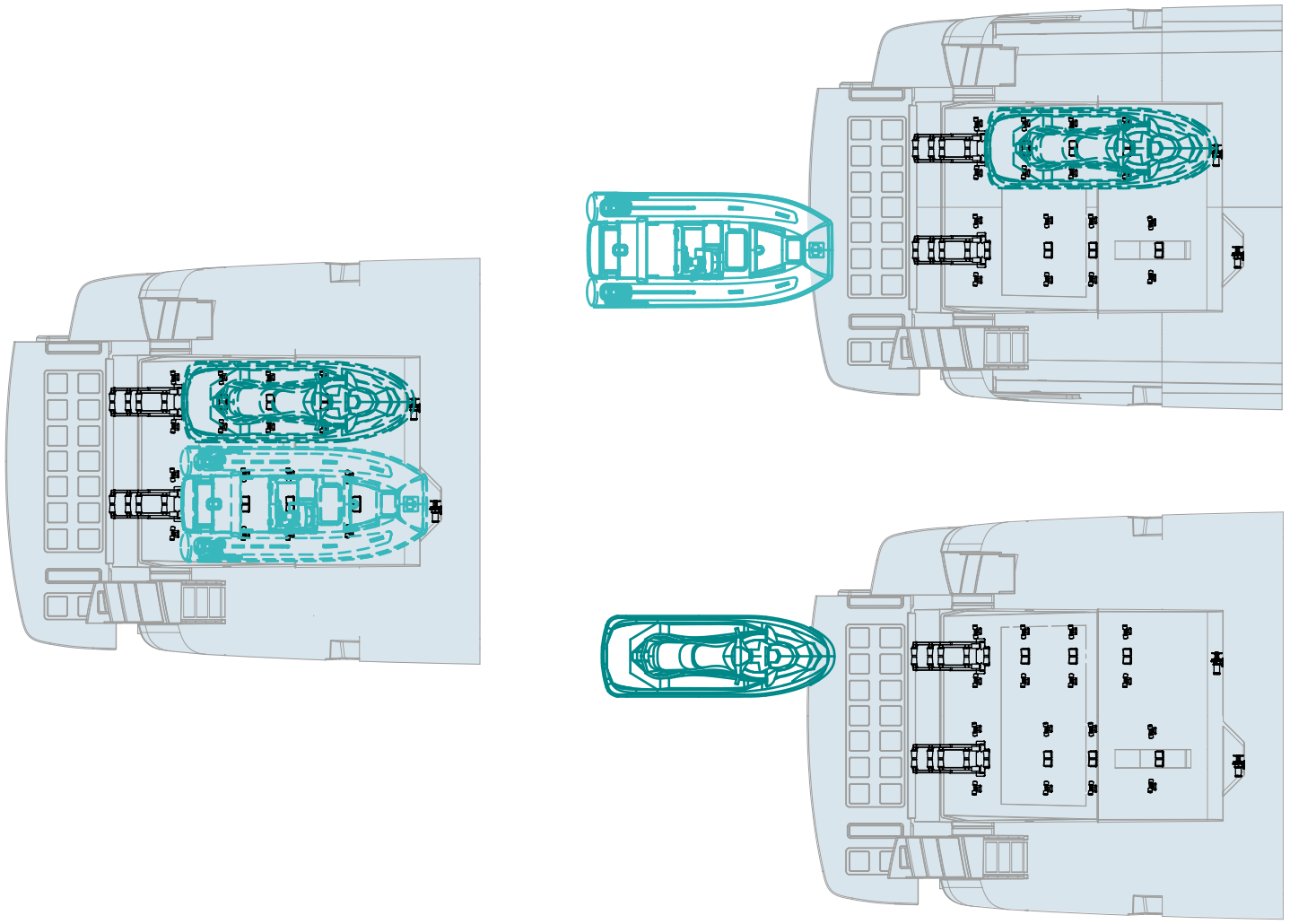


CLOSED HATCH



OPEN HATCH





11.8 GANGWAY, SWIM LADDER, GARAGE HATCH CONTROL UNIT CLEANING AND MAINTENANCE

11.8.1 Outer cleaning

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 swim ladder the linear lift and the garage hatch 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, make sure that nobody can activate the gangway, the swim ladder and the garage hatch, because they could cause serious injury to people; it is recommended to disconnect the power supply.

CAUTION

In order not to jeopardize the gangway of the seals, perform the washing in the box avoiding that water enters under pressure.

ENVIRONMENT

Do not discharge hydraulic oil in the sea, but in the special areas for toxic waste disposal.

CAUTION

RIVA declines all liability for any accident to persons or damage to property caused by a wrong use of the devices.

CAUTION

After completion of some operations, check the oil level of the tank. The oil top up in the tank must be performed with the gangway completely retracted.

MAINTENANCE

Grease all mechanical parts at least once a month.

NOTE

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

11.9 WINDSCREEN WIPER SYSTEM

To ensure sufficient visibility in all weather conditions, your yacht is equipped with an efficient windscreen wiper system.
The system is supplied with 24V and allows the wiper blades to be operated through mechanical arms and variable speed. The windscreen wiper system is controlled by the appropriate controls on the helm station.

11.9.1 Wiper system maintenance

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.
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.

11.10 SACRIFICIAL ANODES

The submerged metallic parts of the yacht are protected against galvanic corrosions by means of anodes installed on the stern, on the interceptors and on the spinners of the propeller shafts. 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 anodes and of the fastening system.
Replace the anode frequently.

For a spare part of the propeller shaft anode, specify the diameter of the shaft itself (110 mm).

11.10.1 Maintenance of sacrificial anodes

Component	Maintenance	Notes and precautions
Sacrificial anodes	Periodical check (as necessary, according to the floating area) Assembly/disassembly	Metallic parts are protected against galvanic corrosion (caused by electrolytic currents due to the approach of different metallic bodies as steel or aluminium) by means of sacrificial anodes fitted on bottom hull, on stabilizer, on propeller shaft, etc.. The anodes' wear may depend on environmental factors as nearby chains, hulls or metallic shores, bad insulation of ground electric systems.

Periodical check

This operation must be carried out with yacht on dry shore or with the help of a diver.
Have the outer condition of the sacrificial anodes checked and have them replaced if they show evident signs of corrosion or if their volume is reduced to about 50%.

WARNING
To clean and check the yacht in water: disable the engines and generators start.

CAUTION
Check the anodes' wear conditions 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
Failure to replace the anodes causes corrosion on other metal 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 easy 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.

11.11 STERN COCKPIT TABLE

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 cockpit.

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.

INFORMATION FOR USE

CHAPTER 12

12.1 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 is in good condition and no maintenance activity is overdue.
- In case of using the fixed fire-fighting system:
  - 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, and electrolytes are all harmful products: avoid contacts with the skin and dispose of them carefully.
- In the 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 harbours or confined waters.
- Reduce speed in the proximity of other yachts or swimmers.
- Adjust speed according to sea conditions.
- Reduce speed before entering the engine room. Modify the course, if necessary.
- Before connecting to shore, make sure that the main switch on the “SHORE POWER LINE” panel is disconnected.
- Before leaving the yacht, turn the battery breakers off.
- Handle hot oils carefully, in order to prevent serious burns.
- Secure engines, shafts and generators prior to performing any maintenance activity.
- Open the coolant tanks very carefully, in order to prevent serious burns.
- Do not perform any work on the generator’s electric board when it is running: serious 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, follow the same steps in reverse order (the positive wire first and then the negative one).
- Replace any part showing signs of corrosion immediately.
- Never disconnect the batteries when the generators are running.
- Switch the radar off, prior to performing any work on the aerial.

12.2 PRECAUTIONS FOR HARSH CLIMATES

Regularly 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 the yacht sinking.

The systems subject to the risk o f freezing include, but are not limited to:
- The engine and generator sea water and fresh water cooling systems;
- The watermaker system;
- 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-conditioning system 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 in cold weather, see the User Manuals provided by the Manufacturers for specific information.

12.2.1 Cooling system

The antifreeze liquid is advised for all kinds of climates: it increases 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. If not, replace the cooling liquid with such a mixture.
Before filling the system with antifreeze mix, it is necessary to wash the cooling circuit.

ENVIRONMENT
Concentrated coolant must be treated as special waste.
When disposing of used coolant, abide by the regulations of the local authority.

CAUTION
Regularly check that all devices containing water are filled with the correct quantity of anti-freeze if necessary.
Each time that the outside temperature drops below 0°C the water (fresh or sea) inside the ducts may freeze and cause them to break.
All systems and equipment containing water, both sea water systems and fresh water systems may run this risk.

12.2.2 Fuel system

With low temperatures, diesel fuel can form solidified paraffin suspensions which can clog the fuel filters; making the normal engine supply is impossible.

The Standard fuel guarantees fluidity up to 0°C during the summer period, and up to -20°C during the winter period:

- European standard EN590;
- DIN EN 590 (German);
- ÖNORM EN 590;
- ASTM D975 No. 1D (USA);
- BS 2869 Part 1 Class A 1 (UK);
- BS MA 100 DMX (Marine Diesel Fuel).

WARNING

There is a special type of fuel for countries subject to very low temperatures.

CAUTION

Do not add petrol to fuel, in order to avoid serious engine damage.

NOTE

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

12.3 PREPARING FOR NAVIGATION

- Check the operation of the rudders (move them from end to end, check their correct operation, then return them to central position);
- Check interceptors and stabilizer fins operation.
  Operate both interceptors;
- If not used with the yacht stationed or navigation, the interceptors have to be kept completely “raised”;
- Check navigation lights and horn operation;
- Check the efficiency of the anchor winches and chain stopper;
- Check radiotelephone operation;
- Check documents and nautical charts;
- Check proper closing of portholes, hatches the proper arrangement of materials;
- Check operation of the bilge pumps and relevant indication lamps;
- Cast off moorings, ensuring no obstacle can hinder unmooring operations (chains or cables not aligned, anchor log tangled in other yachts’ 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 other on-board devices are open;
- Check that the cooling systems of engines and generators can be operated (valves open);
- Ensure engines and generators fuel circuits are operational (open valves);
- Start the generators and, after a few minutes of pre-heating, load electric power by means of the main helm station panel;
- Disconnect shore inlets/sockets (electric power, water supply);
- Connect engines and uses battery breakers;
- On the main electrical panel, check the battery charge status. Charge if necessary;
- Connect the 24V uses on the main electrical panel;
- Disconnect unuse uses, after ensuring their correct operation;
- Make sure that all on board fire extinguishers (portable and fixed) are charged and perfectly operating;
- Start the engines.

CAUTION

The removable awnings and their support poles must always be dismantled and stored in the appropriate places before starting navigation. When the poles are not in use, they should be stored in the appropriate places. The awnings should only be installed when the yacht is at a standstill and the weather conditions are favourable. Do not leave the awnings open in case of heavy rain. Not leave the awnings installed unattended. Do not let them stagnate the water on the curtain fabric. When not using the awnings keep the holes to engage the poles closed with the appropriate lids.

12.3.1 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 navigating;
- A sudden change in wind direction or speed, or an increase in wave height indicates worsening weather conditions;
- 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, identify your position, set a safe course, slow down and alert other boats of your presence with a sound signal.

12.4 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.
- Check the monitoring system and on the synoptic panel of the main helm station or warning lights for the bilge pumps, indicating the presence of water in the engine room. If the indicators are lit, turn on the bilge pump switches. If pumps do not prime, batteries may be discharged (recharge batteries). 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 other on-board uses.
- If they are dirty, check closing or close the hull valves, remove and clean the baskets, then replace them and close the strainer housings; clean and open the 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 by means of a tap.
- Check the hydraulic oil levels of the various control units. If necessary, top up.

WARNING

To carry out the above mentioned checks and the top-ups, refer to specific manuals supplied by the Manufacturer.

- Check liquid levels (fuel, fresh water) in the tanks.
- 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 loads equally and securely, in order to avoid sudden displacements.

WARNING

The yacht's designated captain must ensure that all users are familiar with the location of the current security systems (fire extinguishers, life raft, life buoys, etc ..) and they are aware of how to use them.

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 the relevant safety rope.
- Check extinguishers charge level. The extinguisher is charged when the pressure gauge indicator is in the green sector.

12.5 FIRST PERIOD OF USE

During the first period of yacht operation, beyond the normal maintenance and check operations indicated in this manual, we recommend carrying out the following additional operations and more accurate checks.
The duration of this period varies according to the frequency and use modes, but are in any case suitable to allow a correct run-in of all systems and components on board.

WARNING
We recommend consulting the technical documentation provided by the Manufactures of the various on-board systems and components; they can indicate operations, checks and specific times not included in this Manual.

Following the first period of use, the hereunder listed additional operations and checks, should be performed at longer time intervals, although in any case, they play an important role for the safeguarding and reliability of the yacht and navigation safety.

- It is recommended that new or overhauled engines should not be operated above 75% of their maximum load and at variable speeds. After this initial run-in, the engine should be brought up to full output gradually.
- 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 unusual noises from the engines exhaust.
- Before and after navigation, check for possible leaks in the shaft lines.
- During navigation monitor constantly the temperatures and operation pressures of the devices on board (propulsion engines, generators, gear boxes).
- Check, by means of indicators installed on the main electrical panel, the correct charge condition of the batteries starting the engines and the uses. Moreover, the engine alternators must correctly charge the batteries.
- Check rudder (by often checking the tiller angle), the interceptors and stabilizer fins efficiency.
- Before and after navigation, check the correct level of oil inside the hydraulic systems.
- After the generator to start, wait several minutes before loading. Bring it slowly to maximum performance monitoring its correct operation.
- Check the correct load level of all extinguishers (fixed and portable) installed on board; the indicator needle on the pressure gauge should be set in the green range.
- Check the indicator of the main pressure gauge for possible pressure drops inside the system.
- Before and after navigation, check 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 watertight.

DANGER
Before performing the listed checks and maintenance operations, we recommend carefully reading the Safety Rules relevant to maintenance, contained in this Manual.

WARNING

In case of more or less serious faults, contact the RIVA After Sales & Service Department as soon as possible.

CAUTION

RIVA declines all responsibility regarding 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.
RIVA declines all responsibility concerning periodical maintenance activities scheduled by the Shipyard or by Manufacturers, but not carried out, on 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 exhaust pipes due to reduced cooling water circulation.

12.6 DEVICE SETTINGS CARRIED OUT BY THE OWNER

12.6.1 Magnetic compass

CAUTION

The yacht is delivered with a compass that has not been compensated. Compass compensation has to be carried out under the 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

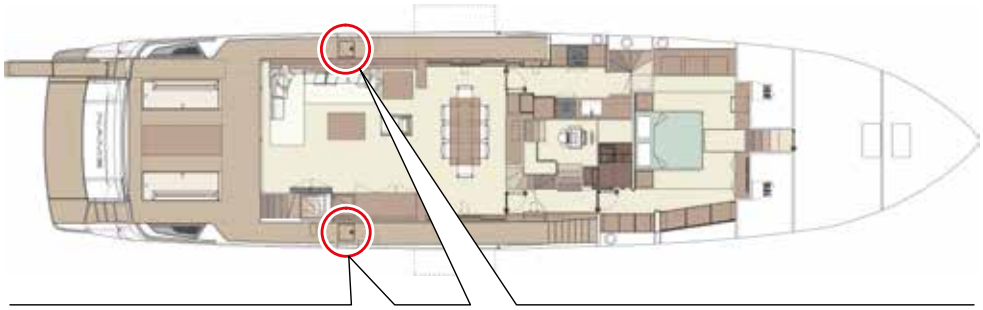
Compass compensation must be carried out by the Authorized Experts of the Marine Authority. As a consequence of variable magnetic fields on board and prolonged anchorage always in the same bow, the compass turns for the relevant correction must be carried out at least every year.

CAUTION

Never unscrew screws and filling caps (1) for any reason. The only screws to be regulated are the ones of the adjusters (by means of the magnetic screwdriver provided).
When the adjusters screw slot is horizontal the setting is neutral, when it is vertical it is maximum (see picture).
Have this operation carried out exclusively by specialized personnel.

12.7 REFUELLING

- Ensure the yacht is properly moored, stop engines and generators if running.
- The fuel filler is located into the suitable peak on each lateral walk around of the yacht.
- Wash the teak with fresh water ahead of time to prevent soiling it accidentally.
- Loosen the filling nozzle, make sure that the refuelling pump is the correct size, then insert the pump and hold it still.
- Do not top up the tanks to the highest level, so as to allow the fuel to expand into the tank, without spilling out from vents.
- Tighten the filler cap firmly and remove any fuel drop from the hull and the teak.



CAUTION

The inlet plug carries the indication “DIESEL” to avoid accidental input of different fuels.
Filling lines pressure must be kept constantly under 0.3bar during bunkering operations.

CAUTION

When refuelling open the fillers on both sides of the yacht.

CAUTION

Refuelling should be performed at the end of navigation, in order to allow fuel to cool down, without condensation. Drain the tanks, every 2 or 3 refuelling. Before refuelling operations, wash the teak with fresh water to avoid its contamination with fuel.

DANGER

Do not smoke during refuelling, do not leave the yacht unattended, do not leave the engines running.

ENVIRONMENT

Do not disperse fuel in the environment: it causes pollution.

DANGER

Fuel leaks create a fire and explosion hazard. Fuel cannot be stowed inside the garage.

CAUTION

Stop all engines when refuelling.

DANGER

It is forbidden to smoke, use naked flames or keep mobile phones switched on during refuelling.

DANGER

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.

DANGER

Explosion/fire/pollution hazard

Fuel system connections that are too loose or too tight can leak, resulting in fuel spillage, environmental pollution and explosion/fire hazard.

12.8 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 in the suitable peak along the starboard walk-around of the yacht.
- Loosen the filling nozzle and insert the hose (it must have suitable dimensions).

At the end of filling, remove the hose and tighten the filler cap.

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.
Do not leave the yacht unattended while filling.

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

12.9 MOORING AND UNMOORING

CAUTION
Before the unmooring operation, ensure that engines, gear boxes, rudders and bow/stern 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 unmooring, make sure that all doors, hatches, port-holes, etc.. are closed.

CAUTION
The steering wheels of the helm stations are not interlocked. Before starting the manoeuvre, make sure that the unused station is free from people who may interfere with the controls.

WARNING
Before starting the manoeuvre, make sure that people on board, especially children, do not obstruct operations and that they stay in suitable places.

DANGER
Check with extreme care that no one on board is in danger (with legs or arms outside the 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 very efficient rudders and with high-performing bow/stern thrusters.
The bow/stern thrusters are to be used at very low speed, or without fresh way; at higher speed, it is possible to obtain a more correct reaction, by using the engines throttles in an 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; in this way, in case of accidental contact with other yachts, you will not cause any serious damage.

Before unmooring check the following:
- That there are no other yachts 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 loose ropes which can damage the propeller.

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.

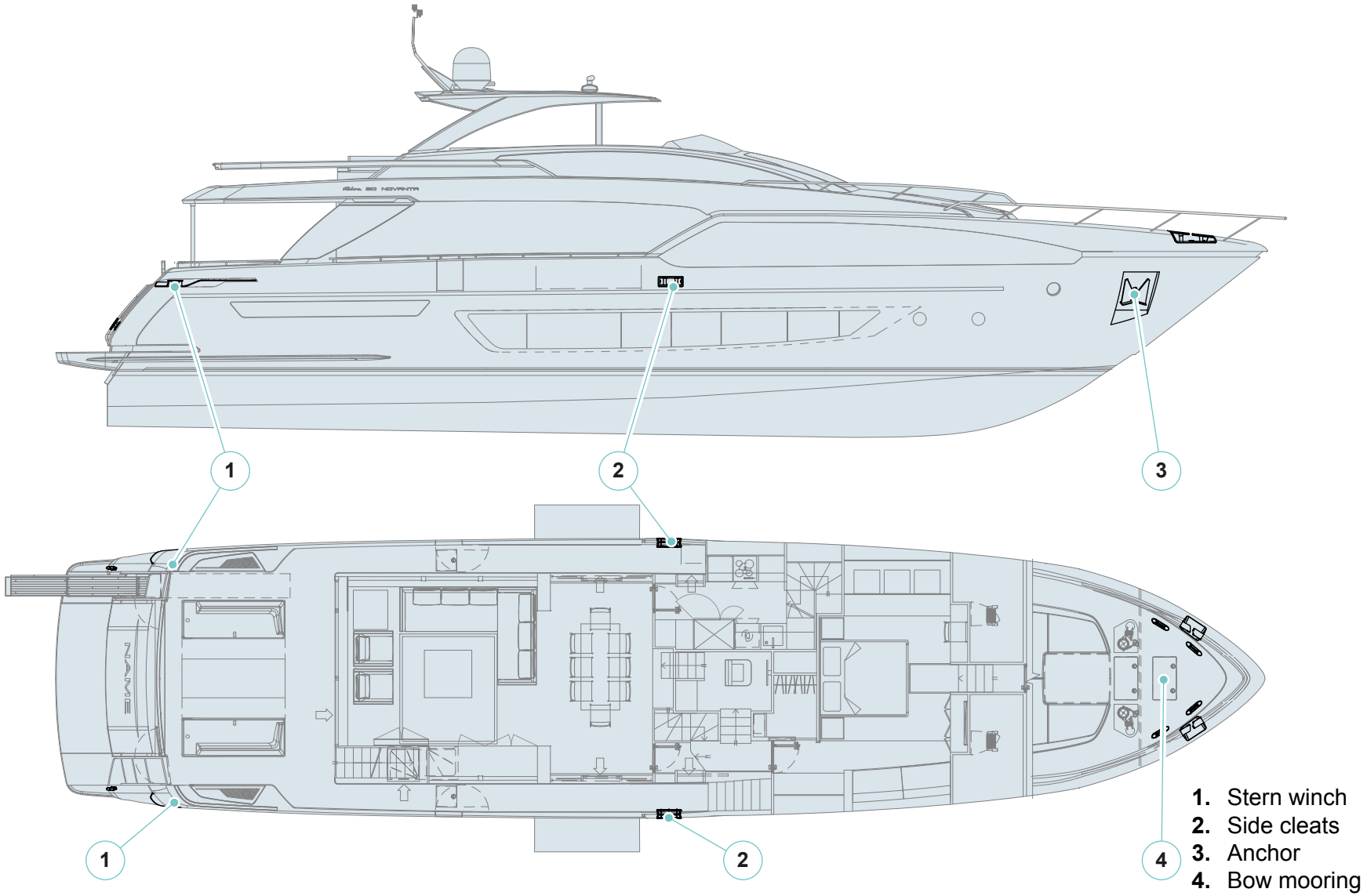
12.9.1 Leaving the mooring

The yacht is steered by means of the steering wheel that moves the rudders (rudder operation is independent from the engine operation).
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 not to leave the steering wheel, 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 a high rpm and a 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 cables for shore electric power supply.

CAUTION
It is the Owner’s/the operators’ responsibility to make sure that the mooring ropes, the towing ropes, the anchor chain(s), the anchor lines and the anchor(s) 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.

12.9.2 Strength points



1. Stern winch
2. Side cleats
3. Anchor
4. Bow mooring

12.9.3 Mooring manoeuvre

Before setting back for the harbour, stop in free waters and test the gear boxes and the bow/stern thrusters. Also 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 yacht at shore;
- Check that on the main electrical panel, all necessary uses are supplied (anchor winch, bow/stern thrusters, etc..). Disconnect unnecessary uses;
- That interceptors are lifted;
- That the yacht hook is easily accessible and does not hinder any passage;
- The operation of acoustic and visible 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 water tanks and holding tanks are empty;
- That mooring ropes and fenders are correctly arranged.

Lift the interceptors, if necessary and reduce speed.

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;
- Cut out any electrical equipment not in use and check the general condition of the main electrical panel and the indication of voltmeters and ammeters;
- Check bilge pump switches and their regular operation;
- Check bilge and dry it;
- Ensure there are no leakages from shaft stuffing boxes;
- Rinse the yacht with fresh water;
- Connect the shore electric power supply;
- Stop the generators, once cooled down.

Before leaving the yacht, check following:
- Lower deck lights are not powered;
- Ensure that navigation lights and external lights are not powered;
- Ensure that unnecessary devices (plotter, radiotelephone, anchor winch, etc..) Are not powered;
- Ensure that devices in use are powered; (bilge pumps);
- Ensure that the shore plug is properly connected and the cable cannot be damaged;
- Disconnect battery breakers;
- Make sure that the devices (life jackets, yacht hook, torches, etc..) Are in their correct positions;
- Ensure that all bottles and containers with flammable liquids are properly sealed;
- Make sure that no food residues are left around (they could rot 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 conditions, 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 lower deck compartments are properly closed;
- That all portholes and the garage hatch are well closed;
- All fire extinguishers.

12.9.4 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 main electrical panels and disconnect all unnecessary uses.
- Check all on board compartments, portholes, skylights and bilge.
- Ensure the yacht is safely moored.
- Disconnect all unnecessary uses.

CAUTION

The electric power supply from shore must be disconnected, 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 and hand them the keys for the activation and fire-fighting control access.

CAUTION

Disconnect all pumps of the yacht.

12.10 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 manoeuvred by means of the steering wheel in the helm station. The steering wheel operates the rudders 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 engine.

At low rpm, 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, on load distribution, on interceptors position and on sea conditions.

Adjust speed and interceptors position according to sea conditions 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 the yacht to be run safely at cruising speed for extended periods of time.

12.10.1 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 seriously injure people and damage the yacht.

WARNING

In order to achieve the best compromise between comfort and speed, while minimizing fuel consumption, it is recommended to keep the engine operating speed in the range between 1500 and 2000 rpm.

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 interceptors positions for the best performance. For information on adjustments refer to the Manufacturers Manual.
- 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 specialist check the propeller shaft alignment.
- Perform a visual inspection of the bilges periodically.

For the supply of fuel to consider the distance that we intend 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. No one should be seated on the spoiler or forward decks when the yacht is navigating.

12.11 PRECAUTIONS DURING NAVIGATION

- During navigation do no unlock the anchor 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 each 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 navigating, 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 stern beach when the yacht is navigating.

WARNING

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

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 to hot and moving parts. Wear hearing protection if the engine is running.

DANGER

It is forbidden to carry out sudden manoeuvres at high speed.
This can result in accidents to persons on board.

DANGER

It is forbidden to stand or sit on the forward cockpit while cruising at high speed.

DANGER

It is absolutely forbidden to perform reverse run with one of the two engines stopped. This operation is allowed only in case of endangering life 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.

12.12 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 has no end stroke safety controls, therefore we suggest you to handle “manually” the last chain metres, by means of remote controls and when this latter is close to the roller or when you reckon to lower 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 you weigh the chain after an anchoring on a muddy or weedy sea bottom, we suggest washing it during the weighing.

12.13 SUGGESTIONS FOR NAVIGATION UNDER SPECIAL CONDITIONS

12.13.1 Navigation with bad weather conditions

The yacht has been designed for safe 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 in 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.

WARNING

RIVA declines all 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.

Speed (knots)	Wave height in metres
10	3,16
11	2,78
12	2,48
13	2,23
14	2,02
15	1,84
16	1,69
17	1,56
18	1,44
19	1,34
20	1,26
21	1,18
22	1,10
23	1,04
24	0,98
25	0,93
26	0,89
27	0,84
28	0,80
29	0,77
30	0,73

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	

12.13.2 The wind rose

The wind rose is the schematic representation of the cardinal points and the winds associated with each cardinal point meant as direction of origin (North, South, East, West) and the directions they mark out.
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.
NORTHEAST (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. Like the Tramontana north wind, it blows in bursts. It is a cold wind and brings dry weather.
EAST (E)	90°	Levante east wind	Its name indicates “where the sun rises”. It is rather weak and simply is an advance of the Scirocco and therefore an announcement of deteriorating weather.
SOUTHEAST (SE)	135°	Scirocco south-east wind	The name indicates its origins in Syria. It is a warm wind that creates rough seas and that it becomes very humid in the northern regions due to its passage over the Mediterranean sea. It indicates the arrival of rough weather.
SOUTH (S)	180°	Mezzogiorno or Ostro south wind	It is weak and on the Italian regions not very noticeable except in the Adriatic sea.
SOUTHWEST (SW)	225°	Libeccio south-west wind	The name indicates its origin in Lybia. It arrives rapidly, also reaching considerable force. It drops suddenly and usually remains a situation of good weather. When its blowing is annoying and dangerous for navigation: it 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.
NORTHWEST (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 than 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 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).

12.13.3 Wind classification

All types of winds existing on our planet.

CLASS	NAME	FEATURES
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 southwest 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 breezws: they act as the previous.

CLASS	NAME	FEATURES
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 shulùq, 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 Provencal 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 in Trieste. It blows only in winter.
	Austro south wind (from the Latin auster, south wind)	Warm wind that blows from the south.

CLASS	NAME	FEATURES
	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).
Irregular or cyclonic winds	Cyclones	They are defined as irregular winds and are violently destructive with a whirling motion; they take different names according to country: 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.

12.13.4 Navigation with one only engine

The yacht is driven by two powerful propulsion systems designed to operate together and at the same time. In case of failure of one of the propulsion systems, you may navigate with only one engine. In this case, we recommend that you:

- Shut off the failed propulsion engine;
- Set the position of the steering wheels in the opposite direction of the failed propulsion system; in case the steering wheels cannot contrast the asymmetric push of the operating system, lower the stabilizer on the side of the failed system, or reduce the speed;
- Head to the nearest landing at a reduced speed;
- Keep the yacht at a speed that allows you the best manoeuvrability.

In case one engine stops due to a failure and the gear box is in idle position, during navigation keep a constant eye on the oil temperature of the gear box connected with the failed system.
The propeller shaft is kept rotating thanks to the water flow through the propeller, under these conditions some parts of the gear box are also kept rotating.
Should the temperature increase excessively over 80°C, lock the propeller shaft by engaging the gear box: in this way the resistance will be higher, because the gear box is jammed, but oil will not overheat.

WARNING

The yacht has been designed to navigate driven by two engines; please remember that it is possible to navigate with one engine only in case of emergency and for a very short time.

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.

This yacht is equipped with Trailing Pump on the gearbox; this system allows navigation with a single engine, safeguarding the mechanical components of the engine off. For long distances a “sea water” cooling circuit has been provided with the following methods of use:

- With both engines working, the 3-way valves, positioned between the engine and the inverter, must be kept in configuration (**A**) (no partialization of the flow of water towards the other inverter).
- If one of the two motors (Engine OFF in the figure) goes out or fails, the corresponding valve must be brought into position (**B**) (the inverter now receives a part of cooling water coming from the gearbox delivery in operation).

12.14 ENGINE EMERGENCY SUCTION FROM THE BILGE

In the engine room there is the bilge emergency draining system, which operates with shunters **(1)**, which allow using the sea water pumps, driven by the propulsion engines as draining pumps.

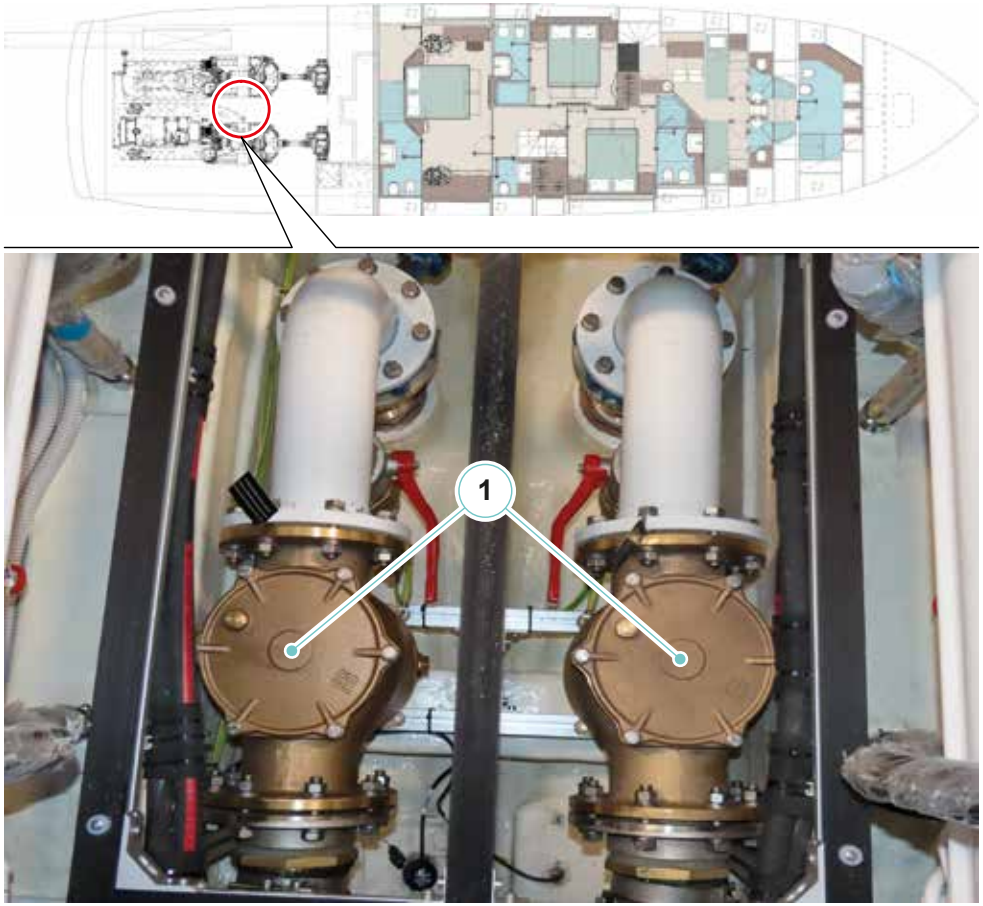
The shunters **(1)** are valves which, in normal position, ensure the sea water suction for engine cooling, through the sea cocks and the sea water strainers.

In case of emergency, use the handwheels of both valves, taking them to the emergency position; the suction of the pump, 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

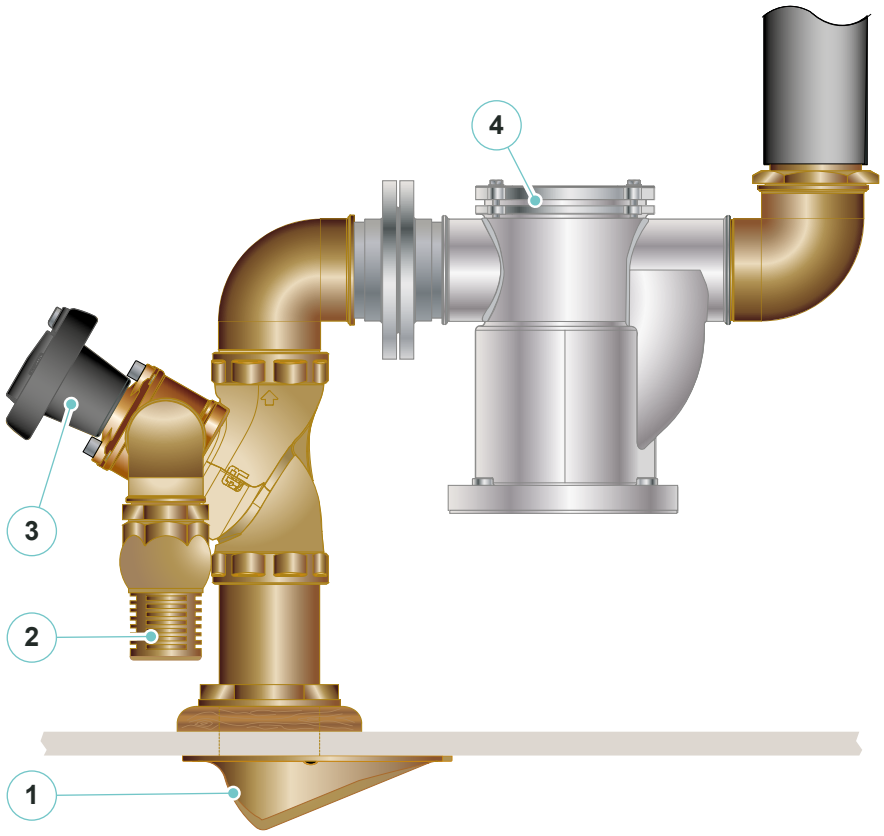
In case of emergency it is possible to suck the water from the bilge through the sea water pumps of each engine.



1. Engine sea cocks
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.



12.14.1 Operating diagram

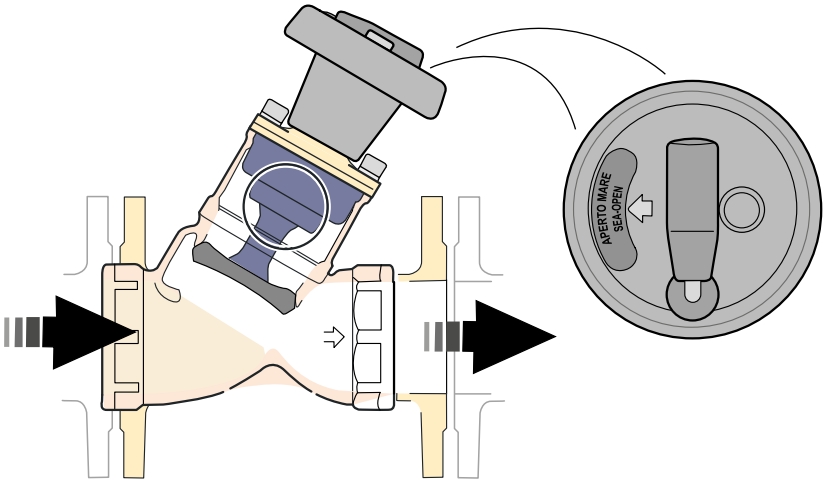
All valves are provided in the SEA-OPEN position.

Before proceeding with the installation, visually check the passage and that the wording through the handwheel window reads: **APERTO MARE / SEA OPEN**.

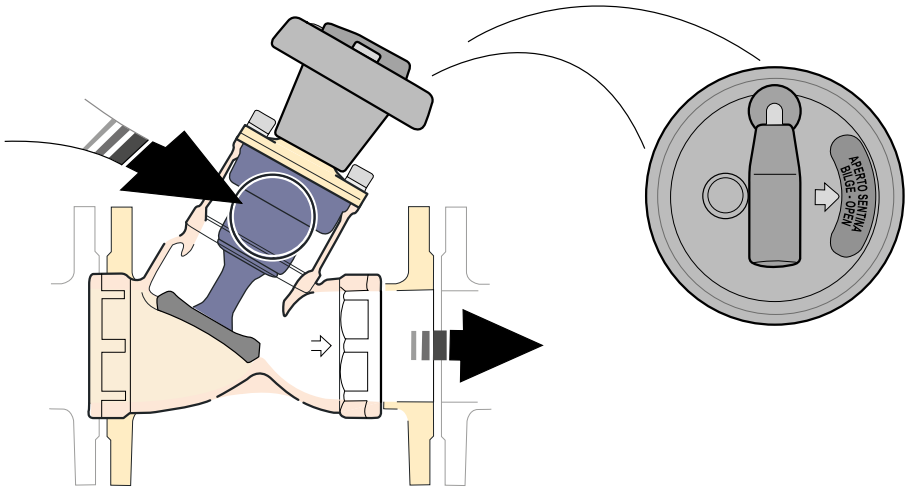
The direction of the water flow through the valve must align whit the arrow on each valve.
The valves can be installed both in a vertical or horizontal position (in the flanged version using the special seals available on request) maintaining the handwheel facing the operator.

The handwheel is provided with a position indicator to simplify its use.

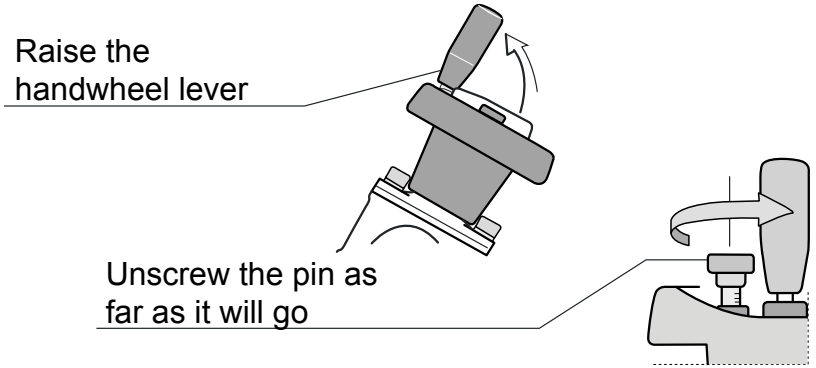
SEA OPEN



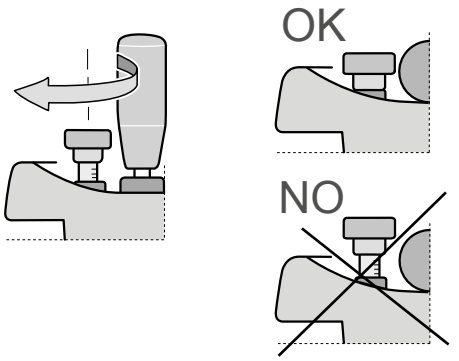
BILGE OPEN



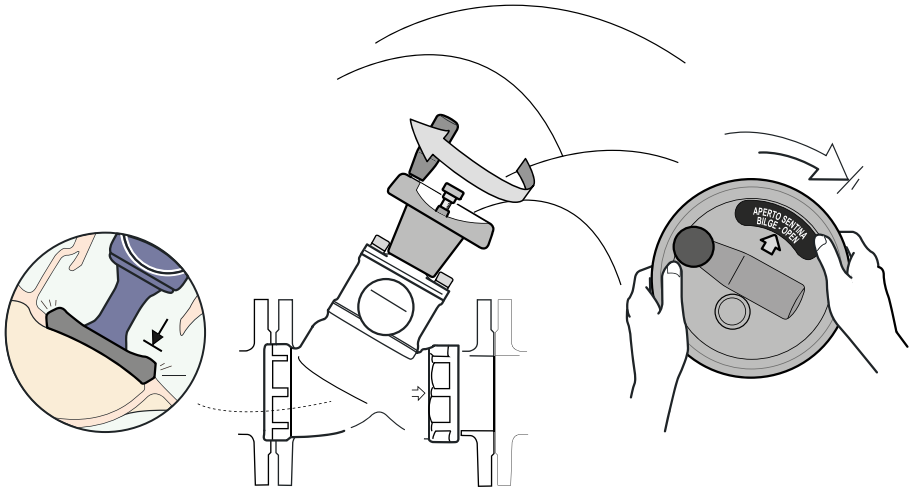
To enable water inlet from **SENTINA / BILGE**, proceed as follows:



Tighten the pin until it stops.



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.



CAUTION

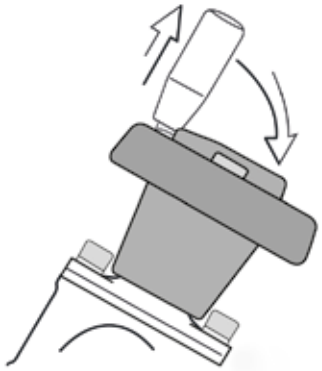
The pin is correctly tightened as shown.
A complete closure of the pin has the purpose of preventing any movement of the shutter.

Lower the handwheel lever into its seat.

To enable water inlet from SEA, 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.



12.14.2 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 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.

12.15 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 and under their direct responsibility.
RIVA declines all responsibility for damage to property and harm to persons caused by the wrong performance of the hereunder listed operations.

- The lifting hoists must be in a good condition and particularly the lifting straps should not be worn out, and should be covered with suitable protections to preserve the bulwarks gel-coat and the antifouling paint on the hull bottom.
- 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.

CAUTION

Never place 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

RIVA 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.

- When ashore, the yacht must be located on a cradle with seventeen supports 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.

Cradles

RIVA is capable of providing the cradles for a correct support of the yacht (optional on demand). RIVA is not responsible for any damage resulting from the use of cradles different from those expressly produced by RIVA.

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 damage to 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 supports with adequate strength and stability.
- Use correctly dimensioned supporting plates to prevent negative weight concentrations.
- Place the supports preferably next to transversal structural reinforcements (stringers).
- Locate the supports along the supporting fins of the hull.
- Always place at least 7 supports along the keel, 5 supports starboard and 5 supports port in order to guarantee stability and weight distribution.
- Start positioning the seven keel supports along a straight line, appropriately spaced to distribute weight.
- It is important that the supports 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 supports, adjust the height of the supports 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 supports; it is important to remember that the lateral supports must guarantee stability, but the whole weight must be supported mainly by the keel supports.
- 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 supports used and the surface on which the supports rest, the above suggestions must be adapted case by case. RIVA is therefore not responsible for any damage to the yacht occurring while the yacht is at dry shore on supports.

CAUTION

RIVA 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.

12.16 TOWING 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.

It is a good rule, after fastening the cleats, to carry on with the rope, and the winch: so as to load the strongest yacht's 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

In case it is necessary to tow another yacht, do this under calm sea and calm wind conditions only, and tow ship with a displacement not exceeding 50% of your ship displacement; in case of emergency, if towing is not possible, give help by taking on board people of the other ship, as many as permitted and possible, and reach the nearest harbour.
Anyway, inform immediately the Port Authority.

WARNING

Towing navigation can be carried out continuously for 8 hours, provided that you constantly monitor the gear box oil temperature, which must not exceed 80°C.
If temperature exceeds 80°C, stop navigation and wait until the temperature lowers.
When the engine is shut off, the control handle position is unimportant.

CAUTION

Always draw other yachts or let your yacht be towed at low speed. Never exceed the speed of the drawing yacht 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/operators' responsibility to make sure that the mooring ropes, the towing ropes, the anchor chain(s), the anchor lines and the anchor(s) 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").

DANGER

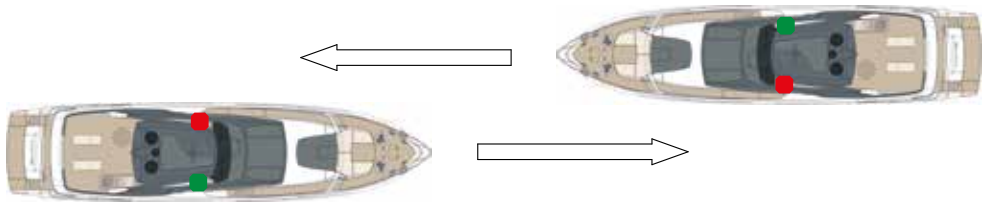
During towing navigation, the propeller shaft has to be kept turning by the water flow through propeller. We recommend not carrying out any kind of service on the thrust devices (engines, gear boxes, shafts, etc..).

12.17 YACHT STEERING RULES

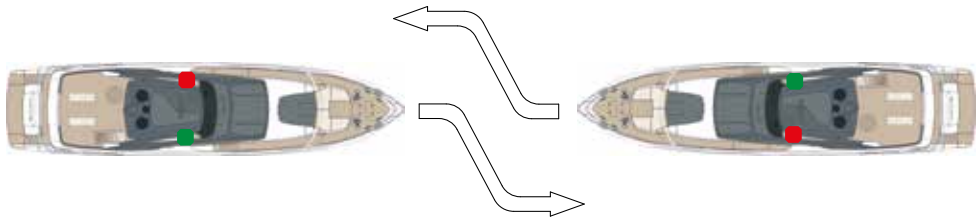
Ship in sight
We can consider three ways of encountering another yacht on the water:
- Meeting, crossing or overtaking.

Normally, the yacht with less manoeuvrability has the right-of-way.
Stay clear of the yacht and pass to its stern. The yacht, that has the right-of-way, is called the “privileged yacht”. This yacht can maintain speed and course. The “burdened yacht” is the yacht, which must adjust her course and/or speed as required to keep clear of the privileged yacht.

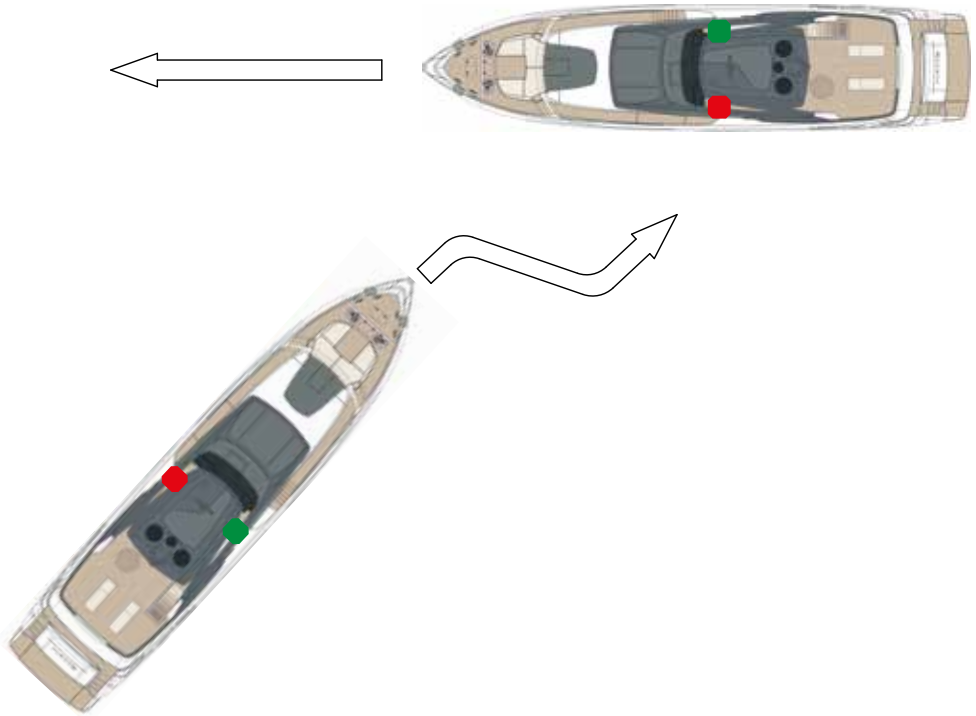
Meeting
When meeting another yacht proceeding on a parallel course, both yachts shall adjust the speed accordingly and keep on course.



When two power-driven yacht are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter its course to starboard so that each shall pass on the port side of the other.



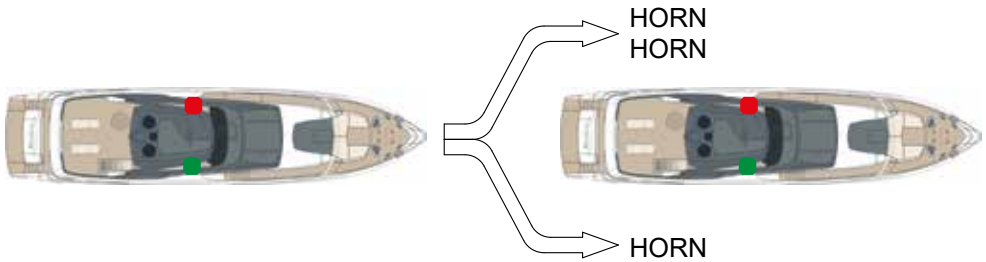
Crossing situation
When two power driven yachts are crossing so as to involve risk of collision, the yacht which has the other on its own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other yacht.



Overtaking situation

An overtake is defined as when one yacht comes from a direction of over 22.5 degrees aft, with respect to the yacht that it intends to overtake, in order that the stern lights can be seen but none of the side lights.
If you find yourselves overtaking a slower yacht, which is in your path, you are the burdened yacht. Make any adjustment necessary to avoid collision and pass either to port or starboard.

Signal your intent to do so by sounding your horn twice if passing on the port and once if passing on the starboard.
Announce your intentions by playing the horn twice if you intend to exceed the port and once if you intend to get over to starboard.
The yacht being overtaken by another, takes precedence over the latter and thus must maintain the same route and the same speed no pull or manoeuvre.
It is considered to reach the yacht that has the bow inside an angle of 135°, formed from the yacht's stern light that is reached.



HULL AND FURNITURE MAINTENANCE

CHAPTER 13

13.1 GENERAL MAINTENANCE OUTLINES

The yacht is equipped with large number sophisticated devices and systems, which require not only a certain care when it comes to use, but also regular maintenance to obtain correct operation.

One of the factors that might cause problems or faults, is usually the irregular use of the yacht and because of this, of the on-board devices.

Experience indicates that regular use of the devices normally gives fewer problems, and therefore, we recommend operating all on-board devices regularly, for short periods.

Daily checks and regular maintenance are important for maintaining equipment/components in the best working order and efficiency. If the regular maintenance schedule is not correctly followed, the equipment's performance can deteriorate, causing reduced efficiency, a shorter life and the occurrence of unexpected problems which can compromise safety at sea.

The maintenance schedule is based on time intervals or running hours.

For example, if a maintenance task is scheduled every 100 hours or 3 months, this 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 period of inactivity (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.
For further specific information referring to the maintenance schedule, see the Manufacturer Manuals for on-board devices/components, issued by the various Manufacturers.

CAUTION

Check periodically that all equipment containing water is filled with the correct amount 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 subject to risks of freezing are both the sea water systems (for instance engine cooling system, generator cooling system), and the fresh water systems (for instance: the windscreen washer system, the fresh water pump, etc..), that is: 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 areas concerned and prevent any device, if operated, from causing unexpected hazardous conditions, thus endangering the persons on board and/or property.
To avoid pollution, do not scatter any type of waste in the environment, 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

RIVA declines all responsibility for the installation and operation of electric, electronic or mechanical equipment improperly installed by third parties in a manner not authorised by the Shipyard.
RIVA declines all responsibility with regard to tampering carried out by third parties on equipment installed in the Shipyard. Such tampering or unauthorized installations will not only immediately void the warranty, it may also cause damage to the yacht and injuries to the people on board.
RIVA declines all responsibility concerning regular maintenance operations scheduled by the Shipyard or by Manufacturers, but not carried out, on equipment/components, for which it is necessary to refer to the relevant Technical Manuals.

13.2 LONG PERIODS OF YACHT INACTIVITY

Following list only represents a general guide to give the customer an idea of the ordinary maintenance 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 special information and very important specifications relevant to the maintenance of each device.

- **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. Check oil and fuel filters and replace them if necessary. Carry out the scheduled maintenance of the propulsion engines, indicated in the Use and Maintenance section.
- **Generators**
  Use the same procedure as for the engines.
- **Gear boxes**
  Carry out the scheduled maintenance for gear boxes.
- **Batteries**
  Check the liquid level and regularly charge the batteries, protect the terminals with Vaseline grease; even better would be to disconnect the batteries from the system and to charge them regularly with a separate battery charger, but this is not always possible on yachts.
- **Watermaker (optional)**
  A proper procedure provided by the supplier in the instruction manual has to be followed when the watermaker is not used for a long time.
- **Washers and Dishwashers**
  Carry out an empty washing cycle, carefully remove all detergent residues and accurately dry. Clean the filters.
- **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 rag soaked into Vaseline oil.
- **Wood and interior upholstery**
  Cover the cushions of sofas with sheets and above all cover all windows with the relevant covering sheets, so that as little light as possible is projected inside, because the UV-rays fade the wood and tissue colours.
- **Teak wood deck**
  Wash with water and neutral soap and treat with proper products. Sandpaper if strictly necessary.

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**
  Check their wear and if necessary, replace the hull, propellers shafts and interceptors, etc.. anodes.

- **LOG Transducer**
  Pull out the propeller, clean it and apply the proper propeller plug.
- **Windscreen wiper**
  Wash with fresh water and lubricate with Vaseline oil.
- **Anchor winch**
  Check the oil level in the gear box where possible. Check the oil level, protect the electrical components with a suitable protective spray and lubricate with silicon grease clutches and wildcat.
- **Grey water tank**
  Pour sterilizing products into the washbasin, showers, and bidets wastes. Empty the tank and clean ensuring the float is efficient.
- **Black water tank**
  Pour a sanitary product containing Paraformaldehyde (available in camping equipment shops) into the WCs and rinse the tank with this mix a couple of times. Drain the tank completely.
- **Tender engine**
  Wash with the fresh water contained in the cooling system of the engine. Carry out the maintenance as recommended by the supplier.
- **Jet-ski**
  Wash with fresh water contained in the cooling system. Carry out the maintenance suggested by the supplier.
- **Air conditioning**
  Before winter:
  - Let water flow in the sea water system.

  After winter:
  - Check the anti-freeze mix 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;
  - Carry out the maintenance operations suggested by the manufacturer.
- **Electro-hydraulic control units**
  Protect with the proper sprays and check the oil level.
- **Hydraulic steering system**
  Check the operation and top up oil if required.
- **Refrigerators**
  Cleaning and protection for the outer one, should the yacht remain in the open.
- **Fire extinguishers**
  Check the loading condition and expiry date for regular inspections.
- **Safety equipment**
  Check the expiry dates of the self-inflatable means, flares etc.
- **Water tanks**
  Wash with disinfectant, drain the fresh water circuit, especially if frost is forecasted.
- **Fuel tank**
  Cleaning by means of a decanter especially if there are traces of water in the fuel.
- **Engine room**
  As for the engine room, we suggest carrying 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 and fly bridge 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: propellers, anodes, shaft lines, supports, rudders, interceptors, fan coils, sea cocks, bow thrusters.

- 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.
- Disconnect all unnecessary uses.

DANGER

During charging the batteries produce explosive gas. Do not approach the recharging area with free flames or sparks.
Avoid wrong connections; never connect a positive terminal (+) with a negative one (-).
During battery recharge, remove the caps of the relevant elements.

13.3 RE-USE OF THE YACHT AFTER LONG INACTIVITY

- **Engines**
  After the winter, check engine and gear box oil and change, 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 period of yacht inactivity, carry out all above-listed operations and following checks:

a) Check the condition of all hoses and connections of the steering system, stabilizer, gangway, swim ladder, etc..
b) Start the engines.
c) Stop the engines.
d) Clean fuel filters. Replace engine oil filters and add oil to the engines if necessary.
e) Check all bilge pumps and their operation.
f) Check the operation of the black water, grey water and sea water pumps.
g) Check the operation of all on-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 generators.
- Verify the hull.
- Have the bottom hull accurately cleaned, as well as the rudders, stabilizer fins and interceptors 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 of the shaft lines, if necessary adjust them.
- Check the conditions of the sacrificial anodes; if necessary, replace them.
- Check the charge of the batteries, and that their terminals and housings are dry and clean.

13.4 HULL MAINTENANCE

Component	Maintenance	Notes and precautions
Bottom hull	Periodical cleaning and check of antifouling 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 antifouling effects depends mainly on the conditions of the waters where the yacht is stationary. **CAUTION** To remove the old antifouling, do not use sandblasting methods, as it may damage gelcoat surface and the anti-osmosis resin applied by the Manufacturer. As suggested by the anti-fouling 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.

13.4.1 Bottom hull

Antifouling treatment
If scales build up on the hull, this causes 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, suited for your yacht and for the waters in which you are going to navigate. Contact the RIVA 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 and check the yacht in water: disable the engines and generators ignition.

CAUTION
There are some hull areas (fastening area of thruster shaft support base, submerged drainage areas, areas around thruster tunnels 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 stabilizer 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 the RIVA 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 Paddlewheel
- Sacrificial Anodes
- Shafts and Propellers

13.5 GENERAL MAINTENANCE

Component	Maintenance	Notes and precautions
Gel-coat **CAUTION** The alteration of colour and brightness in areas which are highly exposed is considered 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 Regular cleaning (as required) Formation of cracks Regular 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 from the Service Department. **CAUTION** Always wash using neutral products. In case of particularly persistent dirt, do not use products containing ammonia which can 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 gel-coat 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 upholstery	Regular 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 fibres. 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 RIVA After Sales & Service Department will advise you about the maintenance level you have to apply at the end of each season's use. Correct maintenance will allow you to avoid deterioration which is expensive to repair. **CAUTION** The extremely precious finishes of the polish-varnished woods used for bathroom floors and cockpit tables is the result of careful work: they are water resistant but at the same time delicate and need careful maintenance. Such surfaces must therefore be dried after use or after rain and must be washed and maintained regularly.

Component	Maintenance	Notes and precautions
Wood and upholstery	Regular cleaning	**CAUTION** Upholstery and wooden parts: the leather and wooden parts have to be treated as natural products, subject to colour alteration, particularly if the necessary precautions for good maintenance are not taken. RIVA therefore reserves the right to evaluate any problems and its own responsibility according to case. **MAINTENANCE** At least once a week, carefully wash and clean all teak outside parts, and at least once a year perform a protective treatment with suitable products. **CAUTION** Current use: • Do not walk or jump on the cushions; • Prevent the cushions from turning yellow due to direct exposure to sunlight; • Prevent the absorption of water or moisture by not leaving the upholstery 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 clean and dry upholstery in a cool, ventilated room with no moisture; • Do not place heavy objects on upholstery when stored.

Component	Maintenance	Notes and precautions
Ceilings Panels	Regularly check the flatness of the panels and / or any discontinuities or steps between the ceiling panels	Whenever the ceilings are disassembled, 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 Fit Lock or 3M Dual Lock ceiling panels with damaged fastening systems , due to a possible reduction of their retention power. Damaged parts must absolutely be replaced with new ones. In order to be sure that the ceilings have been reassembled correctly, check flatness with the other ceilings panels and the absence of discontinuities and steps between one ceiling panel and the others.

Component	Maintenance	Notes and precautions
Teak	Regular cleaning (as required)	The characteristic of teak is its resistance to weathering and therefore, it does not require maintenance. Over time, teak tends to assume a particular silver colour that may not appeal; in this case, to maintain the original colour of the teak, it needs to be treated regularly with specific products (e.g. teak wonder). If the wood has smears that cannot be removed with normal washing, it is necessary to sand the wood to remove stains, and then repaint with wonder teak. **CAUTION** Do not clean the teak with stiff brushes, as even rubbing the grain lengthways can damage 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, colour variation, dirt in the caulking have not been addressed as defects and could be prevented with a regular maintenance and service of the teak surface and caulking.

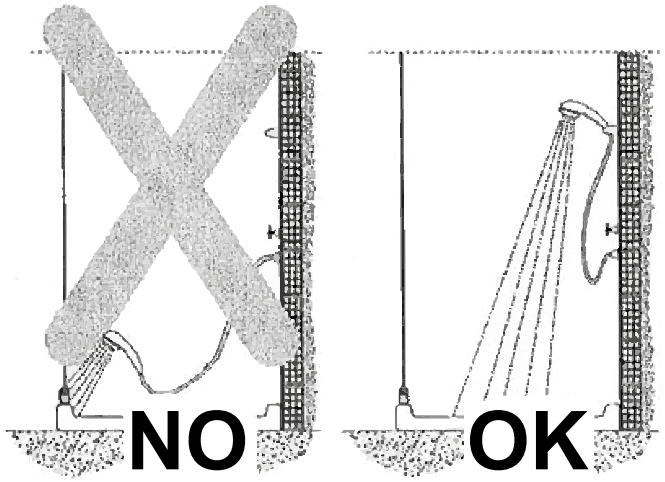
Component	Maintenance	Notes and precautions
Light alloys and stainless steel	Regular cleaning	It is a good rule to accurately wash the entire yacht after each navigation, in particular all metal parts that may be damaged by saline humidity. Spray plenty of fresh water on handrails, windows, skylights, rub rail, anchors, cleats and ladder. Regularly protect all metal parts with Vaseline oil. **MAINTENANCE** At least once a year check the fastening of all metallic parts of the yacht. **CAUTION** The black glass wall is not watertight, so do not point the water jet towards the window, when washing. **CAUTION** Never use brushes or abrasive cloths on metal fittings, not even on rust spots, scratches on the surface, as this will cause a less shiny appearance and decrease the mechanical features.

Component	Maintenance	Notes and precautions
Sun-deck cushions	Regular cleaning	Remove the cushions from the seats at regular intervals and let their underside 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 moisture from remaining entrapped between cushions and underneath surfaces. 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.
	General care and cleaning guide	• **For light soiling,** a solution of 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 and water. Rub gently and rinse with a damp 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 the deterioration of the material.

Component	Maintenance	Notes and precautions
Windscreen/windows	Regular cleaning	**CAUTION** Rags and chamois leathers used for cleaning glass must be replaced at least every 3 months. The inner side of windows and windscreen can be cleaned with non-aggressive and non- acid 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 using aggressive detergents, solvents or abrasive products. Contact the Service Department. **CAUTION** For cleaning the outer side of coloured or mirrored (pyrolytic) windows and windscreen: • Evenly 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 with chamois leather only. For cleaning the tinted 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	Regular cleaning	**CAUTION** For cleaning mirrored glass walls only use water and neutral soap. Different products could damage the surface coating.
Windscreen wiper and washer	Regular 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 regularly, 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 feel that the seals have deteriorated due to a wear, please contact our Service Department.
Light fittings	Regular cleaning (as required)	DO NOT use alcohol-based products to clean the light bodies.

Component	Maintenance	Notes and precautions
Instrumentation and navigation lights	Regular 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 careful 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. **MAINTENANCE** At least once a week check the operation of the gauge cluster in the fly and of all instruments on board. At least once a week carry out cleaning. At least once every six months protect the piston for fly gauge cluster opening with proper products. **CAUTION** Do not use chemical or abrasive products. After navigation, cover the instruments and equipment.
Metallic parts and connectors	Regular cleaning (as required)	Grease connectors and metal parts of the devices installed and exposed to moist and salty environment to prevent oxidation; pay particular attention to the above-mentioned components of the steering system, gangway, hatches, and control units, etc..

Component	Maintenance	Notes and precautions
Shower	Checking and replacing gaskets	**CAUTION** Carry out regular 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 shower use. 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.

13.6 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.

13.7 REAR WINDOW MAINTENANCE

MAINTENANCE
At least once a week carry out careful cleaning.
At least once a month check operation.
At least once every six months check the locking with window and door open.
When necessary have them adjusted.

The stern glass wall, shows very many functional and aesthetic advantages, for the use of a salon door, which wholly overlaps the fixed wall, which combines the salon and the cockpit in a single, large room.
Of course, this glass wall needs particular care during washing, because inaccurate washing may cause water to penetrate.
To avoid this problem, we advise taking great care with the direction of the water jet for rinsing: it should not be directed frontally and with pressure, but the water should be allowed to run down from above.

13.8 SPEED MULTISENSOR MAINTENANCE (LOG SENSOR)

Component	Maintenance	Notes and precautions
LOG - speed multisensor with valve	Regular check Ordinary Maintenance	As indicated in the Manufacturer's Manual. **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.

TROUBLESHOOTING

CHAPTER 14

14.1 TROUBLESHOOTING

The yacht is equipped with a large number of complex devices and installations.
These require regular checks and maintenance to keep their operation correct.

When an on-board problem is detected, it is essential to carry out a quick check in order to understand its cause and, if possible, to find a remedy. In order to analyse a malfunction it is appropriate to ask the following questions:

- Is the malfunction caused by a human error?
- Is the malfunction due to bad weather conditions?
- Is the malfunction due to a device failure or to a fault of another external device, but in some way connected to the first one?
- At what stage does the malfunction occur: at the start, at steady state, at device switch OFF?
- Does the malfunction occur repeatedly; if yes in which way?
- What does the malfunction imply from an operating point of view?
- Does the malfunction trigger any signals (luminous and/ or acoustic: sirens, buzzers, etc.) and/or messages on a display and/or anomalous noises (like whistles, beats, buzzes, etc..) and/or anomalous smells (burning smell)?
- Does the malfunction interfere with the operation of other devices?
- Is the malfunction a real apparent fault (that is, it can be cleared after a device reset and following switch ON).

The best, most complete answer we can give to the previous questions, will give us a malfunction analysis.
This section of the Manual 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 provide a solution to the problem that is as effective as possible.

WARNING
We recommend, in order to operate with peace of mind, in full safety, traking good note of the Safety Rules relevant to Maintenance described in the “SAFETY RULES”.

WARNING
Corrective actions may only be carried out by specialised and authorised personnel.
RIVA declines all responsibility for proposed corrective actions carried out by unskilled personnel.

CAUTION
For more detailed information, please refer to the various Manufacturer’s Service Departments or contact the RIVA After Sales & Service Department directly.

14.2 PROPULSION ENGINES

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. Engine does not turn when starter is actuated		
• Battery	• Low or defective	• Charge or replace (see Manufacturer's documentation)
	• Cable connections defective	• Check that cable connections are properly secured (see Manufacturer's documentation)
• Starter	• Engine wiring or starter defective	• Check that cable connections are properly secured, contact Service
• Engine wiring	• Faulty	• Contact Service Department
• LOP Local Operation Panel	• Loose seating of assemblies or connectors	• Visual inspection
• ECU Engine Control Unit	• Loose plug-in connections	• Check plug-in connections
• Engine	• Gear locked (engine cannot start manually)	• Contact Service Department
• Start-interlock limit switch	• Limit switch not installed or defective • Wiring defective	• Check limit switch • Check wiring
2. Engine turns but does not fire		
• Starter	• Poor or defective starter rotation	• Charge or replace battery (see Manufacturer's documentation)
• Engine wiring	• Faulty	• Contact Service Department
• Fuel system	• Not vented	• Check vent
• ECU Engine Control Unit	• Faulty	• Contact Service Department

Problem	Cause	Corrective action
3. Engine fires unevenly		
• Fuel injection equipment	• Injector defective	• Replace
• Engine wiring	• Faulty	• Contact Service Department
• Fuel system	• Not vented	• Check vent
• ECU Engine Control Unit	• Faulty	• Contact Service Department
4. Engine does not reach full-load speed		
• Fuel supply	• Shut off	• Open shut-off valve before fuel pre-filter (water/fuel separator)
	• Fuel pre-filter clogged (water/fuel separator)	• Replace
	• Fuel filter clogged	• Replace
		• Check air cleaner clogging indicator
• Air supply	• Air cleaner clogged	• Replace
• Fuel injection equipment	• Injector defective	• Replace
	• Injection pump defective	• Contact Service Department
• Engine wiring	• Faulty	• Check yacht's load condition, reduce load if necessary
• Yacht	• Yacht too heavy	• Trim yacht
	• Yacht's trim position	• Clean
	• Marine growths on hull, propeller shaft, propeller, rudder	
• Rudder	• Rudder position	• Align rudder
• Propeller	• After propeller replacement: propeller too small/large	• Replace only with original spares

Problem	Cause	Corrective action
5. Engine speed not steady		
• Fuel injection equipment	• Injector defective • Injection pump defective	• Replace • Replace
• Speed sensor	• Faulty	• Contact Service Department
• Fuel system	• Not vented	• Vent
• ECU Engine Control Unit	• Faulty	• Contact Service Department
6. Charge-air temperature too high		
• Coolant	• Incorrect coolant concentration	• Check coolant properties
• Intercooler	• Contaminated	• Contact Service Department
• Engine room	• Air intake temperature too high	• Check fans and ventilation air supply
7. Charge air pressure too low		
• Air supply	• Air cleaner clogged	• Check air cleaner clogging indicator
• Intercooler	• Contaminated	• Contact Service Department
• Turbo charger exhaust	• Faulty	• Contact Service Department
8. Coolant leaks from intercooler		
• Intercooler	• Leaking, major coolant discharge	• Contact Service Department
9. Exhaust gas black		
• Air supply	• Air cleaner clogged	• Check air cleaner clogging indicator
• Fuel injection equipment	• Injector defective • Injection pump defective	• Replace • Replace
• Yacht	• Overload	• Contact Service Department

Problem	Cause	Corrective action
10. Exhaust gas blue		
• Engine oil	• Too much oil in engine • Oil separator clogged	• Drain engine oil • Replace
• Exhaust turbocharger, piston rings, cylinder liner	• Faulty	• Contact Service Department
11. White exhaust gas		
• Engine	• Not at operating temperature	• Run engine to reach operating temperature
• Fuel system	• Water in fuel	• Check fuel pre-filter (water/fuel separator filter) and drain pre-filter
• Intercooler	• Leaking	• Contact Service Department

14.3 GEAR BOX

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. Transmission oil temperature too high	• Insufficient water flows through oil heat exchanger	• Increase water flow
	• Drain sludge from oil cooler	• Clean oil cooler
	• Undefined range, clutch slipping	• 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	• Clean filter and drain off oil sludge
	• Oil cooler dirty	• Clean oil side of oil cooler
4. No operating oil pressure (*)	• No oil in transmission	• Add oil
	• Wrong rotation direction at transmission input	• Use special transmission version
	• Faulty display unit	• Remedy fault
5. Operating oil pressure too low (*)	• Oil viscosity too low	• Use a prescribed oil grade
	• Incorrect oil pump ratio	• Adjust oil pump ratio to suit engine operating speed range
	• Defective oil pump	• Replace oil pump
	• Pressure relief valve leaking	• Remedy the fault
	• Timeswitch for pressure modulation defective	• See Manufacturer’s documents

(*) see monitoring data.

Problem	Cause	Corrective action
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”
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 the oil circuit from the cooling system	• Correct mechanical fault

(*) see monitoring data.

Problem	Cause	Corrective action
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 made too quickly or made at excessive yacht speed	• Increase engine idle speed range • Change direction (see Manufacturer's document)

If the fault cannot be remedied, the transmission lubricating oil supply is also at risk. Proceed at reduced engine speed only until repairs can be carried out.
(*) see monitoring data.

14.4 GENERATORS

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. Fluctuating or low oil pressure	• Oil level too low	• Stop the generator immediately and top up with suitable oil
	• Dirty oil	• Replace dirty oil with new suitable oil
2. Cooling water temperature too high	• Excessive load	• Reduce the load
	• Air in the cooling circuit	• Bleed the circuit
	• Coolant low level or wrong mixture	• Restore the cooling water level and correct percentage
	• Sea water intake is obstructed or sea water intake strainer is clogged	• Clean sea cock and strainer
3. Black smoke	• Engine room insufficient ventilation	• Check that air intakes are not obstructed
	• Excessive load	• Reduce the load
	• Unsuitable fuel	• Replace with suitable fuel
	• Cooling water temperature too high	• See step 2
	• Lack of maintenance	• Have the scheduled maintenance operations carried out

(*) see monitoring data.

Problem	Cause	Corrective action
4. Blue smoke	• Excessive oil	• Discharge the excess oil by draining oil filters
	• Dirty oil	• Replace dirty oil with new suitable oil
	• Lack of maintenance	• Have the scheduled maintenance operations carried out
5. White smoke	• Cold generator	• Let the generator warm up
	• Generator with too low load	• Increase the generator load
6. Lack of power	• Engine room insufficient ventilation	• Check that air intakes are not obstructed
	• Fuel filter clogged	• Clean
	• Unsuitable fuel	• Replace with suitable fuel
	• Cooling water temperature too high	• See step 2
	• Lack of maintenance	• Have the scheduled maintenance operations carried out
7. Excessive or unusual noise	• Insulation cover not properly fastened	• Check
	• Leakage from the exhaust	• Check the exhaust
	• Exhaust not properly fastened	• Check the exhaust
	• Lack of maintenance	• Have the scheduled maintenance operations carried out

14.5 BATTERY CHARGER

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. No output voltage and/or current	• No AC voltage or fuse valve is blown	• Check the fuse valve, replace if necessary
	• Network or generator output too low	• Check the input voltage; it should be between 190 and 260V (230V 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	• Decrease the battery load demand
	• Batteries not 100% charged	• Measure the battery voltage after a while, this will be higher
3. Charge current too low	• Batteries almost fully charged	• Check if the charger is in absorption mode. In this way, the charging voltage decreases slowly
	• High room temperature	• If the room temperature is higher than 40°C, the maximum charge current will automatically be reduced
	• Mains current too low	• When the mains is lower than 190V, the charger will regulate the current down
4. Batteries not fully charged	• Charge current too low	• See “charge current too low”
	• Current to load too high	• Decrease the battery load
	• Charge time too short	• Replace the battery
	• Battery temperature too low	• Use temperature sensor
	• Defective battery (short circuit in cell)	• Replace the battery

5. Battery loses charge quickly	• Battery capacity reduced because: - Wastage - Sulphating/stagnation	• Replace battery • 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 battery • Use temperature sensor • Check the switches setting

14.6 INVERTER/BATTERY CHARGER

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. No inverter output voltage. The inverter does not work, or just for a few seconds	• Battery voltage may be too low. Low voltage cut-out switch trips at 10V (12V), 20V (24V) or 40V (48V).	• Recharge battery for 24 hrs
	• Battery connections are corroded	• Check for corrosion, and replace bad sections
	• Check if the inverter is overheated. In case of overheating LED of temperature + failure lights up	• Disconnectconnected load. Improve ventilation
	• Overload or short circuit	• Disconnect excessive load
	• LED overload + failure will be lit	• Remove short circuit condition
2. Battery charger does not operate	• AC voltage not supplied	• Check installation • The AC green LED should light up, if power is supplied
	• Input voltage too low	• Check fuses or magneto-thermals
	• The battery charger will not operate below 160/80V	• Check the generator output voltage, remove connected load, output voltage should come up
3. The battery charger does not operate, while mains voltage is present	• Mains frequency could be too high or too low	• Check the generator output frequency
	• The frequency must be within 35-66 Hz	• Check generator rpm

If you can not correct a problem with the aid of the Problem shooting list, contact Service Centre.

14.7 INVERTER

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. No output voltage and no lighting of warning lights (LED off)	• High output voltage	• Check the battery voltage and switch off the charger
	• DC fuse burnt out	• Replace the fuse
	• Switch set on remote control, but this is not available	• Place the switch to ON
2. No voltage in output, LED of battery charge is ON	• Batteries flat	• Charge the batteries, the inverter will switch on when the battery voltage exceeds 24V
3. No voltage in output, temperature LED ON	• The inverter is overloaded	• Reduce the charge and let the inverter cool down
4. No output voltage, LED “ON” is lit	• Inverter is in stand-by	• Connect a charge or modify the jumper’s settings
5. Low voltage in output	• Low power supply = jumper adjustment	• Connect a charge > 30W or modify the jumper’s settings
6. The inverter turns on and off, the “ON” LED and the battery charger LED flash in turns	• Batteries flat	• Disconnect the charge and charge the batteries
	• Wires are too thin	• Replace with wires of correct diameter
	• The connections are corroded or faulty	• Tighten connections. If wires are burnt out, replace them
7. The inverter lights ON/OFF, the ON LED is lit, the “overload” LED flashes once a second and the fan operates at full speed	• The inverter is overloaded	• Reduce the inverter load
	• The inverter has been switched off ten times as a result of an overload or short- circuit condition	• Reduce the load or the short-circuit. Reset the inverter manually through ON/OFF switch

14.8 USES

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. A connected device will not receive power supply	• Power line fuses blown	• Check the line and replace the fuses
	• Wiring disconnected	• Check wiring connections
	• Connections oxidised maintenance	• Check and carry out proper maintenance

14.9 FUEL SYSTEM

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. Irregular fuel supply to engines and generators and engines	• Circuit valves closed or not fully open • Filters clogged	• Check/Open • Clean

14.10 BLACK OR GREY WATER DRAINING SYSTEM

For further information, please contact the RIVA After Sales & Service Department.

Problem	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

14.11 HOT/COLD FRESH WATER SYSTEM

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. No water to outlets	• Circuit valves closed or not fully open • Tanks empty • Pump not powered electrically	• Check/open • Fill the tanks and bleed the circuit • Check
2. Pump starts even with outlets closed	• Circuit leaking	• Eliminate leakage

14.12 BILGE PUMPS

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. Bilge pump does not run. No water pumped	• Wire connections	• 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
	• Blown	• Check the correct fuse size (fuse size is printed on the side of the bilge pump) • If fuse size is correct, check the 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

Problem	Cause	Corrective action
3. Pump runs without water output	• Airlocking/cavitating	• Inspect & reposition hose for short vertical discharge • Faulty or clogged check valve may add to pump air locking
	• Pump strainer & impeller area clogged with debris	• Disconnect pump & clean outside of strainer, clean debris around impeller, & reattached & re-hook wiring
4. Pump shaft corroded	• Electrolysis, cracked housing	• Inspect pump housing for cracks which can cause leakage into motor cavity causing corrosion • Possible incorrect current running through wiring causing corrosion.
5. Pump impeller spins backward	• Check wiring	• Switch wiring for correct polarity
6. Wires overheated, melted insulation	• Incorrect fuse size, possible jammed impeller	• Make sure that impeller is free to rotate • Check to make certain correct fuse rating is installed • REPLACE ALL DAMAGED WIRING

14.13 HYDRO-ELECTRIC STEERING SYSTEM

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. Air bubbles or foam in the system	• The oil level in the tank is too low and does not allow the suction pipe to be completely plunged. In this way the pump sucks oil and air at the same time	• Check
	• Possible openings and little holes on the suction pipes or faulty pump seals, which allow air to penetrate	• Check
2. The pump does not deliver oil	• Wrong rotation direction	• Check
	• Obstructed ducts or suction strainers	• Check
	• Oil level in the tank too low	• Check
	• Air leakages in the suction system	• Check
	• Oil too viscous with some difficulties in passing through	• Check
	• The shaft or other components of the pump are broken	• Replace
3. Lack of pressure in the system	• The pump does not deliver oil	• Check
	• Relief valve is not calibrated	• Check
	• Free discharge of oil to the tank somewhere in the system	• Check

Problem	Cause	Corrective action
4. The pressure of the system is low or fluctuating	• Possible leaks in the piping or elsewhere in pressurized parts of the system	• Check
	• Relief valve set at a too low rate	• Check
	• The relief valve remains open or oscillates in its housing	• Check
	• Restriction of pump suction pipes or possible obstruction of filter	• Check
	• Air in leaks in suction pipes or by pump seals	• Check
	• Worn pump	• Check
5. Too noisy pump	• Wrong pump rotation direction	• Check
	• Oil with air bubbles	• Bleed
	• Oil viscosity causing obstructions to the suction system	• Check
	• Irregular inflow of oil to the pump, caused by an insufficient filtering capacity of the filter (the filter could be dirty or not suitable)	• Check/Clean
	• Big lacks of charge along the suction line	• Check
	• Worn pump components	• Check/Replace
	• Relief valve vibrations	• Check
	• Mechanical vibrations due to a bad anchor action	• Check

Problem	Cause	Corrective action
6. Temperature too high	• The pump is working at a higher pressure than permitted	• Check
	• Faulty or worn pump which causes an internal blow-by	• Check
	• Excessive blow-by through valves and cylinder	• Check
	• Oil too viscous	• Check
	• Continuous overloaded operation	• Check
	• Temperature too high in the room where the pump unit is placed	• Check
7. Leaks from the seals	• Possible abrasive substances have entered into the oil circulation, damaging the pump's shaft	• Check
	• Seals are faulty, broken or mounted in a wrong way	• Check
	• Too hot oil	• Check
8. Pump overcharging the motor	• Too viscous oil	• Check
	• Obstructed delivery line or excessive resistance	• Check

14.14 GANGWAY

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. The system does not react to the controls	• Flat battery	• Verify that the battery of the sender is loaded or correctly inserted • Verify that the self learning of the sender code has been carried out
	• 3 A fuse	• Check that the hydraulic control unit is correctly supplied; check for the integrity of the 3 A fuse
2. The gangway does not move smoothly	• The hydraulic power unit has a thermal protection	• Wait until hydraulic power unit is disconnected (about 5 minutes) and retry handling on the adjusting trimmer (shift few degrees each time); if the problem continues, also with the trimmer at the bottom scale (clockwise) contact the service department

14.15 AIR CONDITIONING SYSTEM

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. High crankcase temperature	• Overheating	• Check coolant charge
	• Poor circulation of treated water (winter cycle) or condensation water (summer cycle)	• Correct circulation
2. Low suction pressure	• Low coolant charge	• Add
	• Poor circulation of condensation water (winter cycle) or treated water (summer cycle)	• Correct circulation
3. System noisy	• Loose fastening bolts	• Tighten bolts
	• Unit base improperly insulated	• Insulate foundation
	• Improper support or insulation of piping	• Use correct piping techniques and support piping with suitable hangers
	• Piping vibrations	• Clip pipes correctly. Check the couplings

Problem	Cause	Corrective action
4. Compressor does not start	• Power off	• Check the supply. Check fuses and/or magne-to-thermal switches
	• Thermostat misadjusted	• Adjust thermostat
	• Pressure switch open	• Reset switch and check proper calibration, 20 bar (h.p.) and 2.5 bar (l.p.)
	• Faulty wiring	• Check diagram and rewire
	• Pumps not operating	• Check pumps free rotation. • Check the magneto-thermal switches
	• Flow-switch does not close	• Restore correct treated water circulation
	• Gas discharging unit	• Check coolant circuit for possible breaks due to transport and installation
5. Compressor cycles intermittently	• Low pressure switch erratic in operation	• Check pressure switch setting. Check good circulation of condensed water
	• Low coolant charge	• Add
	• Internal protection tripped	• Check for any voltage drop, correct
6. High delivery pressure with compressor stop (high pressure switch).	• Coolant overcharge	• Remove excess coolant
	• Insufficient or no condenser water flow; clogged condenser or sea-water strainer	• Adjust water regulating valve to condenser; clean condenser or sea-water strainer
	• Condensed water pump off	• Check pump and start
	• Poor treated water circulation (winter cycle)	• Check for air in the circuit. Check for possible clogging
	• Air in coolant circuit	• Restore vacuum and refill with coolant

14.16 AUTOPILOT

For further information, please contact the RIVA After Sales & Service Department.

Problem	Cause	Corrective action
1. The display does not operate	• No power supply	• Check the fuses and the track computer, then check the condition of the fuse/main switch
2. The display shows dots	• Control unit is not receiving data	• Check connections
3. The display shows rotating dots	• The compass is being compensated	• The compass is being compensated
4. The heading data of the autopilot compass does not correspond to the navigation compass	• The compass has not been automatically compensated	• Carry out procedure for deviation and alignment
5. The steer bar shifts in the opposite direction of the rudder bar		• Invert the red and green connections of the tiller angle transducer on the course computer
6. The yacht moves to new heading too slowly	• The rudder gain is too low	• Complete, the Auto Learn or increase the value
7. The yacht moves to new heading too quickly	• The rudder gain is too high	• Complete, the Auto Learn or decrease the value

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