

Alfastret marine



-  **23** ELECTRIC
CABIN
-  **23** CRUISE
CABIN
-  **23** SPORT
CABIN

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ELECTRICAL SYSTEM

The electricity consumers of the vessel works on a DC 12V voltage. The sources of the supply voltage are two 12V/95Ah lead-acid batteries installed in the hull (in the stern), near the engine. One supplies all electric consumers, the other supplies the engine. If the vessel is equipped with electric engine, number of batteries and type of it, depends on customer's choice or engine manufacturer. Batteries for supplying the engine are then installed under the table, near water tank. As with any other circuit, you must be careful not to cause any short circuits between the drivers on the vessel. You must also be careful during any interventions in the battery area. If a conductive object falls on the battery clamps and causes a short circuit between the poles of the battery, this causes a large current, sparking and could result in a fire on board the vessel. All electric circuits are secured with automatic fuses.

There are two major electric circuits:

- service electric circuit (used to supply all electrical consumers)
- engine electric circuit (used to start engine)

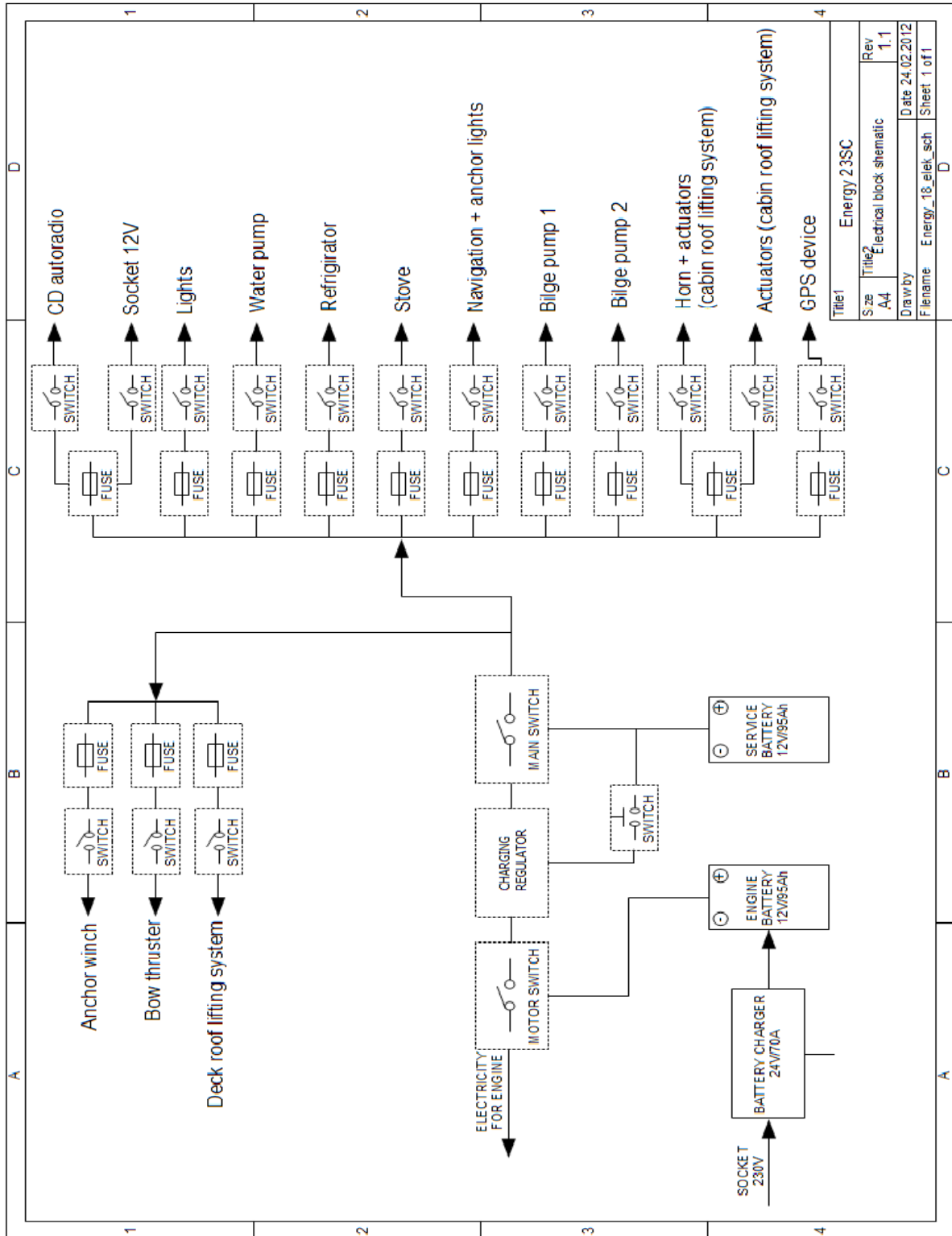
Both circuits has main switches to cut power from batteries to consumers. Switches are located in cockpit under steering wheel, behind doors. When leaving the vessel is is recommended to put switches to OFF position to prevent inconveniences.

There is also an emergency switch, which connects both batteries together in case if engine can't be started with its battery. Emergency switch is located near both main switches and is marked with "EMERGENCY" sign.

Emergency switch can be used only in emergency situations. In normal operation it must be in OFF position!

Diagram of the vessel's electric circuits

This chapter features a presentation of the electrical circuits on the vessel.



Picture 1: Diagram of the vessel's electric circuits

Charging Batteries

Batteries on the vessel can be charged in two ways:

- with electricity from engine during navigation
- with electricity from land

Charging batteries with electricity from engine during navigation is done automatically. When engine runs it produce 12V DC energy which is required for proper engine function and also for charging of batteries.

The procedure of charging the batteries with the electricity from land requires special caution. As we know, using electricity is dangerous and by doing this near the water or wet surfaces, it becomes increasingly dangerous and requires a higher amount if caution than on land. Only a charger approved by the manufacturer should be used to charge the batteries. If the charger breaks down or stops working for other reasons, consult the manufacturer or supplier of the vessel before purchasing a new one. The use of a wrong charger can lead to the overloading of the batteries or the charger, which can result in a fire on board or other accidents.

During the charging of the batteries, pay special attention to the following:

- the vessel must be firmly tied to the pier or anchored,
- all electric current-users on board the vessel must be switched off (the main switches of the current-users and the motor are positioned on „OFF“),
- make sure that the feeder cable which connects the vessel to the electric current is not damaged,
- the feeder cable must not touch water,
- the feeder cable must not hinder the movement around the vessel (it should not be tightened across walking surfaces, thus posing a danger to pedestrians).

To charge batteries from land power 220V, take power cord from one of storages under seats, and connect it to power socket on boat (as on picture below) and other end to socket on shore.



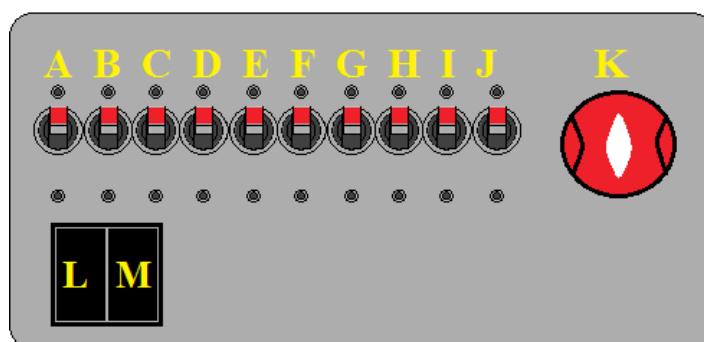
Picture 2: 230V charging power cord

Fuses (circuit breakers)

Each circuit on the vessel 23SPORT, 23CRUISE or 23ELECTRIC is protected with automatic fuse. The fuses are located:

- on the cockpit, under the steering wheel. There are fuses for all electricity consumers which has switches on cockpit dashboard.
- under the seat on the starboard side (on right, behind cockpit). There are switches for anchor winch, bow thruster and deck roof lifting mechanism.

The fuses have different values, depending on the current on the user which they are protecting. If the fuse disconnects due to an increased current on the user, it is not necessary to change the fuse, but only to switch it on. Before switching it on again it is necessary to repair the error on the circuit. If, however, the fuse does need to be changed, it is necessary to take into account its value and substitute it with a fuse of the same value.



Picture 3: Fuses and main switches

- A) Lights
- B) Radio + Socket12V
- C) Water pump
- D) Refrigerator
- E) Stove
- F) Navigation lights
- G) Instruments (GPS device)
- H) Bilge pump 1
- I) Bilge pump 2
- J) Horn + actuators
- K) Service battery - Battery1 (main on/off switch for all electrical consumers)
- L) Deck roof lifting system switch
- M) Emergency, parallel switch (it connects both batteries in parallel for)

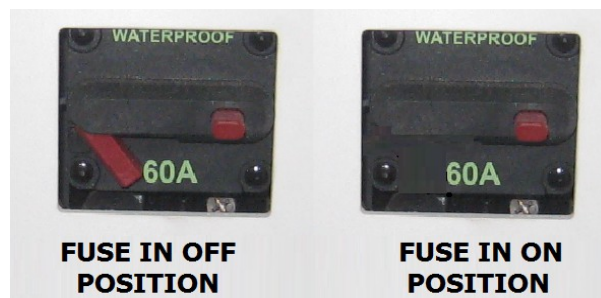
⚠ WARNING

EMERGENCY PARALLEL switch connects both batteries in parallel. It can be used exclusively in state of emergency, when engine can't be started with engine battery, or in case of engine's battery fault.



Picture 4: Big consumers fuses

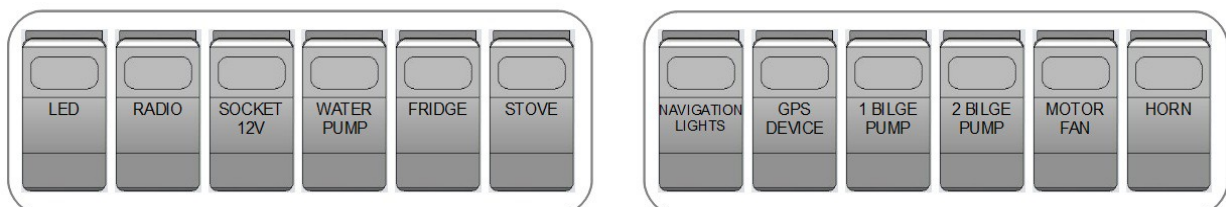
- 1) lift the stair behind driver's seat
- 2) look inside, on right side, there are three fuses (anchor winch, deck roof
- 3) lifting system, bow thruster)



Picture 5: Fuse state

Switches for electricity consumers

The control console, behind steering wheel, features all the switches to switch on the electricity consumers and the fuses. All the switches are watertight, so you can be carefree about the water breaking into the control console. All the electricity consumers are connected through the fuses, which, in case of an error in the circuit or flooding of the electricity network, disconnect the electrical current, thus preventing an accident or even a fire. If the fuses need to be changed, be careful to replace them with a fuse of the same current value. All fuses are located in the cockpit under the steering wheel (behind the cover). All fuses are automatic, so they don't need to be replaced in case of fault, but just turned back on. Of course after the fault was fixed.



Picture 6: Switches

- LED - turns on and off lights on deck
- RADIO - turns on and off radio

- SOCKET 12V - turns on and off voltage in 12V socket
- WATER PUMP - turns on and off water pump (washbasin and shower)
- FRIDGE - turns on and off fridge in kitchen area
- STOVE - turns on and off stove in kitchen area
- NAVIGATION LIGHTS - turns on and off navigation lights and anchor light
- GPS DEVICE - turns on and off GPS instrument
- 1 BILGE PUMP - turns on and off bilge pump mounted under cabin doors
- 2 BILGE PUMP - turns on and off bilge pump mounted in stern, near engine
- MOTOR FAN - turns on and off fans which ventilate engine area
- HORN - turns on and off horn (pushbutton)

ELECTRIC EQUIPMENT

Vessel 23SPORT, 23CRUISE or 23ELECTRIC has many optional electric equipments. All are not always included, and some of described equipment possible is not installed on your vessel. For any informations needed, please contact manufacturer or your local supplier for further clarifications.

GPS device

Vessel is equipped with Raymarine Multifunctional display. Because the device has so many functions and features, please refer to attached manufacturer's manual for explanations and instructions.

Navigation and anchor lights

Navigation and anchor lights are installed on the deck roof of the vessel. If the vessel is without the deck roof, the navigation lights are installed on bows and anchor light on stern.

Navigation lights and anchor light can be turned on by pressing on tri-state switch on cockpit dashboard. When the switch is in:

- state 1 – navigation lights and anchor light are switched on
- state 2 – navigation lights and anchor light are switched off
- state 3 - navigation lights are switched off, anchor light is switched on

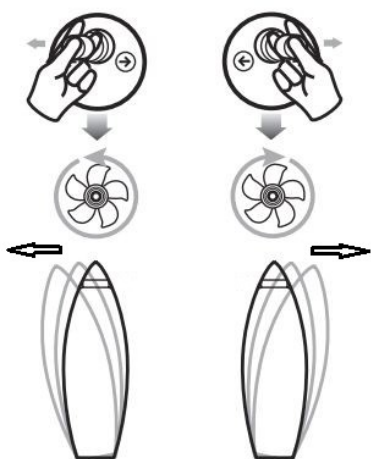
Bow thruster

Bow thruster is used to steern the bow of the boat. It can be controlled with control lever (joystic) near the steering wheel. When the control lever is pushed to the right side, the bow will ster to right (starboard), when control lever is pushed to left, the bow will ster to left (port side).

Before bow thruster can be operated, it must be turned on. This can be done with on/off button on thruster's control panel. There are different types of controls:

- when type a) is used, on off switch need just to be pressed once to turn thruster on or off

- when type b) is used, on/off switch need to be hold for 3 seconds to turn thruster on or off



Picture 7: Boat movement



Figure 2: Bow thruster controls

Notice:

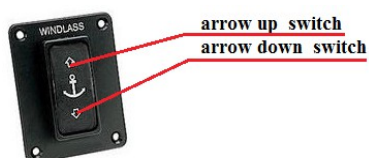
- If thruster is constatly used for 3 minutes, it will automatically turn off to prevent damage
- If thruster is not used for 20 minutes, it will automatically turn off.
- Detailed informations can be found in attached manufacturer's manual.
- Bow thruster's electric circuit is protected by 270A fuse (circuit braker), which is located under the stair on right side (see fuses chapter)

Anchor winch

Anchor winch is used to lift and drop the anchor. Winch is mounted inside of the bow of the vessel. It can be easily accessed by lifting the anchor winch cover. Winch can be controlled with anchor winch switch mounted on cockpit dashboard (on left side from steering wheel).

Operation:

- by pressing on arrow up switch, anchor will be dropped
- by pressing on arrow down switch, anchor will be lifted
- Detailed informations can be found in attached manufacturer's manual.



Picture 9: Anchor winch control switch



Picture 8: Anchor winch cover

1. lift and turn cover's latch (marked with red circle on figure 6)
2. lift anchor winch cover

Stove parafin oil/gas

The vessel 23SPORT, 23CRUISE or 23ELECTRIC can be equipped with parafin oil or gas stove. For both stove types, the oil reservoir or gas bottle is located under the stair on left side of the stove.

⚠ WARNING

THE STOVE MUST ONLY BE USED BY RESPONSIBLE ADULTS. DURING USE AND IMMEDIATELY AFTER USE THE BURNER AND OTHER ACCESSIBLE PARTS MAY BE HOT; DO NOT TOUCH THESE PARTS AND ALWAYS KEEP CHILDREN AT A SAFE DISTANCE. AFTER USING THE APPLIANCE ENSURE THE KNOB IS OFF. AFTER USE ALWAYS SHUT OFF THE GAS SUPPLY AT THE MAIN GAS TAP

Prafin oil stove

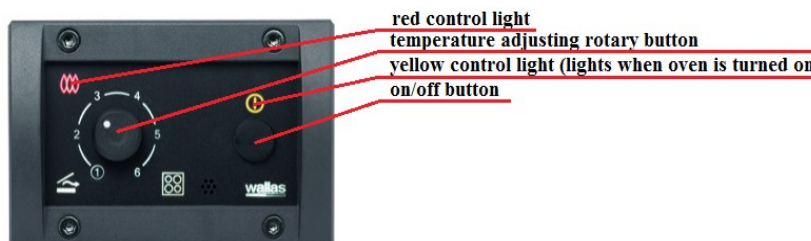
Before start to cook or heat the interior of boat, be sure that main switch on cockpit dashboard it turned on (see Switches for electricity consumers).

Technical specifications:

- heat effect: 1200W
- fuel: parafin oil
- fuel consumption: 0,07 – 0,13 liter/hour
- current consumption: 0,15A

Stove can be used for two purposes:

- cooking
- heating



Picture 10: Stove control panel



Picture 11: Cooking position



Picture 12: Heating position

Cooking:

- lift the heating blower lid
- turn the stove on, by holding on/off button for 5 seconds. When stove turns on, yellow light on top of on/off button lights.
- adjust cooking temperature by turning the temperature button:
 - 1 (low temperature)
 - 6 (high temperature)
- The switch pilot lamp (yellow control light) indicates that the cooker is switched ON by switching ON the ON/OFF switch. At start the regulation knob should be set on full effect until the red combustion control lamp lights up. When switching off the cooker the effect setting has no importance.
- When the switch pilot lamp (yellow control light) flashes, it means that supply voltage is too low.
- The red pilot lamp (red control light) indicates that combustion is going on. The lamp will normally light up in abt. 5 min. after start, - if not, switch the ON/OFF switch to OFF, wait abt. 5 min. and re-start.
- After switching off the cooker the red pilot lamp will light until the cooker is cooled down, - about 10 min.
- A flashing red light indicates that the overheating cutout has switched off the fuel pump and cooker because of overheating. The overheating cut – out and fuel feeding will reset automatically after the cooker is cooled down. Before continuing the use, clear up the reason for overheating and take the necessary steps to eliminate it.

Heating:

- when used to heating purposes, heating blower lid must be closed, because it has fans installed which blows hot air
- turn the stove on, by holding on/off button for 5 seconds. When stove turns on, yellow light on top of on/off button lights.
- adjust heating temperature by turning the temperature button:
 - 1 (low temperature)
 - 6 (high temperature)
- The switch pilot lamp (yellow control light) indicates that the cooker is switched ON by switching ON the ON/OFF switch. At start the regulation knob should be set on

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- The blowers in the lid start automatically with some minutes delay when the lid is closed and the lids heat sensor feels the heat of the hot plate. The blowers stop automatically when the hot plate is cooled down after switching off and after rising the blower lid.

FUEL:

The stove use for its functioning premium grade paraffin with a smoke Point of 35 mm, which should conform to BS 2869. Suitable types are "Pink" and "Blue" in U.K., Esso Blue in Skandinavia and in Europe generally the Esso Exol D 60 (D180 – 220). Fuel tank is located under the stair on left side of stove.

Warning:

- Never leave the cooker on full effect alone for longer time without supervision.
- Before leaving the yacht always check that the cooker has not been left on!
- Avoid unnecessary, quick forth and back adjusting of the effect knob, this can cause sooting!

Detailed informations can be found in attached manufacturer's manual.

Gas stove



Technical data:

- total nominal thermal capacity
- stainless steel
- width: 525mm
- depth: 421mm
- gas:
 - 30 mbar Butane (G30)
 - 30 mbar Propane (G31)
- burner diameter: 170mm
- spark ignition



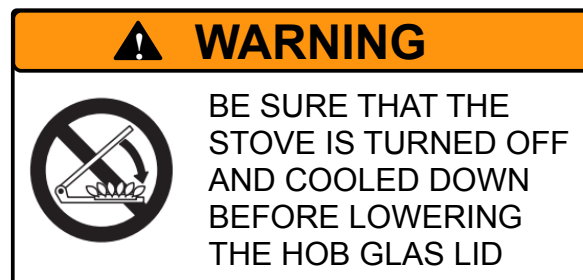
spark ignition button

flame adjusting button

- gas OFF

🔥 low flame

🔥 high flame



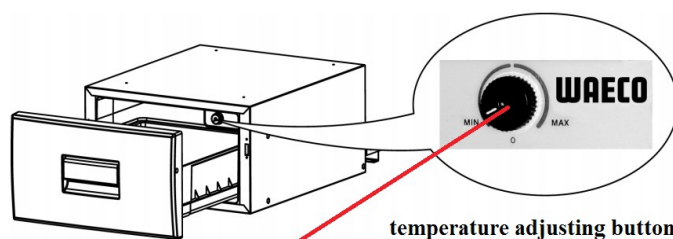
Refrigerator

Refrigerator is located under the stove. Before put the refrigerator in operating, be sure that main switch on cockpit dashboard it turned on (see Switches for electricity consumers).

Operating refrigerator:

- Open the coolbox drawer
- To switch on the coolbox and adjust desirable temperature, turn the thermostat knob clockwise (see figure below)
- The coolbox starts cooling the interior.

- Ensure that the objects placed in the coolbox are suitable for cooling/warming to the selected temperature (MAX approx. -2 °C / MIN approx. +12 °C inside drawer)

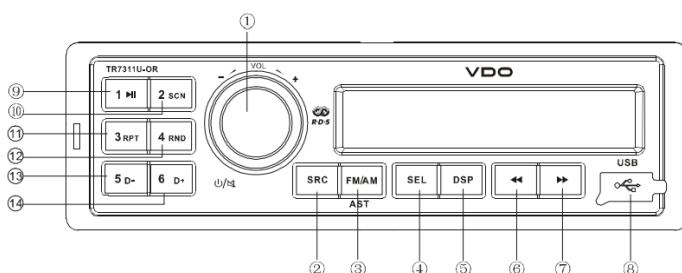


Picture 13: Butto to adjust temperature

Detailed informations can be found in attached manufacturer's user manual.

Stereo AM/FM, USB/MP3 player

Vessel is equipped with high quality sound system. Main unit is VDO TR7311U-OR RDS AM/FM , USB/MP3 player. To protect the device from weather and dirt, we installed it in special housing. To reach the device, user need to press on release button, as shown on figure below.



Picture 14: VDO AM/FM, USB/MP3 player



Picture 15: Lifting cover

1. power on, mute, if holded when on turns it off, volume adjusting with rotating
2. Source selection (radio, USB, AUXin)
3. Band selector, if holded automaticly searches and stores six stations
4. Press to select VOL/LOUD/PTY/AF/TA/BAS/TRE/BAL/FAD, Rotate the VOL knob to adjust value, - Hold it to select EQ preset mode:EQ OFF-CLASSIC-POP-ROCK-FLAT
5. display system clock, Hold it to setting clock
Radio mode: display PTY info/system clock/current channel,
MP3 mode:Turn and turn about folder name/file name/ID3 TAG/Clock
6. Radio mode: Auto search the station from high to low
7. MP3 mode: Select the previous track
8. Radio mode: Auto search the station from low to high
MP3 mode: Select the next track
9. USB slot
10. Play/pause
11. Program intro play(10 sec.)
12. MP3 repeat play
13. MP3 random play
14. MP3 folder back

15. MP3 folder ahead

16. 1-6 radio preset

Press to tune in a preset station.

Hold for more than 2 seconds to store current station.

Detailed informations can be found in attached manufacturer's manual.

OTHER EQUIPMENT

Chemical toilet

Chemical toilet is located inside the cabin, under the table. Please follow instructions in text below, to proper use of chemical toilet.



Picture 16: Chemical toilet

PREPARE TOILET FOR USE:

- **CAUTION!** With seat lid closed, pull flush handle to open slide valve, then push to close. This relieves air pressure that may be created in lower holding tank due to changes in temperature or altitude.
- Remove water cap and fill upper tank until it reaches about 1 inch (25 mm) below opening. Replace cap.
- Pull flush handle to open slide valve.
- Pour deodorant directly into lower tank, then close slide valve.

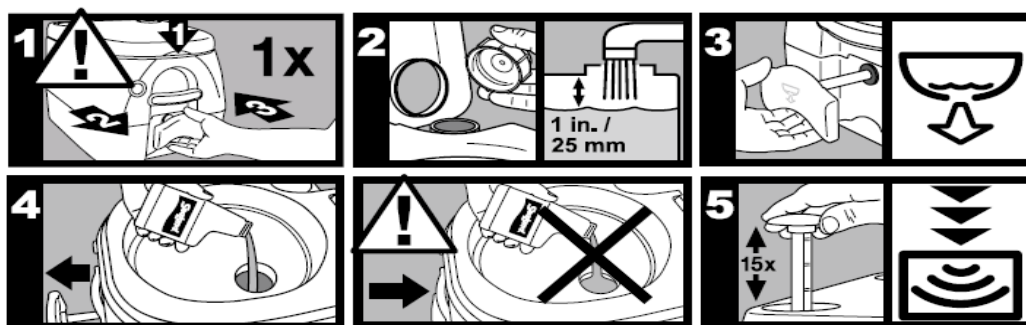
CAUTION!

Never pour deodorant into bowl with slide valve closed.

- Stroke air pump about 15 times or until air emits through relief valve on water cap.

CAUTION!

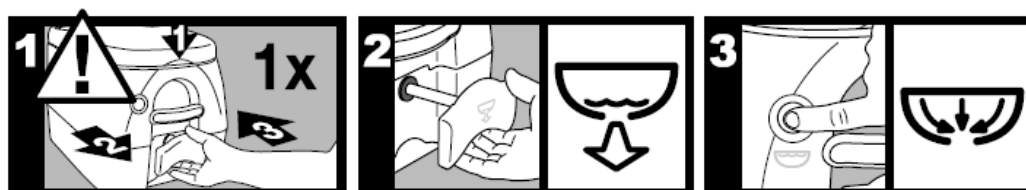
Do not over pressurize upper tank by covering relief valve. Do not pressurize upper tank when disconnected from lower tank.



Picture 17: Prepare toilette for use

USE TOILET:

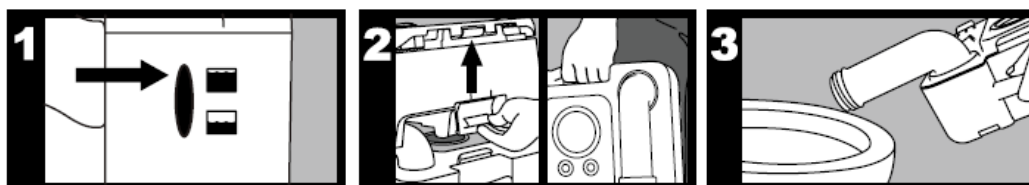
- CAUTION!
BEFORE EACH USE, with seat lid closed, pull flush handle to open slide valve, then push to close. This relieves air pressure that may be created in lower holding tank due to changes in temperature or altitude.
- Pull flush handle to release waste into lower tank.
- Push flush button to rinse bowl. Push flush handle to close slide valve.



Picture 18: Use toilet

EMPTY HOLDING TANK:

- When tank level indicator shows "full," empty the lower tank. If toilet is installed with optional mounting brackets, pull locking handle from lower tank. Lift and move toilet to reach rear latch.
- Pull up on rear latch to separate upper tank from lower tank. Carry lower tank to authorized waste disposal area (or normal toilet).
- Rotate discharge spout away from tank, and open vent on top of holding tank. Empty tank.
- If water is available, rinse lower tank before reassembling portable toilet.

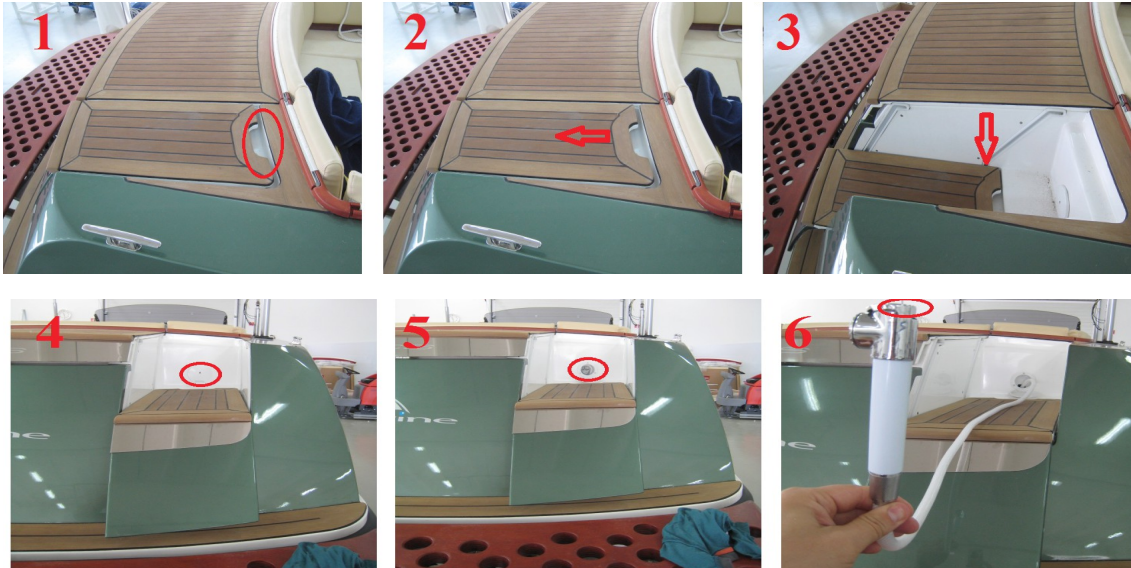


Picture 19: Empty holding tank

Detailed informations can be found in attached manufacturer's manual.

Shower

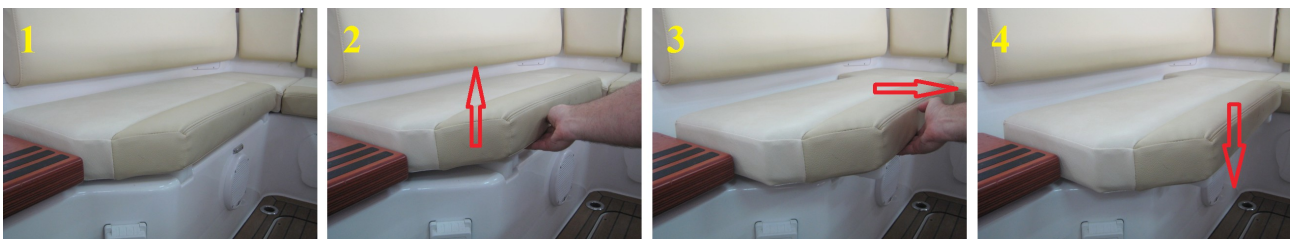
Showe with portable water, can be found on right side of stern (starboard) under cover. To reach it, cover must be lowered as shown on figures below. ,



1. grab the handle
2. push it in stern direction
3. push it down to the stern (in 45° angle)
4. open the cover
5. pull shower out of deck
6. press on the button

Adjustable seats

Seats on 23SPORT, 23CRUISE or 23ELECTRIC are adjustable in two positions, so the passenger can adjust its distance to the table. This can easily be done just by lifting the seat and pushing it closer to the table (see figure below).



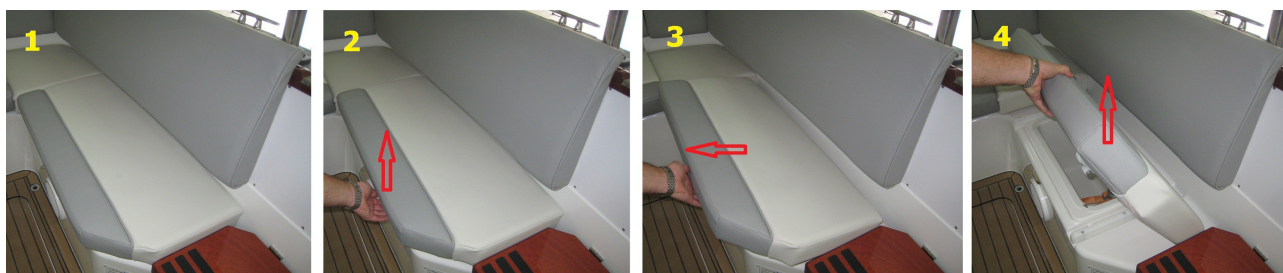
Picture 20: Adjusting seat position

1. Seat is in start position
2. lift front part of seat

3. pull it close to the table or push against the deck
4. put it down on

STORAGE SHELVES

Under each seat is a storage shelf. It can be accessed by taking the seat off.
How to remove seat:



Picture 21: Removing the seat

When you put the seat back, be sure that both pins of the seat fits in guide holes (as shown on picture below).



Picture 22: Pins fitting

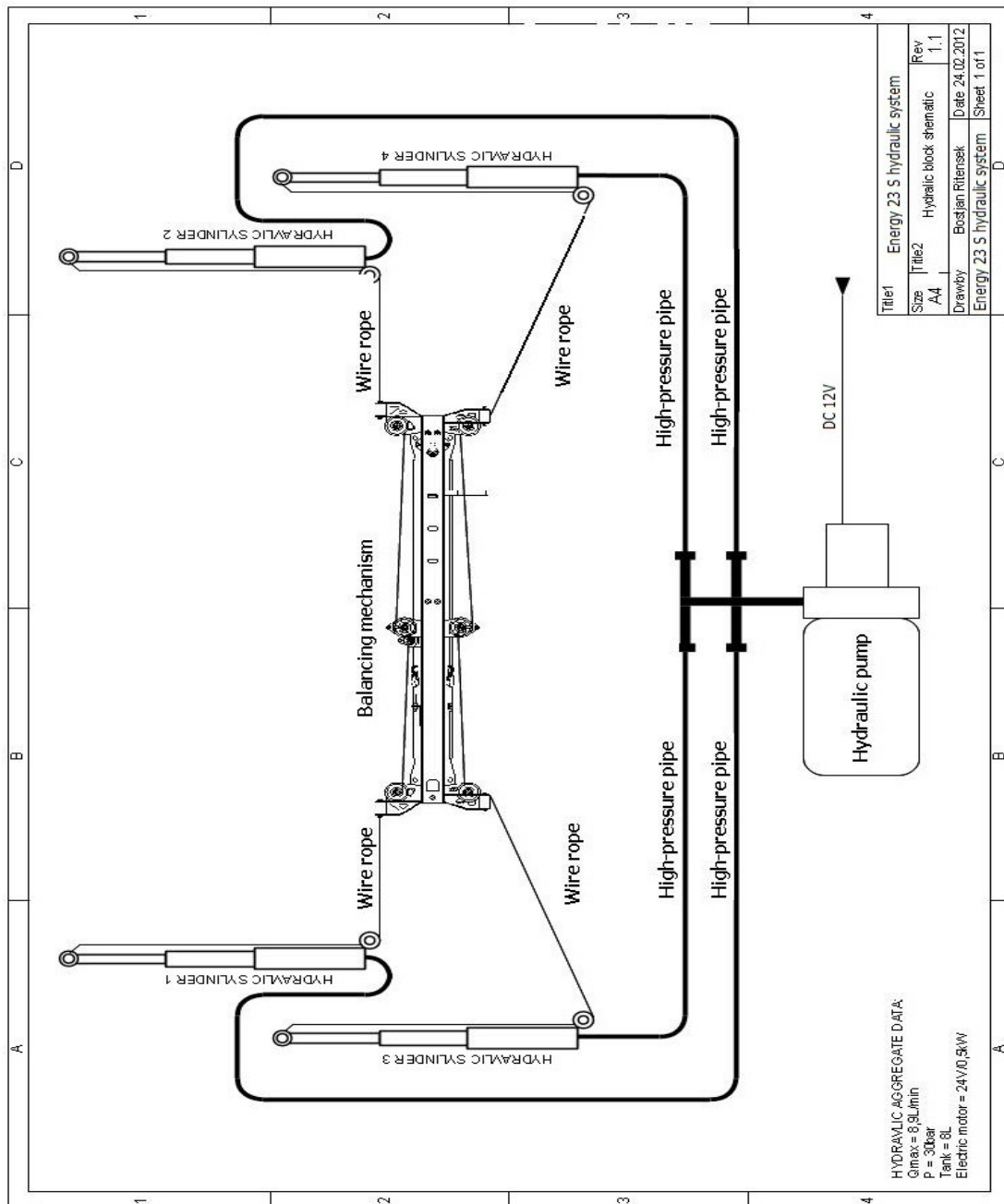
DECK AND CABIN ROOF LIFTING SYSTEMS

The 23SPORT, 23CRUISE or 23ELECTRIC has two roof lifting systems:

- hydraulic lifting system for roof on deck
- electric lifting system for roof on cabin (sundeck)

DECK ROOF LIFTING SYSTEM

The hydraulic system for lifting the deck roof is composed of four hydraulic cylinders and an oil pump, which are connected with high-pressure pipes. The levelled lifting and lowering of the roof is ensured by the balancing mechanism with the wire ropes.

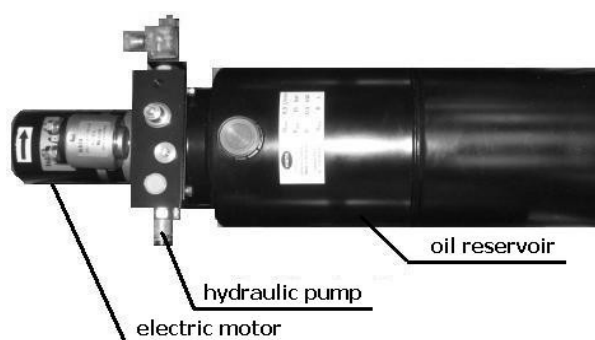


Hydraulic aggregate

The hydraulic aggregate is intended for the propulsion of the hydraulic cylinders for lifting the roof of the vessel 23SPORT, 23CRUISE or 23ELECTRIC. The hydraulic aggregate is located in the stern, near the engine.

The hydraulic aggregate is composed of:

- hydraulic pump,
- electric motor for the propulsion of the hydraulic pump,
- tank for the hydraulic oil.



Picture 23: Hydraulic aggregate

Technical data of the aggregate:

Hydraulic pump: $Q_{max} = 8,9L/min$, $P_{max} = 30bar$

tank: $V = 8L$

Electric motor: $24V/0,5kW$

Maintenance of the hydraulic aggregate.

- Hydraulic oil, oil level
Only the hydraulic oil with the viscosity of VG46 can be used. Using other oils or mixing with oils with various viscosities is forbidden! The tank of the hydraulic oil has the capacity of 8L. the oil level needs to be regularly checked and refilled when necessary. Oil level and opening on (picture).
- Electric motor for the propulsion of the hydraulic pump
The electric pump motor is charged directly through the battery block and it is connected through the power fuse 80A, located under the stair behind driver's seat (see Fuses (circuit brakers)).

Hydraulic telescopic cylinders

There are four active hydraulic cylinders, whose purpose is to lift the roof of the vessel 23SPORT, 23CRUISE or 23ELECTRIC, two in front of cabin and two at the back on the stern. The central hydraulic cylinders are passive and serve as the lead (picture). The

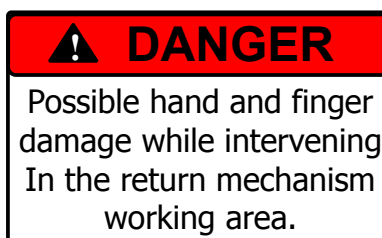
hydraulic cylinders do not require special maintenance, except for a possible de-aeration if the air occurs in the entire system.

The de-aeration procedure goes as follows:

- Lift the roof to its maximum height (see the chapter „Lifting and lowering the roof“, on page 34).
- Loosen the screw at the end of the piston rod right under the attachment of the piston rod to the roof. Loosen it enough to allow the air to escape out of it.
- When oil starts coming out instead of air, retighten the screw.
- Repeat the procedure on all four active hydraulic cylinders.
- Wipe the escaped oil with a clean cloth.

Return mechanism

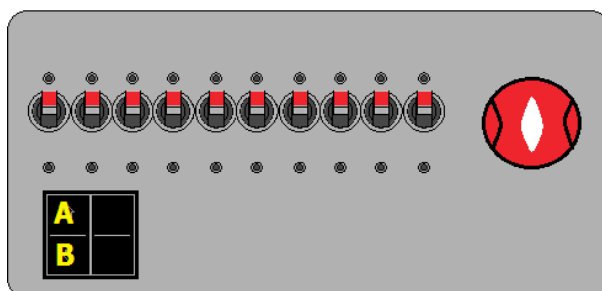
The return mechanism enables a balanced movement of the roof. It is located under the steering console and can be reached through the opening of the batteries. **WARNING!** Danger of large forces of the gas spring !!



Lifting and lowering the deck roof

Deck roof movement can be started in two ways:

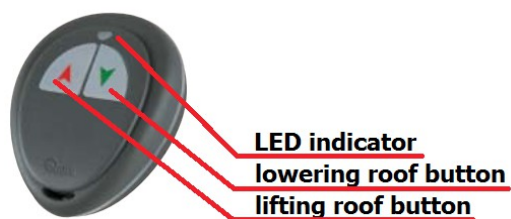
- by pressing on switch on panel in cockpit (marked with „A“ and „B“ on figure below)



Picture 24: Fuse and main switch cockpit panel

- by remote control

vessel can optionally be equipped with remote control roof lifting system. In that case, roof movement can be started by pressing on buttons on remote controller (marked with „A“ and „B“ on figure below).



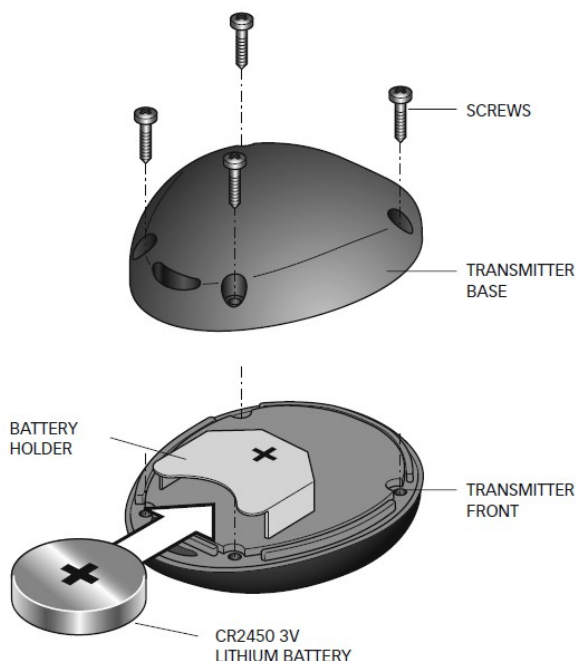
Picture 25: Remote control

LED indicator functions:

- green LED flashes quickly – transmission is taken place
- red LED is on when button is pressed – low battery. Please replace the battery.

How to replace battery:

1. Remove the transmitter base by unscrewing four screws on back side
2. Remove the battery from its holder (WITHOUT USIN METAL TOOLS!)
3. Insert new battery type: Lithium CR2450 in holder. Pay attention on polarity!
4. Close transmitter base and tight four screws



NOTICE:

Before opening or closing deck roof be sure that no passengers are on the deck, and that cabin doors are closed. Otherwise some of passengers can be injured or cabin doors can be damaged!

CABIN ROOF LIFTING SYSTEM (SUNDECK)

Cabin roof is driven by four electric lifting motors. The motors are mounted on corners of the roof. Lifting or lowering of the roof can be turned on by pressing on button located at the entrance of the cabin (see figure below).



Picture 26: Cabin roof switch

1. Press on „A“ button to lift the cabin roof
2. Press on „B“ button to lower the cabin roof

NOTICE:

Before opening or closing cabin roof (sundeck), be sure that no passenger is on the sundeck, and that cabin doors, specially top cabin doors, are closed. Otherwise some of passengers can be injured or cabin doors can be damaged!