

# **INSTALLATION MANUAL**

## Millennium II 6000



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The products, technical information, and instructions contained in this manual are subject to change without notice. These instructions are not intended to cover all details or variations of the equipment, nor to provide for every possible contingency in the installation, operation or maintenance of this equipment. This manual assumes that the person(s) working on the equipment have been trained and are skilled in working with electrical, plumbing, pneumatic, and mechanical equipment. It is assumed that appropriate safety precautions are taken and that all local safety and construction requirements are being met, in addition to the information contained in this manual.

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#### **Contact Information:**

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This document contains the original instructions for the unit described.

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# SAFETY INSTRUCTIONS

## **READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

#### **Safety Overview**

- Read and follow ALL SAFETY INSTRUCTIONS in this manual and any warning/caution labels on the unit (decals, labels or laminated cards).
- Read and understand ALL applicable OSHA (Occupational Safety and Health Administration) safety regulations before
  operating this unit.

#### Recognition



## **DIFFERENT TYPES OF ALERTS**

## **DANGER**:

Indicates an immediate hazardous situation which if not avoided WILL result in serious injury, death or equipment damage.

## WARNING:

Indicates a potentially hazardous situation which, if not avoided, **COULD** result in serious injury, death, or equipment damage.

## A CAUTION:

Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury or equipment damage.

## SAFETY TIPS

- Carefully read and follow all safety messages in this manual and safety signs on the unit.
- Keep safety signs in good condition and replace missing or damaged items.
- Learn how to operate the unit and how to use the controls properly.
- **Do not** let anyone operate the unit without proper training. This appliance is **not** intended for use by very young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
- Keep your unit in proper working condition and do not allow unauthorized modifications to the unit.

## QUALIFIED SERVICE PERSONNEL

### **WARNING**:

Only trained and certified electrical, plumbing and refrigeration technicians should service this unit. ALL WIRING AND PLUMBING MUST CONFORM TO NATIONAL AND LOCAL CODES. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.



### SAFETY PRECAUTIONS

This unit has been specifically designed to provide protection against personal injury. To ensure continued protection observe the following:

## WARNING:

Disconnect power to the unit before servicing following all lock out/tag out procedures established by the user. Verify all of the power is off to the unit before any work is performed.

Failure to disconnect the power could result in serious injury, death or equipment damage.

## **A** CAUTION:

Always be sure to keep area around the unit clean and free of clutter. Failure to keep this area clean may result in injury or equipment damage.

## SHIPPING AND STORAGE

## **A** CAUTION:

Before shipping, storing, or relocating the unit, the unit must be sanitized and all sanitizing solution must be drained from the system. A freezing ambient environment will cause residual sanitizing solution or water remaining inside the unit to freeze resulting in damage to internal components.



# **UNIT SPECIFICATIONS**





Model Number	Millennium II 6000
Electrical Ratings:	115 VAC / 1 Phase / 60HZ / 11.1 Amps
	230 VAC / 1 Phase / 60HZ / 5.50 Amps
	230 VAC / 1 Phase / 50HZ / 6.0 Amps
Electrical Connection:	115V 3 Prong Plug with Ground (supplied)
	230V 2 Prong Plug (supplied)
	15 Amp Receptacle with Ground
	15 Amp Circuit Breaker
Water Requirements:	3/8 (9.5 mm) SAE Male Flare Inlet
	Minimum 20 psig (1.4 Bar)
	Recommended 40 psig (2.8 Bar)
	Maximum 60 psig (4.14 Bar)
Refrigeration:	7.0 oz. (198.4 g) R-134A Refrigerant, 1/3+ HP Compressor
Test Pressures:	High: 230 psig (15.8 Bar)
	Low: 90 psig (6.2 Bar)
	Air Cooled Condenser
Recommended Clearance:	18 in. (46 cm) Above Dispenser
	6 in. (16 cm) At Side Panel Vents
Weight:	Shipping: 140 lbs. (63.5 kg)
	Operating: 220 lbs. (100 kg)
Concentrate Supply Line Length:	50 feet (15.2 m) Total Maximum
	15 feet (4.5 m) Vertical Maximum
Approvals:	UL
	CUL
	NSF



# **INSTALLATION INSTRUCTIONS**

### **RECEIVING AND UNPACKING**

- 1. Inspect the carton and note any damage, regardless if it appears minor. If the carton is damaged, note on the consignee copy of the freight invoice "exterior carton damage concealed damage possible".
- 2. Cut the banding strap and remove the exterior carton sleeve, internal fillers and plastic bag around the dispenser. Carefully inspect for damage.

NOTE: Cornelius is not responsible for damaged freight. If damage is found, you must save all packaging material and contact the freight carrier. Failure to contact the carrier within 48 hours of receipt may void your claim.

#### INSTALLATION

- 1. Typically the dispenser is placed directly on the counter and a food grade silicone sealant is applied around the base. However, the legs that are included with the dispenser may be used. The following instructions assume the legs will not be used.
- 2. Depending on the type of counter, it may be necessary to provide access through the counter at the rear of the dispenser for the drain, power, water and concentrate connections.

#### Installation Kit P/N 629087473

Item	Part Number	Description	Qty.
1	300423000	Connector Bag-N-Box 375	6
2	31525016	O-Ring 614ID 070CS	1
3	50119	Hose Plastic 5.8ID X 1/8 Wall	5 ft.
4	70339	Clamp Hose	1
5	620919546INS	Manual Installation Millennium 6V	1
6	620920205 thru 10	Flavor Strip Assorted #1 thru #6	6

3. With the assistance of another person, lift the dispenser using the base and place it on the counter.

NOTE: The dispenser is extremely heavy when operational. Make certain the counter can support a minimum of 300 lbs. directly below the dispenser.

4. Sanitizing Prior to Initial Use

The beverage system must be cleaned and sanitized after installation is completed to safeguard against any possible contaminants that may have entered the system during transport or installation. Refer to the "Cleaning And Sanitizing" section of this manual for procedures.

- 5. Connecting the Water Supply
  - A. Water Pipe Connections and fixtures directly connected to a potable water supply shall be sized, installed and maintained according to federal, state and local laws.
  - B. It is recommended that a 1/2" OD copper supply line with a shut–off valve and water filter be located within 3–6 feet (.9–1.8 m) of the dispenser.
  - C. Remove the splash panel. Run the water supply line through the hole in the back of the base marked "water" and up the front of the unit to the water inlet fitting located behind the splash panel.
  - D. Connect the 3.8" ID supply line to water supply with a 3/8" barb fitting.
  - E. When installing the splash panel, attach the ground wire, at the water bath front, to the splash panel grounding tab.

NOTE: The dynamic water pressure must be 20 psig (1.3 Bar) minimum to ensure correct valve flow control and must not exceed 100 psig to avoid valve damage.

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- 6. Filling the Ice Water Bath
  - A. Remove the top panel and locate the filler hole in the top of the refrigeration deck.
  - B. Fill the water bath with cool water until it begins to trickle out of the overflow tube and into the drip tray. Use tap water. **DO NOT** use distilled water as it's purity has very low electrical conductivity. This can degrade performance of the electronic ice bank control.
  - C. Re-install the top panel.
- 7. Connecting Power Supply & Starting Refrigeration
  - A. Plug the power cord into a 115VAC 15 Amp grounded receptacle
  - B. Place the rocker switch and key switch, both located on the top panel, to the "on" position. Note that the rocker switch controls power to the dispenser and the key switch controls the pumps and valves.
  - C. The Millennium forms an ice bank of approximately 25 lbs. (11.4 kg) in about 5 hours at a room temperature of 75°F (24°C). Once the ice bank has grown to the proper size, the ice bank control will shut down the refrigeration circuit.
  - D. The ice bank control operates the compressor and condenser fan motor to control the size of the ice bank. The control board will not start or restart the compressor until after the compressor has been off for at least 3 minutes to all refrigeration system pressure to equalize.

#### NOTE: It is normal to see water trickle from the overflow as the ice bank forms.

8. Electronic Control Board Function

An integrated circuit board and microprocessor are used to control the electrical functions of the Millennium beverage dispenser. Functional features of the control board include:

- · Ice bank control with compressor start-up protection
- LED diagnostics

Inputs to the control board include line power and the ice bank position sensor. Switched outputs from the circuit board include the compressor, agitator motor and condenser fan motor (refer to electrical diagram in reference section).

9. Ice Bank Control

The ice bank control operates the compressor and condenser fan motor to control the size of the ice bank. The control board will not restart the compressor until after the compressor has been off for at least 3 minutes to allow the refrigeration system pressures to equalize.

10. LED Diagnostics

LED diagnostic lights are mounted on the control board to assist in troubleshooting. There is one green LED and one red LED.



Red LED

Figure 2.



#### Functions of the LEDs are:

- Red and Green OFF = no power to the dispenser
- Green ON = line voltage is within acceptable range
- 11. Connecting the Drain
  - A. Remove the drip tray from the dispenser and drill out the stem with a 7/16" (11 mm) drill bit.
  - B. Route one end of the 5/8" (15.8 mm) ID hose through the hole in the back of the dispenser marked "drain" and up to the drip tray fitting located on the dispenser under the drip tray.
  - C. Attach the hose to the drip tray fitting on the dispenser.
  - D. Connect the other end of the hose to a suitable drain source, ensuring compliance with all federal, state and local codes.
  - E. Slide the drip tray back into place.
- 12. Purging Air from the Water Coil
  - A. Prior to initial use, purge all air from the valves by pushing the dispensing switch repeatedly. Continue until a steady flow of water is observed.
  - B. Repeat for the remaining valves.

#### NOTE: Splashing may occur during the purge cycle.

- 13. Programming the Portion Control
  - A. If the dispenser comes equipped with the optional Portion Control feature, they have been pre-programmed from the factory to pour 7, 12 and 16-ounce drinks. The extra large (pitcher icon) size has also been pre-programmed to pour 16 ounces. To change the pour sizes, please follow the instructions below.
    - Simultaneously press and hold the "small" and "extra large" push button switches on the Portion Control Module until the "refill" light starts blinking. Release the switches. The blinking refill light indicates the programming mode is active.



- Place the cup under the dispense nozzle and push the selected size button (small, medium, large or extra large). Hold the button until the cup fills to the desired portion, then release the button. Repeat the above procedure for the remaining sizes.
- After programming all the drink sizes, press and release the "cancel/pour" switch to return the Portion Control to the operational mode. The blinking refill light will go out.
- B. If in future it is decided to change the portion size of the drinks, the individual sizes can be adjusted following the above procedure. It is not necessary to reprogram every size. Additionally, the Portion Control has full memory retention in case of a power failure.
- C. To pour a drink without using a pre-programmed Portion Control size, simply push and hold the "cancel/pour" button and release when the cup is full.
- 14. Connecting the Concentrate & Priming the Pumps
  - A. Connect the 3/8" barb fittings to the B-I-B supply line.

# NOTE: DO NOT cut any of the lines coming from the rear of the dispenser. The excess slack is needed to be able to slide the pump platform out of the front of the base for maintenance access.

- B. Route the concentrate supply lines to the BIB location and attach the supplied plastic BIB connector to the end of each line with the clamps provided.
- C. Turn off the water supply and connect the concentrate lines to their respective BIB.
- D. Depress and hold each start button until concentrate is observed flowing from the nozzle.
- E. Turn on the water supply.

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15. Apply Sealant to Base and Countertop

If the legs supplied with the dispenser are not used to raise the dispenser off the counter, the entire perimeter of the base must be sealed at the countertop with silicone (or other food grade approved sealant) in order to comply with NSF standards.

16. Brixing Concentrate

The following procedures describe how to adjust the water to concentrate ratio (brix) according to taste. Contact the concentrate supplier for recommended brix ratios.

- A. Remove the flavor strips above the dispense valves.
- B. Sample the finished drink. Increase or decrease the water ratio by inserting a flat blade screwdriver into the slot behind the flavor label and turning the water flow control screw clockwise (more water) or counter–clockwise (less water) until the desired water to concentrate ratio is achieved. Repeat the procedure on the remaining valves.
- C. Replace the flavor strips.

NOTE: If the flow control does not respond, there may be debris caught between the internal ceramic spool and sleeve. Try dislodging the debris by pressing the dispense switch several times or by turning the flow control adjustment screw all the way in and out several times.

# **CLEANING AND SANITIZING**

## CLEANING AND SANITIZING THE SYSTEM

The dispenser must be cleaned and sanitized after installation and as required by state and local health departments, or every three months minimum. The state and local health codes may require more frequent and extensive sanitizing procedures.

- 1. Cleaning and Sanitizing Equipment and Supplies
  - A. Stera–Sheen Green Label (or equivalent) prepared to ensure 100ppm of available chlorine (one 1 ounce packet in one gallon (3.8 l) of water = 100ppm). Solution temperature should be between 80°F and 100°F (26.7°C and 37.8°C).

# NOTE: Use potable water at the temperatures listed above. Water above this range will break down the chlorine count and minimize sanitation.

- B. One clean 5 gallon (19 l) bucket.
- C. One clean 1 gallon (3.8 l) bucket.
- D. Clean, non-abrasive towels/rags.
- E. A small brush with nylon bristles.
- F. Three valve fittings cut from three empty BIB bags.
- 2. Flushing the Concentrate Lines and Valves
  - A. Cleaning and sanitizing is not required for the potable water circuits. Potable water lines should remain connected and operational during the cleaning and sanitizing of the juice circuits.
  - B. Fill the 5 gallon (19 l) bucket with clean, hot tap water, approximately 140°F (60°C).
  - C. Clean the three valve fittings that were cut from the BIB bags by rinsing them under hot tap water.
  - D. Connect the bag valve to the bag connector coming from the dispenser and submerse the parts in the bucket of hot water.
  - E. Press and hold the dispense button until the concentrate has been fully purged from the product lines and valves.

#### NOTE: DO NOT flush more than three valves simultaneously.

- F. Once the concentrate is purged, pulse each valve for 15 seconds on then release the button. Repeat this pulsing for 15 cycles for each circuit being cleaned. Once the 15 cycles have been completed, allow each valve to dispense for 3 continuous minutes.
- G. Remove the nozzle and static mixer from the dispenser and rinse them under hot tap water to remove any excess concentrate. Repeat for each circuit.
- H. Replace the nozzles and static mixers into their proper location.
- I. Discard any remaining hot water left in the bucket.
- 3. Cleaning and Sanitizing the Concentrate lines and Valves
  - A. Prepare 5 gallons (19 I) of Stera–Sheen Green Label cleaning and sanitizing solution (or equivalent) by mixing one 1 ounce packet per 1 gallon (3.8 I) of potable water. This will provide enough sanitizing solution to clean and sanitize all 6 concentrate circuits for most installations. Installations that have 50 or more feet (not recommended) of concentrate line may require more sanitizing solution.

## NOTE: Use potable water between 80°F and 100°F (26.7°C and 37.8°C). Water above this range will break down the chlorine count and minimize sanitation.

- B. Submerse the bag connector and bag valve assembly into the bucket of sanitizing solution.
- C. Press and hold the dispense button until sanitizing solution is dispensed through the mixing valve nozzle.

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- D. Pulse each valve for 15 seconds on then release the button. Repeat this pulsing for 15 cycles for each circuit being sanitized. Once the 15 cycles have been completed, allow the sanitizing solution to stand in the product lines and valves for 30 minutes.
- E. While waiting, remove the nozzles and static mixers and place them into a separate container with 2 quarts (1.9 I) of sanitizing solution. Agitate vigorously using the small brush to remove any excess concentrate. Allow the parts to soak for 30 minutes.
- F. Clean the dispensing valves mixing chamber (this is the cavity from which the nozzle is removed) with the brush and sanitizing solution.
- G. Replace the nozzles and static mixers into their proper locations and discard the sanitizing solution in which they were soaked.

#### NOTE: DO NOT re-use the sanitizing solution used to clean the nozzles and static mixers etc.

- H. Activate the dispensing valves for 2 more cycles (15 seconds on and off) with the sanitizing solution then run the solution continuously through the valves for 2 minutes.
- I. Disconnect the bag valves from the bag connectors and reconnect the bag connectors to their appropriate product bags.
- J. Press and hold each dispense button until juice is dispensed from the nozzle. Dispense and discard two 8 ounce (237 ml) cups of juice and verify that there is no chlorine off-taste.

### **DAILY CLEANING AND MAINTENANCE**

- 1. On a daily basis, clean the external cabinet splash areas using a clean damp cloth. Remove and wash the cup rest, dispensing nozzles and static mixers with clean water. Wipe dry with a clean, soft cloth.
- 2. Wipe the drip tray in place on the dispenser, wash the tray out with a mild soap solution and then rinse the tray by pouring water down the drip tray drain.
- 3. Clean all external surfaces of the dispenser with a sponge and mild soap solution. Rinse the sponge out with clean water, then wring the excess water from the sponge and wipe all external surfaces of the dispenser.
- 4. Wipe the dispenser dry with a clean, soft cloth. Install the cup rest, dispensing nozzles and static mixers on the dispenser.

#### NOTE: DO NOT use abrasive type cleaners.

#### MAINTENANCE OF THE REFRIGERATION SYSTEM

- 1. A qualified service technician should perform cleaning of the refrigeration components.
- 2. Continuous maintenance of this dispenser is a basic requirement for proper operation and sanitation, including all support equipment utilized in the daily operation of this equipment.
- 3. Cleaning of Refrigeration Components
  - A. Disconnect power before removing the top panel of the dispenser.
  - B. The ventilation grilles and the condenser fins should be cleaned periodically to maintain efficient refrigeration and to avoid compressor failure. The condenser fins can be cleaned with a vacuum cleaner or a soft bristle brush.
  - C. Clean the exterior surfaces of the compressor, agitator motor, fan motor, and fan blade with a damp cloth to remove accumulated dust.
- 4. Ice Water Bath Cleaning
  - A. In order to maintain maximum cooling efficiency, the water bath should be cleaned two to four time annually, depending on local conditions and/or as required by state and local health departments.
  - B. A convenient time to do this is at the time the dispenser is being sanitized. To save time, the water bath can be drained while the dispenser is being sanitized.

- C. Remove the cup rest and splash panel to access the water bath drain hose. Remove the cap from the drain hose and extend the hose to a suitable waste receptacle and allow the water bath to drain.
- D. Remove the top, side and rear panels, as well as the merchandiser. Unplug the harnesses from the merchandiser and top panel.
- E. Disconnect the red, white and blue 12-pin connectors, as well as the white 2-pin connector from the electrical box.

NOTE: It will be necessary to melt the ice bank to be able to pull the refrigeration deck up and away from the dispenser. Warm water may be used to accelerate the melting. In order to prevent ice bank control damage, DO NOT direct the warm water stream on to the sensing probe of the ice bank control. Never use an ice pick or other instrument to remove ice from the evaporator. Such practice can result in a punctured refrigerant circuit or damage to the water bath tank.

- F. Once the ice bath is sufficiently melted, remove the two hitch pins securing the refrigeration deck to the water bath tank and lift the deck using the two handles.
- G. Prepare 1 gallon (3.8 l) of cleaning and sanitizing solution (see "Sanitizing the Concentrate Lines & Valves"). Pour the cleaning and sanitizing solution into the water bath and clean the sides and bottom of the tank, the product coils and associated brackets with a fiber brush.
- H. Using the solution in the water bath, the fiber brush and a clean cloth soaked with solution, clean the refrigeration deck's evaporator coils, agitator motor shaft and blade, and the ice bank sensing probe.
- I. Drain the cleaning and sanitizing solution from the water bath and rinse/flush all the components with clean water.
- J. Re-install the refrigeration deck into the water bath and secure the hitch pins.
- K. Plug the connectors into their appropriate receptacles on the electrical box.
- L. Fill the water bath with cool potable until water begins to trickle from the overflow tube.
- M. Install the top, side and rear panels, as well as the merchandiser. Connect the harnesses from the merchandiser and top panel to their appropriate terminals.
- N. Plug the dispenser into the electrical outlet and turn the unit on.



PANEL REMOVAL

1. Loosen the retaining screw on top of the merchandising panel.



Figure 3.

2. Depress the center of the merchandising panel.

3. Slide the top panel about 1 inch toward the rear of



Figure 4.

Figure 5.

the unit and lift it off.

- 4. Disconnect the wires from the key and power switches (black wires key switch; brown wires power switch).

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Figure 6.



Figure 7.

Figure 8.

5. Remove the cup rest and drip tray assembly.

6. Remove the splash panel by lifting up and pulling the bottom out.



7. Slide the side panels forward approximately 2.1/2 inches and lift off.

NOTE: There are 3 locking tabs on the water tank and 3 on the unit base.



Figure 9.

9. Disconnect the agitator motor wires to remove the



Figure 10.



Figure 11.

8. Lift the rear panel up and off.



Figure 12.



Figure 13.

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merchandiser.



- 10. Refrigeration deck removal
  - A. Remove the inlet water line from the John Guest fitting on the dual water coil.
  - B. Remove the John Guest fitting from the dual water coil.

C. Disconnect all of the connectors from the back of the control box.



Figure 14.



Figure 15.



Figure 16.

- D. Remove the retaining clips from both sides of the water tank before lifting refrigeration chassis.
- E. Lift the refrigeration out of the water bath



# **TROUBLE SHOOTING**

	Problem		Probable Cause		Remedy
1.	Dispenser is totally inop- erative.	Α.	No power at the source.	Α.	Check the power circuit for a blown fuse or tripped circuit breaker. Check the supply line for the proper amperage and voltage ratingsdedi- cated 15 amps / 115 volts.
		В.	Power is present at the sourcedispenser is still inoperative.	B.	Check the power cord connection located behind the front splash panel.
2.	Dispenser will not cool. Drink temperature should be 35 - 45 <sup>o</sup> F (2 - 7 <sup>o</sup> C)	Α.	Refrigeration shut off switch is in the off posi- tion.	Α.	Refrigeration shut off switch is located on the top of the dispenser. This switch will disable the compressor and the con- denser fan motor. Be sure the switch is in the on position.
		Β.	No water in water tank.	B. N v o e	Fill water tank with water as instructed OTE: Ice Bank Control rill not turn compressor n unless probes are cov- red with water.
		C.	Depleted ice bank (not applicable after period of heavy usage).	C.	Check compressor. If run- ning, allow the system time to recover (approxi- mately 1 hour). If com- pressor is not running or the system is not recover- ing see the Refrigeration System Troubleshooting section.
		D.	Defective Ice Bank con- trol.	D.	See Refrigeration System Troubleshooting section.

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	Problem		Probable Cause		Remedy
3.	With power present, unit will not dispense all air valves.	Α.	Key lock switch in the OFF position.	Α.	Check position of key lock switch. Check for loose wire connections. Run continuity check, replace as needed.
		B.	Transformer not con- nected or defective.	B.	Check the connection between the power strip and the transformer. Check the transformer output at terminal junction on control box for 26 VAC.
		C.	Fuse blown between the		
			transformer and voltage regulator boards.	C.	Check the fuse located in the electrical box, left side. This box is located on the refrigeration deck and will require removal of the upper bonnet. Replace fuse as needed.
4.	Unit dispensing concen- trate only no water to all valves.	Α.	No water reaching dis- penser from the water supply line.	A.	Check line to see if the water is shut off at the source.
		В.	Water pressure over 100 psi or 7 bar. High pres- sure will not allow the water solenoids to open.	В.	Install regulator onto incoming water line to reduce the pressure to between 30 and 80 psi. (2-5 bar).
		C.	Freeze up of water coil.	C.	Refer to the refrigeration System Troubleshooting section.



	Problem		Probable Cause		Remedy
5.	From single valve unit will not dispense water or concentrate.	Α.	Inoperative or defective push button switch.	Α.	Check for loose or broken connections at the switch. Check the continuity of switch. Replace as needed.
		В.	Defective Voltage Regu- lator (VRB) board.	В.	The VRB boards are con- tained in the electric box mounted on the refrigera- tion deck. There is one for each valve.
					CAUTION: Access to this panel requires the removal of the upper bonnet while the dis- penser is energized and operational. Check the power input for 26 VAC and the output for 28 VDC.
6.	From single valve, unit is dispensing concentrate only.	Α.	Inoperative water valve solenoid coil.	Α.	Check to see all wire con- nections are secured at the coil. Check power for 26 VDC. If power is pres- ent, coil may be defec- tive, replace as needed. Armature may be stuck, disassemble and check function. Return spring could also be defective, replace as needed.
		B.	Solenoid makes clicking sound when energized, but still does not function.	B.	Disassemble the coil assembly and check plunger seal for defects. Replace as required. Inspect valve eat for restrictions.
		C.	Flow control binding or defective.	C.	Disassembly flow control assembly and check the spool and sleeve assem- bly. Be sure the spool moves freely within the sleeve and there are no restrictions.



	Problem		Probable Cause		Remedy
7.	From single valve, unit is dispensing water only	Α.	Concentrate container	Α.	Replace.
		В.	BIB connector is not engaged or improperly installed.	В.	Check BIB connector for proper installation. Plunger should be com- pletely inserted with con- centrate filling the line to the dispenser.
		C.	Air lead in product line.	C.	Check the 3/8 flare con- nection where the prod- uct line attaches to the unit. Tighten fitting using a flare gasket. If line is drawing are, pump will not prime.
		D.	No power at the pump.	D.	Check for broken or loose wire connection going to pump motor. Check for 36 VDC at pump motor when the dispense button is energized.
		E.	Defective gear motor assembly.	E.	Check motor function by energizing circuit with the dispense button. If motor runs, but pump does turn, a broken gear box is indi- cated. The pump motor and gear box are replaced as a unit.
		F.	Pump running back- wards.	F.	Check the direction of pump rotationcorrect rotation is clockwise as viewed from the front of the unit. If pump is turning in a counter clockwise direction, this indicates the pump wires are reversed.
		G.	Defective concentrate pump tubing.	G.	Check the pump tubing for ruptures, wear, etc. Replace as needed fol- lowing the instructions printed in this manual



	Problem		Probable Cause		Remedy
8.	Dispenser is brixing out too high.	Α.	Supply water pressure too low.	Α.	Water pressure must 20 psi flowing or above.
		B.	Defective flow control.	B.	Disassemble and check flow control assembly for binding, defective com- pensating spring, trapped debris. Be sure the spool moves freely within the sleeve, replace parts as needed.
		C.	Low viscosity or highly concentrated concen- trate. Example: 11 to 1 ratio.	C.	Locate the pump switches grouped behind the front splash pane, They are marked SPEED SWITCH with the corre- sponding valve number. Placing the switch is the low position slows down the concentrate pumping rate requiring less water to brix,

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	Problem		Probable Cause		Remedy
9.	Water leaks from bottom of dispensing valve,	A.	Nozzle pieces not prop- erly assembled.	Α.	Water pressure has a high limit of 100 psi (7 bar) or over. Place regu- lator in supply line to bring pressure down to 50 psi (4 bar) flowing
		B.	Defective or improperly regulating flow control.	B.	High water pressure will cause the flow control not to regulate properly. If the problem exists after the pressure has been reduced to 50 psi (4 bar), the flow.control may be defective. Disassemble and check the spool and sleeve function, and the compensating spring. Replace parts as needed.
		C.	Speed switch in the low position.	C.	Pump speed switch is in the low position. Move switch to high increasing the pumping rate of the concentrate.
		D.	Air leak in the concen- trate suction line.	D.	Check that the concen- trate line connection is secured tightly to the dis- penser with the proper gaskets. Check the con- nector at the concentrate source to be sure it is properly attached.
		E.	Worn concentrate tubing.	E.	Remove the front half of the concentrate pump and inspect the tubing. Worn or stretched tubing will decrease the amount of concentration pumped. After 1 year tubing should be replaced.
		F.	Defective poppet valve and/or spring.	F.	Disassemble the right side of the valve which contains the syrup poppet assembly. Be sure the valve is not binding, free of debris, return spring is actuating and the dia- phragm is not torn or punctured.



Problem	Probable Cause	Remedy
10. Water leaks from bottom of dispensing valve.	A. Nozzle pieces improperly assembled.	A. Static mixer inserted in nozzle body upside down. Cone shaped end must be visible when remounting the nozzle assembly to the dis- penser.
11. Water continuously drips from nozzle.	A. Water solenoid valve not shutting off tightly.	A. Disassemble water sole- noid located at the valve and check for foreign material in the valve seat. Check the armature for binding, check the plunger and the sear for defects. Replace parts as needed.
12. Unit continues to dispense after button has been released,	<ul> <li>A. Sticking or defective dispenser push button- switch.</li> </ul>	<ul> <li>A. Check the operation of the push button for stick- ing. Check continuity of switch. Check continuity of switch, Replace as needed.</li> </ul>
	B. Relay on voltage regula- tor board hangs up or is stuck open.	B. CAUTION: Access to this panel requires removal of the bonnet while the dispenser is plugged in and oper- tional. *Voltage regulator board is found in the elec- trical box mounted to the refrigeration deck. There is one board for each valve. Gently tap the relay. If dispensing stops, relay has hung up. If tap- ping the relay solves the problem, it should be noted that if a relay ticks once, it will probably stick again. Replace as needed.
	C. Defective Voltage Regu- lator (VRB) Board.	C. Pull the connector marked DOOR. Lower the right hand connector on the VRB board. If the unit still continues to dis- pense the VRB board is defective and needs to be replaced.



Problem	Probable Cause	Remedy
13. Two or more pumps oper- ate when only one button is pushed.	A. Insulator pad missing or not properly positioned between the transistor on VRB board and mounting bracket.	A. On the valve that is dis- pensing in error, check the insulator pad between the transistor on the top of the VRB board and the mounting bracket. If this pad is missing or improp- erly aligned, the VRB board will make contact with the bracket. Current will run through the bracket and set off the valve. Refer to drawing found in this manual.
	B. VRB Board mounting screw insulator is missing or improperly installed.	B. Check the corresponding VRB board to the valve that is dispensing in error. Where the screw mounts the transistor to the bracket, be sure the screw is not over tight- ened. Screw contact with the bracket will cause a short and the firing of the valve when other valves are energized.



Trouble		Probable Cause	Remedy
1. Refrigeration com sor does not oper	pres- A. ate.	No water in water tank.	<ul> <li>A. Fill water tank with water as instructed.</li> <li>NOTE: Ice Bank Control will not turn compres- sor on unless probes are covered with water.</li> </ul>
	В.	Control board power switch on top of dis- penser in "OFF" position, or building power not con- nected to unit (small)	<ul> <li>B. Place control board power switch in "ON" position or connect unit to power source.(will be a built-in 3-minute time delay before refrigeration compressor starts).</li> <li>C. Electrically connect or replace inoperable sen-</li> </ul>
	C.	Ice sensor electrically dis- connected.	sor. D. Plug in power cord.
	D.	Dispenser power cord unplugged, or drop-in refrigeration assembly power cord upplugged	E. Replace fuse or reset cir- cuit breaker. (Note: Fuse
	E.	No power source (blown fuse or tripped circuit breaker).	or circuit breaker are not part of dispenser). F. Voltage must be 90-130 or 180-255 VAC.
	F.	Low/high voltage.	<ul><li>G. Tighten connections or replace broken wiring.</li><li>H. Compressor will cool</li></ul>
	G. Н.	Loose, disconnected, or broken wiring. Overload protector cut out; overheated compres- sor. Condenser fan motor not operating as required.	<ul> <li>enough to restart. Do not overdraw cooling capacity of dispenser. Refer to "Condenser Fan Motor Not Operating" in this section.</li> <li>I. Replace inoperative part.</li> <li>J. Replace ice bank probe.</li> </ul>
	I. J. K.	Inoperative overload pro- tector or start relay. Inoperative ice bank probe. Inoperative control board.	K. Replace control board.
2. Compressor will n after sufficient ice produced.	ot stop A. bank is B. C.	Ice bank probe location incorrect. Ice temperature sensor inoperative. Control board inopera- tive.	<ul><li>A. Place probe in proper location.</li><li>B. Replace ice temperature sensor.</li><li>C. Replace control board.</li></ul>

#### TROUBLESHOOTING REFRIGERATION SYSTEM



Trouble		Probable Cause		Remedy	
3.	Compressor operates continuously but does not form sufficient ice bank.	A. B.	Cooling capacity is exceeded by over-draw- ing. Dispenser located in excessively hot area or air circulation through condenser coil is	А. В.	Reduce amount of drinks drawn per given time. Relocate dispenser or check and if necessary, clean condenser coil as instructed.
		C.	restricted. Problem with sealed refrigeration system.	C.	Service or replace sys- tem.
4.	Agitator motor not operat- ing.	A.	No power source (blown fuse or tripped circuit breaker).	Α.	Replace fuse or reset cir- cuit breaker. (NOTE: Fuse or circuit breaker are not part of the dis- penser).
		В.	Agitator motor propeller obstructed.	В.	Remove obstruction.
		C.	Low voltage.	C.	Voltage must be 90–135 VAC (115 volt unit or 180–260 (230 VAC unit) at compressor terminals when compressor is try- ing to start.
		D.	Loose, disconnected, or broken wiring.	D.	Tighten connections or replace broken wiring.
		E.	Inoperative agitator motor.	E.	Replace agitator motor.

#### TROUBLESHOOTING REFRIGERATION SYSTEM

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