

## 228CC



### **228 Center Console** **OWNER ASSISTANCE MANUAL**

Revised 2014



## 228CC SPECIFICATIONS

LENGTH:	22'6"	(6.85m)
BEAM:	8'6"	(2.6m)
DRAFT (boat only):	21"	(53.3cm)
BOAT WEIGHT:	3000lbs	(1361kg)
WEIGHT CAPACITY:	3000lbs	(1361kg)
PERSON CAPACITY:	11	
PERSON WEIGHT:	1815lbs	(823.3kg)
FUEL CAPACITY:	120gal	(454.25L)
TRANSOM HEIGHT:	S-25	
MAX POWER:	250hp	(190kw)
COCKPIT DEPTH:	28"	(71cm)
COCKPIT AREA:	84sq/ft	(7.8m <sup>2</sup> )
APPROX LENGTH ON TRAILER:	28'6"	(8.7m)
BRIDGE CLEARANCE:		
W/OUT TOP	6' 2"	(1.8m)
W/T-TOP	8' 6"	(2.6m)
FLOTATION:	UNSINKABLE	
HULL DEADRISE:	20°	

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U.S. Coast Guard  
Maximum Capacities

**11** PERSONS OR **1815** LBS

**3000** LBS PERSONS, MOTORS, GEAR

**250** H.P. MOTOR

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**CE**

**7 PERSONS OR 595kg**

**190kw MAX POWER**

**B RATING**



Dear EdgeWater 228CC Owner:

Congratulations on purchasing one of the finest small boats ever built. It has been constructed with care from the finest available materials. At EdgeWater we take great pride in the quality and craftsmanship that goes into each boat, large or small. We believe you'll have many years of enjoyment from your new EdgeWater and thank you for entrusting your leisure time to one of our fine products.

This manual has been assembled to help you learn more about your new boat and increase your enjoyment of it. Your EdgeWater has been built for a "Lifetime on the Water".

Boat safe and boat smart, we wish you many years of boating pleasure.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Truslow". The signature is stylized and cursive.

Peter Truslow  
President  
EdgeWater Powerboats



## Service Information

Please fill out the information below completely. It will help us in assisting you in the event your EdgeWater needs service.

Customer Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Cell \_\_\_\_\_ Business \_\_\_\_\_

E-mail Address \_\_\_\_\_

Dealer Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Purchase Date \_\_\_\_\_ Engine Make/Model \_\_\_\_\_

Delivery Date \_\_\_\_\_ Engine Serial # \_\_\_\_\_

Hull Number \_\_DMA\_\_\_\_\_ Ignition Key # \_\_\_\_\_

EdgeWater Power Boats, LLC. reserves the right to make alterations in the standard and optional equipment without incurring obligation to those boats already having been built. Every effort has been made to ensure that the information in this manual accurately describes vessels being built at the date of printing.

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# 1/General Information

## 1.1 General

The EdgeWater 228CC is a semi-custom offshore fishing vessel designed to be powered by a single outboard engine.

## 1.2 Owner / Operator Responsibilities

### Registration

Registering your boat is important to you. Federal Law requires that all powered, undocumented vessels be registered in their state of principal use. Contact the appropriate agency in your local state to obtain specific registration information.

### Reporting Boating Accidents

All boating accidents must be reported to the proper authorities in the state that the accident occurred. If someone dies or disappears as a result of the recreational boating accident, it must be reported immediately, with a formal report being made within 48 hours. If there is damage of more than \$500, or if the boat is completely lost, a formal report must be made within 10 days.

Questions regarding accidents may be directed to the Boating Safety Hotline, 800-368-5647.

### Education

Whether or not you are an experienced boater, attending a Boating Education Course can be beneficial. If you are inexperienced, it is the best, safest way to begin your life on the water. If you are an experienced boater, it's always good to sharpen your skills.

### Required Equipment

The U.S. Coast Guard requires certain equipment on each boat. In addition, they also set minimum equipment and safety standards. For more detailed requirement information, obtain "Federal Requirements And Safety Tips For Recreational Boats", by contacting the Boating Safety Hotline, 800-368-5647.



**Some states and local agencies require equipment that is not required by the U.S. Coast Guard. Your local agency or dealer can provide specific information regarding these non-standard requirements.**

## **2/Helm Control Systems**

### **2.1 General**

The helm station is the control center for the boat. The main control systems are the engine throttle and shift controls, the steering system, and the trim tab controls. These provide the operator the ability to control speed, direction, boat trim, and attitude. Each manufacturer provides manuals on the operation and use of their systems.

### **2.2 Steering System**

#### **General**

The manual, which comes with your steering system, provides specific information on your steering system.

The standard hydraulic steering system has two main components: a helm assembly and hydraulic cylinder. Turning the helm, which pumps fluid in the hydraulic hoses, activates the hydraulic cylinder and causes the motor to turn. The helm acts as both pump and reservoir. Please see diagram in the manual's appendix for a visual representation of this system.

While running at slow speeds, most boats tend to wander slightly back and forth. Keeping the wheel in the center without overcompensating for the slight wandering will prevent over steering and reduce the tendency to wander.

#### **Steering System Maintenance**

Routine system inspection should occur regularly. Cables, hoses, linkage and helm assemblies should be inspected for wear, corrosion, cracking, or deterioration. Cleaning and light grease should be applied to all exposed metal parts and other damaged or deteriorated parts should be replaced as soon as possible

### **2.3 Engine Throttle and Shift Controls**

Refer to the engine manual supplied with your engine for specific information on your controls. The ones depicted are those supplied by Yamaha.

There are three major components of the engine throttle and shift controls: handles, throttle cable, shift cable. Throttle and shift cables are push-pull and are connected to the fuel system (carburetor or fuel injection) and the other to the shift rod linkage. By moving the handles forward and back, the operator engages the cables thus controlling the amount of fuel being used and the gear selector for forward, neutral and reverse. Careful use of the controls provides smooth, responsive and safe operation.





**Do not bring the throttle back abruptly to stop the boat unless it is an emergency. Allow time for the engine RPM to come down to idle before shifting to reverse or severe gearbox damage could occur. PLEASE REFER TO YOUR ENGINE OWNER'S MANUAL FOR FURTHER OPERATIONAL PROCUDURES FOR YOUR OUTBOARD.**

## Engine Stop Switch

This device is designed to prevent the operator falling overboard while the engine remains running. The operator should always wear the engine stop switch lanyard while the boat is in motion. Pulling the lanyard from the control will stop the engine. If the engine will not crank properly, the lanyard may not be properly attached to the engine stop switch.



**Do not use the engine stop switch to stop the boat unless it is an emergency as it may impair your ability to quickly re-start the engine.**  
**\*\*NOTE\*\* Each ignition key has a 3 digit number stamped on it. Please record this number for future reference on the service information page in the front of this manual.**

# 3/Propulsion System

## 3.1 General

Your new EdgeWater 228CC is designed to be powered by a single outboard motor. Most 2-cycle outboards currently use an automatic system to mix the oil with the gasoline before the engine uses it. If equipped with a 2-cycle engine, there will be an oil tank in the aft port locker. Make sure this tank always has a sufficient amount of the recommended 2-cycle oil for your cruise, plus some reserve. 4-cycle engines require oil be maintained in the crankcase. Always check the crankcase oil level before each day's run.



**Always follow the manufacturer's recommendations and use only the recommended oil types.**



**Don't attempt to service your outboard or any of its components unless you are thoroughly familiar with its operation and dangers. Many of the moving part components are exposed and can pose an extreme danger to anyone unfamiliar with their operation. Always leave the servicing to a qualified technician.**

Each manufacturer provides manuals designed to assist you in the proper operation and maintenance of your new engine. Follow their guidance and schedules for proper operation of your new engine. With a modern outboard there is little to do as long as proper maintenance is performed, in accordance with the manufacturer's recommendations. If the boat is to be kept in saltwater for an extended period, electrolysis and marine growth can become a problem. When leaving your boat in salt water overnight or for an extended period, tilt the engine as high out of the water as possible. This will decrease the possibility of marine growth on the outside of the engine, as well as reduce the potential of marine growth compromising the cooling water inlets in the lower unit, which can cause overheating.



**Do not paint your outboard's lower unit with paints designed for boat hulls. Some can cause severe damage to your engine. Check with your engine manufacturer to get their recommendation.**

Do not attempt control adjustments unless you are very familiar with their function, operation and adjustment. Failure to properly adjust the system components can adversely affect your boat's performance and safety. Mis-adjustment can also cause severe control, engine or lower unit damage.



**Please return all warranty cards for boat, engine and other related items. This will assist you in the event you have a warranty problem.**

## 3.2 Engine Cooling System

Most outboard engines are cooled by water taken in through ports in the lower part of the drive section. Make sure these ports are free of debris or other items that might cause the flow to be restricted. Maintain a routine vigilance to see that the visual inspection streams have a steady flow of water. If they do not, shut down the engine to see if they are clogged or if there is a more serious problem. Be especially watchful if you have gone through an area of vegetation or shallow water as the intake ports can become clogged with weeds, dirt or other debris.



**Do not run your outboard without water coming into the lower unit. The water pump impeller can be damaged in only seconds of this type of operation.**

## 3.3 Propellers

A turning propeller moves the boat through the water, forward or backward. They should always be clean and free from nicks or dings, which can adversely affect performance. Your dealer can assist you in the proper selection of a propeller for your boat. This selection is based on the horsepower of the engine and its relationship to the size and weight of the boat.

Propeller sizes are determined by two numbers, which appear on different propellers at various locations. They are listed in sequence, for example 13 x 17. The first number is the diameter of the propeller and the second is the pitch. Pitch is the theoretical distance the propeller moves through the water with each complete revolution. The larger the number the greater the theoretical movement. It also follows that the larger the number the greater horsepower is required to turn it. With a load which is "normal", or usual for your boating activities, the engine should be able to reach its maximum operating RPM range at wide open throttle (WOT). With a light load on smooth water, the engine should reach its manufacturer's rated maximum operating RPM at wide-open throttle (WOT) and maximum trim. If it does not, you may have a propeller that has too much pitch. If it goes beyond the maximum recommended RPM range, you may have too little pitch. Neither condition is good for the engine. You will get shorter engine life and poorer performance than your boat and motor were designed to provide.



**If your boat came from the factory with a propeller selected by EdgeWater, it should already be optimized for the performance of your boat. Before changing the pitch or diameter of your propeller, always check with your dealer to determine how the changes will affect your boat and engine performance. Certain modifications such as bottom paint or options that affect weight balance and/or wind resistance may lower peak rpm. Always check with your dealer first if optimum rpm cannot be attained.**

### 3.4 Engine Power Tilt and Trim

The power tilt and trim system on your outboard provides the ability to optimize the running angle of your EdgeWater 228CC to allow for load and sea conditions. Moving the outboard lower unit toward the transom is generally referred to as trimming “in”, while moving the outboard lower unit away from the transom is referred to trimming “out”. It is generally best to have the engine trimmed in for acceleration from displacement to planning mode. This brings the bow down and requires less fuel and effort on the engine’s part to plane off the hull.

The first 20° of movement aft of the transom is referred to as trim and is the area generally used to operate the boat while on plane. The area beyond the first 20° is referred to as tilt and is usually reserved for operating in shallow water or pulling up on a beach.

While running under normal conditions, the bow should be in a 3° to 5° up angle to maximize the hull’s ride and performance. When sea conditions are rougher than normal, bringing the bow slightly down may improve the ride and will also allow the boat to remain on plane at a lower speed.



**Watch the hoses and cable on your engine as it is tilted to its full tilt position. They may become caught and damaged if the engine is in the wrong position.**

### 3.5 Engine Instrumentation

The following is presented to familiarize you with the instruments, which may be on your boat. Every boat is not equipped with full instrumentation.



**All factory installed Yamaha engines include Yamaha’s digital multifunction tachometer and speedometer. Refer to your engine operators’ manual for use details.**

#### Tachometer

The tachometer displays the number of revolutions per minute (RPM) the engine is turning. There is a designed operation RPM range for the engine. Become familiar with the operating range of your engine and its operating characteristics. The tachometers designed to aid the boater to assure the engine performs within that designed range. The tachometer can be used to better understand the performance of your engine and your EdgeWater 228CC. By monitoring your tachometer as you operate your EdgeWater, you will find RPM ranges that work better in certain sea and load conditions. Be alert the tachometer operation may provide an early indication of difficulty, before it becomes irreversible.

#### Speedometer

The speedometer indicates the boat speed in miles per hour. Some types work using a spinning wheel to determine the boat speed. Their accuracy can vary from the actual over the bottom speed due to many factors. Other boat speedometers calculate the speed by amount of pressure the moving water forces into a “pitot” tube. These gauges should only be used as indicators of approximate speed and not used as absolute speed indicators. NOTE: All Yamaha speedometers utilize a pitot tube. In the event that erroneous speed-readings appear, it is likely caused by debris clogging the pitot tube. Consult with your dealer on methods to clean the tube and restore normal operation.

## Temperature Gauge

This is designed to monitor the operating temperature of your engine's cooling system. A sudden rise from the normal should be investigated to determine if there is an obstruction in the cooling system.

## Water Pressure Gauge

This gauge measures pressure in the engine cooling system. If the pressure changes from the norm it could indicate a complete or partial blockage in the system or a water pump problem. If this does not return to normal, your dealer should check it to make sure the cooling system is operating properly. NOTE: Factory rigged boats are not equipped with water pressure gauges.

## Fuel Gauge

This gauge indicates the amount of fuel in the fuel tank. It is always prudent to follow the "rule of thirds", one-third of the tank to get the destination, one-third to return, and one-third in reserve. NOTE: It is important to "calibrate" your fuel gauge during your first initial boat trip. Record the fuel reading prior to fill up and how many gallons to top off the tank at each fill-up. Make sure the boat is floating the same position. By subtracting the amount to top off from total fuel capacity you can calculate gallons remaining in the tank for 3/4, 1/2, and 1/4 gauge readings.



**This gauge is a measure of relative fuel supply and is not a calibrated instrument!**

## Voltmeter

This meter displays the voltage for the battery and charging system.

## Hour Meter

The hour meter keeps a record of operating time and is very useful for scheduling maintenance.

## Engine Alarms

Most outboards are equipped with several audible engine alarms. Your engine owner's manual will familiarize you with these and their sometimes-distinctive sounds.



**Warning:** If an engine alarm sounds, shut down the engine until the source of the problem is determined.

## Compass

The compass assists in determining your location by indicating your position relative to magnetic north. For accuracy, your compass may need to be adjusted to take into account specifics of your boat and geographic location. Please refer to the material provided with your compass for "compensation".

## Instrument Maintenance

Your instrument faces should be periodically cleaned to keep them free of salt and atmospheric debris. The ignition switches should be periodically sprayed with a contact cleaner/lubricant to keep them free of corrosion and dirt.

# 4/ Fuel System

## 4.1 General

All fuel systems and components on your EdgeWater 228CC have been checked and each fuel tank has been pressure tested. This inspection and pressure testing assure that your fuel system is leak proof and safe. It is the purchaser's responsibility to maintain the fuel system in a safe manner. Make periodic inspections to determine the system is still safe and free from leaks. Special care should be taken when inspecting joints and connections to make sure they have not loosened with vibration.

The EdgeWater fuel system has been designed to meet or exceed the requirements of the U.S. Coast Guard, the National Marine Manufacturers Association, and the American Boat and Yacht Council, which were in effect at the time of your boat's manufacture.



**If any odor of gasoline is detected, immediately shut off all engines and electrical devices until the source and condition of the odor has been determined and eliminated. Have a fire extinguisher at the ready until the condition has been resolved.**

## 4.2 Fuel Fill

The fuel fill cap is located on the port side and is labeled "GAS". The fill is opened by turning it counterclockwise, and closed by turning the cap clockwise. Tighten the cap until it is snug, not so tight it cannot be removed at the next fuel stop, or so tight that the rubber o-ring is damaged, allowing water to enter the system.

## 4.3 Fuel Vent

This vent is located and incorporated into the fuel fill cap. This vent allows air to escape from the tank and thus allows fuel to enter. Make sure this vent is kept free from debris.

## 4.4 Fueling

Your EdgeWater 228CC is equipped with a built-in 120 gallon fuel tank. Before fueling, you should follow these procedures.

- Make sure the boat is securely moored.
- Make sure all switches are off and all cigarettes are extinguished.
- Know the location of the fire extinguisher in case of an emergency.
- Remove the fuel fill cap.

- Place the nozzle firm against the side of the opening to prevent static discharge
- Begin fueling.
- When the tank is full, stop fueling.
- Remove the fuel nozzle.
- Install the fuel cap.
- Check the area for fuel odors.



**Warning: If fuel odors are detected, do not start the engine! Check to make certain there are no leaks or system problems before starting the engine.**



**Warning: Do not fill the fuel tank while the engine is running. Do not allow smoking or open flames within 50 ft. of the fueling area. Fuel is very flammable. To prevent damage to the engine, use only fuels without harsh additives or alcohol. Refer to your engine owner's manual for specific fuel requirements.**

## 4.5 Fuel System Maintenance

Regularly inspect the fuel system components. All lines, fittings, and bulbs should be flexible and not corroded. If fittings or other components are found to be cracked, they should be replaced at once. If you use your boat infrequently or do not use it for an extended period of time, a fuel conditioner should be added to a full tank of fuel to prevent fuel deterioration and damage to the fuel system.

## 4.6 Fuel Filters

A fuel filter is installed in the transom area of your EdgeWater 228CC. This is a fuel/water separator type of filter and is designed to prevent water from entering your engine. The fuel filter element is a spin-off type element. At a minimum, this element should be replaced at the beginning of every boating season. Always carry a filter wrench and spare filter of the type supplied on your boat.

# 5/Electrical Systems

## 5.1 General

Your EdgeWater 228CC operates on a 12 volt DC system, similar to your automobile. The battery or batteries are typically lead acid type and require similar maintenance to your car's battery. An electrical schematic is included in the Appendix for specific location of electrical components.

## 5.2 Panel Switches

Your EdgeWater 228CC is equipped with panel mounted breakers. On the 228CC, switches are provided for the navigation lights, decklights, manual bilge pump, livewell, raw water pump, freshwater pump, spreader lights for t-top, fishwell pumpout (not applicable), and four accessory switches. A wiring diagram is included with this manual to assist you in troubleshooting the boat's electrical system. Please note that the accessory circuits are each protected by a circuit breaker.

Check that the requirement of any device you install does not exceed the rating of the circuit breaker being used.

When equipped with dual batteries the boat will have a battery selector switch which provides isolation for each battery and also provides the ability to have a back-up in case of a dead or weak battery. When in port and running accessories such as entertainment equipment or pumps, the selector switch should be set on “1” or “2”. When leaving the boat unattended, the selector switch should be in the “OFF” position.

Current is supplied to the automatic float switch and the bilge pump even when the battery selector switch is in the “OFF” position.



**Avoid running the selector in the “both” position, as the weak battery will drain the charged battery, leaving you with two weak batteries. Instead, start the engine using the charged battery. Once the engine is running, turn the battery switch to the “both” position to charge both batteries.**

## 5.3 Electrical System Maintenance

At the beginning and end of each season the exposed electrical components of the switch panel should be sprayed with a non-conductive rust/corrosion inhibiting spray. Light bulb connections and running light connections should be covered with a non-water soluble lubricant. Care must be taken not to get grease on the glass portion of the lights, as it will cause them to overheat and burn out. Inspect all wiring for breaks, loose terminals and sound insulation. Replace worn or deteriorated components. Check the electrolyte level in the batteries regularly and fill with distilled water, as necessary. **DO NOT OVERFILL.**

# 6/Raw Water & Freshwater Systems

## 6.1 General

Your boat is equipped with a 20-gallon freshwater system, including a freshwater tank, distribution lines, a pump, and a showerhead assembly. The standard raw water system consists of a high-speed pick-up, located on the transom, a pump, and one or more livewells and washdowns.

## 6.2 Livewell Operation

A low maintenance centrifugal pump installed in the bilge fills the livewell. The livewell switch on the control panel controls the pump. To operate properly, the valve inside the livewell must be adjusted to provide an even flow in and out of the livewell. Too much and it will be more than the drain can handle, too little and the water will not get the proper circulation. The valve should be turned counterclockwise to open and clockwise to close. There is a strainer attached to the overboard drain to regulate the height of the water level. The livewell drains through a hose connected to a valved thru-hull fitting on the boats’ transom. To completely drain the livewell, open the transom valve, remove the bottom plug and allow the water to drain overboard. A diagram of the raw water system is included with this manual.

## 6.3 High Pressure Washdown

The washdown system is comprised of a diaphragm pump mounted on the hull inside the starboard side transom access door and a washdown fitting to attach a hose. The washdown switch on the control panel controls the pump. The diaphragm pump is fed through the same thru hull and high-speed pickup as the livewell pump. The washdown hose outlet is located on the starboard side of the transom area. With an attached hose, this system can be used to wash debris from the boat. The switch should be turned on immediately prior to use and turned off when not in use. When activated, the pump's pressure switch will automatically control the pump. It is normal for the pump to cycle on and off in response to flow rates and water demand.



**Always turn off the high-pressure washdown pump switch when leaving the boat unattended.**

## 6.4 Freshwater System

The freshwater systems diaphragm pump is mounted on the inside of the console access locker. The freshwater switch on the control panel controls the pump. A freshwater tank located in the fuel tank cavity feeds the diaphragm pump. The showerhead assembly is located on the starboard side of the transom area. The freshwater switch should be turned on immediately prior to use and turned off when not in use. When activated, the pump's pressure switch will automatically control the pump. It is normal for the pump to cycle on and off in response to flow rates and water demand.



**Always turn off the freshwater pump switch when leaving the boat unattended.**

## 6.5 Raw Water System Maintenance

The following checks should be made periodically to assure your system operates properly:

- Periodically spray pumps with a protective silicone solvent to reduce corrosion.
- Periodically check in-line filter to remove any collected debris.
- Fishboxes and livewells should be drained and cleaned after each use.
- Periodically check hoses and connections for signs of deterioration.
- Periodically check water tank straps for looseness.



# 7/Drainage System

## 7.1 General

All water drains from your EdgeWater 228CC by gravity. Your boat is self-bailing at rest. It is important to check drains frequently to make sure they are clear and free flowing. Review the schematic in the Appendix and become familiar with the location of each thru-hull drain.

## 7.2 Drain System Maintenance

Essential tasks must be done periodically to maintain your boat's ability to drain in adverse conditions.

- Clean cockpit drains to remove debris or other foreign objects that could prevent boat from draining properly.
- Check bilge area for debris and foreign material, which can cause automatic switches to malfunction.
- Flush drains to keep free flowing and clean.

## 7.3 Cockpit Drains

Your EdgeWater 228CC drains aft thru two cockpit drains located at the aft deck area. The deck is designed to take water from other draining parts of the boat such as the forward lockers and cup-holders and drain it overboard. These should be checked periodically to make sure they are clear running and free from debris. When washing the boat down after use, use a hose nozzle with a high-pressure stream to make sure they are free running.

## 7.4 Transom Bilge

Your EdgeWater 228CC has a hull bilge where the raw water pump and automatic bilge pump are located. The bilge pump is designed with an internal float so that it automatically turns on if the water in the sump rises, or a momentary switch on the panel may also activate it. This pump should be periodically checked to make sure it is working properly and that the drain screen is clear. To check the pump, squeeze the pump sides and lift it from the base, which is fastened to the hull. The screen will be easily seen and if there is debris, it may be cleaned and replaced. Replace the pump assembly and check its operation by turning on the momentary switch on the helm switch panel.

When the boat is out of the water it may be drained by a thru hull drain located at the bottom of the transom. This drain has a brass plug that may be removed with a ½" wrench. This plug should be periodically checked for tightness.



**Note: The bilge sump area should be checked for oil before operating the bilge pump. The discharge of oil from a bilge area is illegal and is subject to a fine. The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or a discoloration of the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of \$10,000.**

## 7.5 Locker Drains

On the 228CC, there is a forward anchor locker that drains directly through the hull. There are also bow fishwell and storage lockers. The starboard locker drains onto the floor, the port drains overboard. These lockers are close the waterline of the boat. It is possible that under certain conditions seawater may enter the lockers. This is normal and no cause for alarm, some water may remain in the rear most part of the lockers. If you are using the port fishwell locker for something other than fish & ice, (i.e. dry storage), use the rubber plug provided in the owner's bag to prevent sea water entry.

## 7.6 T-Top Drain (optional T-Top)

There are small holes drilled into the bottom of the T-top to facilitate the removal of any water that might inadvertently get into the structure. These should be periodically checked, especially during freezing weather, as trapped water could freeze, expand, and damage the hardtop.

# 8/Safety Equipment

## 8.1 Required Safety Equipment

Contact the U.S. Coast Guard Boating Safety Hotline at 1-800-368-5647, or 1-202-267-1070 to obtain a pamphlet on the latest required and suggested safety equipment. The Coast Guard Auxiliary also offers "Courtesy Examinations" to help ensure your boat is properly equipped.

The following is a list of required safety equipment to be aboard your boat. This may be modified from time to time and it is suggested that you contact the U.S. Coast Guard Boating Safety Hotline at 800-368-5647 or pick up a copy of the latest "Federal Requirements and Safety Tips of Recreational Boats" pamphlet.

- **Personal Floatation Devices (PFD's)**

These must bear a tag that they have been approved by the U.S. Coast Guard and must be in serviceable condition. They must also be of the appropriate size for the wearer, i.e. for children there must be children's life vests on board. Many states now require children to wear PFD's at all times. You should check with your state to determine the proper requirements. You should maintain at least one Type I, II, or III PFD for each person on board, plus one throwable device, a ring or boat cushion, Type IV.

- **Visual Distress Signals**

These are now required in virtually all waters of the United States. If in doubt, please check with the U.S. Coast Guard Boating Safety Hotline at 1-800-368-5647 for a specific answer.

- **Pyrotechnic Visual Distress Signals**

These must be U.S. Coast Guard approved, be in a serviceable condition, and be readily accessible. They each have a service life date and are not counted beyond this date. These types include both hand held flares and aerial flares.

- **Sound Signaling Device**

You must have an efficient means of making a proper sound signal in the event of distress or poor visibility. This may be a horn, whistle, or bell.

- **Navigation Lights**

These come with your EdgeWater and meet U.S. Coast Guard requirements. It is important that you periodically check to make sure they are in working order. It is very important these be checked prior to any cruise that will keep you on the water after dark.

- **Fire Extinguisher**

A fire extinguisher is standard on all EdgeWater boats. These require regular inspection to make certain they are ready for use. Questions may be directed to the U.S. Coast Guard Boating Safety Hotline at 1-800-368-5647, or 1-202-267-1070. You should, as part of routine boat maintenance; check to make sure your extinguisher is still operable.



**Never discharge your fire extinguisher to see if it still works. This will cause it to lose pressure. If it is accidentally discharged or if it is used on a fire, replace it immediately.**

## 8.2 Suggested Safety Equipment - Inshore

Suggested safety equipment, over and above the required equipment is:

- First aid kit and manual
- Boat hook
- Tool kit
- An adequate number and size of line should be on the boat. Bowlines should be at least 1/3 longer than the boat's length and stern lines at least as long as the boat. When operating in areas with unusually high tidal range, this should be lengthened. The minimum size line for a small boat is 3/8" diameter 3-strand nylon. Refer to one of the listed references in the Appendix for a complete discussion on line size relative to boat length.
- Waterproof flashlight, with good batteries
- Spare batteries
- Spare boat keys
- Binoculars
- Tow line. This should be a minimum of 50' long with at least one size increase over the boat's mooring lines.
- Day/Night visual distress signals
- Local charts and compass
- Properly sized anchor and line
- Fenders of the proper size



**Always carry water, even for a 10 minute cruise.**

## 8.3 Suggested Safety Equipment – Offshore

In addition to the required equipment, and the suggested inshore equipment, there is additional equipment that is prudent to have when venturing offshore. No matter what the conditions at the start of the trip, the situation can change rapidly and all your equipment and skill can be required to safely bring your crew home to safety.

- VHF Radio
- A supplemental, portable VHF is also a good backup
- Sunscreen
- Spare propeller and the knowledge of how to properly change it, if required
- Extra clothing for changeable weather conditions
- Spare anchor with sufficient line for the water depth
- Mirror
- Charts

## 9/Safe Operation

### 9.1 Pre-Cruise Check List

- Check provisions. Make sure you have plenty of water in the event you have a problem and are delayed.
- Check the weather forecast. Avoid conditions that are beyond the experience of yourself and your crew.
- Do you have the correct safety gear aboard and is it in good working order?
- It is advisable to carry jackets or foul weather gear in the event of adverse weather conditions.

Your EdgeWater 228CC is equipped with a maximum capacity rating plate permanently affixed to the helm area of your boat. It will provide information regarding the maximum number of people you can safely have aboard, the maximum amount of weight the boat can safely carry, and the maximum horsepower your boat was designed to handle.



**Do Not Overload your boat.**

### Before Starting the Engine

- Determine if the trip can be safely made by checking the weather. Are all the proper boat and personal documents on board?
- Check operational equipment, such as running lights and horns to make sure they are on board, and operable.
- Make sure there are enough provisions for the cruise.
- Leave a float plan with someone who can notify authorities in the event you do not return in the allotted time.
- Double check the fuel and engine oil levels.
- Set the battery switch for the proper setting.
- Check the emergency stop lanyard to see if it is properly attached, and that the shift lever is in the neutral position.
- Check fuel and oil to make sure you have more than enough for the planned trip.



**Remember the rule of thirds: 1/3 out, 1/3 back, and 1/3 in reserve.**

## After Starting the Engine

- Upon initial start-up, make sure to follow the manufacturer's recommendations for engine break in.
- Check to be sure there is a telltale water stream exiting the engine.
- Check the gauges to determine if everything is nominal.
- Check to make sure everything is secure and properly stowed away; remember the boat's movement is dynamic and anything that is loose will become a hazard at the worst possible time.
- Have a great time on the water



**Remember that the captain is responsible for the safety of the crew and passengers and for his/her boat's wake damage.**



**Never operate the boat while under the influence of alcohol!**

- Make sure someone else on-board knows how to operate the boat in the event you are injured and unable to operate the boat.



**If you are operating the boat for the first time, make sure you follow the engine manufacturer's break-in recommendations. This will assure proper break-in and reduce the possibility of engine problems.**

## 9.2 Basic Rules of the Road

The following is not intended to be a comprehensive course in seamanship and rules of the road, but instead an introduction. It is strongly recommended that a boating safety course be taken from your local Coast Guard Auxiliary or local Department of Natural Resources. There are also many good reference books in your local library as well as numerous sites on the Internet.



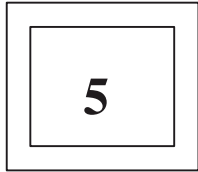
**Remember, paddleboats, sailboats and other vessels (such as barges) that are unable to maneuver, always have the right of way over powerboats. Sail boats, when under power, are considered motorboats. However, always boat defensively.**

### Aids to Navigation

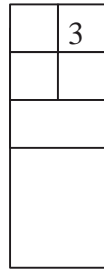
Along the coastlines and in navigable inland waters, the U.S. Coast Guard has placed aids to navigation. These have been placed for the boating public's safety. Please become familiar with them and learn to use them to make your boating safer and more fun.

## Federal Waterways Marking System Aids

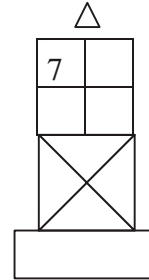
Lateral Aids as seen from Seaward (portside green)



Daymark

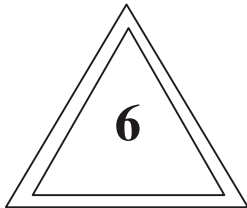


Can Buoy



Lighted Buoy  
(green light)

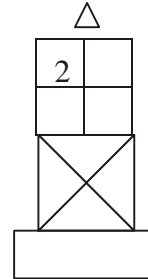
Lateral Aids as seen from Seaward (starboard side red)



Daymark



Nun Buoy



Lighted Buoy  
(red light)

## 9.3 Safe Operation

### Getting Underway

After clearing the dock, make sure the power trim (if so equipped) is trimmed down. (This will bring the boat up on plane more quickly and easily.) Give the engine sufficient throttle to bring it to plane briskly, then back down to the cruising speed of your choice, based on the sea conditions and your planned activity.

- After coming on plane, raise the trim to a point where the engine is level with or slightly above the plane of the water. This is usually with the bow at about 3° to 5° above level. This will provide the smoothest, most economical operation.
- Keep a constant vigil for other boats and watercraft and be prepared to give way, or slow down, if necessary. (We suggest you enroll in a boating safety course offered by the U.S. Power Squadron or the Coast Guard Auxiliary.)
- When coming off plane, allow the engine to come back to an idle speed until the boat slows down.
- Shift to the neutral position.



**Never allow anyone to sit on the gunwale while the boat is moving!**

While underway keep a constant vigil for other craft that may be approaching, the gauges on your boat, location of passengers and the general sound and feel of your craft. Often, a change in the way the engine sounds or the boat feels will presage a problem. Your early attention may prevent a more serious problem.



**If you should strike an underwater object, bring the throttle to neutral and stop the engine. Inspect the lower unit for damage. If none is apparent, proceed as before but heighten your awareness of the engine and its operation to make sure a problem has not gone undetected.**

## 9.4 Towing or Being Towed

Sooner or later you will have the misfortune of having to be towed in or needing to tow someone back to a safe landing. It is important that this be done properly so that a difficult situation does not become worse. This comes under a longstanding, unwritten law of the sea that one boater will aid another in time of distress. The 1971 Boating Safety Act grants protection to those assisting others at sea as "Good Samaritans" and absolves them of civil liability rising from the aid being provided.

When being towed, it is best to have a line passed from the tow boat to the one being towed, assuming the towing boat has a line of adequate size and length. The towboat should also tow the disabled vessel from as close to amidships as possible. This reduces the tendency to yaw. If possible, the towing boat should use a bridle attached to the two stern ski tow eyes. The vessel being towed should attach the towline to the bow eye that holds the boat onto the trailer. This provides an optimal tow position and a strong tow point. Have the occupants of the boat being towed sit aft of amidships, but not all in the stern. Attention should be given so the boat remains balanced and on an even keel. Some boats tow better with the engine tilted out of the water, others need the engine to act as a rudder to be able to maintain a straight line. Start with the engine tilted. If that does not work well lower the engine until it is about perpendicular.



**You should never attempt to plane off the boat being towed.**

## 9.5 Stopping the Boat

Gradually bring the controls back to the low forward position and allow the boat to gradually slow down. After the boat has dropped into the displacement mode, shift to the neutral position. If you have been running the boat hard for some time, allow the engine to idle for several minutes to gradually cool down. After docking and securing the boat, raise the trim tabs to the fully upright position and turn off the ignition.

## 9.6 Docking

Safe docking keeps your boat from being damaged and is an indicator of a capable and knowledgeable captain. There are many docking maneuvers, which will be done while boating; only the basics will be discussed here. Several constants to always use as guides while docking:

Perform docking at idle or no wake speeds. Always try to come into wind or current, whichever is stronger. This allows you to use the natural forces on your boat to act as a natural brake. The skipper is free to use the boat's power to control speed and direction.

The approach to the dock should be at roughly a 45° angle, when possible. This approach angle allows the captain to bring the bow close to the dock, and then to use reverse, while turning the wheel toward the dock, to bring the boat to a safe, controlled stop.

Never approach a dock on plane. Even after reducing engine speed, the wake will push the boat uncontrollably into the dock.

## 9.7 After Operation

- Refill the fuel tank and engine oil if yours is a two cycle engine. A full fuel tank is less subject to condensation and therefore, less fuel problems. If you will be leaving the boat for an extended period, use a good fuel stabilizer. Each engine manufacturer makes their own and proper use will avoid many fuel related and lay-up problems. Remember; always follow the manufacturer's recommendation.
- If the boat is to be left in the water, make sure it is secure and free to properly accommodate any tide.
- Turn off all electronics and leave the battery switches in the off position. Remember, the bilge pump will operate properly even with the battery switch turned off. On a comforting note, your EdgeWater 228C is fully self-bailing and unsinkable. Proper precautions, however, are always prudent.

## 9.8 Trailering Your Boat



**Note: If you have doubts or questions about your tow vehicle or towing, contact your dealer.**



**Before going on the highway, make sure your tow vehicle and trailer meet the local regulations for trailers and towing in your state.**



**Before leaving the driveway make sure the lights on the trailer are operating properly. If necessary, get a second person to make sure of the operation.**

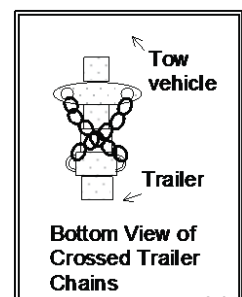


**At least once a season, check and repair/replace the trailer wheel bearings.**

The trailer should be adequately sized for your boat. Allow about 10% above the maximum boat weight for trailer capacity.

Make sure your vehicle is properly equipped to handle the load. This includes engine, hitch, frame, brakes, transmission cooler, and vehicle capacity.

Securely attached the boat trailer to the vehicle hitch, hook the safety chains and cross them under the hitch and check the lights to ensure they are hooked up and working.





If you are new to trailering your boat, it is best to practice before actually getting in a situation where you are not sure of your ability. If possible use a trailer without a boat to practice with as you can see the trailer's movement without the boat. Also, your vision will not be impaired by the boat's presence.

When going forward, remember that your trailer turns inside the tow vehicle, therefore the tow vehicle must start the turn slightly later than without the trailer. This allows the trailer to turn inside the tow vehicle radius without leaving the roadway.

When backing, remember, the bottom of the steering wheel will move in the direction the trailer will ultimately go. Backing consists of two parts, breaking the trailer by turning the vehicle's backward motion in the opposite direction from the ultimate trailer direction, then following the trailer toward the correct direction with the tow vehicle. It is prudent to go to a large paved area with little traffic to practice these maneuvers before attempting them on the boat ramp.



**Remember to check to see if the tow ball is the same size as the trailer coupler. Never use a different size.**

## 9.9 Launching Your Boat

When you arrive at the ramp, prepare your boat before getting in the ramp line.

- Make sure the hull plug is in place.
- Place a line on the bow and stern cleats to be at the dock ready.
- Have fenders out and on the proper side.
- Raise the engine so it will not be damaged during launching.
- Make sure the battery switch is in one of the "on" positions, and the boat key is in the ignition.
- Remove any tie-down straps.
- If someone is with you, hand him or her the free end of the bow line and have them follow the trailer as you enter the ramp.
- Back the boat into the water until it barely floats. Remove the winch line. The boat should now come free with a gentle tug on the bowline.
- Lower the engine, pump the fuel bulb until firm and crank the engine.
- Let it idle for a few minutes to warm up before getting under way.

## 9.10 Retrieving Your Boat

There are several ways to retrieve your boat. The method described herein requires two persons.

- Drop someone off to back the trailer into the water, or do it yourself. If doing it yourself, make sure you make it easy and safe to exit the boat after it is loaded onto the trailer.
- Back the trailer into the water until the bunks are completely submerged, or until the middle roller is just touching the water. (This depth should provide enough to float the boat until the last minute and yet provide enough resistance from the trailer to stop the boat short of the winch stand.)
- Drive the boat onto the middle of the trailer. This is assuming it is a trailer designed for drive on. Speed should not be over one or two knots. Fast enough to maintain steerage but slow enough to be easily controlled.

- Once the boat has touched the trailer, a little forward throttle should secure the boat on the trailer and allow you to put the engine in neutral and have the winch line attached to the bow eye. The boat should now be easily winched onto the last several feet of the trailer.



**When properly done, this method is easy, safe and will not harm boat ramps by powering away the soil from the base of the ramp.**

## 10/Routine Maintenance

### 10.1 Exterior Hull and Deck

#### Fiberglass

When you remove the boat from the water, clean it as soon as possible. Dirt, debris and grime will come off easier while it is still wet. Use a brush and biodegradable boat cleanser. Stubborn areas may be cleaned with a non-abrasive cleaner. Harsh abrasives and chemical cleaners are not recommended as they can damage the gelcoat, shorten its life, and make it more susceptible to stains. When used in saltwater, the boat should be washed after each use. NOTE\*\* Do not use any cleaners containing ammonia or with extremely high or low PH levels as this will effect condition of gelcoat.

The hull should be waxed periodically, at least once a year, with a high quality wax. This will keep it shiny looking and help prevent chalking and aging. The wax will also make it easier to keep clean by closing the pores that trap the grime.



**If the boat is to be kept in freshwater or saltwater for an extended period, a proper barrier coat and bottom paint must be applied to prevent possible Gel Coat blistering.**



**Do not wax non-skid areas. It could make them slippery and increase the possibility of injury.**

#### Stainless Steel Hardware

The stainless steel hardware of your boat should be cleaned and washed after each boat use, especially in salt or polluted water. While it is “stainless” it is not “stain-proof”. If it is not cleaned, it can develop surface rust stains. It can be protected with a high quality automotive or boat wax. It can also be protected with a commercial metal cleaner and protectant.

#### Anodized Aluminum

The aluminum can be maintained with a regular washing with soap and water. Otherwise it can develop a surface corrosion, which can penetrate the anodizing and attack the aluminum underneath. If badly scratched, it can be repaired with an aluminum or silver paint.

## Chrome Hardware

Use a good metal polish and protect with wax. This should be done every couple of months or as soon as you notice any finish deterioration.

## Plexiglas

Do not use products with ammonia on your Plexiglas windscreen. It can mar the surface and reduce its transparency. A mild soap and water or non-ammonia cleaner will work well. In addition to ammonia, cleaners should not be used which contain solvents, acetone, or alcohol.

## Upholstery

Soap and water should be periodically used to clean the vinyl. Vinyl protector products can make the seats slippery, which may not be desirable. When cleaning the vinyl, be gentle. Do not use cleaners that contain ammonia, acetone, strong solvents, or powdered abrasive cleaners. They can damage and shorten the vinyl's life.

## Sump Area

Your EdgeWater has a bilge area in the after part of the boat. This can be maintained well by periodically using a boat bilge cleaner. Follow the directions carefully.

## 10.2 Engine

If you have a new engine with a built-in flushing device, the engine may be flushed without cranking. If the engine does not have a built-in flush device, one may be purchased to fit.

To flush the engine, after connecting a water hose to the proper connection, turn on the water. Put the engine control in the idle position and crank the engine. Only let it run a couple of minutes. The gear case is water-cooled and is not designed to run out of the water for extended periods.



**Do not crank the engine without water running. Water acts as a coolant and also a lubricant for the water pump.**



**Do not rev the engine when flushing; idle speed is sufficient!**

The exterior of the engine will respond well to a good quality wax. This should be re-applied every several months as the marine environment is a very harsh one and the constant sun exposure will deteriorate your motor's finish. Consult the engine manufacturer's owner's manual for specific instructions. In areas where there is a conflict between this manual and the engine manufacturer's manual, the engine owner's manual will take precedence.

# 11/ Exterior Equipment

## 11.1 Anchor Locker

The anchor locker on your new EdgeWater 228C has been designed for a danforth style 8S anchor. On the 228C the anchor locker is located forward on the centerline. Before using the anchor for an extended period or overnight, make sure the free end of the anchor line is shackled to the boat's forward eye. On the 228C your anchor line should have a shackle attached to the free end which is then attached to the eye in the anchor locker at all times.



**Remember, your anchor line should be a minimum of 7 times the depth in which you routinely operate.**



**Your EdgeWater 228CC should have a minimum of 150 to 200 feet of ½” three strand nylon line. If you routinely venture offshore, remember the 7 times depth rule. This may sound like a lot but if your engine fails in 100 feet of water, maintaining your position will be very important to being recovered.**

## 11.2 Swim Platform (optional)

If your EdgeWater 228C is equipped with the optional swim platform, there are several important things to remember for safe use and operation of this useful option.

- Always shut down the engine if persons will be using the platform. Do not just settle for the engine being in neutral.
- Make sure the folding ladder portion has been properly stowed before getting underway.

# 12/Seasonal Maintenance

## 12.1 Engine

Refer to your engine manual for any specific information pertaining to your engine. For the fuel system, add a fuel stabilizer to a full fuel tank as per the stabilizer's instructions. Run the engine for a minimum of 10 minutes to allow the fuel stabilizer to reach the engine.

- Wax the engine exterior.
- Remove the engine cowl and spray the engine's powerhead with a non-conductive lubricant spray. Do not spray directly on joints that are lubricated with grease as some lubricant sprays may dissolve grease.
- Grease all external zert fittings on the engine and steering system. Use grease that is consistent with engine manufacturer's recommendations.

- Change the engine lower unit lubricant. This will remove contaminants that may have built up throughout the boating season. This is also a good time to check for lower unit seal problems. If there is a leak, have it repaired by your dealer.
- Remove the propeller and grease the propeller shaft. Inspect the shaft and propeller for unusual wear or signs of deterioration.

## 12.2 Hull

- Wax the entire boat. The hull will maintain its factory delivered luster much longer if waxed at least once a season. The inside of the boat, which is subject to the sun's direct rays, will also respond well to a good coat of marine wax.



**DO NOT wax the non-skid surfaces.**

- Remove the hull plug so the sump area can breathe.

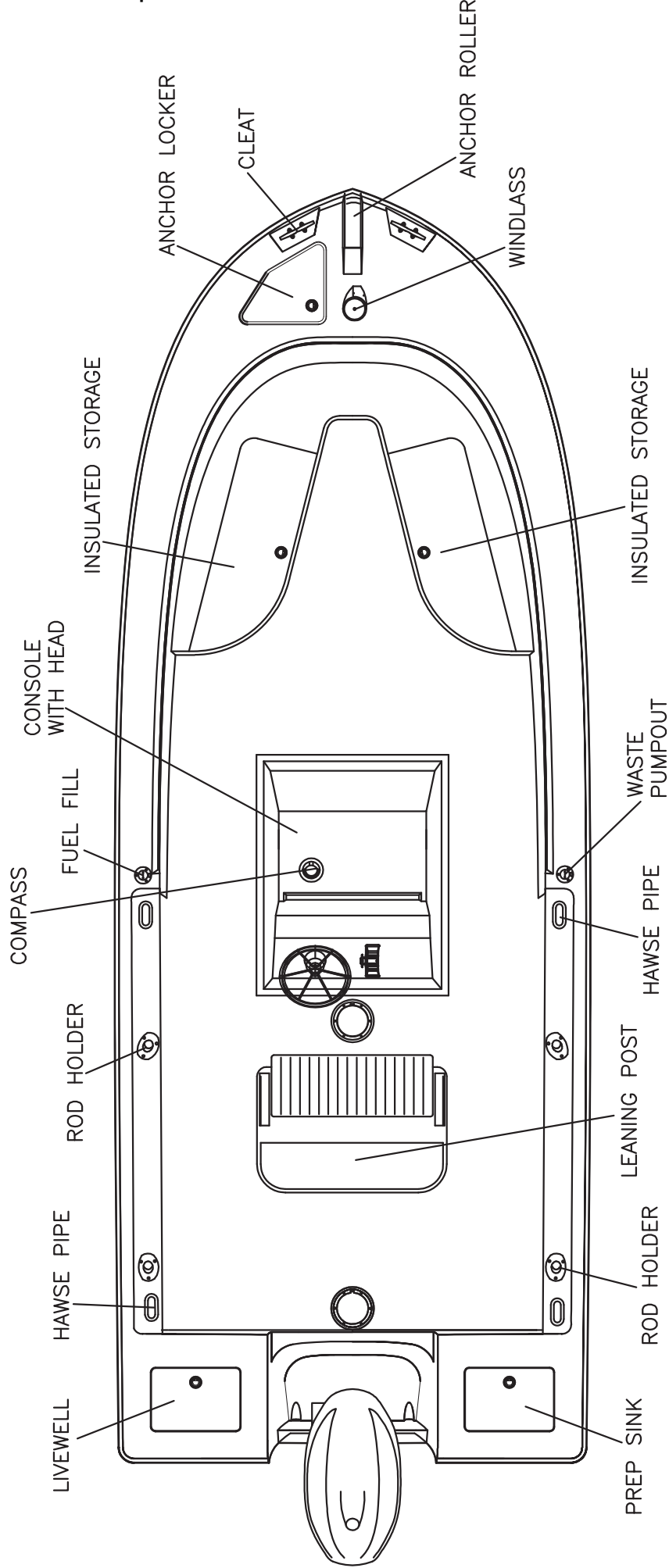
## 12.3 Storage

- It is best to store the boat inside, however if inside storage is not available, use the following guidelines in order of preference
- Under awning with no boat cover
- Outside under a boat cover. (Boat cover should allow ample ventilation and be removed periodically to allow moisture to dissipate avoiding mildew growth and staining.)

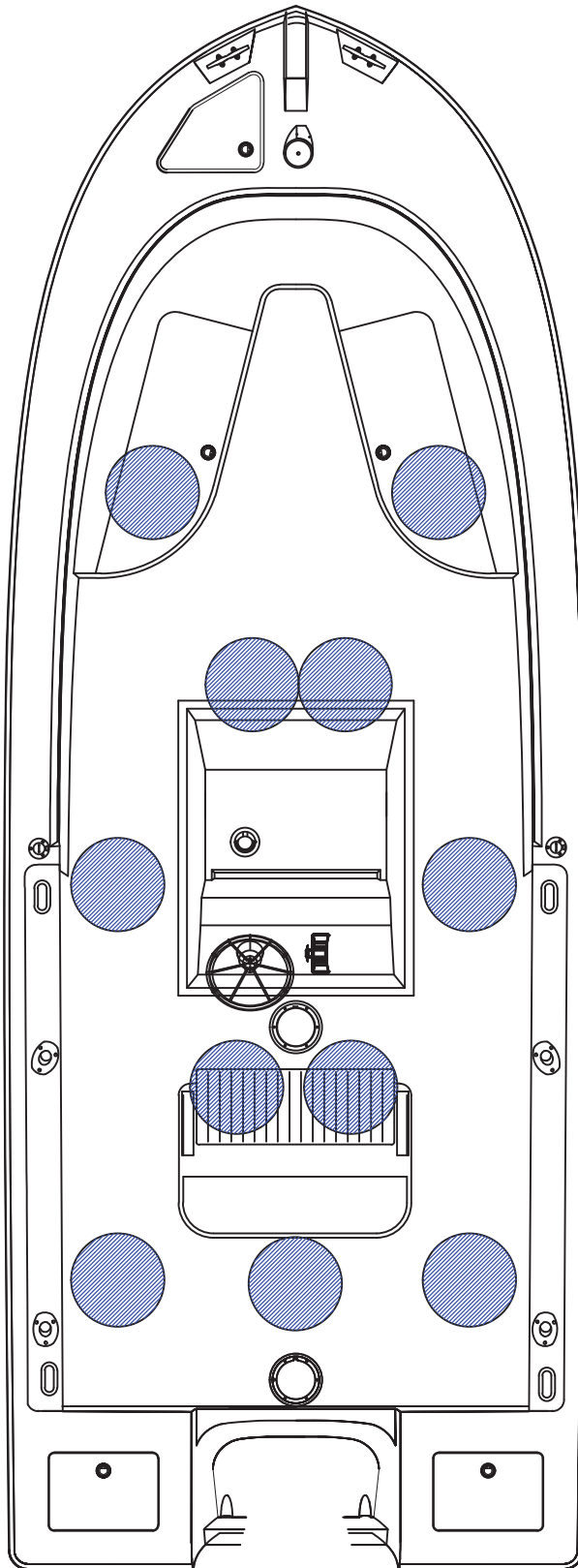
## 12.4 Trailer

- Check the wheel bearings for water. Clean/repack/replace as necessary.
- Check the tires for proper inflation.
- Try to store the boat and trailer with the bow slightly elevated so it will drain.
- If possible, cover the boat so that the sun will not deteriorate and tree sap and other environmental hazards will not damage the deck or upholstery. If covered, make sure to let air circulate so mildew will not build up. If in a high snow or rain area, make sure to properly support the cover to sustain and shed the load.

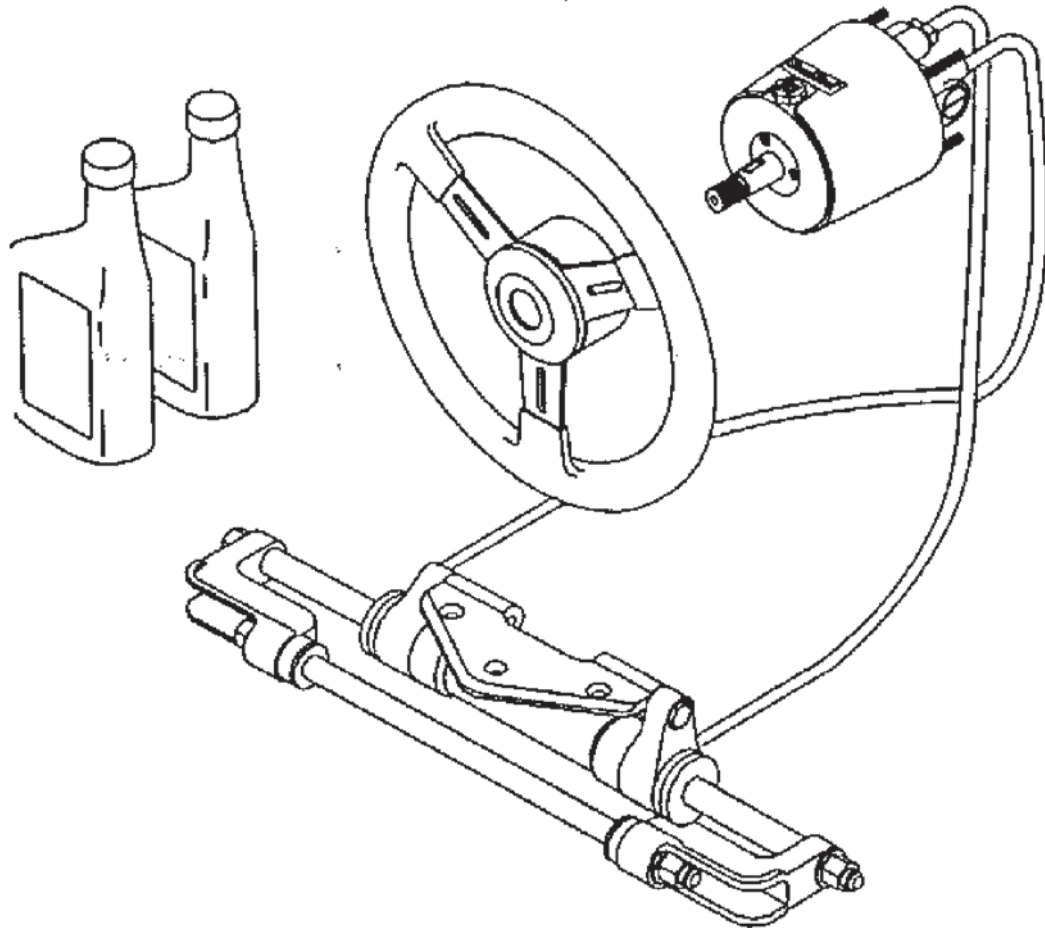
# Appendix 228CC



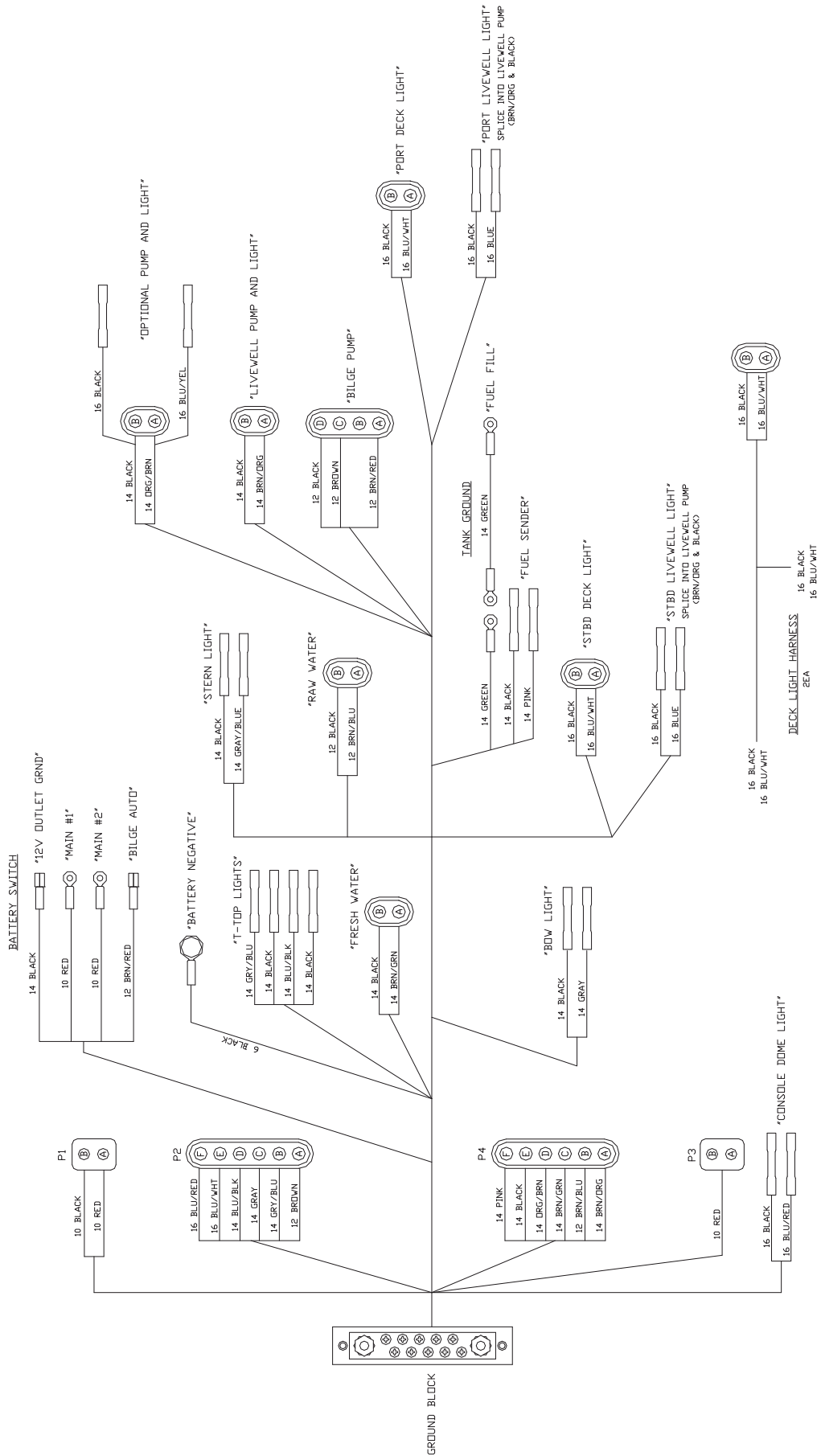
SUGGESTED UNDERWAY OCCUPANT POSITIONS 228 CC  
WEIGHT SHOULD BE EVENLY DISTRIBUTED

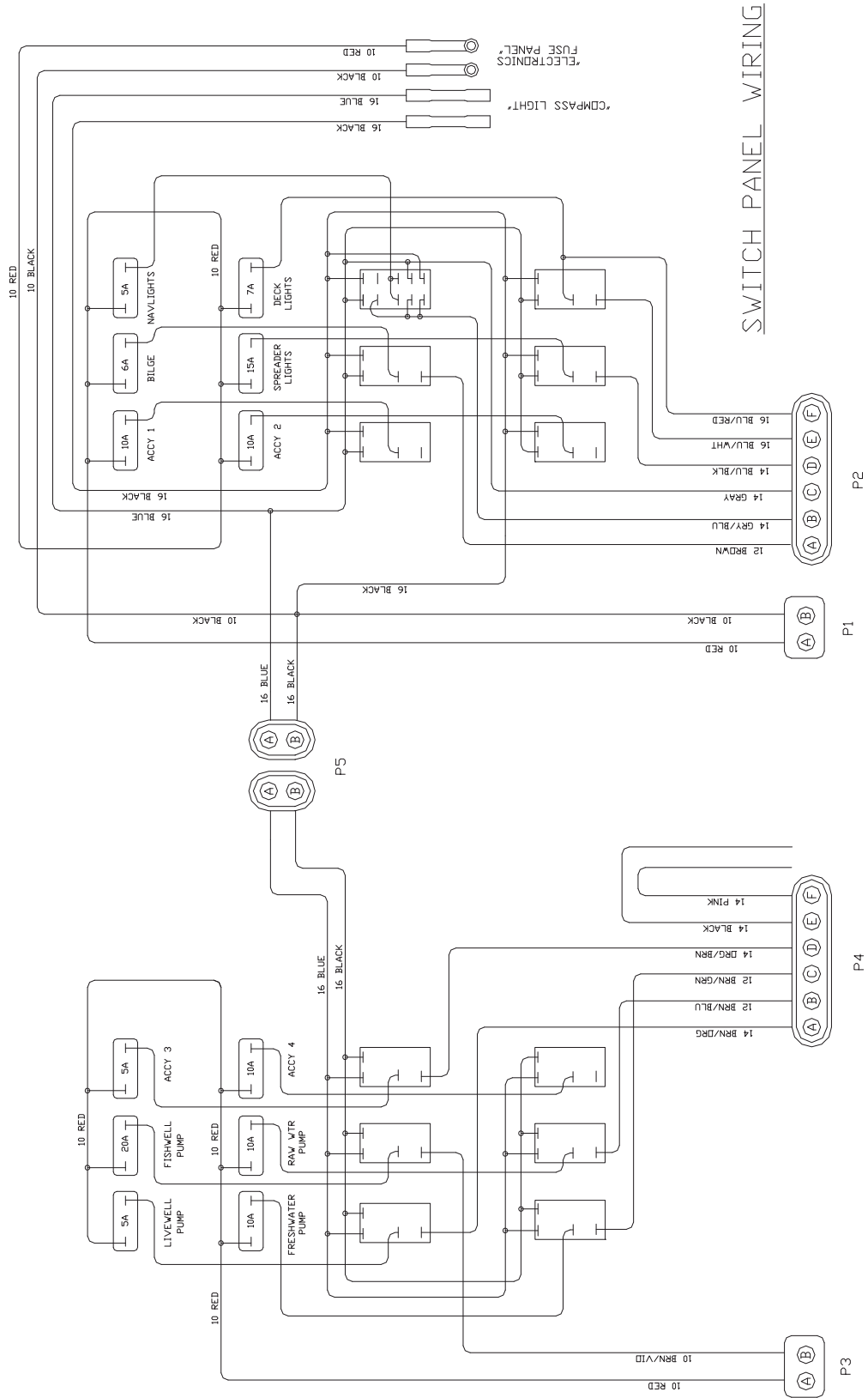


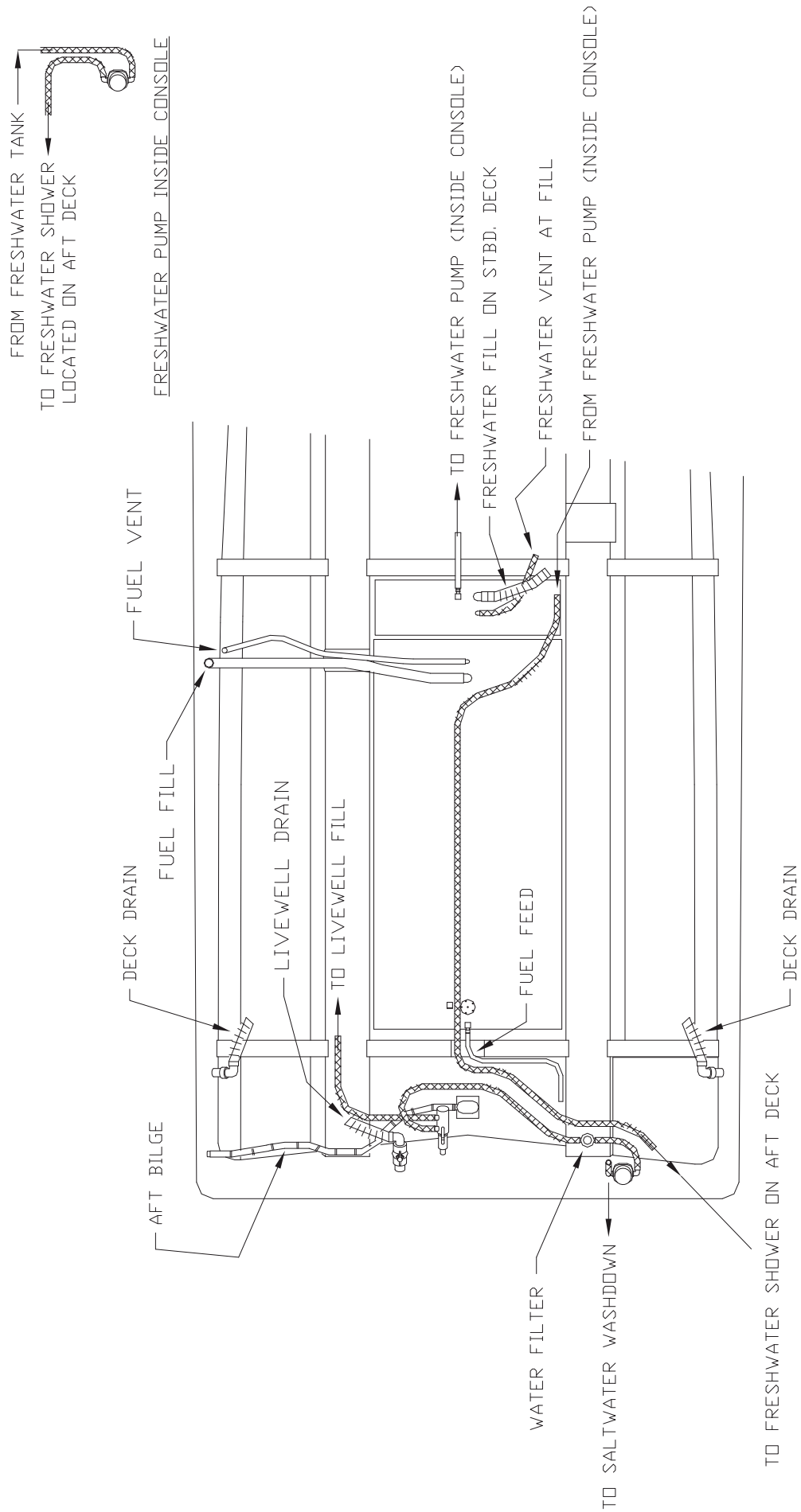




## Hydraulic Steering System







## EDGEWATER WIRE COLOR CHART

2010

LIGHTS

Lt. BLUE	Switch/Gauge/Compass Illum
BLUE	Console/Undervater
BLUE/WHITE	Deck Cstv/Cabin Cstv
BLUE/BLACK	Helm Overhead/Head
BLUE/YELLOW	Locker/Mid Cabin Sleeper
BLUE/ORANGE	Aft Spread/Livewell/Dinette
BLUE/VIOLET	Spread/Fwd Spread/Vberth
BLUE/RED	Main Cabin
BLUE/GREEN	Cockpit Work/Galley
GRAY	Bow Navigation
GRAY/BLACK	Anchor Navigation
ORANGE/BLUE	Accy Light

PUMPS

BROWN	Bilge Manual
BROWN/RED	Bilge Auto, Sump Auto
BROWN/BLUE	Raw Water Washdown
BROWN/GREEN	Fresh Water
BROWN/BLACK	Fishbox, Aft Fishbox
BROWN/VIOLET	Fishbox, Fwd Fishbox
BROWN/YELLOW	Waste Disch/Blower
BROWN/ORANGE	Main Livewell
ORANGE/BROWN	Accy Livewell, Livewell #2
RED/VIOLET	Head

MISC

PINK	Fuel Sender
GREEN	Fuel Ground/AC Ground
YELLOW	Head Solenoid, Stereo Mem
RED/ORANGE	12V Outlet/TV Power
RED/WHITE	Trim Tab Pwr/Stereo Pwr
RED/BLACK	Sunroof/Vent/Windlass Switch
BLACK/RED	Sunroof/Vent
BROWN	Windlass Solenoid Down
BLUE	Windlass Solenoid Up
RED/ORANGE	Horn/Accy Panel Pwr
BLACK/WHITE	Battery Parallel
BLUE/WHITE	Stereo Amp Turn On
ORANGE	Retrig/Wiper Power/Accy
ORANGE/RED	Port Wiper Park/Accy Switch
ORANGE/GREEN	Sbd Wiper Park/Accy Switch
ORANGE/BLACK	Wiper High/Accy Switch
ORANGE/WHITE	Wiper Low/Accy Switch
BLACK	12V Ground/AC Hot

TRIM TABS

RED/WHITE	Trim Tab Power
BLACK	Trim Tab Ground
WHITE/RED	Port Tab +
WHITE/GREEN	Sbd Tab +
BLACK/RED	Port Tab -
BLACK/GREEN	Sbd Tab -

115/230V AC\*

BLACK	HOT
WHITE	NEUTRAL
GREEN*	GROUND*
<b>SOME VENDOR EQUIPMENT CABLES</b>	
BROWN	HOT
L.T. BLUE	NEUTRAL
GREEN/YELLOW	GROUND

**EdgeWater**

WIRE CHART  
2008

DATE	BY	REV
2/12/09	SDE	A

## Installation, Compensation, and Maintenance Instructions

For all

# RITCHIE® HELMSMAN™

Compass Models

Made in U.S.A.

### CAUTION:

All Magnetic Compasses are vulnerable to magnetic interference, which will produce errors, called deviation. It is the Owner/Operator and/or Helmsman's responsibility to make sure the compass is properly installed and compensated. Compensation is the act of correcting for deviation. Magnets (speakers, microphones etc.), ferrous metals (steel, iron, etc.) and current carrying devices are common causes of deviation. It is important to understand that magnetic compasses point toward Magnetic North. There is a difference between Magnetic North and True North, and that difference is called variation. Variation differs depending on your geographical location and can be determined by referring to a local chart.

### Please read the Instructions completely before beginning installation.

#### Selecting the Proper Location

The compass should be close enough to the helmsman and positioned below the helmsman's line of sight so it is easily read during normal operation. Direct Read Dial or CombiDamp Dial models will allow the compass to be mounted higher, near or at eye level.

You will need a flat and level surface (when the boat is on a level keel). Many boats have a curved mounting surface and if this is the case, a fairing block should be utilized to bring the compass to a level position.

Select a location that has no more than 20 degrees deviation on any of the four cardinal points (N S E and W). Most compasses have a built in compensation system that will correct for fixed deviation up to 20 degrees. It is important to realize that proper compensation is not possible when a compass is subjected to a magnetic field that is variable. Some shipboard devices can cause varying magnetic fields. Devices such as windshield wipers, high current carrying wire and even some steering wheels must be considered when selecting a location for your compass.

#### Testing Your Chosen Location

Use your compass to test a location. There are two brass rods near the bottom of the compass which rotate 360 degrees, the slotted ends may be all that is visible. These compensation rods are used to correct your compass for deviation. When testing a location, you do not want pre-set corrections in your compass, so neutralize the compensator rods by setting the slots in a horizontal position.

Begin your test by holding the compass away from any possible interference and observing the compass reading. Then move the compass into position carefully; keeping it pointed in the same direction. If the compass reading is different without a change in direction you are observing deviation. You need to find a location that has less than 20 degrees of deviation on the 4 cardinal points if you intend to adjust your compass using the compensator rods.

After finding a location you should test for intermittent changes in the magnetic field. With the compass mounted temporarily in its intended position try moving the steering wheel, throttle controls or anything else that might cause deviation. It is also advised to turn electrical devices off and on. Please be advised that a changing magnetic field can not be corrected with compensation and you will need to find another location for your compass.

#### Installation (all Models)

##### **Mounting the Compass**

Great care must be taken to mount the compass so that it is aligned with the keel of the boat. **An alignment error is a constant error on all headings caused by the compass not being pointed in the same direction as the boat.** One recommendation is to temporarily mount the compass using one fastener so if an alignment error is detected it is easily corrected. Masking tape can be used as a reference or to keep the compass steady during installation.

If you are mounting to a bulkhead that is not perpendicular to the centerline of the boat, a fairing block must be used.

Due to variations in bulkhead and deck materials, mounting screws are not supplied. Use hardware that is suitable for your specific installation. SELECT MOUNTING HARDWARE THAT IS NON-MAGNETIC. Most quality stainless steel and solid brass fasteners can be used. If you are unsure test them with a magnet.

Most models have built-in lights which will require routing the wire or wires to your power source. To assure a clean installation you may want to wait and drill the routing holes after you are satisfied with the compass alignment.

**Specific model installation instructions are as follows:**

**Note for all flush and bulkhead mount compasses:**

It is important that you use the mounting gasket included with each model. We do NOT recommend the use of bedding compound since some brands contain chemicals that could damage the plastic dome.

**HF-72, HF-72W, HF-73, HF-73W, HF-79, HF-79G, HF-79W, SS-1000& SS-1000W Flush Mount**

Using the mounting template supplied with the compass, make the cutout in your chosen location and mount as instructed above (Mounting the Compass). For all HF-79 models, loosen but do NOT remove the single screw in the rear of the dress-bezel. Lift the rear of the dress-bezel and slide it forward to remove it from the compass. When mounting and compensation are completed, replace the dress-bezel. Note: If you cannot access the compensation rods from below you need to allow for easy removal of the compass during compensation. (See Compensation instructions below).

**HV-76 & HV-77 Bulkhead Mount**

Before making the cut, make sure the bulkhead surface at the mounting location is at a ninety-degree (90°) angle to the centerline of the boat and is in a vertical position. If such is not the case, a fairing block must be used between the compass and the bulkhead. Use the mounting template supplied with the compass for cutting the necessary opening in the vertical bulkhead. If the compass is not mounted in a vertical position, serious errors can develop when the boat heels over and pitching occurs simultaneously. There is also potential error from the built-in compensator magnets if the compass is not mounted vertically.

**HD-74, HD-75 & SS-1100 Deck Mount**

**Follow the instructions above (Mounting the Compass). After mounting, remove the black plastic inserts and begin compensation (see Compensation instructions below).**

**HB-70, HB-71 & HB-85 Bracket Mount**

Remove the bracket from the compass and mount it as instructed above (Mounting the Compass). If you mounted the bracket to a gunwale simply rotate the compass 90 degrees in it's housing by removing the four Phillips head screws located in the bottom of the housing. After re-installing the compass in the bracket remove the black plastic inserts, which cover the compensators and begin compensation (see Compensation instructions below).

**IMPORTANT NOTE REGARDING HB-85**

This model is designed to be mounted on STEEL HULL Vessels. Special compensation is required and you will need to hire a professional compass adjuster.

Night Light Wiring (all Models)

All models are supplied with a 12-volt night lighting system. To connect lights to a 24 or 32-volt system, dropping resistors are available.

Lights should be wired to an appropriately fused 12-volt circuit in your electrical system (i.e. running light circuit).

Connect the red wire (white on some models) to positive and black to ground. Some models have a second light assembly, which should be connected to the same circuit.

**Compensation**

A built-in correcting magnet system consists of two sets of magnets fixed to two adjusting rods with slotted ends. The slots should be horizontal before starting the adjusting procedure. A small non-magnetic screwdriver is provided for this purpose.

Before starting compensation, make sure you have a suitable location (see Testing Your Chosen Location).

### Method 1. (Preferred)

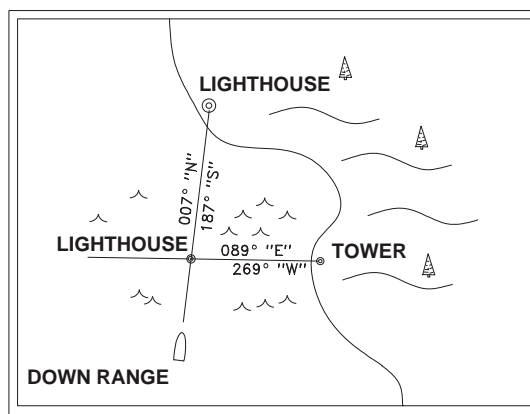
**Step One.** With the compass in its intended position, but not finally secured, (see Mounting the Compass) select a course on your chart using two fixed aids that are within ten degrees ( $10^\circ$ ) of the North/South line. Try to select this course so that you can maneuver your boat "down range" of the marks selected (See example).

**Step Two.** From a position down range of the North/South marks, and keeping the marks lined up, run the boat visually along the Northerly course selected. Turn the port/starboard compensator (slot is facing starboard) until the compass reads correctly.

**Step Three.** Simply repeat steps 1 & 2, except this time, using an East/West course and the fore/aft compensator (slot is facing aft).

**Step Four.** Check compass alignment by running the boat in a Southerly direction, again keeping the mark lined up. If the compass is not correct at this time, there is an alignment error. To correct, rotate the compass itself to remove one half of this error. Repeat steps 1, 2 & 4 until your North/South line is correct then repeat step 3.

**Step Five.** Install fastener (s), taking care not to disturb alignment.



### Method 2. (Requires the use of GPS or Loran)

In this method you will be using a GPS or Loran as your reference.

1. Your GPS or Loran must be set to provide you with Magnetic, not True headings. Check your Manual.
2. GPS and Loran provide headings based on COG (course over ground). Compasses provide heading based on the direction the boat is actually pointed. Because of Tides, Currents and Winds, the boat may not always point in the same direction as COG. Pick a time and location that will minimize these effects.
3. Because the GPS and Loran calculate COG based on current and past positions you will see greater heading accuracy while traveling at higher speeds. We recommend at least 10 knots.

**Step One.** While at sea, with the compass in its intended position, but not finally secured, (see Mounting the Compass), obtain the Loran/GPS bearing to a fixed aid or landmark that is within  $10^\circ$  of a North/South line.

**Step Two.** Position your boat along that line and steer directly at that mark. Turn the port/starboard compensator (slot is facing starboard) until the compass heading matches the Loran/GPS bearing.

**Step Three.** Simply repeat steps 1 & 2, except this time, using an East/West course and the fore/aft compensator (slot is facing aft).

**Step Four.** Check compass alignment by running the boat 180 degrees from the heading used in step 2. If the compass is not correct at this time, there is an alignment error. To correct, rotate the compass itself to remove one half of this error. Repeat steps 1, 2 & 4 until your North/South line is correct then repeat step 3.

**Step Five.** Upon completing the procedure, secure the compass in its final position.

**If you feel that the deviation on your boat is of an unusual nature, the services of a professional compass adjuster will be a wise investment.**

To assure accuracy on all headings, check for deviation every thirty degrees and record any deviation on a deviation card. We recommend checking at the start of each boating season, and any time new equipment is added near the compass, for deviation.

### Maintenance

Protect your compass from the sun when not using your boat. Strong sunlight may decrease the life of your compass. Custom fit covers are available from Ritchie.

Ritchie compasses require very little care. To remove salt spray deposits or dirt, rinse the entire compass with clean, fresh water and wipe carefully with a damp cloth. **Important Note: Never Use Chemical or Abrasive Cleaners.**

### Night Lighting Systems

Ritchie's night-lights are designed to last for years of use. If you need to replace one, contact the factory with your model and serial number for a part number and price. Tel. 781-826-5131 Fax. 781-826-7336 E-mail [service@ritchienavigation.com](mailto:service@ritchienavigation.com)



**Warranty:**

We warrant all Ritchie Magnetic Marine Compasses to be free of defects in workmanship or materials. If within three years of purchase date, a compass fails to give satisfactory service, it will be repaired or replaced without charge. This warranty does not cover breakage through accident or misuse. Replacement or repair will be made if the instrument is returned prepaid to a Ritchie Service Station or directly to E.S. Ritchie & Sons, Inc., 243 Oak Street, Pembroke, MA 02359.

**RITCHIE NAVIGATION**

E.S. RITCHIE & SONS, INC., P.O. BOX 548, 243 OAK ST., PEMBROKE, MASSACHUSETTS 02359 U.S.A.  
Tel. (781) 826-5131 Fax (781) 826-7336 [www.ritchienavigation.com](http://www.ritchienavigation.com)

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**Instruction Guide**  
**Models 401C, 403C, 405C, 401STC,**  
**403STC, 405STC, 401FC, 403FC, 405FC**  
 Replacement motors 45DR, 46DR, 47DR

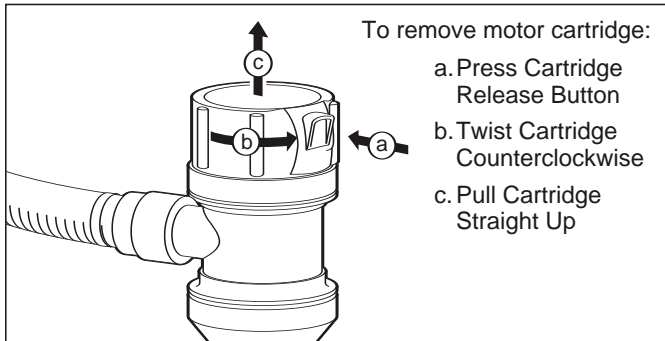
**Tournament Series**  
**Livewell/Baitwell Pumps**

**Description**

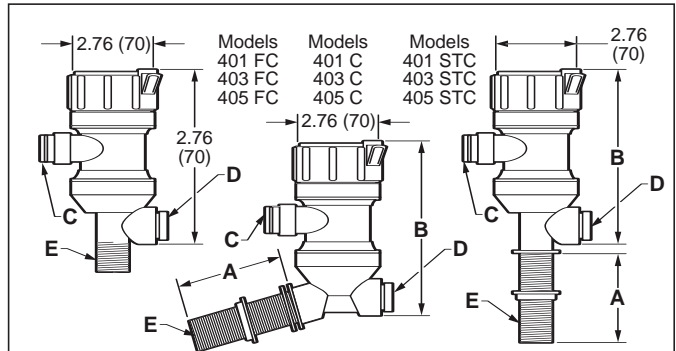
Powerful and long lasting, Rule Tournament Series Cartridge Pumps offer outstanding performance as well as the versatility of replacing the motor cartridge if the motor expires. The cartridge feature also allows complete access to the impeller for easy cleaning and maintenance. Replacing the motor cartridge only allows the fittings and hose to remain totally intact.

**To Change Motor Cartridge**

1. Block off the thru-hull before removing the motor cartridge
2. Disconnect wiring
3. Press cartridge button, twist counterclockwise and pull motor cartridge straight up
4. Reconnect wire to new motor cartridge
5. Align the arrows and press the new motor cartridge down firmly. Twist motor housing clockwise until cartridge locks in place



**Dimensions in inches (mm)**



Model	A	B	C	D	E
401C	4.0 (102)	5.87 (149)	3/4-14NPSM	1/2-14NPT	3/4-14NPSM
403C	4.0 (102)	5.87 (149)	3/4-14NPSM	1/2-14NPT	3/4-14NPSM
405C	4.0 (102)	5.87 (149)	1-11.5NPSM	1/2-14NPT	3/4-14NPSM
401STC	4.33 (110)	5.84 (148)	3/4-14NPSM	1/2-14NPT	3/4-14NPSM
403STC	4.33 (110)	5.84 (148)	3/4-14NPSM	1/2-14NPT	3/4-14NPSM
405STC	4.33 (110)	5.84 (148)	1-11.5NPSM	1/2-14NPT	3/4-14NPSM
401FC		5.87 (149)	3/4-14NPSM	1/2-14NPT	3/4-14NPT
403FC		5.87 (149)	3/4-14NPSM	1/2-14NPT	3/4-14NPT
405FC		5.87 (149)	1-11.5NPSM	1/2-14NPT	3/4-14NPT

**! WARNING** This pump is designed for use with fresh and salt water. Use with any other medium, including particularly hazardous, caustic or corrosive substance, could result in damage to the pump, the surrounding environment and injury to persons or property, including possible exposure to hazardous substances. This pump is for water applications only.

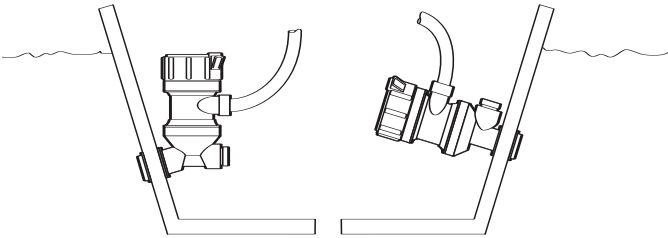
**Models**

Model #	Description	Required Fuse Size (A)	GPH at Open Flow	GPH at 3.35 ft.
401 C	500 GPH Livewell Pump with Angled Pickup Tube	2.5	500	340
403 C	800 GPH Livewell Pump with Angled Pickup Tube	5	800	490
405 C	1000 GPH Livewell Pump with Angled Pickup Tube	6	1000	710
401STC	500 GPH Livewell Pump with Straight Pickup Tube	2.5	500	340
403STC	800 GPH Livewell Pump with Straight Pickup Tube	5	800	490
405STC	1100 GPH Livewell Pump with Straight Pickup Tube	6	1100	790
401 FC	500 GPH Livewell Pump with 1" Straight Pickup Tube	2.5	500	340
403 FC	800 GPH Livewell Pump with 1" Straight Pickup Tube	5	800	490
405 FC	1100 GPH Livewell Pump with 1" Straight Pickup Tube	6	1100	790

**Replacement Motors**

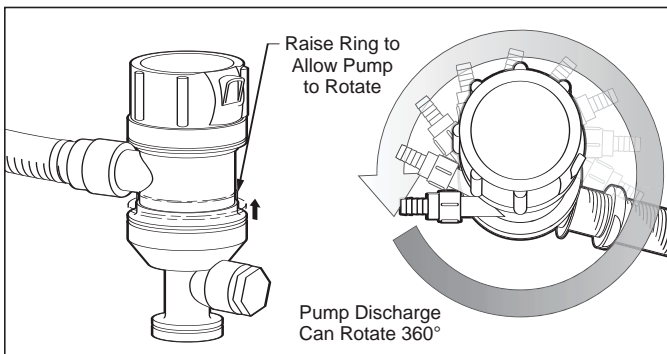
45DR	500 GPH Replacement Motor	2.5	500	340
46DR	800 GPH Replacement Motor	5	800	490
47DR	1000 GPH Replacement Motor	6	1100	790

## Mounting the Pump (Models 401C, 403C, 405C, 401STC, 403STC 405STC)



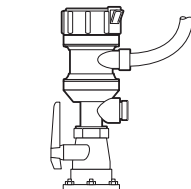
1. Drill a 1" diameter hole through the transom or hull bottom. If drilling through the transom, make sure the hole inside the boat is beneath the waterline outside the boat when the boat is standing still.
2. Place the pump into the hole with the gasket in place on the inside of the boat.
3. Tighten the nut on the outside of the hull until you are sure the gasket ring is tightly sealed. Be careful not to over-tighten. Make sure outlet is at least parallel with boat bottom. This helps prevent airlocks.
4. Saw off the excess length of the pickup tube so it is flush with the outside surface of the nut. In the event you are using a strainer (Rule Model 73), leave 1/2" beyond the nut. Make sure the cut is square and the threads deburred to allow the debris strainer to fit smoothly.

By lifting the locking ring, you can rotate the position of the discharge nozzle so that the discharge is facing toward the tank (see diagram below).



## (Models 401FC, 403FC 405FC) Seacock applications

1. Drill a 1" diameter hole through the transom or hull bottom. If drilling through the transom, make sure the hole inside the boat is beneath the waterline outside the boat when the boat is standing still.



2. Install a thru-hull pickup tube with a filter grate to prevent debris from entering the seacock and the pump. Use a marine sealant on the flat surface of the thru-hull where it will be in contact with the outside surface of the boat and around the threaded tube on both sides of the hull. Install the seacock and pump using pipe tape or sealant on all threaded connections.
3. Screw the pump into the seacock until it is hand tight. Do not over-tighten.
4. If the pump is mounted horizontally, the output must be pointed upward to allow air to vent.

**KEEP SEACOCK VALVE CLOSED WHEN LIVWELL IS NOT IN USE**

## Electrical

**WIRE:** Normal installations require 16 gauge wire.

**POLARITY:** Brown pump wire connects to the positive (+) side of the battery. Black pump wire connects to the negative (-) side of the battery.

**FUSE:** Install proper size fuse & holder in the positive (+) brown wire between the pump and the battery.

500 GPH pumps (Models 401C, 401STC, 401FC) - **INSTALL A 2.5 AMP FUSE**

800 GPH pumps (Models 403C, 403STC, 403FC) - **INSTALL A 5.0 AMP FUSE**

1100 GPH pumps (Models 405C, 405STC, 405FC) - **INSTALL A 6.0 AMP FUSE**

**IMPORTANT - THIS PRODUCT SHOULD BE INSTALLED WITH THE RECOMMENDED FUSE SIZE**

**NOTE:** Keep all wire connections and joints above highest possible water level.

Seal wire connections with a marine sealant to prevent corrosion.

## Hose Connection

Dual Port Option

Each pump is fitted with an additional 1/2" NPT female port and Hex Plug. This feature allows you to add your washdown pump without adding another thru-hull fitting.

- Use a marine ribbed hose that will not kink with bends and is rated for below water line use.
- Hose should run uphill evenly from pump to livewell tank. You may use a control valve to regulate the flow.
- Use hose clamps when making connections to pump and valve.

**! CAUTION**

**THE PUMP IS BELOW THE WATERLINE. WATER CAN COME INTO THE BOAT THROUGH THE PUMP IF THE HOSE IS NOT CONNECTED TIGHTLY TO THE PUMP.**



Engineered for life

**Rule**  
1 Kondelin Road  
Gloucester, MA 01930  
Tel: 978-281-0573  
Fax: 978-283-2619

Made in China

[www.rule-industries.com](http://www.rule-industries.com)



## 31295 / 31395 - SERIES AUTOMATIC WATER SYSTEM PUMP

### FEATURES

- Smooth Flow
- Self-Priming up to 10 feet (3m)
- Dry running capability
- Soft noise absorbing mounts
- Snap-fit port fittings
- Built-in bypass — less pulsation
- Reduces need for accumulator tank
- Corrosion resistant materials
- Thermal overload protection
- Motor rating: IP 54
- CSA listed
- ISO 8846 MARINE (ignition protection)
- CE



31295 / 31395 - Series

### SPECIFICATIONS

**Motor:** Permanent Magnet, Ball Bearing Totally Enclosed.  
Not for Continuous Duty. Intermittent Duty Only.

**Pump:** Body - Polypropylene  
Diaphragm - Santoprene  
Valves - EPDM



Pump Series	Dimensions - Inches (mm)			Weight lb. (kg)
	Height	Width	Length	
31X95-XXXX	4-3/4" (121)	6" (152)	9" (229)	3.5 (1.6 kg)

**Fittings:** (2) 1/2" - 14 Male pipe  
(2) 1/2" (13 mm) Hose Barbs

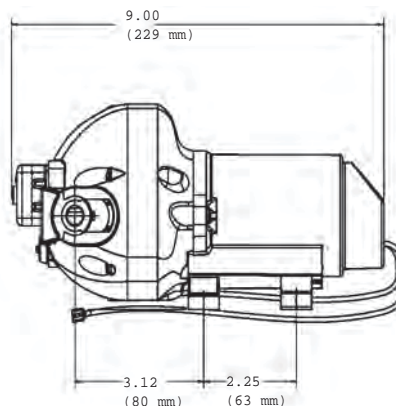
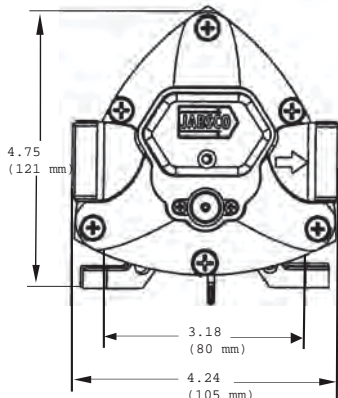
MODEL	VOLTS	AMP DRAW (A) @ 10 psi (0.7 bar)	FUSE SIZE (A)	OPEN FLOW GPM (l/min)	MAX PSI (bar)
31395-0092	12V dc	4.4	10	2.9 (11)	50 (3.4)
31395-0094	24V dc	2.2	5	2.9 (11)	50 (3.4)
31395-0392	12V dc	4.4	10	2.9 (11)	40 (2.7)
31395-0394	24V dc	2.2	5	2.9 (11)	40 (2.7)
31395-0292	12V dc	4.4	10	2.9 (11)	25 (1.7)
31395-0294	24V dc	2.2	5	2.9 (11)	25 (1.7)
31295-0092	12V dc	3.5	10	1.9 (7)	25 (1.7)
31295-0094	24V dc	1.7	5	1.9 (7)	25 (1.7)

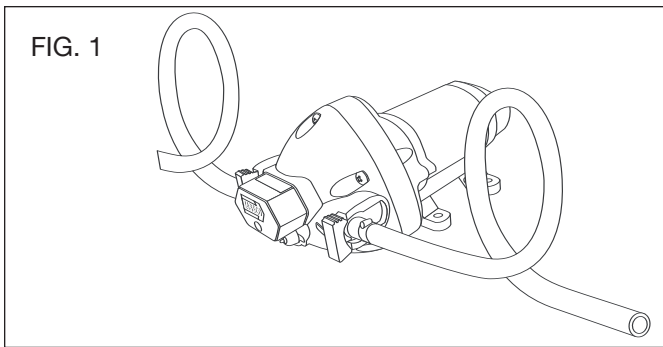
### OPERATION

With pump switch off and battery fully charged, fill water tank, open all faucets, then turn pump switch on. Water will begin to flow. When the water is free of air, turn faucets off. Remember,

you are filling the water heater and the toilet and shower lines. When all valves are shut-off, pump will stop. Should pump fail to stop, turn switch off and see the trouble shooting guide.

### DIMENSIONAL DRAWING





**INSTALLATION**

**STEP 1**

Remove shipping plugs from pump ports. There may be slight amount of water that drains out of the pump as all pumps are tested at the factory before shipment.

**STEP 2**

A direction arrow can be found on the pump head to indicate direction of flow. Connect the appropriate sized hose to one of the supplied fittings and then connect the hose to the water supply tank outlet. To reduce vibration use 1/2" (13 mm) braided or reinforced flexible hose on the inlet and outlet of the pump as shown on Fig.1. Use hose clamps on the slip-on barb connectors.

**WIRING** (Fig. 3)

IF YOU ARE NOT FAMILIAR WITH APPLICABLE ELECTRICAL STANDARDS, HAVE THE UNIT INSTALLED BY A QUALIFIED ELECTRICIAN.

Suggested wiring information is given as a reference. For proper information, please reference USCG regulations for marine applications and wiring gauges, connectors and fuse protection.

**STEP 1**

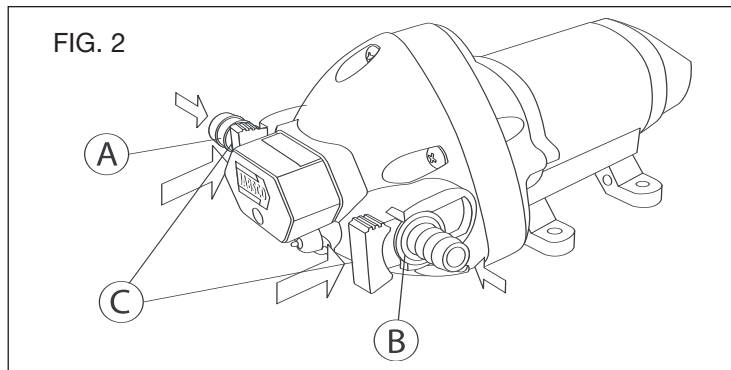
Determine the distance from the power source to the pump and then double the measurement. Wire gauge installation is determined on the entire run length, to the pump and back.

**STEP 2**

Connect to power supply lead (red)(+) to the positive (+) terminal on the battery or through a properly installed fuse / circuit breaker panel. Then run the length of wire to the pump, connecting the red wire through a switch appropriately rated to the pump's current requirements.

**STEP 3**

Route the wire so as not to create hazards in operation of the engine, movement of steering components or human traffic.



**STEP 3**

Slide rubber mounts fully into 4 mounting tracks.

**STEP 4**

Mount pump horizontally in an accessible location or vertically with pumphead down. Support weight of the pump and attach pumphead mounts first then motor mounts second.

**STEP 5** (Fig. 2)

Install inlet A and discharge B port connectors. Firmly push slide clips C forward to lock port connectors in place.

**STEP 6** (Fig. 4)

Install a Pumpgard™ strainer in an accessible location (for inspection and cleaning) between the tank and pump inlet in order to protect valves from debris.

**STEP 4**

Connect the red lead to the red lead on the pump housing located pressure switch.

**STEP 5**

Connect the black lead from the pump to the ground or negative power side (-) of the vessel.

**STEP 6**

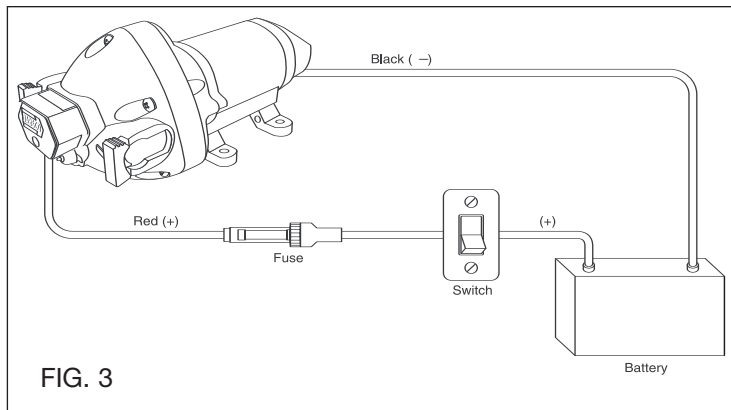
Turn the system off when not in use for extended periods of time or when the water supply tank is empty.

**STEP 7**

After installation, check voltage at the pump motor. Voltage should be checked when pump is operating. Full voltage must be available at the pump motor at all times for proper pump operation and pump motor life.

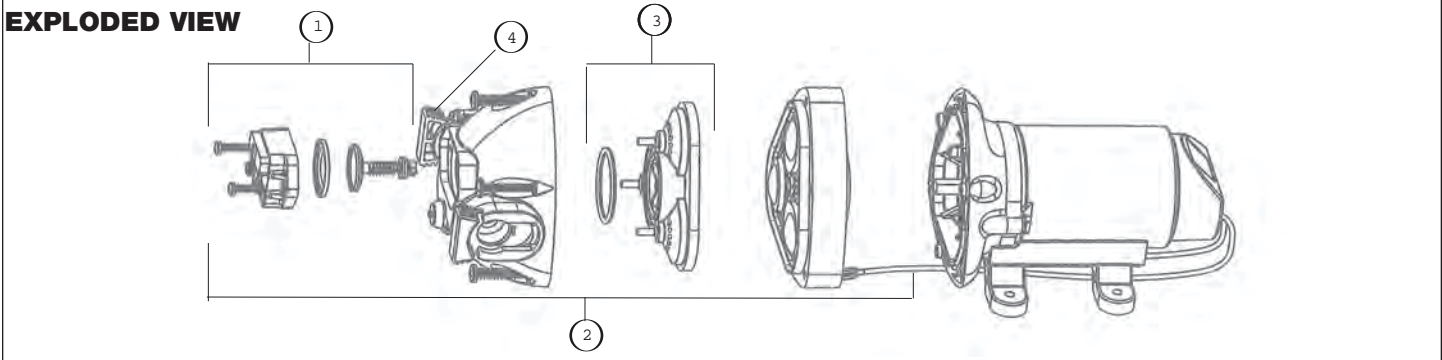
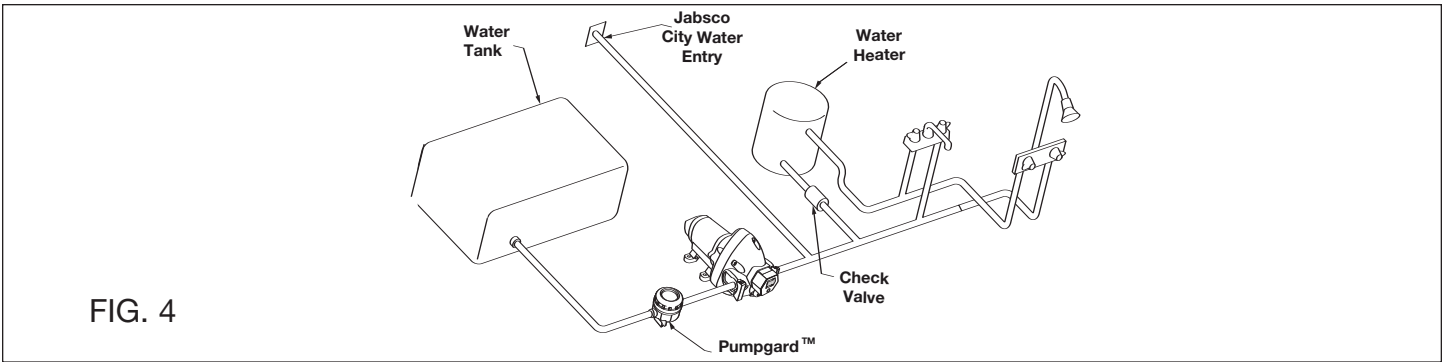
**WIRE SIZE**

Pump Voltage	Total Wire Length - feet (meters)		
	0 - 20 ft (0 - 6 m)	20 - 35 ft (6 - 9 m)	35 - 55 ft (9 - 12 m)
12 VDC	#14 AWG (2.5 mm <sup>2</sup> )	#12 AWG (4 mm <sup>2</sup> )	#10 AWG (6 mm <sup>2</sup> )
24 VDC	#16 AWG (1.5 mm <sup>2</sup> )	#14 AWG (2.5 mm <sup>2</sup> )	#12 AWG (4 mm <sup>2</sup> )



**CAUTION** Motor case could get hot during extended operation. Prolonged contact with skin may cause a burn.

**WARNING** Fire hazard. Wiring must comply with applicable electrical standards and include a properly sized fuse or circuit breaker. Improper wiring can cause a fire resulting in injury or death.



**AUTOMATIC WATER SYSTEM PUMP SERVICE PARTS**

KEY#	DESCRIPTION	SERIES	
		31395 - XXXX	31295 - XXXX
1	Pressure Switch	(25 psi)	18916-1025
		(40 psi)	18916-1040
		(50 psi)	18916-1050
2	Pumphead Assembly	(25 psi)	18914-1025
		(40 psi)	18914-1040
		(50 psi)	18914-1050
3	Check Valve Assembly	18911-1030	18911-1030
4	Slide Clips (Pair)	30647-1000	30647-1000

**ACCESSORIES  
SNAP-IN PORT SYSTEM**

<b>30649-1000</b> (1 PAIR) SNAP-IN PORT X 1/2" - 14 MALE PIPE STRAIGHT	<b>30654-1000</b> (1 PAIR) SNAP-IN PORT X 1/2" (13 mm) HOSE BARB STRAIGHT	<b>30653-1000</b> (1 PAIR) SNAP-IN PORT X 3/4" (19 mm) HOSE BARB STRAIGHT	<b>30650-1000</b> (1 PAIR) SNAP-IN PORT X GARDEN HOSE STRAIGHT	<b>30655-1000</b> (1 PAIR) SNAP-IN PORT X 1/2" - 14 MALE PIPE 90° ELBOW	<b>30651-1000</b> (1 PAIR) SNAP-IN PORT X 1/2" (13 mm) HOSE BARB 90° ELBOW	<b>30642-1000</b> (1 PAIR) SNAP-IN PORT X 3/4" (19 mm) HOSE BARB 90° ELBOW

**Winterizing**

Allowing water to freeze in the system may result in damage to the pump and plumbing system. Non-Toxic antifreeze for potable water may be used with Jabsco pumps. Follow manufacturer's recommendations. Refer to boat or equipment manufacturer's instructions for their specific winterizing and drainage procedures. **Do not use automotive antifreeze** to winterize potable water systems. These solutions are highly toxic and may cause serious injury or death if ingested.

1. Drain the water tank. Open tank drain valve. You may use the pump to drain the tank by opening all the faucets in the system. Allow the pump to operate until the tank is empty. Do not operate the pump more than 15 minutes continuously.

2. Open all faucets and purge the water from the plumbing system. Turn off power to the pump. Be sure that all the water from the drain lines is drained.
3. Remove quick-connect inlet and outlet fittings from the pump and turn the pump on to pump out remaining water from the pump head. Be sure to have a catch pan or a rag under the pump to prevent water from spilling onto the boat. Turn the pump off once the plumbing is empty. Leave the fittings disconnected from the pump until the system is ready to be used again. Make a note on your tank filler that the plumbing is not connected.
4. Be sure that all faucets are left open to protect against damage to the plumbing.

## Sanitizing

Potable water systems require periodic maintenance to deliver a consistent flow of fresh water. Depending on use and the environment the system is subjected to, sanitizing is recommended prior to storing and before using the water system after a period of storage. Systems with new components, or ones that have been subjected to contamination, should also be disinfected as follows:

**(NOTE: The sanitizing procedure is in conformance with the approved procedures of the US Public Health Service.)**

1. Use the following methods to determine the amount of common household bleach needed to sanitize the tank:
  - A. Multiply "gallons of tank capacity" by 0.13; the result is the ounces of bleach needed to sanitize the tank (30 gallons X .13 = 3.9 oz bleach).
  - B. Use the number of liters of tank capacity to determine the number of milliliters of bleach needed to sanitize the tank (120 liters of tank capacity = 120 milliliters of bleach).
2. Mix into solution the proper amount of bleach within a container of water
3. Pour the solution (water/bleach) into the tank and fill the tank with potable water.
4. Open all faucets (hot and cold) allowing the water to run until the distinct odor of chlorine is detected.
5. The standard solution must have four (4) hours of contact time to disinfect completely. Doubling the solution concentration allows for contact time of one (1) hour.
6. When the contact time is completed, drain the tank. Refill with potable water and purge the plumbing of all sanitizing solution.

## TROUBLESHOOTING

**WARNING: BEFORE SERVICING PUMP, TURN OFF PUMP AND DRAIN WATER FROM SYSTEM!!**

PROBLEM	SOLUTION
<b>Pulsation Flow - Pump cycles on and off</b>	Restricted pump delivery. Check discharge lines, fittings and valves for undersizing or clogging. Clean screens in faucets. Some filters or purifiers are highly restrictive. Filters/purifiers with high pressure drop may require a separate line and/or the installation of an accumulator tank in the system.
<b>Failure to Prime - Motor operates, but no pump discharge</b>	Restricted intake or discharge line Air leak in intake line Punctured pump diaphragm Debris under flapper valves Crack in pump housing
<b>Pump fails to turn off after all fixtures are closed</b>	Empty water tank Punctured pump diaphragm Discharge line leak Defective pressure switch Insufficient voltage to pump Debris under flapper valves
<b>Low flow and pressure</b>	Air leak at pump intake Accumulation of debris inside pump and plumbing Worn pump bearing (excessive noise) Punctured pump diaphragm Defective motor
<b>Motor fails to turn on</b>	Loose wiring connection Pump circuit has no power Blown fuse/thermal protector tripped Pressure switch failure Defective motor

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THE PRODUCTS DESCRIBED HEREIN ARE SUBJECT TO THE JABSCO THREE-YEAR LIMITED WARRANTY, WHICH IS AVAILABLE FOR YOUR INSPECTION UPON REQUEST.

U.S.A Jabsco Cape Ann Industrial Park Gloucester, MA 01930 Tel: +1 978 281 0440 Fax: +1 978 283 2619	UK Jabsco Bingley Road, Hoddesdon Hertfordshire EN11 0BU Tel: +44 (0) 1992 450145 Fax: +44 (0) 1992 467132	CANADA Fluid Products Canada 55 Royal Road Guelph, Ontario N1H 1T1 Tel: 519 821 1900 Fax: 519 821 2569	JAPAN NHK Jabsco Company Ltd. 3-21-10, Shin-Yokohama Kohoku-Ku, Yokohama, 222 Tel: +45 475 8906 Fax: +45 475 8908	GERMANY Jabsco GmbH Oststrasse 28 22840 Norderstedt Tel: +49 (40) 53 53 730 Fax: +49 (40) 53 53 7311	ITALY Jabsco Marine Italia Via Tommaseo, 6 20059 Vimercate, Milano Tel: +39 039 685 2323 Fax: +39 039 666 307
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**WATER SYSTEM PUMPS**

- 31595-SERIES
- 31600-SERIES
- 31620-SERIES
- 31630-SERIES

**PAR-MAX 2+ – 2.8 GPM (10.6 LPM)**  
**PAR-MAX 3 – 3.5 GPM (13.2 LPM)**  
**PAR-MAX 4 – 4.3 GPM (16.3 LPM)**

**FEATURES**

- Self-Priming to 10 ft. (3 m)
- Runs Dry Without Damage
- Smooth Flow
- Four Piston, Diaphragm Pump
- Powerful Motor with Thermal Overload Protection
- Snap-in Ports
- Waterproof Coating (31630-Series)
- Pressure Switch with Rubber Boot
- Meets USCG Regulation 183.410 and EN ISO 8846 MARINE (Ignition Protection)
- Meets EN 50081-1 Electro-magnetic Compatibility



Models 31595, 31600, 31620, 31630-Series

**APPLICATIONS**

The PAR-MAX Automatic Water System Pump is designed for self-contained boats and RV's with multiple fixture water systems. The system operates automatically. When a fixture is opened, the pump instantly begins operation to provide a smooth constant flow from tank to faucet. Closing the faucet automatically discontinues pump operation.

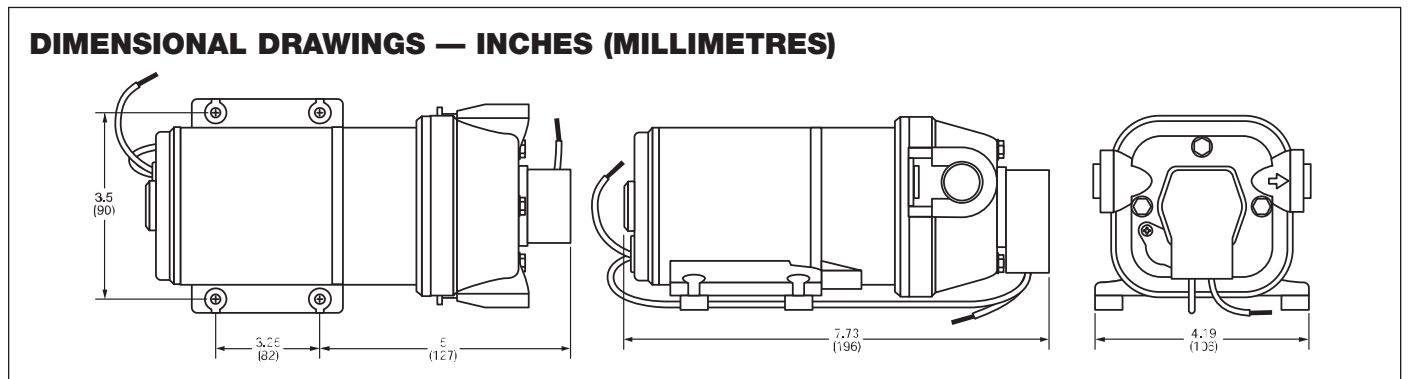
The Deluxe model 31630-Series has a corrosion resistant coated motor for extra protection in harsh environment applications.

**SPECIFICATIONS**

- Pump Body – Glass Filled Polypropylene
- Pump Design – Multi-Chamber Diaphragm
- Suction Lift – Self Priming to 10 ft. (3 m)
- Ports – 1/2" (13 mm) Hose & 1/2" (13 mm) Threaded (QEST Type)
- Motor – Permanent Magnet
- Shipping Weight – 3.9 lb (1.8 kg) 31595-Series  
4.5 lb (2.1 kg) 31600-Series  
6.0 lb (2.8 kg) 31620-Series  
31630-Series

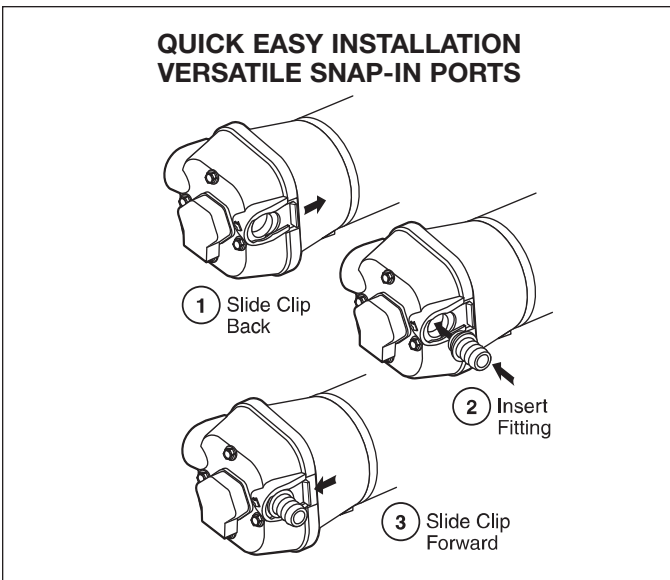
MODEL	GPM/LPM	VOLTS	NOMINAL psi (bar)		AMP DRAW @ 10 psi	FUSE/BREAKER*
			CUT-IN	CUT-OUT		
31595-0092	2.8/10.6	12 Vdc	20 (1.4)	40 (2.8)	4	10
31595-0094	2.8/10.6	24 Vdc	20 (1.4)	40 (2.8)	2	7
31595-0292	2.8/10.6	12 Vdc	10 (0.7)	25 (1.8)	4	10
31595-0294	2.8/10.6	24 Vdc	10 (0.7)	25 (1.8)	2	7
31600-0092	3.5/13.2	12 Vdc	20 (1.4)	40 (2.8)	5	10
31600-0094	3.5/13.2	24 Vdc	20 (1.4)	40 (2.8)	3	7
31600-0292	3.5/13.2	12 Vdc	10 (0.7)	25 (1.8)	5	10
31600-0294	3.5/13.2	24 Vdc	10 (0.7)	25 (1.8)	3	7
31620-0092	4.3/16.3	12 Vdc	20 (1.4)	40 (2.8)	6	10
31620-0094	4.3/16.3	24 Vdc	20 (1.4)	40 (2.8)	3	7
31620-0292	4.3/16.3	12 Vdc	10 (0.7)	25 (1.8)	6	10
31620-0294	4.3/16.3	24 Vdc	10 (0.7)	25 (1.8)	3	7
31630-0092	4.3/16.3	12 Vdc	20 (1.4)	40 (2.8)	6	15

\* Customer supplied, not included with pump.





## INSTALLATION



## MOUNTING

The PAR-MAX pumps are self-priming and may be located above or below the fresh water tank in a dry location. To vertically mount these units, it is best to do so with the motor on top. This will prevent water dripping on motor in the event of a leak. **Place pump on a solid surface and secure with four mounting screws (not included) being careful not to compress the rubber grommets which act as shock absorbers.**

## PLUMBING

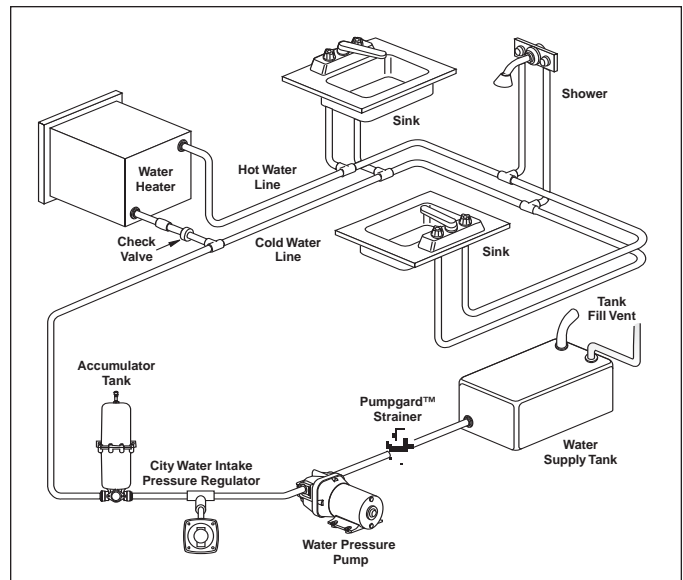
Select two of the port adaptors supplied to match your plumbing system. **Flexible potable water hose or PEX tubing is recommended instead of rigid piping at pump.** If you choose to use rigid piping, provide a short length of hose between pipe and the pump to avoid noise and vibration. Use clamps at both ends of hose to prevent air leaks into the water line. NOTE: Intake hose must be minimum 1/2" (13 mm) ID reinforced hose. Main distribution line from pump outlet should also be 1/2" (13 mm) ID with branch and individual supply lines to outlets no smaller than 3/8" (10 mm). A Jabsco "Pumpgard" in line strainer should be installed between pump and tank to keep debris out of pump and system. Fresh water tank must be vented. Avoid any kinks or fittings which could cause excessive restrictions. Remember to periodically clean faucet and "Pumpgard" screens.

**WARNING!** **Explosion hazard. Do not pump gasoline, solvents, thinners or other flammable liquids. To do so can cause an explosion resulting in injury or death.**

## WIRING

In an easily accessible location, install a switch (Jabsco 44960-Series) to control electricity to the pump. Turn the pump off when not used for extended periods or when the tank is empty.

The electrical circuit should be protected with an over-current protection device in the positive lead. See chart for proper size. The pump circuit should not include any other electrical loads. The free lead at the pressure



switch is positive. Black wire from the motor is negative.

Select wire size from chart below. Use total length of wire from the battery to pump and return. Chart allows for 3% voltage drop. If in doubt, use next larger wire size.

Total length in feet	0-20 (0-6 m)	20-35 (6-11 m)	35-55 (11-17 m)
12 Volt	#14 AWG (2.5 mm <sup>2</sup> )	#12 AWG (4 mm <sup>2</sup> )	#10 AWG (6 mm <sup>2</sup> )
24 Volt	#16 AWG (1.5 mm <sup>2</sup> )	#14 AWG (2.5 mm <sup>2</sup> )	#12 AWG (4 mm <sup>2</sup> )

**WARNING** **Fire hazard. Wiring must comply with applicable electrical standards and include a properly sized fuse or circuit breaker. Improper wiring can cause a fire resulting in injury or death.**

**If you are not familiar with applicable electrical standards, have the unit installed by a qualified electrician.**

After installation, check the voltage at the pump motor. Voltage should be checked when pump is operating. Full voltage must be available at the pump motor at all times.

## OPERATION

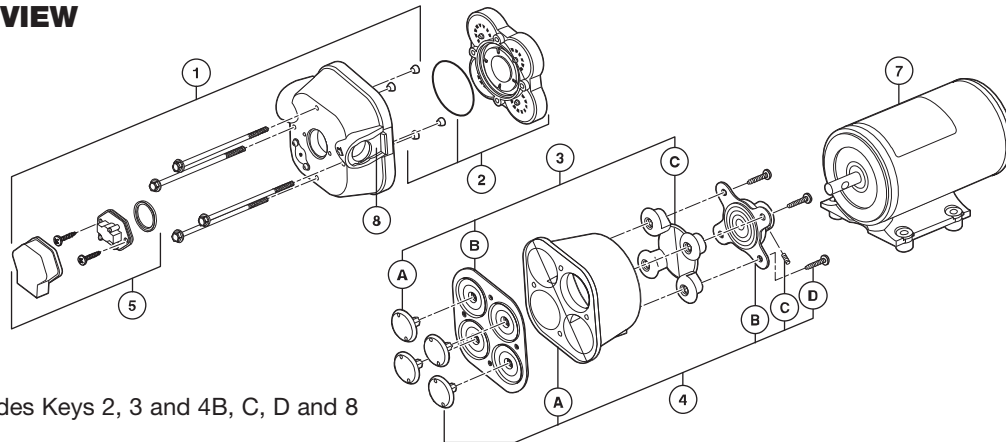
1. Check level of water in tank.
2. Open all faucets hot and cold.
3. Switch on power to pump and wait for hot water tank and water lines to fill.
4. Close each faucet as flow becomes steady and free of air (close cold water faucet first). Pump should shut off soon after closing last faucet.
5. Pump is now ready for automatic operations. It will start when faucet is opened and stop when faucet is closed.
6. If pump will be inoperative for a considerable length of time, turn off circuit to pump and bleed system by opening faucet.

**CAUTION** **Motor case will get hot. Prolonged contact during operation may cause a burn.**



**WARNING: DISCONNECT POWER TO PUMP AND OPEN VALVE TO RELIEVE WATER PRESSURE PRIOR TO SERVICING PUMP**

**EXPLODED VIEW**



\* Service kit includes Keys 2, 3 and 4B, C, D and 8

KEY	DESCRIPTION	QTY	31595-SERIES	31600-SERIES	31620-SERIES	31630-SERIES	
1	Upper Housing	XXXXX-0092	1	18910-4040	18910-4040	18910-4040	18910-4040
		XXXXX-0094	1	18910-4040	18910-4040	18910-4040	18910-4040
		XXXXX-0292	1	18910-4025	18910-4025	18910-4025	18910-4025
		XXXXX-0294	1	18910-4025	18910-4025	18910-4025	18910-4025
		XXXXX-0294	1	18910-4025	18910-4025	18910-4025	18910-4025
2	Valve Kit	1	18911-7030	18911-7030	18911-7030	18911-7030	
3	Diaphragm Kit	1	18912-3040	18912-3040	18912-3040	18912-3040	
4	Lower Housing Kit	1	18915-9000	18915-9002	18915-9002	18915-9002	
5	Pressure Switch	XXXXX-0092	1	18916-0040	18916-0040	18916-0040	18916-0040
		XXXXX-0094	1	18916-0040	18916-0040	18916-0040	18916-0040
		XXXXX-0292	1	18916-0025	18916-0025	18916-0025	18916-0025
		XXXXX-0294	1	18916-0025	18916-0025	18916-0025	18916-0025
		XXXXX-0294	1	18916-0025	18916-0025	18916-0025	18916-0025
*6	Service Kit	1	18920-9042	18920-9043	18920-9043	18920-9043	
7	Motor Kit – 12V EMC COMP	1	18919-0134	18919-0131	18919-0132	18919-0133	
		24V EMC COMP	1	18919-1055	18919-1052	18919-1053	N/A
8	Slide Clips	1	30648-1000	30648-1000	30648-1000	30648-1000	
9	Pumphead Assy.	XXXXX-0092	1	18914-6240	18914-6340	18914-6340	18914-6340
		XXXXX-0094	1	18914-6240	18914-6340	18914-6340	18914-6340
		XXXXX-0292	1	18914-6225	18914-6325	18914-6325	18914-6325
		XXXXX-0294	1	18914-6225	18914-6325	18914-6325	18914-6325
		XXXXX-0294	1	18914-6225	18914-6325	18914-6325	18914-6325

**DISASSEMBLE**

**Pressure Switch (5)**

1. Disconnect power to pump and open a faucet or valve to relieve system pressure.
2. Remove Rubber Boot, then remove the two visible Pressure Switch Screws located on each side of the Pressure Switch (5).

**Upper Housing (1)**

3. Slide Port Clip (8) back and unplug from Tank Plumbing.
4. Loosen but DO NOT remove the four Pump Head Screws and carefully remove Upper Housing Assembly (1).
5. Remove Check Valve (2) and inspect for debris.

**Check Valve Assembly (2)** Follow Steps 1, 3 & 4

6. Inspect Check Valve (2) and O-Ring

**Lower Housing (4)** Follow Step 1, 3 & 4

7. Remove Rubber Plugs on housing (4-A) to access Allen Screw.
8. Rotate Lower Housing (4), so access notch is aligned with Cam Bearing Set Screw (4-C), loosen set screw with a 1/8" Allen Wrench and slide pump head off motor shaft.

**Diaphragm (3-B)**

9. Loosen four cam piston screws with Phillips head screw driver and pull apart cam (4-B) from Inner Pistons (3-A). (Both pistons (3-A & C) should be replaced when a new Diaphragm (3-B) is installed.)

**Motor (7)** Follow steps 1, 3, 4, 7, & 8

**REASSEMBLE**

**Diaphragm (3-B)**

1. Insert Outer Pistons (3-C) into Lower Housing (4-A) by bending pistons at center fold.
2. Placing the Diaphragm (3-B) (flatter side of Diaphragm facing the motor) on the Lower housing (4-A). Press each Inner Piston (3-A) through the Diaphragm and Lower Housing (4A) into Outer Piston (3-C). Hex stem of Inner Pistons (3-A) must be aligned into hex holes in Outer Pistons (3-C). Tighten cam piston screws partially, center piston in diaphragm, and tighten screws securely (18 in. lbs. torque). Also, the Outer Pistons (3-C) must be aligned with alignment slots on Cam Assembly (4-B) making sure screw holes align in cam assembly, otherwise diaphragm will leak.

**Cam Bearing (4-B)**

3. Place Cam Bearing (4-B) over Inner Pistons (3-C) and tighten down with four Phillips Head Screws. (18 in. lbs. torque)

**Lower Housing (4) to Motor (7)**

- Coat motor shaft with grease prior to installing Cam Bearing (4-B).
4. When installing the Lower Housing (4), rotate access notch to align with Cam Bearing Set Screw (4-C).
5. Attach Cam Bearing (4-B) to motor shaft indentation with Cam Bearing Set Screw (4-C). (35 in. lbs. torque)
6. Reinsert new Notch Plugs.

**Check Valve (2)**

7. Place Ferrules (Rubber Cones) in the Upper Housing (1) coned side first.
8. Properly seat O-Ring in Check Valve (2) and insert Check Valve (2) into the Upper Housing (1).

**Upper Housing (1)**

9. Place Upper Housing (1) on top of the Lower Housing (4-A) and tighten Hex Bolts (30 in. lbs. torque) through the Upper Housing (1) to the Motor.

## TROUBLESHOOTING

### PULSATING FLOW – PUMP CYCLES ON AND OFF

- Restricted pump delivery. Check discharge lines, fittings and valves for undersizing or clogging. Clean screens in faucets. Some filters or purifiers are highly restrictive. Filters/purifiers with high pressure drop may require a separate line and the installation of an accumulator tank in the system.

### FAILURE TO PRIME – MOTOR OPERATES, BUT NO PUMP DISCHARGE

- Restricted intake or discharge line.
- Air leak in intake in line.
- Punctured pump diaphragm (water leak).
- Debris under flapper valves.
- Crack in pump housing.

### MOTOR FAILS TO TURN ON

- Loose wiring connection.
- Pump circuit has no power.
- Blown fuse/Thermal Protector tripped (wait 30 min.).
- Pressure switch failed.
- Defective motor.

**⚠ CAUTION** PAR-MAX pumps have thermal overload protected motors. The motor will automatically shut off as temperature rises due to an overload condition. If the motor shuts off in this manner, close all nozzles, faucets or valves. After a cooling off period, the pump will automatically re-start.

### WINTERIZING YOUR WATER SYSTEM

To winterize, it is not necessary to drain the water from the entire water system. Blowing into the lines to remove the water from your water system is not satisfactory due to the check valve mechanism built into the pump.

Follow these steps to remove all water from your water system:

1. Drain water by opening tank drain, or open a fixture to allow pump to operate until tank is dry.

**⚠ DANGER** DO NOT USE AUTOMOTIVE TYPE ANTI-FREEZE. IT IS POISONOUS. USE OF THIS TYPE ANTI-FREEZE WILL CAUSE SERIOUS INTERNAL INJURY OR DEATH.

### PUMP FAILS TO TURN OFF AFTER ALL FIXTURES ARE CLOSED

- Empty water tank.
- Punctured pump diaphragm (water leak).
- Discharge line leak.
- Defective pressure switch.
- Insufficient voltage to pump.
- Debris under flapper valves.

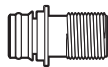
### LOW FLOW AND PRESSURE

- Air leak at pump intake.
- Accumulation of debris inside pump and plumbing.
- Worn pump bearing (excessive noise).
- Punctured pump diaphragm (water leak).
- Defective motor.

2. Open the lowest outlet in water system to drain lines.
3. To remove any remaining water (about a cup), remove outlet hose on pump and activate pump. To blow out lines, attach air nozzle where outlet hose was removed. Make sure all fixtures are open before starting.
4. Your water system is now winterized. Don't forget to reattach the outlet hose to pump and close all fixtures.

## ACCESSORIES

### SNAP-IN PORT SYSTEM



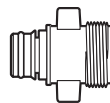
**30649-1000**  
**30649-1001**  
SNAP-IN PORT x  
1/2" MALE QEST.  
STRAIGHT



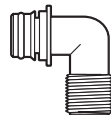
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**30654-1001**  
SNAP-IN PORT x  
1/2" HOSE BARB  
STRAIGHT



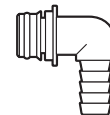
**30653-1000**  
**30653-1001**  
SNAP-IN PORT x  
3/4" HOSE BARB  
STRAIGHT



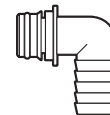
**30650-1000**  
**30650-1001**  
SNAP-IN PORT x  
GARDEN HOSE  
STRAIGHT



**30655-1000**  
**30655-1001**  
SNAP-IN PORT x  
1/2" MALE QEST.  
90° ELBOW



**30651-1000**  
**30651-1001**  
SNAP-IN PORT x  
1/2" HOSE BARB  
90° ELBOW



**30642-1000**  
**30642-1001**  
SNAP-IN PORT x  
3/4" HOSE BARB  
90° ELBOW

## Jabsco



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U.S.A.  
Jabsco  
20 Icon  
Foothill Ranch, CA 92610-3000  
Tel: 949.609.5106  
Fax: 949.859.1254

UNITED KINGDOM  
Jabsco  
Bingley Road, Hoddesdon  
Hertfordshire EN11 0BU  
Tel: +44 (0) 1992 450145  
Fax: +44 (0) 1992 467132

CANADA  
Fluid Products Canada  
55 Royal Road  
Guelph, Ontario N1H 1T1  
Tel: (519) 821.1900  
Fax: (519) 821.2569

JAPAN  
NHK Jabsco Company Ltd.  
3-21-10, Shin-Yokohama  
Kohoku-Ku, Yokohama, 222  
Tel: 045.475.8906  
Fax: 045.475.8908

GERMANY  
Jabsco GmbH  
Oststrasse 28  
22840 Norderstedt  
Tel: +49-40-53 53 73 -0  
Fax: +49-40-53 53 73 -11



Instruction Manual  
**Ultima Bilge**

600GPH, 800GPH, 1000GPH, 1250GPH



Read and understand this manual prior to  
operating or servicing this product.

IB-123/01 (0912)



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Electromagnetic Compatibility Directive 89/336/EEC  
 EN55014-1: 1993/A:1997 /Radio disturbance  
 Recreational Craft Directive 94/25/EEC  
 ISO 8846: 1990/Electrical devices - Protection against ignition of surrounding flammable gases  
 ISO 8849: 1990/Electrically operated bilge pumps  
 ISO 10133: 1994/Electrical systems - Extra low-voltage DC installations

### Warranty Information

Johnson Pumps of America of 10509 United Parkway, Schiller Park, Illinois 60176 warrants to the original consumer purchaser that this product will be free from defects in material and workmanship, providing that the case is not opened or the pump otherwise abused for a period of three (3) years from the date originally purchased.

The exclusive remedy of the consumer purchaser in the event the product does not meet this express Limited Warranty is to return the pump to Johnson Pump at the above address, freight prepaid with your sales receipt. **IMPORTANT: FOR THIS WARRANTY TO BE EFFECTIVE, JOHNSON PUMP MUST BE SUPPLIED WITH THE ORIGINAL PURCHASE DATE OF THE PRODUCT. THE ACCEPTANCE BY JOHNSON PUMP OF ANY PRODUCT RETURNED SHALL NOT BE DEEMED AN ADMISSION THAT SUCH PRODUCT IS DEFECTIVE OR IN VIOLATION OF ANY WARRANTY. THE COMPANY RESERVES THE RIGHT TO REPAIR OR REPLACE THE PRODUCT.**

NO REPRESENTATIVE OR OTHER PERSON IS AUTHORIZED TO ASSUME FOR JOHNSON PUMP ANY ADDITIONAL LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS OR TO ALTER THIS WARRANTY IN ANY WAY.

IN NO EVENT WILL JOHNSON PUMPS OF AMERICA BE LIABLE FOR MORE THAN THE SALES PRICE OF THE PRODUCT. UNDER NO CIRCUMSTANCES WILL JOHNSON BE LIABLE FOR ANY LOST PROFITS, INCIDENTAL OR

CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES. THE LIMITATION ON LIABILITY FOR LOST PROFITS, INCIDENTAL OR CONSEQUENTIAL COST EXPENSES OR DAMAGES SHALL SURVIVE ANY FAILURE OF ESSENTIAL PURPOSE OF THIS LIMITED WARRANTY. Some states do not allow the exclusive or limitation of incidental or consequential damages, so the above limitation may not apply to you.

NO EXPRESS OR LIMITED WARRANTY, INCLUDING WARRANTY OF MERCHANTABILITY AND FITNESS SHALL EXTEND FOR ANY PERIOD OF TIME GREATER THAN THREE YEARS FROM THE DATE OF ORIGINAL PURCHASE OF THIS PRODUCT. Some states do not allow limitation on how long an implied warranty lasts so the above limitation may not apply to you. **CAUTION** - Warranty void if seal on product is broken, if any electric cord is cut back more than 3 inches, if electric splices become submerged, or if product is installed contrary to instructions or warnings.

Johnson Pumps of America  
 10509 United Parkway  
 Schiller Park, Illinois 60176  
 Fax (847)671-7909

[www.johnson-pump.com](http://www.johnson-pump.com)

**E-Mail: CUSTOMERSERVICE@**

## Ultima Bilge länsypump

Varning: Vänligen läs igenom och följ samtliga anvisningar innan installation och användning av denna produkt.

Koppla alltid bort spänningskällan vid installation, service eller underhåll av denna produkt. Ultima Bilge är omsorgsfullt konstruerad för att enbart pumpa ut stående vatten. Dessa pumpar är inte avsedda för skadekontroll. Länsypumparnas kapacitet torde inte vara tillräcklig för att förhindra översvämning från hastig ansamling av vatten på grund av storm, hårt väder och/eller hastigt uppkomna läckage skapade av skador i skrov och/eller riskabla navigationsförhållanden.

### Lite om Ultima Bilge

Ultima bilge är en automatisk länsypump som använder avancerad elektronisk avkänningsteknologi för att upptäcka förekomsten av vatten i slaget på en båt och följaktligen tömma ut det vattnet. Den är byggd på den utprovade UltimaSwitch teknologin som använder mikroelektroniska fält för att upptäcka förekomsten av vatten. Ultima Bilge är en tätad undervattenspump med elektronisk flottörströmställare som gör en enkel installation möjlig för slutanvändaren.

### Varningar:

För att undvika personskador eller skador på egendom under installation, service och underhåll, säkerställ att elektriciteten är frånkopplad.

Denna pump konstruerades enbart för att avlägsna stående slagvatten och skall inte användas för att pumpa petroleumprodukter som bensin, olja, eller lättantändliga vätskor.

Säkerställ att använda rätt säkringsstorlek som rekommenderas för din pumpmodell. Användning av en felaktig säkring kan leda till personskador, egendomsskador och

brandfara.

### Installation av Ultima Bilge:

**Varning:** Vid installation av Ultima Bilge, säkerställ att pumpen är fri från alla hinder, speciellt nära avkänningsområdet. Om avkännarna är blockerade kommer pumpen kontinuerligt att vara påslagen!

- 1) Placera en 3/4" tjock bit av marinywood som monteringsblock för din pumps fästpunkt. Monteringsblocket skall vara tillräckligt stort för att täcka filterområdet. Använd ett vattentåligt bindemedel för att fästa monteringsblocket mot båtens skrov. Säkerställ att monteringsblocket är så plant som möjligt. Placera pumpen i slagets lägsta område. Säkerställ även att utloppsmunstycket är i plan.
- 2) Avlägsna pumpen från filtret genom att trycka ned de två sidostiften och dra filtret från pumphuset. Använd filtret för att märka ut tre monteringshål. För att undvika att borra igenom båtens skrov, ställ in borren på lämpligt djup för styrhålen. Borra styrhålen.
- 3) Dra fast tre #8 x 5/8" rostfria skruvar (inte medlevererade) i filterhålen för att montera filtret. Dra inte åt för hårt.
- 4) Efter att filtret är monterat, placera pumphuset på filtret och säkerställ att sidostiften låser fast i pumphuset.

För 3/4" utloppsmodeller, fäst slangen över Duraport. Använd slangklämmor av rostfritt stål för att fästa slangen. Om tillvalet backventil monteras, säkerställ att backventilen monteras i Duraport innan slangen installeras. För 1 1/8" modeller, fäst slangen över den gängade anslutningsöppningen [1 1/8" eller 1 1/4"]. Använd slangklämmor av rostfritt stål för att fästa slangen på anslutningsöppningarna. Om tillvalet backventil

## > Svenska

monteras, säkerställ att backventilen monteras i Duraport innan slangen och anslutningsöppningarna installeras. Backventilen för [1 1/8" eller 1 1/4"] modellen innefattar en rostfri bricka och en klaff. För att installera backventilen, placera den rostfria brickan i pumpens utloppsområde. Placera därefter Nitrile klaffen över brickan. Gänga därefter på anslutningsöppningen på pumpens utlopp. Dra åt anslutningsöppningen tills den botten i pumphuset.

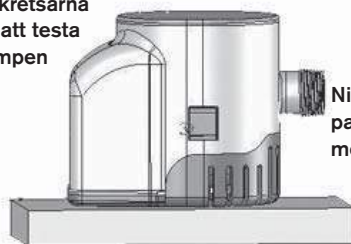
För modell 3/4" installerar du kontrollventilerna så att den avsmalnande änden är i riktning mot flödet. För att installera kontrollventilerna, tar du av packningen i Duraport och byter ut packningen mot kontrollventilerna som även fungerar som packning. Spara den gamla packningen ifall du inte vill använda kontrollventilerna vid ett senare tillfälle.

Undvik veck eller öglor på slangen. Stöd slangen om nödvändigt. Det är viktigt att slangen stadigt är upphöjd och inte tillåts sänkas ned under utloppet eftersom detta kan orsaka luftblåsor i slangen. För maximal prestanda, använd slätborrad, förstärkt slang.

### **OBS!**

Backventilen som levereras med din Ultima Bilge används för att förhindra backströmning av vatten. Nyttan av backventilen kräver att du är uppmärksam på dess funktion. Backventilen är tillverkad av Nitrilematerial som endast är avsett för tillämpning med vatten. Backventilen minskar även pumpens strömhastighet. Om strömningen är avgörande för pumpens tillämpning rekommenderas det att inte använda backventilen. Dessutom, vid vinterrustning av din båt, ta bort backventilen för att undvika isbildning och/eller försämring av backventilen.

**Placera fingrarna på kretsarna för att testa pumpen**

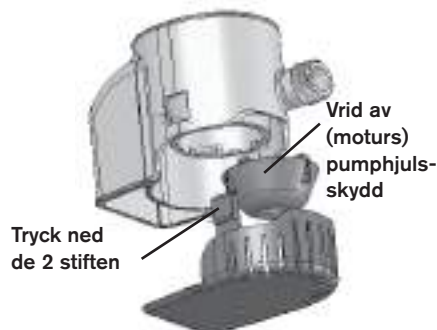
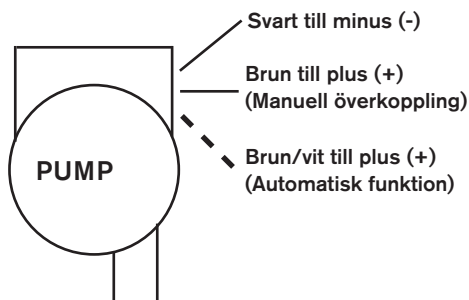


**Monteringsblock**

**Anvisningar för elinstallation:**Hänvisning till kopplingsschema nedan. Använd lämplig storlek av anslutningsdon för dimension 16 ledning. Ledningsanslutningarna skall utföras med vattenskyddade permanenta anslutningsklämmor. Vattenfast el-tejp skall användas för att täcka anslutningsklämmorna. Monteringsanslutningarna skall vara ovanför den högsta vattennivån. Garantin blir ogiltig för denna produkt om någon elektrisk ledare kapas mer än 3 tum, om elektriska skarvar sänks ned i vatten, användning av felaktig säkring eller om pumpen installeras i strid mot instruktioner och varningar.

Man kan installera en trevägs kopplingspanel som gör det möjligt för pumpen att befinna sig i manuellt eller automatiskt läge. Säkerställ att pumpen avsäkras. Säkringshållaren skall placeras mellan batteriets positiva pol och trevägs kopplingspanelen. Säkerställ att lämplig säkringsstorlek används för modellerna. För att kontrollera pumpens funktion, placera två fingrar på det upphöjda cirkelrunda området på pumpens baksida. Efter en kort stund [5 sekunder], skall pumpen starta. Om du tar bort ett finger från det cirkelrunda området skall pumpen fortsätta att gå. Om du tar bort båda fingrarna skall pumpen stanna.

> Svenska



\*\*\*Säkerställ att du har minst 25mm fritt utrymme från avkännarna på Ultima Bilge till väggar eller omgivning. Om det inte finns tillräckligt med fritt utrymme kan avkännarna upptäcka föremålet och låta pumpen gå kontinuerligt.\*\*\*

**Underhåll:**Ultima Bilge är konstruerad för att vara bekymmersfri och underhållsfri. Dock skall uppmärksamhet riktas mot att pumphjulet är fritt från skräp för optimal funktion. Säkerställ att spänningen är frånslagen vid underhåll av pumpen. För att komma åt pumphjulet, avlägsna pumpen från filtret genom att trycka ned de två sidostiften och dra pumpen från filtret. För rengöring av pumphjulet, ta tag i pumphjulets skyddsfläns och vrid pumphjulets skydd medurs och dra rakt ut. Avlägsna och rengör pumphjulet och pumpen från allt skräp som har samlats. Säkerställ att även rengöra eventuellt skräp som samlats på filtret. Efter att pumphjulet är rengjort, sätt tillbaka skyddet genom att rikta in stiften med spåren och vrida moturs, dra inte åt för hårt. Skyddet skall vridas tills det är stadigt. Placera pumphuset på filtret och säkerställ att båda låsstiften låser fast i pumphuset.

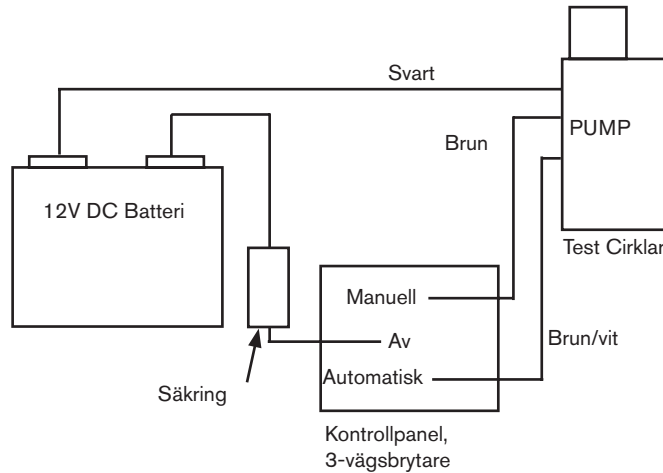
#### Garantiinformation

Johnson Pumps of America, 10509 United Parkway, Schiller Park, Illinois 60176, beviljar garanti åt den ursprungliga konsumenten/inköparen att denna produkt är fri från defekter i material och arbete, under förutsättning att enheten inte har öppnats eller att pumpen på annat sätt har missbrukats under en period av tre (3) år från och med det ursprungliga inköpsdatumet.



> Svenska

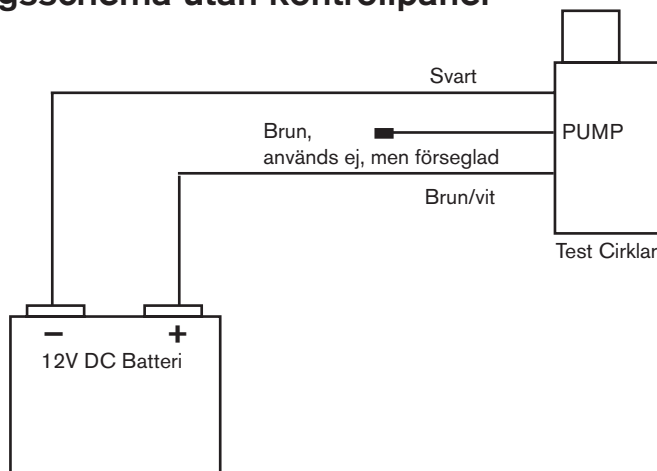
## Kopplingsschema



Om du använder en 3-vägsbrytare, kan du koppla din pump så att den fungerar i den manuella vidarekopplings- eller automatiska driften.

Som visas på diagrammet, anslut den svarta (-) jordade ledningen till den negativa batteriterminalen. För att vidarekoppla driften manuellt, anslut den bruna ledningen från pumpen till panelomkopplaren. För automatdrift, anslut den bruna ledningen med den vita spåringsledningen till panelomkopplaren. Se till att du använder korrekt säkring, som kommer från den positiva batteriterminalen till panelomkopplaren, se diagrammet.

## Kopplingsschema utan kontrollpanel



## ***Ultima Bilge - Automatic Bilge Pump***

Caution: Please read and follow all instructions before installing and using this product.

Always disconnect power sources during installation, servicing or maintenance of this product. The Ultima Bilge pump has been carefully designed to exhaust standing water only. These pumps are not intended for damage control. Bilge pump capacities may not be sufficient to prevent flooding from rapid accumulation of water due to storms, rough weather and/or rapid leaks created by hull damages and/or unsafe navigational conditions.

### **About the Ultima Bilge Pump**

The Ultima Bilge pump is a state of the art automatic bilge pump that uses advanced electronic sensing technology to detect the presence of water in the bilge area of a boat and consequently discharge of that water. It is built upon the proven UltimaSwitch technology which uses micro electrical fields to detect the presence of water. The Ultima Bilge pump is a sealed, submersible pump and electronic float switch that allows for a simple installation for the end user.

### **Warnings:**

To eliminate personal injury or damage to property during installation, servicing and maintenance, make sure to disconnect electrical power. This pump was designed to remove standing bilge water only and should not be used to pump petroleum products such as gasoline, oil, or flammable liquids.

Make sure to use the appropriate fuse size recommended by your pump model. Using the wrong fuse can lead to personal injury, property damage and fire hazard.

### **Installing the Ultima Bilge Pump:**

**Caution:** *When installing the Ultima Bilge Pump, make sure that pump is clear of all obstacles, especially near the detector area. If detectors are blocked, the pump will remain continuously on!*

- 1) Place a 3/4" thick block of marine plywood as a mounting block for your pump base. Mounting block should be large enough to cover the strainer area. Use a waterproof adhesive to attach mounting block to the hull of the vessel. Make sure that mounting block is as flat as possible. Place pump in the lowest area of the bilge. Also, make sure discharge nozzle is level.
- 2) Remove the pump from the strainer by depressing the two side tabs and pulling the strainer from pump body. Use the strainer to mark three mounting holes. In order to avoid drilling through the hull of the vessel, set your drill to the appropriate depth for the pilot holes. Drill your pilot hole.
- 3) Drive three #8 x 5/8" (not supplied) Stainless screws into the strainer holes to mount the strainer. Do not over tighten.
- 4) After the strainer is mounted down, place pump body onto strainer making sure that the side tabs lock onto pump body.

For 3/4" discharge models attach your hose over the Duraport. Use Stainless steel hose clamps to secure the hose. If installing the optional check valve, make sure to install the check valve into the Duraport before installing the hose. For 1 1/8" models attach your hose over threaded port [1 1/8" or 1 1/4"]. Use Stainless Steel hose clamps to secure the hose to the ports. If installing the optional check valve,

> English

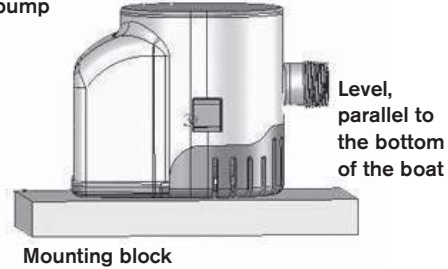
make sure to install the check valve before installing the hose and ports. The check valve for the [1 1/8" or 1 1/4"] model will include a stainless steel washer and a flapper. To install the check valve, place stainless steel washer into the discharge area of pump. Next place the Nitrile flapper over the washer. Then thread on the port on to pump's discharge. Tighten port until port is bottomed out with pump body.

For 3/4" model install check valve such that the tapered end is towards the direction of flow. To install check valve, remove gasket in Duraport and replace the gasket with the check valve which also acts as the gasket. Save the old gasket in case you intend to not use the check valve at a later time.

Make sure to avoid loops or bends in the hose. Support hose if necessary. It is important that the hose be constantly rising and not be allowed to dip below the outlet port as this may cause an airlock situation. For maximum performance use smooth bore, reinforced hose.

**NOTE:** The check valve supplied with your Ultima Bilge pump is used to prevent the backflow of water. The utilization of the check valve requires you to be mindful of its functionality. The check valve material is made of Nitrile material to be used for water applications only. Also, the check valve will reduce the flow of the pump. If flow is critical to the application of the pump, it is recommended that the check valve not be used. Also, when winterizing your boat, remove the check valve to avoid ice formation and/or degradation of the check valve.

Place fingers on circles to test the pump

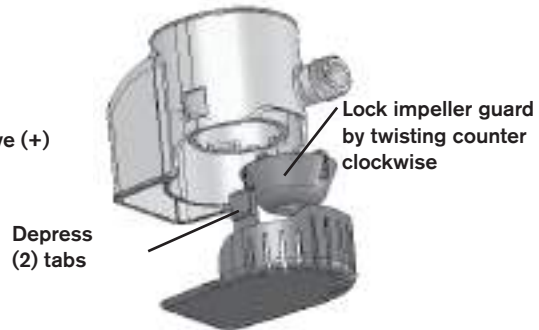
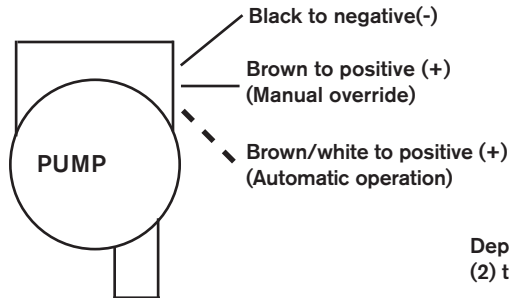


***Wiring Instructions:***

Refer to wiring diagram below. Use appropriate sized connectors for 16 Gauge wire. The wiring connections should be made with water resistant permanent terminals. Liquid electrical tape should be used to coat terminals. The mount connections should be above the highest water level. The warranty will become void on this product if any electrical cord is cut back more than 3 inches, if electrical splices become submerged, failure to properly fuse or if pump is installed contrary to instructions or warnings.

You may install a three way switch panel that will allow the pump to be in manual or automatic mode. Make sure to fuse the pump. The fuse holder should be between positive battery terminal and three way panel switch. Make sure to use the appropriate fuse size for the models. To check the operation of the pump, place two fingers over the raised circular areas in the back of the pump. After a short delay [5 seconds], the pump should turn on. If you remove your finger from the top circle, the pump should remain on. If you remove both fingers, the pump should turn off.

> English



\*\*\*Make sure to have at least 1 inch [25MM] of clearance from the sensors on the Ultima Bilge pump to any wall or surroundings. If there is not enough clearance, the sensors may detect the object and leave the pump running continuously.\*\*\*

**Maintenance:**

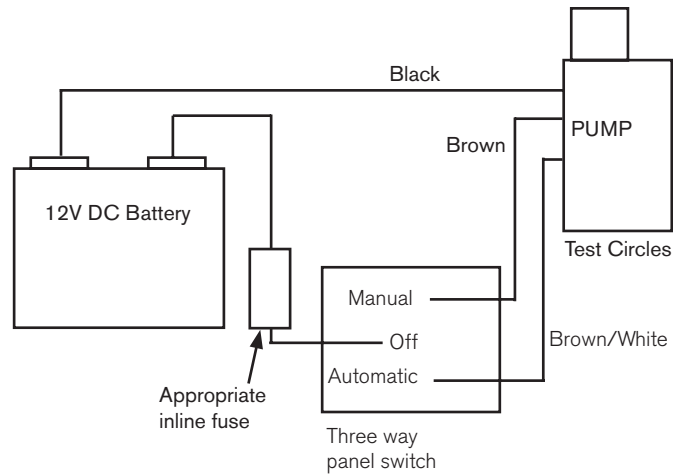
The Ultima bilge pump is designed to be worry free and maintenance free. However, care should be taken to make sure that the impeller is clear of debris for optimum pump functionality. Make sure power is disconnected during maintenance of the pump. To access the impeller, remove pump from strainer by depressing the side lock tabs on pump body and pulling pump from strainer. To clean the impeller, grab on to impeller guards fins and rotate impeller guard clockwise and pull straight out. Remove and clean the impeller and pump from all debris that has accumulated. Make sure to clean any debris that has accumulated on the strainer as well. After the impeller is clean, replace impeller guard by aligning tabs with slots and turning counter-clockwise, making sure not to over tighten. The guard should be rotated until it is firm. Place pump body on to strainer making sure that both locking tabs snap onto pump body.

**Warranty Information**

Johnson Pumps of America of 10509 United Parkway, Schiller Park, Illinois 60176 warrants to the original consumer purchaser that this product will be free from defects in material and workmanship, providing that the case is not opened or the pump otherwise abused for a period of three (3) years from the date originally purchased.

> English

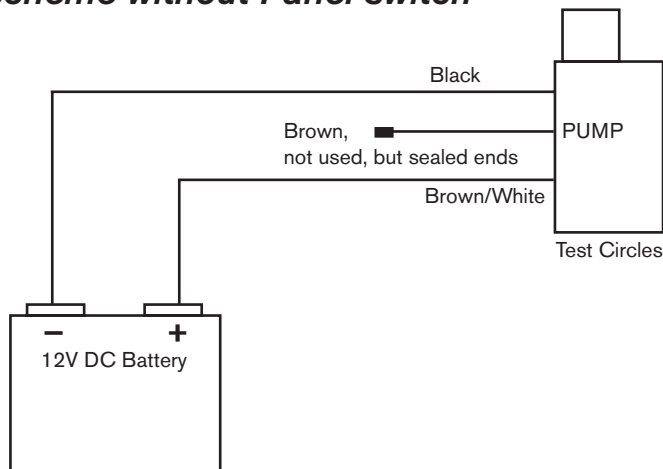
## Wiring Scheme



If you are using a 3-way switch, you can wire your pump to operate in the manual over-ride or automatic operation.

As shown in the diagram, connect the black (-) ground wire to the negative terminal of the battery. For manual over-ride operation, connect the brown wire from the pump to the switch panel. For automatic operation, connect the brown wire with white tracer to the switch panel. Make sure to connect an appropriate in line fuse coming from the positive terminal of the battery to the switch panel as shown.

## Wiring scheme without Panel switch



## Ultima Bilge -Lenzpumpe

Vorsicht: Bitte lesen und befolgen Sie vor der Installation und Einsetzung dieses Produktes alle Anweisungen.

Trennen Sie das Produkt während der Installation, Instandhaltung oder Wartung immer von den Stromquellen. Die Ultima-Lenzpumpe ist ausschließlich zum Auspumpen stehenden Wassers sorgfältig entwickelt worden. Diese Pumpen sind nicht für die Schadenskontrolle vorgesehen. Es ist möglich, dass das Volumen der Lenzpumpe nicht ausreicht, um Überflutungen bei einem schnellen Eindringen von Wasser bei Stürmen, schlechtem Wetter und/oder plötzlich auftretenden Lecks, im Falle von Rumpfschädigungen und/oder unsicheren Navigationsbedingungen, zu verhindern.

### Über die Ultima-Lenzpumpe

Die Ultima-Lenzpumpe ist eine hochmoderne automatische Lenzpumpe, die eine elektronische Spitzenabtastungstechnologie verwendet, um das Vorhandensein von Wasser im Bilgenbereich eines Schiffes zu entdecken und dieses Wasser danach auszupumpen. Die Pumpe ist nach der bewährten UltimaSwitch-Technologie gebaut, die mikroelektrische Felder zum Aufspüren von Wasser benutzt. Die Ultima-Lenzpumpe ist eine abgedichtete Tauchpumpe und hat einen elektronischen Schwimmerschalter, der eine leichte Installation für den Endverbraucher ermöglicht.

### Warnungen:

Um bei der Installation Personen- oder Materialschäden zu vermeiden, stellen Sie sicher, dass Sie die Stromverbindung trennen. Diese Pumpe ist nur für die Entfernung des Bilgenwassers entwickelt worden und sollte nicht zum Pumpen von Erdölprodukten, z. B. für Benzin, Öl oder feuergefährliche Flüssigkeiten verwendet werden.

Stellen Sie sicher, dass Sie eine Sicherung mit der Größe benutzen, die für Ihr Pumpenmodell empfohlen wird. Die Verwendung von falschen Sicherungen kann zu Personenschäden, Materialschäden und Brandgefahr führen.

### Installation der Ultima-Lenzpumpe:

Vorsicht: Stellen Sie bei der Installation der Ultima-Lenzpumpe sicher, dass es keine Hindernisse für die Pumpe gibt, insbesondere in der Nähe des Detektorbereichs. Falls die Detektoren blockiert werden, bleibt die Pumpe dennoch eingeschaltet!

- 1) Legen Sie ein Stück Bootsbausperrholz mit einer Dicke von 3/4" als Montageblock für die Pumpe auf den Boden. Der Montageblock sollte eine ausreichende Größe haben, damit sie den Filterbereich bedeckt. Zur Befestigung des Montageblocks an den Schiffsrumpf verwenden Sie wasserfesten Kleber. Stellen Sie sicher, dass der Montageblock so flach wie möglich ist. Stellen Sie die Pumpe in den niedrigsten Bereich der Bilge auf. Stellen Sie ebenfalls sicher, dass der Ablaufstutzen ausgerichtet ist.
- 2) Entfernen Sie die Pumpe vom Filter, indem Sie die zwei seitlichen Verschlussnasen drücken und den Filter aus dem Pumpengehäuse ziehen. Verwenden Sie den Filter zum Markieren der drei Montagebohrungen. Um Bohren durch den Schiffsrumpf zu vermeiden, stellen Sie den Bohrer für die Löcher auf eine richtige Tiefe ein. Machen Sie ein Loch.
- 3) Zur Montage des Filters führen Sie drei #8 x 5/8" (nicht im Lieferumfang) rostfreie Schrauben in die Bohrungen des Filters. Ziehen Sie nicht zu stark an.
- 4) Nach der Montage des Filters stellen Sie das Pumpengehäuse auf den Filter und stellen Sie sicher, dass die seitlichen Verschlussnasen am Pumpengehäuse verriegeln.

Bei 3/4"-Ablaufmodellen befestigen Sie Ihren Schlauch über den Duraport. Verwenden Sie zur Befestigung des Schlauchs Schlauchschellen aus rostfreiem Stahl. Falls Sie ein optionales Rückschlagventil installieren, stellen Sie sicher, dass Sie das Ventil im Duraport prüfen, bevor Sie den Schlauch in-

> **Deutsch**

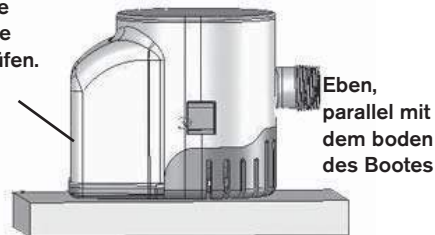
stallieren. Für 1 1/8"-Modelle befestigen Sie Ihren Schlauch über dem Gewindeanschluss [1 1/8" oder 1 1/4"]. Verwenden Sie einen Schlauch aus rostfreiem Stahl. Falls Sie ein optionales Rückschlagventil installieren, stellen Sie sicher, dass Sie das Ventil am Duraport prüfen, bevor Sie den Schlauch und die Anschlüsse installieren. Das Rückschlagventil für das Modell [1 1/8" oder 1 1/4"] enthält eine Unterlegscheibe aus rostfreiem Stahl und eine Klappe. Zum Installieren des Rückschlagventils stellen Sie die Unterlegscheibe aus rostfreiem Stahl in den Ablaufbereich der Pumpe. Danach stellen Sie die Nitril-Klappe auf die Unterleg-Scheibe. Danach drehen Sie den Anschluss auf den Pumpenablauf. Ziehen Sie den Anschluss an, bis der Anschluss am Boden des Pumpengehäuses ist.

Beim Modell 3/4" installieren Sie das Rückschlagventil so, dass das konische Ende in Flussrichtung zeigt. Zum Installieren des Rückschlagventils entfernen Sie den Dichtring aus dem Duraport und ersetzen Sie den Dichtring mit dem Rückschlagventil, dass auch als Dichtring fungiert. Bewahren Sie den alten Dichtring auf für den Fall, dass Sie das Rückschlagventil in der Zukunft nicht mehr verwenden wollen.

Stellen Sie sicher, dass der Schlauch weder Schleifen hat, noch geknickt ist. Unterstützen Sie den Schlauch bei Bedarf. Es ist wichtig, dass der Schlauch immer steigt und nicht unter das Niveau der Abflussöffnung fällt, da dies einen Lufteinschluss mit sich bringen kann. Für eine maximale Leistung verwenden Sie einen innen glatten, verstärkten Schlauch.

**HINWEIS:** Das mit der Ultima-Lenzpumpe mitgelieferte Rückschlagventil wird zur Vorbeugung des Rückflusses von Wasser benutzt. Die Verwendung des Rückschlagventils verlangt Aufmerksamkeit gegenüber dessen Funktionalität. Das Material des Rückflussventils ist aus Nitril, das ausschließlich für Wasseranwendungen eingesetzt werden soll. Außerdem verkleinert das Rückschlagventil den Pumpendurchfluss. Falls der Durchfluss bei der Einsetzung der Pumpe wichtig ist, wird empfohlen, das Rückschlagventil nicht zu benutzen. Falls Sie ihr Boot winterfest machen, sollten Sie das Rückschlagventil entfernen, um Eisbildung und/oder Erosion des Rückschlagventils zu vermeiden.

Setzen Sie ihre Finger auf die Kreise, um die Pumpe zu prüfen.



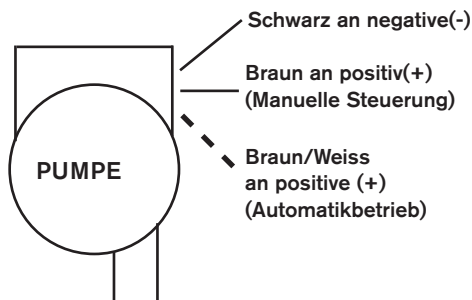
Montageblock

**Verdrahtungsanweisungen:**

Sehen Sie sich den Schaltplan unten an. Verwenden Sie die richtigen Anschlüsse für den Drahtquerschnitt 16. Die Drahtanschlüsse sollten mit wasserfesten Dauerklemmen gemacht werden. Zum Bedecken der Klemmen sollte flüssiges Isolierband verwendet werden. Die Montageanschlüsse sollten über den höchsten Wasserstand sein. Der Garantieanspruch wird ungültig, wenn ein elektrischer Draht auf mehr als 3 Zoll zurückgeschnitten ist, falls elektrische Verbindungen ins Wasser getaucht werden, eine inkorrekte Sicherung verwendet wird oder bei der Installation der Pumpe Anweisungen oder Warnungen nicht beachtet wurden.

Sie können ein Dreizeige-Bedienfeld installieren, das es ermöglicht, die Pumpe im Hand- oder Automatikbetrieb zu betreiben. Stellen Sie sicher, dass die Pumpe gesichert wird. Der Sicherungsträger sollte sich zwischen der positiven Batterieklemme und dem Dreizeige-Bedienungsschalter befinden. Stellen Sie sicher, dass Sie eine Sicherung mit der richtigen Größe für Ihr Modell verwenden. Zur Überprüfung des Pumpenbetriebs stellen Sie zwei Fingern über die erhobenen, kreisförmigen Bereiche auf der Rückseite der Pumpe. Nach einer kurzen Verzögerung [5 Sekunden] sollte sich die Pumpe einschalten. Falls Sie Ihren Finger vom oberen Kreis entfernen, sollte die Pumpe eingeschaltet bleiben. Falls Sie beide Fingern entfernen, sollte sich die Pumpe ausschalten.

> Deutsch



\*\*\* Stellen Sie sicher, dass Sie einen Abstand von mindestens 1 Zoll [25 mm] von den Sensoren der Ultima Lenzpumpe zu jeglichen Wänden oder der Umgebung haben. Falls es keinen genügenden Abstand gibt, können die Sensoren ein Objekt entdecken und die Pumpe kontinuierlich laufen lassen. \*\*\*

#### **Wartung:**

Die Ultima-Lenzpumpe ist störungs- und wartungsfrei konzipiert. Allerdings sollte zur Sicherung eines optimalen Pumpenbetriebs dafür gesorgt werden, dass das Antriebsrad frei von Fremdkörpern ist. Stellen Sie sicher, dass die Stromverbindung während der Wartungsarbeiten getrennt ist. Um den Zugang zum Antriebsrad zu sichern, entfernen Sie die Pumpe vom Antriebsrad, indem Sie die seitlichen Verschlussnasen auf dem Pumpengehäuse drücken und die Pumpe vom Antriebsrad herausziehen. Zur Reinigung des Antriebrades nehmen Sie die Schutzrippen des Antriebrades, rotieren Sie das Antriebsrad im Uhrzeigersinn, und ziehen Sie es aufrecht heraus. Entfernen und reinigen Sie das Antriebsrad und die Pumpe von allen angesammelten Fremdkörpern. Entfernen Sie alle angesammelten Fremdkörper auch vom Antriebsrad. Nach der Reinigung des Antriebrades ersetzen Sie den Schutz des Antriebrades, indem Sie die Verschlussnasen mit den Schlitzen ausrichten und gegen Uhrzeigersinn drehen, wobei Sie darauf achten, dass sie nicht zu stark anziehen. Der Schutz sollte so lange gedreht werden, bis er fest ist. Stellen Sie das Pumpengehäuse auf das Antriebsrad, indem Sie sicher stellen, dass die beiden Verschlussnasen auf dem Pumpengehäuse einrasten.

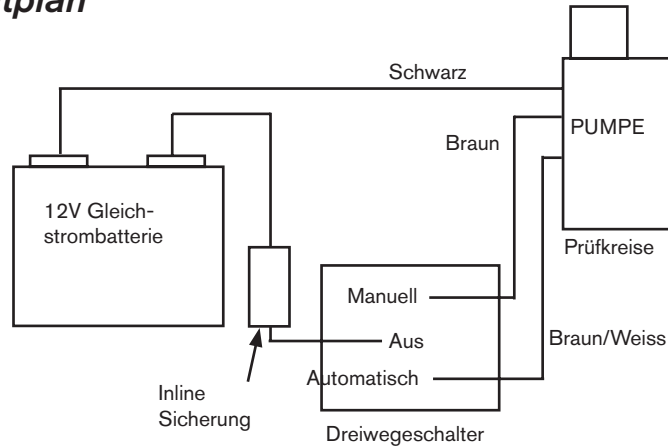
#### **Garantieinformationen**

Die Firma Johnson Pumps of America of 10509 United Parkway, Schiller Park, Illinois 60176 garantiert dem Erstkäufer, dass dieses Produkt für einen Zeitraum von drei (3) Jahren ab Kaufdatum frei von Material- und Bearbeitungsschäden ist, unter Voraussetzung, dass das Gehäuse nicht geöffnet oder die Pumpe auf jegliche andere Weise missbraucht wird.



> Deutsch

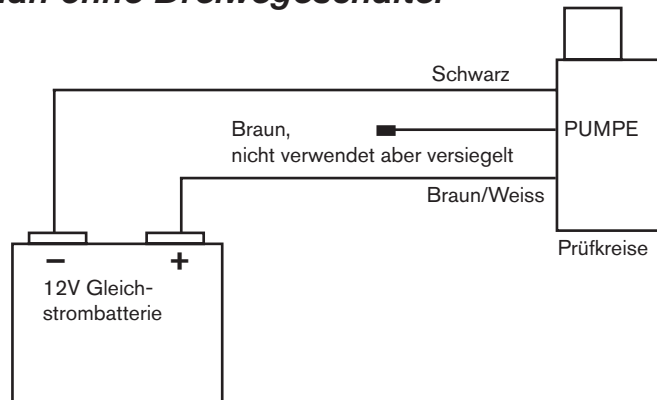
## Schaltplan



Mit einem Dreiwegeschalter kann die Pumpe sowohl manuell als auch automatisch betätigt werden.

Wie aus der Abbildung hervorgeht, wird der schwarze (-) Masseleiter an den Minuspol der Batterie angeschlossen. Für manuellen Betrieb wird der braune Leiter von der Pumpe an die Schalttafel angeschlossen. Für automatischen Betrieb wird der braune Leiter mit weißer Kennzeichnung an die Schalttafel angeschlossen. Zwischen dem Pluspol der Batterie und der Schalttafel muss eine passende Inline-Sicherung eingesetzt werden (s. Abb.).

## Schaltplan ohne Dreiwegeschalter



## Ultima Bilge - Pompe de Fond de cale Ultima Bilge

Attention: Veuillez SVP lire et suivre toutes les instructions avant l'installation et l'usage de ce produit. Toujours déconnecter l'alimentation électrique durant les travaux d'installation, d'entretien ou de maintenance de ce produit. La pompe de fond de cale Ultima Bilge n'a été soigneusement conçue que pour évacuer les eaux stagnantes. Ces pompes ne sont pas prévues pour l'organisation sécurité. Les capacités de la pompe Bilge peuvent ne pas être suffisantes pour empêcher une inondation par une rapide accumulation d'eau par une tempête, une météorologie difficile et/ou une brèche soudaine à la suite de dégâts à la coque et/ou des conditions de navigation hasardeuses.

### **Concernant la pompe Ultima Bilge**

La pompe de fond de cale Ultima Bilge est une pompe à la pointe du progrès qui utilise une technologie de captage électronique avancée pour détecter la présence d'eau dans la zone du fond de cale d'un navire et donc pour l'évacuation de cette eau. Elle est équipée de la technologie éprouvée UltimaSwitch qui utilise les micros champs électriques pour détecter la présence d'eau. La pompe de fond de cale Ultima Bilge est une pompe étanche, submersible et elle est équipée d'un commutateur électronique à flotteur pour une installation simple par l'utilisateur.

### **Avertissements:**

Pour éviter des blessures ou de dégâts matériels durant les travaux d'installation, d'entretien ou de maintenance, assurez-vous de déconnecter l'alimentation électrique. Cette pompe n'a été conçue que pour l'évacuation de l'eau stagnante en fond de cale et ne doit pas être utilisée pour pomper des produits pétroliers tels que de l'essence, de l'huile ou des liquides inflammables. Assurez-vous d'utiliser le fusible du calibre recommandé pour le modèle de votre pompe. L'utilisation d'un fusible erroné peut provoquer des blessures, des dégâts matériels ou un risque d'incendie.

### **Installation de la pompe de fond de cale Ultima Bilge:**

**Attention:** Lors de l'installation de la pompe de fond de cale Ultima Bilge, assurez-vous que la pompe est libre de tout obstacle, spécialement à proximité de la zone de détecteurs. Si les détecteurs sont bloqués, la pompe restera continuellement en marche!

- 1) Placez un bloc de contre-plaqué marine de 3/4" d'épaisseur comme bloc de montage pour votre base de pompe. Le bloc de montage doit être suffisamment grand pour couvrir la zone de la crépine. Utilisez un adhésif hydro résistant pour fixer le bloc de montage à la coque du navire. Assurez-vous que le bloc de montage soit aussi plat que possible. Placez la pompe dans la partie la plus basse de la cale. Assurez-vous également que la buse d'évacuation est de niveau.
- 2) Enlevez la pompe de la crépine en appuyant sur les deux tirettes latérales et en retirant la crépine du corps de pompe. Utilisez la crépine pour marquer l'emplacement de trois trous de montage. Pour éviter de percer à travers la coque du navire, réglez votre perceuse à la profondeur appropriée des avant-trous. Percez votre avant-trou.
- 3) Vissez trois vis inoxydables de #8 x 5/8" (pas livrées) dans les trous de la crépine pour l'installer. Ne serrez pas trop fort.
- 4) Après que la crépine est installée, placez le corps de pompe au-dessus de la crépine en vous assurant que les tirettes latérales se verrouillent sur le corps de pompe.

Pour les modèles avec refoulement de 3/4" fixez votre tuyau sur le Duraport. Utilisez des brides pour tuyaux en acier inoxydable pour maintenir le tuyau. Si vous installez un clapet de anti-retour optionnel, assurez-vous d'installer le clapet de anti-retour dans le Duraport avant d'installer le tuyau. Pour les modèles de 1 1/8" fixez votre tuyau sur le raccord fileté [1

## > Français

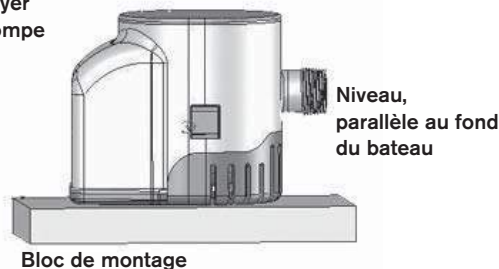
1/8" ou 1/4"]. Utilisez des brides pour tuyaux en acier inoxydable pour maintenir le tuyau sur les raccords. Si vous installez un clapet de anti-retour optionnel, assurez-vous d'installer le clapet de anti-retour avant d'installer le tuyau et les raccords. Le clapet de anti-retour pour le modèle [1 1/8" ou 1 1/4"] comprend une rondelle en acier inoxydable et un battant. Pour installer le clapet de anti-retour, mettez la rondelle en acier inoxydable dans l'orifice de refoulement de la pompe. Ensuite mettez le clapet en Nitrile sur la rondelle. Puis vissez le raccord sur l'orifice de refoulement de la pompe. Serrez le raccord jusqu'à ce qu'il soit à niveau avec le corps de pompe.

Pour le modèle 3/4", installez le clapet anti-retour de manière à ce que le pan conique se trouve dans la direction du flux. Pour installer le clapet anti-retour enlevez le joint d'étanchéité dans le Duraport et remplacez-le par le clapet anti-retour qui va également faire office de joint. Conservez l'ancien joint au cas où vous souhaiteriez ne plus utiliser le clapet anti-retour plus tard.

Assurez-vous d'éviter des boucles ou des coudes dans le tuyau. Soutenez le tuyau si nécessaire. Il est important que le tuyau ait une pente constante et il ne doit jamais passer en dessous de l'orifice de refoulement car ceci peut créer une poche d'air. Pour une performance maximale, utilisez un tuyau métallique à alésage lisse.

**NOTE:** Le clapet de anti-retour livré avec votre pompe de fond de cale Ultima Bilge est utilisé pour éviter le retour d'eau. L'utilisation du clapet de anti-retour vous demande d'être conscient de son fonctionnement. Le matériel du clapet de anti-retour est fabriqué en Nitrile, matériau à n'utiliser que pour l'eau seulement. De même, le clapet de anti-retour diminuera le flux de la pompe. Si le flux est critère critique dans l'application de la pompe, il est recommandé de ne pas utiliser le clapet de anti-retour. Egalement lors de l'hivernage de votre bateau, enlevez le clapet de anti-retour pour éviter la formation de glace et/ou une dégradation du clapet de anti-retour.

Mettez les doigts sur les cercles pour essayer la pompe

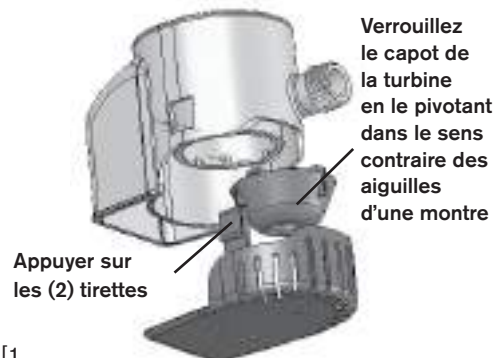
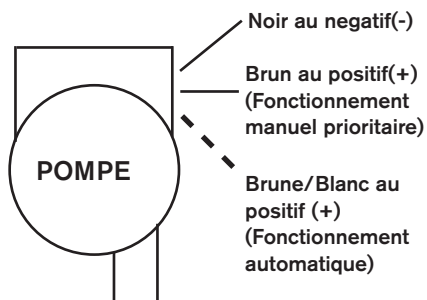


### **Instructions de câblage:**

Veillez vous référer au schéma de câblage ci-dessous. Utilisez des connecteurs appropriés pour des fils de calibre 16. Les raccordements doivent être exécutés avec des bornes hydro résistantes permanentes. Un bain d'isolant liquide doit être utilisé pour recouvrir les bornes. L'installation des bornes de raccordement doit se trouver au-dessus du plus haut niveau d'eau. La garantie devient caduque pour ce produit si un quelconque cordon électrique est dénudé sur plus de 3 pouces, si une épaisseur de câble est submergée, en cas de défaut de fusible de protection ou si la pompe est installée de manière contraire aux instructions ou avertissements.

Vous pouvez installer un sélecteur Panel va-et-vient, ce qui permet à la pompe de fonctionner aussi bien en mode manuel qu'automatique. Assurez-vous de protéger la pompe par un fusible. Le fusible doit être installé entre la borne positive de la batterie et le sélecteur Panel va-et-vient. Assurez-vous d'utiliser le bon calibre de fusible pour les différents modèles. Pour vérifier le fonctionnement de la pompe, mettez deux doigts sur les zones circulaires en relief au dos de la pompe. Après un petit délai [5 secondes], la pompe doit se mettre en marche. Si vous enlevez votre doigt du cercle supérieur, la pompe doit continuer à fonctionner. Si vous enlevez les deux doigts, la pompe doit s'arrêter.

> Français



\*\*\*Assurez-vous d'avoir au moins 1 pouce [1 inch = 25MM] de distance entre les capteurs de la pompe de fond de cale Ultima Bilge et une quelconque paroi ou un objet environnant. S'il n'y a pas assez de jeu, les capteurs peuvent détecter l'objet et laisser la pompe continuellement en marche.\*\*\*

#### Maintenance:

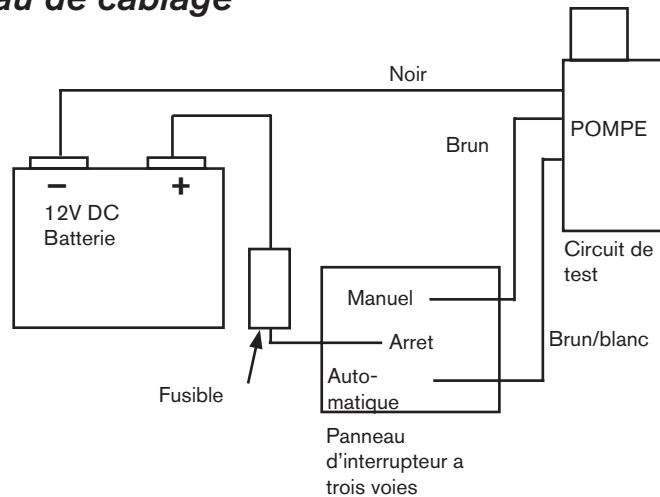
La pompe de fond de cale Ultima Bilge est conçue pour être sans souci et sans maintenance. Cependant, il faut prendre le soin de s'assurer que la roue de la turbine est libre de débris pour un fonctionnement optimum de la pompe. Assurez-vous que l'alimentation électrique est déconnectée durant les travaux de maintenance de la pompe. Pour accéder à la turbine, retirez la pompe de la crépine en appuyant sur les deux tirettes latérales situées sur le corps de pompe et en levant la pompe de la crépine. Pour nettoyer la turbine, tenez les ailettes du capot de la turbine et faites tourner le capot dans le sens des aiguilles d'une montre et tirez directement vers vous. Enlevez tous les débris accumulés et nettoyez la turbine. Assurez-vous de nettoyer absolument tous les débris qui se sont accumulés sur la crépine également. Une fois que la turbine est propre, remplacez le capot de la turbine en alignant les griffes avec les fentes et en tournant le capot dans le sens contraire des aiguilles d'une montre, tout en vous gardant de serrer exagérément. Le capot doit être tourné jusqu'à ce qu'il soit bloqué fermement. Installez le corps de pompe sur la crépine en vous assurant que les deux tirettes s'accrochent au corps de pompe.

#### **Information concernant la garantie**

Johnson Pumps of America situé à 10509 United Parkway, Schiller Park, Illinois 60176 garanti au premier acheteur que le produit n'a pas de défaut aussi bien en ce qui concerne le matériel que la construction, pour autant que l'emballage n'a pas été ouvert, ou que la pompe n'a pas été endommagée autrement pour une période de trois (3) ans à partir de la date d'achat.

> Français

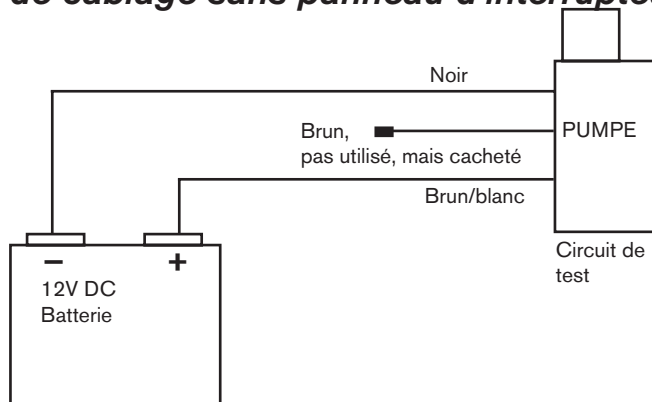
### Tableau de câblage



Si vous utilisez un interrupteur à trois voies, vous pouvez câbler votre pompe de manière à la faire fonctionner manuellement ou automatiquement.

Comme montré dans le diagramme, raccordez le fil de terre noir (-) à la borne négative de la batterie. Pour un fonctionnement manuel, raccordez le fil brun de la pompe sur le panneau d'interrupteur. Pour un fonctionnement automatique, raccordez le fil brun avec une ligne blanche au panneau d'interrupteur. Assurez-vous de placer un fusible approprié sur la ligne venant de la borne positive de la batterie vers le panneau d'interrupteur comme indiqué.

### Tableau de câblage sans panneau d'interrupteur



## ***Ultima Bilge - Bomba de Desfonde Ultima***

**Cuidado:** Por favor, lea y siga todas las instrucciones antes de instalar y usar este producto.

Desconecte siempre las fuentes de energía durante la instalación, el servicio o el mantenimiento de este producto. La Bomba de Desfonde Ultima ha sido cuidadosamente diseñada para evacuar agua estancada únicamente. Estas bombas no se pretende que sirvan para el control de daños. La capacidad de la bomba de desfonde puede que no sea suficiente para prevenir una inundación por acumulación rápida de agua debido a tormentas, tiempo severo y/o fugas rápidas creadas por daños en el casco y/o condiciones de navegación no seguras.

### **A Cerca de la Bomba de Desfonde Ultima**

La bomba de desfonde Ultima es una bomba de desfonde muy moderna que usa tecnología sensorial electrónica avanzada para detectar la presencia de agua en el área de desfonde de un barco y consecuentemente para librarse de ese agua. Está construida sobre la tecnología probada UltimaSwitch que usa campos micro-eléctricos para detectar la presencia de agua. La bomba de desfonde Ultima es una bomba sumergible, sellada y con un interruptor de flote electrónico que le permite una instalación simple para el usuario final.

### **Avisos:**

Para evitar el daño personal o el daño a la propiedad durante la instalación, servicio y mantenimiento, asegúrese de desconectar la fuente de energía.

Esta bomba fue diseñada para sacar agua estancada solo y no debería usarse para bombear productos derivados del petróleo tales como la gasolina, el gasoil o líquidos inflamables.

Asegúrese de usar el tamaño de fusible apropiado recomendado por el modelo de su bomba. Usar el fusible equivocado puede provocar daños personales, daños a la propiedad y riesgo de fuego.

### **Instalar la Bomba de Desfonde Ultima:**

**Cuidado:** *Cuando esté instalando la Bomba de Desfonde Ultima, asegúrese de que la bomba está limpia de obstáculos especialmente en el área del detector. Si los detectors está bloqueados, la bomba permanecerá constantemente encendida.*

- 1) Ponga un bloque de madera laminada marina de 3/4" de espesor como bloque de montaje para la base de su bomba. El bloque de montaje debería ser lo suficientemente grande como para cubrir el área de filtrado. Use un pegamento a prueba de agua para pegar el bloque de montaje al casco de la embarcación. Asegúrese de que el bloque de montaje está tan plano como sea posible. Coloque la bomba en el lugar más bajo del desfonde. Asegúrese también de que la boquilla de vaciado está nivelada.
- 2) Quite la bomba del filtro presionando las dos lengüetas laterales y sacando el filtro del cuerpo de la bomba. Use el filtro para marcar los agujeros de montaje. Para evitar la perforación del casco de la embarcación, configure su taladro a la profundidad apropiada para los agujeros piloto. Taladre su agujero piloto.
- 3) Ponga tres tornillos de acero inoxidable de #8 x 5/8" (no suministrados) en los agujeros del filtro para montar el filtro. No los apriete demasiado.
- 4) Una vez que el filtro esté montado, ponga el cuerpo de la bomba en el filtro asegurándose de que las lengüetas laterales se cierran en el cuerpo de la bomba.

> Español

Para los modelos de descarga de 3/4" ponga su tubería flexible sobre el Duraport. Use abrazaderas de acero inoxidable para asegurar la tubería flexible. Si se instala la válvula de control opcional, asegúrese de instalar la válvula en el puerto Duraport antes de instalar la tubería flexible. Para los modelos de 1 1/8" ponga la tubería flexible sobre el puerto engarzado [1 1/8" o 1 1/4"] Use abrazaderas de acero inoxidable para asegurar la tubería flexible a los puertos. Si se instala la válvula de control opcional, asegúrese de instalar la válvula antes de instalar la tubería flexible y los puertos. La válvula de control para el modelo [1 1/8" o 1 1/4"] incluirá una arandela de acero inoxidable y una charnela. Para instalar la válvula de control, ponga la arandela de acero inoxidable en el área de filtrado de la bomba. A continuación coloque la charnela Nitrilo sobre la arandela. Después engarce el puerto en la descarga de la bomba. Apriete el puerto hasta que el puerto llegue al fondo del cuerpo de la bomba.

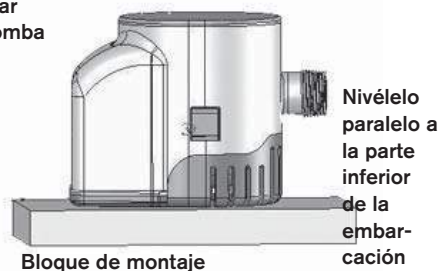
Para el modelo 3/4", instale la válvula de control de manera que el extremo afilado esté situado hacia la dirección del flujo. Para instalar la válvula de control, retire la junta en Duraport y reemplácela por la válvula de control, que tiene la misma función que la junta. Guarde la junta antigua en caso de que decida no utilizar la válvula de control en un futuro

Asegúrese de que evita lazos o dobleces en la tubería flexible. Tubería flexible de soporte si es necesaria. Es importante que la tubería flexible esté hacia arriba siempre y que no se le permita bajar más debajo de la salida del puerto ya que esto causaría una situación de burbuja de aire. Para un rendimiento máximo use una tubería flexible reforzada con una pared interior suave.

**NOTA:** La válvula de control suministrada con su bomba de desfonde Ultima se usa para evitar que el agua fluya hacia atrás. La utilización de la válvula de control requiere que usted sea consciente de su funcionalidad. El material de la válvula de control

está hecho de Nitrilo que solo se usa para aplicaciones de agua. La válvula de control también reducirá el flujo de la bomba. El flujo es muy importante para la aplicación de la bomba y se recomienda que no se use la válvula de control. También, cuando esté preparando su embarcación para el invierno, quite la válvula de control para evitar que se forme hielo y/o la degradación de la válvula de control.

**Ponga los dedos en los círculos para probar la bomba**



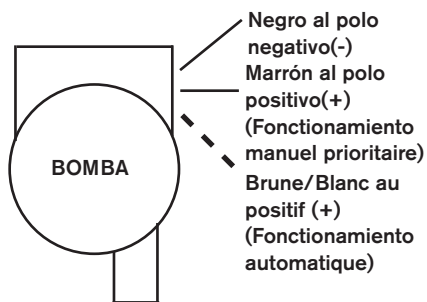
**Instrucciones para la instalación eléctrica:**

Refiérase al diagrama de cableado de abajo. Use los conectores de tamaño apropiado para un cable de calibre 16. Los conectores eléctricos deberían ser resistentes al agua en las terminales permanentes. Se debería usar una cinta líquida eléctrica para forrar las terminales. Los soportes de las conexiones deberían estar por encima del máximo nivel de agua. La garantía será nula en este producto si se corta cualquier cable electrónico más de 3 pulgadas/7.62 cm, si los empalmes eléctricos se sumergen o si no se usa correctamente o si la bomba se instala sin seguir las instrucciones.

Puede instalar un panel de interruptores de tres vías que permitirá a la bomba funcionar en modo manual o automático. Asegúrese de instalar los fusibles en la bomba. El recipiente de los fusibles debería estar entre la terminal positiva de la batería y el panel del interruptor de tres vías. Asegúrese de usar el tamaño de fusible apropiado recomendado para los modelos. Para revisar el funcio-

> Español

namiento de la bomba ponga dos dedos sobre las áreas circulares levantadas en la parte trasera de la bomba. Después de un corto espacio (5 segundos), la bomba debería encenderse. Si quita el dedo del círculo superior, la bomba debería permanecer encendida. Si quita los dos dedos, la bomba debería apagarse.



\*\*\*Asegúrese de tener al menos una pulgada [25 MM] de espacio libre entre los sensores en la bomba de desfonde Ultima a cualquier pared o alrededores. Si no hay suficiente espacio libre, los sensores pueden detectar el objeto y dejar que la bomba funcione de manera continua.\*\*\*

**Mantenimiento:**

La bomba de desfonde Ultima está diseñada para estar libre de preocupaciones y no tener problemas de mantenimiento. Sin embargo, se debería tener cuidado para asegurarse de que el propulsor está libre de basura para un funcionamiento óptimo de la bomba. Asegúrese de que la bomba está desconectada durante las operaciones de mantenimiento. Para acceder al propulsor, quite la bomba del filtro presionando hacia abajo las lengüetas de cierre laterales en el cuerpo de la bomba y saque la bomba del filtro. Para limpiar el propulsor, agarre las aletas de defensa del propulsor y gire la seguridad del propulsor como las agujas del reloj y sáquelo. Quite y limpie el propulsor y la bomba de toda la basura que haya acumulado. Asegúrese de limpiar toda la basura que se haya

acumulado en el filtro también. Después de que el propulsor esté limpio, vuelva a poner la seguridad del propulsor alineando las lengüetas con las ranuras y girando al revés que las agujas de reloj, asegurándose de que no están demasiado ajustadas. La seguridad debería girar hasta que esté firme. Ponga el cuerpo de la bomba en el filtro asegurándose de que las dos lengüetas de cierre se ajustan en el cuerpo de la bomba.



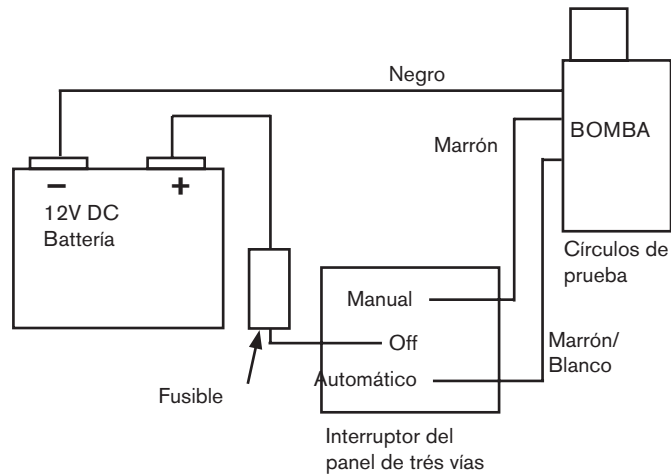
**Información acerca de la Garantía**

Johnson Pumps of America, con sede central en 10509 United Parkway, Schiller Park, Illinois 60176, garantiza al comprador original que este producto estará exento de defectos de material y fabricación por un periodo de tres (3) años a partir de la fecha de compra inicial, a condición que la carcasa no se abra ni la bomba sea objeto de algún otro uso indebido.



> Español

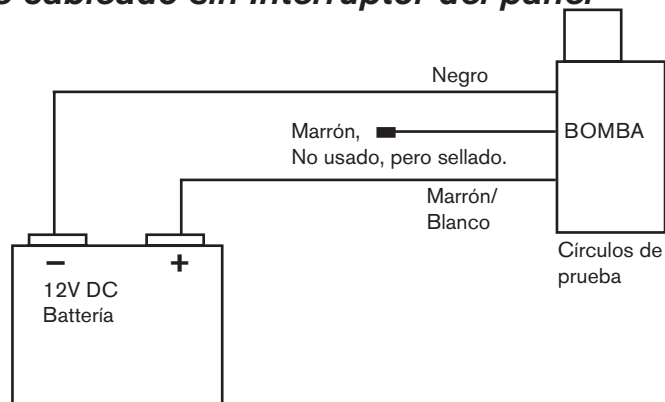
### Tabla de cableado



Si está usando un interruptor de 3-vías, puede cablear su bomba para funcionar de forma manual o automática.

Como se muestra en el diagrama, conecte el cable de tierra negro (-) a la terminal negativa de la batería. Para su funcionamiento manual, conecte el cable marrón desde la bomba hasta el panel de interruptores. Para funcionamiento automático, conecte el cable marrón con rastreador blanco al panel de interruptores. Asegúrese de conectar un fusible en línea apropiado que venga del terminal positivo de la batería al panel de interruptores como se muestra.

### Tabla de cableado sin Interruptor del panel



## Ultima Bilge - Pompa di sentina Ultima

Attenzione: prima dell'installazione e dell'uso di questo prodotto vi preghiamo di leggere e seguire attentamente tutte le istruzioni. Interrompete sempre la corrente elettrica durante l'installazione o la manutenzione di questo prodotto. La pompa di sentina Ultima è stata accuratamente progettata per l'esclusiva aspirazione di acqua stagnante. Questo tipo di pompa non può essere utilizzato per il controllo di avarie. La capacità di queste pompe di sentina può non essere sufficiente per prevenire allagamenti causati da un rapido accumulo di acqua dovuto a temporali, cattivo tempo e/o falle improvvise create da danni allo scafo e/o da condizioni di navigazione pericolose.

### Informazioni sulla pompa di sentina Ultima

Ultima è una pompa di sentina automatica d'avanguardia che utilizza una avanzata tecnologia elettronica per rilevare la presenza di acqua nell'area di sentina di una nave e di conseguenza per operarne il deflusso. Essa si basa sulla ben sperimentata tecnologia UltimaSwitch, che si serve di campi microelettrici per rilevare la presenza di acqua. La pompa di sentina Ultima è una pompa sommersa impermeabile ed un interruttore di flusso elettronico di semplice installazione per l'utilizzatore finale.

### Avvertenze:

Al fine di evitare danni a persone o cose durante l'installazione e la manutenzione della pompa, assicuratevi di aver interrotto la corrente elettrica. Questa pompa è stata progettata per l'aspirazione esclusiva di acqua stagnante di sentina e non deve essere utilizzata per pompare derivati del petrolio quali benzina, olio o liquidi infiammabili. Assicuratevi di utilizzare fusibili di dimensioni appropriate, indicate per ciascun modello di pompa. L'uso di un fusibile non appropriato può causare danni a persone o cose e pericolo di incendio.

### Installazione della pompa di sentina Ultima:

**Attenzione:** *Durante l'installazione della pompa di sentina Ultima, assicuratevi che la pompa sia libera da ogni tipo di ostacolo, in particolare vicino alla zona di rilevazione. Se i rilevatori sono ostruiti, la pompa resterà continuamente attivata!*

- 1) Posizionate un pannello di compensato per uso marittimo delle dimensioni di 3/4" come supporto per la base della pompa. Il pannello dovrebbe essere abbastanza grande da coprire l'area del filtro. Utilizzate un adesivo impermeabile per applicare il pannello di supporto allo scafo dell'imbarcazione. Assicuratevi che il pannello di supporto sia il più possibile uniforme. Collocate la pompa nella zona inferiore della sentina. Assicuratevi quindi che l'ugello di scarico sia a livello.
- 2) Rimuovete la pompa dal filtro premendo le due linguette laterali ed estraendo il filtro dal corpo della pompa. Utilizzate il filtro per demarcare tre fori di montaggio. Al fine di evitare fori allo scafo dell'imbarcazione, tarate il trapano alla giusta profondità per i fori pilota. Eseguite quindi i fori guida.
- 3) Inserite tre viti inossidabili #8 x 5/8" (non fornite) nei fori per il montaggio del filtro. Non serrate le viti eccessivamente.
- 4) Dopo aver montato il filtro, collocate il corpo della pompa sul filtro assicurandovi che le linguette laterali si chiudano bene sul corpo della pompa.

Per i modelli di scarico 3/4" collegate il flessibile sul Duraport ed utilizzate delle apposite grappe in acciaio inossidabile per fissare il flessibile. Se desiderate installare la valvola di controllo opzionale, assicuratevi di inserirla nel Duraport prima di installare il flessibile. Per i modelli 1 1/8" applicate il flessibile sui fori filettati [1 1/8" o 1 1/4"] ed utilizzate apposite grappe in acciaio inossidabile per fissare

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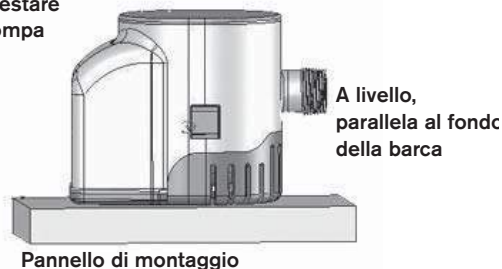
il flessibile ai fori. Se desiderate montare la valvola di sicurezza opzionale, assicuratevi di installarla prima di fissare il flessibile ai fori. La valvola di controllo per il modello [1 1/8" o 1 1/4"] include una rondella in acciaio inossidabile ed una valvola di gomma a ciabatta. Per l'installazione della valvola di controllo, collocate la rondella in acciaio inossidabile nell'area di scarico della pompa. Quindi posizionate la ciabatta di Nitrile sulla rondella, infilate il foro sullo scarico della pompa e serratelo fino a fissarne il fondo al corpo della pompa.

Sul modello 3/4" installate le valvole di controllo in modo che l'estremità conica sia rivolta in direzione del flusso. Per installare le valvole di controllo rimuovete la guarnizione nel Duraport e sostituitela con le valvole di controllo, che fungono anche da guarnizione. Conservate la vecchia guarnizione per il caso in cui decidiate successivamente di non utilizzare le valvole di controllo.

Assicuratevi che non si formino occhielli o pieghe nel flessibile. Se necessario, utilizzate dei sostegni per il flessibile: è importante che essa sia sempre in posizione elevata e non possa essere immersa al di sotto della porta di scarico, perché ciò potrebbe causare una situazione di interruzione del flusso a causa di una sacca d'aria. Per ottenere il massimo delle prestazioni, utilizzate un flessibile rinforzato e con anima liscia.

**NOTA:** La valvola di controllo in dotazione alla pompa di sentina Ultima serve a prevenire il riflusso dell'acqua. L'utilizzo della valvola di controllo richiede attenzione per la sua funzionalità. Il materiale della valvola di controllo è fatto di Nitrile e può essere impiegato solo per uso con acqua. La valvola di controllo riduce il flusso della pompa. Pertanto, se il flusso è cruciale per l'utilizzo della pompa, si raccomanda di non impiegare la valvola di controllo. Inoltre, durante la predisposizione dell'imbarcazione per il funzionamento a basse temperature, la valvola di controllo va rimossa per evitare la formazione di ghiaccio e/o la sua degradazione.

Mettete le dita sui cerchi per testare la pompa

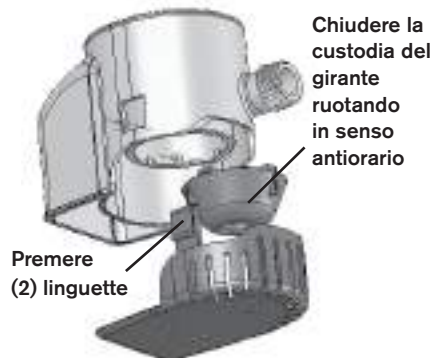
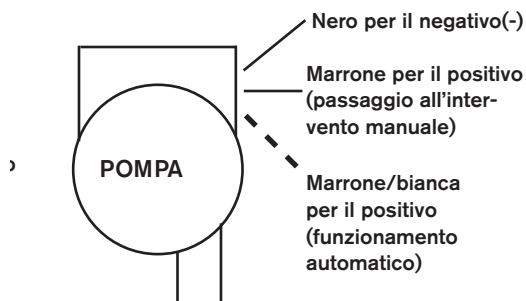


**Istruzioni di cablaggio:**

Fate riferimento allo schema elettrico sottostante. Utilizzate dei connettori di dimensioni appropriate per il filo calibro 16. I collegamenti dei fili dovrebbero essere fatti con morsetti permanenti resistenti all'acqua. Per rivestire i morsetti bisognerebbe utilizzare del nastro elettrico liquido. I collegamenti di supporto dovrebbero essere al di sopra del livello più alto dell'acqua. La garanzia sul prodotto perde validità nei seguenti casi: se qualsiasi filo elettrico è stato accorciato di più di 3 pollici, se i giunti elettrici vengono a trovarsi sotto il livello dell'acqua, se non vengono impiegati i fusibili corretti ed in modo appropriato, o se la pompa non è installata conformemente alle istruzioni o alle avvertenze.

E' possibile installare un pannello con commutatore deviatore che consenta alla pompa di funzionare in modo automatico o manuale. Assicuratevi di munire la pompa di fusibili. Il portafusibili dovrebbe essere collocato tra i morsetti positivi della batteria e il commutatore deviatore. Accertatevi di utilizzare fusibili di dimensioni appropriate per ciascun modello. Per controllare il funzionamento della pompa, mettete due dita sulle aree circolari in rilievo sul retro della pompa. Dopo poco [5 secondi], la pompa dovrebbe azionarsi. Rimuovendo un dito dal cerchio, la pompa dovrebbe rimanere in attività. Rimuovendo invece entrambe le dita, la pompa dovrebbe disattivarsi.

> Italiano



\*\*\*Assicuratevi che ci sia almeno 1 pollice [25 mm] di spazio libero tra i sensori della pompa di sentina Ultima e qualsiasi parete o punto circostante. Se non c'è abbastanza spazio, i sensori potrebbero rilevare l'oggetto e far funzionare la pompa continuamente.\*\*\*

#### **Manutenzione:**

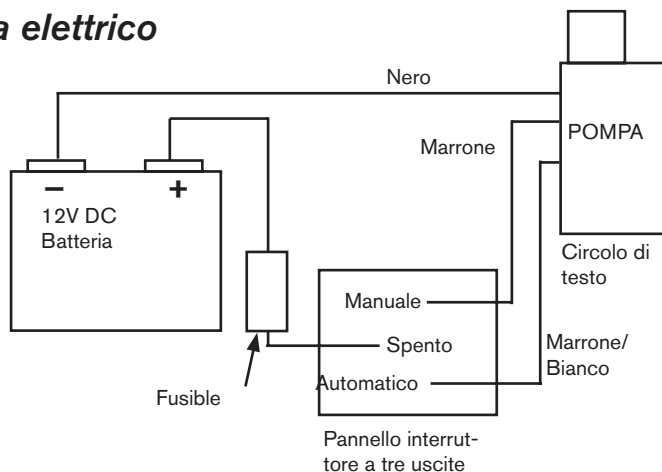
La pompa di sentina Ultima è progettata per non richiedere cure e manutenzione. Tuttavia, per il funzionamento ottimale della pompa bisognerebbe controllare periodicamente che il girante sia libero da detriti. Durante la manutenzione, assicuratevi sempre che l'alimentazione elettrica sia interrotta. Per accedere al girante, rimuovete la pompa dal filtro premendo le linguette di chiusura laterali sul corpo della pompa ed estraendo la pompa dal filtro. Per pulire il girante, afferrate le alette della custodia, ruotate la custodia in senso orario e tirate forte. Quindi rimuovete il girante e pulite girante e pompa da tutti i detriti che si sono accumulati. Assicuratevi di rimuovere anche i detriti che si sono accumulati sul filtro. Dopo aver pulito il girante, riposizionate la custodia allineando le linguette alle apposite fessure e ruotando in senso antiorario, assicurandovi di non stringere eccessivamente. La custodia dovrebbe essere fatta ruotare finché non è ben fissa. Collocate il corpo della pompa sul filtro accertandovi che entrambe le linguette di chiusura scattino sul corpo della pompa.

#### **Garanzia**

Tutti i prodotti della Johnson Pumps of America of 10509 United Parkway, Schiller Park, Illinois 60176 sono coperti da 3 anni di garanzia a partire dalla data di acquisto per difetti di materiale e vizi di lavorazione e purché il prodotto non risulti aperto o manomesso in alcun modo.

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### Schema elettrico



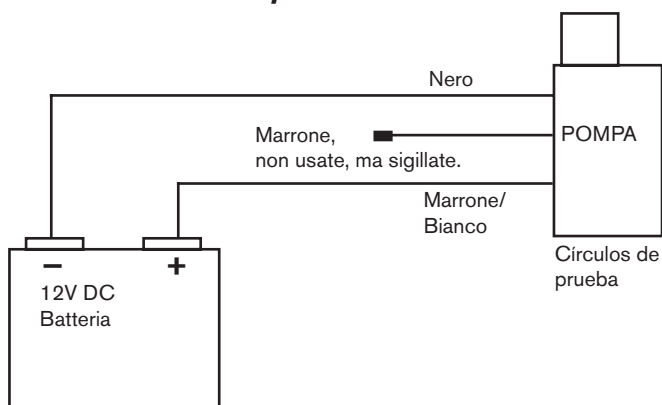
Se si usa un interruttore a 3 uscite, collegare la pompa per funzionare in modo manuale o automatico.

Come mostra il diagramma, connettere il cavo nero di terra (-) al terminale negativo (-) della batteria.

Per operazioni manuali override, connettere il cavo marrone dalla pompa al pannello interruttore.

Per operazioni automatiche, connettere il cavo marrone con il conduttore bianco al pannello interruttore. Assicurarsi di connettere un fusibile in linea appropriato dal terminale positivo della batteria al pannello interruttore come mostrato.

### Schema elettrico senza pannello con Interruttore



### **Technical Specifications:**

**Dimensions:** L=5.60" [142 MM]  
W=3.25" [82 MM]  
H=4.15"[105 MM]  
**Weight:** 1.45 LBS [0.66 KG]  
**Material of construction:** ABS  
**Seal:** Lip Seal  
**Fuse Size:** 5A @ 12 VDC  
16 Ga caulked Wire

### **Part No.**

<b>Part Number</b>	<b>Description</b>
<b>32-47258</b>	Ultima Bilge 600
<b>32-47259</b>	Ultima Bilge 800
<b>32-47260</b>	Ultima Bilge 1000
<b>32-47261</b>	Ultima Bilge 1250

### **Avfallshantering/materialåtervinning**

Vid avfallshantering ska produkten lämnas för destruktion/återvinning enligt gällande lagstiftning. Vid tillämpliga fall demonteras och sorteras produkten i ingående materialfraktioner.

### **Waste handling & material recycling**

At the products end of life, please dispose of the product according to applicable law. Where applicable, please disassemble the product and recycle the parts material.

### **Entsorgung/Recycling**

Nach Lebensdauerende entsorgen Sie die Pumpe nach den örtlichen Vorschriften. Nach Möglichkeit demontieren Sie Teile der Pumpe um sie dem Recycling-Process zuzuführen.

### **Gestion des déchets/recyclage des matériaux**

Lorsque le matériel arrivera en fin de vie, veuillez le mettre au rebut en fonction des lois applicables. Lorsque c'est possible, veuillez démonter le matériel et recycler les pièces pouvant l'être

### **Desguace/Reciclado**

Al final de la vida del equipo disponga de este de acuerdo a la ley. Donde sea de aplicación desmonte el equipo y recicle los diferentes materiales.

### **Gestione dei rifiuti/riciclaggio dei materiali**

Al termine della vita del prodotto si prega di smaltire il prodotto secondo le leggi in vigore per queste operazioni. Quando possibile, si raccomanda di smontare il prodotto e riciclare i materiali dei componenti.

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Johnson Pumps of America Inc.  
1625 Hunter Road, Suite B, Hanover Park, Illinois, 60133, USA  
Tel. +1 847 671 7867. Fax +1 847 671 7909.  
E-mail:[johnson-pump.usa@processequipment.spx.com](mailto:johnson-pump.usa@processequipment.spx.com)



SPX Johnson Pump Marine AB  
Nastagatan 19, P.O. Box 1436  
SE-701 14 Örebro, Sweden  
Phone: +46 (0)19 21 83 00 Fax: +46 (0)19 27 23 72  
E-mail: [johnson-pump.marine@processequipment.spx.com](mailto:johnson-pump.marine@processequipment.spx.com)

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