

can also provide for manual control of the pump by installing a panel switch. These switches have a “fail safe” feature which automatically returns the switch to the “OFF” position, preventing the pump from being inadvertently left on.

POLARITY IS IMPORTANT

- If it is not correct, the pump will spin in the opposite direction as it should. Water will still pump out, but not to the rated capacity. This could result in the vessel not being able to clear water from the bilge fast enough.
- To obtain the correct polarity, connect the BROWN wire to the positive (+) side of the battery.
- To verify the correct direction of rotation (and thus the polarity) is correct is by looking into the inlet hole on the bottom of the pump while running and see if the impeller blades rotate in the same direction as the arrow on the base of the unit. **NEVER INSERT FINGERS OR OTHER OBJECTS INTO THE INLET HOLE.**

WINTER STORAGE

The pump itself is not affected by freezing temperatures. If using your boat over winter, please ensure no traces of ice within or surrounding the bilge pump before using. Ice can permanently damage the impeller blades if switched on.

SUBMERSIBLE BILGE PUMP

User Manual

To use this unit correctly and safely, be sure to read this instruction manual before use. Keep this manual carefully for later reference.

INSTRUCTIONS

1. Remove the strainer from the bottom of the pump by depressing the lock tabs on both sides of the pump.

CAUTION: Strainer must be properly installed before attaching and running the pump to prevent any foreign material from entering and damaging pump components.

2. Determine a suitable mounting location for the pump. If only one pump is being used, locate it in the vessel's bilge where the deepest level of water will gather. While the vessel is at rest, the installation must allow for complete drainage of the bilge pump's outlet hose. All water pockets must be eliminated by having the outlet hose running level or continuously upward.
3. Position the strainer so that the pump outlet nozzle is in the correct position to connect the outlet hose.
4. Mounting the strainer:
 - If attaching the strainer to wood, fasten with stainless steel screws.
 - If attaching the strainer to metal or fiberglass, first mount a wooden block and then fasten strainer to the wooden block using stainless steel screws. Marine grade sealant can be used for mounting the wooden block to the vessel.
5. Mount the pump on the strainer so that both lock tabs snap into place. (The pump may be reversed on these tabs if necessary.)
6. Attach the outlet hose to the outlet nozzle of the pump, Flexible hose is recommended for the outlet pipe, to prevent any kinks if sharp bends are unavoidable.

NOTE: If you are replacing a previous bilge pump that has a smaller diameter outlet hose, you may need to use an adapter to connect to the larger outlet size on the pump. Restricting the flow from the pump by using a smaller hose will not damage the pump, however you will reduce the rated flow capacity.

7. Through hull fittings:

- For most installations, install a through hull fitting to achieve the rated capacity of the pump. Locate the through hull fitting at least 30cm above the water line to prevent water from flowing back into the hull when the pump is switched off.

- For stern installations, place the through hull fitting high enough in the stern so that it cannot be submerged under any conditions.

8. Wiring:

- In order to prevent electrolysis and corrosion to wiring connections, it's essential that all wire ends and terminals be located above the highest possible water level by fastening with insulated staples or cable ties.
- Using wire that is too small, or running over an extended distance will result in excess heat in the wiring, resulting in voltage drops and lower performance of the pump.

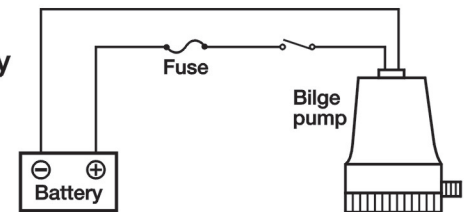
9. Fusing:

- To protect your electrical wiring and automatic switch from possible overload install a fuse in the positive (+) lead from the battery. We recommend to use a completely sealed, waterproof fuse holder.
- If using a panel switch with a fuse holder, check to see that the proper fuse is being used, you may wish to install a panel switch with a built-in fuse holder

10. Follow one of the two wiring diagrams:

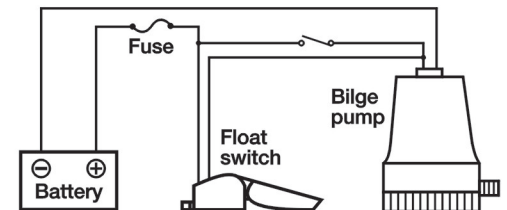
- Wiring for manual operation:

The Manual system is the simplest wiring design, but it only provides ON-OFF control of the pump. Consequently, pumps are often left on longer than necessary.



- Wiring for automatic operation:

The automatic system incorporates the Bilge Pump Float Switch and ensures that the vessel is always pumped out, even when unattended. In addition, it extends the life of the pump and your battery by automatically shutting the pump



off after the water has been pumped out. The automatic system

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troubleshooting

problem	possible causes	possible Solutions
Pump runs, but will not deliver any water.	<ol style="list-style-type: none">1. Screen and/or impeller clogged.2. When starting, the pump water height (1/8") falls below the minimum water level.3. Low line voltage.	<ol style="list-style-type: none">1. Remove screen. Clean out dirt and debris from screen and impeller, then replace.2. There must be at least 1/8" deep water for the Pump to operate properly.3. Replace 12VDC battery.
Pump won't start or run.	<ol style="list-style-type: none">1. Check power connections and circuits/fuses.2. Water level too low.3. Impeller clogged.4. Defective motor.	<ol style="list-style-type: none">1. Consult with an electrician.2. Allow water level to rise above 1/8".3. Remove screen. Clean out dirt and debris from screen and impeller, then replace.4. Replace Bilge Pump.
Excessive noise or vibration.	<ol style="list-style-type: none">1. Worn bearings.2. Debris in impeller.	<ol style="list-style-type: none">1. Replace bilge pump.2. Remove screen. Clean impeller. Replace screen.
Pump stops often.	<ol style="list-style-type: none">1. Water temperature too high.	<ol style="list-style-type: none">1. Do not exceed temperatures above 77° F.