Merry Fisher 855 Marlin

OWNER'S MANUAL

JEANNEAU

959207
Index C

CE

CONTENTS

INTRODUCTION

Welcome

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

A JEANNEAU is made to last, in order to bring you all the pleasure you expect from a vessel over a period of many years. Each boat is subject to the utmost attention to detail from the design stage right through to launching.

This manual is meant to help you to enjoy your boat comfortably and safely. It includes the boat specifications, the equipment provided or installed, the systems and tips on her operation and maintenance. Some of the equipment described in this manual may be optional.

Your JEANNEAU dealer will be able to help and advise you in the use and maintenance of your boat.
The initial commissioning of your boat will require a lot of skill and care. The proper working of all your boat's equipment is the result of the quality of the commissioning operations. This is why the initial launch must be overseen by your dealer.

Read this Owner's Manual carefully and take the time to get to know your boat before you use it.

The better you know your vessel the more pleasure you will get from being at the helm.

Keep this manual somewhere safe and should you sell your boat, hand it to the new owner.

You are advised to keep any user's guides supplied by the manufacturers of any equipment for your boat (accessories...),together with your manual.

For all the equipment on your boat,

please read the instruction manuals provided by the manufacturer.

- This manual has been produced to help you enjoy using your boat in all safety. It contains the details of the boat and of all the equipment provided and installed on your boat, as well as the instructions for their use. Read it carefully and really get to know your boat before using it.

- This owner's manual is not in any way a navigation or mariner's training manual. If this is your first boat or if you have changed to a type of boat with which you are not familiar, make sure that you learn how to use it and manoeuvre it safely and with ease, before taking the helm alone. Your dealer, or national sailing or motorboat association, or your yacht club will be very happy to tell you about the navigation schools or qualified instructors in your area.

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

- Even with a well-adapted boat, the wind and sea conditions which correspond to the design categories A,B and C range from storm force winds for category A to severe storm conditions at the upper end of category C and would put the boat at risk from massive waves and extreme gusts. These are dangerous conditions in which only an experienced, fit and well-trained crew, manoeuvering a well-maintained boat, could navigate sufficiently well.

- This owner's manual is not intended as a detailed maintenance or repairs manual. Should any problems arise please contact your dealer. If a maintenance manual is provided, please use it.

- Always use the services of an experienced professional for the maintenance of your boat, for fitting accessories and for any modifications. Any alterations which may affect the safety specifications of the boat must be assessed, carried out and recorded by persons qualified to do so. The boat manufacturer cannot be held responsible for any modifications not approved by them.

- Some countries require you to hold a Certificate of Competency or other qualifications, or other specific regulations may be in force.

- Always maintain your boat well and make note of any deterioration due to wear and tear or to heavy or inappropriate use.

- Any boat – no matter how well-built– could suffer serious damage if used recklessly. This is not compatible with safe navigation. Always adjust the speed and heading of your boat according to the sea conditions.

- If your boat is equipped with a life-raft, read the instruction manual carefully. The crew must have available onboard all the safety gear (lifejackets, harnesses etc) appropriate for the type of boat and for the weather conditions etc.. In some countries it is mandatory to have this safety equipment onboard. The crew must be fully familiarised with the use of the safety gear and with emergency manoeuvres (Man Overboard procedures, towing another vessel etc). Sailing schools and clubs regularly run training sessions for these.

- It is advised that, when on deck, everyone should wear the appropriate buoyancy aids (lifejackets, personal buoyancy aids) Be advised that in some countries, it is mandatory to wear a buoyancy aid which meets the national regulations at all times.

Notes on reading this manual

The various symbols used throughout the manual for crucial safety information are as follows:

DANGER

Indicates the existence of a serious inherent danger with a high risk of death or serious injury if the appropriate precautions are not taken.

WARNING

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

WARNING

Indicates either a reminder of safety procedures or alerts you to dangerous manoeuvres or operations, which could result in injuries to those onboard or in damage to the boat or to components of it, or to the environment.

ADVICE-RECOMMENDATION

Indicates a recommendation or advice for carrying out manoeuvres appropriate for the planned manoeuvres.

- While some of the information and illustrations in this manual may show details which are slightly different from those found on your boat, the key information remains the same. Future versions of this manual will show any possible modifications as required.

- Due to the constant desire to improve the products, SPBI S.A. reserves the right to make any changes considered necessary to the design or to the equipment.
That is the reason why the specifications and information given are not contractual, they may be modified without prior notice or up dates.

- This owner's manual complies with the European Directive 94/25/CE of the 16 June 1994 amended by the European Directive 2003/44/CE of the 16 June 2003 ;
and with the standard NF EN ISO 10240 of February 2005 .

CE

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

- This owner's manual was written and made up into pages by SPBI S.A.. Any reproduction of this manual, direct or indirect, provisional or permanent, by whatever means this may be, whether in whole or in part, and any modification of this manual by a third party for commercial reasons, are forbidden.

1 TECHNICAL SPECIFICATIONS

1.1 CONSTRUCTION

Model ..... MERRY FISHER 855 Marlin
Architect / Interior design ..... Centkowski & Denert Design
Builder ..... SPBI S.A
Principal means of propulsion ..... Motor
Deck construction material ..... Laminated sandwich glass / Polyester / Balsa wood
Hull construction material ..... Laminated sandwich glass / Polyester / Balsa wood
Application ..... Wet laid fibre

1.2 GENERAL DIMENSIONS

L.O.A (L_{max})* ..... 8,94 m
(Including removable parts that can be dismantled (bow roller, pulpit, bowsprit), without affecting the structure of the boat)
Hull length (L_h)* ..... 7,97 m
(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)
Overall width (B_{max})* ..... 2,97 m
(Including: removable parts that can be dismantled, without affecting the structure of the boat)
Beam(B_h)* ..... 2,93 m
(Excluding: removable parts that can be dismantled, without affecting the structure of the boat)
Air draught – Empty vessel ..... 3,04 m
Draught - Boat fully laden - without engine ..... 0,58 m
Wetted surface area ..... Approximately 20 m²

1.3 ENGINE

Version: Single engine
Nominal maximum propulsion power ..... 220,8 Kw
Maximum recommended engine size ..... 592 kg
Version: Twin engine
Nominal maximum propulsion power ..... 2 x 110,4 Kw
Maximum recommended engine size ..... 2 x 296 kg

1.4 ELECTRICITY

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

1.5 CAPACITIES

Total mass of the liquid content of fixed tanks when they are full ..... 530 kg
Fuel capacity ..... 400 l
Fresh water capacity ..... 100 l
Black water capacity (WC) ..... 90 l
It may not be possible to use these capacities fully depending on the trim and load of the boat.
It is recommended to keep a reserve of 20% in the fuel tanks.

2 DESIGN CATEGORIES AND DISPLACEMENT

- Some of the data is shown on the manufacturer's plate fixed to the boat. The explanation of the data is given in the appropriate chapters of this manual.

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

- The maximum recommended weight shown on the manufacturer's plate does not include the weight contained in the fixed tanks of liquid when full (fuel, water, grey water, black water).

Design category	C	D
Maximum number of people to be allowed onboard	**10**	**10**
Light displacement	**3 616 kg**	
Recommended maximum load	**1 770 kg**	
Displacement with maximum load	**5 386 kg**	

If some of those onboard are children, the total number of people allowed onboard may be increased, provided that::

- The total weight of the children does not exceed 37,5 kg ;

AND THAT

- the total weight of all allowed onboard (based on about 75 kg per adult) is not exceeded.

-Do not exceed the recommended maximum number of people onboard. However many people are onboard, the total, combined load of people and any gear or equipment must never exceed the recommended maximum load.

-Always use the seats or positions provided.

-When loading the boat, never exceed the recommended maximum load. Always load the boat with care and distribute the loads in order to maintain the theoretical trim (more or less horizontal).

-Avoid placing heavy loads high up in the boat.

2.1 DESIGN CATEGORIES

Category A: At high sea

The boat is designed to sail in winds that may exceed Beaufort force 8 and in waves of a significant height of 4 metres and more.
This craft is largely self-sufficient. Abnormal conditions such as hurricanes are excluded.
Such conditions may be encountered on extended voyages, for example across oceans, or inshore when unsheltered from the wind and waves for several hundred nautical miles.

Category B: In open sea

The boat is designed to sail in winds not exceeding Beaufort force 8 and in corresponding seas (waves of a significant height of less than or equal to 4 metres).
Such conditions may be encountered on offshore voyages of sufficient length, or on coastal waters when unsheltered from the wind and waves for several dozens of nautical miles.
These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated.

Category C: Near to the coast

The boat is designed to sail in winds not exceeding Beaufort force 6 and in corresponding seas (waves of a significant height of less than or equal to 2 metres). You may meet with such conditions in exposed inland waters, in estuaries and in coastal waters with moderate weather conditions.

Category D: In sheltered waters

The boat is designed to sail in winds that may exceed Beaufort force 4 and in waves of a significant height of 0,5 metres and more.
Such conditions may be encountered in sheltered inland waters, and in coastal waters in fine weather.

NOTE:

- The significant wave height is the mean height of the highest one-third of the waves, which approximately corresponds to the wave height estimated by an experienced observer. Some waves will be double this height.

- The creation of different design categories results from the need to distinguish between different levels of risk according to the construction of the boats.
"The parameters for the characteristics are established to define the conditions of navigation which each category may encounter; they serve purely to evaluate the boat designs and are not to be used to limit the geographical areas in which these boats may operate".

- One boat may be classed in several design categories at the same time, each with their different maximum capabilities.

3 STABILITY AND BUOYANCY

3.1 STABILITY DATA

- This boat as been assess as capable of supported the weight of the crew, even in the event of flooding.

- Fully laden displacement was used to evaluate the stability and buoyancy of the boat. The value of this displacement can be found in paragraph ' Technical specifications ' at the beginning of this manual.

- Any changes in the distribution of loads onboard (for example by adding a raised structure for fishing, fitting a radar or in-mast furling, changing the engine etc.) can significantly affect the boat's stability, trim and its performance ;

- It is important to keep water in the bilges to a minimum ;

- The boat's stability is affected by adding to the weight of the superstructure ;

- When under way, it is advisable to shut the hatches, lockers and doors to minimise the risk of flooding ;

- In heavy weather it is important to close all the hatches, lockers and doors to minimise the risk of water pouring in ;

- The boat's stability can be reduced when towing a boat or when using a davit or boom to lift a heavy load ;

- Breaking waves are a serious threat to stability.

-Reduce speed in waves.

-Always adjust the speed and heading of your boat according to the sea conditions.

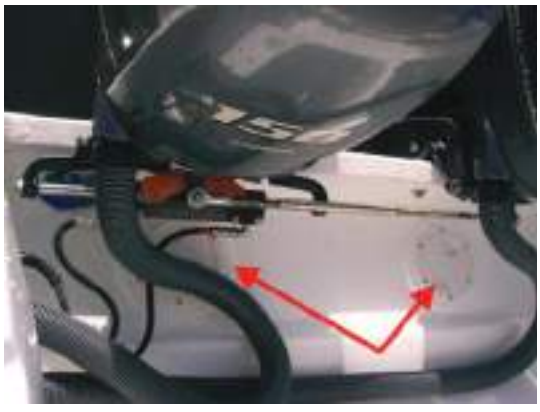
-All of the watertight hatches must remain closed when at sea.

3.2 ACCESS TO THE BOAT

Access to the cockpit

Access to the engine compartment

Access - Aft quarterdeck



A trapdoor located on the stern deck at the level of the engine well allows access to:

- The fuel supply valve,
- The engine tightening on the aft bulkhead.

This access trapdoor must be closed BY HAND without using any particular tool, especially a winch handle or cap spanner.

This is for quick and easy access to the desired component..

Access to the saloon

Sliding hatch (Version: 2 doors)

Holding

Sliding side bay window

Access - Cabin

- The cockpit and the petrol tank compartment absolutely must be kept closed when at sea.
- When at sea close the guardrail side-opening or openings.
- Slamming an access hatch may cause injury : always close the hatch gently and carefully.
- Do not allow children to open or close the hatches unsupervised.

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

ADVICE-RECOMMENDATION

- When under way, keep hull valves and fillers in the closed position to minimise the risk of flooding.

4 MANOEUVRABILITY

- It is important to take additional precautions in very strong winds or in a confused sea or breaking waves.

- Maximum rated power of boat propulsion: 294,4 Kw.

- Do not install an engine in this boat with a higher rated power than that indicated on the manufacturer's plate.

- Use negative trim to go from cruising speed to planing speed, and at low speeds (applicable to boats equipped with a system for directing the propeller thrust).

- Do not drive the boat at high speed with a negative trim of the propulsion equipment (bow down). This can make the boat heel and cause it to be unstable when turning.

- Do not drive at top speed in areas of heavy boat traffic or in situations of reduced visibility, strong winds or heavy seas. Reduce the boat's speed and wake out of courtesy and for your own safety and the safety of others. Observe speed limits and "NO WASH" signs.

- Observe the rules of priority as defined in the Navigation Rules and imposed by the international regulations for preventing collisions at sea (Collision Regulations - COLREG).

- Ensure that you always have sufficient room to stop or manoeuver if necessary in order to avoid a collision.

- Avoid abrupt manoeuvers at full speed.

- Do not sit on the forward section of the cockpit when the boat is moving at high speed.

- Reduce speed in big waves for your comfort and safety.

4.1 VISIBILITY FROM THE STEERING STATION

Visibility from the steering station may be obstructed when the boat is trimmed at a steep angle or due to other factors caused by one or more of the following conditions:

- Angle of engine trim control switch (in boats equipped with an engine trim control switch) ;
- Angle of hull trim control switch (in boats equipped with a hull trim control switch or trim tabs) ;
- Load and load distribution ;
- Speed ;
- Rapid acceleration ;
- Transition from displacement mode to planing mode ;
- Sea conditions ;
- Rain and mist ;
- Darkness and fog ;
- Lights on inside the boat ;
- Position of the upper and side awnings ;
- Persons and removable equipment in the helmsman's field of visibility.

The international rules for preventing collisions at sea (COLREG) and the navigation rules demand constant vigilance and observance of priority rules. Observance of these rules is essential.

- Manoeuvrability is reduced at excessive speeds.
- There is a risk of loss of control during tight turns.
- Reduce speed before making a turn in any direction.

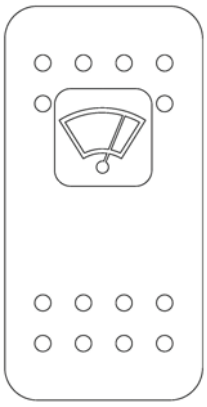
4.1.1 Wiper

The windscreen wipers run on DC power.

Wiper
Location

Engine access

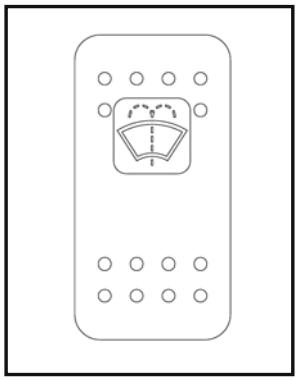
Control: Steering station



4.1.2 Windscreen washer

Reservoir location: Saloon.

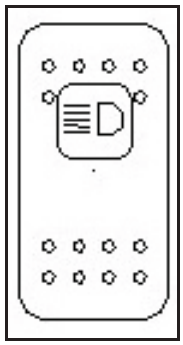
Control: Steering station



4.1.3 Deck searchlight

- The deck searchlight runs on DC power.
- A fuse protects the electrical circuit.

Control: Steering station



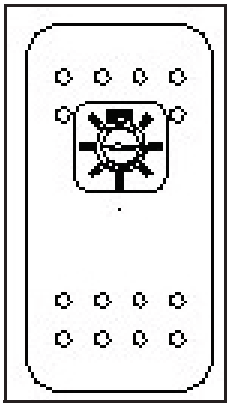
1. Deck searchlight on/off
2. Deck searchlight directional switch

Location: Roof

4.1.4 Navigation lights

The navigation lights run on DC power.

Control: Steering station



The only function of the samson post is to support the navigation light. Any other use is dangerous and forbidden.

5 SAFETY

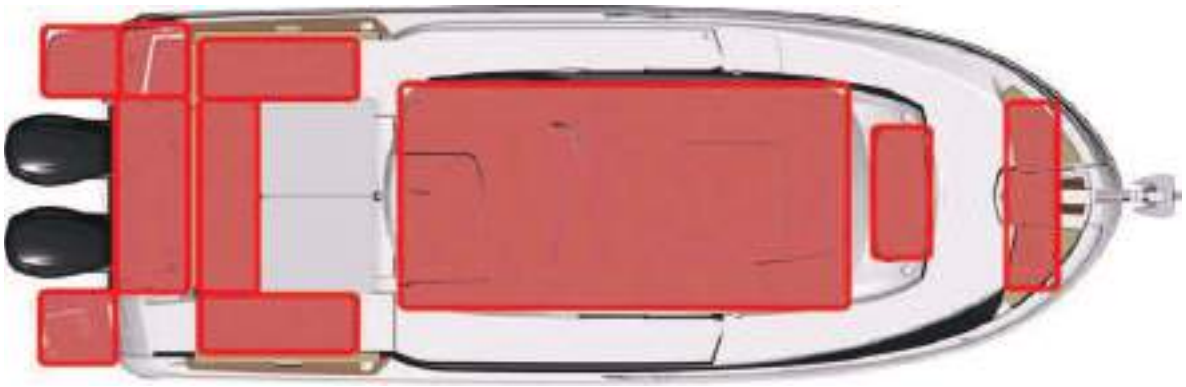
5.1 PREVENTING MAN OVERBOARD SITUATIONS AND THE MEANS OF GETTING SOMEONE BACK ONBOARD

5.1.1 Prevention of man overboard

- The zones outside the working deck area are the hatched areas below

- The ’ working deck ’ means those areas outside where people stand or walk during normal use of the boat.

NOTE: standing on the sunbed is prohibited.



- Use the positions provided for each crew member.

Version: 3 doors

Version: 2 doors

Ref 1: Fitting a means of climbing back onboard.

Ref 2: Mooring cleats.

- Use the seats provided.

Regularly check the guard-rails:

- With metal guard-rails, watch for corrosion particularly at connecting points.
- With synthetic guard-rails, change them as soon as they show signs of wear due to chafing or UV.

5.1.2 Getting back onboard

The means for getting back onboard must be able to be deployed by one person alone in the water, with no other help.

Fitting a means of climbing back onboard:

-Some types of equipment for getting back onboard have a locking device when folded up: It is important to keep the means for getting back onboard deployed and ready to use once the boat is in use (at anchor, moored or at sea).

-Make sure that the means for getting back onboard are readily accessible and easy to use by someone alone in the water.

5.2 STORING THE LIFE-RAFT

The life-raft(not supplied) must be stored in the space provided for it (Ref 1). A pictogram helps to locate it easily.

Before putting to sea, carefully read the launching instructions shown on the liferaft.

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

5.3 SECURING MOVEABLE ITEMS

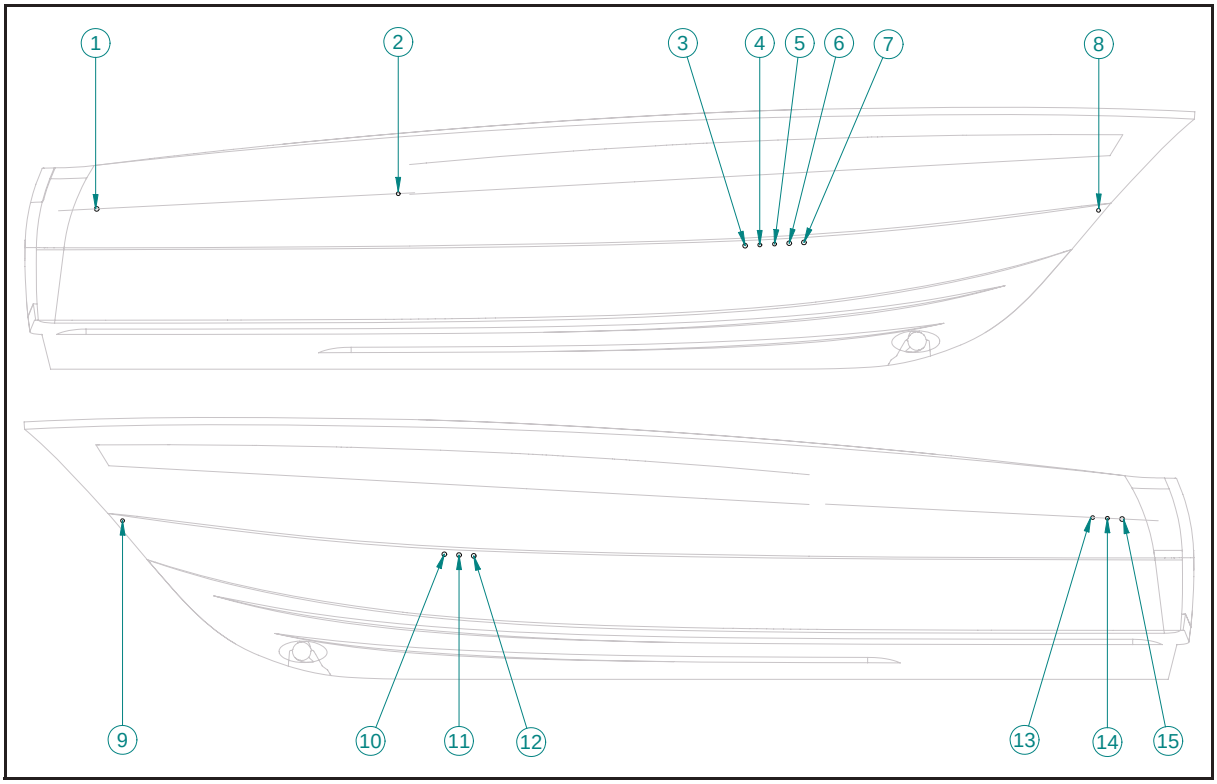
-Ensure that movable items are firmly secured when the boat is under way.

-Don't store anything below the floorboards.

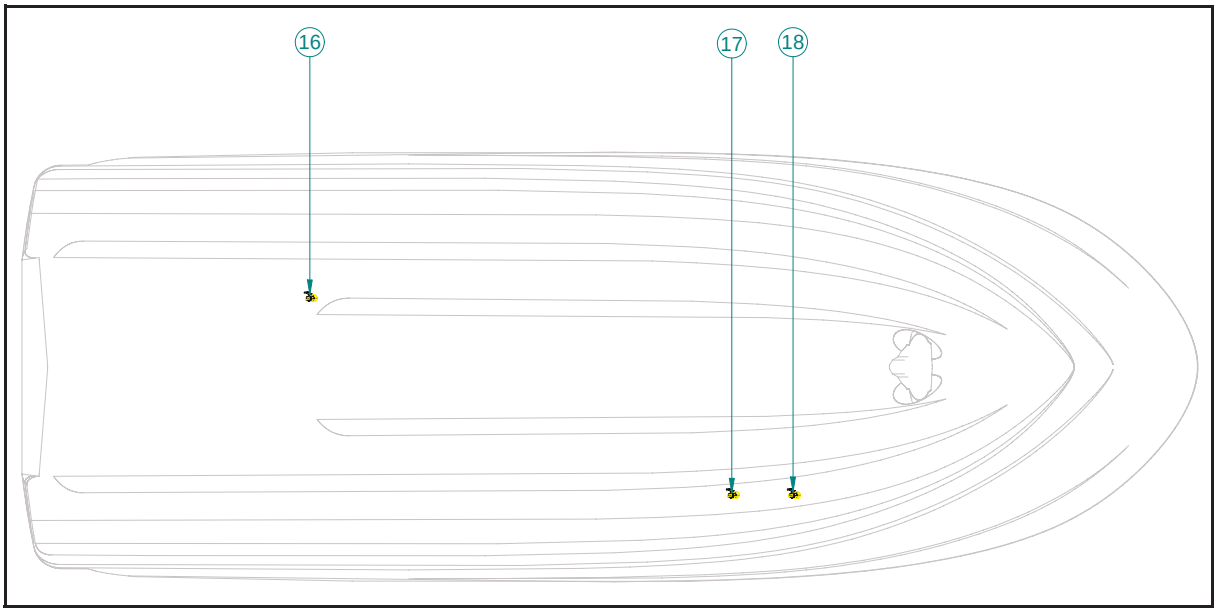
5.4 INFORMATION ABOUT THE RISKS OF FLOODING AND ABOUT THE BOAT'S STABILITY

5.4.1 Openings in hull

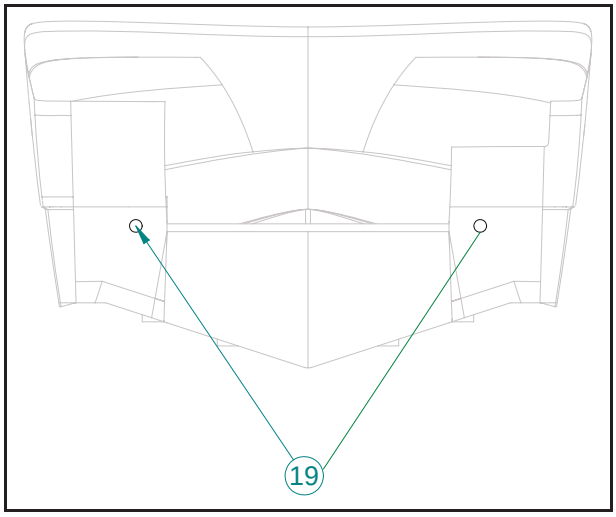
View - Side



View - Hull



View - aft



Reference	Designation	Valve
1	Draining of manual bilge pump	Not
2	Water tank vent	Not
3	Cockpit scupper	Not
4	Shower draining	Not
5	Electric bilge pump draining	Not
6	Bathroom washbasin evacuation	Not
7	Black water tank (WC)	Not
8	Scuppers - Chain locker	Not
9	Scuppers - Chain locker	Not
10	Galley sink drain	Not
11	Gas locker drain	Not
12	Cockpit scupper	Not
13	Vent hole - Fuel tank	Not
14	Electric bilge pump draining	Not
15	Scuppers - petrol tank compartment	Not
16	Sea water intake - Deck wash pump	Yes
17	WC evacuation to sea	Yes
18	Sea water intake - WC	Yes
19	Cockpit scupper	Not

5.4.2 Drainage system

General points

- The inner moulding of the hull has channelling: the drainage channels. The drainage channels allow the water to drain down to the lowest point in the boat, where it can be discharged. So it is important to allow the water to flow freely down to this lowest point of the boat, which includes.
- Regularly cleaning the lowest point of the boat and the drainage channels.

Secondary drainage system

Manual bilge pump

The manual bilge pump is in the cockpit (Ref 1).

The bilge pump lever is located close to it (Ref 2).

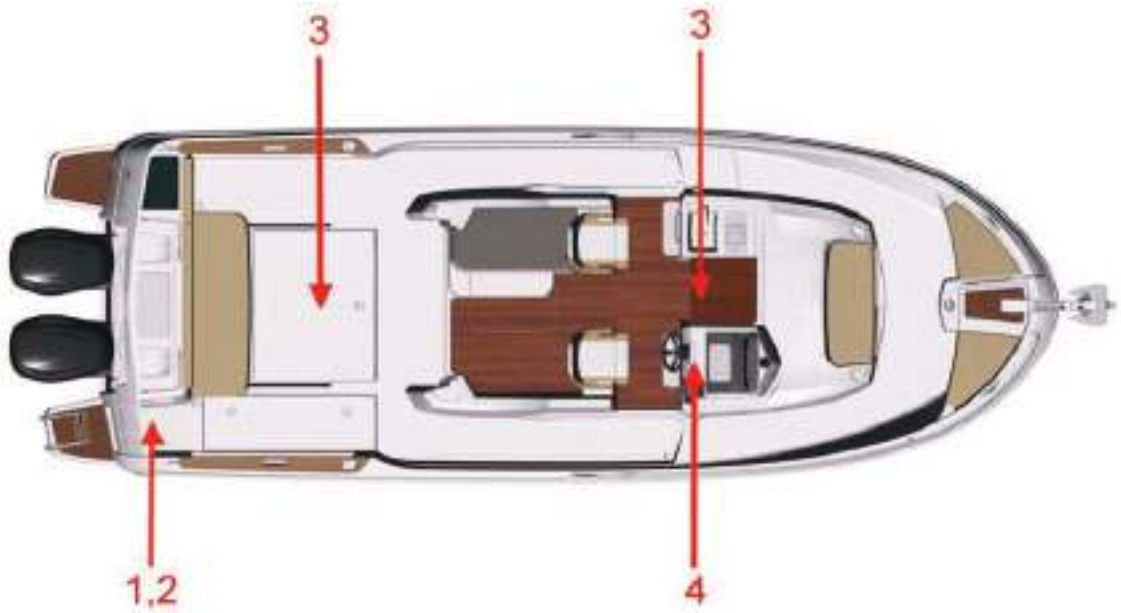
(Operation:

I- Put the lever on the manual bilge pump.

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

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

Diagram of the layout - Bilge pumps



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

(*) 45 strokes/minute
If 70 stroke/minute: rate 35p/minute

Main drainage system

Electric bilge pumps

- The bilge pumps are powered by DC.

Access: Cabin

Access: Engine compartment

- Location of the electric bilge pumps: Ref 3.

The electric bilge pump switch is situated inside the wheelhouse (Ref 4).

- The electric bilge pump must only be used to discharge stagnant water at the bottom of the bilge. It must not be used to pump out any oil-based products (petrol, oil) or inflammable liquids.

Operation:

I- Turn on the battery switches.

II- Switch on the bilge pump (Ref 4).

If the boat is equipped with an automatic bilge pump, the switch has an always-on position.

Bilge pump maintenance

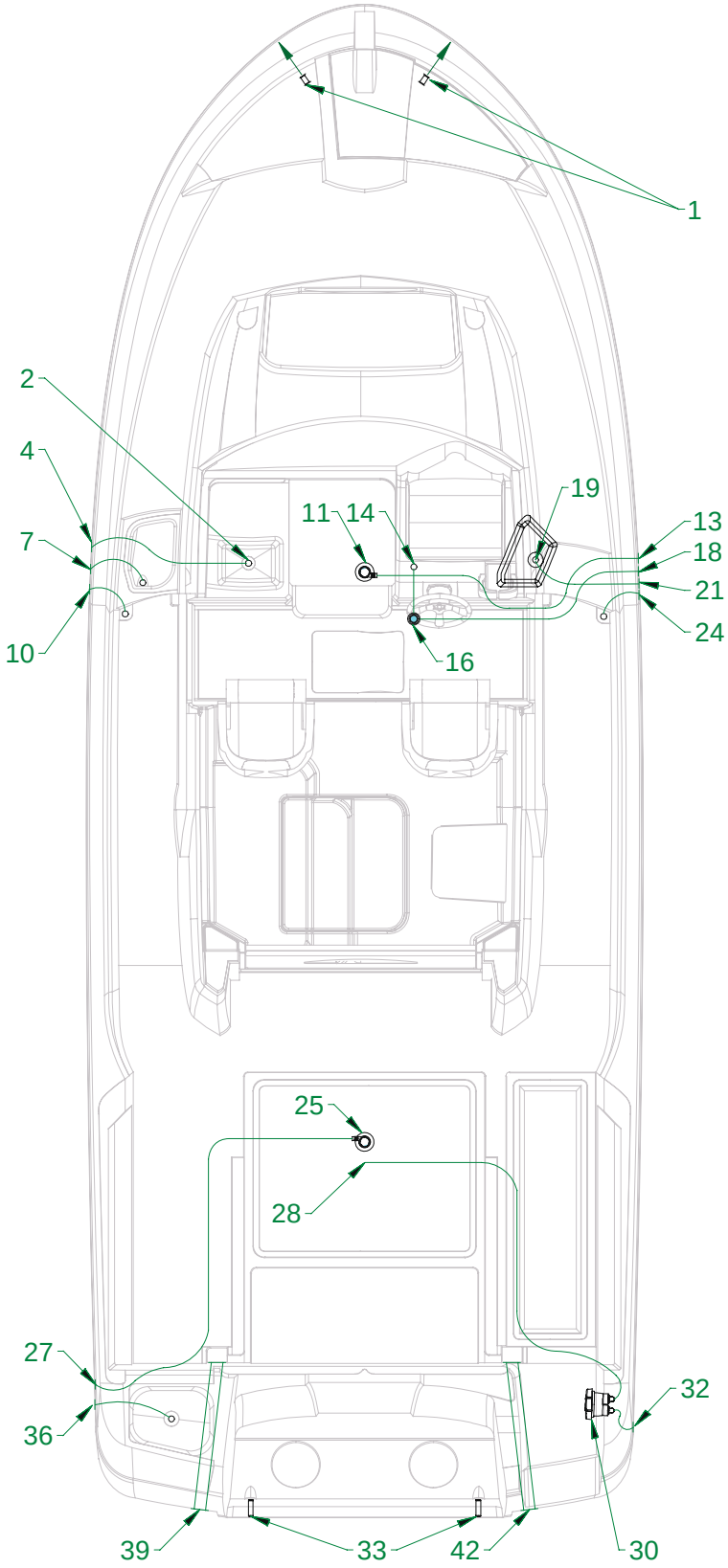
Please refer to the manufacturer's notes on the instructions for checking and maintaining the bilge pumps.

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

SAFETY PRECAUTIONS

- Check that each bilge pump is working at regular intervals.
- Clear the bilge pump points or strainers of any debris that could clog them.
- If the watertight partitions which seal off the fore and aft points are fitted with valves they must be closed at all times and only opened to drain water into the main bilge.

Diagram of the layout - Drying out the bilge



Reference	Designation
1	Chain locker drain scuppers
2	Washbasin drain plug
4	Washbasin draining
7	Gas locker drain
10	Scuppers - Cockpit draining
11	Electric bilge pump
13	Electric bilge pump draining
14	Shower plug hole
16	Draining pump for shower
18	Shower draining
19	Washbasin drain plug
21	Washbasin draining
24	Scuppers - Cockpit draining
25	Electric bilge pump
27	Electric bilge pump draining
28	Intake strainer - Manual bilge pump
30	Manual bilge pump
32	Draining of manual bilge pump
33	Scuppers - Engine compartment
36	Drainage - Aft locker
39	Scuppers - Cockpit draining
42	Scuppers - Cockpit draining

5.5 EMERGENCY SYSTEMS IN CASE OF STEERING GEAR FAILURE

INSTRUCTIONS IN THE EVENT OF STEERING GEAR FAILURE (TWIN OUTBOARD ENGINE VERSION)

On a twin-engined vessel the emergency tiller system works on the difference in drive between the port and starboard engines (difference in throttle and/or forward/aft). The direction works only when the engines are running.

INSTRUCTIONS IN THE EVENT OF STEERING GEAR FAILURE (SINGLE OUTBOARD ENGINE VERSION)

1. Stop the engine.
2. Drop anchor to avoid drifting.
3. Find out if you can solve the problem yourself by looking at the engine manual.
4. Request help.

6 INFORMATION RELATING TO FIRE RISKS AND RISKS OF EXPLOSION

6.1 PROPULSION ENGINES AND OTHER FUEL-BURNING EQUIPMENT

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

Boats equipped with a 25kW or larger outboard engine must have onboard one or more portable fire extinguishers with a total combined capacity of at least 8A / 68B.

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

6.2 ELECTRICAL SYSTEM

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

6.3 GAS SYSTEM

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

6.4 FIRE-PREVENTION AND FIRE-FIGHTING EQUIPMENT

6.4.1 Fire-fighting equipment

Portable fire-extinguishers and fire blanket (not supplied)

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

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

Version: 2 doors

Version: 3 doors

Location	Minimum extinguishing capacity
petrol tank compartment	8A / 68B
Steering station	8A / 68B

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

Maintenance of the fire-fighting equipment

The owner/person operating the boat must:

- Get the fire-fighting equipment checked at the frequency shown on the equipment ;
- Replace portable fire extinguishers, if outdated or discharged, by extinguishing apparatus of equal capacity ;
- Provide at least one fire bucket with a lanyard, in a readily accessible place, for protection on deck ;
- Get the fixed fire extinguishing systems filled or replaced if they are discharged or have expired.

Responsibility of the owner/boat operator

It is the responsibility of the owner/boat operator to:

- Make sure that fire fighting equipment (portable extinguishers) is immediately available when the boat is occupied ;
- Ensure that any drainage points in the engine compartment (or in the petrol tank compartment)are readily accessible ;
- Show the members of the crew:
    - The location and use of the fire-fighting equipment ;
    - The location of the drainage points in the petrol tank compartment ;
    - The location of evacuation routes and fire exits.

Notes for the attention of the boat user

General points

- Check that the bilges are clean and frequently check that there are no fuel/gas vapours or fuel leaks.
- In the case of replacement of components of the fire-fighting equipment, use only the appropriate components of the same code designation or having the equivalent technical capacity and fire resistance.
- Do not install free-hanging curtains or other fabrics near or above the cooking appliances or other equipment with a naked flame.
- Do not store combustible materials in the engine compartment. If non-combustible materials are stored in the engine compartment they must be secured so there is no danger of them falling on machinery and they do not obstruct access to and from the compartment.
- The fire exits other than the door or main companionway are identified by the following symbol:

6.4.2 Extinguisher access hole

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

Location: petrol tank compartment.

Version: 2 doors

Version: 3 doors

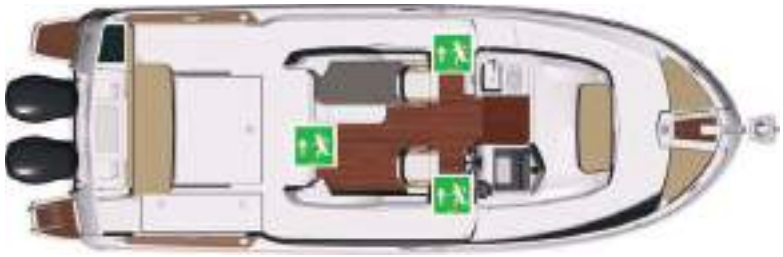
A pictogram helps to locate it easily.

6.5 EMERGENCY EXITS IN CASE OF FIRE

Location
Sliding hatch
Side bay

Version: 2 doors

Version: 3 doors

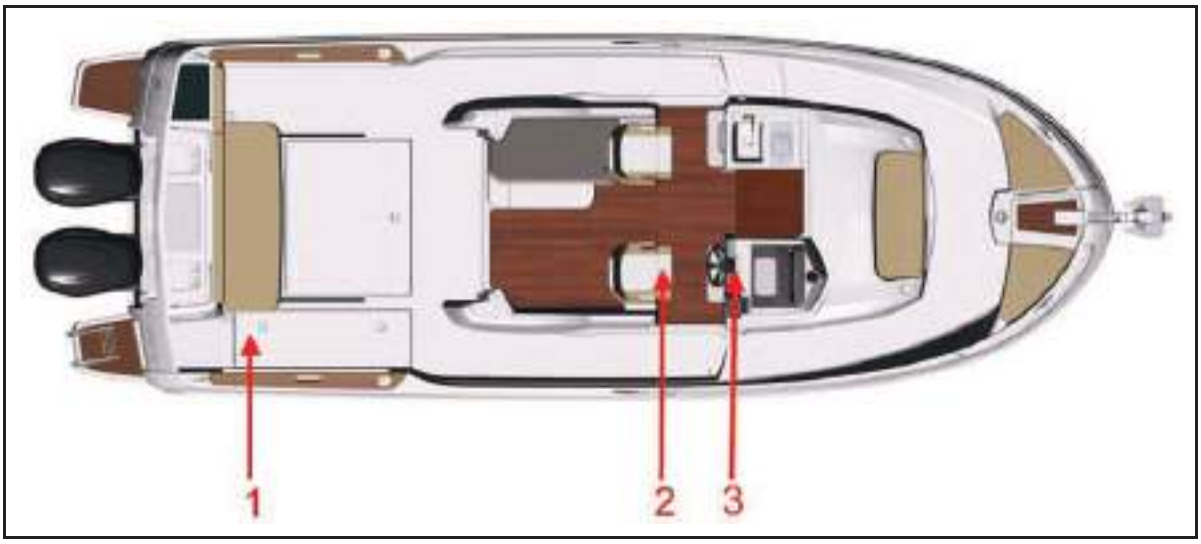


NEVER:

- Obstruct the passages leading to the emergency exits and the hatches ;
- Obstruct or block safety controls, for instance fuel shut off valves, gas taps, electrical system circuit-breakers ;
- Obstruct the access to the portable extinguishers stored in lockers ;
- Leave the boat unsupervised when cooking equipment and/or heating equipment is in use ;
- Modify any of the boat's installations (especially the electrical, fuel or gas installations) or allow unqualified personnel to proceed with modifying these installations ;
- Fill the fuel tanks or replace gas bottles while the engine is running or while cooking or heating equipment is in use ;
- Use gas lamps in the boat ;
- Smoke when handling fuel or gas.

7 ELECTRICAL SYSTEM

7.1 GENERAL INFORMATION ABOUT THE ELECTRICAL SYSTEM



Reference	Designation
1	Service battery, Engine battery
2	Battery switch, Fuse box
3	Switches / DC breakers

- The risks of fire or explosion may result from careless use of the DC and AC systems.
- The risks of electrocution may result from careless use of the AC system.

NEVER:

- work on a live electrical system ;
- modify the elecrical system of the vessel or the relevant diagrams: It is important that the installation, maintenance and any modifications be carried out by a technician qualified in marine electricity ;
- change or modify the strength of the safety devices protecting against power surges ;
- install or replace electrical equipment or materials with components which exceed the system's nominal electrical power capacity ;
- leave the boat unsupervised when the electrical system is live, apart from when the automatic bilge pump and the boat's fire protection and security systems are in use.

7.2 DC INSTALLATION (12 V OR 24 V)

7.2.1 Battery use and distribution

General points

On board electrical power is direct current.

the batteries are charged either by a load distributor or:

- by the alternator linked to the engine when the engine is running,
- by the battery charger (if the boat has one).

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

Always check the condition of the batteries and charge system before putting to sea.

Battery set

Engine battery - Version: Twin engine: 2 x 140A

Engine battery - Version: Single engine: 110A or 140A (according engine)

Spare service battery: 140A

Location: Starboard cockpit locker

Battery - Bow thruster - 50A
Location: Forward cabin

Maintenance

- Avoid charging batteries to a voltage greater than 14,6 V.
- Keep the batteries clean and dry.
- Regularly check that the terminals and connection cables are clean. If necessary, apply a thin coating of paraffin on the terminals, to prevent corrosion.
- Regularly recharge all of the batteries onboard.
- Continuously maintain the charged batteries: this determines their length of life.
- Avoid long periods of electrical inactivity (for example when wintering the boat).

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

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

Maintenance of lead batteries

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

Maintenance of watertight batteries

- This type of battery needs no maintenance and does not produce any gas during normal use. No ventilation is needed.

- The optimum temperature for use is between 10 degree C and 30 degrees C. Lower temperatures will reduce the available capacity. Higher temperatures will increase the batteries' self-discharge rate.

- Never open watertight batteries.

- Never add acid or distilled water.

- The pressure valves are used to seal the batteries and cannot be opened without being destroyed.

- If the batteries overheat, a build-up of gas may develop: Keep away from the batteries.

7.2.2 Battery switch

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

Access

1. Engine battery's positive isolation switch

2. Engine battery's positive isolation switch (Twin engine) and/or Service

3. Common battery negative isolator switch

Positive battery isolator switch	Battery switch of negative terminal
	

- Turn off all battery breakers before leaving the vessel: **risk of complete discharging of whole battery bank**.
- Avoid operating the battery switches when the batteries are charging.
- Never switch off the battery breakers when the boat's engine is running (risk of serious damage to the charging circuit).

7.2.3 Connection of battery set

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

Coupling handle

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

7.2.4 Battery charger

General points

- The battery charger runs on AC power.
- A breaker protects the electrical circuit.
- The battery charger charges all of the batteries onboard, while keeping the service battery bank isolated from the engine's battery bank.
- Within its power limits, the DC equipment can be supplied directly.

Power: 25A	Access: Wheelhouse
	

Operation

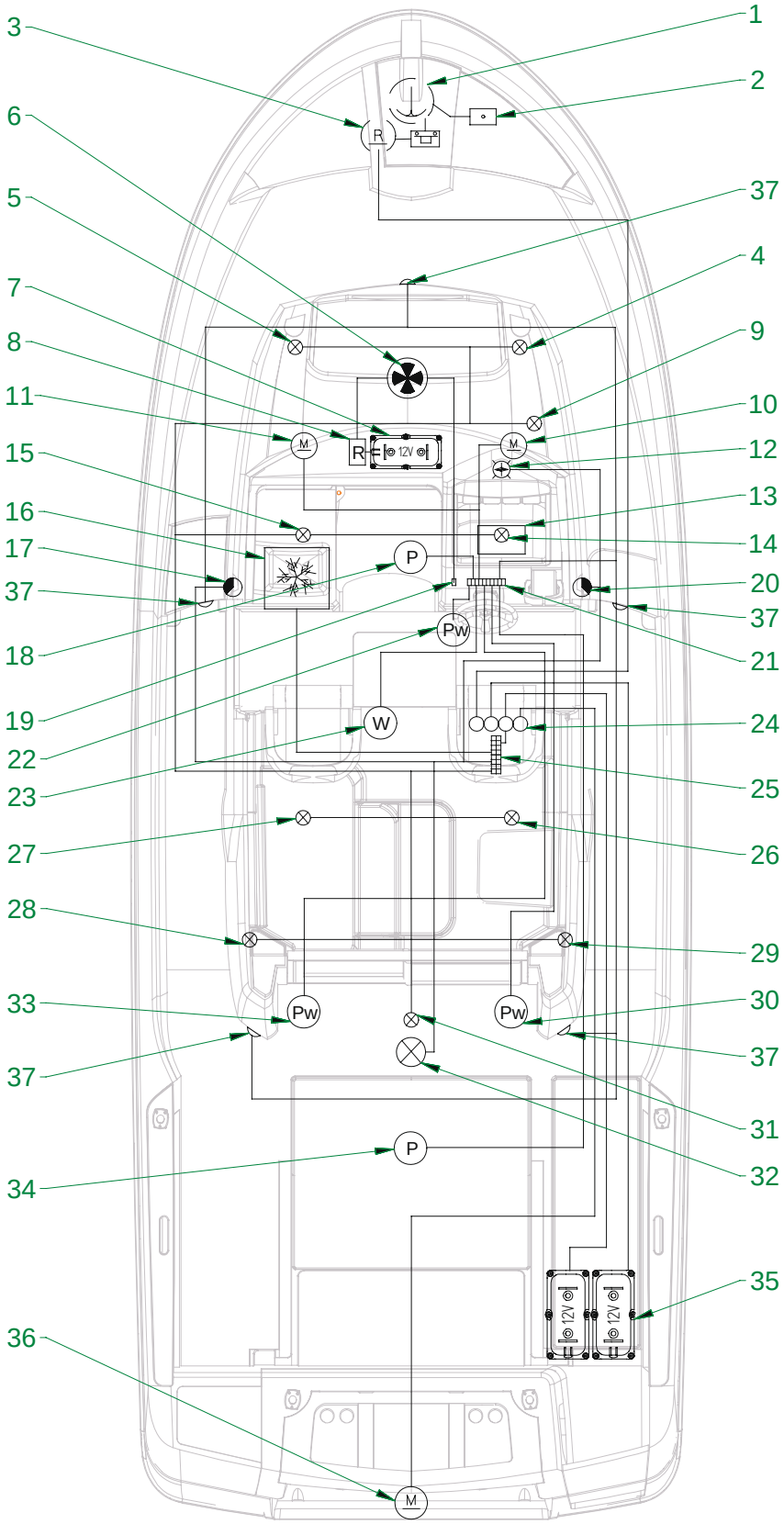
- The charger runs fully automatically. It can remain permanently connected to the batteries and does not need to be disconnected when starting the engine.
- In some electrical circuits, there may be battery chargers coupled in parallel.

Maintenance

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

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

7.2.5 Diagram of the layout - DC circuit



Reference	Designation
1	Electric windlass
2	Windlass remote control
3	Fuse
4	Interior lighting
5	Interior lighting
6	Bow thruster
7	Battery - 50A (Bow thruster)
8	Fuse
9	Interior lighting
10	Motor - Starboard windscreen wiper
11	Motor - Port windscreen wiper
12	Compass light
13	Electronic
14	Interior lighting
15	Interior lighting
16	Fridge
17	Port navigation light
18	Electric bilge pump
19	Control - Bow thruster
20	Starboard navigation light
21	Circuit breakers
22	Draining pump for shower
23	Masher (WC drainage pump to sea)
24	Battery switch
25	Fuse box
26	Interior lighting
27	Interior lighting
28	Interior lighting
29	Interior lighting
30	Water unit
31	Cockpit lighting
32	Samson post (Mooring light)
33	Deck wash pump
34	Electric bilge pump
35	Engine batteries / Service
36	Motor
37	LED lighting

7.2.6 Circuit breakers

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

Location: Steering station.

from left to right:

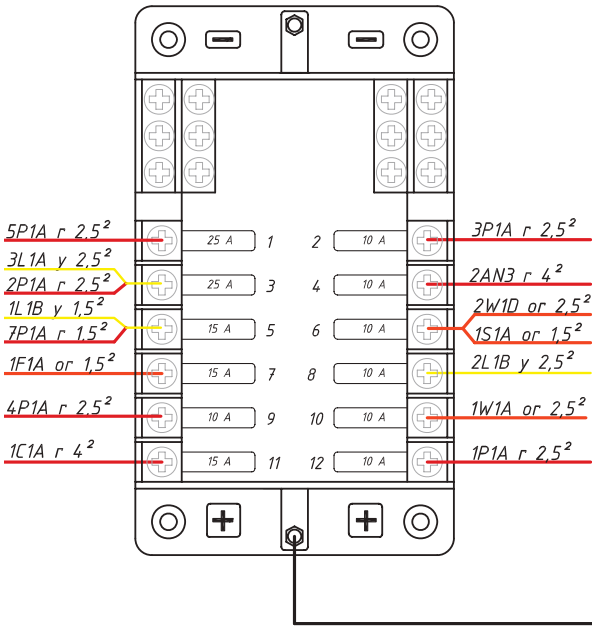
- Navigation lights
- Electric bilge pump
- Electric bilge pump
- Masher (WC drainage pump to sea)
- Deck wash pump
- Draining pump for shower
- Water unit
- Electronic instruments
- Wiper
- Windscreen washer
- Deck searchlight

7.2.7 Fuses

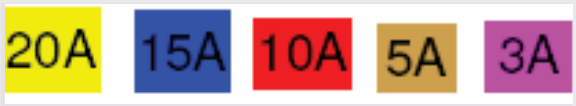
- A fuse protects an electrical circuit from a power surge. If it blows, you must replace it with another fuse of the same rating.

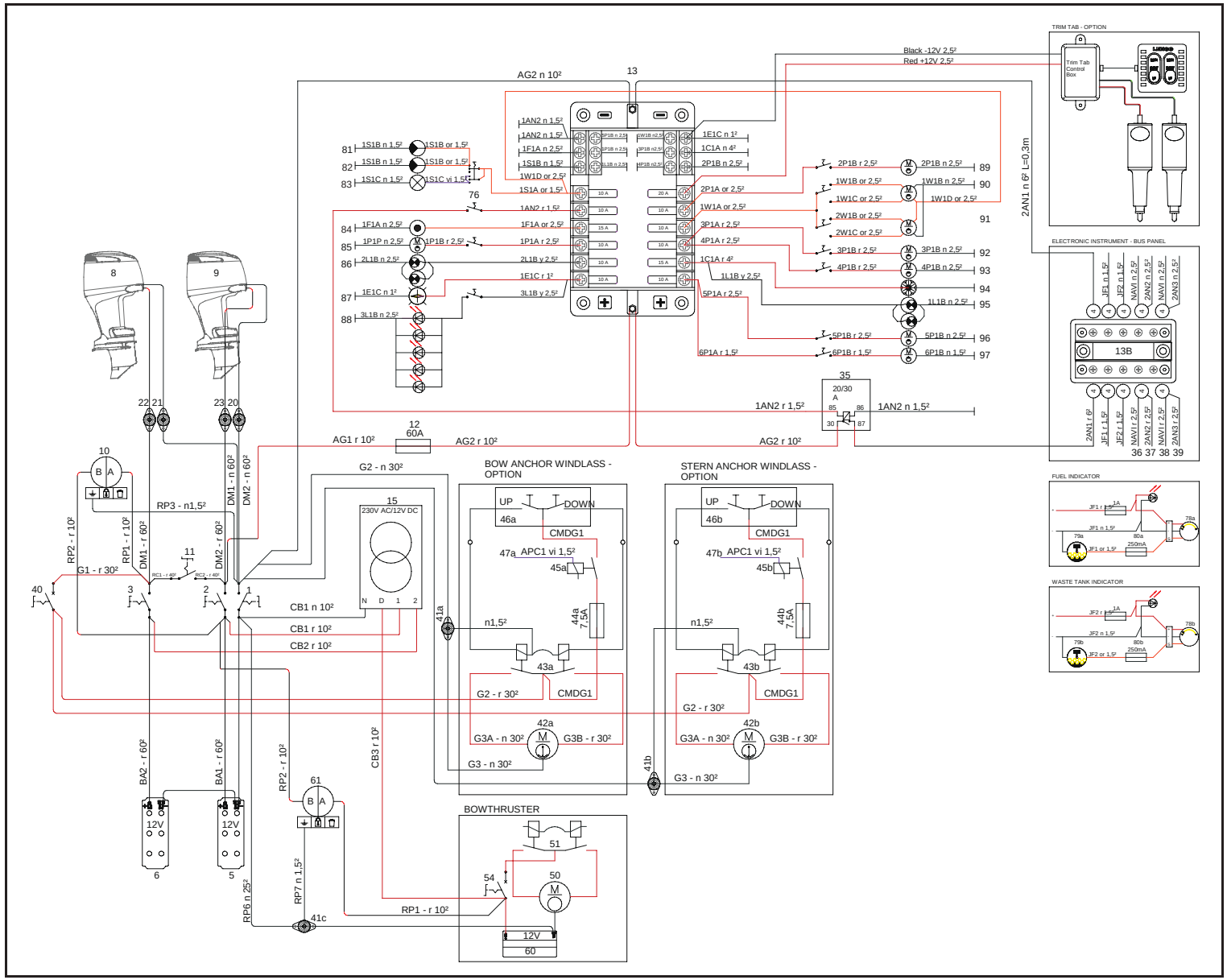
Location: Pilot seat.

Reference	Designation
1	Masher (Pump - WC evacuation to sea) & Windscreen washer
2	Pump sea water
3	Cockpit lighting & Electric bilge pump
4	Deck searchlight
5	Interior lighting & Shower pump
6	Navigation lights & Wiper
7	12 V socket
8	Steering station lighting
9	Water unit & Electronic instruments
10	Wiper
11	Fridge
12	Aft electric bilge pump



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





Reference	Designation
1	Common battery negative isolator switch
2	Service battery switch
3	Engine battery switch
5	Service battery
6	Engine battery
8	Outboard
9	Outboard
10	Charging relay box
11	Coupling battery switch
12	General fuse DC system
13	circa - System - Service
13B	Electronic equipment
15	Power distributor
20	Connection
21	Connection
22	Connection
23	Connection
27	Loudspeaker
28	Loudspeaker
35	Relay box (Electronic)
36	HDS display
37	Sonic Hub
38	Depth sounder
39	Deck searchlight
40	Windlass circuit breaker
41	Connection
42	Windlass
43	Operation relay
44	Fuse
45	Control relay
46	Remote control
47	+ After switching on
50	Bow thruster
51	Control - Bow thruster
54	Bow thruster battery switch
60	Bow thruster batteries
76	Fuse (Electronic equipment)
78	Fuel gauge indicator
79	Fuel gauge transmitter

Reference	Designation
80	Fuse - Fuel gauge
81	Navigation light
82	Navigation light
83	Samson post (Mooring light)
84	12 V socket
85	Electric bilge pump
86	Interior lighting
87	Compass light
88	Courtesy lighting
89	Masher (Pump - WC evacuation to sea)
90	Wiper
91	Wiper
92	Deck wash pump
93	Water unit
94	Fridge
95	Cabin lighting
96	Pump - Fishpond
97	Windscreen washer

7.3 AC SYSTEM (110 V OR 220 V)

-Never let the end of the boat/shore supply cable hang in the water: The result may be an electric field liable to hurt or kill the swimmers nearby.

-There may be danger of electrocution if alternating current systems are incorrectly used.

-Do not work on a live AC system.

To reduce the risks of electric shock and of fire:

-Turn off the shore supply with the onboard cut-off switch before connecting or disconnecting the vessel/shore supply line.

-Connect the ship/shore power cable on the boat before plugging it into the socket onshore.

-Disconnect the ship/shore power cable at the shore socket first.

-If the reverse polarity indicator is activated immediately disconnect the cable.

-After using the socket onshore, close its protective cover tightly.

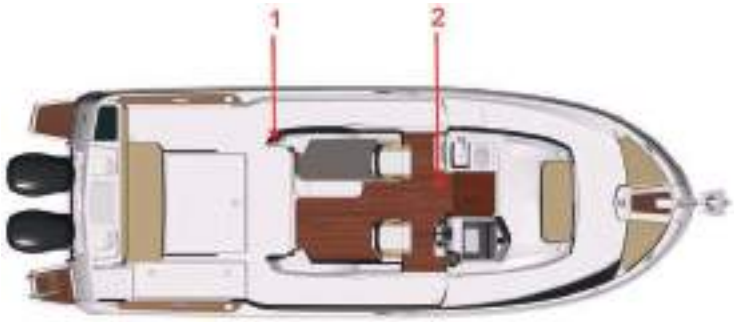
-Do not modify the connections of the ship/shore power cable: only use compatible connections.

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

- Do not modify the vessel's electrical installation nor its relating diagrams. The installation, maintenance and any modifications must be carried out by an electrician qualified in marine electricity. Check the system at least every two years.
- Disconnect the boat's shore power when the system is not in use.
- Connect the relay cans or metal casing of the electrical equipment installed to the boat's protective conductor (green or green with yellow stripe conductor).
- Use double insulated or earthed appliances.
- If the reverse polarity indicator is activated, do not use the electrical installation. Rectify the polarity fault before using the vessel's electrical installation (this applies only to polarised circuits with a polarity indicator).

7.3.1 AC shore socket

location of components



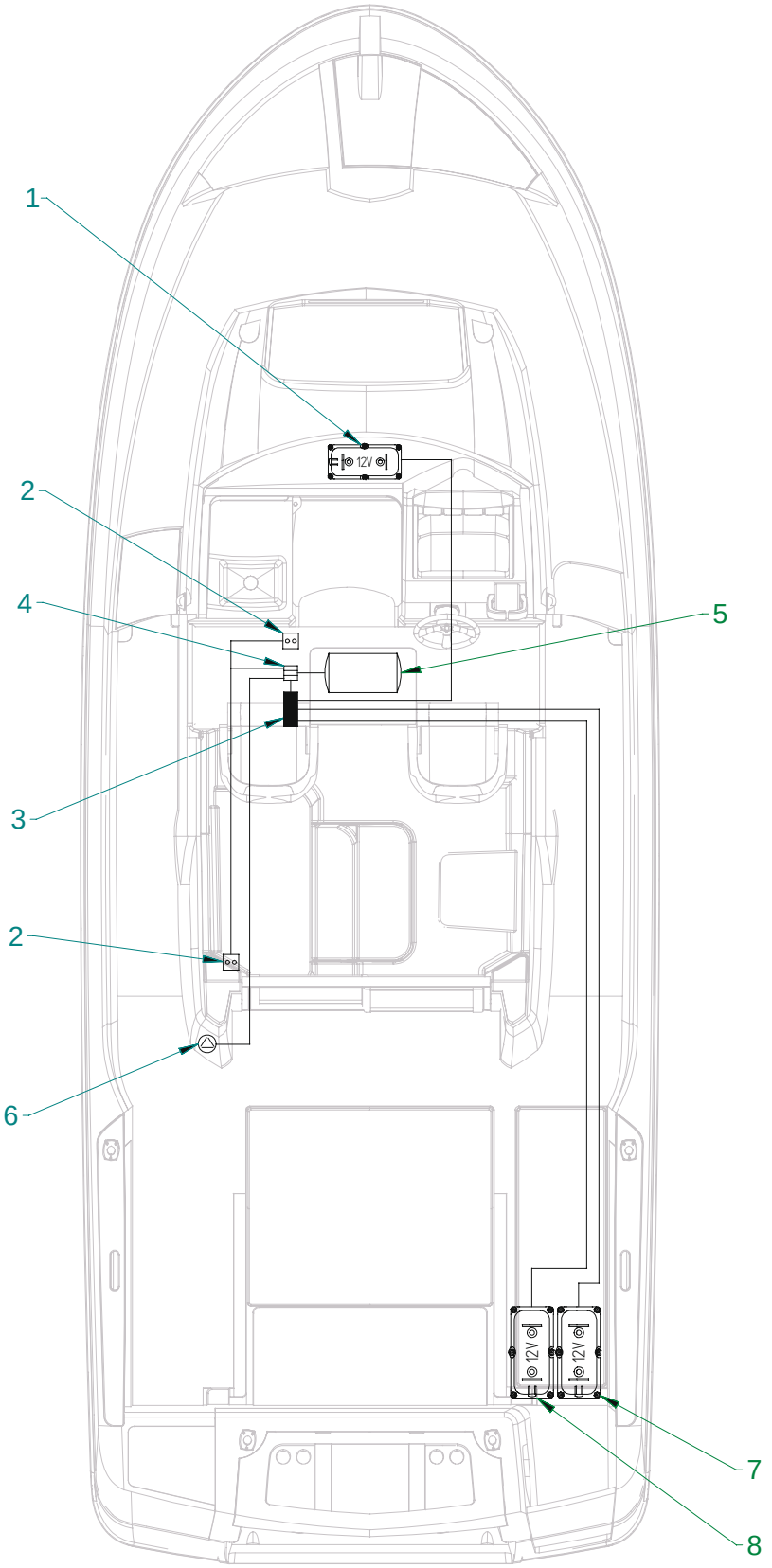
Differential switch Ref 2	Shore power socket Ref 1
	
1. General 2. Water heater 3. AC socket	

Operation

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

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

7.3.2 Diagram of the layout - AC circuit



Reference	Designation
1	Battery - Bow thruster
2	AC socket
3	Battery charger
4	Differential circuit breaker
5	Water heater
6	AC shore socket
7	Engine battery
8	Engine battery

7.3.3 Anodes

General points

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

- A sacrificial anode is an expendable part, that by eroding (oxydisation), allows the current to flow. The anodes used are made of a metal that is more readily reductive than the metal they are protecting.

- On a new boat, all the underwater metallic components try to be at the same electric potential, which leads to the rapid deterioration of the anodes in the first few weeks in the water.

- You can put several anodes on the hull.

Maintenance

- At least 2 times a year, check the corrosion on all of the anodes. Change the anode if necessary (Before it lost 50% of its weight).

- Use the appropriate anodes for the cruising area: fresh water/magnesium anodes ; Sea water/zinc anodes.

- If the motor mountings are raised, the anodes are out of the water: in this case the anodes can no longer protect the sterndrive: take note of the skipper's recommendations.

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

Cleaning anodes

- Use sandpaper. Do not use metal brushes or steel tools to clean the boat, it may damage the galvanic protection.

Replacing the anodes

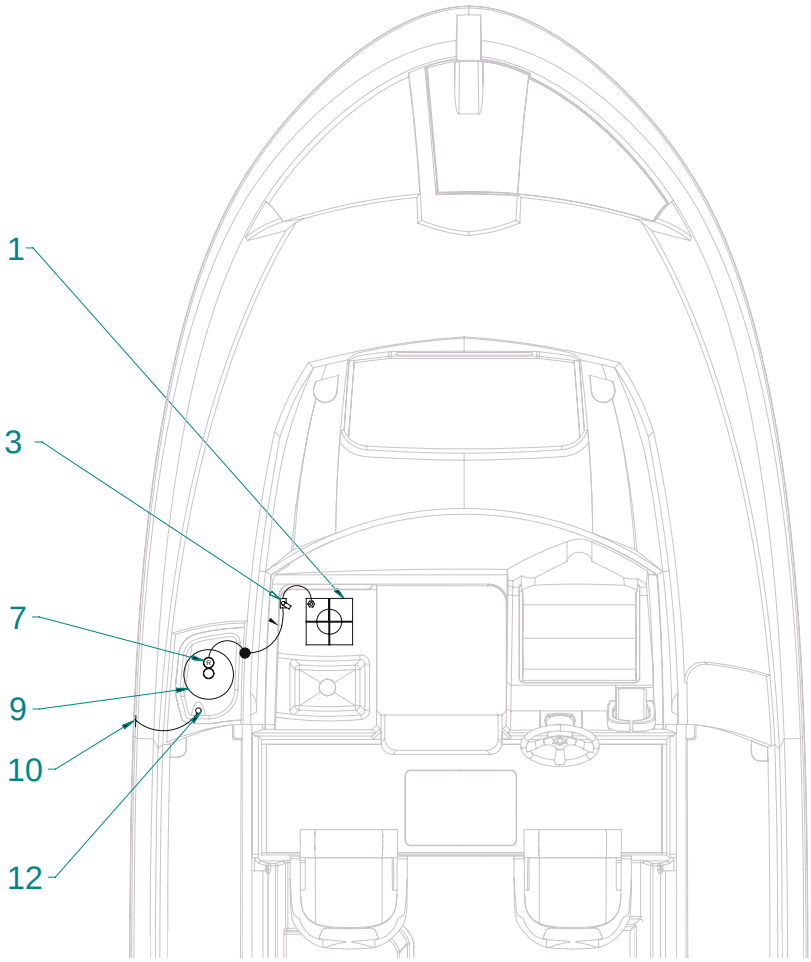
- The anodes are fastened with screws and nuts. First, remove the screws and nuts that hold the anode, then clean the contact surface. Press the new anode to obtain a good electrical contact.

- Never cover the anodes in antifoul.

- During the first few weeks that the boat is in the water, check the anodes and if necessary replace them: they erode very rapidly during this period.

8 LIQUEFIED PETROLEUM GAS(LPG)SYSTEM (LPG)

location of components



Reference	Designation
1	Cooker
3	Supply valve - Gas
7	Regulator valve
9	Gas cylinder locker
10	Thru-hull fitting
12	Gas locker drain

- Systematically store the gas bottles only in the lockers or storage places provided for these.
- It is recommended that you ensure good ventilation when using gas powered equipment, to prevent asphyxiation.

Gas cylinder locker

Cooker open / Closed

Supply valve - Gas / Access (Forward cabin)

Use and maintenance of the installation

- Please refer to the manufacturer's notes for the use and maintenance of the LPG cooker.
- When the equipment is not in use close the taps on the LPG hose and on the gas bottles. Close the taps before changing the bottles and immediately in an emergency.
- Make sure that the taps on the equipment are closed before opening the one on the bottle.
- Before using the LPG installation, check it thoroughly for gas leaks. Check that all of the connections are gas-tight in the following way:
    - Before each use, close the taps on the equipment ;
    - Open the tap of the LPG bottle ;
    - Allow the pressure of the pressure-gauge mentioned to stabilise ;
    - Close the tap on the LPG bottle ;
    - Watch the value shown on the pressure-gauge next to the tap on the bottle for 3 minutes. It is important that this value remains constant to establish the absence of leaks. **If the value shown on the pressure-gauge decreases, then there is a leak. Do not use any LPG powered equipment.**
    - Find and repair the leaks before any further use.
- Regularly observe the bubble leak detector (if there is one) ; or
- Carry out a manual search by applying a foaming solution, or soapy water or a detergent (with the taps of the burners closed and those of the installation and of the gas bottle staying open). The foaming solutions for detecting leaks in the gas installations conforming to the EN 14291 meet these requirements ;
- If there is a leak, close the tap on the bottle and get the installation repaired before using it again. The repairs must be carried out by someone proficient in this.
- Do not in any way block the access to the components of the gas-powered installation.
- Make sure that the taps on the empty bottles are closed and put out of circuit. Keep in place the protection devices, the caps or stoppers. Store the spare bottles in ventilated housing on deck or in the lockers provided for this, gas-tight and with an external vent.
- Do not use the housings or the LPG bottle lockers to store other equipment.
- The flexible pipes of the LPG powered installation must be regularly checked, at least once a year and replaced if they have deteriorated.
- Check the vent pipes at least once a year. Replace them if they have deteriorated or split.
- Do not use the hot plate if the regular roll angles or heeling angles are likely to be significant. (if the boat does not have a gimballed hotplate).

To change an LPG bottle

1. Close the tap on the LPG bottle
2. Detach the LPG bottle
3. Replace the LPG bottle
4. Attach the new LPG bottle
5. Open the tap on the LPG bottle

When the cooker is on, ventilate well to prevent any risk of asphyxiation.
Do not use the cooker as a means of heating.

- Never use a naked flame to check for leaks.
- Do not use a hotplate or an oven to heat the living areas.
- Equipment with a naked flame burning fuel consumes the oxygen in the cabin and gives out combustion residue in the boat. Ventilation is necessary when this equipment is used. Open the vents provided for this when using this equipment. Do not use a hotplate or an oven to heat the living areas. Never obstruct the vents provided for ventilation.
- Never leave the boat unsupervised when equipment using LPG with a naked flame is on.
- Do not smoke or use a naked flame when replacing LPG bottles. Close the tap on the empty bottle before detaching it to replace it.
- To ensure sufficient ventilation, make sure that you open the hatches or ports near the hotplate when using it.

- Do not use solutions containing ammonia (ammonia, which is present in certain soaps and detergents, attacks brass connections. Although the damage may at first be impossible to detect, the cracks and leaks may appear several months after the contact with the ammonia)).

9 DOMESTIC APPLIANCES

9.1 FRIDGE

General points

- The fridge is composed of 3 components: the compressor, the evaporator and the condenser. These components are connected by a closed circuit refrigerant gas circuit. The fridge is air-cooled.
- The fridge is DC powered. It is designed to chill food and drink. Any other use is dangerous and forbidden.
- A breaker protects the electrical circuit.
- The ON/OFF start button is located on the fridge.
- The thermostat is in the inside compartment of the fridge. It enables the selection of the desired temperature setting for the inside of the fridge.
- The refrigration power can be affected by:
    - The ambient temperature,
    - The quantity of food to chill,
    - The frequency of opening the door.

Maintenance

- Clean the evaporator with a damp cloth at least once a year. Never use cleaners which are abrasive, acid or which contain solvents for cleaning the evaporator.
- Regularly clean the fridge/icebox door seal with a damp cloth.
- Regularly defrost the fridge.
- When winterising the boat, leave the fridge door/icebox cover open to prevent mould and smells from developing.

ADVICE-RECOMMENDATION

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

Location: Saloon

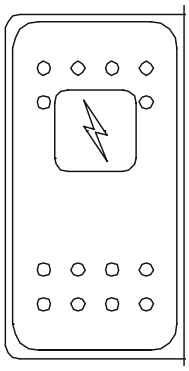
Capacity: 42 litre

10 ONBOARD COMFORT

10.1 ELECTRONIC EQUIPMENT

The onboard electronics are powered by direct current.

Control: Steering station



LEAD LINES

Transducer location: Aft cabin (Version: 3 doors).

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

ADVICE-RECOMMENDATION

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

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

10.2.1 General points

- Make sure that the ventilation openings in the engine (and generator, if installed) compartment are well cleared.
- Stop the engine and refrain from smoking during fuel tank filling.
- Get your fuel circuit checked regularly by a professional engineer.
- Avoid any contact between inflammable materials and the hot sections of the engine.
- Take all necessary precautions to avoid contact with naked flames and other hot areas.
- Do not obstruct or modify the ventilation system.
- Fuel stored outside the fuel tanks (jerrycans, spare cans) must be kept in a well-ventilated place.

11 WATER SYSTEMS

11.1 GENERAL POINTS

- It is essential to rinse the entire on-board water system the first time the boat is used (The water system is protected in the factory by a dietary anti-freeze).

- The water tanks may have had an anti-algae treatment using a copper sulphate based product. It is advisable to renew the treatment according to the area in which the boat is sailing.

- Drain all the water systems during winterisation (in particular the cockpit shower and water heater) to avoid damage from freezing.

- Clean/change the filters regularly.

- Regularly check water-tightness of joints in the water system installations. Check that screws and bolts are well tightened and replace them if they are worn or corroded.

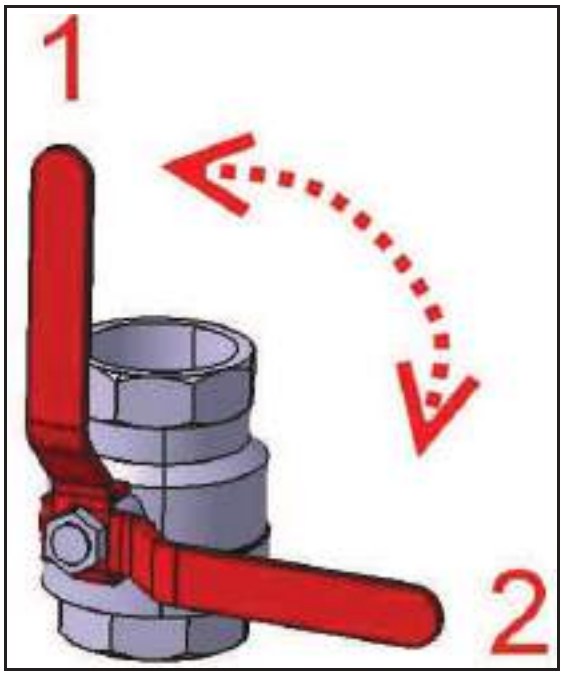
- Disconnect shore water supply before leaving the boat (if fitted).

- If the boat is sailing in temperatures below freezing, it is possible to use anti-freeze in the water systems: use a non-toxic anti-freeze marked for dietary use.

NEVER USE AUTOMOBILE ANTI-FREEZE: RISK OF POISONING.

11.2 USING A VALVE

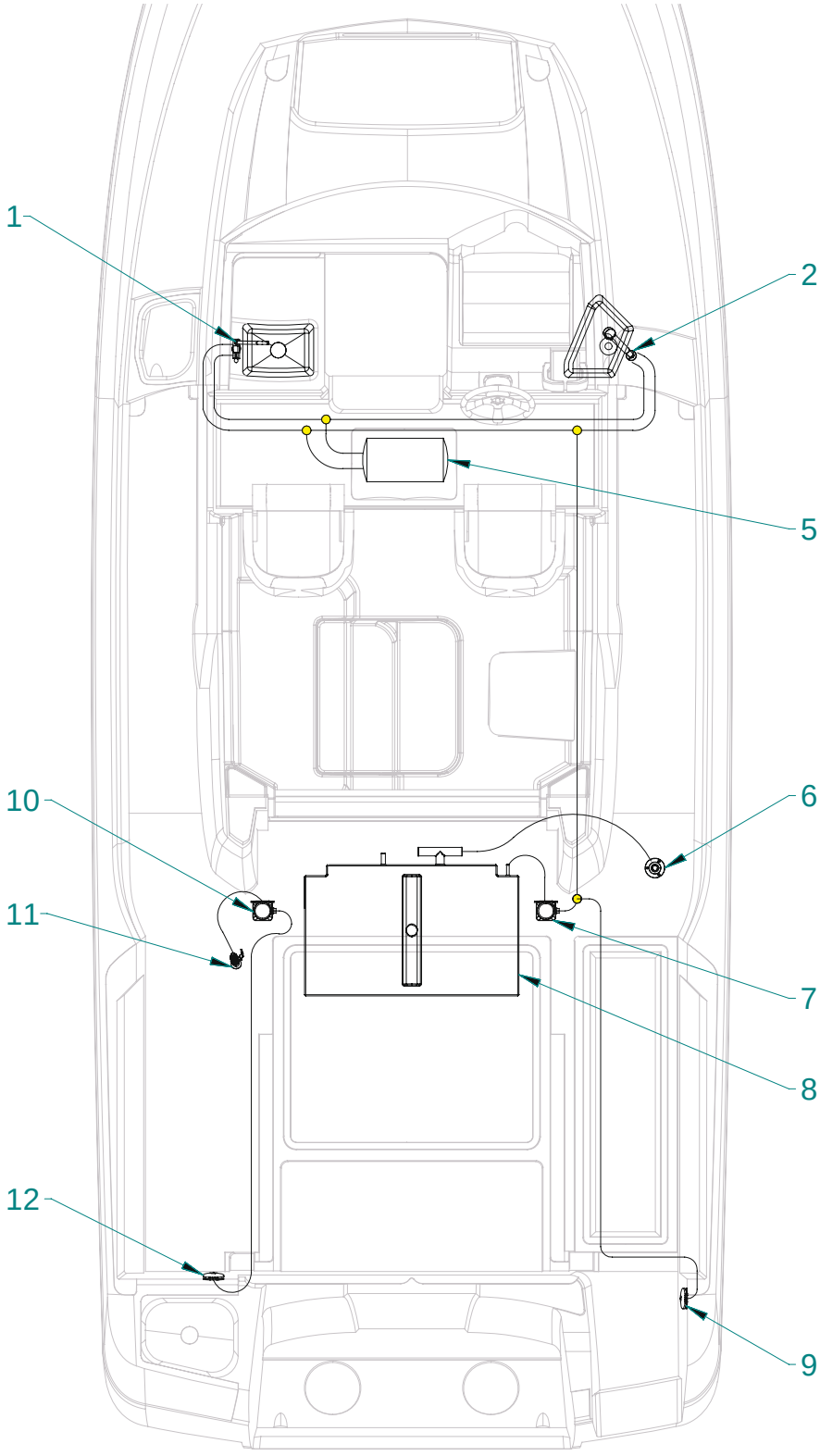
The valve is shut when the valve handle is at right angles to the pipe, the valve is open when the valve handle is in line with the pipe.



Reference	Designation
1	Open valve
2	Closed valve

- Valves have a lifespan of approximately 5 years. It is essential to have all valves on board checked by a professional every 5 years and possibly replace them.

11.3 FRESH WATER FILLING SYSTEM / FRESH WATER DISTRIBUTION SYSTEM



Reference	Designation
1	Galley sink
2	Washbasin - Head
5	Water heater
6	Deck filler
7	Water unit
8	Water tank
9	Cockpit shower
10	Deck wash pump
11	Water inlet - Washing - Deck
12	Connecting bridge washing

Water tank

Location: petrol tank compartment

11.4 MAIN PLUMBING EQUIPMENT

11.4.1 Water unit

- The water unit is supplied by direct current.

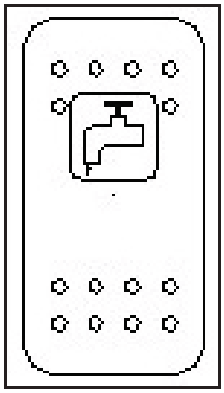
- It serves to feed all the boat's plumbing equipment with fresh water. It is fitted with a pressure switch that activates the flow when the pressure in the water system falls.

- The water unit must only be used with the fresh water supply. All other use (with sea water or bilge water, with oil products) is prohibited.

- Make sure that the water unit is never run dry.

- The pressure and capacity of the water unit depend on the temperature of the stored fresh water supply.

Control: Steering station



Water unit + Filter

11.4.2 Cockpit shower

- The cockpit shower allows the use of fresh water for rinsing off.

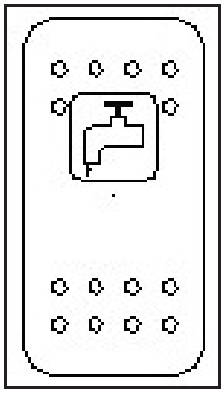
Location: Cockpit

11.4.3 Deck wash pump (Sea water)

- The deck wash pump is supplied by direct current.
- The deck wash pump allows the deck or the boat's tender to be washed.
- The deck washer pump control switch is situated inside the wheelhouse.

Control: Steering station

Sea water intake + Deck wash pump + Filter



Operation

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

Connection

11.4.4 Water heater

- The water heater allows the use of hot water on board the boat.

- The water heater thermostat regulates the water temperature only when it is operating with electrical resistance. The thermostat is pre-set in the factory.

- The mixer tap allows the temperature leaving the water heater to be adjusted.

- Never switch on the water heater if it is not filled with water.

1. Water heater - 25 litre
2. Thermostatic mixer valve

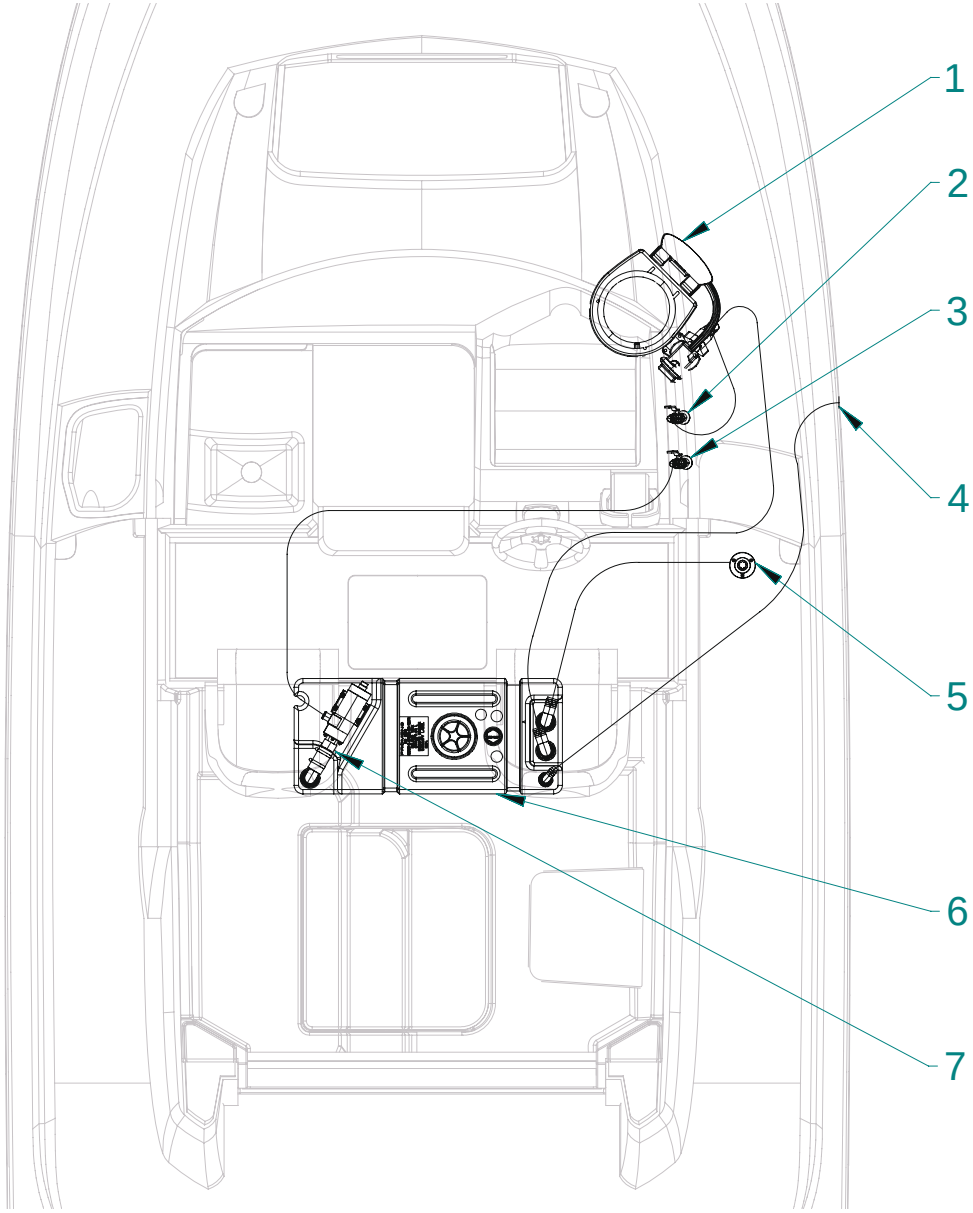
The water heater only works on 220 V (Shore power socket).

11.5 BLACK WATER SYSTEM (WC)

General points

- Black water is human waste including the flushing water from the toilets.
- Close the valves after each use and above all when the boat is unattended.
- Regularly check the valves and thru-hull seacocks for proper operation and watertightness.
- Regularly check the tightness of the flexible pipe clamps and connections.

11.5.1 Location diagram of black water system



Reference	Designation
1	Marine toilet
2	Sea water intake - WC
3	WC evacuation to sea
4	Black water tank
5	WC evacuation - Deck - Filler cap "WASTE"
6	Black water tank
7	Masher (WC drainage pump to sea)

YOUR BOAT IS FITTED WITH A BLACK WATER TANK

To minimise the smells coming from this tank, we advise the following use and maintenance:

1) Holding tank

- A black water tank is used solely for the temporary collection of water coming from the toilets.
- The tank can be emptied in 2 ways:
    - By connection to a pumping system that empties the tank by suction. This system uses the 'WASTE' deck connection.
    - Via the thru-hull fitting emptying directly into the sea (on condition that this is allowed by law in the country where the boat is sailing).
- Only use water soluble toilet paper to avoid any blockage.

Note: Sanitary towels and other items (paper handkerchiefs, dressings etc) in the toilets and black water tank will inevitably lead to blockages.

- Faecal matter causes formation of unpleasant odours in the black water tanks, to which the use of salt water for flushing the toilets also contributes. Algae present in salt water also give off unpleasant odours.
- Completely empty the black water system before leaving the vessel unattended in temperatures below freezing.
- Ask for information about the laws in force in your country or your marina about discharging your waste waters into the sea.

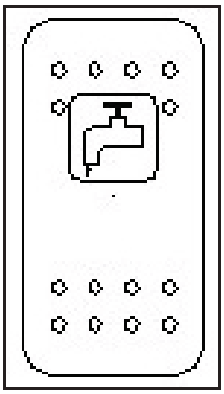
2) Use of toilets

- Every time the toilets are used, flush afterwards with copious amounts of water in the bowl using the toilet pump (manual or electric).
- When you are leaving the boat for several days, flush with fresh water, using for example the head's shower. Sea water that stagnates in the bowl gives off bad smells.

Black water tank + Masher
Capacity: 90 litre

Black water tank gauge
Location: Head

Masher control (WC evacuation to sea)
Location: Steering station



NOTE: The valve must be opened before starting the pump.

3) Maintenance of black water tank

- The risk of unpleasant odours forming increases when the waste water remains in the tank for a long time.

- Whenever possible empty the tank regularly even before it is full.

- Every time the tank is emptied put in about 5 litres of fresh water and add an appropriate detergent additive (available from chandleries). A very simple method is soda salts, which clean and disinfect at the same time.

- Before winterising, flush the tank with copious amounts of fresh water filling it through the 'WASTE' deck connection. Leave at least 5 litres of fresh water mixed with a detergent additive.

- Disinfecting: Disinfect the tank once a year by filling it with a solution of Javel water (1 to 1000).

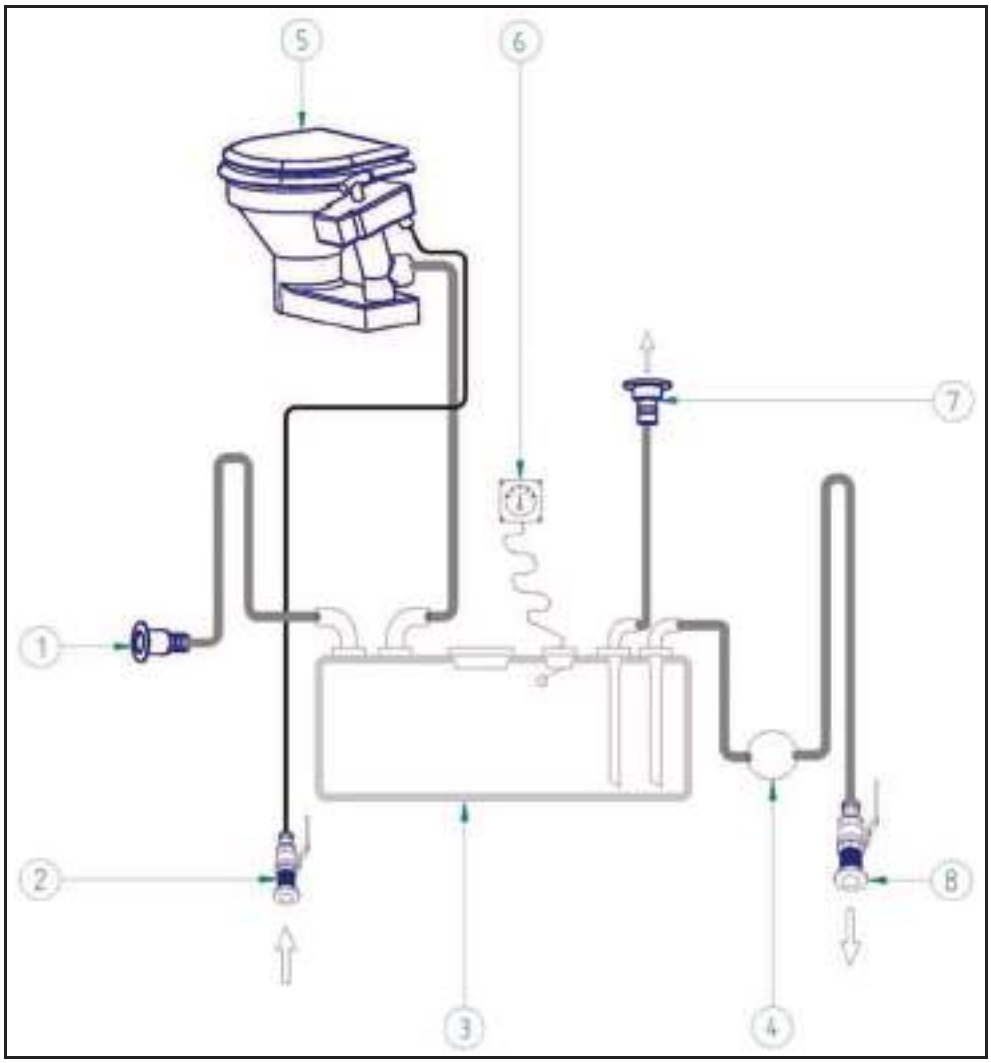
- Never use automobile anti-freeze in the black water system: risk of poisoning.

ADVICE-RECOMMENDATION

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

11.5.2 Layout diagram of black water system

Drainage by electric pump DC (Masher)



Reference	Designation
1	Vent hole
2	Seawater intake valve
3	Black water tank
4	Masher (WC drainage pump)
5	WC
6	Gauge
7	'WASTE' deck connection
8	Sea discharge valve

Using a marine toilet with a tank drain by macerator

I. Open the sea water intake valve (Ref 2).

II. Fill the bowl by using the manual toilet pump.

III. Using the toilet (Ref 5).

IV.a. To empty the organic waste in the tank:

- Make sure the thru-hull seacock (Ref 8) is closed.
- Empty the bowl using the manual toilet pump.

IV.b. In the case of a direct discharge into the sea:

- Open the thru-hull seacock (Ref 8).
- Empty the bowl using the manual toilet pump.
- Empty the tank by switching the electric pump (Ref 4).

IV.c. To discharge through the deck:

- Open the deck connection marked 'WASTE' (Ref 7).
- Use the pump-out system where fitted at a port.

Use of a DC electric toilet has a tank-discharge macerator

I. Open the sea water intake valve (Ref 2).

II. Fill the bowl by pressing the fill button.

III. Using the toilet (Ref 5).

IV.a. To empty the organic waste in the tank:

- Make sure the thru-hull seacock (Ref 8) is closed.
- Empty the bowl by pressing the empty button.

IV.b. In the case of a direct discharge into the sea:

- Open the thru-hull seacock (Ref 8).
- Empty the bowl by pressing the empty button.
- Empty the tank by switching the electric pump (Ref 4).

IV.c. To discharge through the deck:

- Open the deck connection marked 'WASTE' (Ref 7).
- Use the pump-out system where fitted at a port.

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

11.6 WASTE WATER SYSTEM

General points

- The waste water system is the water coming from the sink, showers, air conditioning drains and washbasins.
- Close the valves after each use and above all when the boat is unattended.
- Regularly check the valves and thru-hull seacocks for proper operation and watertightness.
- Regularly check the tightness of the flexible pipe clamps and connections.

ADVICE-RECOMMENDATION

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

12 ENGINE

12.1 INFORMATION ABOUT THE RISKS OF FIRE AND OF EXPLOSION OF ENGINES

- Make sure that the coolant is circulating properly.
- Ensure that ventilation openings in the compartment fuel tank are not obstructed.
- Stop the engine and refrain from smoking during fuel tank filling.
- Get your fuel circuit checked regularly by a professional engineer.
- Avoid any contact between inflammable materials and the hot sections of the engine.
- Never switch off or de-energise the electric system when the engine is running.
- Never block the access of the fuel supply valve.
- Do not obstruct or modify the ventilation system.
- Never turn the engine over when the boat is on land.
- Fuel stored outside the fuel tanks (jerrycans, spare cans) must be kept in a well-ventilated place.
- Regularly check that the petrol tank compartment is clean and dry.
- Take all necessary precautions to avoid contact with naked flames and other hot areas.

Engine water intake valve: Located directly on the saildrive.

Fuel supply valve: located directly on the tank.

A trapdoor located on the stern deck at the level of the engine well allows access to:

- The fuel supply valve,
- The engine tightening on the aft bulkhead.

This access trapdoor must be closed BY HAND without using any particular tool, especially a winch handle or cap spanner.

12.2 DANGER FROM MOVING MECHANICAL PARTS

- Keep away from the moving parts of the engine (belts and moving parts or hot components) and the drive shafts etc..

- Be careful if you have long hair, bulky clothing, rings etc (at risk of being caught).

12.3 GENERAL POINTS

- Don't install an engine more powerful or heavier than recommended on this boat, this risks compromising the boat's stability.

- Make sure you have enough fuel before sailing.

- Stop the engine before opening the engine compartment.

- Don't close the fuel supply valve between each use of the engine (unless for a lengthy absence).

- Get the whole propulsion system checked at least once a year by a professional engineer.

"see the chapter on ""Manoeuvrability""".

ADVICE-RECOMMENDATION

- Regularly check that the O ring on the filler cap is in good condition, to prevent any water ingress.

- Keep the fuel tank as full as possible to prevent condensation.

- Be careful with any possible risk of oil and fuel spillage.

- Follow the engine manufacturer's instructions exactly.

- Never switch off the battery breakers when the boat's engine is running (risk of serious damage to the charging circuit).

12.4 STARTING THE ENGINE

Before starting the engine, it is imperative:

- to open the fuel supply valve ;
- to open the sea water intake valve of the engine ;
- to switch on the battery supply by using the battery isolator switches ;
- **to put the control lever in neutral ;**
- **to attach the circuit-breaker to the pilot.**

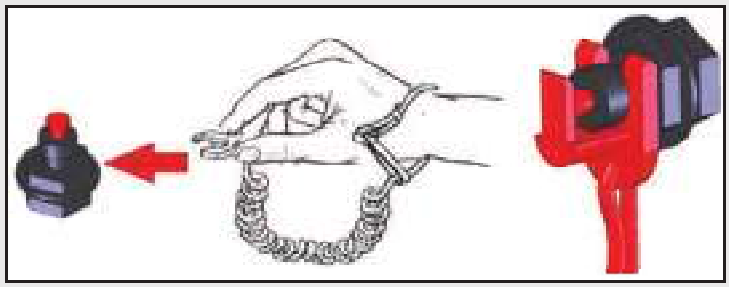
Make a habit of looking to see if sea water is pumped out with the exhaust gases as soon as you start the engine. If no water runs out, stop the engine immediately. Check the coolant flow.

- Before using the engine, make sure you carefully read the handbook provided by the engine manufacturer.

- Always start the engine with the control lever in neutral.

- Learn how to judge the necessary distance of deceleration for the vessel to come to a complete stop (The reverse gear is not a brake).

- Attach the cutout to the pilot at engine start.



- To avoid the engine being started accidentally disconnect the circuit breaker when the engine is not running

Type of motorisation

Your vessel is fitted with a gasoline-powered outboard engine (Version: Single engine).

Your boat is fitted with two petrol in-board engines (Version: Twin engine).

Filling up with fuel

- Fill the fuel tank using the deck filler marked "PETROL" for this.
- Fuel capacity: 400 litre.
- Reservoir location: petrol tank compartment.
- Regularly check that the O ring on the filler cap is in good condition, to prevent any water ingress.
- Each fuel supply valve supplies one engine.

Gauge

- The level of fuel is transmitted to the indicator on the wheelhouse thanks to the dipstick.

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

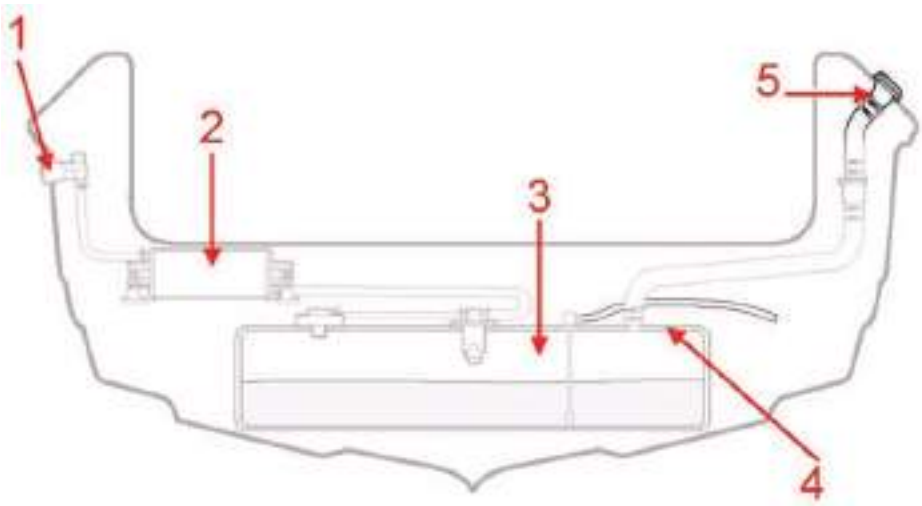
Gauge

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

EPA version (United States Environmental Protection Agency)

- The maintenance of the complete petrol circuit system must be done professionally every year. It is advisable to clean the circuit only with soapy water. All the fuel circuit connections must be checked once a year.
- When cleaning the boat, be careful not to damage the valves, vent or fuel circuit filler.

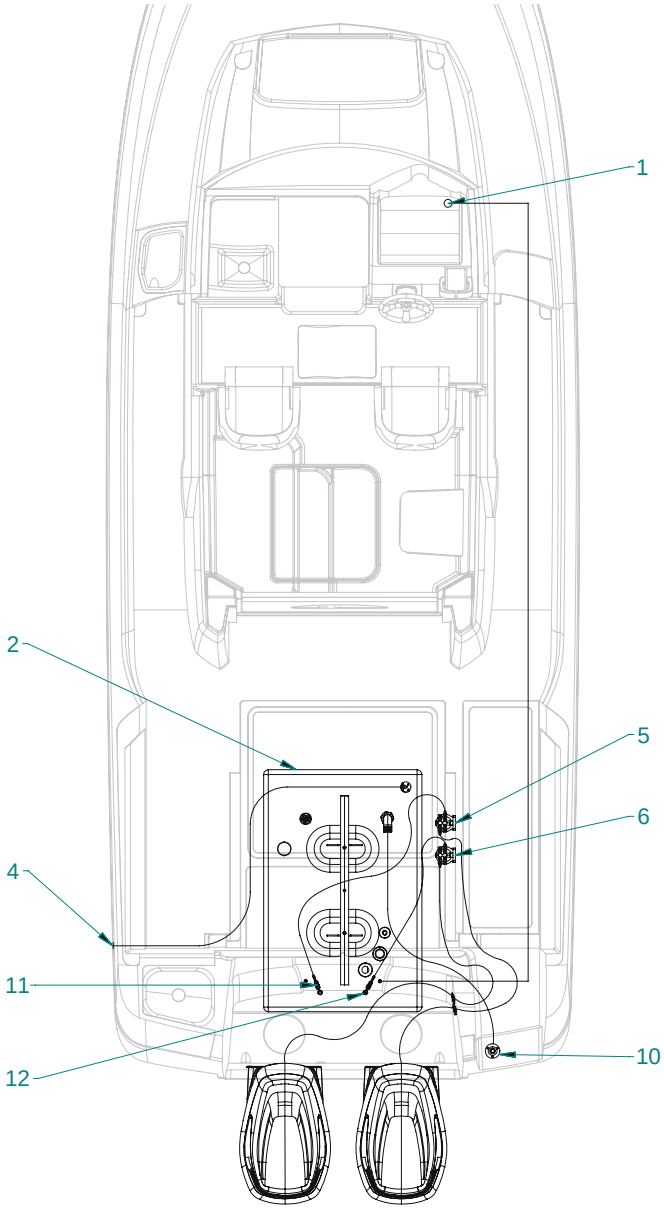
Installation configuration for each fuel tank (Standards EPA)



Reference	Designation
1	Vent hole
2	Canister
3	Petrol tank
4	Fuel supply valve
5	Deck filler

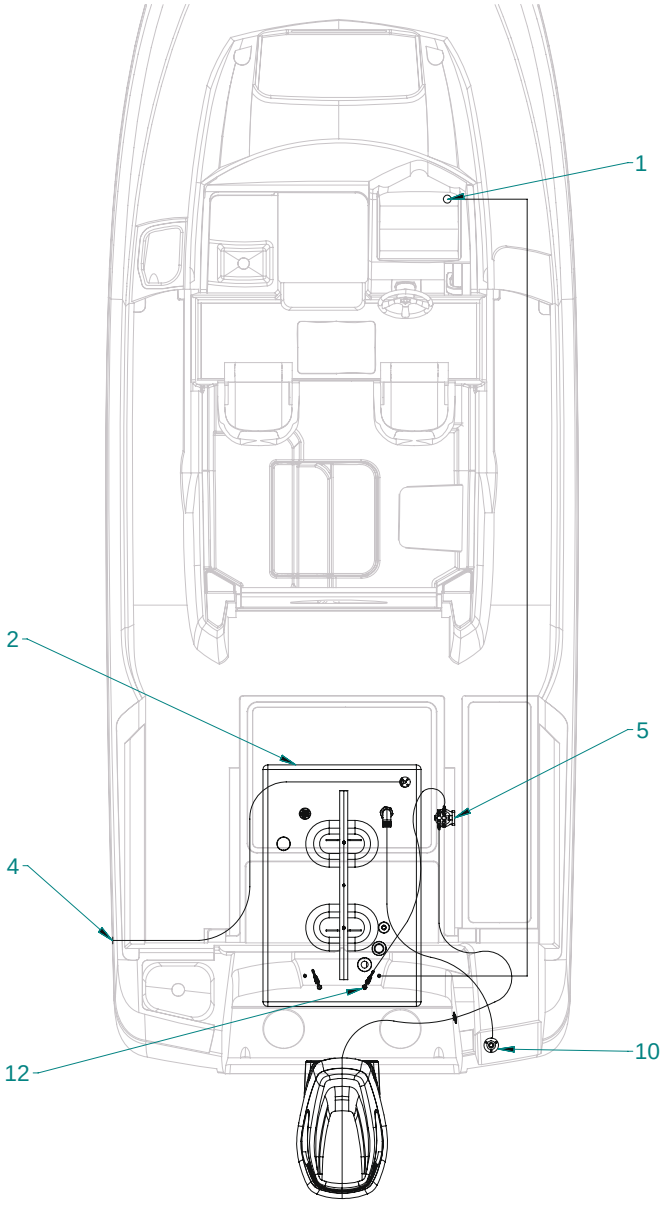
12.5 FUEL CIRCUIT

Version: Twin engine



Reference	Designation
1	Fuel gauge indicator
2	Fuel tank
4	Vent hole - Fuel tank
5	Fuel filter
6	Fuel filter
10	Deck filler
11	Fuel supply valve
12	Fuel supply valve

Version: Single engine



Reference	Designation
1	Fuel gauge indicator
2	Fuel tank
4	Vent hole - Fuel tank
5	Fuel filter
6	Fuel filter
10	Deck filler
11	Fuel supply valve
12	Fuel supply valve

12.6 ENGINE WATER INTAKE VALVE

The sea water intake valve plays a crucial role in ensuring that the engine runs well.

- Keep the strainer under the hull as clean as possible ;
- Brush the strainer whenever the boat is lifted out ;
- Don't cover the strainer in antifoul.

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

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

Regularly inspect the sea water filter and clean it if necessary. Screw/unscrew the cover of the filter by hand (never use tools for this), this sea water filter is supplied by the manufacturer.

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

Sea water intake

12.7 FUEL FILTER

Engine running problems may have different origins, including dirty fuel. The injection pump may wear out if there is water in the system. The water results either from the condensation resulting from an insufficiently filled tank, or from a filler cap either not closed properly or with a damaged seal.

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

- One filter is an integral part of the engine, its role is to filter fuel very finely. Please refer to the engine manufacturer's notes for any maintenance and for the frequency of filter changes.

- The second filter is on the pipe that links the tank to the engine, it plays the role of a water decanter and prefilter.

Maintenance

- Purge the impurities by unscrewing the screw located at the base of the decanting bowl(without removing it). Let the liquid run into a receptacle until the fuel runs clear. Do this several times a year.

- Change the pre-filter at least once a year.

12.8 ENGINE INSTALLATION

In single engine version: This boat is designed for use with a single outboard engine.

In twin engine version: This boat is designed for used with twin outboard engines.

12.9 ENGINE CONTROL

- The engine manufacturer's notes provide detailed explanations on how to operate the engine and keep it running well.

- Read the manufacturer's notes on use and maintenance of the engine.

Control lever

- The control lever is fitted with a safety system which prevents the engine from starting when in gear.

- The trim adjustment control is built into the handle. By raising/lowering the footing for the outboard engine you can delicately adjust the fore and aft trim of the boat.

- The trim indicator is located at the helm.

12.10 FLAPS

General points

- The flaps (trim control system) allow the pilot to adjust the boat's trim under way and thus to reduce fuel consumption.
- The flaps run on DC power.
- A fuse protects the electrical circuit.
- They are operated by means of a push button situated on the wheelhouse and their position is adjustable.
- The flaps only work when the boat's engines are running.

Control
Location: Steering station

Flaps

ADVICE-RECOMMENDATION

- Refer to the manufacturer's instructions for use and maintenance.
- Adjust the flaps gradually to avoid abrupt hull movements. At high speeds, take care when adjusting the flaps.
- Retract the flaps fully if there is a heavy swell on the stern of the boat.

General points

The flaps are controlled electrically.

The actuator is mechanical.

The flaps need to be protected by an anode (see the chapter on Electricity).

Operation

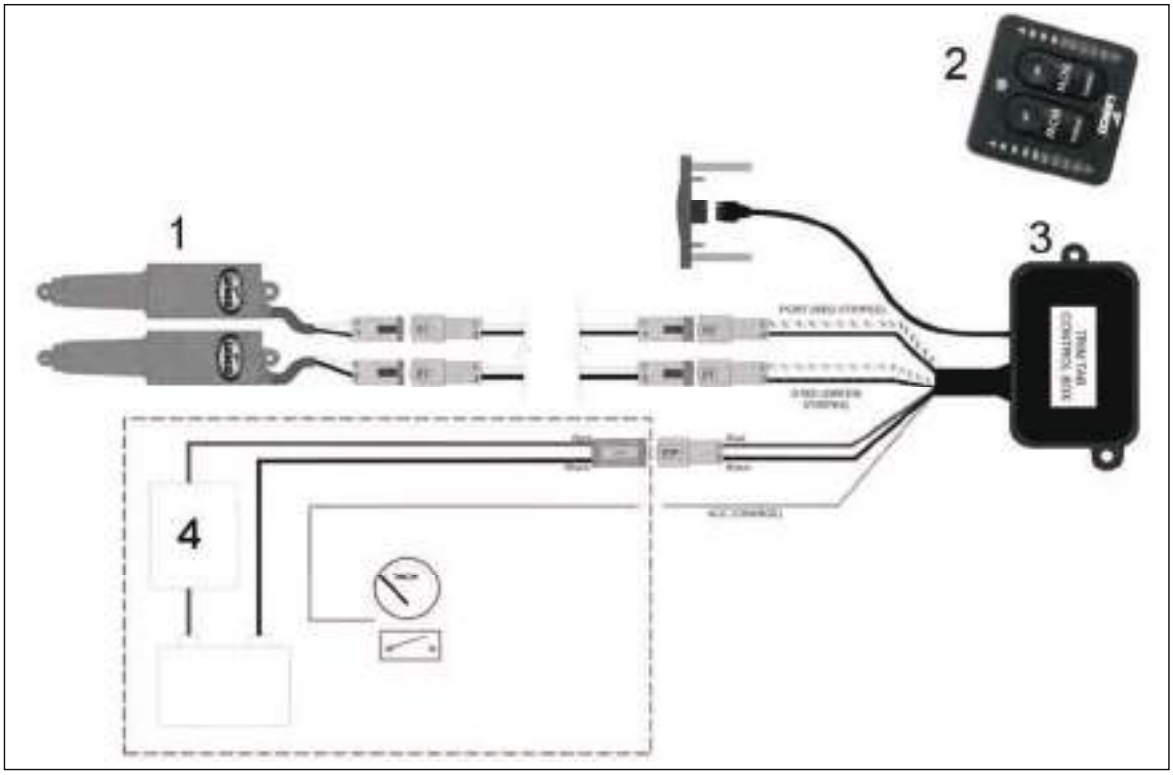
When the tabs are lowered, the bow of the boat has a tendency to lift out of the water.

When the tabs are raised, the bow of the boat has a tendency to drop.

Maintenance

Clean the tabs regularly with clean water.

During lift-outs, repaint the tabs and actuator with antifouling. Do not cover the section below the anode or the anode itself with antifouling.



Reference	Designation
1	Mechanical actuator
2	Control panel
3	Control box
4	Fuse

12.11 ACCESS TO THE ENGINE

The access to the engine is via:

- The cockpit.

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

12.12 PROPELLER

- The propeller delivered with the boat represents the end result of trials carried out in collaboration with the engine manufacturer. Never change the propeller without first consulting a professional engineer.

- Propeller efficiency will drop if the propeller blades are damaged in any way or dirty: regularly clean the blades carefully.

- During a lift-out, check the propellor: it should turn freely on its axis and there should be no play.

- Single-engined boats are equipped with a right-hand pitched propeller.

- Boats with twin engines are equipped with counter-rotating propellers.

- Respect speed limits.

13 STEERING SYSTEM

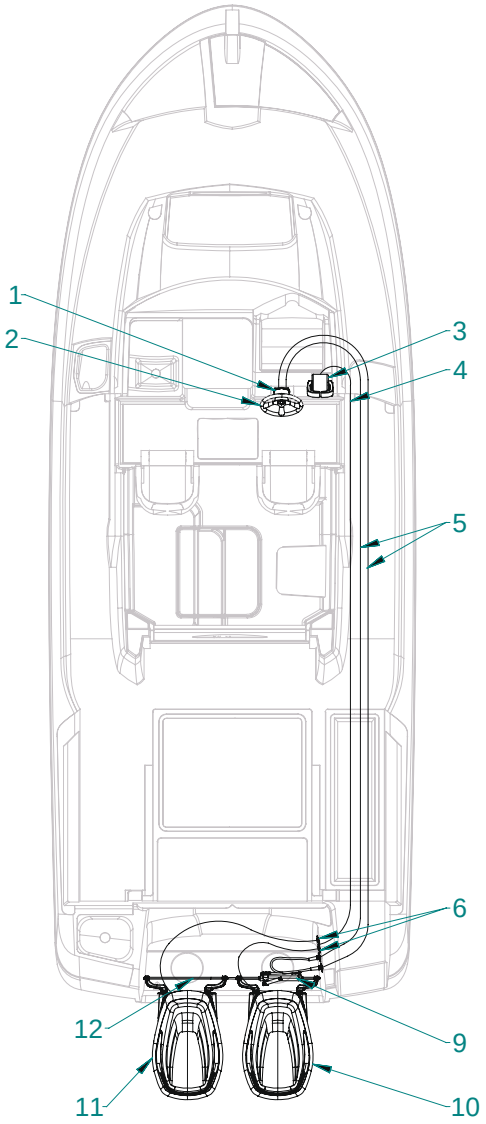
13.1 GENERAL POINTS

- The steering is hydraulic.

- The steering system is an important safety feature. For this reason, the annual inspection of the whole system must be carried out by a professional engineer.

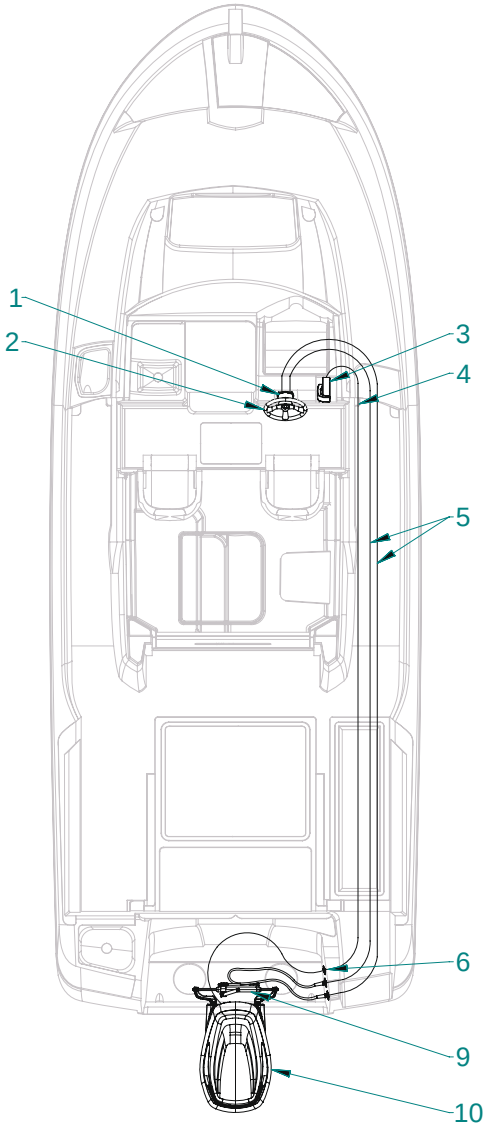
13.2 LAYOUT DIAGRAM

Version: Twin engine



Reference	Designation
1	Steering rack
2	Steering wheel
3	Engine control lever
4	Cables (Accelerator / Reverser)
5	Hydraulic steering
6	Watertight bellows
9	Hydraulic piston
10	Outboard
11	Outboard
12	Connecting rod

Version: Single engine



Reference	Designation
1	Steering rack
2	Steering wheel
3	Engine control lever
4	Cables (Accelerator / Reverser)
5	Hydraulic steering
6	Watertight bellows
9	Hydraulic piston
10	Outboard
11	Outboard
12	Connecting rod

13.3 HYDRAULIC STEERING

General points

- Steering is achieved by rotating the engine base. This rotation is done using a hydraulic ram.

- Protect the ram from any risk of impact, scratches or any other type of degradation. No impurities must ever penetrate the inside of the ram.

- Nothing must impede the movement of the ram: regularly ensure that the ram is able to function smoothly:

  when moving the engine from hard to port to hard to starboard ;

  when fully raising the engine.

Replenishing and bleeding the circuit

- This task must be carried out by a professional engineer: please consult your dealer.

- Use only oil ISO 22.

- The whole of the hydraulic circuit must be kept scrupulously clean: any impurity risks causing the deterioration of the steering gear.

After each winter, check

that rotating the wheel to starboard turns the boat to starboard ;

that the circuit is properly bled ;

that there are no leaks in the connections, the pumps, the ram or the flexible hydraulic hoses ;

that the pump is filled with oil to the correct level(25 mm of air must be left in the pump : this space is vital for the hydraulic circuit to work properly, it allows the oil to expand) ;

that the nuts and screws are fully tightened to the correct torque as shown in the manufacturer's instructions ;

that the hydraulic hoses have not been flattened or deformed.

ADVICE-RECOMMENDATION

- Refer to the manufacturer's instructions for use and maintenance.
- Do not step on the hydraulic ram.
- It is vital periodically to grease the inside of the engine drive-shaft.

13.4 BOW THRUSTER

General points

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

Operation

- The bow-thruster motor must operate with the boat's engine running.
- A control panel is located in the wheelhouse.
- The electric battery switch for the thruster automatically comes on or goes off when the thruster is started or stopped.
- To turn the bowthruster on or off, press the red button while holding the joystick pushed to the right for a few seconds.

Maintenance

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

During lift-out

- Check that the propellers turn properly, with neither play nor stiffness.
- Clean the blades carefully.
- Remove the propeller, clean the housing and the shaft, smear the shaft and the stainlees steel capsules with silicon-based grease before putting the propeller back.
- After cleaning and applying a primer, antifoul the housing and the propellers.

Layout of components: Forward cabin

1. Battery - 50A
2. Bow thruster
3. Charging relay box
4. Positive battery isolator switch
5. Master operation relay
6. Fuse

Anode (See Anodes chapter)

Control

ADVICE-RECOMMENDATION

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

14 DECK FITTINGS

14.1 GENERAL POINTS

14.1.1 Polyester

- Regularly brush the deck using a gentle de-greasing agent then rinse the deck with fresh water.
- Use as few cleaning agents as possible.
- Don't use solvents or aggressive detergent agents.
- Don't discharge cleaning agents into the water: Consult the harbourmaster's office to find out the conditions of water use and the maintenance area for cleaning your vessel.
- Don't use a pressure washer.

14.1.2 Plexiglas (PMMA)

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

ADVICE-RECOMMENDATION

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

14.1.3 STAINLESS STEEL

Stainless steel is an alloy of iron and carbon (steel) with the addition of chromium. This chromium provokes the formation of a protective film which separates the steel from the atmosphere outside. This coating is usually invisible as it's so thin. So in spite of its name this steel is not stainless and requires a minimum of maintenance:

- The use of chrome tools is preferable whenever handling stainless steel ;
- Re-nourish the protective film regularly with passivation paste.

14.1.4 Solid wood on exterior wooden panelling

- Wood exposed to harsh conditions, such as salty air and UV rays tends to become whiter and to lose its natural colour. This phenomenon has no effect on the intrinsic qualities of the wood, but can spoil its aesthetic appeal.

- To maintain the colour of the wood, regularly wash the woodwork in fresh water using a sponge (if necessary, use a mild soap).

- It is recommended to oil the external woodwork regularly using teak oil to protect them from the harsh conditions.

ADVICE-RECOMMENDATION

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

14.1.5 Exterior cushions

- Bring the removable cushions inside (washed with soapy water then dried) when the vessel is unoccupied.

- Put canvas sheets/protective covering over the fixed upholstery.

Maintenance

To maintain the quality of the fabric, you are advised to spray it regularly with clarified water and to brush it with a soft brush (brush for clothes). It is advisable to clean thoroughly every 2 years.

Stain removal

Follow these steps for routine cleaning::

- Remove as much debris as possible using a soft brush ;
- Spray the fabric with water ;
- Prepare a cleaning solution using mild soap and water (Do not use detergent) ;
- Wash with a soft brush ;
- Wait for soapy solution to act ;
- Rinse thoroughly in fresh water ;
- Dry in the open air.

ADVICE-RECOMMENDATION

Never:

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

Fish case

Fishpond

Seating - Cockpit
Must be secured while sailing

14.2 BERTHING, ANCHORING, TOWING

14.2.1 Anchor points

Responsibility

It is the responsibility of the owner/user of the boat to ensure that the berthing lines, towing cables, chains and mooring lines and the anchors are adequate for the intended use of the boat, i.e. that the lines or chains do not exceed 80 % of the breaking strength of the corresponding anchor point.

	MOORING LINES	MOORING	TOWING
Reference (Please refer to the key on the following page)	**A&B**	**B**	**B**
Anchor Point Breaking Strength	**16.6**	**23.8**	**23.8**
Mooring Line/Chain Breaking Strength	**13.3**	**19.1**	**19.1**

NOTE: Measurements are expressed in kN.

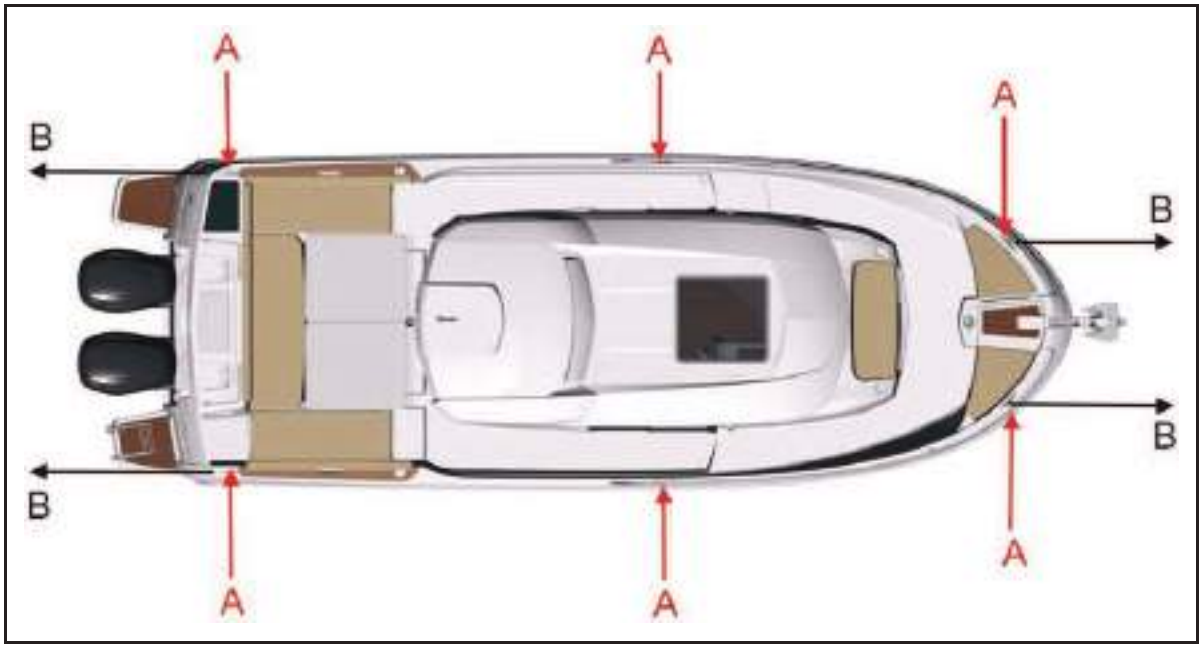
If non-metal anchor points are installed on the boat, their limited lifespan must be taken into account. They must be replaced as soon as they show signs of deterioration, visible surface cracks or permanent deformation.

Pass warps through the fairleads provided for this purpose.

14.2.2 Towing

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

Location of attachment points



A. Mooring cleats which correspond to the anchor points for the lifelines.

B. Towing:

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

- Generally the breaking strength of lines/chains must not exceed 80% of the breaking strength of the anchor points.
- Always tow or be towed at low speed. Never exceed the maximum speed of a displacement hull during a tow.
- Be particularly vigilant when the end of a towing cable is being thrown or received (risk of the end becoming caught in the propeller).
- A towing cable must always be secured in such a way that it can be released under load.
- Do not try to stop the boat by using a boathook or your foot, hand or any other part of your body.

14.3 MAIN ELEMENTS OF THE CHAIN LOCKER

Chain locker - Closed

1. Chain holder
2. Windlass - 700 W
3. Chain rim - 8 mm diameter
4. Clinch
5. Remote control
6. Handle

Operation relay
Location: Forward cabin

Breaker - 80A
Location: Saloon

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

Windlass operations are dangerous:

- Always keep the anchor chain or rode free and unfouled ;
- Carry out manoeuvres carefully and always wear shoes ;
- Avoid wearing baggy clothing, long hair that's loose and jewellery that could get caught in the engine when it is running.

14.4 ELECTRIC WINDLASS

General points

- The windlass is DC powered.
- The windlass is designed for anchoring purposes: Any other use is dangerous and forbidden.
- An operation relay is fitted to the electrical circuit.
- A circuit-breaker protects the power supply to the windlass.
- The windlass operation is activated by an operational interlock relay which is powered by the engine's alternator: the windlass only works when the boat's engine is running.
- The controls to raise/lower the windlass are protected by a circuit-breaker positioned between the batteries and the windlass relay.
- Your boat may be equipped with a chain meter: this shows the length of chain let out.

Operation

- Before lowering the anchor, make sure that the chain or anchor rode is securely attached to the clinch.
- Activate the circuit-breaker then use the control to start the windlass.

Control: Steering station

- When at sea, secure the chain or anchor rode to secure points such as the chain stopper or the anchor rode to the belaying cleat (the windlass must not be used as the only method of securing the chain or rode).

- In the case of dual control, be careful to use just one control at a time.
- When raising the anchor, use the boat's engine to move towards the position of the anchor, until the boat is just over it: never use the windlass as a winch to move the boat forward.
- When out at sea, cut the electrical supply to the windlass.
- Cut the electrical supply when using the windlass manually.

Maintenance

- once a year, dismantle, carefully wash and grease all the moving parts of the windlass.
- Regularly grease the supply terminals of the electric motor of the windlass and of the relay control box.

Emergency anchoring procedure

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

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

ADVICE-RECOMMENDATION

- Before anchoring check the depth of water, the power of the current and the nature of the sea bed.
- Check the swinging area once the boat is at anchor.
- After each trip rinse the windlass and anchor chain or rode with fresh water.

15 HULL FITTINGS

15.1 UPHOLSTERY

SYNTHETIC FABRIC

Stain removal

If you can remove the fabric:

- Clean in the washing machine (use the program for delicate fabric) at 30°.
- Do not iron.
- Never use Javel water.
- Do not dry-clean.
- Do not use a clothes drier.

If you cannot remove the fabric:

- Clean with the vacuum cleaner,
- Clean with a foam for synthetic fabrics (see foam use instructions).

COATED FABRIC (PVC)

Maintenance

- The PVC must be regularly cleaned with soapy water to maintain its appearance and avoid accumulation of debris. Try to avoid using the following products: lacqeurs, aggressive cleaning products, detergents, xylene or acetone-based products which can cause permanent damage or make the fabric deteriorate. The use of such products is at the owner's risk.

Stain removal

- All stains must be quickly removed to avoid formation of permanent stains.
- Use mild water to remove the stains found on the fabric surface. Use only clean, white, damp pieces of cloth.
- Difficult stains can be removed using a mixture of water (25%) and white spirit.
- Rinse with clean water.
- Dry with a soft piece of cloth.

ACRYLIC (bimini fabric type)

Maintenance

To maintain the quality of the fabric, you are advised to spray it regularly with clarified water and to brush it with a soft brush (brush for clothes). It is advisable to clean thoroughly every 2 years.

Stain removal

Follow these steps for routine cleaning::

- Remove as much debris as possible using a soft brush ;
- Spray the fabric with water ;
- Prepare a cleaning solution using mild soap and water (Do not use detergent) ;
- Wash with a soft brush ;
- Wait for soapy solution to act ;
- Rinse thoroughly in fresh water ;
- Dry in the open air.

15.2 INTERIOR WOODWORK

- Clean the interior varnish using a de-greasing shampoo on a damp cloth.
- Polish the interior varnishing with a chamois leather.
- If there are any stains or light scratches, it is possible to polish the varnish. Doing this can give the polished area more of a shine than the rest of the varnishing onboard.
- If there are deeper scratches, it is possible to sand the scratched area lightly and then re-varnish it (consult your dealer).

15.3 INTERIOR MAINTENANCE

- Take advantage of fine weather to air the interior upholstery.
- Remove the cushions during lengthy periods of absence.
- Make sure the bilges are clean and dry.
- For lengthy periods of absence, leave the icebox and fridge doors open to prevent mould from developing.
- Install a dehumidifier in the saloon and leave open all the cabin doors and storage spaces (cupboards,iceboxes...).

ADVICE-RECOMMENDATION

If the stains persist or if in doubt, consult a cleaning specialist.

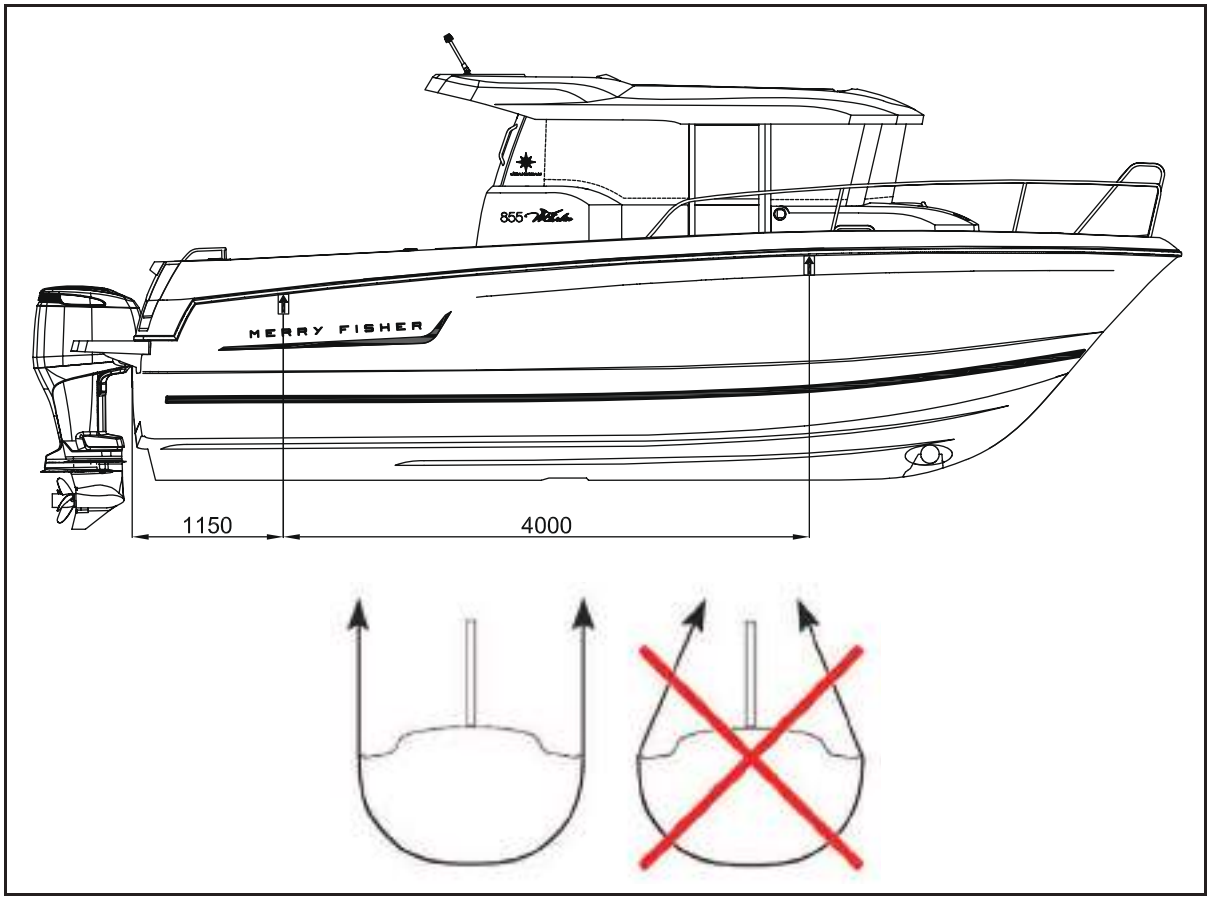
When winterising the boat, make sure the curtains are pulled to prevent the fabrics from being exposed to the sun's rays for a lengthy period (risk of fading).

NEVER:

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

16 HANDLING, TRANSPORT

16.1 LIFTING PLAN



Note: Measurements are expressed in mm.

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

16.2 LIFTING

- Before applying the first coat of antifouling on the hull, you can key the hull using wet sandpaper of 400 grade or higher.
- The lower hull of your boat should be covered with an anti-fouling paint which will prevent the adhesion of marine growth.
- The nature of the water where you keep your boat and the frequency of lifting it out determines the choice of antifouling.
- All bronze or steel surfaces, including the propellers, should be protected by a suitable antifoul paint.
- During the lift-out, check the anodes and the propeller (see corresponding chapters).

Before applying the antifoul NEVER:

- Do any sandblasting ;
- Use any other solvents than ethylic alcohol ;
- Use detergents under pressure ;
- Use scrapers ;
- Use grinding tools.

If cleaning off existing antifouling requires high pressure washing:

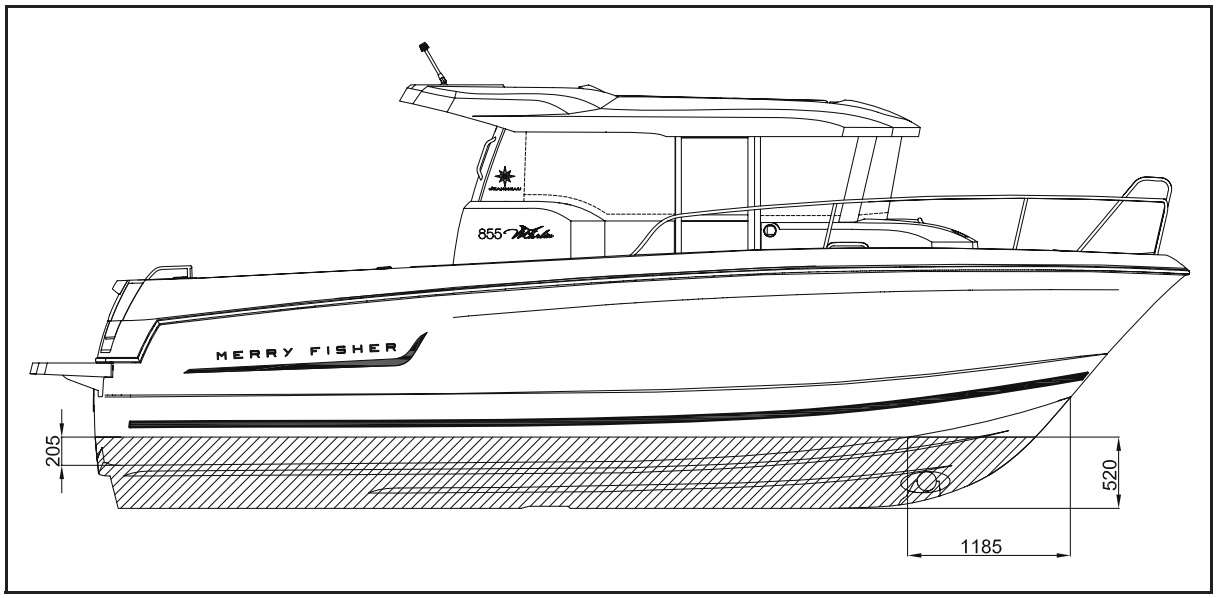
- Ensure the water temperature does not exceed 15 degrees ;
- The water pressure must not exceed 150 bars ;
- The distance between the hose nozzle and the hull must not be less than 10 centimetres.

The wet surface area of the boat is about: Approximately 20 m².

- Follow the manufacturer's recommendations scrupulously when applying antifouling.
- Never cover with antifouling:
  - the anodes ;
  - the sea water strainers ;
  - the sensors of the electronic instruments.
- Avoid using copper or tin-based antifouling: these are banned in some countries.

16.3 UPPER LIMIT OF ANTIFOUL

Measurements are expressed in millimetres.



16.4 LAUNCH/LIFT OUT

The initial commissioning of your boat will require a lot of skill and care. The proper working of all your boat's equipment is the result of the quality of the commissioning operations. This is why the initial launch must be overseen by your dealer.

Before launching

- Replace the log in its housing.
- Check the cleanliness of the sea water strainers.
- Check the anodes (see the chapter on Electricity).
- Check the propeller (see the chapter on Steering).
- Prepare enough fenders and lines.
- Check the engine's sea water intake valve and the fuel feed valve (see the chapter on motorisation).

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

- When placing the slings make sure that the positioning marks are still visible.
- Submerge the sling fully under the engine mounting.

- **Towing ring** (used only for towing purposes)

16.5 WINTER STORAGE

- Take advantage of laying up the boat to carry out a full inventory of the equipment.
- Check the expiry dates of the safety equipment.
- Have the liferaft overhauled.
- Empty the complete water system inside and outside and rinse it through with a mix of water and vinegar (do not use a chlorinated product).
- Empty and rinse the complete black water system.
- Dry out and clean the boat's bilges.
- Grease and close all the valves and through-hull fittings.
- Close all the boat's seacocks.
- Remove the depth sounder and log sensors.
- Put the covers back on the electronic screens.
- Install a dehumidifier in the saloon and leave open all the cabin doors and storage spaces.
- Air all of the cushions and upholstery for a good while before putting them back onboard and arranging them so as to limit the surface areas touching.
- Close the black-out curtains.
- Leave open the fridge/icebox doors to prevent mould and smells from developing.
- Protect the boat as well as possible with fenders.
- Make sure the boat is properly moored.
- Grease all mechanical and moving parts (bolts, hinges, locks...).
- Remove the movable upholstery.
- Disconnect the batteries. Make sure you recharge them during the winter period if the boat is left inactive for too long.

ADVICE-RECOMMENDATION

- The winterisation of the engine requires the skills of a professional engineer: please consult your dealer.
- This is not an exhaustive list of recommendations: Your dealer will give you the advice you need and will carry out the technical maintenance of your boat.

16.6 TRANSPORT

Light displacement: .....3 616 kg

included:

- All structural elements;
- the interior structure and furnishings;
- Interior equipment (plumbing circuit, galley, ventilation system etc);
- Exterior equipment (cockpit table, bathing ladder, steering system, exterior upholstery etc);
- The heaviest engine(s) recommended by the builder.

Total mass of the liquid content of fixed tanks when they are full: .....530 kg

Weight of boat on trailer: 3 616 + 530 =.....4 146 kg

Components that should not be on the boat during transportation or when towed:

- tableware, bed-linen etc, food and drink supplies, tools, spare parts ;
- individual safety equipment ;
- electronic equipment and portable navigation equipment.

- If the boat can be transported by trailer be careful to use a trailer that is appropriate for the boat and its weight.

- the weight of liquids is calculated on the basis of full tanks.

17 ENVIRONMENT

Waste management:

- Throw all packaging in the recycling containers provided for this.

- Once a piece of equipment has completely stopped working, find out about the relevant recycling regulations from your nearest recycling centre or from your dealer.

- Make sure you follow the relevant local laws when you scrap it.

- Some onboard equipment can have a toxic effect on the environment and on human health, caused by the specific substances they contain: Do not throw any equipment in household waste containers and absolutely not in the sea.

- Dead batteries are toxic to health and to the environment. So, batteries must not be put in with household waste, but must be recycled separately. Contact the harbour master or a specialist company about recycling them.

- Make sure you know the local enviromental regulations and follow the codes of best practice.

- Do not pump out the toilets or the contents of the black water tank near the coast or in areas where it's forbidden. Use the pump-out facilities available in ports or marinas to empty the contents of the black water tank before leaving port.

- Make sure you know the international regulations to prevent pollution in the marine environment (Convention MARPOL) and follow these as much as possible.

attwood

PRESSURE RELIEF SYSTEM DECK FILL

99DFPV Series

INSTALLATION INSTRUCTIONS 11/04 69485 Rev. B

SAVE THESE INSTRUCTIONS

⚠ CAUTION:

The vessel manufacturer must comply with the requirements of CFR 40 1060.202. Any questions can be directed to www.attwoodmarine.com

Failure to follow these instructions may result in accidental fuel system over-pressurization. Users must follow these instructions to ensure vessel function and operation

EMISSION-RELATED INSTALLATION INSTRUCTIONS

Failing to follow these instructions when installing the Attwood Pressure Relief System Deck Fills in a piece of nonroad equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.

FEATURES:

Attwood Pressure Relief System Deck Fills are sturdy, non-corrosive plastic. Bonding and grounding are not required because they are non-metallic. When latched, Deck Fills are water-resistant. They meet all requirements for ISO 10080, ABYC, and USCG.

⚠ WARNING! The use of Attwood 99DFPV Series Deck Fills will result in a pressurized fuel system designed to meet the diurnal emission requirements of CFR 40. Care must be taken to prevent pressurized fuel from reaching flexible fuel distribution lines and/or engine. Pressurized fuel may cause engine operation issues. See engine manufacturer's instructions. Install the Attwood 99IFDV Series Fuel Demand Valve on the fuel tank in order to prevent pressurized fuel from exiting fuel tank.

REQUIRED FOR INSTALLATION

- Pencil
- Drill
- 1-1/4" (32mm) bit or hole saw
- 2-1/4" (57mm) dia. hole saw (see Figure 1)
- Drill bit for fastener pilot holes — 3/32" (2.4mm) to 3/16" (5mm) depending on deck material
- (4) #8 stainless steel fasteners appropriate for specific deck material
- File for smoothing holes
- Screwdriver
- Marine-grade urethane-based sealant (Attwood #30106-6 recommended, **DO NOT USE A SILICONE-BASED SEALANT**)
- 1-1/2" (38mm) I.D. fill hose
- 5/8" (16mm) I.D. vent hose
- Stainless Steel clamps to match hose diameters

MOUNTING LOCATION AND REGULATIONS

Select location that meets these conditions:

1. Conforms to all ABYC, U.S. Coast Guard, and EPA regulations. (See end of this document for information availability.)
2. Surface must be flat, in an area where spilled fuel cannot enter the boat.
3. Below-deck area must allow adequate clearance to install and route hose(s) to the tank and should also all for predominantly vertical orientation of the fill hose.
4. Fill and vent hose installation must meet regulations — A.B.Y.C and U.S. Coast Guard Safety Standards for Small Boat Fuel Systems (33 CFR 183).
5. Deck thickness must be 1/2" (13mm) or less.
6. Straight Deck Fills *cannot* be mounted on a vertical surface +/- 30°. Angled Deck Fills *can* be mounted on a vertical surface right side up with hinge on top +/- 15°.

INSTALLATION INSTRUCTIONS

1. Cut out and orient mounting template (Figure 1) to match final position of Deck Fill. Attach template to deck.

Note: Deck Fill should be oriented to allow for standard fuel nozzles to be correctly inserted at the pump.

2. Mark and drill pilot hole positions for large and small holes.
3. Remove template. Drill 1-1/4" dia. (32mm) hole first. Drill 2-1/4" (57mm) hole. Use file to remove burrs and deck material between holes.
4. "Dry Fit" the Deck Fill neck into hole. (Figure 2)
5. Mark position and drill small pilot holes for deck fasteners (fasteners not provided).
6. Remove Deck Fill Neck. Apply a thin bead of marine-grade, urethane-based sealant (Attwood #30106-6 recommended) to underside of the Deck Fill.
7. Press Deck Fill neck into hole.
8. Fasten Deck Fill with #8 screws appropriate for the deck material (fasteners not provided). Torque to 30 +/- 3 in-lb. Do not overtorque.
9. Clean any sealant spilled around Deck Fill edges.
10. Attach and clamp 1-1/2" (38mm) fill hose using two (2) clamps. Use corrosion-resistant metallic clamps with nominal band widths of at least 1/2" (12mm). The first clamp should be 1/4" (6mm) from the end of the hose. The second hose clamp should be located above the barb leaving a small gap (at least 1/4") between the clamps. Torque to 36 +/- 4 in-lb.
11. Attach and clamp 5/8" (16mm) maximum vent hose using at least one (1) corrosion-resistant metallic clamp with nominal band width of at least 5/16" (8mm). Torque hose clamp to 36 +/- 4 in-lb.
12. Attach and clamp 5/8" vent hose using one (1) clamp. Torque hose clamp to 36 +/- 4 in-lb. Ensure 5/8" vent hose connects with 5/8" port on 99FL Series vent valves.
13. Leak test installed deck fill per USCG CFR 33 183.580 at pressure of 3 psi for no less than 10 minutes. Inspect all connections for leaks by a method other than pressure decay.

Important safety instructions (for all Attwood 99FL/99GV/99CC/99ICV/99DF components):

When a fuel system is configured with Attwood 99DFPV Series Deck Fills, the following safety precautions must be taken;

1. Use an Attwood 99ICV series Inlet Control valve between the liquid reservoir and the deckfill to prevent the accidental wellback of fuel. Use only an Attwood 99ICV series Inlet Control Valve in-line with the fuel fill hose. No other fill hose valves should be installed in order to ensure the safety of the fuel system and vessel. The Attwood 99ICV series inlet control valves includes features to allow vapor and liquid to pass the valve in order to ensure the system does not become accidentally over pressurized.
2. Install an Attwood 99FL Series Fill Limit Vent Valve in the vent line between the liquid reservoir and the deck fill vent in order to prevent the accidental wellback of fuel.
3. Install an Attwood 99IFDV Series Integrated Fuel Demand Valve in fuel distribution line to prevent tank pressure from pressurizing fuel line.

CARE AND MAINTENANCE

Care should be taken, when cleaning the boat, to prevent contaminating the valves and deckfill. Cleaning with only mild soapy water is recommended. All connections should checked annually.

MANUFACTURER REQUIREMENTS

The information below applies only to EPA CFR 40 1060.135. The vessel manufacturer is responsible to meet all additional regulatory labeling requirements including EPA, CARB, USCG and others as necessary. The below information is for reference only. The vessel manufacturer should refer to CFR 40 for complete labeling guidelines.

In order to meet the requirements of CFR 40 1060.135, the vessel must be labeled with respect to evaporative emissions in the following manner when installing certified components;

Excerpt from CFR 40 1060.135

(a) You must affix a permanent and legible label identifying each engine or piece of equipment before introducing it into U.S. commerce. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.
(2) Secured to a part of the engine or equipment needed for normal operation and not normally requiring replacement.
(3) Durable and readable for the equipment's entire life.
(4) Written in English.
(5) Readily visible in the final installation. It may be under a hinged door or other readily opened cover. It may not be hidden by any cover attached with screws or any similar designs. Labels on marine vessels must be visible from the helm.

(c) If you produce equipment without certifying with respect to evaporative emissions, the equipment label specified in paragraph (a) of this section must—

(1) State: "MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS."
(2) Include your corporate name.

Below is an example of a label specified by CFR40 1060.135 for use with certified components;

MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS

CORPORATE NAME

Please refer to CFR 40 1060.135 to review EPA vessel labeling requirements.
The NMMA has a program to supply OEM builders with labels. Please refer to the NMMA website below for further information regarding the NMMA label program;
www.nmma.org/certification/products/labelsanddecals.aspx

TWO-YEAR WARRANTY & LIABILITY

Generally: Attwood Pressure Relief System Deck Fills are covered by a two (2) year limited warranty from the date of a Vessel's first retail sale.

Pre-requisites to Warranty Eligibility: For the warranty coverage described herein to apply, the following conditions must be met:

- Component must have been properly installed per Attwood installation instructions; and
- The component cannot have been altered or abused by Boat Company or its customers.

Warranty Terms for Components:

Attwood warrants that any Attwood Pressure Relief System Deck Fills are free from defects in materials and workmanship and are designed, built, and equipped to conform at the time of sale to Boat Company with the 40CFR.1060 requirements. For two (2) years from the date of the vessel's first retail sale, Attwood will, at its sole option, repair or replace any components that fail due to a defect in material or workmanship. ATTWOOD PROVIDES NO WARRANTIES WITH RESPECT TO ANY PART OR COMPONENT NOT MANUFACTURED BY ATTWOOD, INCLUDING FUEL TANKS. Boat Company is responsible for the installation of all Systems, whether installed by Boat Company or under its direction.

A.B.Y.C.
American Boat & Yacht Council
3069 Solomon's Island Road
Edgewater, Maryland 21037
www.abycinc.org

E.P.A.
401 "M" Street, SW
Washington, DC 20593 www.
www.epa.gov

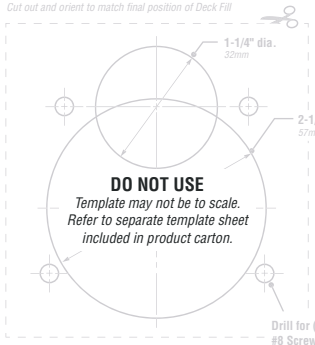
National Marine Manufacturers Association (NMMA)
231 S. LaSalle Street
Suite 2050
Chicago, IL 60604
www.NMMA.org

U.S. Coast Guard
Washington, DC 20460
www.uscgboating.org

ISO
iso.org

FIGURE 1 - MOUNTING TEMPLATE

Cut out and orient to match final position of Deck Fill



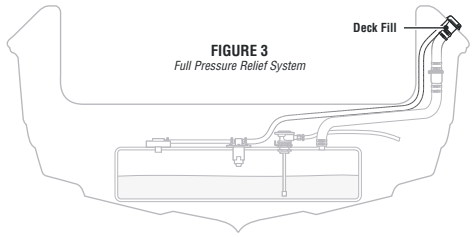
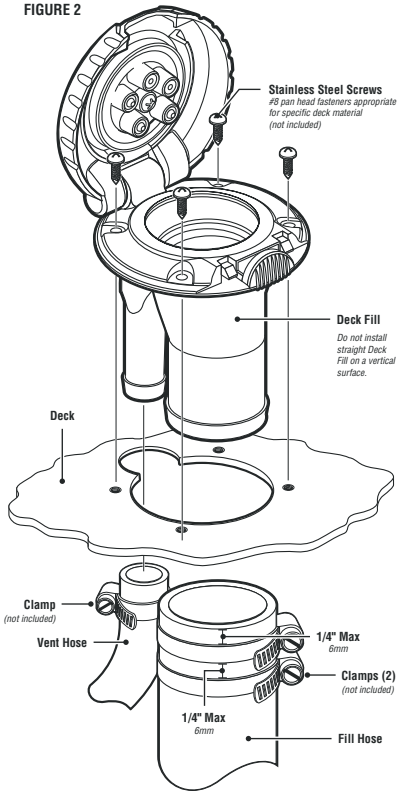


FIGURE 3
Full Pressure Relief System

FIGURE 2



1016 North Monroe Lowell, MI 49331
www.attwoodmarine.com

attwood

INTEGRATED FUEL DEMAND VALVE

99IFDV Series

INSTALLATION INSTRUCTIONS 2/12 69487 Rev. C

SAVE THESE INSTRUCTIONS

⚠ CAUTION:

The vessel manufacturer must comply with the requirements of CFR 40 1060.202. Any questions can be directed to www.attwood.com

Failure to follow these instructions may result in accidental fuel system over-pressurization. Users must follow these instructions to ensure vessel function and operation

EMISSION-RELATED INSTALLATION INSTRUCTIONS

Failing to follow these instructions when installing the Attwood Integrated Fuel Demand Valves in a piece of nonroad equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.

FEATURES:

Attwood's Integrated Fuel Demand Valve meets EPA regulations. The Fuel Demand Valve comes in five (5) different heights of anti-siphon shut off protection (0", 10", 15", 20" and 30") and can be oriented in twelve (12) different positions providing optimal orientation. The Fuel Demand Valve also has a manual override built into the top.

REQUIRED FOR INSTALLATION

- Pliers for removal and assembly of retainer clip
- Appropriate hose fitting (1/2" NPT)
- Marine-grade urethane-based sealant (Attwood #30106-6 recommended, **DO NOT USE A SILICONE-BASED SEALANT**)
- Wrench for fitting

LOCATION

- Mount of flat surface where risk of torsional loads being applied to the Integrated Fuel Demand Valve is minimal
- Locate in position where consumers will not kick or step on the valve
- A heat shield (99IFDVHS1) is recommended to protect against fire unless the Fuel Demand Valve passes USCG fire test in the as-installed position. If heat shield is required, see separate installation sheet.

INSTALLATION INSTRUCTIONS

1. Locate built in Fuel Demand Valve aluminum base on tank
2. Remove clip and transport plug (Figure 1)
3. Install necessary barb fitting (1/2" NPT, not supplied). Use thread sealant.
4. Torque up to 8 ft-lb where applicable. Do not over torque. Ensure sealing surface (interior of insert) is clean of debris
5. Remove shipping cover from valve assembly.
6. Lubricate O-ring with a petroleum based lubricant such as motor oil. Insert Fuel Demand Valve to predetermined orientation (Figure 2). Once inserted, apply slight downward pressure on Valve and install retainer clip fully into slot.
7. Once installed, apply slight upward pressure to Fuel Demand Valve to ensure it is locked into position.
8. Pressure test tank to ensure connection integrity, per CFR 33 183.580, at pressure of 3 psi for no less than 10 minutes. Inspect all connections for leak by method other than pressure decay.
9. If 99IFDVHSI is installed, align top hole with the top of the vent cap and snap in place. (Figure 3 & 4)

MANUFACTURER REQUIREMENTS

Manufacturer must determine required amount of anti-siphon protection for specific vessel configuration per CFR 33. Manufacturer must select an Integrated Fuel Demand Valve with at least that much anti-siphon protection. Manufacturer must ensure that engine fuel distribution line vacuum requirements are met. See engine manufacturer for details.

The information below applies only to EPA CFR 40 1060.135. The vessel manufacturer is responsible to meet all additional regulatory labeling requirements including EPA, CARB, USCG and others as necessary. The below information is for reference only. The vessel manufacturer should refer to CFR 40 for complete labeling guidelines.

In order to meet the requirements of CFR 40 1060.135, the vessel must be labeled with respect to evaporative emissions in the following manner when installing certified components;

Excerpt from CFR 40 1060.135

(a) You must affix a permanent and legible label identifying each engine or piece of equipment before introducing it into U.S. commerce. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.
(2) Secured to a part of the engine or equipment needed for normal operation and not normally requiring replacement.
(3) Durable and readable for the equipment's entire life.
(4) Written in English.
(5) Readily visible in the final installation. It may be under a hinged door or other readily opened cover. It may not be hidden by any cover attached with screws or any similar designs. Labels on marine vessels must be visible from the helm.

(c) If you produce equipment without certifying with respect to evaporative emissions, the equipment label specified in paragraph (a) of this section must—

(1) State: "MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS."
(2) Include your corporate name.

Below is an example of a label specified by CFR40 1060.135 for use with certified components;

MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS

CORPORATE NAME

Please refer to CFR 40 1060.135 to review EPA vessel labeling requirements.

The NMMA has a program to supply OEM builders with labels. Please refer to the NMMA website below for further information regarding the NMMA label program;

www.nmma.org/certification/products/labelsanddecals.aspx

TWO-YEAR WARRANTY & LIABILITY

Generally: Attwood Integrated Fuel Demand Valves are covered by a two (2) year limited warranty from the date of a Vessel's first retail sale.

Pre-requisites to Warranty Eligibility: For the warranty coverage described herein to apply, the following conditions must be met:

- Component must have been properly installed per Attwood installation instructions; and
- The component cannot have been altered or abused by Boat Company or its customers.

Warranty Terms for Components:

Attwood warrants that any Attwood Integrated Fuel Demand Valves are free from defects in materials and workmanship and are designed, built, and equipped to conform at the time of sale to Boat Company with the 40CFR.1060 requirements. For two (2) years from the date of a Program Boat's first retail sale, Attwood will, at its sole option, repair or replace any components that fail due to a defect in material or workmanship. ATTWOOD PROVIDES NO WARRANTIES WITH RESPECT TO ANY PART OR COMPONENT NOT MANUFACTURED BY ATTWOOD, INCLUDING FUEL TANKS. Boat Company is responsible for the installation of all Systems, whether installed by Boat Company or under its direction.

A.B.Y.C.
American Boat & Yacht Council
3069 Solomon's Island Road
Edgewater, Maryland 21037
www.abycinc.org

E.P.A.
401 "M" Street, SW
Washington, DC 20593 www.
www.epa.gov

National Marine Manufacturers Association (NMMA)
231 S. LaSalle Street
Suite 2050
Chicago, IL 60604
www.NMMA.org

U.S. Coast Guard
Washington, DC 20460
www.uscgboating.org

ISO
iso.org

FIGURE 1

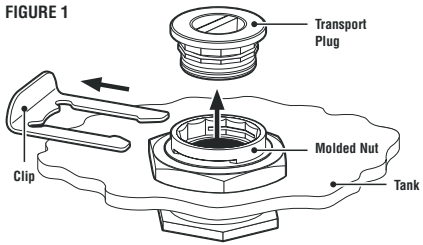
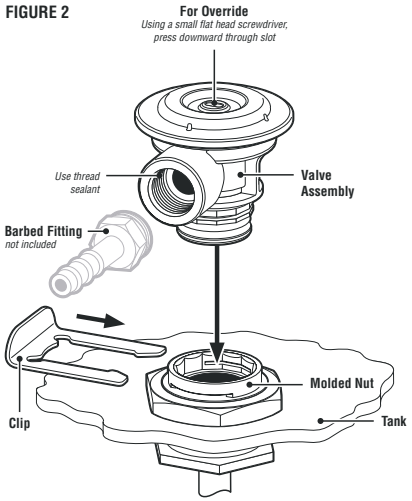


FIGURE 2



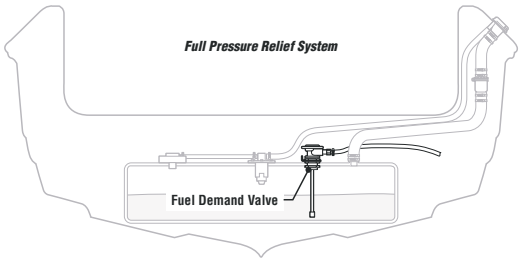


FIGURE 3

FIGURE 4

1016 North Monroe Lowell, MI 49331
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INLET CONTROL VALVE

99ICV Series

INSTALLATION INSTRUCTIONS 11/04 69482 Rev. B

SAVE THESE INSTRUCTIONS

⚠CAUTION:

The vessel manufacturer must comply with the requirements of CFR 40 1060.202. Any questions can be directed to www.attwoodmarine.com

Failure to follow these instructions may result in accidental fuel system over-pressurization. Users must follow these instructions to ensure vessel function and operation

EMISSION-RELATED INSTALLATION INSTRUCTIONS

Failing to follow these instructions when installing the Attwood Inlet Control Valves in a piece of nonroad equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.

FEATURES:

Attwood's Inlet Control Valve allows proper fuel flow into the fuel tank during refueling. As the fuel tank reaches full liquid capacity, the Inlet Control Valve works in conjunction with the Fill Limit Vent Valve to ensure no spitback/wellback and automatic nozzle shutoff. The Inlet Control Valve also prevents fuel from draining into fill hose/deckfill area during vessel operation and trailering. The Inlet Control Valve includes features to allow vapor and liquid to pass the valve in order to ensure the system does not become accidentally over pressurized.

REQUIRED FOR INSTALLATION

- 1-1/2" (38mm) I.D. Fill Hose
- (4) Hose Clamps, 1-1/2" (38mm), trade size 028, 300-grade all-stainless (both band and screw)
- 5/16" (8mm) Nut Driver or Medium Flathead Screwdriver for hose clamp installation
- Torque Monitoring Device to ensure proper torque level for all fasteners

INSTALLATION INSTRUCTIONS

1. Ensure that the 1-1/2" (38mm) hose has a clean, perpendicular cut before Inlet Control Valve installation. Loosely install two (2) all-stainless, 1-1/2" (38mm) wide, trade size 028 hose clamps over hose. (Figure 1)
2. Install Inlet Control Valve with "**FLOW**" and arrow pointing towards the Fuel Tank and "**TOP**" identification facing up in horizontal or angled applications. This orientation is not required in complete vertical applications. Ensure that the hose is fully inserted, bottoming the end on the chamfer of the Inlet Control Valve.
3. Place and fasten hose clamp 1/4" (6mm) from hose end. Fasten to 36 +/- 4 in-lbs. Do not overtorque.
4. Place and fasten hose clamp adjacent to first hose clamp. Fasten to 36 +/- 4 in-lbs. Do not overtorque.
5. Inspect second hose to install onto inlet side of Inlet Control Valve, ensuring a clean, perpendicular cut. Loosely install two (2) hose clamps over hose and install hose onto Inlet Control Valve, bottoming the end of hose at the base of the Inlet Control Valve inlet.
6. Place and fasten hose clamp 1/4" (6mm) from hose end. Fasten to 36 +/- 4 in-lbs. Do not overtorque.
7. Place and fasten hose clamp adjacent to first hose clamp. Fasten to 36 +/- 4 in-lbs. Do not overtorque.
8. If the Inlet Control Valve is installed in the engine compartment, a heat shield (99ICV000HS1) is required. Please reference separate instruction sheet for heat shield installation.

NOTES:

- Trade Size 028 (1-1/4" min., 2-1/4" max. dia.), 1-1/2" (38mm) wide
- 1/2" (13mm) stainless steel band, housing and 5/16" (8mm) hex screw
- Inspect screw torque annually
- Do not step on Valves
- 1/2" (13mm) Clearance required around component
- Not intended for siphoning through Inlet Control Valve under any circumstances

LOCATION

- Install anywhere between the Deck Fill and tank. A minimum of 6" (15.2cm) is required between the Deck Fill and Inlet Control Valve.
- Must be installed in a readily accessible location
- Fill hose must be self draining between Deck Fill and Inlet Control Valve for all expected boat conditions.
- Fill hose must be self draining between Inlet Control Valve and tank for all expected boat condition.

Important safety instructions (for all Attwood 99FL/99GV/99CC/99ICV/99DF components):

When a fuel system is configured with Attwood 99FL and/or 99GV Series Vent Valves, the following safety precautions must be taken;

1. Use only an Attwood 99ICV series Inlet Control Valve in-line with the Fuel Fill Hose. No other fill hose valves should be installed in order to ensure the safety of the fuel system and vessel. The Attwood 99ICV series inlet control valves include features to allow vapor and liquid fuel to pass the valve in order to ensure the inlet valve does not create an accidentally sealed fuel tank/system.
2. Use only an Attwood 99DF series Deckfill. The Attwood 99DF series Deckfill includes overpressure relief safety valves that allow unintended pressure to be released in the event that the tank becomes accidentally overfilled and/or over pressurized.

MANUFACTURER REQUIREMENTS

The information below applies only to EPA CFR 40 1060.135. The vessel manufacturer is responsible to meet all additional regulatory labeling requirements including EPA, CARB, USCG and others as necessary. The below information is for reference only. The vessel manufacturer should refer to CFR 40 for complete labeling guidelines.

In order to meet the requirements of CFR 40 1060.135, the vessel must be labeled with respect to evaporative emissions in the following manner when installing certified components;

Excerpt from CFR 40 1060.135

(a) You must affix a permanent and legible label identifying each engine or piece of equipment before introducing it into U.S. commerce. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.
(2) Secured to a part of the engine or equipment needed for normal operation and not normally requiring replacement.
(3) Durable and readable for the equipment's entire life.
(4) Written in English.
(5) Readily visible in the final installation. It may be under a hinged door or other readily opened cover. It may not be hidden by any cover attached with screws or any similar designs. Labels on marine vessels must be visible from the helm.

(c) If you produce equipment without certifying with respect to evaporative emissions, the equipment label specified in paragraph (a) of this section must—

(1) State: "MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS."
(2) Include your corporate name.

Below is an example of a label specified by CFR40 1060.135 for use with certified components;

MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS

CORPORATE NAME

Please refer to CFR 40 1060.135 to review EPA vessel labeling requirements.

The NMMA has a program to supply OEM builders with labels. Please refer to the NMMA website below for further information regarding the NMMA label program;

www.nmma.org/certification/products/labelsanddecals.aspx

TWO-YEAR WARRANTY & LIABILITY

Generally: Attwood Inlet Control Valves are covered by a two (2) year limited warranty from the date of a Vessel's first retail sale.

Pre-requisites to Warranty Eligibility: For the warranty coverage described herein to apply, the following conditions must be met:

- Component must have been properly installed per Attwood installation instructions; and
- The component cannot have been altered or abused by Boat Company or its customers.

Warranty Terms for Components:

Attwood warrants that any Attwood Inlet Control Valves are free from defects in materials and workmanship and are designed, built, and equipped to conform at the time of sale to Boat Company with the 40CFR.1060 requirements. For two (2) years from the date of a Program Boat's first retail sale, Attwood will, at its sole option, repair or replace any components that fail due to a defect in material or workmanship. ATTWOOD PROVIDES NO WARRANTIES WITH RESPECT TO ANY PART OR COMPONENT NOT MANUFACTURED BY ATTWOOD, INCLUDING FUEL TANKS. Boat Company is responsible for the installation of all Systems, whether installed by Boat Company or under its direction.

A.B.Y.C.
American Boat & Yacht Council
3069 Solomon's Island Road
Edgewater, Maryland 21037
www.abycinc.org

E.P.A.
401 "M" Street, SW
Washington, DC 20593 www.
www.epa.gov

National Marine Manufacturers Association (NMMA)
231 S. LaSalle Street
Suite 2050
Chicago, IL 60604
www.NMMA.org

U.S. Coast Guard
Washington, DC 20460
www.uscgboating.org

ISO
iso.org

FIGURE 1

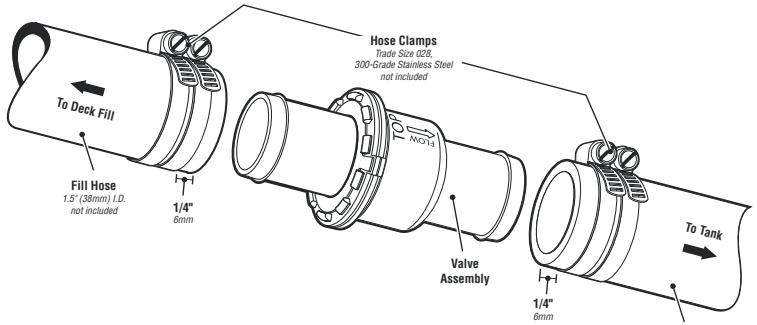
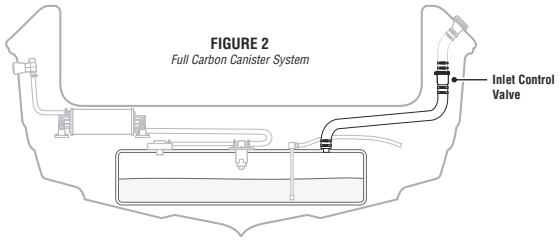


FIGURE 2
Full Carbon Canister System



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FILL LIMIT VENT VALVE

99FLX Series

INSTALLATION INSTRUCTIONS [illegible] [illegible]

SAVE THESE INSTRUCTIONS

⚠ CAUTION:

The vessel manufacturer must comply with the requirements of CFR 40 1060.102. Any questions can be directed to www.attwoodmarine.com

Failure to follow these instructions may result in accidental fuel system over-pressurization. Users must follow these instructions to ensure vessel function and operation

EMISSION-RELATED INSTALLATION INSTRUCTIONS

Failing to follow these instructions when installing the Attwood Fill Limit Vent Valve in a piece of marine equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act

FEATURES:

Attwood's Fill Limit Vent Valves (FLVV) effectively maximize fuel tank capacity and facilitate automatic nozzle shutoff. They meet ABYC venting and USCG fire test requirements and are available in multiple shutoff height configurations – one perfect for your system.

INSTALLATION INSTRUCTIONS:

1. **The 99FLX Series Valves are sold as valves only and do not include mounting bracket.**
2. **It is the responsibility of the 99FLX installer to ensure that all necessary installation steps are followed.**
3. **Maintain clearance at all boat times around weep hole during and after installation.**
4. **Indicate O-ring size to ensure valve for proper attachment.**

NOTES:

- An installation validation plan must be approved by Attwood in order to assure that the 99FLX valve will function properly and comply to standards and regulations.
- Inspect screen for [illegible]
- Do not ship as Valves
- 1/2" (13mm) Clearance required around component
- Pressure test tank to ensure penetration integrity, per CFR 40 1060.805, at pressure of 3 psi for no less than 15 minutes. Inspect all connections for leak by method other than pressure decay.
- Manufacturer must select valve with proper shut off height to comply with ABYC standard H24. Contact your Attwood representative for details.
- FLVV must be rigidly constrained to vessel to ensure proper shut off height.

Important safety instructions (for all Attwood 99FL/99CV/99CC/99CX/99DF components):

When a fuel system is configured with Attwood 2971 and/or 99VV Series Vent Valves, the following safety precautions must be taken:

1. Use only an Attwood 99CV series Inlet Control Valve in-line with the Fuel Fill Hose. No other fill hose valve should be installed in order to assure the safety of the fuel system and vessel. The Attwood 99CV series inlet control valves include features to allow vapor and liquid fuel to pass the valve in order to ensure the inlet valve does not create an accidentally sealed fuel tank/system.
2. Use only an Attwood 99DF series Deckfill. The Attwood 99DF series Deckfill includes overpressure relief safety valves that allow unintended pressure to be released in the event that the tank becomes accidentally overfilled and/or over pressurized.

MANUFACTURER REQUIREMENTS

The information below applies only to EPA CFR 40 1060.101. The vessel manufacturer is responsible to meet all additional regulatory labelling requirements including EPA, CARB, USCG and others as necessary. The below information is for reference only. The vessel manufacturer should refer to CFR 40 for complete labelling guidelines.

In order to meet the requirements of CFR 40 1060.101, the vessel must be labeled with respect to evaporative emissions in the following manner when installing certified components:

Excerpt from CFR 40 1060.135

(a) The vessel with a permanent and legible label identifying each engine or piece of equipment (before introducing it into U.S. commerce. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or obscured;
(2) Secured by a part of the engine or equipment needed for normal operation and not normally requiring replacement.
(3) Durable and readable for the equipment's entire life.
(4) Written in English.
(5) Readily visible on the final installation. It may be under a hinged door or other readily opened cover. It may not be hidden by any cover attached with screws or any similar designs. Labels on marine vessels must be visible from the water.

(b) If you produce equipment without certifying with respect to evaporative emissions, the equipment label specified in paragraph (a) of this section must—
(1) State: "MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS."
(2) Include your corporate name.

Below is an example of a label specified by CFR40 1060.135 for use with certified components:

MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS

CORPORATE NAME

Please refer to CFR 40 1060.135 for marine EPA vessel labelling requirements.

The RMMA has a program to supply OEM builders with labels. Please refer to the RMMA website below for further information regarding the RMMA label program:

www.rmma.org/certification/procedure/labelsandmanuals.aspx

TWO-YEAR WARRANTY & LIABILITY

Ownership: Attwood FIR Limit Vent Valves are covered by a two (2) year limited warranty from the date of a vessel's first retail sale.

Pre-requisites to Warranty Eligibility: For the warranty coverage described herein to apply, the following conditions must be met:

- Component must have been properly installed per Attwood installation instructions; and
- The component cannot have been altered or abused by Boat Company or its customers.

Warranty Terms for Components:

Attwood warrants that any Attwood FIR Limit Vent Valves are free from defects in materials and workmanship and are designed, built, and equipped to conform at the time of sale to Boat Company with the 40CFR.1060 requirements. For two (2) years from the date of a Programs Boat's first retail sale, Attwood will, at its sole option, repair or replace any components that fail due to a defect in material or workmanship. ATTWOOD PROVIDES NO WARRANTIES WITH RESPECT TO ANY PART OR COMPONENT NOT MANUFACTURED BY ATTWOOD, INCLUDING FUEL TANKS. Boat Company is responsible for the installation of all Systems, whether installed by Boat Company or under its direction.

PROVIDES NO WARRANTIES WITH RESPECT TO ANY PART OR COMPONENT NOT MANUFACTURED BY ATTWOOD, INCLUDING FUEL TANKS. Boat Company is responsible for the installation of all Systems, whether installed by Boat Company or under its direction.

A.Y.Y.C.
American Boat & Yacht Council
3069 Solomon's Island Road
Edgewater, Maryland 21037
www.abycinc.org

U.S. Coast Guard
Washington, DC 20460
www.uscgboating.org

E.P.A.
401 "M" Street, SW
Washington, DC 20460 www.
www.epa.gov

ISO
iso.org

National Marine Manufacturers Association (NMMA)
231 S. LaSalle Street
Suite 2050
Chicago, IL 60604
www.NMMA.org

1016 North Monroe Lowell, MI 49331
www.attwoodmarine.com

FIGURE 1

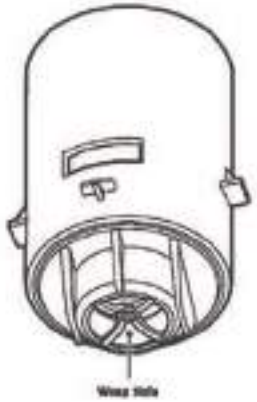

FIGURE 2

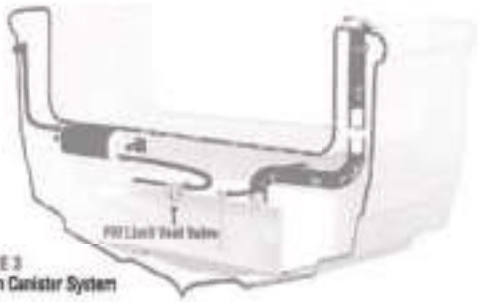

FIGURE 3
Carbon Canister System

FIGURE 4
Pressure Relief System

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FILL LIMIT VENT VALVE

99FLN and 99FLP Series

⚠ CAUTION:

The vessel manufacturer must comply with the requirements of CFR 40 1060.202. Any questions can be directed to www.attwoodmarine.com

Failure to follow these instructions may result in accidental fuel system over-pressurization. Users must follow these instructions to ensure vessel function and operation

EMISSION-RELATED INSTALLATION INSTRUCTIONS

FEATURES:

REQUIRED FOR INSTALLATION

INSTALLATION INSTRUCTIONS

NOTES:

Important safety instructions (for all Attwood 99FL/99GV/99CC/99CV/99DF components):

MANUFACTURER REQUIREMENTS

Excerpt from CFR 40 1060.135

MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS

CORPORATE NAME

TWO-YEAR WARRANTY & LIABILITY

Warranty Terms for Components

FIGURE 1

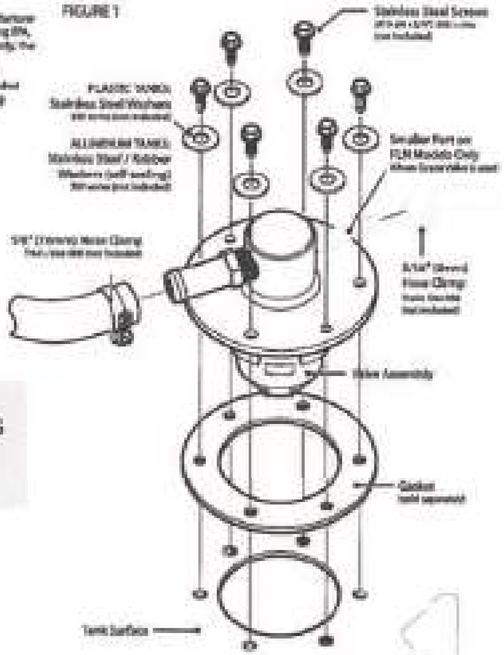

FIGURE 2

FIGURE 3

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