Flow Max™ 115V AC Fluid Pump

Installation and Owner's Manual

(For Aftermarket Applications)

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Introduction

The Flow Max™ Fluid Pump by Duraself (Model Number: DS-11531-D) delivers smooth, consistent flows at all ranges of operation while drawing low current. The motor design incorporates ball bearings for long life and the motor is equipped with an integral thermal breaker. The pump has sealed switches and is finished with electrocoating to inhibit corrosion. The pump is also enclosed to prevent incidental moisture from entering.

The Flow Max Fluid Pump is capable of self-priming up to six vertical feet and can run dry. The pump is designed for intermittent duty only. Do not use the pump for running a Reverse-Osmosis (RO) Filtration System. Continuous running under higher pressure may reduce pump life. There are no replaceable parts for the pump.

For safety, it is recommended that power to the pump is shut off when leaving the unit unattended.

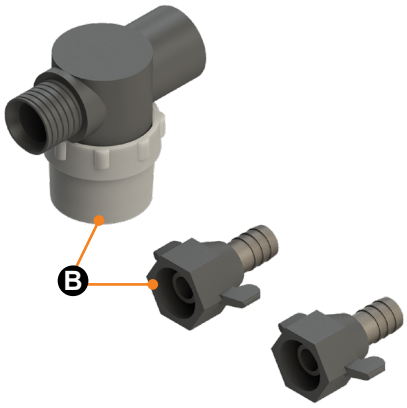
⚠WARNING

THE "WARNING" SYMBOL ABOVE IS A SIGN THAT AN INSTALLATION PROCEDURE HAS A SAFETY RISK INVOLVED AND MAY CAUSE DEATH OR SERIOUS INJURY IF NOT PERFORMED SAFELY AND WITHIN THE PARAMETERS SET FORTH IN THIS MANUAL. ALWAYS WEAR EYE PROTECTION WHEN PERFORMING THIS INSTALLATION PROCEDURE. OTHER SAFETY EQUIPMENT TO CONSIDER WOULD BE HEARING PROTECTION, GLOVES, AND POSSIBLY A FULL FACE SHIELD, DEPENDING ON THE NATURE OF THE INSTALLATION PROCEDURE.

⚠CAUTION

MOVING PARTS CAN PINCH, CRUSH OR CUT. KEEP CLEAR AND USE CAUTION.

Parts List



Letter	Part #	Description	Qty
A	689054	Flow Max AC Fluid Pump	1
B	689059	Screen Filter and Connectors	2

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Resources Required

- Cordless or Electric Drill or Screw Gun
- Appropriate Drive Bits
- Cutting Implement for Tubing
- Flexible, Reinforced Hose with ½" Minimum Inner Diameter
- Appropriate Pipe Fittings as Needed
- Four Screws to Fasten Pump to Mounting Surface
- 10 Amp Electrical Cutoff Switch
- 1.5 Amp Fuse

Installation

The following guidelines should be considered to achieve optimum pump performance. Mount the pump with four screws. In many instances, the pump is being utilized as a replacement pump. Adjust instructions as needed.

NOTE: The mounting feet are intended to isolate the pump from the mounting surface. Overtightening, flattening or use of oversized screws will reduce the ability to isolate vibration and noise through the lines.

NOTE: Always follow all local and national installation codes and standards.

General Installation Instructions

1. A solid surface should be available for mounting to prevent vibration and noise.

2. Accessible location away from living quarters.

3. Properly-sized wiring. See Pump Wire Chart.

4. Proper electrical protection.

5. Flexible hose on inlet and outlet.

6. Strainer on plumbing elbows and valves near the pump.

7. Minimize flow restrictions in the system.

Mounting Instructions

1. Pump may be located at the same level or below the water tank. However, if necessary, the pump may be positioned above the water tank since it is capable of a six-foot vertical prime. Also, horizontal inlet tubing will allow priming to 30 feet.

2. Consider a dry location that allows easy access, if maintenance is required.

3. Installation space for pump should be at least one cubic foot to allow for adequate ventilation and prevent overheating.

NOTE: Excessive heat may trigger the integral thermal breaker and interrupt operation. When the temperature drops, the breaker will automatically reset.

4. Pump may be mounted in any position. However, if pump is mounted vertically, the pump head **(Fig.3)** should be in the down position to avoid leakage into the motor casing during a malfunction.

Plumbing The System

1. Install in-line screen **(Fig.2A)** on the inlet side of the pump **(Fig.1)** to prevent debris from entering the pump.

2. Using the supplied ½" swivel connectors **(Fig.2B)**, connect flexible, high-pressure hoses to both the outlet port of the pump **(Fig.1)** and the inlet port of the in-line screen **(Fig.2A)**.

NOTE: The pump ports and strainer should not be connected to plastic or rigid pipe. At least one foot of flexible, high-pressure tubing is recommended. The pump's normal oscillation may be transmitted through rigid plumbing, causing noise and possibly loosening or cracking components.

3. Plumb the system with flexible pipe/tubing that is a minimum of ½" inner diameter reinforced hose for main lines.

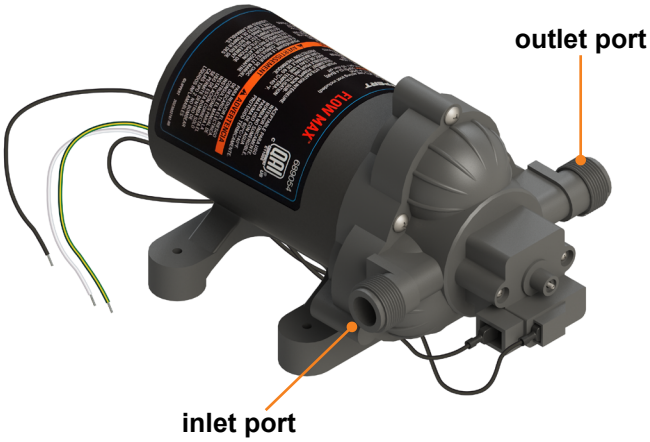

Fig.1

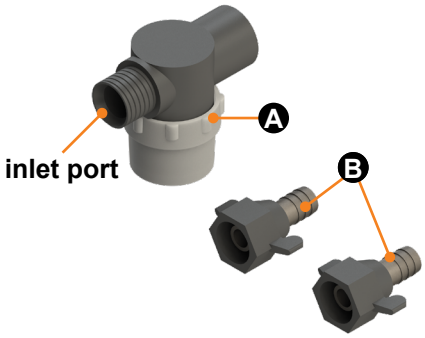

Fig.2

NOTE: Hex/swivel barb fittings provide easy removal, if maintenance or access is required. The fittings are designed with a "taper seal" to create a watertight connection when hand tightened. Always secure barb tubing connections with properly-sized stainless steel clamps to prevent leaks.

NOTE: Never use thread-sealing tape or sealing compounds on threads. Tape or sealing compounds may enter the pumps and cause a failure.

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

- Water filters and purifiers not on separate feed lines;
- Flow restrictors in faucets and shower heads;
- Small inner diameter lines;
- Restrictive fittings and connections, e.g. elbows, T's and feeder lines to faucets.

To reduce rapid cycling, the pump shutoff pressure switch setting **(Fig.3)** can be increased by turning the screw clockwise 1 ½ turns maximum.

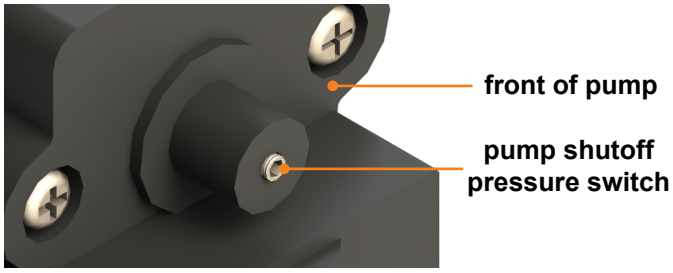

Fig.3

Electrical Connections

⚠ CAUTION

IF THE WIRE IS TOO SMALL, LOW VOLTAGE WILL AFFECT THE PUMP PERFORMANCE AND CAN CREATE A FIRE HAZARD.

NOTE: The pump should be on a dedicated circuit protected by the specified fuse as indicated on the motor label.

The chart lists the minimum wire size for a 10% voltage drop on a 115V AC 1 amp circuit. Length is the distance in feet from the power source to the pump and back to ground.

1. Determine the proper wire size for good pump operation.

Pump Wire Chart	
Length	**AWG**
0-20	16
20-30	14
30-50	12
50-65	10

2. Install a 10 amp switch. The switch should be mounted in an easily accessible location.

3. Connect the wire leads to the switch, utilizing the correct wire size. The black wire is the live (hot) line, the white wire is the null line (neutral) and the green/yellow wire attached to the back of the pump is the ground wire.

4. Use wires of the same gauge to connect the switch to the power source.

NOTE: A 1.5 amp fuse is required as per applicable codes.

NOTE: The pump motor must be grounded as per applicable codes.

NOTE: Shut off power to the pump when leaving the unit unattended.

Sanitizing

Potable water systems require maintenance to keep components working properly to deliver a consistent flow of fresh water. Sanitizing is recommended prior to storing. After a period of time in storage or any time the system is opened or contaminated, sanitizing the system is recommended. Systems with new components or ones that have been subjected to contamination should also be disinfected.

1. Determine the amount of common household bleach needed to sanitize the tank.

A. Multiply the gallons of tank capacity by 0.13. The result is the number of ounces of bleach needed to sanitize the tank.

2. Mix the bleach with water in a container.

3. Pour the bleach solution into the tank and fill the tank with potable water.

4. Open all faucets (hot and cold) and allow water to run until the odor of chlorine is detected. Then shut off the faucets.

5. Allow four hours contact time to disinfect the tank.

6. At the conclusion of the prescribed contact time, drain the tank.

7. Refill the tank with clean, potable water and flush the system once or twice until the chlorine odor has decreased. The residual chlorine odor and taste is not harmful.

Winterizing

If water is allowed to freeze in the system, damage to the plumbing and pump may occur. To protect against damage from freezing, completely drain the tank, pump and plumbing and perform winterizing tasks.

NOTE: When used per RVIA's recommendations, non-toxic antifreeze for potable water is safe for use in the pump.

⚠WARNING

DO NOT USE AUTOMOTIVE ANTIFREEZE TO WINTERIZE POTABLE WATER SYSTEMS. SUCH SOLUTIONS ARE HIGHLY TOXIC. INGESTION MAY CAUSE SERIOUS INJURY OR DEATH.

1. Drain the water tank.

NOTE: If the tank doesn't have a drain valve, open all faucets while allowing the pump to operate (15 minutes on/15 minutes off) until the tank is empty.

2. Open all the faucets, including the lowest valve or drain in the plumbing, and allow the pump to purge the water from the plumbing. Then turn off the pump.

3. Using a pan to catch the remaining water, remove the hoses at the pump's inlet and outlet ports.

4. Turn the pump on, allowing it to operate until the water is expelled.

5. Once the plumbing is emptied of water, turn off power to the pump. Do not reconnect the hoses to the pump.

6. Make a note at the water tank's filler cap as a reminder: "Plumbing is disconnected. Do not fill."

7. Leave all faucets open to guard against damage.

NOTE: Sanitize the plumbing system before putting it back into service. See Sanitizing section.

Troubleshooting Chart

Vibration caused by driving or transporting can loosen plumbing, strainers and pump hardware. Check for loose system components. Many symptoms can be resolved by tightening hardware. Refer to the chart for troubleshooting tips.

What's Happening?	What Should Be Done?
Pump Will Not Start/ Blows Circuit	Check 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 switch?
	Check charging system for correct voltage (+ or - 10%) and good ground.
	Check for an open or grounded circuit, motor or improperly-sized wire.
	Check for seized or locked diaphragm assembly — water frozen?
Will Not Prime/Sputters (No Discharge/ Motor Runs)	Check if the strainer **(Fig.2A)** is clogged with debris.
	Check if there is water in the tank or whether air has collected in the hot water heater.
	Check if the inlet tubing/plumbing is sucking air at plumbing connections — vacuum leak?
	Is the inlet/outlet plumbing severely restricted or kinked?
	Check proper voltage with the pump operating: + or - 10%
	Check for debris in the pump inlet/outlet valves or if there are swollen or dry valves.
	Check pump housing for cracks or loose drive assembly screws.
Rapid Cycling	Check for restrictive plumbing and flow restrictions in faucets/shower heads.
	Make sure water filter/purifier is on separate line feed.
	Check if pressure switch shutoff **(Fig. 3)** needs adjustment.
Pump Will Not Shut Off/ Runs When Faucet Closed	Check output side (pressure) plumbing for leaks and inspect for leaky valves or toilet.
	Check for trapped air in outlet side (water heater) or pump head.
	Check for correct voltage to pump (+ or - 10%).
	Check for loose drive assembly or pump head screws.
	Check if the valves or internal check valve is held open by debris or if the rubber is swollen.
	Check pressure switch operation. Refer to shutoff adjustment for switch **(Fig 3)**.
Noisy or Rough Operation	Check plumbing, which may have vibrated loose.
	Check if the pump is plumbed with rigid pipe, causing noise to be transmitted.
	Does the mounting surface amplify the noise? Check for loose mounting feet or if mounting feet are compressed too tightly.
	Check for loose pump head to motor screws. There are three long screws.
Leaks From Pump Head or Switch	Check for loose screws at the switch or pump head.
	Check if the switch diaphragm is ruptured or pinched.
	Check for punctured pump diaphragm if water is present in the drive assembly.

Notes

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