



Condensate Removal Pump For Plenum Applications

Owner's Manual



## **Before Getting Started**

Read and follow safety instructions. Refer to product data plate(s) for additional operating instructions and specifications.

This is the safety alert symbol. When you see this **a** 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 or property damage if ignored:

▲ 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.

**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.





▲ DANGER Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in explosive atmospheres or hazardous locations as classified by the NEC, ANSI/NFPA70. Failure to follow this warning can result in property damage, personal injury, or death. Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface, or in water. Failure to follow this warning can result in fatal electrical shock. Pump should only be used with liquids compatible with pump component materials.

WARNING RISK OF ELECTRIC SHOCK This pump is supplied with lead wires and intended to be hardwired using a junction box or other approved enclosure. The pump includes a grounding conductor. To reduce the risk of electric shock, ensure that it is properly connected to ground. The pump also includes a conduit connector for using ½" flexible metal conduit. The conductors must be enclosed in conduit in accordance with local and national electrical codes. Disconnect power before working on or around the pump.

WARNING This equipment should be installed by technically qualified personnel. Comply with national and local electrical and plumbing codes as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA) when installing this unit. Failure to install it in compliance with national and local electrical and plumbing codes and within Franklin Electric recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure. Installation information is available through pump manufacturers and distributors, or directly from Franklin Electric at our toll free number 1-800-701-7894.

**WARNING** To reduce risk of electric shock which can result in personal injury, death or major property damage if ignored, be certain that this pump is connected to a circuit equipped with a ground fault circuit interrupter (GFCI) device. Comply with all national and local electrical and plumbing codes when installing this unit. Do not use extension cord.

**WARNING** Make certain that the unit is disconnected from the power source before attempting to service or remove any component. If the power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.

▲ NOTICE: 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 equipment or in the immediate vicinity.

**NOTICE:** In any installations where property damage and/or personal injury might result from an inoperative or leaking pump due to power outages, discharge line blockage, or any other reason, a backup system(s) (e.g. auxiliary switch) and/or alarm should be used.

**NOTICE:** Periodically inspect pump and system components. Regularly check hoses for weakness or wear, making certain that all connections are secure. Schedule and perform routine maintenance as required and in accordance with the System Maintenance section.

#### **▲** CAUTION

- Keep work area clean, well-lit, and uncluttered.
- Keep safety labels clean and in good condition.
- · Wear safety glasses while installing or performing maintenance on pump.
- Make sure all ELECTRICAL POWER IS OFF before connecting any electrical wires. Wire pump system for correct voltages. Follow all pump
  wiring instructions provided in the "Wiring Diagram" and "Electrical Connections" sections of this manual.



## **Getting Started**

This instruction sheet provides you with the information required to safely own and operate your Little Giant pump. Retain these instructions for future reference. The Little Giant pump you have purchased is of the highest quality workmanship and material and has been engineered to give you long and reliable service. Little Giant pumps are carefully tested, inspected, and packaged to ensure safe delivery and operation. Please examine your 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.

▲ WARNING READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE, OR SERVICE YOUR LITTLE GIANT PRODUCT. KNOW THE PRODUCT'S APPLICATION, LIMITATIONS, AND POTENTIAL HAZARDS. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE!

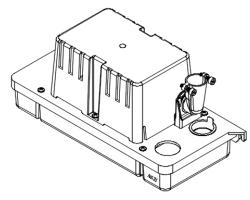
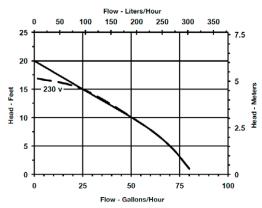


Figure 1



**Pump Performance Curves** 

#### Description

This Little Giant condensate pump automatically removes condensate water that drips from an air conditioner evaporator coil, refrigeration equipment coil, condensing furnace or condensing boiler. The pump is controlled by a float/switch mechanism, which turns on the pump when approximately 1" of water collects in its tank, and turns off the pump when the water in the tank drains to approximately 1/2".

This pump includes a float-operated auxiliary high level switch. This switch is to be connected to a Low Voltage Class II circuit (e.g. thermostat, alarm or relay). This switch is delivered from the factory configured to open a thermostat circuit in the event of high water level in the pump reservoir. Opening the thermostat circuit would interrupt the operation of the heating/cooling system thereby stopping production of condensate. Alternatively, this switch can be reconfigured by the installer to close a circuit in the event of high water level which operates an external component (alarm or relay, purchased separately). Refer to ELECTRICAL CONNECTIONS section for details.

The VCC-20-P can be used in many applications where automatic condensate removal is needed, but is also designed to be used in Plenum applications.

Condensate pumps with non-metallic construction and exposed within a Plenum should be labeled for such use and have met the requirements of standard UL2043, "Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-handling Spaces". The VCC-20-P pump has been evaluated in accordance with UL2043 standard and it was found compliant with the standard's requirements.

The VCC-20-P pump has individual power conductors for making a hardwire connection to the power supply. It does not have a power cord or electrical plug. The pump also includes a conduit connector for using ½" flexible metal conduit. Local and national codes require individual electrical conductors to be placed inside approved electrical conduit material such as FMC (flexible metal conduit). Check with local and national electric codes for proper selection and use of electrical conduit.

This pump is also suitable for gas furnace condensate applications. Caution must be taken to ensure acidity of condensate does not fall below the average pH of 3.4 (to prevent localized pocket of acid that acts like a battery causing pitting) by routinely cleaning or flushing tank with fresh water. Refer to System Maintenance section for details.

# **Specifications**

Item Number	Model Number	Volts	Hz	Horsepower (HP)	Amps	Watts	Cord (ft)	Weight (lb)	Shutoff Ft	Shutoff PSI
554220101	VCC-20-P	115 VAC	60	1/30	1.5	93	6	5.4	20	8.6
554220102	VCC-20-P	230VAC	50/60	1/30	0.6	75	6	5.4	17	7.4



## Installation



WARNING This equipment should be installed by technically qualified personnel. Comply with national and local electrical and plumbing codes as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA) when installing this unit. Failure to install it in compliance with national and local electrical and plumbing codes and within Franklin Electric recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure. Installation information is available through pump manufacturers and distributors, or directly from Franklin Electric at our toll free number 1-800-701-7894.

▲ DANGER Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in explosive atmospheres or hazardous locations as classified by the NEC, ANSI/NFPA70. Failure to follow this warning can result in property damage, personal injury, or death. Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface, or in water. Failure to follow this warning can result in fatal electrical shock. Pump should only be used with liquids compatible with pump component materials.

**WARNING** Make certain that the unit is disconnected from the power source before attempting to service or remove any component. If the power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.

**CAUTION** Before installing pump, allow air conditioner to cycle several times, collecting condensate in a separate container to help flush any residual oils that may remain in the system. Failure to flush the system can result in damage to the pump and drain line plumbing components.

#### Step 1 Carefully unpack the pump.

a. A NOTICE: There is a plastic plug inserted in the inlet opening beneath the conduit connector. Do not remove this plug and do not use this inlet opening.

#### Step 2 Placement of the pump.

- a. NOTICE: Support pump and piping when assembling and when installed. Failure to do so may cause piping to break, pump to fail, motor bearing failures, etc.
- b. The pump must be installed on a flat surface.
  - i. Make sure the structure will support the combined weight of the pump and water filled tank. The surface must provide a level and stable location for the lifetime of the pump. The pump inlet must be below the drain outlet of the condensate producing equipment so that condensate drains freely into the pump by gravity.
  - ii. The air vent openings (located around the motor housing) must not be blocked or obstructed to allow the free flow of air through the air vent openings.
- c. The pump should not be installed in a manner that will subject it to splashing or spraying.
- d. Inlet and Discharge connections: Refer to Piping Connections section for details.

**Step 3** Proceed to Electrical Connections section.



### **Electrical Connections**



WARNING This equipment should be installed by technically qualified personnel. Comply with national and local electrical and plumbing codes as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA) when installing this unit. Failure to install it in compliance with national and local electrical and plumbing codes and within Franklin Electric recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure. Installation information is available through pump manufacturers and distributors, or directly from Franklin Electric at our toll free number 1-800-701-7894.

**NOTICE:** Installation of the electrical supply circuit to the pump is to be done by a certified licensed electrician in accordance with national and local codes.

**WARNING** Shut off electrical power at fuse box before making any connections. If the electrical power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.

**WARNING** To reduce risk of electric shock which can result in personal injury, death or major property damage if ignored, be certain that this pump is connected to a circuit equipped with a ground fault circuit interrupter (GFCI) device. Comply with all national and local electrical and plumbing codes when installing this unit. Do not use extension cord.

#### Step 1 Pump Wiring

WARNING RISK OF ELECTRIC SHOCK - This pump is supplied with lead wires and intended to be hardwired using a junction box or other approved enclosure. The pump includes a grounding conductor. To reduce the risk of electric shock, ensure that it is properly connected to ground. The pump also includes a conduit connector for using ½" flexible metal conduit. The conductors must be enclosed in conduit in accordance with local and national electrical codes. Disconnect power before working on or around the pump.

- a. The pump's power conductors are color coded as follows:
  - Green with yellow stripe ground
  - Brown line
  - Blue neutral
- b. Line voltage: Connect the pump's power conductors to line voltage specified on pump nameplate.
  - Power conductors must be connected to a constant source of power (not a fan or other device that runs intermittently).
  - i. The power conductors provided must be enclosed in conduit and hardwired inside a junction box or other approved enclosure.

▲ CAUTION To prevent abrasion of lead wires, all cut ends of conduit shall be reamed or otherwise finished to remove rough edges.

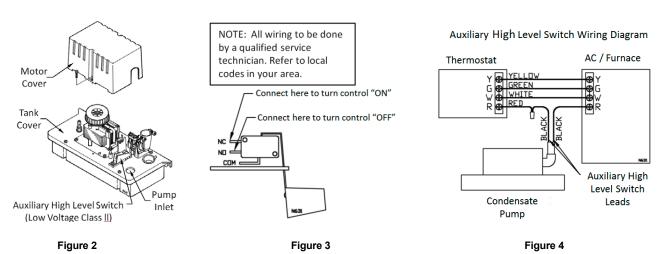


#### Step 2 Auxiliary High Level Switch Wiring

**NOTICE:** In any installations where property damage and/or personal injury might result from an inoperative or leaking pump due to power outages, discharge line blockage, or any other reason, a backup system(s) (e.g. auxiliary switch) and/or alarm should be used and monitored.

- a. The auxiliary high level switch (Figures 2 and 3) should be connected to a Class II Low Voltage circuit. The two auxiliary high level switch wires are Black. Do not confuse these wires with the line voltage power conductors (see Line Voltage above).
- b. **NOTICE:** The auxiliary high level switch is placed in an orientation that reverses the normal function of NO and NC terminals. Pay close attention to the instructions below.
- c. There are two options for connecting the auxiliary high level switch, with switch terminals marked NO and NC (Figure 3).
  - i. The auxiliary high level switch is factory wired to the "NO" terminal. This configuration will open (break) an electrical circuit when switch is activated by high water level.
    - a. Refer to the thermostat and air conditioning or refrigeration unit's Operating Manual during installation of the Auxiliary high level switch.
    - b. **WARNING:** Disconnect power to the air conditioning or refrigeration unit, both main power and the low voltage thermostat circuit.
    - c. Connect the auxiliary high level switch leads in series with the low voltage thermostat circuit as specified in the heating/cooling unit's Operating Manual (Figure 4).
  - ii. Alternatively, this switch can be reconfigured to the "NC" terminal by the installer to close a circuit in the event of high water level which operates an external component (alarm or relay, purchased separately).
    - a. If "NC" configuration is required, remove the pump's motor cover from the tank cover (Figure 2).
    - b. Support the switch and carefully change the upper lead wire from terminal marked "NO" to terminal marked "NC" (Figure 3).
    - c. Carefully, reinstall the pump's motor cover onto the tank cover.
    - d. Connect the auxiliary high level switch leads in series with the low voltage external component circuit (alarm or relay) as specified in the external component's Operating Manual.
- d. Place the "ATTENTION SERVICE TECHNICIAN" label included with the VCC-20-P pump on the outside of the access panel in a visible location.

#### Step 3 Proceed to Piping Connections section.





## **Piping Connections**



**AWARNING** This equipment should be installed by technically qualified personnel. Comply with national and local electrical and plumbing codes as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA) when installing this unit. Failure to install it in compliance with national and local electrical and plumbing codes and within Franklin Electric recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure. Installation information is available through pump manufacturers and distributors, or directly from Franklin Electric at our toll free number 1-800-701-7894.



Figure 5

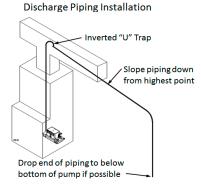


Figure 6

### Step 1 Inlet Connection

- a. Run flexible tubing or pipe from evaporator drain into pump inlet (Figure 2).
  - For Plenum applications use metal tubing such as copper tubing from evaporator drain to pump inlet.
- b. Be certain end of tubing is inserted into the pump inlet opening.
- c. Cut end of tubing at a 20° to 60° angle as shown in Figure 5 to prevent tubing from sealing closed when sitting against the tank's floor.

#### Step 2 Outlet (discharge) connection

- a. The outlet piping should be flexible tubing or pipe (%" I.D. maximum to prevent excessive flow back to unit).
  - For Plenum applications use metal tubing such as copper tubing. 3/8" tubing is recommended.
  - For Plenum applications replace plastic check valve with Little Giant® brass check valve part number 599063 designed for 3/4" copper tubing (purchased separately). NOTE: Thread sealant must be used when using the 599063 check valve.
- b. From condensate unit, extend discharge piping straight up as high as necessary.
  i. Do not extend this line above the head/GPH of the particular model being installed.
- c. From this high point, slope (see Figure 6) discharge line down slightly to a point above drain area; then turn down and extend to a point below or approximately level with the bottom of the condensate unit.
  - This will give a siphoning effect which will improve efficiency of the condensate unit and will, in most cases, eliminate the need for a check valve.
  - If it is not possible to slope discharge line down, make an inverted "U" trap directly above the pump at the highest point.

**Step 3** Proceed to System Operation Testing section to confirm pump operation.



## **System Operation Testing**

**WARNING** Always disconnect the electrical power before touching the pump or discharge when water is present in the area of the pump. Failure to do so can result in hazardous electrical shock.

- **Step 1** Verify that all wiring is per instructions and that pump is connected to power.
- Step 2 Turn on power to the pump.
- Step 3 Remove tank/cover assembly from tank (Figure 7).
  - a. Remove (4) screws that secure the tank/cover assembly to the tank.
  - b. Carefully lift the tank/cover assembly from the tank and hold level.
- **Step 4** Test pump operating switch by raising pump switch float (Figure 7).
  - a. Motor should turn on before pump switch float contacts underneath side of tank cover.
  - b. Confirm that pump is functioning as intended.
- **Step 5** Test auxiliary high level switch by raising high level switch float (Figure 7).
  - a. High level switch should activate before float contacts underneath side of tank cover.
    - i. If wired to "NO" terminal, Air Handling device should shut down when float is raised.
    - ii. If wired to "NC" terminal, external component (alarm or relay) should activate when float is raised.
- Step 6 Replace tank/cover assembly on tank.
  - a. Carefully place the tank/cover assembly back into place on the tank
  - b. Secure the tank/cover assembly to the tank using (4) screws removed previously being careful not to over-tighten or strip during installation
- **Step 7** The pump should now be ready for operation.

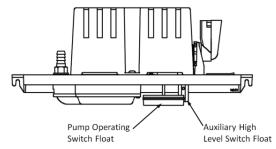


Figure 7

## System Maintenance:



▲ WARNING Make certain that the unit is disconnected from the power source before attempting to service or remove any component. If the power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.

**NOTICE:** Inspect and test the condensate removal system condition and operation every 6 months (more frequently in heavy use applications).

- **Step 1** Remove tank/cover assembly from tank (Figure 7).
  - a. Remove (4) screws that secure the tank/cover assembly to the tank.
  - b. Carefully lift the tank/cover assembly from the tank and hold level.
- **Step 2** Be sure the floats move freely. Clean as necessary.
- **Step 3** Remove the volute and check for obstructions. Clean as necessary.
- Step 4 Clean the tank with warm water and mild soap.
- **Step 5** Flush tank with fresh water. This helps to ensure that the acidity of residual condensate does not fall below the average pH of 3.4, creating localized pockets of acid that act like a battery causing pitting.
- Step 6 Check inlet and outlet piping. Clean as necessary. Be sure there are no kinks in the line that would inhibit flow.
- Step 7 Inspect the check valve and clean with warm water and mild soap if necessary.
- Step 8 Test operation of the system following the instructions outlined in the System Operation Testing section of this manual.



# **Troubleshooting**

TROUBLESHOOTING INFORMATION							
PROBLEM	PROBABLE CAUSES	CORRECTIVE ACTION					
	Power is not connected to pump	Ensure that power is supplied to the pump.					
	Float movement is blocked	Remove the tank and check for blockage of float. Clear any blockage around the float and inside the tank.					
Unit does not start when tank full of condensate water	Pump impeller is not turning	Clear any blockage in the impeller housing. If the problem persists, the motor might be stuck. Contact the manufacturer. There are no user serviceable parts.					
	Defective switch	Contact the manufacturer. There are no user serviceable parts.					
	Power is not connected to the pump	Ensure that power is supplied to the pump.					
	The pump is in overflow condition	The inlet flow to the condensate pump is exceeding the outlet. Check to ensure that the pump high level switch (Alarm circuit) is connected to the A/C unit. The high level switch connection will shut off the A/C unit in this condition.					
Condensate is overflowing from the unit.	Pump is not level	Check to ensure that the pump is level. If the pump is not level, it may not activate causing water to overflow from the tank. Place unit on a flat and level surface.					
	Outlet flow is blocked	Check outlet tubing to ensure that it is not kinked or blocked. Clear blocked tubing of slime and debris. Clean inlet and outlet piping.					
	Pump impeller is not turning	Clear any blockage in the impeller housing. If the problem persists, the motor is stuck. Contact the manufacturer. There are no user serviceable parts.					
	Defective switch	Contact the manufacturer. There are no user serviceable parts.					
	The pump is in overflow condition	The inlet flow to the condensate pump is exceeding the outlet. Check to ensure that the pump high level switch (Alarm circuit) is connected to the A/C unit. The high level switch connection will shut off the A/C unit in this condition.					
Pump will not shutoff	Float movement is blocked	Remove the tank and check for blockage of float. Clear any blockage around the float and inside the tank.					
	Liquid inflow matches pump capacity	Larger pump required.					
	Defective switch	Contact the manufacturer. There are no user serviceable parts.					
	Check valve stuck or plugged	Remove check valve and inspect for proper operation.					
Pump runs but does not discharge liquid.	Lift too high for pump	Check pump performance as compared to the vertical distance needed to evacuate the condensate.					
	Inlet to impeller plugged	Pull pump and clean.					
Pump does not deliver rated capacity.	Low voltage, speed too slow	Check for proper supply voltage to make certain it corresponds to name plate voltage.					
	Impeller or discharge pipe is clogged	Pull pump and clean. Check pipe for scale or corrosion.					
Pump cycles continually.	Check valve leaking	Inspect check valve for correct operation.					



#### 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. <u>Instructions Applicable to this Limited Warranty</u>

- 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. <u>Limitations Applicable to this Limited Warranty</u>

#### 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.
- 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.
- Any product that is operated with any accessory, equipment, component, or part not specifically approved by the Company.
- 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.



#### Hauptsitz

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