Rule 12VDC Submersible Bilge Pumps
Installation & Operation Instructions
(Part Nos. R02–R24)
Thank you for purchasing this Rule® submersible pump. It is built to provide years of reliable, trouble-free service.

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

⚠️ **CAUTION**
Strainer must always be properly installed before attaching and running pump.

**Step 2**
Determine the desired location for the pump. If only one pump is used it is usually located where the water is deepest in the bilge while the boat is at rest. The installation must allow for complete drainage of the hose. All water pockets must be eliminated by having the hose running level or continuously upward.

**Step 3**
Position the strainer so that the pump nozzle is in the proper position to connect to the discharge hose.

**Step 4: Mounting the Strainer**
A. If attaching the strainer to wood, fasten with the stainless steel screws provided.
B. If attaching the strainer to metal or fiberglass, first mount a wooden block and then fasten the strainer to the wooden block.

**Step 5**
Mount the pump on the strainer so that both 1 1/2” lock-tabs snap into place (the pump may be reversed on these tabs if so desired).
Step 6
Attach 1 ¼" I.D. hose to the discharge nozzle and fasten with a stainless steel clamp. We recommend flexible hose because it will not kink when making sharp bends.

Note: Restricting the flow from a Rule pump by using a smaller hose will not damage the pump; however, it will reduce the flow.

Step 7: Through-Hull Fittings
A. For most installations, install a 1 ¾" I.D. through-hull fitting to achieve the rated flow of the pump. Locate the through-hull fitting at least 12” above the water line to prevent water from flowing back into the hull when the pump is off.

B. For stern installations, place the through-hull fitting high enough in the stem so that submergence of the fitting will not occur under any conditions.

Step 8: Wiring

**ELECTRICAL SHOCK HAZARD**

In order to prevent electrolysis and corroded wire connections, it is essential that all wire ends and terminals be sealed and located above the highest possible water level by fastening with insulated staples or plastic straps.

When installing your pump, 14-gauge wire should be used. However, if your installation is over 20’ from the battery source, the wire size should be increased to 12 gauge. Using a wire that is too small causes undesirable heat in the wires and results in a voltage drop and lower performance of the pump.

Step 9: Fusing
To protect your electrical wiring from possible overload, install a fuse in the positive (+) lead from the battery. The fuse should be sized according to the following chart.

<table>
<thead>
<tr>
<th></th>
<th>Pump</th>
<th>Amp Draw</th>
<th>Fuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>3700 (12V)</td>
<td>15.5 amps</td>
<td>25 amps</td>
<td>25 amps</td>
</tr>
<tr>
<td>2000 (12V)</td>
<td>8.4 amps</td>
<td>15 amps</td>
<td></td>
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</tbody>
</table>

If wiring directly to a circuit panel with a fuse holder, check to see that the proper fuse is being used.

Step 10: Electrical Installation
The computerized, automatic system ensures that the vessel is always pumped out and that the pump does not run needlessly. The proper wiring polarity must be observed with the brown wire connected to the positive lead of the power source. If desired, the computerized pump may be connected to a panel switch:

When placed in water, the pump will begin pumping immediately upon being turned on. After pumping the vessel dry, the pump will automatically stop and begin pumping again when water is present. The pump will start and run when turned on manually even if there is no water present, but the pump will turn itself off in a short time. Once the pump has power, starting and stopping is completely computerized. No further adjustment is necessary or possible.
**Step 11**
Polarity is important. The correct polarity will be obtained when the brown wire of the pump is connected to the positive side of the battery.

![CAUTION]

**CAUTION**

*Pump must always be properly attached to the strainer before running the unit.*

### Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced flow</td>
<td>Plugged strainer.</td>
<td>Clean outside of strainer and clean debris from around impeller.</td>
</tr>
<tr>
<td></td>
<td>Low battery voltage.</td>
<td>Check battery condition and charge if necessary.</td>
</tr>
<tr>
<td></td>
<td>Kinked discharge hose.</td>
<td>Switch to nonkink hose.</td>
</tr>
<tr>
<td>No water pumped.</td>
<td>Wire connections.</td>
<td>Make sure wire connections are not corroded. Visual check is not enough—a slight pull on each wire will tell if the wires are still joined. Check that no wire joints are hanging down into the water.</td>
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<tr>
<td></td>
<td>Blown fuse.</td>
<td>Make sure fuse is the right size. If correct, check impeller to ensure it is not jammed with debris.</td>
</tr>
<tr>
<td></td>
<td>Float switch failure.</td>
<td>Lift end of float switch up—if pump runs, switch is OK. If pump does not run, turn manual switch to ON position. If it runs, the automatic switch has failed.</td>
</tr>
<tr>
<td>Wires overheated/melted insulation.</td>
<td>Fuse size or jammed impeller.</td>
<td>Be sure impeller is clean of debris and is free to rotate. Reduce fuse to proper size (see step 9). Replace damaged wiring and/or switch.</td>
</tr>
<tr>
<td>Pump won’t shut off.</td>
<td>Something under float.</td>
<td>Clean under the float to make sure debris I not holding the float up.</td>
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<tr>
<td></td>
<td>Stuck float.</td>
<td>Check to see that the float is loose and free of gummy bilge oil. If float action appears sluggish and/or the float does not move freely, intermittent or sporadic operation of the pump may occur. This condition is usually the result of oil and/or dirt accumulating in and around the movable parts of the switch. To correct, try soaking the entire switch in cleaner for ten minutes, agitating several times and checking for smooth and free operation of the float. Repeat if necessary.</td>
</tr>
<tr>
<td></td>
<td>Switch mounted too low.</td>
<td>If the pump is sucking air and the automatic switch has not reached the OFF position, then the switch may be mounted too low for the pump and should be reinstalled $\frac{1}{4}$&quot; to $\frac{1}{2}$&quot; higher than the pump base.</td>
</tr>
</tbody>
</table>

### Storage

The pump may be left in the bilge all winter without damage, but must be disconnected from the battery. Even if the pump is subjected to freezing temperatures, no damage will occur. DO NOT try to turn the pump on if it is embedded in ice.