EN English

RBSS-75FC PRESSURE BOOSTING SYSTEM

With VMC Flow Control

Owner's Manual

IMPORTANT: Booster pumps can produce significant water pressure within a plumbing system. Read and follow instructions carefully to avoid injury and property damage.

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SAFETY INSTRUCTIONS

Before Getting Started

This equipment should be installed and serviced by technically qualified personnel who are familiar with the correct selection and use of appropriate tools, equipment, and procedures. Failure to comply with national and local electrical and plumbing codes and within Red Lion recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure.

Read and follow instructions carefully to avoid injury and property damage. Do not disassemble or repair unit unless described in this manual.

Failure to follow installation or operation procedures and all applicable codes may result in the following hazards:

⚠ DANGER

Risk of death, personal injury, or property damage due to explosion, fire, or electric shock.

- Do not use in explosive atmospheres or hazardous locations as classified by the NEC, ANSI/NFPA70.
- Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface, or in water until the unit is unplugged or electrically disconnected.
- Do not submerge motor or mount system in a location where motor or control device will come in contact with water. This pump is not designed for use in showers, hot tubs, spas or other potentially wet locations.

⚠ CAUTION

Risk of bodily injury, electric shock, or property damage.

- This equipment must not be used by children or persons with reduced physical, sensory or mental abilities, or lacking in experience and expertise, unless supervised or instructed. Children may not use the equipment, nor may they play with the unit or in the immediate vicinity.
- Equipment can start automatically. Always unplug the pump power cord and disconnect the electrical power before servicing the pump or control.
- Operation of this equipment requires detailed installation and operation instructions provided in this manual for use with this product. Read entire manual before starting installation and operation. End User should receive and retain manual for future use.

⚠ WARNING

High voltages and system pressure capable of causing severe injury or death are present in this unit.

- To reduce risk of electrical shock, disconnect power before working on or around the system. More than one disconnect switch may be required to de-energize the equipment before servicing.
- Be certain that this pump is connected to a circuit equipped with a ground fault circuit interrupter (GFCI) device.
- This product is supplied with a grounding conductor and grounding-type attachment plug. To reduce risk of electric shock, be certain that it is connected only to a properly grounded grounding-type receptacle. Do not remove the third prong from the plug. The third prong is to ground the pump to help prevent possible electric shock hazard.
- Terminal cover must be in place to reduce shock hazard.
- Do not use the power cord for lifting the pump.
- The pump has been evaluated for use with water only. Pump should only be used with liquids compatible with pump component materials. If the pump is used with liquids incompatible with the pump components, the liquid can cause failure to the electrical insulation system resulting in electrical shock.
- Booster pumps can produce significant water pressure within a plumbing system. This could cause damage to pipes and/or fixtures. To prevent personal or property damage, install a pressure regulator and a pressure relief valve capable of conveying the entire water volume to a drain.
- Do not remove priming plug, casing, or suction or discharge fittings when pump is hot. Hot water and/or vapor inside could be pressurized and could cause severe burns.
- Release all pressure within the system and drain all liquids before servicing pump. Refer to "Draining the Pump" on page 8.

NOTICE

Risk of damage to pump or other equipment.

- Periodically inspect pump and system components. Regularly check piping for weakness or wear, making certain that all connections are secure.
- Schedule and perform routine maintenance as required. Refer to "Maintenance" on page 7.

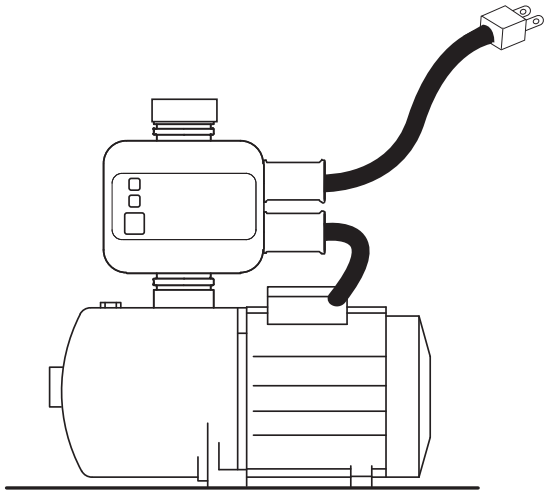
PRODUCT INFORMATION

Description

This water pressure boosting system consists of an inline control device attached to a 2-stage booster pump. The control activates the pump to provide strong, even water pressure when multiple water fixtures are in use. Once the water flow stops, the control turns off the pump.

The booster system is designed to work in homes with a municipal water source, or a cistern. It is not designed for systems using a well.

Please examine the pump carefully to ensure that no damage occurred during shipment. If damage has occurred, please contact the place of purchase. They will assist you in replacement or repair, if required.



Features

Configuration

- Simple set up with no programming or adjustment necessary on the equipment
- No additional pressurized bladder tank or pressure switch needed

Inline Control

- Flow based pump activation
- Run Dry protection
- Automatic system reset/restart after a power loss or an out-of-water event.

Operation

- Control has LED indicators for system status and troubleshooting
- Manual Reset pushbutton can be used to start the pump at any time.

Specifications

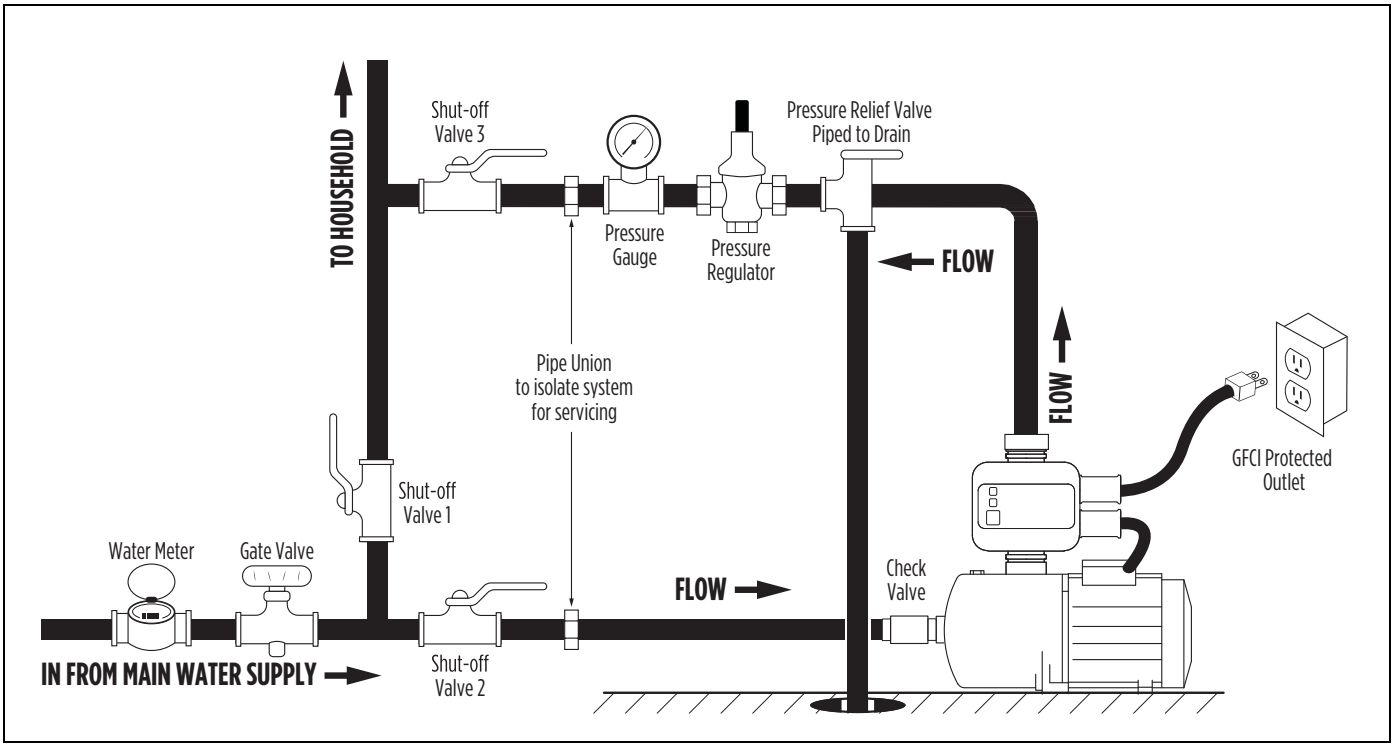
Booster Pump with Flow Control						
Enclosure Type	TEFC, NEMA Type 4			Nominal Fluid Temperature	68 °F (20 °C)
Motor Size and Voltage	0.75 hp	0.55 kW	115 V	Max Fluid Temperature	100 °F (37.8 °C)
Max Current	9.0 A			Max Ambient Temperature	104 °F (40 °C)
Impulse Voltage	2.5 kV			Intake Connections	1" FNPT
Acceptable Voltage Fluctuation	±10%			Discharge Connection	1" MNPT
Frequency	60 Hz			Seal Type	Mechanical Seal and O-ring
Overload Protection	302 °F (150 °C)			Internal Protection	Pollution Degree 2
Max Operating Pressure	46 psi (3.2 bar)			Minimum Flow	0.13 gpm
Max Pump Case Pressure	91 psi (6.3 bar)				

INSTALLATION AND SETUP

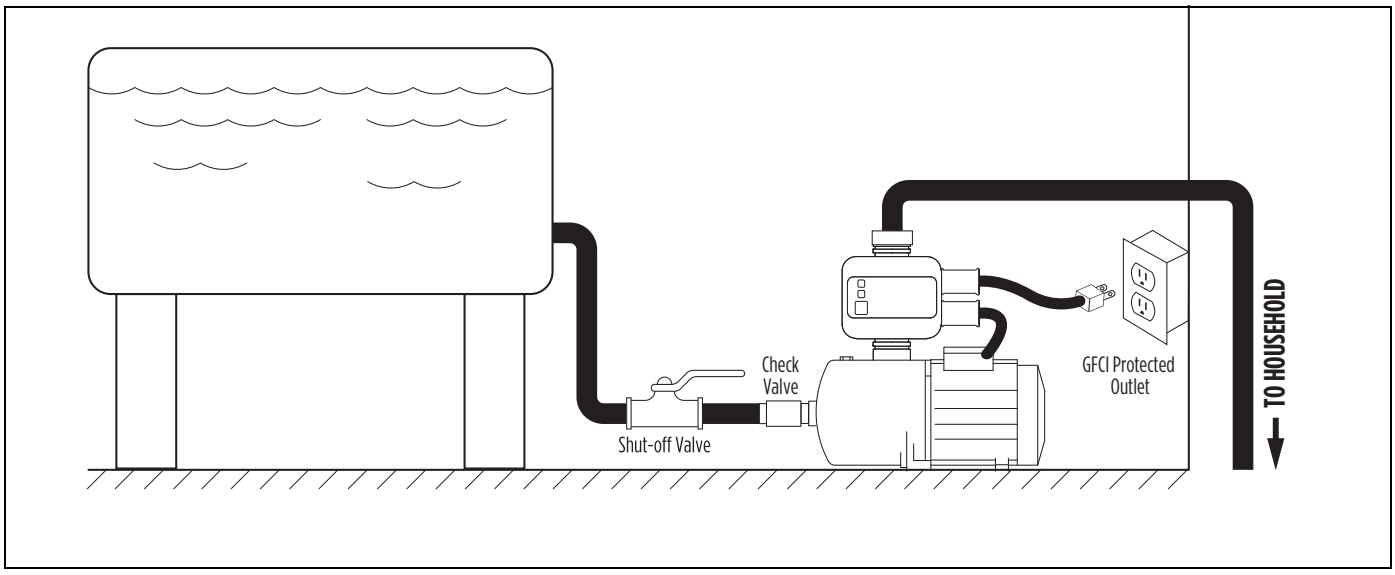
Typical Installation

The following drawings illustrate how the system should be arranged in the plumbing system.

Municipal Water Supply



Water Supply from a Cistern



Electrical Supply

⚠WARNING

Risk of severe injury or death by electrical shock, or damage to system.

- Always disconnect the electrical power before touching the pump.
- Check local and national electrical and building codes before installation. The installation must be in accordance with their regulations.
- Check electrical outlets with a circuit analyzer to ensure power, neutral, and ground wires are properly connected. If not, a qualified, licensed electrician should correct the problem.
- A ground fault circuit interrupter (GFCI) is required.
- If the power cord is damaged, it must only be replaced by qualified personnel.

This flow control unit and booster pump require 115 Volts. Do not connect to voltage other than 115 Volts. Low or high voltage can damage the unit and will void the warranty.

The system should be connected to its own circuit with no other outlets or equipment in the circuit line. The fuses and circuit breaker should be 15 Amps minimum.

Branch Circuit Protection

Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes, or the equivalent.

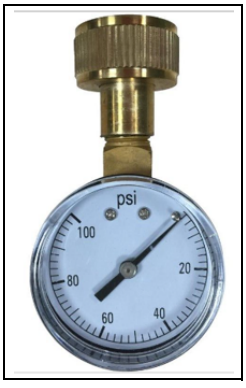
Physical Installation

⚠WARNING

Risk of bodily injury, property damage, or damage to system by pressurized fluids.

- **DO NOT** install this product if incoming water pressure is greater than **45 psi**. Serious damage to plumbing can occur.
- A pressure relief valve rated to handle full pump flow at 100 psi should be installed in the system to prevent personal injury or property damage.
- All wiring, electrical connections, system grounding and plumbing must comply with national and local electrical and plumbing codes. Employing a licensed plumber is recommended.
- Red Lion is not responsible for personal injury or property damage due to improper installation.

IMPORTANT: Before installing this device in a plumbing system that uses municipal water, verify that incoming water pressure is 45 psi or less. If the system pressure is over 45 psi, this product cannot be used.



If there is no pressure gauge installed in the existing plumbing system, purchase a 3/4-inch garden hose thread pressure gauge available at most hardware retailers or online. Install the pressure gauge on an outside spigot closest to the main water supply. Turn on the water—make sure that water is not being used elsewhere in the house. Take the reading when water pressure is the highest, such as evening or night.

Environmental Requirements

Install this system in a clean, well-ventilated location that provides protection from freezing, flooding, and excessive heat. In addition:

- Provide access for servicing and allow convenient draining of the pump, tank, and service pipes.
- The power cord must be able to reach a power outlet without the use of an extension cord.
- The pump base should be bolted to a solid foundation (preferably concrete).
- Locate the system as close as possible to the water source to reduce friction in the suction pipe and ensure maximum capacity.

Installation

1. Place the pump/control on a level, solid surface. For proper operation, the flow control has been installed vertically as indicated by upward facing arrows on the back of the device. Do not change the orientation of the control.
2. Turn off the main water supply.
3. Open a nearby faucet to release the water pressure in the system. Once all water and pressure is released, turn off the faucet.
4. Modify the existing plumbing as required to allow for installation of the booster pump system. The pump suction is 1 inch FNPT, and the flow control discharge is 1 inch MNPT fittings. Depending on the size of your piping, adapters may need to be installed. Refer to the Typical Installation diagrams for suggested routings.

   Water may leak from piping during cutting. Protect flooring adequately with a bucket and/or towels.

   IMPORTANT: Ensure any burrs or shavings from cutting the pipes are completely removed to prevent damage to the pump.
5. Add unions and valves as shown to allow system service without disabling the complete water supply.
6. Add a check valve between the water supply union and the pump input. The arrow on the check valve must point to the pump input.
7. For a municipal water system, use tee fittings to add a pressure regulator, pressure gauge, and pressure relief valve as required. Follow all applicable code requirements.

   For a cistern based system, a pressure regulator and a pressure relief valve are typically not needed unless required by code.

IMPORTANT: Do not apply power to the system until the pump is primed. Do not run the pump dry, which can cause overheating and damage the impeller and seals. This will void the warranty.

8. **For a municipal system:** Once all piping and fittings are properly installed, close Valve 1 and open Valves 2 and 3. Turn on the main water supply slowly. Turn on the nearest faucet to fill the pump completely to remove air from the system. When water is flowing steadily, turn off the faucet. Check for leaks and repair as necessary. Joints should be airtight. Even a pinhole can affect proper operation of the pump.

   For a cistern based system: If the cistern does not supply enough positive pressure to fill the pump when the supply valve is opened, remove the pump's priming plug and fill the pump case with water.
9. Plug in the pump for the first time—The green Power LED on the flow control will turn on. The pump should start and run for a few seconds and then turn off automatically. Re-check plumbing for leaks. If any leaks are found, repeat steps 2 and 3, repair leaks and repeat steps 8 and 9.
10. Turn on the nearest faucet. The yellow Pump On LED on the flow control will turn on to indicate water is flowing through the system. When the faucet is closed, the pump should stop. If the system does not operate as expected, press the Restart button to run the pump again for another priming cycle. Priming is considered complete when water flows from an open faucet. At this time the faucet can be closed and the system is ready for use. If issues continue, refer to "Troubleshooting" on page 10.

11. If you want to increase the water pressure, adjust the pressure regulator. Most pressure regulators come preset at 40-50 psi. To increase the pressure, loosen the locking nut and turn the adjusting bolt clockwise and tighten the locking nut. Follow the manufacturer's instructions that come with the pressure regulator. Do not increase beyond 72.5 psi (169 feet of head) as damage to the plumbing and flooding could occur. Some appliances, particularly hot water heaters, recommend water pressures lower than 72.5 psi. Check your owner's manuals for recommended water pressure and adjust the pressure regulator accordingly.

OPERATION

Flow Control Panel

The Flow Control includes LED lights to indicate system status, and a button to restart the pump when a fault has occurred.

	**Power**	**Green LED on:** Device has power available
	**Pump On**	**Yellow LED on:** Pump is running
	**Restart**	Press Restart after loss of prime, or fault

System Start/Stop Operation

To use the pressure boosting system in a municipally supplied water system, Valve 1 must be closed, and both Valves 2 and 3 must be open.

When power is supplied to the system, the green Power LED will illuminate.

When water is used in the building, the flow control senses water movement and starts the pump. The yellow Pump On LED will illuminate.

When water usage stops, the flow control will stop the pump and the Pump On LED will turn off. If the pump does not stop, refer to "Troubleshooting" on page 10.

If the pump remains idle for 24 consecutive hours, an auto-run feature will activate for approximately 5 seconds to keep the system free of debris and clogs.

MAINTENANCE

⚠WARNING

Risk of severe injury or death by electrical shock or pressurized fluids.

- Always unplug the power cord in addition to removing the fuse or shutting off the circuit breaker before working on the pump or control.
- Relieve system pressure before disassembling device.
- This product should be serviced by qualified electrical or plumbing personnel only.

Periodic Maintenance

Flow Control: The flow control unit is maintenance-free. The pump can be maintained and inspected without removing the flow control device.

Lubrication: The pump does not require lubrication.

Inspection: Periodically inspect system for leaks and performance. Replace seals or impeller as required.

Pump Maintenance

Draining the Pump

Drain the system if it will be subjected to temperatures below 32 °F (0 °C) or if maintenance is to be performed.

1. Disconnect power from the system.
2. Turn off the main water supply.
3. Open a nearby faucet to release the water pressure in the system. Once all water and pressure is released, turn off the faucet. At this point, in a municipally supplied water system, Valves 2 and 3 can be closed, and Valve 1 can be opened. This will allow water to flow through the building while the system is being serviced.
4. Using a 14mm socket wrench, remove the drain plug and priming plug from the pump.
5. When all water has drained, re-install the plugs.
6. The pump and control system can now be disconnected at the unions.

NOTICE

Risk of damage to plumbing by freezing and damage to property by flooding.

- Draining the pump will not necessarily drain all other parts of the piping system. All piping exposed to freezing weather should also be drained.

Replacing Seals, Impellers, or Volutes

NOTICE

Risk of damage to pump or other property.

- Only qualified persons should perform maintenance on electrical or mechanical devices.
- Care must be taken not to damage the motor fan or cover.
- Do not use petroleum-based cleaners or lubricants.
- Care must be taken not to contaminate the ceramic seal face.

Disassembly

Refer to "Replacement Parts" on page 11 for parts references (1, etc.).

1. Ensure the pump is disconnected from electrical power and drained.
2. Using a 5 mm hex key, remove the 6 screws and washers (1), remove the 3-piece flange (2) and remove the casing (4).
3. Remove the o-ring (6) located on top of the volute cover (7). You will notice that the volutes are not on tight, this is normal.
4. Using a #1 cross-head screwdriver, remove the 4 screws (19) around the motor cover (18). Remove the motor cover. The fan blade (22) will be exposed.
5. Place a slotted screwdriver in the slot near the center of the fan blade (22) and hold this firmly in place to prevent the shaft from turning. At the same time, use a 13 mm socket wrench to turn the acorn nut (5) at the front of the pump and remove the acorn nut and washer. **NOTE:** you may want to have a second person help you with this task.
6. Slide off the volute cover (7).
7. Gently pry off both volutes and impellers from the shaft, taking care to prevent damage to the volute or volute base.
8. Remove the o-ring (12) from the volute base (13).
9. Inspect all parts and replace any that are worn or damaged. Refer to "Replacement Parts" on page 11.

Reassembly

1. Clean all parts thoroughly with dish soap and water before assembling. **IMPORTANT:** Do not use petroleum-based cleaners or lubricants.
2. Reinstall the o-ring (12) onto the volute base (13).
3. Slide the volute (9) onto the shaft. The impeller will sit inside the volute therefore the hollowed-out end of the volute will be towards the front of the pump. **NOTE:** there is no difference between the two volutes, either one can be used.
4. Slide the impeller (8) onto the shaft. Align the cross cut-out in the impeller with the cut-outs on the shaft. The metal on the impeller will be facing the front of the pump. Ensure the impeller and volute sit tightly against the volute base. **NOTE:** there is no difference between the two impellers, either one can be used.
5. Slide the second volute (9) onto the shaft with the hollowed-out end of the volute towards the front of the pump.
6. Slide the second impeller (8) onto the shaft. Align the cross cut-out in the impeller with the cut-outs on the shaft. The metal on the impeller will be facing the front of the pump.
7. Slide the volute cover (7) onto the shaft. The flat side of the volute cover will be facing the motor.
8. Slide the washer and acorn nut (5) onto the shaft. Hand tighten the acorn nut onto the shaft.
9. Insert the screwdriver in the slot near the center of the fan blade (22). Hold this firmly in place to prevent the shaft from turning; at the same time use a 13 mm socket wrench to tighten the acorn nut.
10. Reattach the motor base cover (18) and attach screws (19) using a #1 cross-head screwdriver.
11. Stand the pump on the motor and seat the o-ring (6) into the edge of the volute cover (7).
12. Replace the casing (4).
13. Replace the 3 pieces of the flange (2), add the washers and screws (1) and loosely secure the screws by hand-tightening. Secure the screws with a 5mm hex key starting with the holes at the flange joints. Secure the remaining screws using the hex key. Ensure the flange is laying flat against the casing.

Replacing the Flow Control Unit

The flow control unit comes pre-wired to the pump. Replacement requires an experienced electrician. If you require a replacement flow control unit, please contact our Technical Support Line at 888.885.9254, who can assist you in obtaining our professional version, Item # 91987102, Model # FIL-FLW15 which includes an instruction sheet with the necessary wiring information.

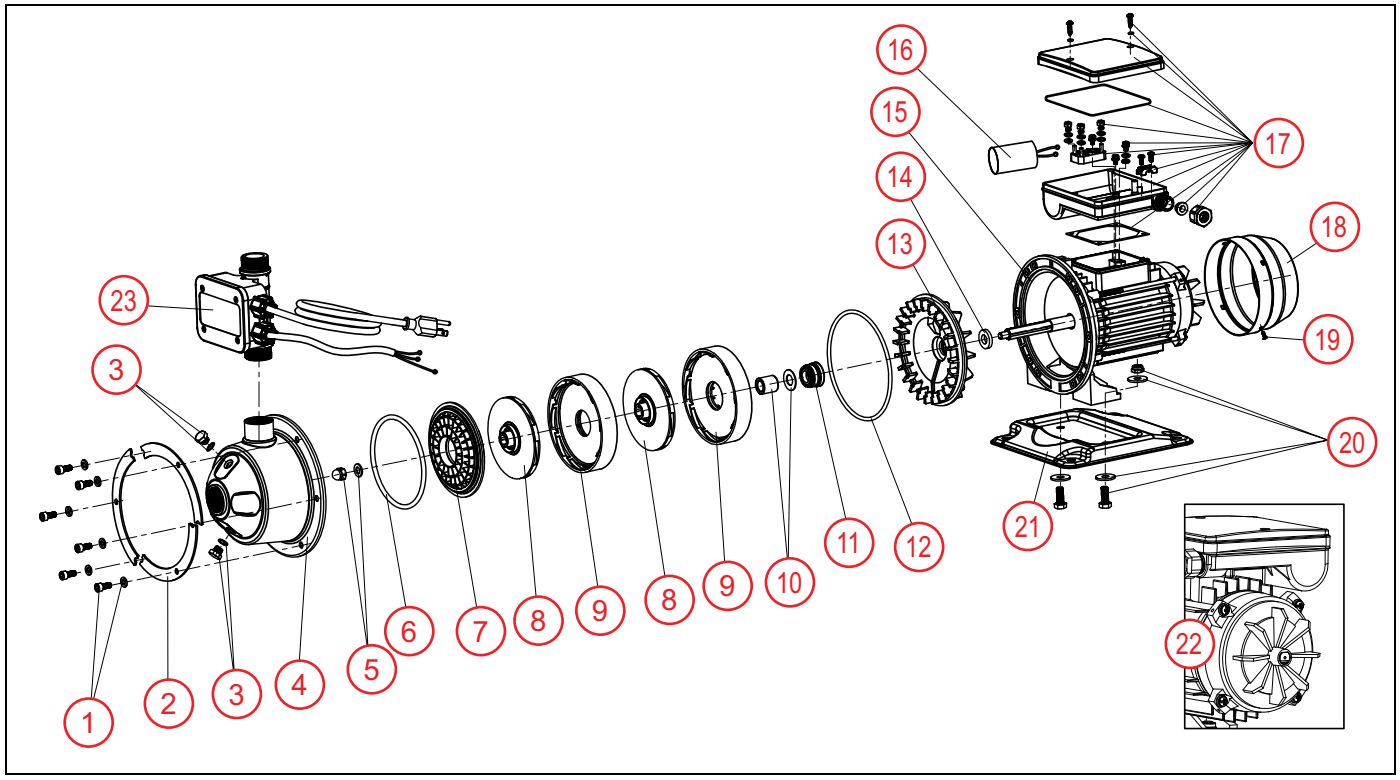
Troubleshooting

For the flow control to properly operate the pump system, water must pass through the device every time water is needed. The water supply to the device and pump system is typically from a municipal or utility water main line. The device can also operate on a cistern or other non-pressurized water tank, but this should be located above both the pump and the highest water outlet to ensure water flow through the system.

If the flow control or pump has been replaced with a model different than the original and performance is not as expected, check that the technical features of the components are compatible. Refer to "Specifications" on page 3.

Problem	Probable Causes	Corrective Action
Pump fails to start or restart.	Unit not plugged in.	Plug in unit.
	Bad electrical connection.	Check cords for breaks or cracks. Replacement cords are not available. Replace unit or contact an electrician.
	Tripped electrical circuit breaker/fuse.	Check electrical circuit breaker panel.
	Pump obstructed.	Check pump and suction line for debris.
	No water flow.	Check plumbing and water supply.
	Control unit not installed vertically in proper orientation.	Correct installation so that the control device is vertical, with all writing on the product label in the proper upright position.
	Leaks in suction or discharge line.	Check for leaks by adding soapy water at all joints. If bubbles form, disconnect joint and fix leaks.
Pump works intermittently.	Minimum flow of 0.15 gpm not sustained.	Increase water use.
	Plumbing or check valve leak.	Repair or replace faulty plumbing/check valve.
Pump will not shut off.	System flow continues above 0.15 gpm.	Confirm that there is no water demand. Check plumbing system for leak.
	Device contains debris preventing switch closure.	Clear debris from unit or plumbing.
	Control unit not installed vertically in proper orientation.	Correct installation so that the control device is vertical, with all writing on the product label in the proper upright position.
	Plumbing or check valve leak.	Repair or replace faulty plumbing/check valve.

REPLACEMENT PARTS



Part Number	Description	Contents
305589007	Casing/Base Kit	1, 2, 3, 4, 21
305589008	Hardware Kit	1, 3, 5, 10, 19
305589009	Overhaul Kit	6, 7, 8 (qty 2), 9 (qty 2), 10, 11, 12, 13, 14
305589010	Impeller/Volute Kit	7, 8 (qty 2) 9 (qty 2), 13
305589011	Seal Kit	6, 12

NOTE: The parts not included in list of repair kits are not available for purchase.