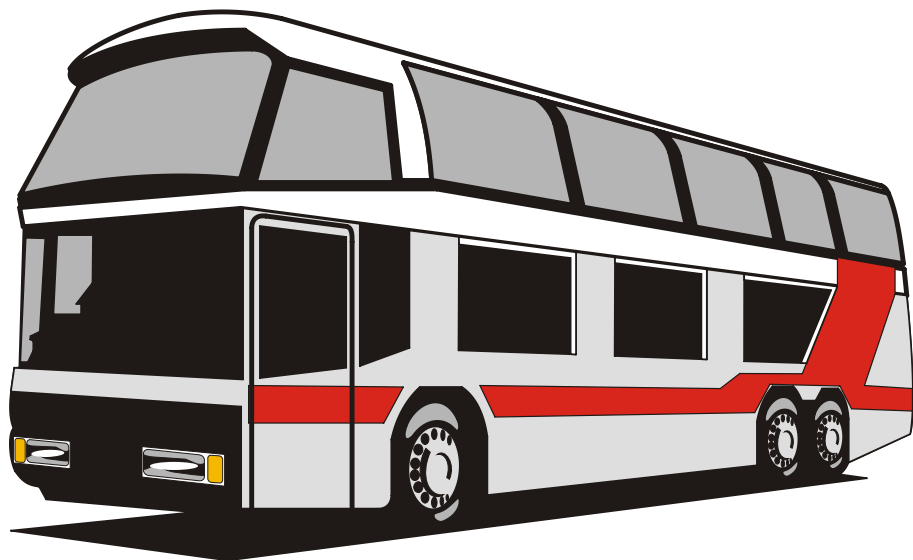


# *BUSflo*®



## **FRESH WATER PUMP** **FOR COACHES** **& BUSES**

**Installation & Operation Manual**

***THIS PUMP IS FOR COACH AND BUS USE ONLY. This pump is not ignition protected and is NOT TO BE USED in marine applications. The user assumes all liability if misused and the warranty is void.***

***Leisure Accessories Limited realizes that in many instances our pump is being installed as a replacement pump within an existing system. The following guidelines should be considered to achieve optimum pump operation.***

## **Mounting**

The pump can be at the same level or below the water tank. It may be positioned above the water tank if needed, as it is capable of a 6ft. (1.8m) vertical prime. Horizontal inlet tubing will allow priming to 30ft. (9m).

Consider a location that allows easy access if maintenance is required. The pump should not be located in an area of less than one cubic foot (0.03M<sup>3</sup>) unless adequate ventilation is provided. Excessive heat may trigger the integral thermal breaker and interrupt operation. When the temperature drops the breaker will automatically reset and start operation.

The pump may be mounted in any position. If mounting the pump vertically, the pump head should be in the down position so that in the unlikely event of a leak, water will not enter the motor.

Use the correct size screws (max 4mm Ø) to secure the pump. Choose a solid surface (thick plywood) that will not amplify pump operation. The mounting feet are intended to isolate the pump from the mounting surface; over tightening, flattening, or use of oversized screws will reduce the ability to isolate vibration/noise.

## **Electrical**

The pump should be on a dedicated (individual) circuit protected by the specified "anti-surge" fuse indicated on the motor label. A switch rated at or above 15 amps is recommended, and must interrupt current flow on the positive (+ red) lead.

The pump must be grounded to an earth (frame). The earth wire must be the same size (gauge/mm<sup>2</sup>) as the positive wire. Wire size (gauge/mm<sup>2</sup>) is based on the distance from the power source to the pump. The minimum recommended size wire is No.14 gauge (2.5mm<sup>2</sup>). Lengths of 6-15m (20-50ft) use No.12 gauge (4mm<sup>2</sup>).

The total current draw on the circuit must not exceed 15 amps. If the pump is used in conjunction with other components, overload current protection (fuse or circuit breaker) and wire size must be for the total amp requirement of all devices on the circuit.

## **Plumbing**

We recommend at least 30cms (1ft.) of 13mm (½") ID. flexible high pressure tubing to both ports. Ideally the pump's ports/filter should not be connected to rigid pipe. The pump's normal oscillation may transmit through rigid plumbing causing noise, and possibly loosen or crack components. Installation of a 50 mesh strainer is recommended to prevent foreign debris from entering the pump. Our In-Line filter has a twist-lock feature allowing simple cleaning when plumbed with flexible tubing.

The swivel barb fittings provide easy removal if maintenance or access is required. The fittings are designed with a "taper-seal", creating water tight connection when hand-tightened. Always secure barb tubing connections with properly sized stainless steel clamps to prevent leaks. **Never** use Teflon tape or sealing compounds on threads. Sealant may enter the pump causing a failure. Failure due to foreign debris is not covered under warranty. **We do not recommend using metal nuts** on the port connections. We recommend plastic nuts, hand-tightened, plus no more than 1½ turns with a wrench. Maximum torque is 3ft/lbs (Nm 4.05 / 0.416 kg/m).

Rapid cycling may be caused by excessive back pressure created by one or more of the following within a plumbing system:

- Water filters and purifiers not on separate feed lines.
- Flow restrictors in taps and shower heads.
- Small ID. lines. Pipe/tubing should be at least 13mm (½") ID. for main lines.
- Restrictive fittings and connections (elbows, "T's", feeder lines to taps, etc.)

## **Switch Shut-Off**

Restrictions in a plumbing system may cause the pump to rapid cycle (ON/OFF within 2 sec.) during low flow demands. Cycling should be minimized to prevent pulsating flow, and to achieve maximum pump life. To determine if adjustment is necessary, turn tap on to lower than average flow of water. The pump should cycle, but its "OFF time" must be 2 sec. or longer. If the cycling is correct, leave well enough alone. If the pump is cycling rapidly increase the setting by turning the screw clockwise (1½ turn MAX.) until the pump operates for 1 sec. with at least 2 sec. "OFF time". If cycling cannot be minimized consider removing plumbing restrictions or install an accumulator.

## Sanitizing

Fresh water systems require periodic maintenance to deliver a consistent flow of fresh water. Depending on the use and the environment the system is subject 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:

Use the following method to determine the amount of common household bleach needed to sanitize the tank.

1. Multiply "litres of tank capacity" by 1; the result is the millilitres of bleach needed to sanitize the tank.
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 fresh water.
4. Open all taps (HOT & COLD) allowing the water to run until the distinct odour 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 (1) hour.
6. When the contact time is completed, drain the tank. Refill with fresh water and purge the plumbing of all sanitizing solution.

NOTE: The sanitizing procedure outlined above is in conformance with the approved procedures of RVIA ANSI A119.2 and the USA Public Health Service. It may not be permitted or recommended in certain countries.

## Winterizing

If water is allowed to freeze in the system, serious damage to the plumbing and the pump may occur. Failures of this type will void the warranty. The best guarantee against damage is to completely drain the water system. However, non-toxic antifreeze for fresh water, if available at local service centres, may be used.

CAUTION: Do not use Automotive Antifreeze to winterize drinking water systems. Such solutions are highly toxic. Ingestion may cause serious injury or death. To properly drain the system perform the following:

1. Drain the water tank. If the tank doesn't have a drain valve open all taps allowing the pump to operate (15 min. ON, 15 min. OFF) until the tank is empty.
2. Open all the taps (including the lowest valve or drain in the plumbing) and allow the pump to purge the water from the plumbing, then turn the pump OFF
3. Using a pan to catch the remaining water, remove the plumbing at the pump's inlet/outlet ports. Turn the pump ON, allowing it to operate until the water is expelled. Turn OFF power to the pump once the plumbing is emptied. Do not reconnect pump plumbing. Make a note at tank filler as a reminder: "Plumbing is Disconnected".
4. All taps must be left open to guard against any damage.

## Troubleshooting

*Vibration induced by road condition can cause plumbing or pump hardware to loosen, Check for system components that are loose. Many symptoms can be resolved by simply tightening the hardware. Check the following items along with other particulars of your system.*

### **PUMP WILL NOT START/BLOWS CIRCUIT:**

- Electrical connections, fuse or breaker, main switch, and ground connection.
- Is the motor hot? Thermal breaker may have triggered; it will reset when cool.
- Is voltage present at the switch? Bypass the pressure switch. Does the pump operate?
- Charging System for correct voltage ( $\pm 10\%$ ) and good ground.
- For an open or grounded circuit, or motor; or improperly sized wire.
- For seized or locked diaphragm assembly (water frozen?).

### **WILL NOT PRIME/SPLUTTERS:**

(No discharge/Motor runs)

- Is the strainer clogged with debris?
- Is there water in the tank, or has air collected in the hot water heater?
- Is the inlet tubing/plumbing sucking in air at plumbing connections (vacuum leak)?
- Is the inlet/outlet plumbing severely restricted or kinked?
- Proper voltage with the pump operating ( $\pm 10\%$ )
- For debris in pump inlet/outlet valves or swollen/dry valves.
- Pump housing for cracks or loose drive assembly screws.

#### *PUMP WILL NOT SHUT-OFF/RUNS WHEN TAP IS CLOSED:*

- Output side (pressure) plumbing for leaks, and inspect for leaky valves or toilet.
- For air trapped in outlet side (water heater) or pump head.
- For correct voltage to pump ( $\pm 10\%$ ).
- For loose drive assembly or pump head screws.
- Are the valves or internal check valve held open by debris or is rubber swollen?
- Pressure switch operation/adjustment incorrect, refer to shut-off adjustment for switch.

#### *NOISY OR ROUGH OPERATION:*

- For plumbing which may have vibrated loose.
- Is the pump plumbed with rigid pipe causing noise to transmit?
- Does the mounting surface multiply noise (flexible)?
- For mounting feet that are loose or are compressed too tight.
- For loose pump head to motor screws. (3 long screws).
- The motor with pump head removed. Is noise from motor or pump head?

#### *RAPID CYCLING:*

- Pressure switch shut-off adjustment.
- Water filter/purifier should be on separate feed line.
- For restrictive plumbing, flow restrictors in taps/shower heads.

#### *LEAKS FROM PUMP HEAD OR SWITCH:*

- For loose screws at switch or pump head.
- Switch diaphragm ruptured or pinched.
- For punctured diaphragm if water is present in the drive assembly.

### Service Kits

To ensure the correct service kit, order by the complete model number, date of manufacture and name plate data. Parts kits come with complete repair instructions.

1. Switch/Check valve and Upper Housing Kit (replaces all previous switch designs).
2. Valve plate assembly.
3. Diaphragm/Drive assembly.
4. Motor.
5. Complete Pump Head assembly (replaces all/previous switch designs).

### Limited Warranty

Leisure Accessories Limited warrants its Fresh Water Pumps to be free of defects in workmanship and materials (under normal use) for two years beginning with the purchase date of the unit. This warranty does not extend to any Pumps which have been misapplied, improperly installed or altered outside the factory.

#### All Products

Leisure Accessories is not responsible nor will it reimburse for labour necessary to remove and reinstall a pump and/or fittings and accessories if found defective. Leisure Accessories' obligation under this warranty policy is limited to the replacing or repairing (whichever it deems advisable) any such part which is returned to its workshop or appointed distributor with transportation charges pre-paid and which, upon inspection is found defective under the terms of this warranty.

  
leisure accessories

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