



**Franklin Electric**

# SUBMERSIBLE EFFLUENT & SEWAGE PUMPS RL SERIES

## **SAFETY WARNINGS**



**BEFORE OPERATING OR INSTALLING THIS PUMP, READ THIS MANUAL AND FOLLOW ALL SAFETY RULES AND OPERATING INSTRUCTIONS.**

**SAFETY** CAREFULLY READ THESE SAFETY MESSAGES IN THIS MANUAL AND ON PUMP.

### **CAUTION**

- Review instructions before operating.

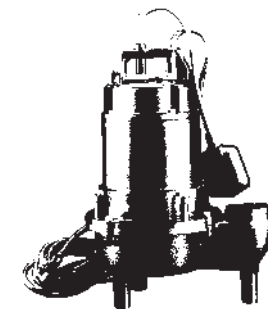
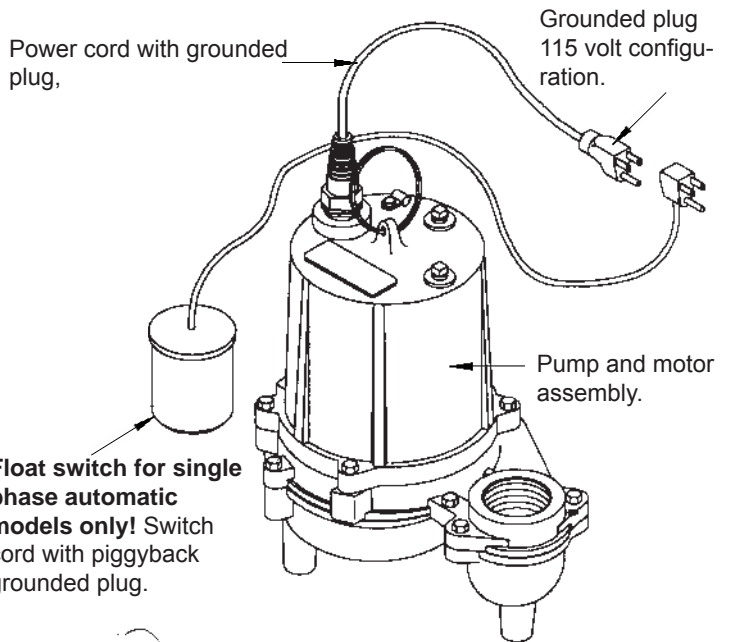
### **WARNING - ELECTRICAL PRECAUTIONS**

All wiring, electrical connections, and system grounding must comply with the National Electrical Code (NEC) and with any local codes and ordinances. Employ a licensed electrician.

### **WARNING - RISK OF ELECTRICAL SHOCK**

- Have an electrician provide electrical power to motor.
- A ground fault interrupter (GFI) protected circuit is recommended for use with any electrical device operating near water.

- A ground fault interrupter (GFI) protected circuit is recommended for use with any electrical device operating in or near water.
- Have a licensed and qualified electrician provide electrical power to the pump.
- Make sure the line voltage and frequency of the electrical current supply matches the specifications printed on the pump nameplate.
- Ensure the pump and electrical supply system are properly grounded. Never install or test a pump without proper electrical grounding of the system.



#### **NOTE:**

For automatic built-in float switch models, both the power and switch cords use the same grounded plug.

- Always disconnect pump from power source before handling or servicing.
- This product is furnished with a 3-prong plug for grounding; connect only to properly grounded receptacle.  
**NEVER UNDER ANY CIRCUMSTANCES REMOVE OR DISABLE THE GROUND PLUG.**
- Keep electrical plug dry - do not lift pump using cord.
- Not investigated for use in swimming pools.

## EFFLUENT & SEWAGE APPLICATIONS - UP TO 3/4" & 2" SOLIDS HANDLING CAPABILITY

- These pumps are for use in effluent or raw sewage applications where the total head required (including pipe friction losses) does not exceed the pump's maximum capability. Sewage type pumps can be used in raw sewage or effluent applications.
- Additionally, the maximum solids size, as shown in Fig.1, must not be exceeded.

### INSTALLATION RECORD

For future reference, keep an accurate record of your installation. Be sure to record the installation data in the area provided below.

Purchased from: _____	Installation by: _____
Phone No. (____) _____	Phone No. (____) _____
Pump Model No. _____	Pump Tank or Basin Size: _____ Capacity _____
Pump Serial No. _____	Discharge Pipe size: _____ Inches _____
Date of Installation: _____	Discharge Elevation: _____ Feet _____

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### PERFORMANCE

Pump Type	Pump Model	Solids Handling (inches)	H.P.	RPM	Total Head in Feet					Shut-Off Head (ft).
					5	10	15	20	25	
					Capacities in U.S. GPM					
Effluent	RL31ESA	11/16"	1/3	1750	105	90	70	45	15	28
Sewage	RL52SA	2"	1/2	1750	135	90	47	14		23
	RL52SVX	2"	1/2	1750	112	80	40			18

## INSTALLATION

### 1. WARNING - ELECTRICAL PRECAUTIONS

Before installation, check the national and local electrical and plumbing codes/ordinances.... A pump intended for use in a septic tank/sump or sewage installation requires that the tank/sump **MUST BE VENTED IN ACCORDANCE WITH LOCAL PLUMBING CODES**, and is **NOT TO BE INSTALLED IN LOCATIONS CLASSIFIED AS HAZARDOUS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ANSI / NFPA 70-1990**.

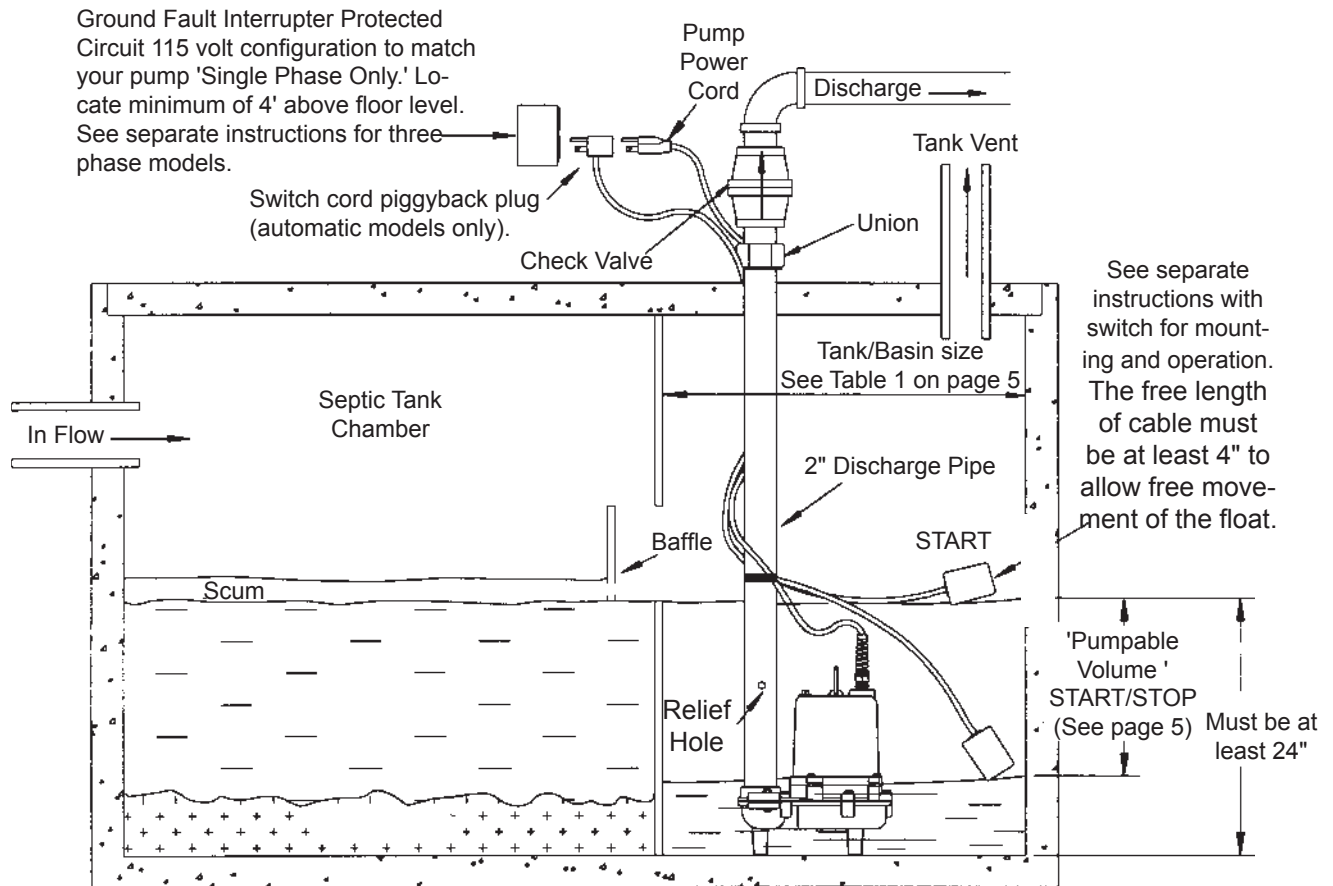
These regulations are for your safety and protection.

### 2. LOCATION:

Installation of the pump must be made in a location that:

- Has adequate room for servicing and is of adequate size (see page 5).
- Location is protected from freezing.
- Will require minimum lengths of piping to keep friction losses as low as possible.
- Refer to Fig. 2 below for typical effluent/sewage installation with automatic operation.

**Fig. 2**  
**TYPICAL EFFLUENT/SEWAGE SUMP INSTALLATION**  
**Automatic single phase 115 volt units illustrated**



## INSTALLATION

### 3. SEPTIC TANK/SUMP PREPARATION AND REQUIREMENTS:

#### **⚠ WARNING - ELECTRICAL PRECAUTIONS**

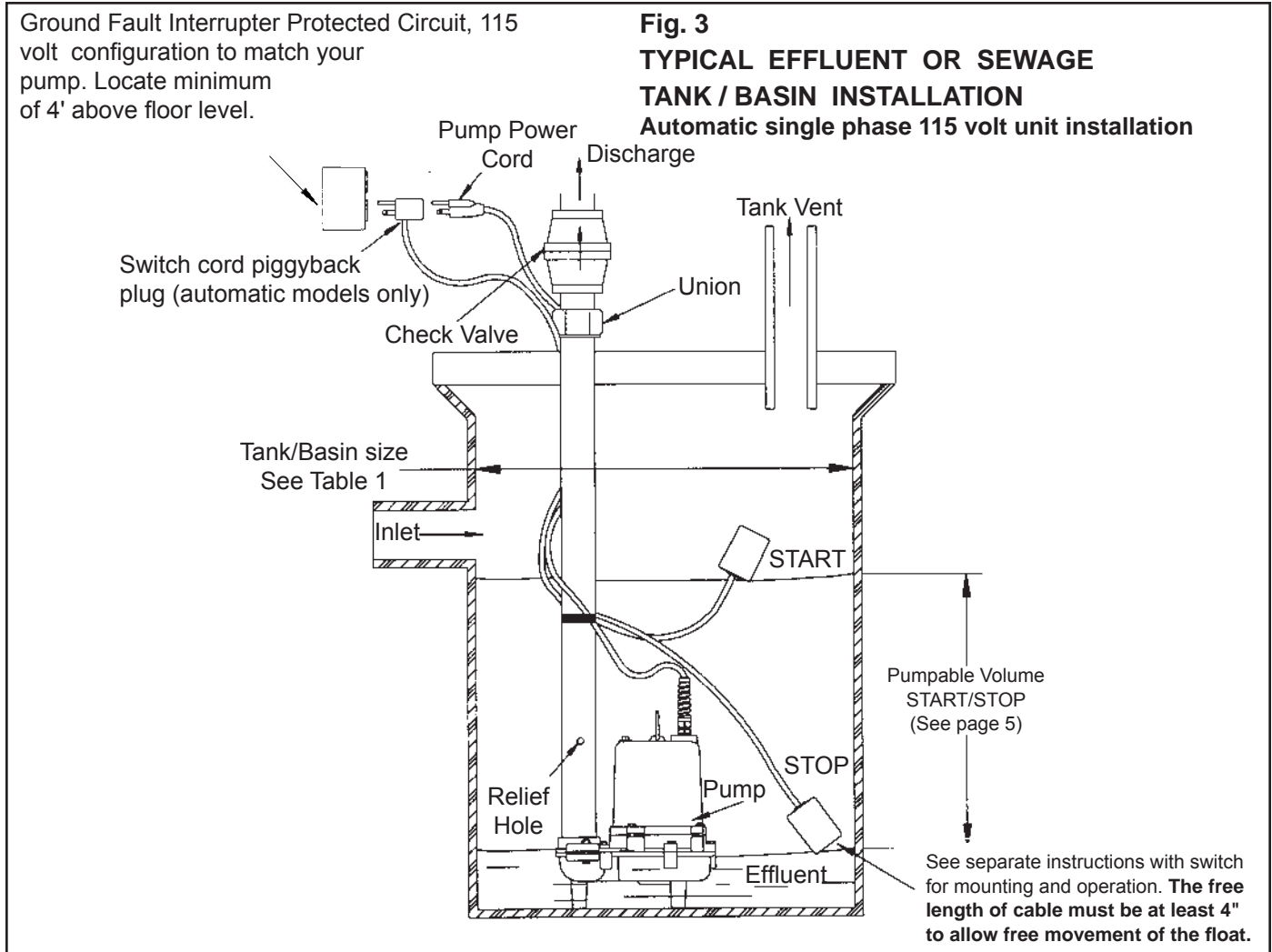
A SEPTIC SUMP CONDITION MAY EXIST. IF ENTRY INTO SUMP IS NECESSARY, then first provide proper safety precautions per OSHA requirements and secondly, DO NOT ENTER SUMP UNTIL THESE PRECAUTIONS ARE STRICTLY ADHERED TO.

- ❑ Do not smoke or use sparkable electrical devices or flame in a septic (gaseous) or possible septic sump.
- ❑ Do not install pump in location classified as hazardous per National Electrical Code ANSI/NFPA 70 - 1990. **See Warning notes on page 3 of this manual.**

- a) Gas tight and properly vented with national & local electrical and plumbing codes.
- b) Level bottom of sump. DO NOT SET PUMP DIRECTLY ON BOTTOM OF SUMP IF IT IS NOT SOLID. Raise the pump by using brick or concrete blocks beneath it.
- c) Make sure sump is clean and free of nails, gravel, string, cloth, debris, etc. before installing pump.

Refer to Fig. 3 and associated Table to select a basin size or diameter and float switch tether length that will allow a sufficient pumpable volume to prevent short cycling.

Ensure basin DEPTH is sufficient to allow for the ON/OFF range of the switch.



**TABLE 1**

Approximate 'pumpable volume' (gallons) for various combinations of basin diameters and float switch tether lengths.....

Tank Basin Dia. (inches)	Tether Length Of Float Switch (inches)					
	6	8	10	12	14	16
	Approx. Float Switch Range (inches)					
	10	12	16	18	22	25
Pumped Volume (U.S. Gallons)						
18	11	13	17	20	-	-
24	20	23	31	35	43	49
30	31	37	49	55	67	76
36	44	53	70	79	97	110
48	78	94	125	141	172	195
60	122	147	196	220	269	305
72	176	211	282	317	387	440

**4. PLUMBING: PUMP AND DISCHARGE PIPING**

- a) Use steel or plastic pipe for all connecting lines between pump and sewer outlet. Keep pipe length to a minimum to reduce friction losses. Pump is equipped with a 2" NPT female outlet - DO NOT REDUCE TO A SMALLER SIZE.

**NOTE:** Fluid flow velocity in the pump's discharge line must be at least two feet per second to carry the effluent without clogging. This is ensured if pump flow is at least:

- 21 GPM through a 2" pipe
- 30 GPM through a 2-1/2" pipe
- 46 GPM through a 3" pipe

**⚠ WARNING:** Some city regulations DO NOT allow the installation of a pump with plastic pipe. Check local regulations.

- b) A union or quick disconnect connection should be installed to facilitate pump removal if necessary. A FULL FLOW CHECK VALVE IS RECOMMENDED AFTER THE UNION TO PREVENT BACKFLOW AFTER EACH PUMPING CYCLE.

**NOTE:** When a check valve is used, drill a 1/8" or 3/16" air relief hole in the discharge pipe. This hole should be located below the floor line within the sealed pump unit and between the pump and check valve (see Fig. 2 & 3). Without this relief hole, the pump can air lock and will not pump even though it will run.

**5. MOUNTING THE FLOAT SWITCH: AUTOMATIC OPERATION MODELS ONLY**

- a) **All automatic models;** Single Phase 115 volt models come supplied with a float switch for mounting to the pump's discharge pipe and requires final adjustment to suit your systems needs.
- b) The float switch is equipped with a cord and 115 volt grounded piggyback plug configuration (depending on the voltage rating of the model you have). The switch provides automatic operation of the pump in water, effluent and sewage applications.

**⚠ WARNING - RISK OF ELECTRICAL SHOCK**

- c) The float switch is packaged separately within the pump carton and includes the switch manufacturer's assembly, adjustment, operation, safety and cautionary instructions. **Follow the manufacturer's instructions explicitly for proper installation and operation. The free length of cable must be at least 4" to allow free movement of the float.**

**6. MANUAL MODELS: SINGLE PHASE 115 VAC MODELS**

- a) Single Phase 115 volt manual models DO NOT INCLUDE A FLOAT SWITCH.
- b) The pump comes equipped with a power cord and 115 volt grounded plug configuration (depending on the voltage rating of the model you have).
- c) Plug in or unplug pump power cord as needed into ground fault interrupter (GFI) protected circuit or use with an approved motor control that matches the pump/motor input rated amperes. The motor control must be properly sized for the pump, installed and wired in compliance with the National Electrical Code (NEC) and any local codes and ordinances.

## START UP AND OPERATIONAL CHECK

### 7. AUTOMATIC MODELS (WITH FLOAT SWITCH) SINGLE PHASE 115 VAC MODELS:

- a) Connect the 3-prong grounded piggyback plug on the float switch cord into a 115 vac (depending on your model) ground fault interrupter (GFI) receptacle.  
DO NOT REMOVE GROUND PRONG FROM PLUG. DO NOT USE AN EXTENSION CORD.
- b) Connect the 3-prong grounded plug from the pump power cord into the piggy back receptacle on the back of switch plug. DO NOT REMOVE GROUND PRONG FROM PLUG. DO NOT USE AN EXTENSION CORD.
- c) Manually fill the tank/basin with water to check the switch operation. DO NOT RUN DRY.
- d) Ensure that the float switch hangs free and the START /STOP levels are satisfactory. The float switch MUST NOT COME IN CONTACT WITH SIDES OR BOTTOM OF TANK / BASIN.
- e) Cycle your system a few times to ensure that its operation is satisfactory. Replace tank/basin cover and double check to ensure that all system components/requirements are in place.

### 8. MANUAL MODELS: SINGLE PHASE 115 VAC MODELS

- a) Manually fill the tank/basin with water to check the pump's operation. DO NOT RUN DRY.
- b) Connect the 3-prong grounded plug on the pump power cord into 115 VAC (depending on your model) ground fault interrupter (GFI) receptacle or approved motor control. DO NOT REMOVE GROUND PRONG FROM PLUG. DONOT USE AN EXTENSION CORD.
- c) Cycle your system a few times to ensure that its operation is satisfactory. Replace tank/basin cover and double check to ensure that all system components/requirements are in place.

## SAFETY TIPS AND MAINTENANCE

### 9. SAFETY TIPS WARNING: RISK OF ELECTRICAL SHOCK - BODILY INJURY

- a) Always wear rubber boots when you must unplug the pump from the power supply.
- b) Never make adjustments or do maintenance checks with power connected. Always disconnect your pump from the electrical power supply before beginning ANY service.
- c) DO NOT SMOKE OR USE SPARKABLE ELECTRICAL DEVICES OR FLAME IN A SEPTIC (GASEOUS) SUMP.
- d) A SEPTIC SUMP CONDITION MAY EXIST. If entry into sump is necessary, first provide proper safety precautions per OSHA requirements and secondly, DO NOT ENTER SUMP UNTIL THESE PRECAUTIONS ARE STRICTLY ADHERED TO.
- e) NEVER REMOVE GROUND PRONG FROM ANY POWER OR SWITCH PLUG. This is the ground and is there for your safety.

### 10. MAINTENANCE: YOUR PUMP IS CONSTRUCTED SO THAT NO REGULAR MAINTENANCE IS REQUIRED SINCE THE PUMP IS COMPLETELY SELF LUBRICATING. THE FOLLOWING ROUTINE CHECKING PROCEDURE IS RECOMMENDED TO BE CONDUCTED EACH YEAR - AND ESPECIALLY IMPORTANT FOR OCCASIONAL USE APPLICATIONS.

- a) Check power cords, switch cords and electrical service outlets for damage and corrosion.
- b) Ensure there is no build up of sludge, sediment or blockage in the tank/basin to clog the pump.
- c) Manually raise and lower the float switch to ensure correct pump operation (important for occasional use applications).
- d) Manually fill the tank/basin to check for correct switch adjustment and system operation.

**11. TROUBLESHOOTING:** FOLLOW ALL SAFETY TIPS, PROCEDURES AND WARNINGS PREVIOUSLY IDENTIFIED IN THIS MANUAL BEFORE TROUBLESHOOTING THE SYSTEM.

TROUBLESHOOTING		
TROUBLE	PROBABLE CAUSE	CORRECTIVE ACTION
<b>Motor does not run</b>	Blown fuse	Replace
	Tripped circuit	Reset
	Disconnected plug	Reinstall
	Corroded plug	Clean prongs
	Tripped overload	Allow pump to cool, investigate cause (jammed impeller)
	Defective switch	Replace switch
	Defective motor	Repair pump or replace if necessary
	Float-improper position	Check for freedom of movement and operating levels
<b>Motor runs but flow reduced or none at all</b>	Impeller jammed	Disassemble pump and clean
	Plugged check valve	Remove valve and clean
	Partially blocked inlet	Clean inlet
	Line leak	Repair
	Worn impeller	Repair pump or replace if necessary
	Defective motor	Repair pump or replace if necessary
<b>Runs continuously</b>	Plugged pump inlet	Clean
	Defective switch	Replace switch
	Float obstruction	Adjust position of pump or float
	Plugged check valve	Remove valve, clean or replace

**NOTE:** A plugged pump inlet can be mistaken for a faulty switch. If pump runs continuously or for extended periods between turn offs, check first for a partially plugged pump inlet.

## SERVICE

**12. SERVICE:**

- a) If your pump requires service it must be repaired by an authorized Red Lion service center or warranty will be void. If a service center is not available, return your pump to the place of purchase.
- b) YOUR WARRANTY IS VOID IF...
  - Power cord has been cut.
  - Pump has been used to pump mud, cement, tar, abrasives or chemicals.
  - Pump has been used to pump hot water (above 140°F).
  - Pump has been dismantled by someone other than an authorized service center.

## LIMITED WARRANTY

For warranty consideration, Franklin Electric Company, Inc. and its subsidiaries (hereafter "the Company") warrants that the products specified in this warranty are free from defects in material or workmanship of the Company. During the time periods and subject to the terms and conditions hereinafter set forth, the Company will repair or replace to the original user or consumer any portion of this product which proves defective due to materials or workmanship of the Company. At all times the Company shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts, or components. The Company has the option to inspect any product returned under warranty to confirm that the warranty applies before repair or replacement under warranty is approved. This warranty sets forth the Company's sole obligation and purchaser's exclusive remedy for defective product. Return defective product to the place of purchase for warranty consideration.

**WARRANTY PERIOD - PRODUCTS:** 12 months from date of purchase by the user (No warranty on brushes, impeller or cam on models with brush-type motors and/or flex-vane impellers). In the absence of suitable proof of the purchase date, the effective period of this warranty will begin on the product's date of manufacture.

**LABOR, ETC. COSTS:** The Company shall IN NO EVENT be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or affixing any product, part or component thereof.

**PRODUCT IMPROVEMENTS:** The Company reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such change or improvement.

**GENERAL TERMS AND CONDITIONS:** This warranty shall not apply to damage due to acts of God, normal wear and tear, normal maintenance services and the parts used in connection with such service, lightning or conditions beyond the control of the Company, nor shall it apply to products which, in the sole judgment of the Company, have been subject to negligence, abuse, accident, misapplication, tampering, alteration; nor due to improper installation, operation, maintenance or storage; nor to excess of recommended maximums as set forth in the instructions.

Warranty will be VOID if any of the following conditions are found:

1. Product is used for purposes other than those for which it was designed and manufactured
2. Product not installed in accordance with applicable codes, ordinances, and good trade practices
3. Product connected to voltage other than indicated on nameplate
4. Pump exposed to but not limited to the following: sand, gravel, cement, grease, plaster, mud, tar, hydrocarbons, or hydrocarbon derivatives (oil, gasoline, solvents, etc.) or other abrasive or corrosive substances
5. Pump has been used for pumping of liquids above 140°F
6. Pump allowed to operate dry (fluid supply cut off)
7. Sealed motor housing opened or product dismantled by customer
8. Cord cut off to a length less than three feet

**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. NEITHER SELLER NOR THE COMPANY SHALL BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE, DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS), ARISING OUT OF THE USE OR THE INABILITY TO USE THE PRODUCT, AND THE USER AGREES THAT NO OTHER REMEDY SHALL BE AVAILABLE TO IT. 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. THE WARRANTY AND REMEDY DESCRIBED IN THIS LIMITED WARRANTY IS AN EXCLUSIVE WARRANTY AND REMEDY AND IS IN LIEU OF ANY OTHER WARRANTY OR REMEDY, EXPRESSED OR IMPLIED, WHICH OTHER WARRANTIES AND REMEDIES ARE HEREBY EXPRESSLY EXCLUDED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT EITHER APPLIES TO A PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIODS OF THE EXPRESSED WARRANTIES GIVEN ABOVE. Some states and countries do not allow the exclusion or limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.

**Toll Free Help Hotline:  
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