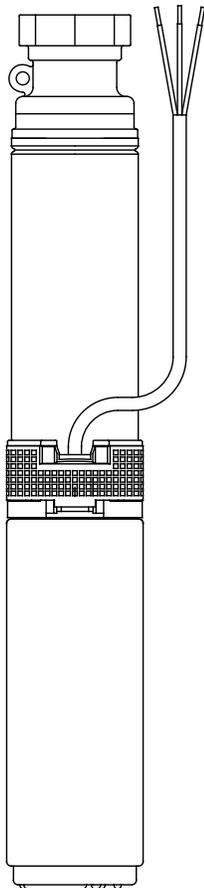


# LittleGIANT<sup>®</sup>

Franklin Electric Co., Inc.  
Oklahoma City, OK 73127  
www.franklinwater.com  
CustomerService@lgpc.com



## BEFORE INSTALLING PUMP, BE SURE TO READ THIS OWNER'S MANUAL CAREFULLY.

**CAUTION** Fill the pump with water before starting or the pump will be damaged. The motor on this pump is guaranteed by the manufacturer, and in the event of failure it must be returned to an authorized service station for repairs. The motor warranty is void if repairs are not made by an authorized repair station.

## INSPECT THE SHIPMENT

Examine the pump when it is received to be sure there has been no damage in shipping. Should any be evident, report it immediately to the dealer from whom the pump was purchased. Please check the pump package to see that it includes pump, motor, and motor leads (if your pump purchase includes a motor).

Make certain that your available voltage corresponds to that of your motor.

# 4" HIGH-HEAD FILTERED EFFLUENT PUMP OWNER'S MANUAL

## READ AND FOLLOW SAFETY INSTRUCTIONS

**!** This is the safety alert symbol. When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury:

**DANGER** warns about hazards that will cause serious personal injury, death, or major property damage if ignored.

**WARNING** warns about hazards that can cause serious personal injury, death, or major property damage if ignored.

**CAUTION** warns about hazards that will or can cause minor personal injury or major property damage if ignored.

The label **NOTICE** indicates special instructions, which are important but not related to hazards.

**Carefully read and follow all safety instructions in this manual and on pump.**

Keep safety labels in good condition.

Replace missing or damaged safety labels.

<b>!</b> <b>WARNING</b>	<b>!</b> <b>Wire motor for correct voltage. See Electrical Information section of this manual and motor nameplate.</b>
	<b>!</b> <b>Ground motor before connecting to power supply.</b>
<b>Hazardous voltage. Can shock, burn, or cause death.</b>	<b>!</b> <b>Meet National Electrical Code, Canadian Electrical Code, and local codes for all wiring.</b>
<b>Ground pump before connecting to power supply. Disconnect power before working on pump, motor or tank.</b>	<b>!</b> <b>Follow wiring instructions in this manual when connecting motor to power lines.</b>



**ATTENTION!**

**IMPORTANT INFORMATION FOR INSTALLERS OF THIS EQUIPMENT!**

THIS EQUIPMENT IS INTENDED FOR INSTALLATION BY TECHNICALLY-QUALIFIED PERSONNEL. FAILURE TO INSTALL IT IN COMPLIANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES AND WITH FRANKLIN ELECTRIC RECOMMENDATIONS MAY RESULT IN ELECTRICAL SHOCK OR FIRE HAZARD, UNSATISFACTORY PERFORMANCE, AND EQUIPMENT FAILURE. FRANKLIN ELECTRIC INSTALLATION INFORMATION IS AVAILABLE FROM PUMP MANUFACTURERS AND DISTRIBUTORS, AND DIRECTLY FROM FRANKLIN ELECTRIC. CALL FRANKLIN ELECTRIC TOLL FREE AT 800-701-7894 FOR INFORMATION. RETAIN THIS INFORMATION SHEET WITH THE EQUIPMENT FOR FUTURE REFERENCE.



SERIOUS OR FATAL ELECTRICAL SHOCK MAY RESULT FROM FAILURE TO CONNECT THE MOTOR, CONTROL ENCLOSURES, METAL PLUMBING, AND ALL OTHER METAL NEAR THE MOTOR OR CABLE TO THE POWER SUPPLY GROUND TERMINAL USING WIRE NO SMALLER THAN MOTOR CABLE WIRES. TO REDUCE RISK OF ELECTRICAL SHOCK, DISCONNECT POWER BEFORE WORKING ON OR AROUND THE WATER SYSTEM. DO NOT USE PUMP IN SWIMMING AREAS.



DO NOT INSTALL PUMP IN ANY LOCATION CLASSIFIED AS HAZARDOUS BY NATIONAL OR LOCAL ELECTRICAL CODES.

**INSTALLATION RECORDS**

It is a good idea to keep an accurate record of your installation. Be sure to record the data below:

<b>Purchased from:</b>			
<b>Date of installation:</b>			
<b>Pump model*:</b>			
<b>Pump date code*:</b>			
<b>Well inside diameter (in/mm):</b>			
<b>Depth of well (ft/m):</b>			
<b>Depth of water (ft/m):</b>			
<b>Pump setting (ft/m):</b>			
<b>Drop pipe size:</b>			
<b>Wire size (pump to control box):</b>			
<b>Wire size (control box to power source):</b>			
<b>Horizontal offset (between well &amp; house):</b>			
<b>Make of motor*</b>			
<b>Amps</b>	<b>HP</b>	<b>Volts</b>	<b>Phase</b>
<b>Make of control box</b>			
<b>HP</b>		<b>Volts</b>	
<b>Power supply</b>			
<b>Volts</b>		<b>HZ</b>	
<b>Pressure switch limits</b>			
<b>Cut-in (PSI)</b>		<b>Cut-out (PSI)</b>	

\*This information is on your pump or motor tag. It will help us identify your pump in case of later inquiries.

## **TEST RUNNING**

If test running pump before installation:

1. Ensure that the power supply corresponds with that shown on the nameplate of the motor.
2. Install pump and components appropriate for the test.
3. Make sure power supply is turned off and circuit breaker or disconnect switch is open. Make electrical connections appropriate to your motor as shown in Figure 2.
4. Run pump and motor unit for a few seconds to ensure that it is in working order.

## **SUITABILITY OF WATER SOURCE**

Water from an undeveloped source often contains an excessive amount of sand, dirt, and abrasives which can damage the pump. Make arrangements to ensure an adequate flow of water over the motor for cooling purposes. Determine the correct pump setting by taking into account the static water level and the drawdown at the proposed pumping rate.

## **DROP PIPE**

Galvanized pipe is recommended for suspending submersible pumps. Plastic pipe may be used only when observing the manufacturer's recommendations of depth and pressure. Consider installing a safety cable to prevent losing the pump if the pipe should break.

Schedule 40 galvanized pipe is a suitable drop pipe.

Take great care to keep pipes clean and free from pebbles, scale, and thread chips. Make sound, air-tight connections at all fittings. Pipe sealant is recommended.

## **CHECK VALVES**

It is recommended that one or more check valves always be used in submersible pump installations. If the pump does not have a built-in check valve, an inline check valve should be installed in the discharge line within 25 feet of the pump and below the draw down level of the water supply. If permitted by local codes it is recommended that an additional check valve be installed in the system plumbing between the wellhead and the system's pressure tank. For pump installations that are more than 200 feet (60m) below the wellhead; additional check valves should be installed in the drop pipe. This should be done at intervals of 200 feet (60m) or at the check valve manufacturer's specified installation interval. More than one check valve is often needed, but more than the recommended number of check valves should not be used.

Swing type check valves are not acceptable and should never be used with submersible motors/pumps. Swing type check valves have a slower reaction time which can cause water hammer (see next page). Internal pump check valves or spring loaded check valves close quickly and help eliminate water hammer.

Check valves are used to hold pressure in the system when the pump stops. They also prevent backspin, water hammer and upthrust. Any of these can lead to early pump or motor failure.

**NOTE:** Only positive sealing check valves should be used in submersible installations. Although drilling the check valve or using drain-back check valves may prevent back spinning, they create upthrust and water hammer problems.

A. Backspin - With no check valve or a failed check valve, the water in the drop pipe and the water in the system can flow down the discharge pipe when the motor stops. This can cause the pump to rotate in a reverse direction. If the motor is started while it is back spinning, an excessive force is placed across the pump-motor assembly that can cause impeller damage, motor or pump shaft breakage, excessive bearing wear, etc.

B. Upthrust - With no check valve, a leaking check valve, or drilled check valve, the unit starts under a zero head condition. This causes an uplifting or upthrust on the impeller-shaft assembly in the pump. This upward movement carries across the pump-motor coupling and creates an upthrust condition in the motor. Repeated upthrust can cause premature failure of both the pump and the motor.

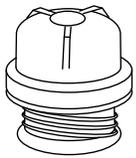
C. Water Hammer - If the lowest check valve is more than 30 feet above the standing (lowest static) water level, or a lower check valve leaks and the check valve above holds, a vacuum is created in the discharge piping. On the next pump start, water moving at very high velocity fills the void and strikes the closed check valve and the stationary water in the pipe above it, causing a hydraulic shock. This shock can split pipes, break joints and damage the pump and/or motor. Water hammer can often be heard or felt. When discovered, the system should be shut down and the pump installer contacted to correct the problem.

## REMOVABLE POPPET CHECK VALVE

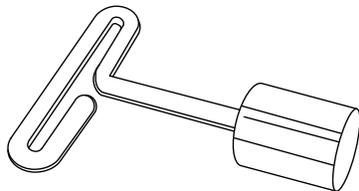
4" submersible pumps with a 1-1/4" discharge are supplied with a spring-loaded, removable poppet check valve assembly (Figure 1). This check valve can be removed from the pump discharge when drain back is desired.

**⚠ WARNING** Fluid draining back through the pump can cause the pump to rotate backwards. If pump/motor starts during this time, damage to the pump can occur.

The check valve can be removed using a T-handle poppet wrench (purchased separately), or with standard needlenosed pliers. The poppet assembly is left-hand threaded and is removed by turning clockwise. When reinstalling a poppet check valve assembly, tighten it to 15 inch-pounds.



Poppet Assembly



T-Handle Poppet Wrench

## ELECTRICAL INFORMATION

1. Employ a licensed electrician to perform the wiring. All wiring must be done in accordance with applicable national and local electrical codes.
2. Check that the power supply corresponds with the electrical rating of the submersible motor and the control box (if required). Make sure that the control box electrical rating matches the motor electrical rating.
3. Every installation requires a fused disconnect switch or circuit breaker.
4. Every installation must be grounded. There must be a reliable ground connection between the pump and the distribution panel. The motor lead incorporates a green grounding conductor.
5. Lightning arrestors are recommended for every installation. All stainless steel, single phase motors through 5HP have built-in lightning arrestors. 3-phase motors require a separate lightning arrestor installed as close to the installation as possible. Install the arrestor in accordance with manufacturer's recommendations. Lightning arrestors provide protection against only induced voltage surges on secondary power lines; they are not effective against direct hits.
6. Mount the control box in an area protected from rain, snow, direct sunlight, or other high temperatures as this may cause tripping of the overload protector. Also protect the control box from extreme cold (below 25oF/-32oC) as this may have adverse effects on the starting capacitor.

7. A two-wire pump does not require a motor control box; all electrical components are built inside the motor. Figure 2 shows a typical wiring diagram for a two-wire installation.
8. Use an ohm meter to make continuity and insulation checks after the installation is completed.
9. Place the additional pump nameplate onto the submersible label and place both onto disconnect switch or circuit breaker box for future reference.

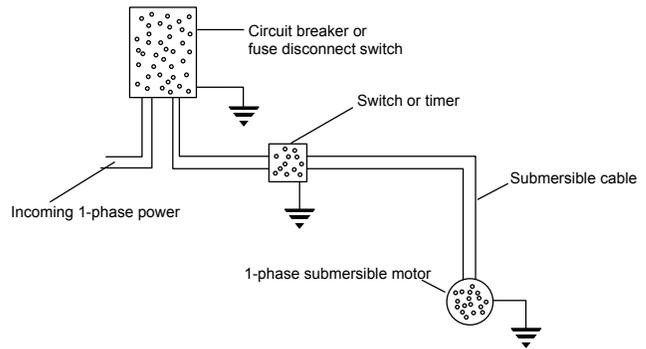


FIGURE 2  
2-wire, 1-phase, 1/2 through 1-1/2 HP  
Pump Wiring Diagram

## INSTALLATION IN LAKE OR STREAM

A submersible pump is usually isolated at the bottom of a well, where electrical leakage from its motor and cable presents no hazard to life. This natural protection is lost when it is installed in a lake, pond, stream, or fountain because there is no way to stop people and animals from entering or touching the surrounding water. It is recommended that such an installation be done by a licensed electrician in conformance with all applicable national and local electrical codes. Grounding as described in this manual is a minimum requirement, and a ground fault circuit interrupter (GFCI) is advisable. But in the absence of explicit national or local regulations, ask the local electric utility for guidance. In any case, support the pump from the shore or bottom at a 15o slant to assure proper motor bearing lubrication. Shield the pump from direct physical contact by people and animals. Protect and screen the pump intake to prevent blockage by leaves and weeds, but remember the need for adequate flow over the motor for cooling purposes.

In addition, protect the entire underwater installation from water currents, ice, boats, anchors, debris, vandalism, and other hazards.

**⚠ CAUTION** Never run the pump unless it is completely submerged in water. If run without water, the pump and motor could be damaged. Note also that air drawn into the pump can cause an airlock under certain conditions.

## TROUBLESHOOTING

1. **PUMP FAILS TO START**
  - a) Electrical trouble - call dealer or electrician
  - b) Drawdown protection device has pump turned off
  - c) Overload tripped
  - d) Reset low pressure cutoff switch (if installed)
2. **PUMP FAILS TO DELIVER WATER**
  - a) Air lock in pump
  - b) Clogged intake screen
  - c) Insufficient application yield
3. **PUMP GIVES REDUCED OUTPUT**
  - a) Insufficient application yield
  - b) Worn pump
  - c) Clogged intake screen
  - d) Low voltage
  - e) Incorrect rotation (3-phase only)
4. **PUMP CYCLES TOO FREQUENTLY (if installed with pressure switch)**
  - a) Excessive pressure drop between pressure switch and pressure tank
  - b) Cut-in pressure at pressure tank too high
  - c) Cut-out pressure at pressure tank too low
  - d) Waterlogged pressure tank
  - e) Start and stop electrodes of floatless liquid level control set too close together
  - f) Tank sized too small to meet system requirements
5. **OVERLOADS TRIP**
  - a) Electrical trouble - call dealer or electrician
6. **PRESSURE SWITCH CYCLES RAPIDLY WHEN PUMP STARTS (if installed with pressure switch)**
  - a) Pressure switch too far from pressure tank
  - b) Improper air charge of tank - adjust to manufacturer's recommendations



# LIMITED WARRANTY

THIS WARRANTY SETS FORTH THE COMPANY'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDY FOR DEFECTIVE PRODUCT.

Franklin Electric Company, Inc. and its subsidiaries (hereafter "the Company") warrants that the products accompanied by this warranty are free from defects in materials or workmanship of the Company that exist at the time of sale by the Company and which occur or exist within the applicable warranty period. Any distributor, sub-distributor, recipient, end-user and/or consumer agrees that by accepting the receipt of the products, the distributor, sub-distributor, recipient, end user and/or consumer expressly agrees to be bound by the terms of the warranty set forth herein.

## I. Applicable Warranty Period

The products accompanied by this warranty shall be covered by this Limited Warranty for a period of 12 months from the date of original purchase by the consumer. In the absence of suitable proof of purchase date, the warranty period of this product will begin to run on the product's date of manufacture.

## II. Instructions Applicable to this Limited Warranty

1. Consumers wishing to submit a warranty claim must return the products accompanied by this warranty to the point of purchase for warranty consideration.
2. Upon discovery of a defect, any personal injury, property damage or any other type of resulting damage, if applicable, shall be reasonably mitigated to the extent possible.
3. At its discretion, the Company may inspect products either at its facilities, or in the field, and after determination of a warranty claim, will, at its option, repair or replace defective parts. Repaired or replaced parts will be returned freight prepaid by the Company.
4. This warranty policy does not cover any labor or shipping charges. The Company shall not be liable for any costs or charges attributable to any product testing, maintenance, installation, repair or removal, or for any tools, supplies, or equipment needed to install, repair, or remove any product.

## III. Limitations Applicable to this Limited Warranty

**THIS WARRANTY DOES NOT APPLY TO ANY OF THE FOLLOWING:**

1. Brushes, impeller or cam on models with brush-type motors and/or flex-vane impellers.
2. Any product that is not installed, applied, maintained and used in accordance with the Company's published instructions, applicable codes, applicable ordinances and/or with generally accepted industry standards.
3. Any product that has been subject to misuse, misapplication, neglect, alteration, accident, abuse, tampering, acts of God (including lightning), acts of terrorism, acts of war, fire, improper storage or installation, improper use, improper maintenance or repair, damage or casualty, or to an excess of the recommended maximums as set forth in the product instructions.
4. Any product that is operated with any accessory, equipment, component, or part not specifically approved by the Company.
5. Use of replacement parts not sold by the Company, the unauthorized addition of non-Company products to other Company products, and the unauthorized alteration of Company products.
6. Products damaged by normal wear and tear, normal maintenance services and the parts used in connection with such service, or any other conditions beyond the control of the Company.
7. Any product that has been used for purposes other than those for which it was designed and manufactured.
8. Any use of the product where installation instructions and/or instructions for use were not followed.
9. Products connected to voltage other than indicated on nameplate.
10. Products where the pump was exposed to any of the following: sand, gravel, cement, grease, plaster, mud, tar, hydrocarbons, hydrocarbon derivatives (oil, gasoline, solvents, etc.) or other abrasive or corrosive substances.
11. Products in which the pump has been used to pump or circulate anything other than fresh water at room temperature.
12. Products in which the pump was allowed to operate dry (fluid supply cut off).
13. Products in which the sealed motor housing has been opened or the product has been otherwise dismantled by customer.
14. Products in which the cord has been cut to a length of less than three feet.

The Company reserves the right at any time, and from time to time, to make changes in the design and/or improvements upon its product without thereby imposing any obligation upon itself to make corresponding changes or improvements in or upon its products already manufactured and/or previously sold. The Company further reserves the right to substitute parts or components of substantially equal quality in any warranty service required by operation of this Limited Warranty.

This written Limited Warranty is the entire warranty authorized and offered by the Company. There are no warranties or representations beyond those expressed in this document.

THIS WARRANTY AND REMEDY IS IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY SPECIFICALLY DISCLAIMED AND EXPRESSLY EXCLUDED. CORRECTION OF NON-CONFORMITIES, IN THE MANNER AND FOR THE PERIOD OF TIME AS SET FORTH ABOVE, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITY OF THE COMPANY TO THE PURCHASER WHETHER BASED ON CONTRACT, NEGLIGENCE, OR OTHERWISE.

**THE COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES SUCH AS, BUT NOT LIMITED TO:**

**DAMAGE TO OR LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF USE OF EQUIPMENT, FACILITIES OR SERVICE, LOSS OF PROFIT OR SALES, COST OF PURCHASES OR REPLACEMENT GOODS, CLAIMS OF CUSTOMERS OF THE PURCHASER, FAILURE TO WARN AND/OR INSTRUCT, LOSS OF OTHER PRODUCTS, OR COSTS OF ENVIRONMENTAL REMEDIATION, OR DIMINUTION IN PROPERTY VALUE. THE REMEDIES OF THE PURCHASER SET FORTH HEREIN ARE EXCLUSIVE, AND THE LIABILITY OF THE COMPANY SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE PRODUCTS UPON WHICH SUCH LIABILITY IS BASED. DAMAGES AS SET FORTH IN THIS PARAGRAPH SHALL BE REASONABLY MITIGATED TO THE EXTENT POSSIBLE. THIS PARAGRAPH SHALL ALSO APPLY TO ALL DAMAGES RESULTING FROM CONDITIONS SET FORTH IN SECTION III ABOVE AND (1) DEFECTS IN PRODUCT PROTOTYPES OR REPLACEMENT PART PROTOTYPES THAT HAVE NOT BEEN PUT INTO PRODUCTION, CIRCULATED AND SOLD BY THE COMPANY, AND/OR (2) DEFECTS THAT WERE NOT FOUND AT THE TIME OF SALE DUE TO SCIENTIFIC AND TECHNOLOGICAL REASONS.**

This Limited Warranty gives you specific legal rights. You may have other rights, which vary according to the applicable laws and regulations. Where any term of this warranty is prohibited by such laws, it shall be null and void, but the remainder of this warranty shall remain in full force and effect.

DISCLAIMER: Any oral statements about the product made by the seller, the Company, the representatives or any other parties, do not constitute warranties, shall not be relied upon by the user, and are not part of the contract for sale. Seller's and the Company's only obligation, and buyer's only remedy, shall be the replacement and/or repair by the Company of the product as described above. Before using, the user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith.

---

**For technical assistance, please contact. . . . .800.701.7894**

**[www.franklinwater.com](http://www.franklinwater.com)  
[CustomerService@lgpc.com](mailto:CustomerService@lgpc.com)**

---