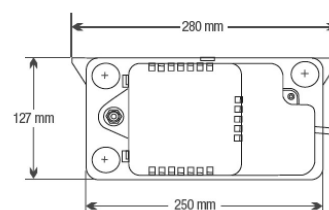
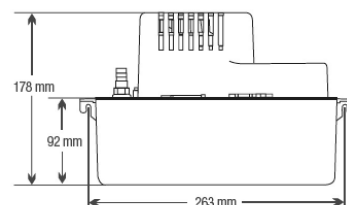
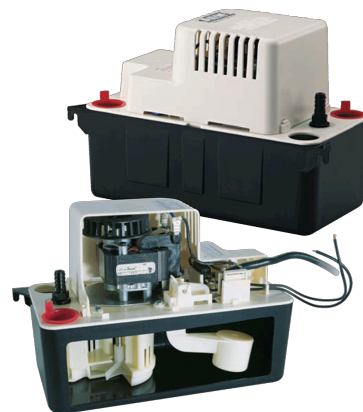




## VCMA-20S 'Gravity Fed' Condensate Pump

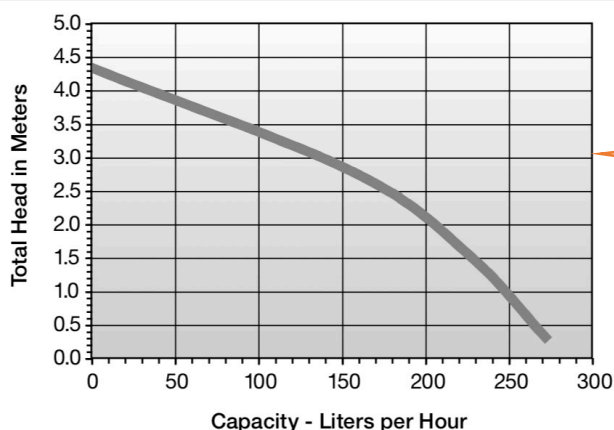
For removal of condensate from air conditioners, condensing boilers, refrigerated display cabinets, and dehumidifiers

- Fully automatic: start, stop, safety switch
- Operating point: 4 m: 70 l/h
- Check valve outlet: 9.5 mm, for 10 mm ID tubing
- 2 litre tank capacity
- Thermally protected motor
- IP 20
- 1/30 HP high performance motor
- ABS tank, motor cover, and volute
- Stainless steel shaft
- Removable 9.5mm barbed check valve
- 3 inlet drain holes
- Snap-action switch
- Use ONLY 10mm I.D. reinforced or Thick Wall Tube
- A Check Valve is already screwed in.. so no siphoning back
- Height: 178mm Length: 263mm Width: 127mm



<b>Capacity:</b>	280 LPH @ Zero Lift
<b>Shut Off:</b>	4.3m
<b>Liquid Temp:</b>	50°C
<b>Discharge:</b>	10mm
<b>Electrical:</b>	230V, 50Hz, 0.6 amps, 60 watts
<b>Operation:</b>	Automatic
<b>MODEL:</b>	<b>554473</b>

Performance Curve VCMA-20S 230V, 50Hz



**MADE TOUGH FOR OUR  
HUMID CONDITIONS**

**THESE LITTLE GIANT 'PAN' PUMPS HAVE AN ENVIABLE REPUTATION...**  
**"THEY WILL LAST FOR YEARS"**



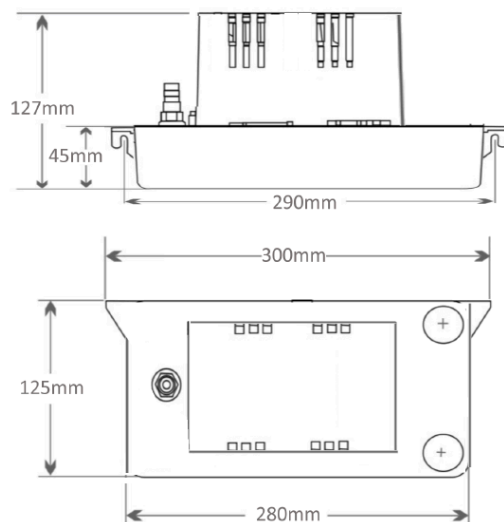
## VCC-20S 'Gravity Fed' Condensate Pump

For removal of condensate from air conditioners, condensing boilers, refrigerated display cabinets, and dehumidifiers

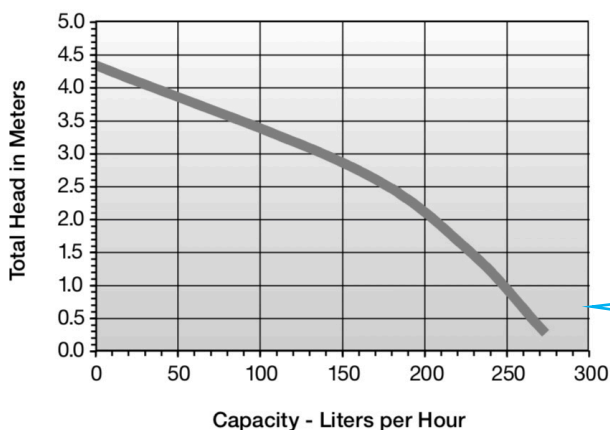
- Fully automatic: start, stop, safety switch
- Operating point: 4 m: 70 l/h
- Check valve outlet: 9.5 mm, for 10 mm I.D. tubing
- 1 litre tank capacity
- Thermally protected motor
- IP 20
- 1/15 HP high
- ABS tank, volute and switch cover
- Stainless steel shaft
- Removable 9.5mm barbed check valve
- Snap-action switch
- Use ONLY 10mm I.D. reinforced or Thick Wall Tube
- A Check Valve is already screwed in.. so no siphoning back
- Height: 127mm Length: 300mm Width: 125mm



<b>Capacity:</b>	280 LPH @ Zero Lift
<b>Shut Off:</b>	4.3m
<b>Liquid Temp:</b>	50°C
<b>Discharge:</b>	10mm
<b>Electrical:</b>	230V, 50Hz, 0.6 amps, 60 watts
<b>Operation:</b>	Automatic
<b>MODEL:</b>	<b>554138</b>



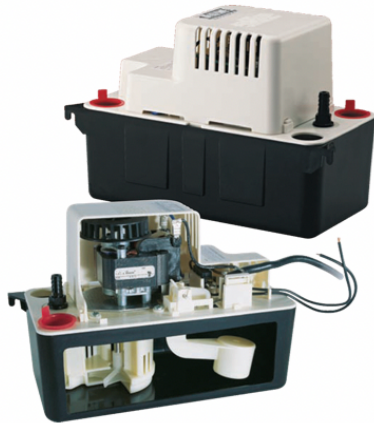
Performance Curve VCC-20S 230V, 50Hz



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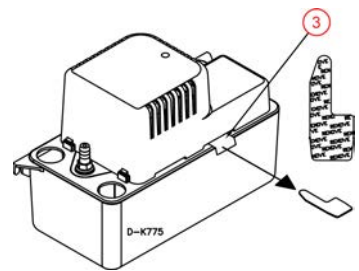
# VCMA-20S INSTALLATION SHEET



## Physical Installation

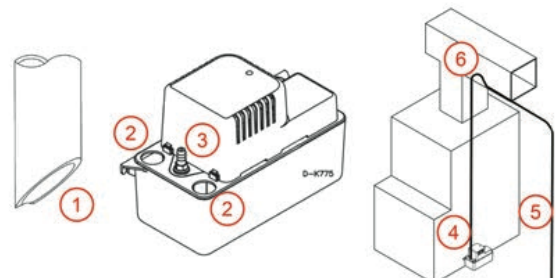
1. Install the pump on a flat, level surface with the inlet below the coil drain, making sure not to block the air vents around the motor housing.
  - The mounting surface must support the weight of the pump and the water filled tank.
2. The pump can also be mounted on a wall using the mounting slots at each end of the tank.
3. Carefully remove the cardboard insert used to prevent switch movement during shipping.

**IMPORTANT:** Failure to remove the cardboard insert will cause the pump to overflow.



## Piping Connections

1. Cut end of pipe(s) from evaporator or furnace drain at a 45° angle as shown to prevent pipe(s) from sealing closed when sitting against the tank's floor.
2. The pump will accept up to three drain lines. However, take care to make sure that total inflow does not exceed the rated output of the pump to prevent overflow. Route drain pipe(s) downward into one or more pump inlet openings one to three inches, insuring no interference with float operation. Keep any unused openings closed using the supplied cap plugs.
3. Install outlet tubing or piping on to outlet check valve and secure with hose clamp(not provided).
  - Use 10mm inside diameter maximum tubing or piping to prevent excessive flow back to unit.
4. Route outlet tubing or piping from pump straight up as high as necessary.
  - Do not extend higher than 75% of the total dynamic head capacity of the pump.
5. From the high point, slope discharge line down slightly to a point above the drain area. Then, turn down and route to a suitable drain at a point below or approximately level with the bottom of the pump, if possible. This will produce a siphoning effect which will improve efficiency of the pump.
6. If it is not possible to slope the discharge line down, make an inverted "U" trap directly above the pump at the highest point.



## Electrical Connections

Connect the power cord to a constant source of power matching the pump nameplate voltage.

- The pump should be connected or wired to its own circuit, with no other electric receptacles or equipment in the circuit. Do not connect to a fan or any device that runs intermittently.
  - The fuses or circuit breaker should be of ample capacity.
  - Connect to a circuit equipped with a ground fault circuit interrupter (GFCI) if required by code.
- Some models are supplied with a stripped wire cord end. Power connections must be made within a junction box, and must comply with the National Electrical Code. Wires are color coded as follows:

- Green/yellow = Ground; Brown = Line; Blue = Line (230 V)

**IMPORTANT:** If the power cord is damaged, the whole unit must be replaced.

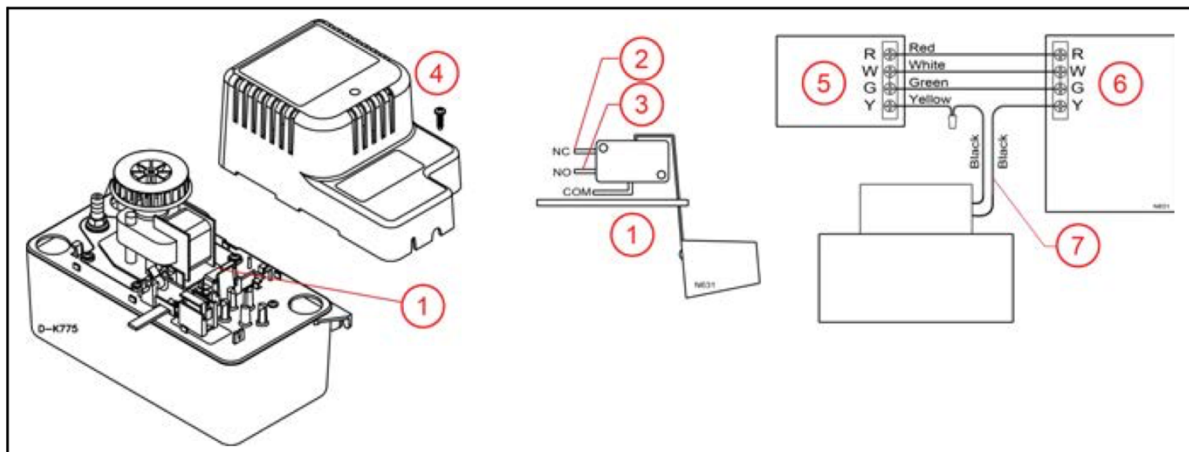
## INSTALLATION Electrical Connections

### High Water Level Switch Connection

#### ⚠ CAUTION

##### **Risk of bodily injury or property damage.**

- In applications 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.
- The high level switch should be connected to a Class II Low Voltage circuit. The two switch wires are black. Do not confuse these wires with the line voltage power conductors.
- The high level switch is placed in an orientation that reverses the normal function of normally open and normally closed terminals. Pay close attention to the following instructions.



1. High Water Level Switch
2. NC terminal. Connect here to activate an external alarm or relay.
3. NO terminal. Connect here to shut off the condensing unit of the heating/cooling system.
4. Motor Cover and Screw
5. Thermostat
6. Air Conditioner/Furnace
7. High Water Level Switch wiring leads

There are two options for connecting the high level switch:

1. The switch is factory wired to the NO and COM terminals. This configuration will open (break) an electrical circuit when the switch is activated by a high water level in the reservoir, which can be used to stop the condensing unit(s) of the heating/cooling system.
  - Refer to the thermostat and heating/cooling unit's Operating Manual for expected switch operation and wiring connections. Connect the switch leads (7) in series with the low voltage thermostat circuit as specified in the heating/cooling unit's operating manual.
2. The installer can reconfigure this switch to the NC terminal to close a low voltage circuit in the event of high water level, which could activate an external alarm or relay (purchased separately). Use the following procedure if an NC configuration is required:
  - Remove the pump's motor cover (4).
  - Support the switch and carefully change the lead wire from the NO terminal to the NC terminal (3).
  - Re-install the motor cover.
  - Connect the switch leads in series with the low voltage external component as specified in the component's manual.

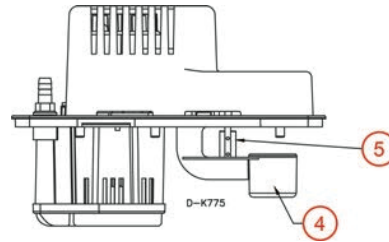
## MAINTENANCE

### Operation Testing

Place the “Attention Service Technician” label included with the pump on the outside of the access panel in a visible location.

### Operation Testing

1. Disconnect the pump from the power source.
2. Remove tank cover assembly from the tank.
  - The cover snaps on to the reservoir.
  - Pull out on the slot located on the long side of the white top. Place a finger in one of the larger holes in the corner of the top and lift to remove the top part of the pump.
  - Carefully lift the cover assembly from the tank and hold level.
4. Test pump operating switch by raising pump switch float.
  - Motor should turn on before pump switch float contacts underneath side of tank cover.
5. Test high level switch by raising high level switch float.
  - High level switch should activate before float contacts underneath side of tank cover.
  - If wired to NO terminal, air handling device should shut down when float is raised.
  - If wired to NC terminal, external component (alarm or relay) should activate when float is raised.
6. Disconnect the pump from the power source.
7. Replace the tank cover assembly.
8. Turn on power to the pump.



## MAINTENANCE

### Troubleshooting

Problem	Probable Causes	Corrective Action
Pump does not start when tank is full of condensate water.	Pump is not connected to electrical power.	Connect pump to a dedicated GFCI circuit.
	Circuit breaker off or fuse removed.	Turn on circuit breaker or replace fuse.
	Accumulation of debris or build-up on float.	Clean float; a dirty float could be too heavy to operate correctly.
	Float movement obstruction.	Remove the tank. Check float movement path. Remove any debris or obstruction.
	Defective switch.	Replace pump.
	Defective motor.	Replace pump.
Condensate is overflowing from the tank.	Pump is not connected to electrical power.	Connect pump to a dedicated GFCI circuit.
	Liquid inflow matches or exceeds pump output capacity.	Larger pump required. The high level switch should shut off the A/C unit or signal an alarm in this condition if connected in the circuit correctly. Check to ensure that the pump high level switch is connected to the A/C unit (or alarm circuit), and that the leads are connected to the correct switch terminals for the application. Refer to <a href="#">“High Water Level Switch Connection” on page 4.</a>
	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.
	Accumulation of debris or build-up on float.	Clean float. A dirty float could be too heavy to operate correctly.
	Check valve stuck or plugged.	Remove check valve and inspect for proper operation.
	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.
	Defective switch.	Replace pump.
	Defective motor.	Replace pump.
Pump will not shut off.	Float movement obstruction.	Remove the tank. Check float movement path. Remove any debris or obstruction.
	Liquid inflow matches or exceeds pump output capacity.	Larger pump required. The high level switch should shut off the A/C unit or signal an alarm in this condition if connected in the circuit correctly. Check to ensure that the pump high level switch is connected to the A/C unit (or alarm circuit), and that the leads are connected to the correct switch terminals for the application. Refer to <a href="#">“High Water Level Switch Connection” on page 4.</a>
	Defective switch.	Replace pump.
	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 rated pump performance.
	Inlet to impeller plugged.	Pull pump and clean.
	Outlet flow is obstructed.	Check outlet tubing to ensure that it is not kinked or blocked. Clear blocked tubing of slime and debris. Clean inlet and outlet piping.
	Check valve stuck or plugged.	Remove check valve and inspect for proper operation.
Pump does not deliver rated capacity.	Lift too high for pump.	Check rated pump performance.
	Low voltage, speed too slow.	Check that supply voltage matches nameplate rating.
	Impeller or discharge pipe is clogged.	Pull pump and clean. Check pipe for scale or corrosion.
Pump cycles continually.	Check valve leaking.	Remove check valve and inspect for proper operation.

# VCC-20S INSTALLATION SHEET

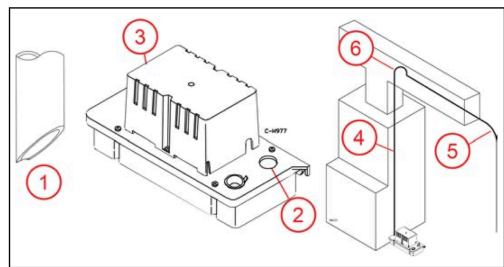


## Physical Installation

1. Install the pump on a flat surface.
  - Make sure the mounting surface will support the combined weight of the pump and water filled tank.
  - The air vent openings around the motor housing must not be blocked or obstructed to allow the free flow of air.
  - Ensure that the pump is level and the inlet is below the coil drain.
2. The pump can also be mounted on a wall or the side of an air conditioner or furnace. The tank has two mounting slots, one located at each end of the tank.

## Piping Connections

1. Cut end of pipe(s) from evaporator or furnace drain at a 45° angle as shown to prevent pipe(s) from sealing closed when sitting against the tank's floor.
2. The pump will accept up to three drain lines. However, take care to make sure that total inflow does not exceed the rated output of the pump to prevent overflow. Route drain pipe(s) downward into one or more pump inlet openings one to three inches, insuring no interference with float operation. Keep any unused openings closed using the supplied cap plugs.
3. Install outlet tubing or piping on to outlet check valve and secure with hose clamp(not provided).
4. Use 10mm inside diameter maximum tubing or piping to prevent excessive flow back to unit.
5. Route outlet tubing or piping from pump straight up as high as necessary.
6. Do not extend higher than 75% of the total dynamic head capacity of the pump.
7. From the high point, slope discharge line down slightly to a point above the drain area. Then, turn down and route to a suitable drain at a point below or approximately level with the bottom of the pump, if possible. This will produce a siphoning effect which will improve efficiency of the pump.
8. If it is not possible to slope the discharge line down, make an inverted "U" trap directly above the pump at the highest point.



## Electrical Connections

The power cord must be connected to a constant source of power matching the voltage specified on the pump nameplate.

- The pump should be connected or wired to its own circuit, with no other electric receptacles or equipment in the circuit. Do not connect to a fan or any device that runs intermittently.
- The fuses or circuit breaker should be of ample capacity in the electrical circuit.
- Connect to a circuit equipped with a ground fault circuit interrupter (GFCI) device if required by code. Some models are supplied with a stripped wire cord end. Power connections must be made within a junction box, and must comply with the National Electrical Code. Wires are color coded as follows:
  - Green/yellow = Ground; Brown = Line; Blue = Line (230 V) or Neutral (115 V)
- **IMPORTANT:** The power cord cannot be replaced. In case of damage, the whole unit must be replaced.



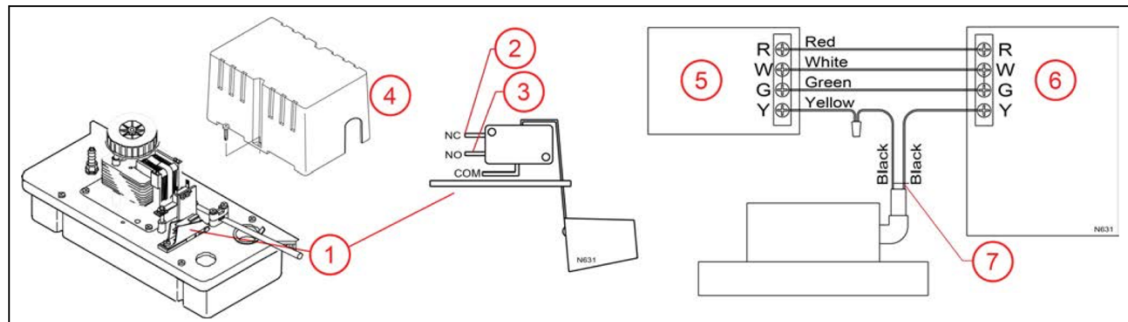
## INSTALLATION Electrical Connections

### High Water Level Switch Connection

**⚠ CAUTION**

**Risk of bodily injury or property damage.**

- In applications 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.
- The high level switch should be connected to a Class II Low Voltage circuit. The two switch wires are black. Do not confuse these wires with the line voltage power conductors.
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3. The switch is factory wired to the NO and COM terminals. This configuration will open (break) an electrical circuit when the switch is activated by a high water level in the reservoir, which can be used to stop the condensing unit(s) of the heating/cooling system.
  - Refer to the thermostat and heating/cooling unit's Operating Manual for expected switch operation and wiring connections. Connect the switch leads (7) in series with the low voltage thermostat circuit as specified in the heating/cooling unit's operating manual.
4. The installer can reconfigure this switch to the NC terminal to close a low voltage circuit in the event of high water level, which could activate an external alarm or relay (purchased separately). Use the following procedure if an NC configuration is required:
  - Remove the pump's motor cover (4).
  - Support the switch and carefully change the lead wire from the NO terminal to the NC terminal (3).
  - Re-install the motor cover.
  - Connect the switch leads in series with the low voltage external component as specified in the component's manual.

Place the "Attention Service Technician" label included with the pump on the outside of the access panel in a visible location.

**⚠ CAUTION**

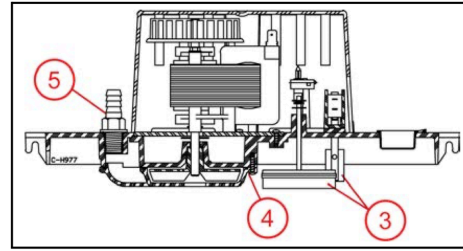
**Risk of bodily injury or property damage.**

- Do not allow the tank to overflow during this maintenance.
- Inspect and test the condensate removal system condition and operation every 6 months (more frequently in heavy-use applications).

## MAINTENANCE

### Operation Testing

Place the “Attention Service Technician” label included with the pump on the outside of the access panel in a visible location.



### Operation Testing

1. Disconnect the pump from the power source.
2. Remove tank cover assembly from the tank.
  - The cover snaps on to the reservoir.
  - Carefully lift the cover assembly from the tank and hold level.
3. Be sure the floats move freely. Clean as necessary.
4. Remove the volute and check for obstructions. Clean as necessary.
5. Remove the check valve and backwash the discharge port into the volute. Do this over a sink.
6. Clean the tank with warm water and mild soap.
7. Flush tank with fresh water. This helps to ensure that residual condensate does not create localized pockets of acid that could cause pitting.
8. Check inlet and outlet piping. Clean as necessary. Be sure there are no kinks in the line that would inhibit flow.
9. Replace the tank cover assembly.
10. Test operation of the system.

## MAINTENANCE

### Troubleshooting

Problem	Probable Causes	Corrective Action
Pump does not start when tank is full of condensate water.	Pump is not connected to electrical power.	Connect pump to a dedicated GFCI circuit.
	Circuit breaker off or fuse removed.	Turn on circuit breaker or replace fuse.
	Accumulation of debris or build-up on float.	Clean float; a dirty float could be too heavy to operate correctly.
	Float movement obstruction.	Remove the tank. Check float movement path. Remove any debris or obstruction.
	Defective switch.	Replace pump.
Condensate is overflowing from the tank.	Defective motor.	Replace pump.
	Pump is not connected to electrical power.	Connect pump to a dedicated GFCI circuit.
	Liquid inflow matches or exceeds pump output capacity.	Larger pump required. The high level switch should shut off the A/C unit or signal an alarm in this condition if connected in the circuit correctly. Check to ensure that the pump high level switch is connected to the A/C unit (or alarm circuit), and that the leads are connected to the correct switch terminals for the application. Refer to <a href="#">“High Water Level Switch Connection” on page 4.</a>
	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.
	Accumulation of debris or build-up on float.	Clean float. A dirty float could be too heavy to operate correctly.
	Check valve stuck or plugged	Remove check valve and inspect for proper operation.
	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.
	Defective switch.	Replace pump.
Pump will not shut off.	Defective motor.	Replace pump.
	Float movement obstruction.	Remove the tank. Check float movement path. Remove any debris or obstruction.
	Liquid inflow matches or exceeds pump output capacity.	Larger pump required. The high level switch should shut off the A/C unit or signal an alarm in this condition if connected in the circuit correctly. Check to ensure that the pump high level switch is connected to the A/C unit (or alarm circuit), and that the leads are connected to the correct switch terminals for the application. Refer to <a href="#">“High Water Level Switch Connection” on page 4.</a>
	Defective switch.	Replace pump.
Pump runs but does not discharge liquid.	Check valve stuck or plugged.	Remove check valve and inspect for proper operation.
	Lift too high for pump.	Check rated pump performance.
	Inlet to impeller plugged.	Pull pump and clean.
	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 does not deliver rated capacity.	Check valve stuck or plugged.	Remove check valve and inspect for proper operation.
	Lift too high for pump.	Check rated pump performance.
	Low voltage, speed too slow.	Check that supply voltage matches nameplate rating.
Pump cycles continually.	Impeller or discharge pipe is clogged.	Pull pump and clean. Check pipe for scale or corrosion.
	Check valve leaking.	Remove check valve and inspect for proper operation.