

DRAGO

650 Owner's Manual



Welcome

Welcome to the Drago Boats family! Congratulations on your purchase of a Drago boat.

For over 50 years now, Drago Boats has been represented by a select group of the best dealers in the boating industry. Drago Boats depends on this extremely qualified network of dealers to provide you, our customer, with a truly exceptional boating experience.

Should you have any questions or concerns regarding your boat, please don't hesitate to contact your selling dealer. They will be more than happy to provide you with all the information and assistance that you require. Information and assistance is also available at our corporate website, www.drago.gr. On our website you will find information on our entire lineup of Drago Boats all products and accessories. From all of us here at Drago, thank you for purchasing one of our boats. May it bring you many years of boating pleasure.

In this user's manual you will find important information that will help you handle and maintain your boat in a safe and easy manner. Furthermore, the manual contains detailed information about the boat and the systems installed, and general information about handling and taking care of your boat.

We advise you to read the manual carefully and familiarize yourself with your boat before you start to use it. Naturally this owner's manual is not a substitute for boating safety skills or good seamanship. If this is your first boat or if this boat type is new to you, we ask for your own comfort and safety that you ensure you can handle the boat before you set out for the first time. Your boat dealer, local boat clubs and national motorboat or yacht federations will gladly inform you about local sea schools or recommend approved instructors.

You should ensure that the anticipated wind and wave conditions correspond to the design category of your boat, and that you and your crew are able to handle the craft in these conditions. Design category C corresponds to wind and wave conditions that can vary from storm to strong winds. Category C also indicates a risk of exceptional swell and gust. Even if your boat is designed for such conditions, they are still very dangerous. Only a capable, fit and trained crew, using a well maintained craft, can satisfactorily operate in such conditions.

This owner's manual is not a detailed maintenance or troubleshooting guide. If problems occur, you should contact the boat manufacturer or their representative. When you are in need of maintenance or repair and alteration work, you should always turn to competent and trained workshops. Changes that can affect the boat's security features must be assessed, carried out and documented by competent professionals. The boat manufacturer cannot be held responsible for unauthorized modifications. Every change to the boat's center of gravity (from highly mounted heavy equipment or a new engine type etc.) will significantly affect the stability, trim and performance of the boat.

The boat owner must take local and international regulations into consideration concerning the boat crew, equipment and handling of the boat. In some countries, a driving license or a separate authorization is required for driving the boat and in some countries special regulations might also be in force.

Always maintain your craft properly and make allowance for the deterioration that will occur over time and as a result of heavy use or misuse of the craft. Any craft, no matter how strong it may be, can be severely damaged if not used properly. Inappropriate use of this boat i.e. use which is not compatible with safe boating, is not allowed. It is always important to adjust the speed and direction of the craft to the sea conditions and your own boating experience.

If your boat is fitted with a life raft, carefully read its operating manual. On-board, the craft should have the appropriate safety equipment according to the type of craft, weather conditions, etc. This equipment is compulsory in some countries. The crew should be familiar with the use of all safety equipment and the most important actions in different emergency situations (man overboard recovery, towing, etc.). Sailing schools and clubs regularly organize rescue drills.

The equipment in your boat may differ from the equipment used in the pictures and illustrations in this manual. The reason for this might be e.g. due to any optional equipment you have chosen or modifications that have been adapted since this manual was made. In such cases we recommend that you contact your local dealer for additional information regarding the equipment in question.

Keep this manual in a safe place and pass it on to the new owner if you sell your boat. If the manual is mislaid or destroyed, a copy can be ordered from your dealer. The warranty on the engine, as well as optional equipment such as trim tabs, bow thrusters, navigation equipment and other equipment fitted afterwards, is on the individual supplier's conditions. The warranties for this equipment and the suppliers' contact information are enclosed. Concerning all other warranty claims, please contact your Drago dealer mentioned on the cover page.

See the purchase agreement/order for the scope of your purchase. In case something does not work satisfactorily with your boat or its equipment, you can check the service documents for possible service and repair measures. In the event of uncertainty, you should always contact your dealer.

Please note that your boat is a recreational craft, thus not suitable for professional use.

Specifications, illustrations and examples and related constructional data in this publication are not binding. We reserve the rights for changes.

Table of Contents

Introduction

1. Owner's manual	7
2. Your responsibilities	7
3. Safety / Warning labels	7-8
4. Dealer Responsibilities	9
5. Craft Identification Number	9
6. Warranty	10-12

General Information

1. Basic Boat Dimensions & Specifications	13-14
2. Vessel Stability	15
3. Load Capacity	15-16
4. Passenger Locations	17
5. Design Categories	18
6. Safety Label Locations	19
7. Deck Layout (standard equipment)	20
8. Deck Layout (optional equipment)	21
9. Cockpit Storage	22
10. Thru Hull Locations	23
11. Dash Layout	24
12. Navigation Lights	25
13. Engine	26
14. Trailering	26
15. Strong Points	27

System and Component Overview & Operation

1. Fuel System	28-30
2. Fresh water system	31-32
3. Black Water System	33-36
4. Bilge Pump	37
5. Fire Prevention	38-39
6. Steering	40
7. Engine Controls	41
8. Emergency Engine Shut Down Switch	41

Electrical Systems

1. DC Electrical	42
2. Battery	42
3. Battery Box	42
4. Battery Selector Switch	42
5. Fuses & Breakers	43
6. Electrical Schematics	44

Maintenance

1. Maintenance	45
2. Hull & Deck Surfaces	45-46
3. Component Maintenance	46-47

Introduction

1. Owner's Manual

The material here and the rest of the owner's manual packet:

- Gives you basic safety information
- Describes the fundamentals of boat use
- Describes the features of your boat
- Describes the equipment on your boat
- Contains service and maintenance information

You must learn to safely operate this boat as well as read, understand and use the information contained in this package.

What this manual does **not** give you is a course in boating safety, or how to navigate, anchor or dock your boat. Operating a power boat safely requires more skills, knowledge and awareness than is necessary for a car or truck.

2. Your Responsibilities

For your safety, the safety of your passengers, other boaters and people in the water, you must take a boating safety course and get instructions in the safe and proper handling of your boat. Understand and follow the rules of the sea and learn how to navigate.

Do not forget that a boating license is mandatory in many countries for vessels above a certain engine power. These regulations can vary depending on the country or region that you are located in. Finally your boat must be registered with the proper navigation authorities. A Declaration of Conformity is part of the documents that you receive with the boat and it must be kept aboard with other official documents at all times. The Declaration of Conformity is mandatory when registering the boat.

3. Explanation of Safety Labels

The most important aspect of boating is safety. Although every effort is made to address the numerous issues regarding the safe usage of your boat, it is strongly recommended that you avail yourself of the training and knowledge available through boating safety courses, etc.

Safety Precautions

Mounted at key locations throughout your boat and duplicated in this manual are labels which advise the owner/operator of imperative safety precautions to follow when operating or servicing equipment. Learn to recognize the degree of precaution and understand the explanations of safety prior to reading this manual. These precautions are not all-inclusive. Always use common sense in the operating of your boat.

- Do not remove or obstruct any safety label
- Replace any label which becomes illegible. Replacement safety labels can be obtained by your dealer.

DANGER

DANGER—Immediate hazards which will result in severe personal injury or death if the warning is ignored.

CAUTION

CAUTION—Hazards or unsafe practices which could result in minor injury, product or property damage if the warning is ignored.

WARNING

WARNING—Hazards or unsafe practices which MAY result in severe personal injury or death if the warning is ignored.

NOTICE

NOTICE—Information which is important to proper operation or maintenance, but is not hazard related.

4.Dealer Responsibilities

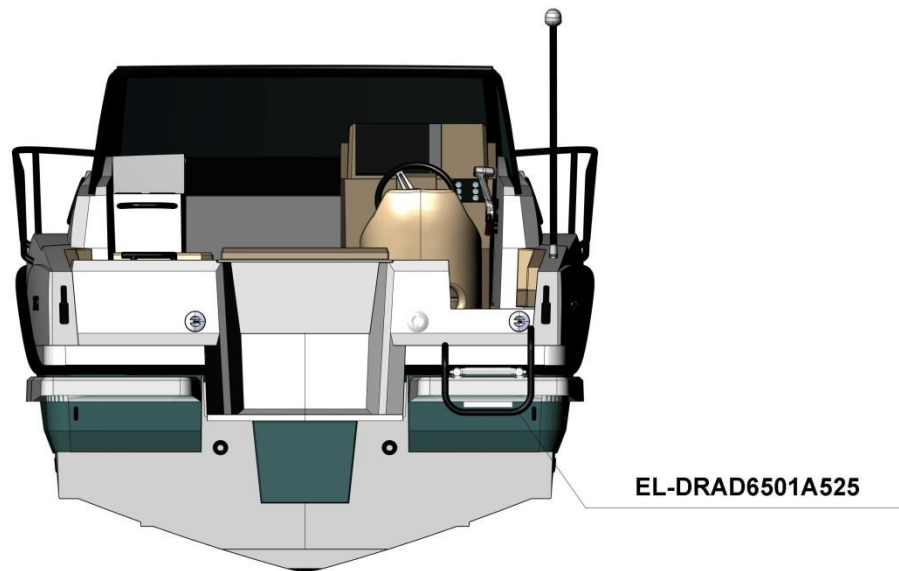
In addition to a pre-delivery check and service of the boat, your dealer is to provide:

- A description and demonstration of the safety systems, features, instruments and controls on your boat
- An orientation in the general operation of your boat
- A review of all warranty information and how to obtain guaranty service
- The owner information package

If you do not receive all of these materials and demonstrations, or have any questions, contact your dealer.

5.Craft Identification Number (CIN)

The Craft Identification Number is located on the starboard side of the transom, and is your boat's most important identifying factor. The CIN must be included in all correspondence related to the vessel.



6.Warranty

You will find information regarding the Drago Boats warranty following the introduction. A warranty information card is also included in the owner information packet. If for some reason this information is missing, contact your dealer.

Registration

Contact your dealer or the distributor in your country, or the naval authorities closest to you.

Transfer of Warranty

Contact the distributor in your country.

DRAGO BOATS FIBERGLASS BOAT WARRANTY

Drago boats warrants to the original purchaser that the hull is free from defects in material and workmanship for a period of two (2) years from the original date of purchase. **THIS WARRANTY IS NON-TRANSFERABLE.** The following items are not covered and are specifically **EXCLUDED FROM THIS LIMITED WARRANTY:**

1. Any component not installed by Drago boats as such components may be warranted by its respective manufacturer and/or installer. This includes any Drago boats dealer.
2. Engines, engine components, outdrive propellers, batteries, controls and related items.
3. Windshield breakage and windshield leakage.
4. Gelcoat, gelcoat cracking, crazing or stress cracks. Gelcoat and/or stress cracks and crazing are specifically not considered defects in materials or workmanship. A stress or gelcoat crack is a crack in the gelcoat and/or skincoat (first layer of fiberglass). They are cosmetic, not structural in nature and may be located anywhere on the boat.
5. Fading, chalking, blistering, or discoloration of gelcoat or paint.
6. Tears, cracking, fading, discoloration, mildew of cushions, curtains, tops, headliners, and related upholstered items.
7. Damage resulting from accidents, abuse, misuse, powering or loading in excess of the maximum limits as stated on the Builder's plate, racing, speed or endurance contests, government use, modification or alterations, fire, lack of or improper maintenance, mooring or trailering.
8. Charter, commercial or military use of vessel.
9. All electronics are specifically excluded from the Drago Boats Warranty as they may be covered by the manufacturer.
10. Damages incurred as a result of the installation of a tower, T-top, jack plate, or hardtop not manufactured, installed or authorized by Drago Boats.
11. Speeds, weights, fuel consumption and performance characteristics as they are estimated and not guaranteed.

If, within the scope of this warranty, a defect in materials or workmanship is determined to exist then, Drago boats or the authorized dealer or factory representative may, at Drago boat's option, repair, replace or adjust the parts to correct the problem. For any claim to be considered, the boat must be delivered to an authorized Drago boats dealer or other dealer, factory designated representative, or the factory at the owner's sole cost and expense. All boats returned to Drago Boats must be de-rigged. "De-rigging" is defined as removal of: outboard engine or stern drive lower unit, electronics, jack plates, hardtops or T-tops and all personal

items. Drago Boats assumes no responsibility for towing, road service, or their transportation charges, de-rigging or re-rigging charges, nor does Drago Boats assume any liability for loss of, or damage to, any personal items left on or in boats returned for repair. These items are specifically excluded from the terms of this warranty.

DRAGO BOATS SPECIFICALLY EXCLUDES ALL LIABILITY FOR INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES OF ANY SORT INCLUDING BUT NOT LIMITED TO: LOSS OF USE, LOSS OF TIME, LOSS OF INCOME, ADDITIONAL EXPENSES OR INCONVENIENCE, DOCKAGE, INTEREST, OR IN VALUE. ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THIS LIMITED EXPRESSED WARRANTY AND SHALL NOT EXTEND BEYOND THE PERIOD SPECIFIED HEREIN.

Drago boats reserve the right to change or improve the design or change specifications of any boat WITHOUT NOTICE. This includes, but is not limited to, fuel capacity, length, beam, draft, cockpit areas, freeboard, maximum horsepower, optional and standard features (printed or non-printed). Drago boats agrees to repair, replace or offer credit toward repair or replacement, at Drago boat's sole option, any item covered by the warranty and found to be defective during the warranty period. **THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS SHALL BE THE SOLE REMEDY OF THE PURCHASER AND THE SOLE LIABILITY OF DRAGO BOATS.** A warranty registration is included with each boat. This card must be completed and signed by both the purchaser and the selling dealer on the date of sale. This signed card must be returned within ten (10) days of the purchase to validate warranty.

Conditions for maintaining the warranty of the boat is a scheduled annual inspection and the required maintenance from the manufacturer or authorized dealer. Provided that written instructions for use and maintenance on the owner's manual are kept, warranty is valid for two (2) years from the date of purchase.

Customer Signature

Dealer Signature

General Information

1. Basic Boat Dimensions & Specifications



Model: DRAGO 650

Design Category:	C
Length of Hull (Lh):	5.91m
Length Overall (Lmax):	6.68m
Beam of Hull (Bh):	2.30m
Beam Max. (Bmax):	2.40m
Draft of Hull (Th):	0.410m
Draft Max (Tmax):	0.760m
Overall Height (Ha):	2.00m
Light craft Mass (m Lcc):	1450kg
Maximum Load (m MTL):	716kg
Fully Loaded Mass (m LDM):	2166kg
Trailerable Mass (m T):	1716kg
Fuel Tank Capacity:	150lt
Transom Deadrise (β):	17,1°
Freeboard (F):	0.719m

2. Vessel Stability

The following maximum load has been used for assessing the stability and buoyancy comprising

- Manufacturer's maximum recommended load per ISO 14946 697kg
- Fuel, fresh water, other fluids to maximum capacity of fixed tanks 187kg

This assessment has been made assuming that

- The boat in the empty craft condition has a mass of 1150kg
- The boat in the light craft condition has a mass of 1450kg
- The maximum recommended engine mass is 300kg
- All standard equipment is aboard.

Your boat was manufactured to specific stability and flotation standards for the capacity shown on the certification plate. Maximum recommended load included the weight of all persons aboard, all provisions and personal effects, cargo (if any) and all consumable liquids (water, fuel, etc.). Any increase from the recommended load capacities will put your boat in jeopardy of capsizing, swamping and/or sinking. In addition, any changes to the masses aboard may significantly affect the stability, trim, and performance of the craft. Stability can considerably be affected by loose fluids or weight within the vessel. Keep the bilge area as dry as possible, and in rough weather or at planning speeds, keep all openings, hatches, lockers, doorways, and windows closed to minimize flooding. Breaking waves are a serious stability hazard. Finally, stability can be compromised when towing or lifting heavy weights using a davit or boom.

3. Load Capacity

The capacity plate is located near the helm and indicates the maximum number of persons your boat can handle under calm sea conditions. Do not exceed the load capacities stated. A full explanation of this information can be found in the relevant section of this manual.

The information present on this certification plate does not relieve the operator of responsibility. Use common sense and sound judgment when placing equipment and/or passengers in your boat.



5 Lavriou Avenue
19400 Koropi Athens
Greece

650 D

DESIGN CATEGORY	A	B	C	D
MAX 			6	
MAX (kg) 			510	

150KW  MAX 300KG MAX


⚠ WARNING

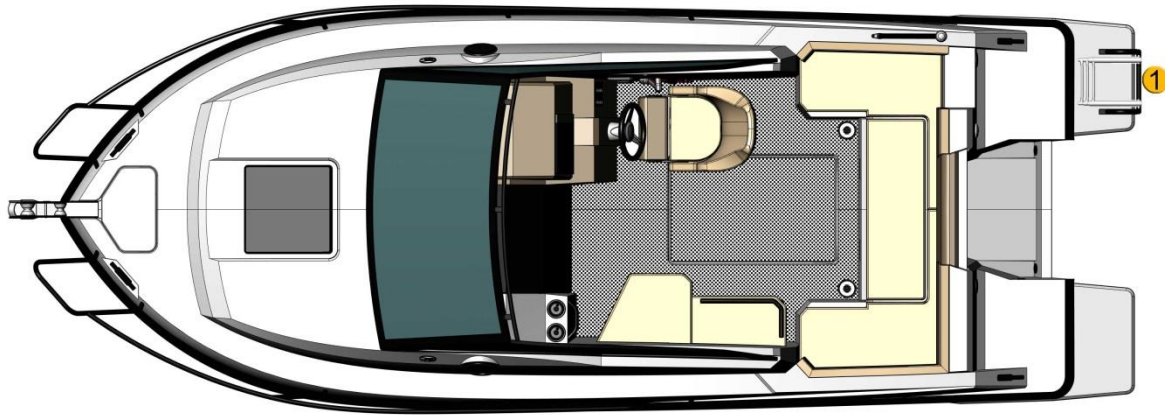
Do not exceed the maximum recommended number of persons. Regardless of the number of persons on board, the total weight of persons and equipment must never exceed the maximum recommended load. Always use the seats/seating spaces provided.

⚠ WARNING

When loading the craft, never exceed the maximum recommended load. Always load the craft carefully and distribute loads appropriately to maintain design trim (approximately level), and secure loose equipment when underway. Avoid placing heavy weights high up.

4. Passenger Location

When people are on the working deck area for anchoring, mooring, or in emergencies, they must be holding on and be positioned as to prevent falling overboard.



1. Boarding ladder



Working Deck

DANGER

Be aware of your footing while the boat is underway. Slipping or falling could result in serious injury or death, especially if the boat is in motion or in rough seas. Keep the accommodation clean, so if movement is necessary, it will be free of obstruction.

WARNING

Gelcoat surfaces are slippery when wet. Use extreme caution when walking on wet surfaces.

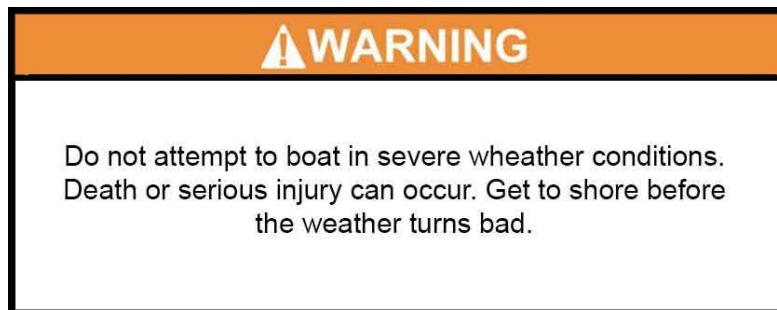
Never occupy the working decks while the boat is underway.

5. Design Categories

There are four design categories of boats based upon their ability to withstand wind and water conditions:

- A. Designed for winds that may exceed wind force 8 (Beaufort scale - 40 knots) and a significant wave height of 4m and above.
- B. Designed for winds that include up to wind force 8 (Beaufort scale – 40 knots) and a significant wave height up to and including 4m.
- C. Designed for winds that include up to a wind force 6 (Beaufort scale – 27 knots) and a significant wave height up to and including 2m.
- D. Designed for winds that include up to a wind force 4 (Beaufort scale – 16 knots) and a significant wave height up to and including 0.3m, with occasional waves of 0.5m maximum height.

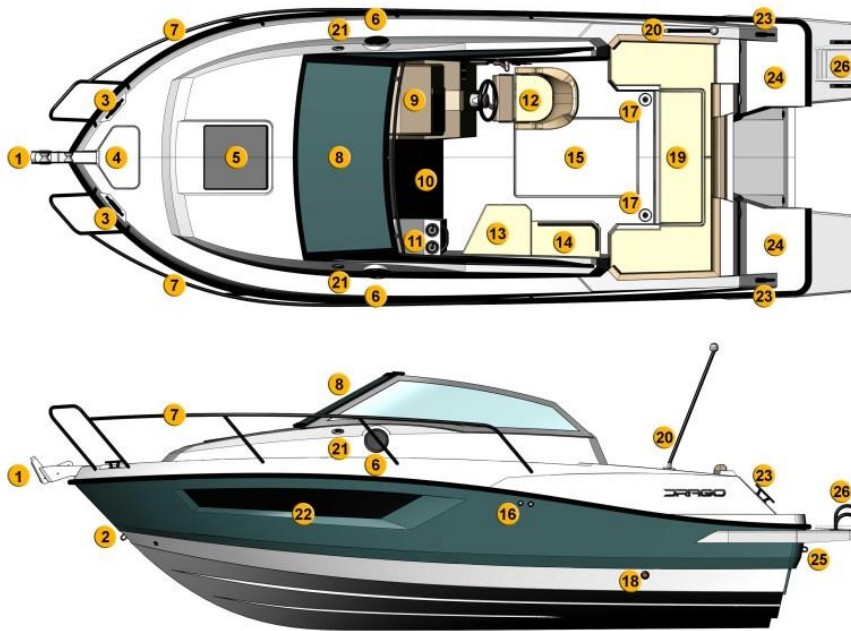
Refer to your product capacity plate for the design category of your boat.



6. Safety Label Locations

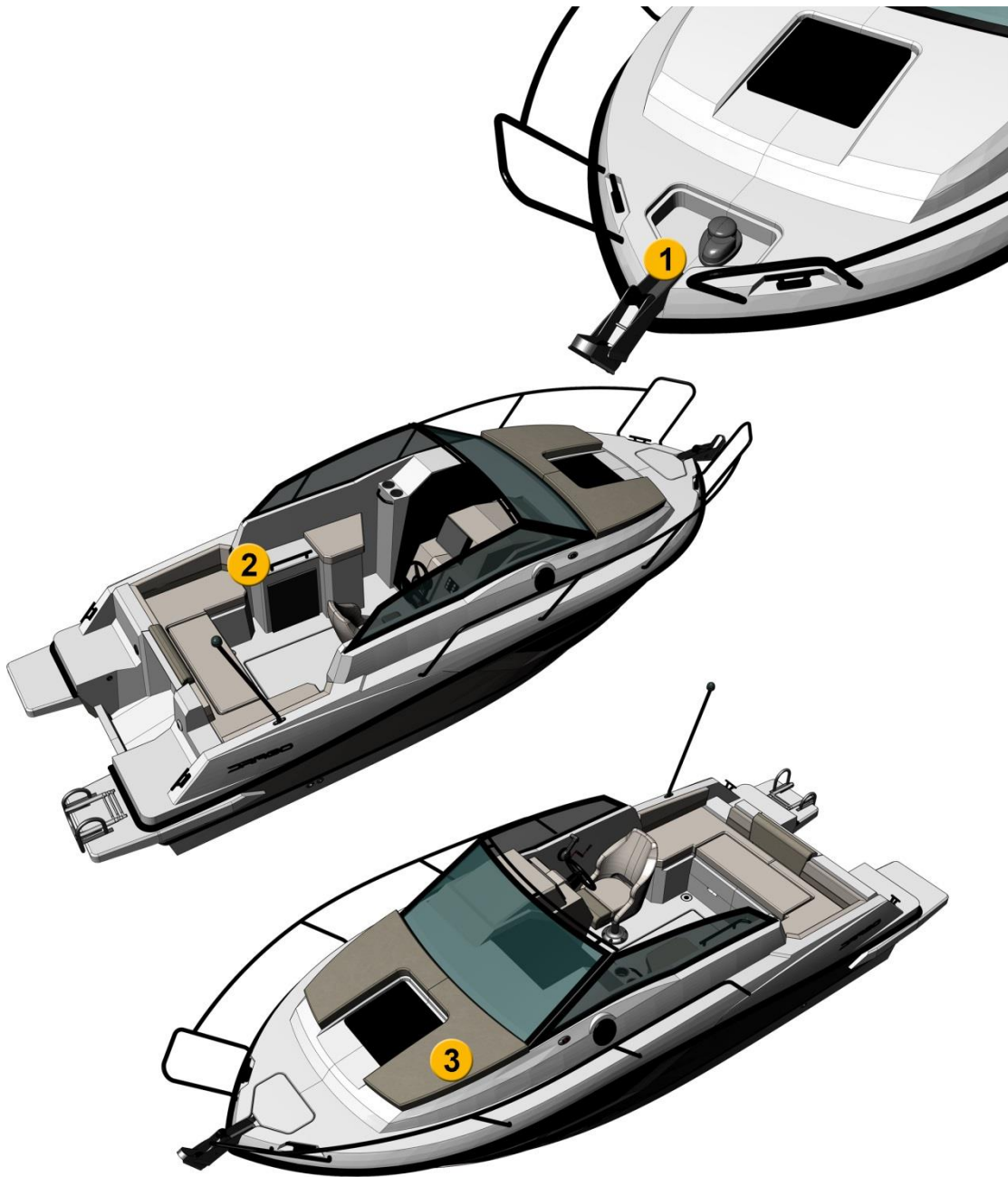


7. Deck Layout (Standard equipment)



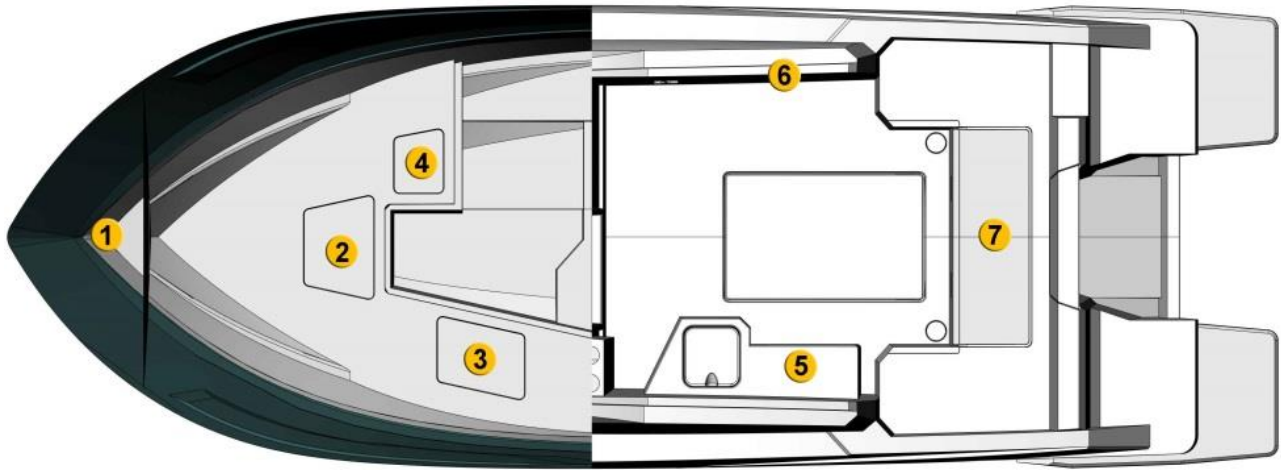
- | | |
|------------------------|----------------------------|
| 1. Anchor Roller | 13. Passenger seat |
| 2. Bow trailer eye | 14. Wet Bar |
| 3. Bow Cleats | 15. Fuel Tank Hatch |
| 4. Anchor Locker | 16. Water/Waste tank Vents |
| 5. Cabin Hatch | 17. Deck Drains |
| 6. P&S Portholes | 18. Deck Drains Thru Hull |
| 7. High Side Rails | 19. Aft Sofa/storage |
| 8. Windscreen | 20. Anchor all round light |
| 9. Helm | 21. Navigation Lights |
| 10. Cabin Sliding Door | 22. Side Cabin Windows |
| 11. Cup Holders | 23. Aft cleats |
| 12. Driver's Seat | 24. Aft Platforms |
| | 25. Aft tie down eyes |
| | 26. Swimming Ladder |

8. Deck Layout (Optional Equipment)



1. 12v Windlass 2. 12v Electric Fridge 3. Sun Deck Cushions

9. Cockpit/Cabin Storage



1. Anchor Locker
2. Bow storage
3. Port Cabin Storage
4. STBD Cabin storage
5. Port Deck storage
6. STBD deck storage
7. Main Aft Storage

10. Thru Hull Positions



1. Deck floor drains
2. Black Water emergency exit
3. Bilge Pump drain
4. Anchor Locker drain
5. Motorwell drains
6. Cabin Hatch
7. Sliding Cabin Door

NOTICE

The deck drains provide self-bailing capabilities while the boat is static in the water and no passengers on board.

This prevents accumulation of water in the cockpit.

NOTICE

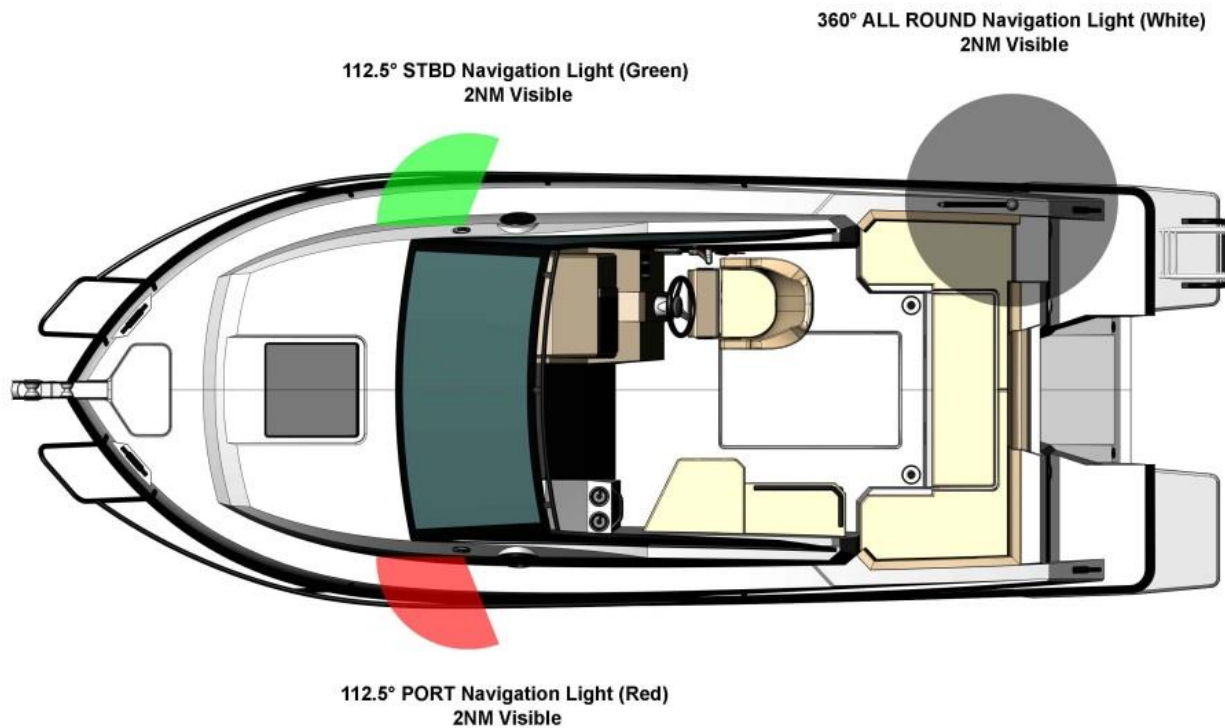
Depending on the type of boat, you may have underwater fittings that need drain plugs. Garboard drain and fish box drain plugs need to be in place before the boat goes into the water. Any fitting that will be underwater needs to be plugged or the seacock needs to be closed.

11. Dash Layout



1. Steering Wheel
2. Switch Panel
3. Engine Remote Control
4. Quick shut off switch
5. Instrument Panel
6. Grab Handle
7. Cup Holders

12. Navigation Lights

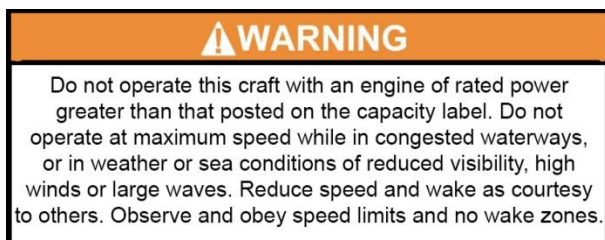


NOTICE

The International Regulations for Preventing Collisions at Sea (COLREG) and the rules of the road require that a proper lookout be maintained at all times and observance of right of way be respected. Always be certain to have sufficient distance to stop or maneuver if required to avoid collisions.

13. Engine

Your boat is propelled by a single outboard engine. The maximum propulsion power rating for the craft is 150 KW. Do not operate this craft with an engine power rating larger than that posted on the power capacity label in the craft. The maximum power rating label is located at the helm, under the Capacity plate.



Drago Boats recommends that you fully comply with the manual provided by the engine manufacturer. Follow the recommended maintenance and warranty schedule in your Engine Operator's Manual. Refer to the Engine Owner's Manual for operating instructions and warranty information.

14. Trailering

Drago Boats does not offer a trailer for this boat, however, if you plan on purchasing one from another vendor, please consider the following:

- The trailer should have a center roller and keel guards which will help provide good support for the keel.
- Trailers with banks provide a more even weight distribution.
- The mass of your boat in trailering condition is 1716kg. This includes the weight of a fully optioned boat along with full liquid loads. This does not include gear weight usually associated with operating the vessel.

15. Strong points / cleats

Cleats

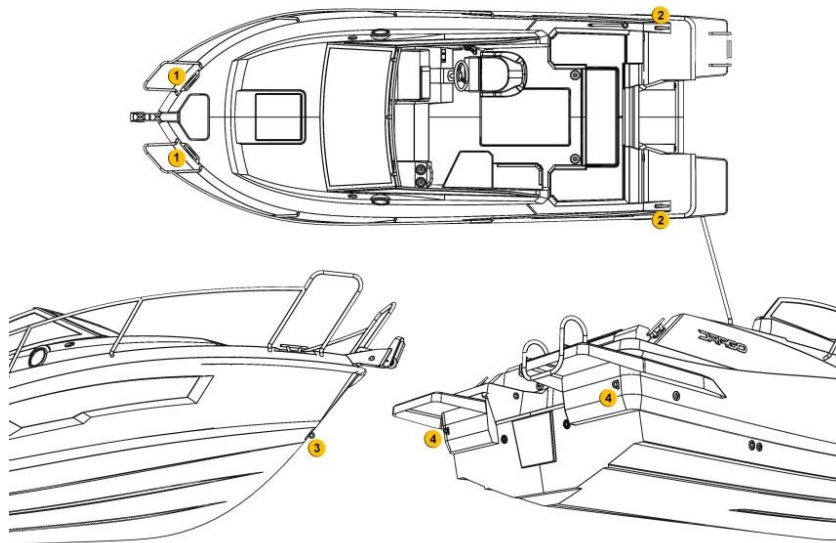
Your boat comes equipped with four cleats, two located on the bow and two at the stern. The cleats are used to secure the boat to the dock while loading, unloading or mooring.

Bow Eye / Stern Eyes

Your boat includes a bow eye, which is used to haul and hold your boat onto a trailer. In addition, there are two stern eyes, located on the transom, which are used as tie down points during trailering the boat. The bow and stern eyes may be used for short term lifting of the boat only.

Towing

Drago Boats does not recommend towing other boats, or being towed by other boats, unless it is absolutely necessary. In the event that it becomes necessary for you to have your boat towed, a professional company experienced in this type of operation is better to handle this situation.

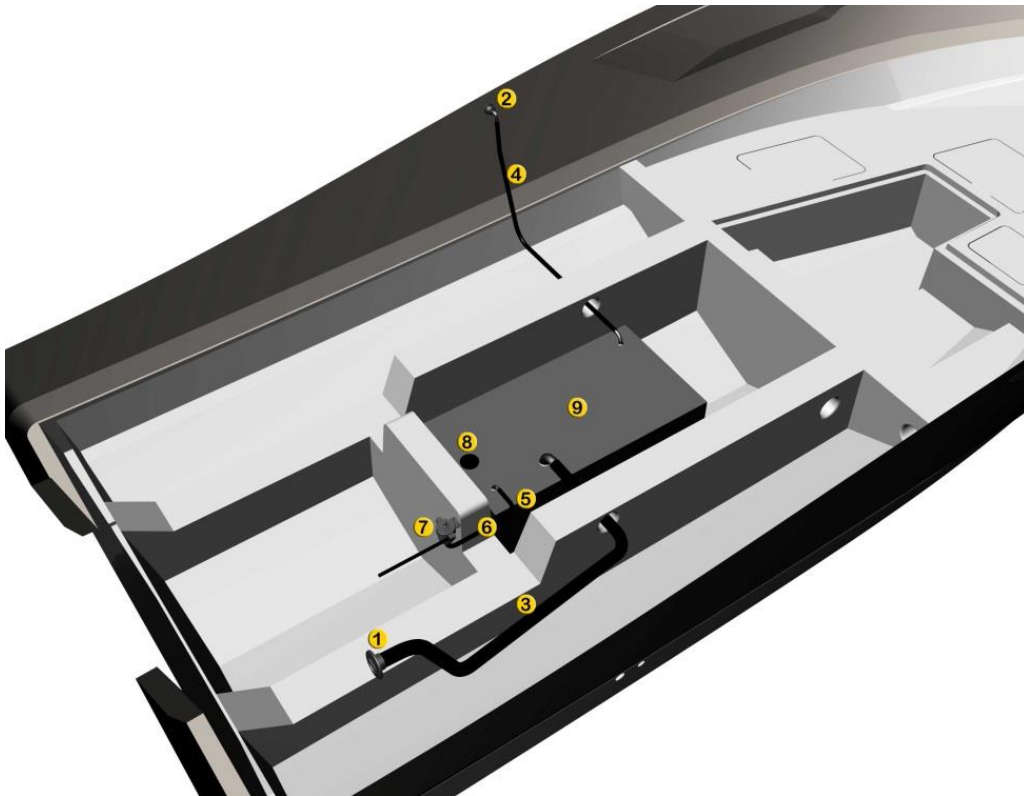


1. Bow Cleats 2. Stern Cleats 3. Bow Eye 4. Stern Eyes

System and Component Overview & Operation

1. Fuel System

Your boat's petrol fuel system consists of a fuel tank, a fuel tank fill and vent fitting, a sending unit, a remote fuel filter, a fuel line and a cutoff switch.



1. Fuel Filler
2. Fuel Vent
3. Fuel Fill Hose
4. Fuel Vent Hose
5. Fuel Feed Hose
6. Cut off switch
7. Fuel / Water Separator (if equipped)
8. Fuel Level Sender
9. Fuel Tank 150lt

Fuel Tank

The Drago 650 is equipped with an inox fuel tank with a capacity of 150lt. As a precaution, all of the capacity may not be useable due to trim and loading conditions, so consider keeping a minimum 25% reserve fuel in the tank.

Fuel tanks with levels less than 25% capacity can cause engine stalling problems due to fuel starvation or by allowing sediment and dirt to enter the fuel supply lines. Keep the tank full and monitor the fuel level often to prevent this from happening.

Filling the Tank

It is best to maintain a full tank of fuel when the engine is not in use. This will reduce the air flow in and out of the tank due to changes in temperature as well as limiting exposure to humidity and condensation. When filling the tank, do not attempt to top off the tank. When the nozzle shuts off, the tank is full, and continuing to fill past the fuel fill shutoff will cause the system to spit fuel back.

 **DANGER**

Petrol vapors can explode. Never smoke while handling or filling up the petrol tank. Leaking fuel is a fire and explosion hazard. Inspect the fuel system annually to make sure that there are no leaks and corrosion in the system.

 **WARNING**

Do not store any equipment containing petrol (outboard engines, portable petrol tanks, etc.) in any cockpit storage areas. These compartments were not designed to store petrol and do not have adequate ventilation.

Fuel Filters

Outboard engine manufacturers already provide the appropriate level of filtration to protect the engine from debris. The addition of another in-line filter to the system will create a possible flow restriction that can starve the engine of fuel. As a precaution, it is advisable to carry extra on-engine filters in case filter plugging from debris becomes a problem during boating.

If equipped, the addition of an external fuel/water separator will not restrict the flow of adequate fuel to the engine. The filter is located on the port side of the vessel and can be accessed via the floor hatch located in the aft sofa seat tub.

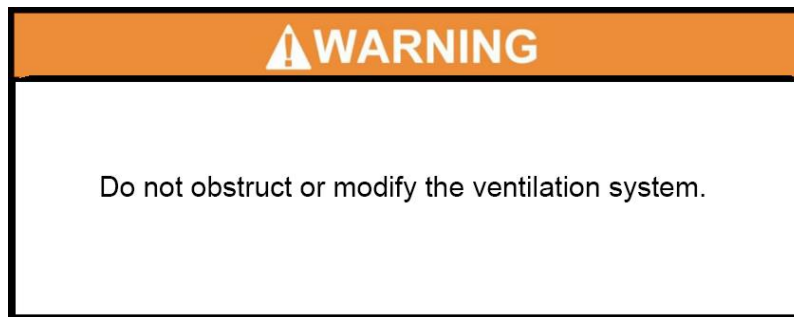
Maintenance

Periodically inspect for the presence of water in the fuel tank. If any is found, all water must be removed and the tank completely dried before refilling the tank with any fuel.

Storage

Long periods of storage and/or non-use, common to boats, create unique problems. When preparing to store a boat for extended periods, of two months or more, it is best to completely remove all fuel from the tank. If it is not possible to remove the fuel, maintaining a full tank of fuel with a fuel stabilizer added to provide fuel stability and corrosion protection is recommended.

REFER TO THE ENGINE MANUFACTURER'S MANUAL FOR COMPLETE INSTRUCTIONS AND WARRANTY INFORMATION



2. Fresh water system

The fresh water system consists of an 45 liter water tank, pump, and plumbing connections for a transom shower.

Filling the tank

The water tank can be filled through the water fill inlet located on the aft stbd gunwale recess. Fill the tank only from a source known to provide safe, pure drinking water. Use only a plastic hose to fill the water tank.

Fresh water pump

The fresh water pump delivers water from the tank to the transom shower. To power the system turn on the **water pump** switch located on the dash. Turn off the power to the pump when your boat is not in use or when the water tank is empty.

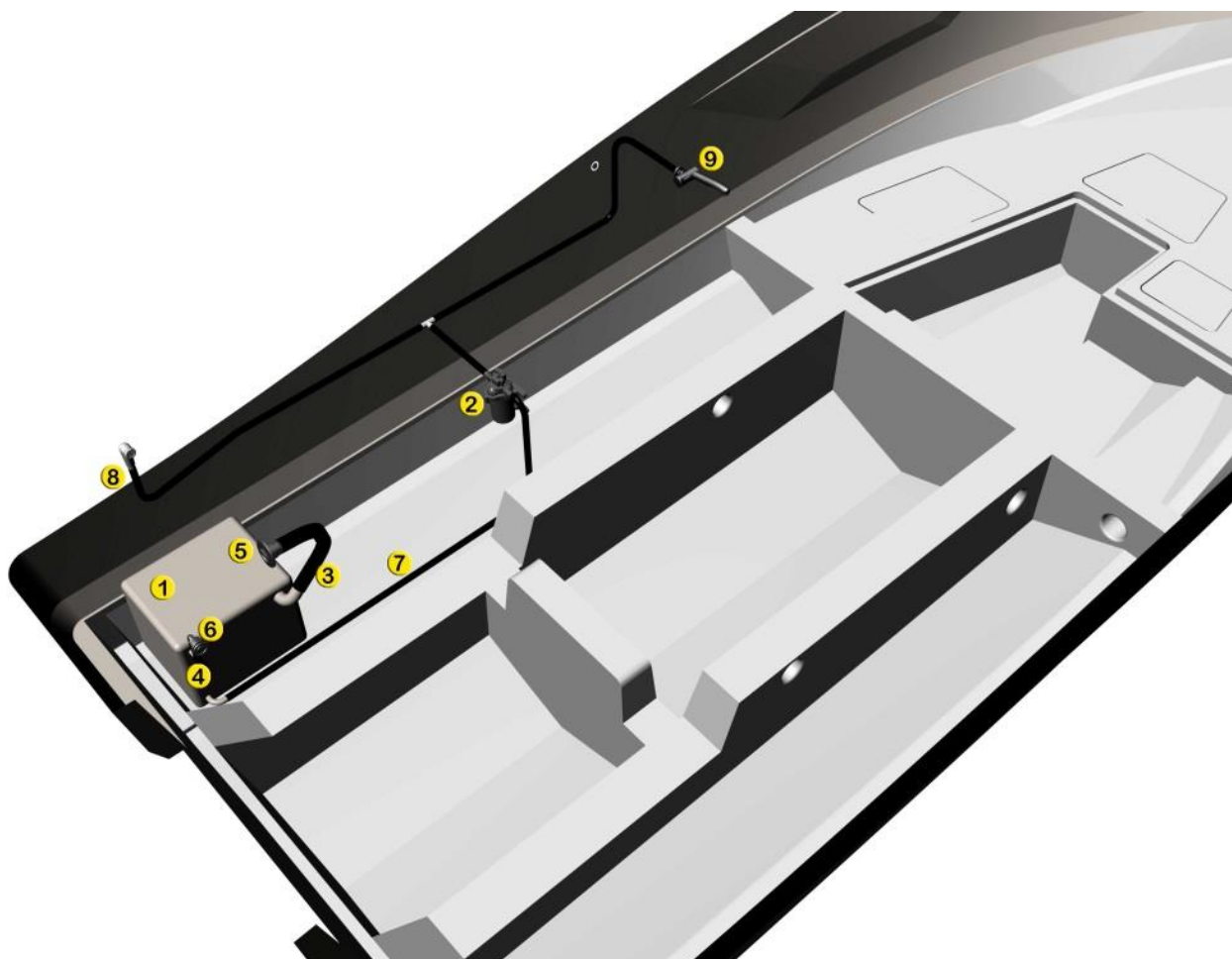
Disinfect the Fresh water system

The following is a recommended procedure to disinfect the fresh water system:

1. Flush the entire system thoroughly by allowing potable water to flow through it.
2. Drain the system completely.
3. Fill the entire system with an approved disinfecting solution. Check with your dealer for recommended products, and follow the manufacturer's instructions.
4. After disinfecting, drain the entire system.
5. Flush the entire system thoroughly several more times with potable water.

Maintenance

Maintenance of the fresh water system will require you to check the fittings and hoses to make sure that there are no leaks. Before the winter season, the fresh water system must be completely drained to avoid damage.



1. Water tank
2. Water pump
3. Water filling hose
4. Water vent hose
5. Water inlet
6. Vent
7. Shower case
8. Shower head

3. Black and Grey Water System

Your vessel may be equipped with a waste containment / disposal system. This includes a toilet water pickup, automatic flush toilet, a 55 liter holding tank, macerator, discharge outlet, and a dockside pump out connection on the stbd side of the aft platform.

Operation

Prior to using the toilet, make sure that the toilet water pickup valve, located under the stbd cabin hatch, is opened. Refer to the toilet owner's manual in regards to specific operation of the toilet.

Macerator

The macerator gives the boat operator the means of discharging the holding tank directly overboard through a seacock in the side of the hull. The macerator control switch is located on the main switch panel. Since direct overboard discharge is prohibited in many areas, the macerator seacock is normally closed.

To Operate the Macerator:

1. Make sure the macerator seacock is in the open position.
2. Press and hold the macerator switch located on the main switch panel. The macerator switch is a momentary switch, which means that it needs to be pressed during operation.
3. When the tank is empty, stop pressing the macerator switch.
4. Return the macerator seacock to the closed position.

Dockside Pumpout

The dockside pumpout deck plate is located on the deck, at the end of the right platform, and is marked with the ISO symbol WASTE. The dockside facility will have the proper connections / fittings to pump the holding tank out.

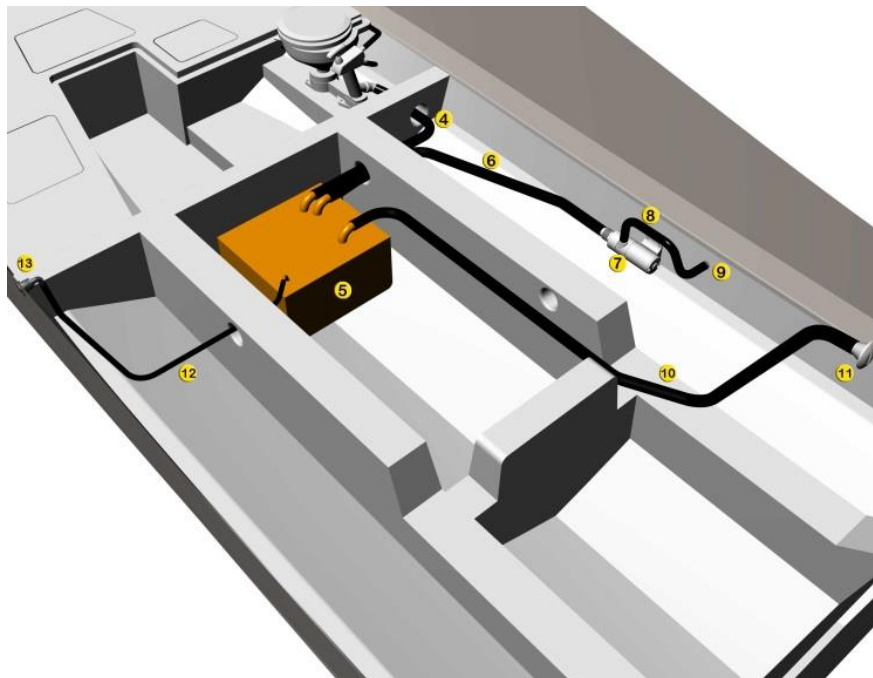
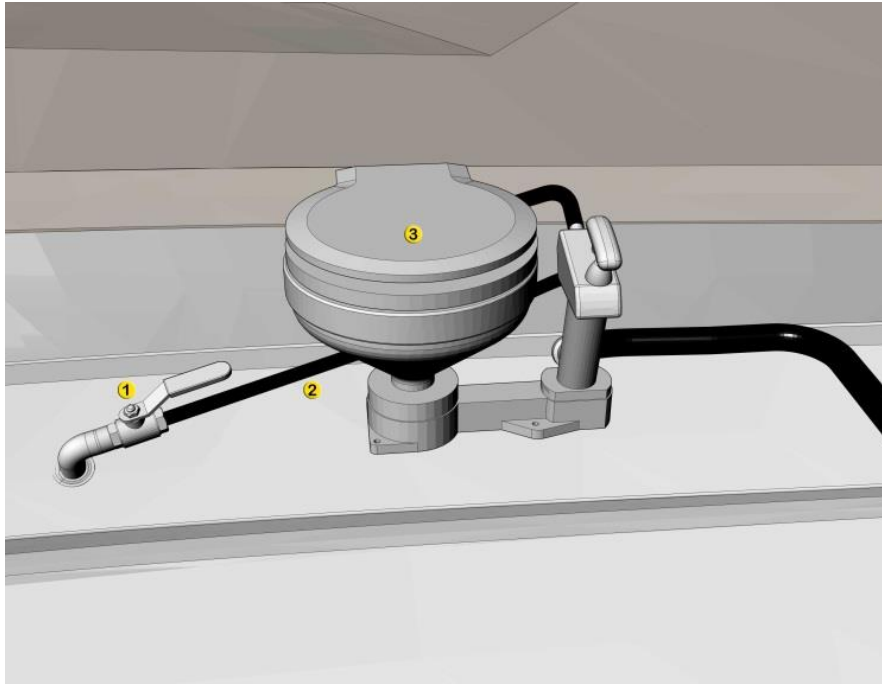
Maintenance

Maintenance of the waste system will require you to check the fittings and hoses to make sure that there are no leaks. If the system does require maintenance, or if you have any questions about the servicing of your black water system (i.e. cleaning materials, safe deodorants to use for the system), contact your local dealer. Drago, recommends that you pump out the system before long periods of non-use. If you are storing the boat during the winter, we recommend you winterize the system.

To Winterize the Waste System:

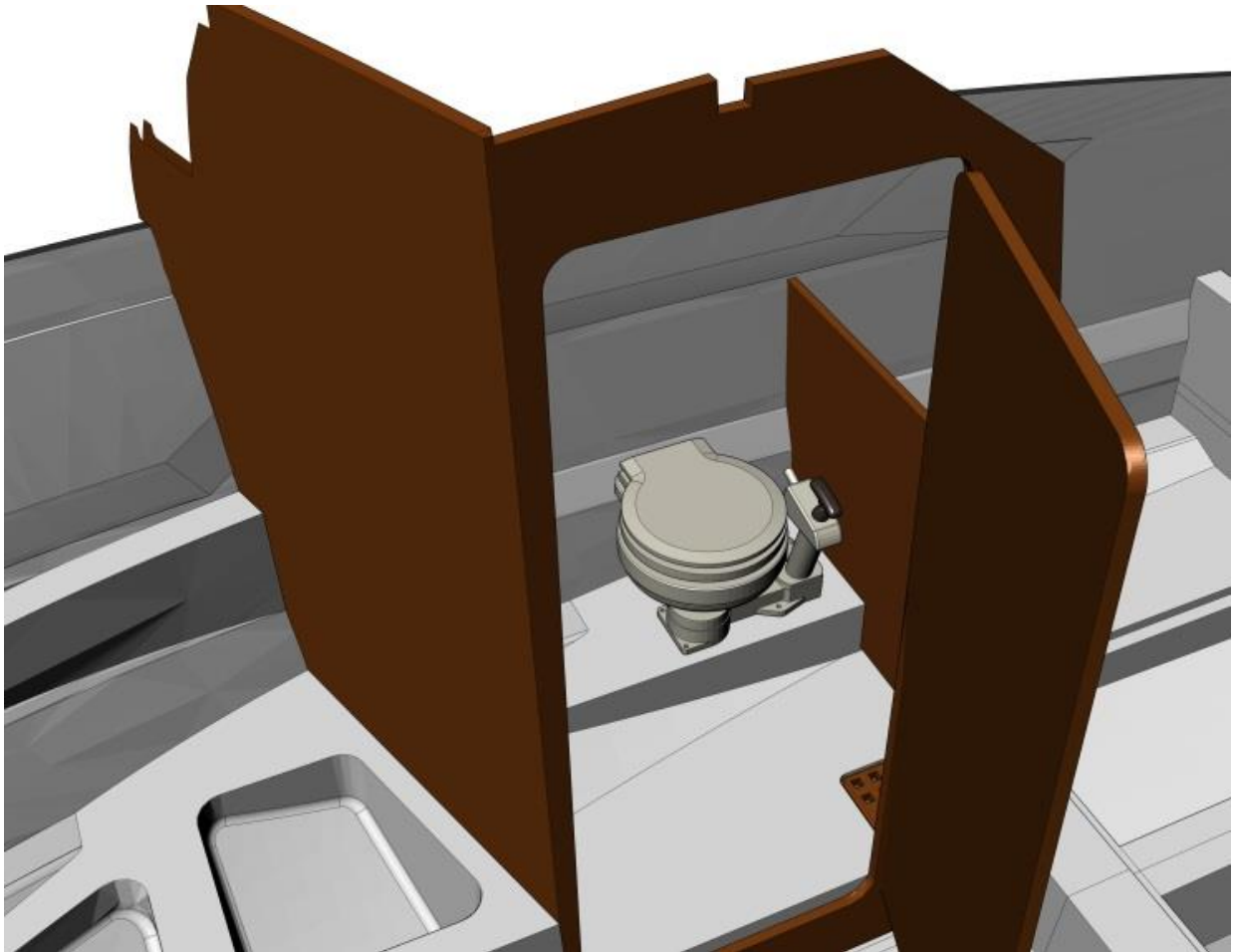
1. Empty the holding tank either via the macerator in an approved location or the dockside pumpout.
2. Pump water through the system (via the toilet) to remove any residue waste.
3. Empty the holding tank again, removing all liquids.
4. Pour an environmentally safe antifreeze (Propylene Glycol based) in the toilet and pump throughout the system.

Refer to the toilet manufacturer's requirements for additional winterization procedures.



1 Water pick-up seacock – **2** Water pickup hose – **3** Toilet – **4** Toilet to holding tank hose – **5** Holding Tank 55lt – **6** Holding tank to macerator hose – **7** Macerator pump – **8** Macerator to overboard discharge hose – **9** Macerator thru-hull – **10** Holding tank to pumpout hose – **11** Pumpout deck plate – **12** Holding tank vent hose – **13** Holding tank vent

Enclosed Toilet



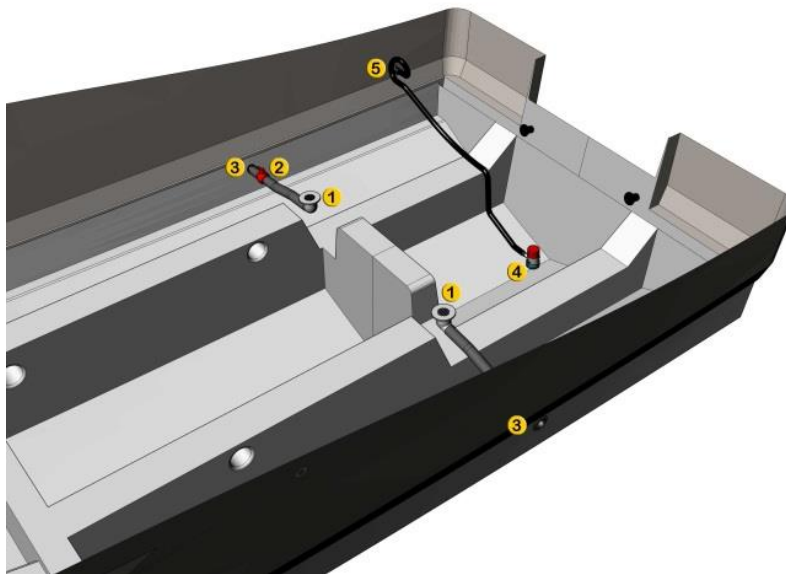
4. Bilge Pump

Your vessel is equipped with a single bilge pump located in the aft section of the boat. Access to the bilge pump is via the floor hatch in the aft sofa tub. The bilge pump is rated at 1100 GPH, and is activated automatically by a built in float switch when the water in the bilge reaches a predetermined level. You can also manually operate the bilge pump at the console by pressing the bilge pump switch at the helm.

Inspect the bilge pump intakes and keep them free of dirt or material which may impede the flow of water through the pump. To clean the pump strainer, depress the lock tabs on both sides of the pump and lift the pump motor.

If water does not come out of the discharge hose:

1. Remove the motor module to see if the impeller rotates with the power on.
2. Remove any debris that may have accumulated in the nozzle section or strainer base.
3. Check hose and connection on hull side for debris and proper connections.



- | | |
|-------------------------|-------------------------|
| 1. Bilge pump | 4. Automatic Bilge Pump |
| 2. Bilge pump Hose | 5. Bilge Pump Drain |
| 3. Bilge pump thru hull | |

1. Fire Prevention

Fire is a serious boating hazard. Boats will burn quickly. Do not remain onboard and fight a fire for more than a few moments. If the fire is out of control and cannot be put out with the fire suppression equipment onboard, abandon ship immediately.

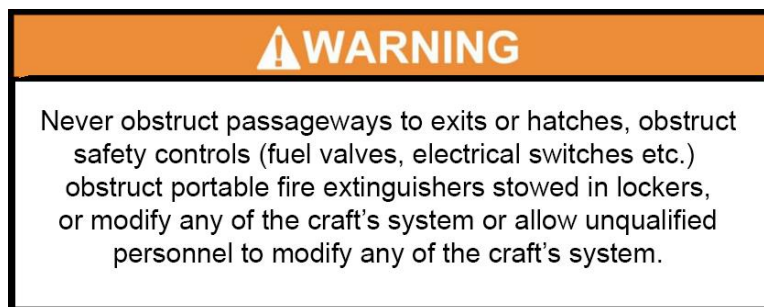
The boat when in service shall be equipped with the following portable fire extinguisher:

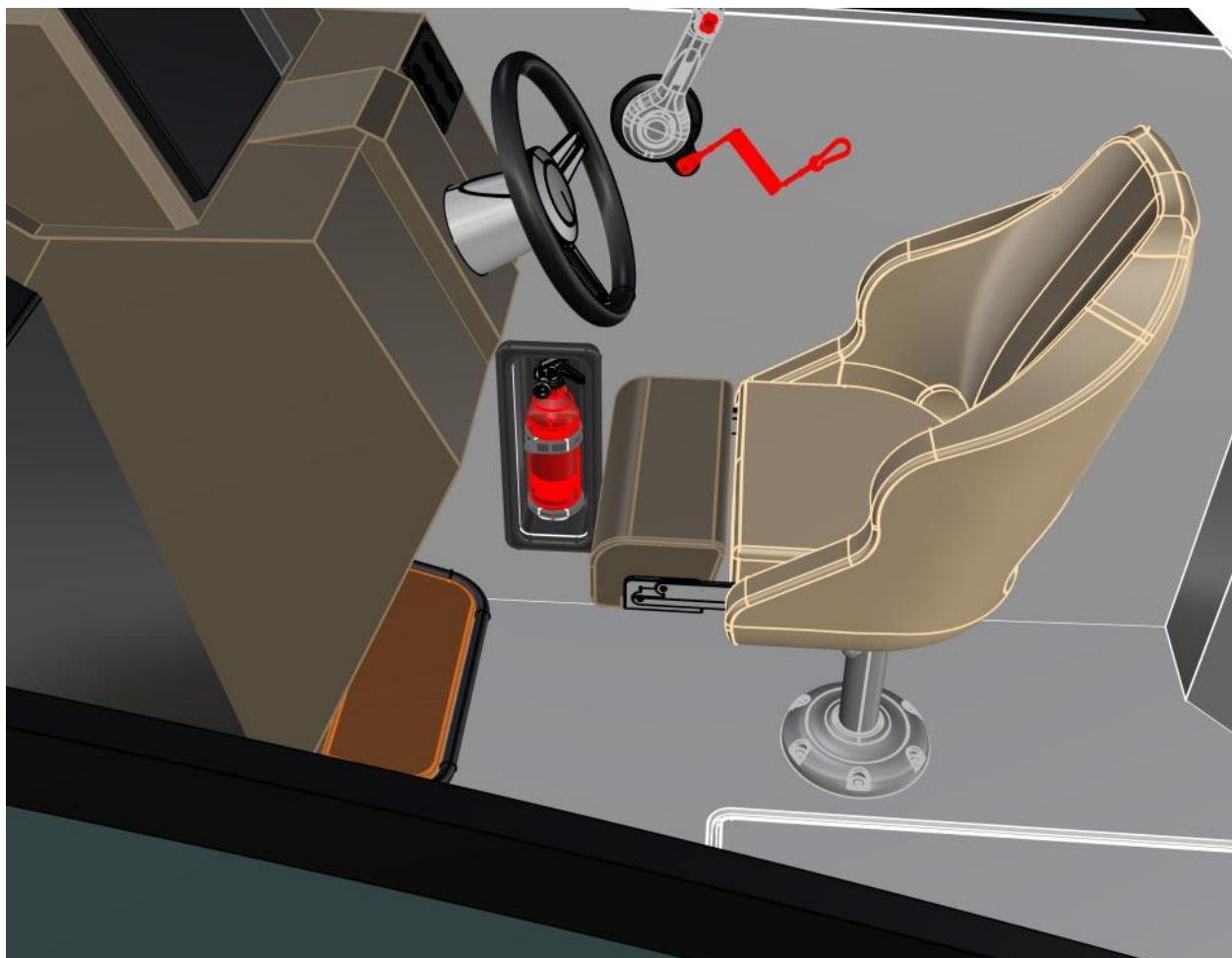
1. Fire rating 13A 89B C

The boat owner/operator shall:

1. Have the firefighting equipment checked at the intervals indicated on the equipment.
2. Replace portable fire extinguisher, if expired or discharged, by another with identical firefighting capacity.
3. Ensure that the firefighting equipment is readily accessible when the boat is occupied.
4. Inform the members of the crew about the location and operation of the firefighting equipment, the locations of discharge openings (fire port) and the location of escape routes and exits.
5. Unlock any deck hatches, or any other locked escape openings.
6. Keep the bilges clean and check for fuel and gas vapors or fuel leaks, frequently.

The fire extinguisher is located on the driver's side, under the engine's remote control unit.





2. Steering

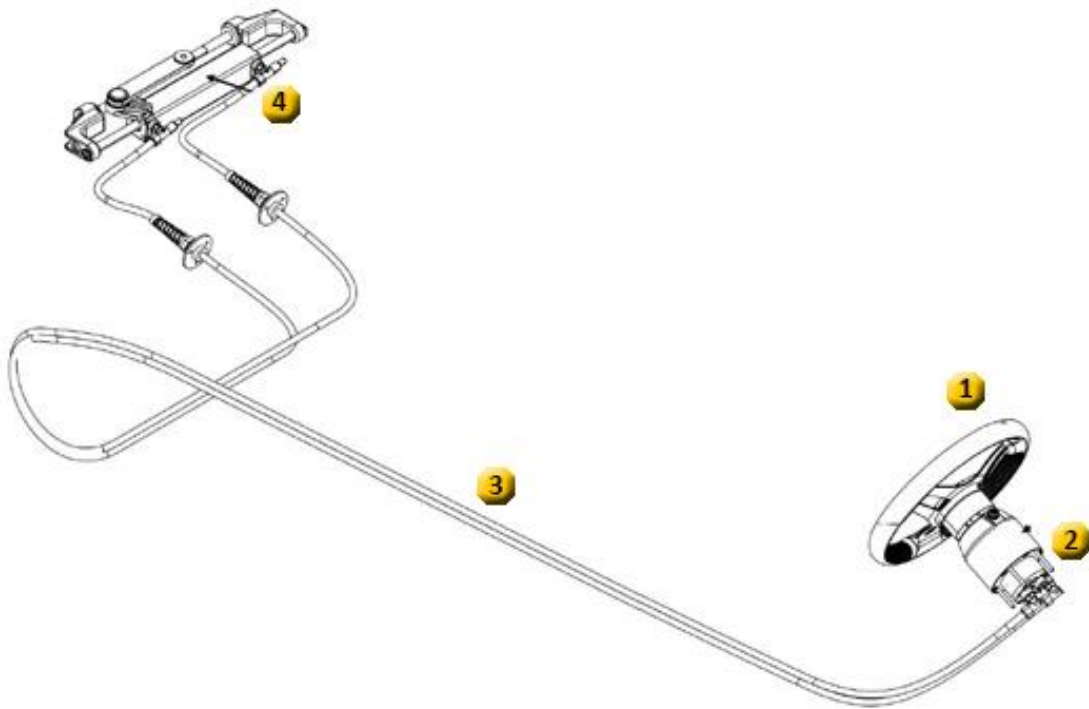
Your boat comes equipped with a hydraulic steering system. The basic system for a single engine boat contains a steering wheel, a hydraulic helm pump, a hydraulic steering cylinder, and hydraulic hoses.

Operation

When turning the steering wheel, the helm pump forces hydraulic fluid through the hoses to and from the steering cylinder which is connected to the tiller arm of the engine. The cylinder moves the tiller arm to either port or starboard, depending upon the direction the steering wheel is turned.

Filling and Maintenance

A hydraulic steering system rarely needs to be refilled after the system is bled. However, if you ever need to add fluid to the system, refer to the steering manufacturer's manual for complete instructions. The fill point is located on the helm itself, in front of the steering wheel.



1.Steering Wheel 2.Helm Pump 3.Hydraulic fluid lines 4.Steering Cylinder

3. Engine Controls

Your boat is equipped with a mechanical gear shift/throttle control unit. The control unit, located to the starboard of the steering wheel, activates both the shifting and throttle of the engine.

To start the engine, the control unit must be in the NEUTRAL position. When in NEUTRAL the engine is running, but the propeller is not spinning. There's a throttle only button that when pressed, will allow you to operate the throttle without the propeller spinning.

Moving the control lever forward from neutral engages the forward gear and throttle advance.

Moving the control lever backwards from neutral engages the reverse gear and thrust. The throttle controls the RPM of the engine and the speed of the boat.

Power trim & tilt

The power trim, located on the side of the gear shift throttle handle, allows you to raise and lower the engine for trailering and launching the boat. It also allows you to adjust the engines to create the optimum run angle for the boat to achieve best all-around performance (fuel consumption, speed).

4. Emergency Engine Shutdown Switch

Your boat is equipped with an engine shutdown safety switch. The engine shutdown switch incorporates a shut-off switch and a lanyard. Before operating the boat, one end of the lanyard must be connected to the shut-off switch while the other end is connected to the operator. If an emergency arises where the engine must be shut down, pull the lanyard cord to release it from the shut-off switch, which in turns shuts down the engine. This switch is designed to shut the engine off when the operator of the boat leaves the control station, either accidentally by falling into the boat, or by being ejected overboard. The lanyard should be long enough to prevent inadvertent activation. Do not let the lanyard become entangled.

⚠ WARNING

Wear the lanyard at all times when operating the boat.
Use it to stop only in an emergency. DO NOT use it to
shut off the engine during normal operation.

Electrical Systems

1. DC Electrical System

The DC electrical system is powered by a single battery, and is kept charged by the engine driven alternator.

2. Battery

Drago boats recommends,AGM type starting or a deep cycle battery for your boat. The battery must meet the minimum capacity required by the engine manufacturer. Refer to your engine owner's manual for exact battery requirements.

To remove the battery cables:

1. Turn off all items drawing power from the battery.
2. Turn the battery switch to the OFF position.
3. Remove the negative cable first, then the positive cable.

To replace the cables, install the positive cable first, then the negative cable.

3. Battery Box

The battery is located inside the aft sofa tub. It can be installed or removed by loosening the strap and removing the lid on the battery box. The battery should always be installed and secured within the battery box on your boat. This will ensure that the battery will not move around while the boat is underway.

⚠ CAUTION
Always disconnect the battery doing any work on the electrical system. Never turn off the battery switch or disconnect the battery while the engine is running.

⚠ CAUTION
Never use an open flame in the battery storage area. Avoid striking sparks in the battery area.

4. Battery Selector Switch

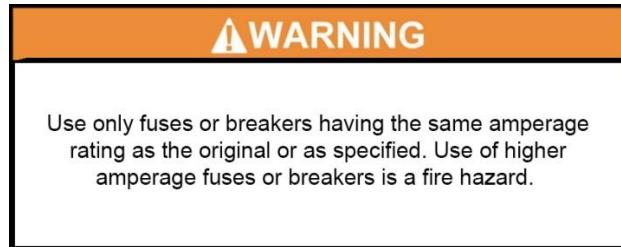
Your vessel is equipped with a battery switch to control the delivery of DC Power from the battery. The battery switch is located in the aft sofa tub. When you turn the battery switch to the ON position, power is provided from the battery to the entire boat. To turn on power, rotate switch clockwise 90 degrees to the ON position.

NOTICE
The bilge pump and stereo memory still draw power from the battery, even if the switch is set to OFF. This is especially important for the bilge pump, so that it can operate anytime excess fluid accumulates in the bilge, which can occur when the boat is dock and unattended.

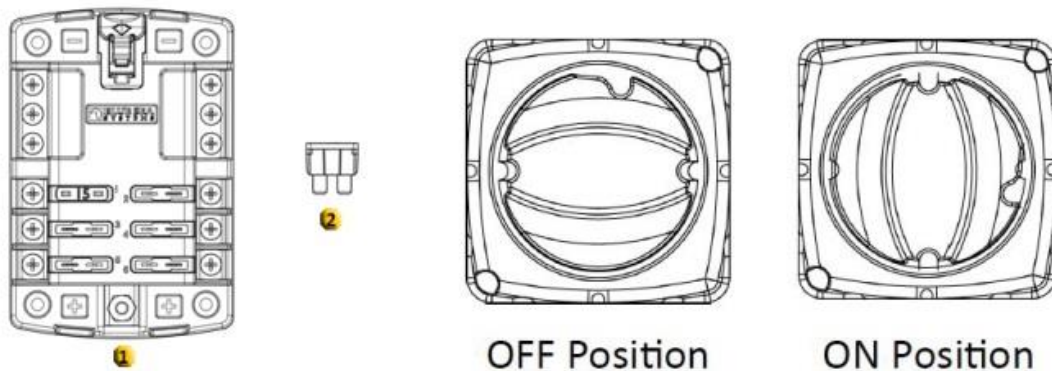
⚠ WARNING
Never work on the electrical system while it is energized. Never leave the craft unattended with the electrical system energized.

5. Fuses and breakers

Your boat will either have fuses or breakers protecting the DC electrical system. If you have to replace a fuse or electrical breaker, replace only with a fuse or breaker of the same rating. The amperage will be marked on the fuse or breaker, and it is recommended that you carry spare fuses or breakers.



If a fuse or breaker is replaced with one that has lower amperage, it may not be sufficient to carry the electrical load of the equipment it is connected and will cause nuisance failures. If a fuse or breaker is replaced with one that has higher amperage, it will not provide protection against an electrical malfunction and could create a fire hazard.

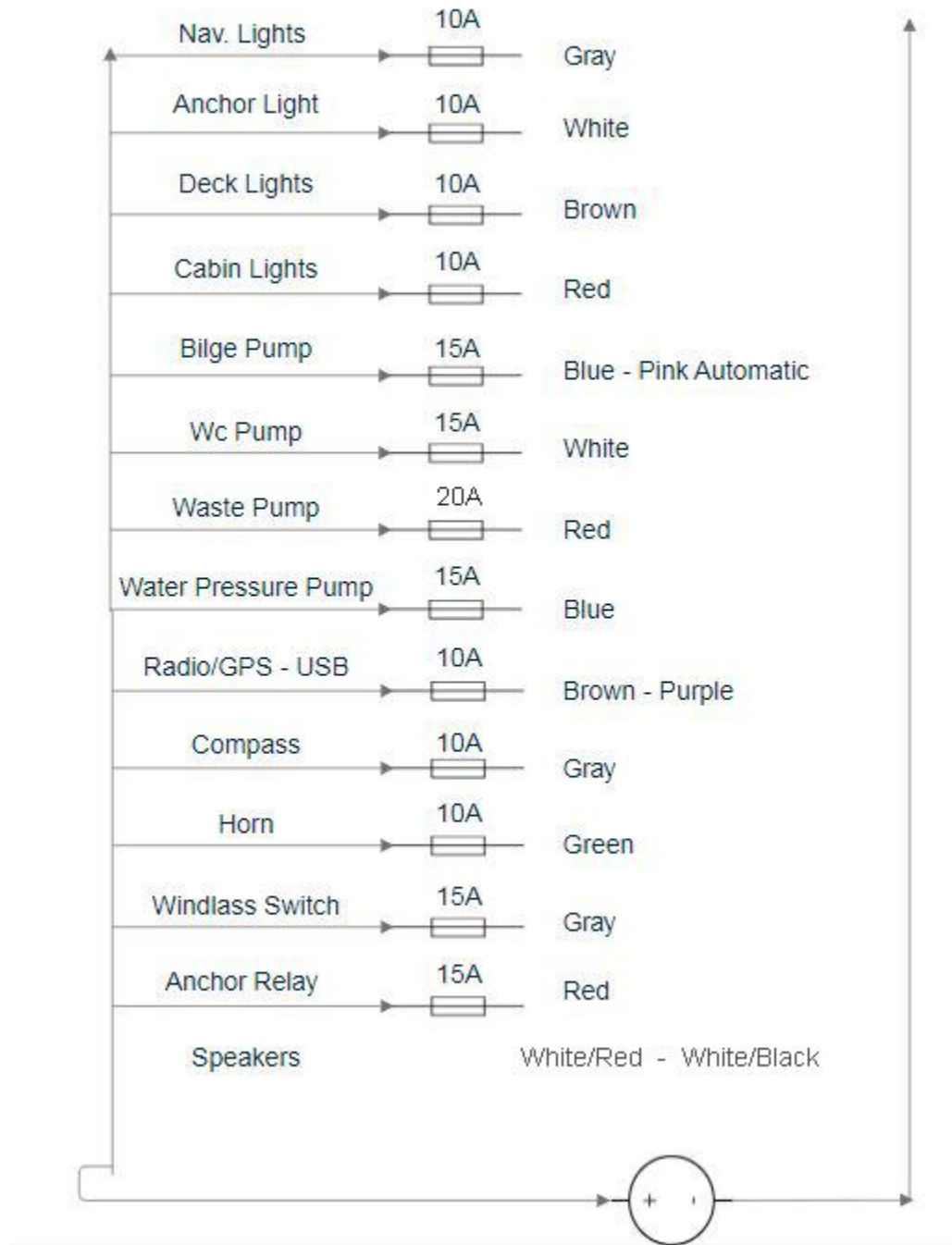


1. Fuse box
2. Fuse

6. Electrical Schematics

This owner's manual contains electrical schematics and wiring harness illustrations for your boat. These electrical schematics were generated for technical reference and service technicians. Drago does not recommend that you attempt to work on the boat's electrical system yourself. Instead, we recommend that you take your boat to your local

authorized dealer for service. Drago boats reserves the right to change or update the electrical system on any model at any time without notice to the consumer and is obligated to make any updates to units built prior to the change.



Maintenance

1. Maintenance

Routine inspection, service and maintenance of your boat, systems and components are vital to assure safety, and will prolong the life of your boat.

The interval between necessary service or maintenance is highly variable, depending on the environment in which your boat will be used. For example, corrosion of boats parts and components will occur far more rapidly in a salt water environment than on a boat which is used in fresh water.

This section provides only general guidelines for the care and cleaning of your boat. It is your responsibility to determine whether maintenance and care intervals need to be accelerated due to your boat usage and/or operating environment. If you have any question regarding maintenance of your boat, contact your local dealer for additional assistance.



2. Hull & Deck Surfaces

Fresh water, saltwater and water temperature can all affect the types of growth that you will find on your boat's hull. Any growth will affect the boat's performance and overall look. If it has been a while between inspections you might notice algae or slime growth on the hull. This can be cleaned with a coarse towel or soft bristle brush. The growth should be cleaned immediately after the boat has been removed from the water. If the growth is allowed to dry it will be much harder to remove.

Compounding may be necessary to remove more stubborn stains and chalking from the surface of your boat. If compounding is necessary it must be done after a thorough washing and prior to waxing. If the growth is more severe, you may need to enlist the services of a professional hull cleaning company. Check with your dealer for

recommendations on a compatible rubbing compound for your boat or a professional hull cleaning company in your area.

Waxing Gel Coat Surfaces

Waxing is necessary to provide added protection to the gel coat. A good cleaning and waxing will also ensure that your boat will be protected and look good longer. Make sure the surface of your boat has received a thorough washing and rinsing and is clean before waxing. Next, verify that any minor scratches or surface pitting is cleaned of compound residue. Use a good quality carnauba wax or a high quality wax designed for marine gel coat. Apply several coats.

Gel Coat Surface Maintenance

If using a pressure washer to clean the hull and deck surfaces of your boat it is important that you use the wide fan nozzle only and move the spray head in a continuous motion. Do not concentrate the high pressure on a small area of the boat surface and never use the fine pinpoint nozzle as the concentrated stream can cause damage to the surface of your boat. Do not pressure-wash the helm as the water stream may damage the electronics and gauges as well as other sensitive equipment.

When staining from build-up does occur, use only cleaning agents that are recommended for marine gel coat. Never use an abrasive cleaner to wash your boat's hull, nor use an abrasive pad to attempt to remove stubborn stains. Never use strong solvents to clean.

3. Components Maintenance

Stainless Steel

Stainless steel is strong and corrosion resistant, but still requires maintenance to keep its appearance. Frequent routine cleaning of your stainless steel will help maintain the finish.

Drago boats recommends that you wash stainless steel components with mild soap and cold or lukewarm water after every use of the boat. If added protection is necessary, apply a cleaning wax. Even the finest cleaning powders can scratch or burnish a mill-rolled surface. On polished finishes, rubbing or wiping should be done in the direction of the polish lines, not across them.

Crevice corrosion, a brownish coloring which occurs where two pieces of stainless hardware meet is caused by impurities in water and air. It can be easily cleaned with a good grade marine polish using a sponge, cloth or small bristled brush (for nooks and

crannies).

Cushions

Saltwater, salt residue, dirt, ultra-violet rays etc. will take their toll on vinyl products causing them to lose their luster and texture. To clean, remove ordinary dirt and smudges with a mild soap and water solution. Dry with a soft, lint-free cloth or towel. More difficult stains can be cleaned using rubbing alcohol (isopropyl alcohol). Rinse cleaned area with fresh water and dry with a clean, soft, lint-free cloth or towel.

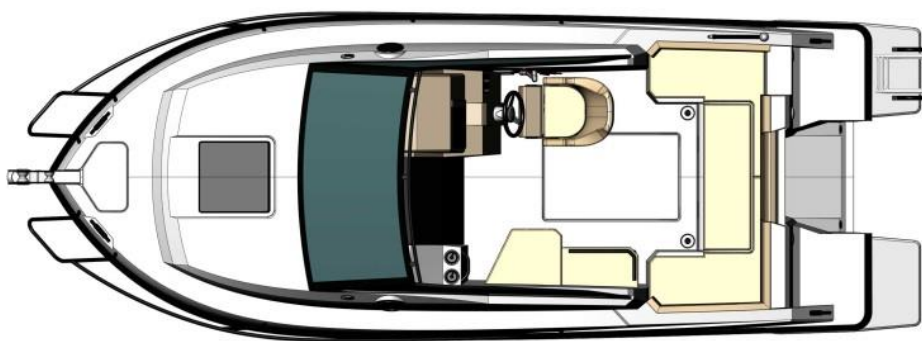
Your cushions are not waterproof. They are constructed of open-cell foam and will absorb and hold water. Do not leave the cushions in standing water or exposed to heavy, prolonged rain. If, in the event your cushions become waterlogged, remove the foam from the cushion, press as much water as you can from the foam and allow to air dry. To prevent mildew, keep the vinyl dry and make sure that moisture does not accumulate between the cushions.

Acrylic Windshields and Windows

The use of a polycarbonate protective cleaner/restorer is recommended to keep your acrylic scratch resistant, clean and minimize the deteriorating effects of sunlight. To clean, rinse the windscreen/window thoroughly with clean water to remove any dust, dirt particles, salt water or environmental agents before applying cleaning products. Use your bare hand, with plenty of water, to feel and dislodge any stuck-on dirt or foreign particles. This should be done frequently to avoid build-up of salt water, dirt and other environmental contaminants. Using a soft non-abrasive cloth, wash windows inside and out with a mild soap and water solution. Rinse completely with cool water. Do not use detergents. Blot dry with a soft cloth or chamois to prevent water spots.

NOTICE

Never use a dry cloth or duster or glass cleaning solutions on acrylic. DO NOT use solvents such as acetone, silicone spray, benzine, carbon tetrachloride, fire extinguisher fluid, dry cleaning fluid, lacquer, thinner, glass cleaning solution or harsh detergents on acrylic. These substances will attack the surface of the acrylic.



OWNER'S MANUAL RECEIPT

Please fill out the following form, sign it, and give it to the dealer in order to ensure full warranty coverage:

I,

Name: _____

Address: _____

Certify that I have received the Owner's Manual for the following boat:

Brand: - **DRAGO**

Model: - **650**

Craft Identification Number (located on the starboard side of the transom):

		-												
--	--	---	--	--	--	--	--	--	--	--	--	--	--	--

This smallcraft is covered by the warranty conditions cited in the information delivered with the craft. This warranty begins on:

Date of purchase:

		/			/				
Day			Month			Year			

Signature: _____

Date:

		/			/				
Day			Month			Year			



Drago Boats
5km Lavriou Ave
Koropi Attica
Greece
0030 210 6624249
www.drago.gr