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## Installation Instructions

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# UNIVERSAL 750 PRE-MIX DISPENSER

Part No. 189159000  
August 20, 1964  
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THIS DOCUMENT CONTAINS IMPORTANT INFORMATION

This Installation Manual must be read and understood before starting to install or operate this equipment.



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# GENERAL INFORMATION

**IMPORTANT: To the user of this manual - This manual is a guide for installing, operating, and maintaining this equipment. Refer to Table of Contents for page location of detailed information pertaining to questions that arise during installation, operation, service and maintenance, or troubleshooting this equipment.**

## GENERAL DESCRIPTION

This section gives the unit description, installation requirements, theory of operation, design data, and flow diagram for the Universal 750 Four-Flavor Pre-Mix Dispenser (hereafter referred to as a unit).

## UNIT DESCRIPTION

The dispenser (see Figure 1) is a compact unit that may be installed free standing or under a counter or bar.

Installation of the LOOSE-SHIPPED PARTS, (see Table 2-1), connection to a grounded electrical outlet with proper electrical requirements, filling evaporator tank with water, and connection to product tanks with regulated CO<sub>2</sub> pressure are all that is required to set unit up for operation. A 6-inch leg kit (P/N 187416-000) is available. Also available is a four caster kit (P/N 316290-000) to make unit mobile.



**CAUTION: Before shipping, storing, or relocating this Unit, the syrup systems *must* be sanitized and all sanitizing solution *must* be purged from the syrup systems. All water *must* also be purged from the plain and carbonated water systems. A freezing ambient environment will cause residual water in the Unit to freeze resulting in damage to internal components.**

**Table 1. Design Data**

Model Numbers:	
Universal 750 (domestic) Standard Unit	284729-000
Universal 750 (domestic) with Sealed Evaporator Tank	284780-000
Universal 750 (export)	494729-000
Overall Dimensions:	
Height	37-1/4 inches
Width	16 inches
Depth (with drip tray)	22 inches

**FIGURE 1. UNIVERSAL 750 PRE-MIX DISPENSER**

**Table 1. Design Data (cont'd)**

Weights:	
Shipping (1Carton)	159 pounds
Dry Weight	140 pounds
With Evaporator Tank full of Water	225 pounds
Ice Bank Weight	46 pounds
Capacities:	
Unit Water Bath (no ice bank) approx.	10 gallons
Dispensing Rate:	
6-oz. drinks @ 4/minute	*763
6-oz. drinks @ 6/minute	*507
Recovery Rate	3 drinks/minute

**NOTE:** \*Number of 6-oz. drinks that can be dispensed at 40° F or below with 75° F product inlet temperature and 75° F ambient.

Ambient Operating Temperature	40°F to 100°F
Electrical Requirements:	
Operating Voltage (domestic)	115 VAC, 60 Hz
Current Draw (domestic)	8.1 amps
Operating Voltage (export)	230 VAC, 50 Hz
Current Draw (export)	3 amps
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## **THEORY OF OPERATION** (see Figure 2)

A CO<sub>2</sub> cylinder delivers carbon dioxide gas (CO<sub>2</sub>) through regulated CO<sub>2</sub> regulators to product tanks. When dispensing lever is opened, CO<sub>2</sub> pressure exerted upon product tanks pushes product from tanks, through unit cooling coils, to dispensing valves resulting in cold dispensed drinks.

When unit power cord has been plugged into electrical outlet and power switch on back of unit has been flipped to "ON" (up) position, compressor, condenser fan motor, and agitator motor will start and begin forming an ice bank. When full ice bank has been formed, compressor and condenser fan motor will stop but agitator motor will continue to operate circulating ice water bath in evaporator tank. Evaporator tank ice bank sensing bulb will cycle compressor and condenser fan motor on and off as required to maintain full ice bank.

CO<sub>2</sub> CYLINDER

CO<sub>2</sub> REGULATOR (2)

CHECK VALVE (4)

PRODUCT TANK (4)

PRODUCT COIL (4)

DISPENSING  
VALVE (4)

ICE WATER  
BATH DISPENSER

LINE LEGEND  
PRODUCT  
CO<sub>2</sub>

FIGURE 2. FLOW DIAGRAM

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# INSTALLATION

This section covers unpacking and inspection, identification of LOOSE-SHIPPED PARTS, selecting location, installing unit, preparing unit for operation, and unit operation.

## **UNPACKING AND INSPECTION** (see Figure 3)

**NOTE: The unit was thoroughly inspected before leaving factory and carrier has accepted and signed for it. Any damage or irregularities should be noted at time of delivery and immediately reported to delivering carrier. Request a written inspection report from Claims Inspector to substantiate any necessary claim. File claim with delivering carrier, not with IMI Cornelius Inc.**

1. After unit has been removed from shipping carton, remove shipping tape and other packing material. Inspect for shipping damage and follow procedure in preceding NOTE if damage is evident.
2. Unpack item listed in LOOSE-SHIPPED PARTS. Make sure all items are present and in good condition.

Item No.	Part No.	Name	Qty.
1	188090	Leveling Legs	4
2	186642	Cup Rest	1
3	186573-039	Drip Tray	1
4	151741-039	Dispensing Valve Knob	4
5	150807-100	Adapter, 7/16-20 Male by 1/2-16 Male	4
	150807-200	Adapter, 1/2-16 Male by 1/2-16 Male (domestic unit only)	4
6	311245	Reducer, 7/16-20 Female by 1/2-16 Male	4
7	317904-999	Decal, Dispensing Valve Knob (as ordered)	4

## **IDENTIFICATION OF LOOSE-SHIPPED PARTS** (see Figure 3)

1. LEVELING LEGS (item 1) to be installed in threaded holes provided on unit base (only units installed outside the United States).

2. CUP REST (item 2) to be installed in DRIP TRAY (item 3).
3. DRIP TRAY (item 3) to be installed on unit by inserting rear edge of tray under lip of valve trim panel and lifting up until bottom tray supports are inserted in square holes provided in front panel. Lock drip tray in place by slight downward pressure.
4. DECALS, DISPENSING VALVES KNOBS (item 7) to be installed on DISPENSING VALVES KNOBS (item 4)
5. DISPENSING VALVES KNOBS (item 4) to be installed on dispensing valves by pushing knobs down into place on valves levers.
6. Applicable ADAPTERS (item 5) to be used to connect product inlet lines from product tanks to unit product inlet lines. REDUCERS (item 6) may be used to connect unit product inlet lines directly to product tanks quick disconnects provided disconnects have 1/4-inch flare (7/16-20) male fittings.

## **SELECTING LOCATION**

**NOTE: For identification purposes, side of unit dispensing valves are on is designated "front" of unit. This unit may be installed free standing or under counter or bar. Locate unit so following requirements are satisfied.**

1. Near a properly grounded electrical outlet with proper electrical requirements. No other electrical appliance should be connected to this circuit. ALL ELECTRICAL WIRING MUST CONFORM TO NATIONAL AND LOCAL ELECTRICAL CODES.
2. Air circulation through condenser coil, required for cooling coil, is drawn in through air intake grille on front of unit and is exhausted out through grilles on sides and back of unit. When locating unit, make sure grilles are not restricted to insure proper air circulation through unit.

## **INSTALLING UNIT**

### **LOCATING UNIT**

*Areas Outside United States (Canada, Europe, etc.)* Install LEVELING LEGS (item 1) in threaded holes on each corner of unit base. Adjust each leveling leg until unit sits level and stands solid. Make sure all leveling legs are in contact with floor.

*Areas Within United States* - To comply with National Sanitation Foundation (NSF) requirements, unit must be sealed to floor and LEVELING LEGS (item 1) may not be used. Perform following procedure to install unit.

**NOTE: An alternate arrangement for following installation method described would be to install available 6-inch leg kit (P/N 187416-000) or four caster kit (P/N 316290-000).**

1. Slide unit into operating position.
2. Tilt unit up to expose bottom of base.
3. Liberally apply silastic sealant such as Dow Corning RTV 731 or equivalent around edges on bottom of base.

**NOTE: Do not move unit after positioning or seal from unit base to floor will be broken.**

4. Lower unit into operating position to complete seal from unit base to floor. Apply additional sealant around bottom of unit base. Seal must have a minimum radius of 1/2-inch to prevent crevices and to insure a complete seal.

## DRAIN CONNECTIONS

**NOTE: Drip tray drain hose routed to waste container is not recommended due to sanitation and cleaning problems. Connection of drain hose to permanent drain is recommended.**

*Drip Tray Drain Hose* - The drip tray, as provided, is self-contained and must be emptied periodically. If permanent drain is desired, cut out center of drain connection on drip tray. Be sure to remove all plastic to open drain to its maximum inside diameter preventing any rough edges which will trap dirt. Install DRIP TRAY (item 3) by inserting rear edge of tray under lip of valve trim panel and lifting up until bottom tray supports are inserted in square holes provided in front panel. Lock drip tray in place by a slight downward pressure. Connect drain hose below drip tray to drain connection on drip tray. This drain hose runs to the inside of the unit and must be brought out with unit product inlet lines and routed to permanent drain or waste receptacle.

*Evaporator Tank Drain Hose* - A drain hose, connected to bottom of evaporator tank, is provided to drain water from tank. Plug in end of drain hose should be removed only when desired to drain tank.

*Standard Unit Evaporator Tank Overflow Tube* - Overflow tube from evaporator tank is routed to water tight pan in base of unit. During initial forming of ice bank and during periods of high humidity, excess water will overflow from evaporator tank to pan and be evaporated.

*Unit With Sealed Evaporator Tank Overflow Tube* - Overflow tube from evaporator tank is routed out through rear panel of unit (see Figure 3). Plug in end of overflow tube should be removed only when ice water bath is being replenished, and during initial forming of ice bank.

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## ROUTING UNIT PRODUCT INLET LINES AND DRIP TRAY DRAIN HOSE OUT OF UNIT CABINET

**IMPORTANT: When routing product inlet lines out through side of unit, use care to see that lines do not come in contact with compressor or hot discharge line. Accidental contact may result in foaming of dispensed product.**

All internal connections have been made at factory. Unit product inlet lines and drip tray drain hose may be brought out through either side or back product line access holes on unit cabinet. If either leg kit (P/N 187416-000) or four caster kit (P/N 316290-000) are used, product lines and drip tray drain hose may be routed out through hole in unit base.

## CONNECTING UNIT PRODUCT INLET LINES

**NOTE: REDUCERS (item 6) may be used to connect unit inlet supply lines directly to product tanks quick disconnects provided disconnects have 1/4-inch flare (7/16-20) male fittings.**

1. Install applicable ADAPTERS (item 5) on ends of unit product inlet lines.

**NOTE: The numbered unit product inlet lines to dispensing valves are labeled to identify dispensing valve they serve. For example: The line labeled "1" must be connected to system that provides product to be dispensed from NO. 1 dispensing valve. (NO. 1 dispensing valve is valve on right side when facing front of unit.)**

2. Connect .265 I.D. or larger braided tubing from product tanks to unit product inlet lines.

## INSTALLING DISPENSING VALVES KNOBS

1. Install DECALS (item 7) on DISPENSING VALVES KNOBS (item 4)
2. Install knobs on dispensing valves by pushing knobs down into place on valves levers.

## FILL EVAPORATOR TANK AND START REFRIGERATION SYSTEM

1. Make sure plug is secure in end of evaporator tank drain hose inside cabinet.
2. Remove four screws securing top cover on unit, then lift cover straight up and off.
3. *Standard Unit.* Fill evaporator tank up to top of stainless steel product coils with approximately 10 gallons of water. USE LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEMS EXISTS.

*Unit with sealed evaporator tank.*

- A. Remove plug from end of evaporator tank overflow tube (see Figure 3).

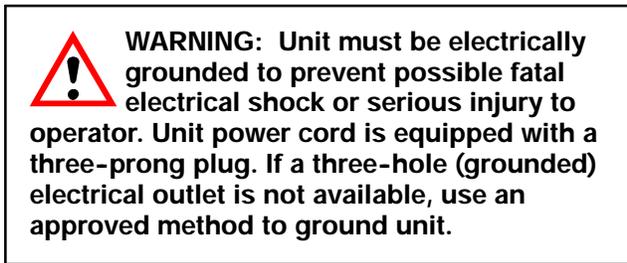
- B. Remove water fill hole plug from evaporator tank cover.
  - C. Fill evaporator tank until water starts flowing from overflow tube. **USE LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.**
  - D. Install plug in water fill hole in evaporator tank cover.
  - E. Install plug in end of evaporator tank overflow tube after full ice bank has been formed.
4. Install cover on unit and secure with four screws.
  5. Flip unit power switch (see Figure 3) to "OFF" (down) position.
  6. Plug unit power cord into a properly grounded electrical outlet.
  7. Flip unit power switch to "ON" (up) position.
  8. With unit power switch in "ON" position, make sure compressor, condenser fan motor, and agitator motor start to begin forming an ice bank. When full ice bank is formed, compressor and condenser fan motor will stop but agitator motor will continue to operate circulating ice water bath in evaporator tank.

### **PREPARING UNIT FOR OPERATION**

1. Adjust product tanks CO<sub>2</sub> regulators as instructed.
2. Connect product tanks into systems. Check for leaks and tighten loose connections.

### **UNIT OPERATION**

1. Dispense from dispensing valve until air is bled from system and product is dispensed.
2. Repeat step 1 preceding to purge air from remaining systems.
3. Adjust dispensed product flow rate as instructed.



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# OPERATORS INSTRUCTIONS

This section covers operating controls, daily pre-operation check, unit operation, adjustments, replenishing CO<sub>2</sub> and product supplies, cleaning and sanitizing unit, checking condenser coil for restrictions, and checking ice water bath.

## **OPERATING CONTROLS** (see Figure 3)

### **DISPENSING VALVE LEVER**

Dispensing valve lever need only to be pulled forward to dispense product and released when cup or glass is full.

### **UNIT POWER SWITCH**

Unit power switch, located on back of unit, must be in "ON" (up) position before unit will operate. PLACE UNIT POWER SWITCH IN "OFF" (DOWN) POSITION BEFORE PERFORMING INTERNAL SERVICE AND MAINTENANCE.

## **DAILY PRE OPERATION CHECK**

1. Make sure CO<sub>2</sub> cylinder regulator assembly 2000-psi gage indicator is not in shaded ("change CO<sub>2</sub> cylinder") portion of dial. If so, CO<sub>2</sub> cylinder is almost empty and must be replaced.
2. Sufficient product supply in all product tanks. If not, replenish product supply as instructed.
3. Make sure drip tray is clean and clean cup rest is in place in drip tray.

## **UNIT OPERATION**

1. Make sure unit power switch, located on back of unit, is in "ON" (up) position.
2. Hold cup or glass under dispensing valve. Pull dispensing valve lever forward and dispense until cup or glass is full, then release lever.

## **ADJUSTMENTS**

### **ADJUSTING PRODUCT TANKS CO<sub>2</sub> REGULATORS**

Product tanks CO<sub>2</sub> regulators should be periodically checked for proper pressure settings and if necessary, adjusted as instructed.

### **ADJUSTING DISPENSED PRODUCT FLOW RATE**

Product flow rate of dispensed product should be periodically checked and if necessary, adjusted as instructed.

## **REPLENISHING CO<sub>2</sub> SUPPLY**

NOTE: When indicator on CO<sub>2</sub> cylinder regulator assembly 2000-psi is in shaded ("change CO<sub>2</sub> cylinder") portion of the dial, CO<sub>2</sub> cylinder is almost empty and should be changed. CO<sub>2</sub> supply should be checked daily and if necessary, replenished as instructed.

## **REPLENISHING PRODUCT SUPPLY**

Product supply should be checked daily and if necessary, replenished as instructed.

## **CLEANING AND SANITIZING**

### **DAILY CLEANING OF UNIT**

Daily cleaning of unit should be performed at end of daily operation as instructed.

### **WEEKLY CLEANING OF DISPENSING VALVES**

Dispensing valves should be cleaned at least once a week as instructed.

### **SANITIZING UNIT**

Product systems should be sanitized as instructed every 90 days following Sanitizer Manufacturer's recommendations.

## **CHECKING CONDENSER COIL FOR RESTRICTIONS**

**NOTE: Air circulation through condenser coil, required to cool coil, is drawn in through air intake grille on unit front panel and is exhausted out through grilles on sides and back of unit. Restricting air circulation through unit will decrease its cooling efficiency.**

Area in front, sides, and back of unit must be kept free of obstructions at all times which would prevent air flow in and out of unit. Cooling unit condenser coil should be periodically cleaned to maintain cooling efficiency as instructed.

## **CHECKING ICE WATER BATH**

A "gurgle" heard from unit indicates water level in evaporator tank is low and more water should be added for maximum product cooling as instructed.

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# SERVICE AND MAINTENANCE

This section describes service and maintenance procedures to be performed on the unit.

**IMPORTANT:** Only qualified personnel should service internal components or electrical wiring.

## PREPARING UNIT FOR SHIPPING, RELOCATING, OR STORING



**CAUTION:** Before shipping, storing, or relocating this Unit, the syrup systems *must* be sanitized and all sanitizing solution *must* be purged from the syrup systems. All water *must* also be purged from the plain and carbonated water systems. A freezing ambient environment will cause residual water in the Unit to freeze resulting in damage to internal components.

## TOP COVER, ACCESS GRILLES, AND DRIP TRAY REMOVAL (see Figure 3)

### TOP COVER REMOVAL

Remove four screws securing unit top cover, then lift cover straight up and off.

### ACCESS GRILLES REMOVAL

Remove four screws securing access grille on unit, then remove grille.

### DRIP TRAY REMOVAL

1. If drip tray drain hose is used, disconnect drain hose from bottom of drip tray.
2. Lift drip tray up slightly, and at same time, tip front of drip tray up to disengage its bottom supports from square holes in unit front panel. Slide drip tray down to disengage its upper rear edge from under valve trim panel lip.
3. Install drip tray on unit by reversing removal procedure.

## PERIODIC INSPECTION

4. Check unit condenser coil for accumulation of dust, lint, and grease which will restrict air flow through condenser coil which will decrease unit cooling efficiency.
5. Check area in front, sides, and back of unit for obstructions. These areas must be kept clear at all times which would prevent air flow in and out of unit.

6. Check dispensing valves for dripping that indicates leaking and repair as necessary.

## ADJUSTMENTS

### ADJUSTING PRODUCT TANKS CO<sub>2</sub> REGULATORS

**NOTE:** To readjust CO<sub>2</sub> regulator to a lower setting, loosen adjusting screw lock nut, then turn screw to the left (counterclockwise) until pressure gage reads 5-psi lower than new setting will be. Turn adjusting screw to the right (clockwise) until gage registers new setting, then tighten lock nut.

Set product tanks CO<sub>2</sub> regulators, using Cornelius PRE-MIX COMPUTER slide rule or bottling room chart, at equilibrium pressure for highest temperature encountered between product tank storage area and cooling unit plus 5-psig operating pressure for lines 10-feet in length or less and no vertical lift. Add one pound for every 10-feet over initial 10-feet of product tank-to-cooling unit line length and one pound for every 2-feet of vertical lift. Add one pound for every product tank on line over three tanks. **MAXIMUM UNIT INLET PRESSURE MUST NOT EXCEED 100-PSIG.** Loosen lock nut on CO<sub>2</sub> cylinder adjusting screw, then turn adjusting screw to the right (clockwise) until gage registers desired pressure. Tighten adjusting screw lock nut.

### ADJUSTING DISPENSED PRODUCT FLOW RATE

Rotate dispensing valve Compensator Adjusting Screw (Figure 3) to the left (counterclockwise) for higher product flow rate or to the right (clockwise) for lower product flow rate.

## REPLENISHING CO<sub>2</sub> SUPPLY

**NOTE:** When indicator on CO<sub>2</sub> cylinder regulator assembly 2000-psi gage is in shaded ("change CO<sub>2</sub> cylinder") portion of dial, CO<sub>2</sub> cylinder is almost empty and should be changed.

1. Fully close (clockwise) CO<sub>2</sub> cylinder valve.
2. Slowly loosen CO<sub>2</sub> regulator assembly coupling nut allowing CO<sub>2</sub> pressure to escape, then remove regulator assembly from empty CO<sub>2</sub> cylinder.
3. Unfasten safety chain and remove empty CO<sub>2</sub> cylinder.



**WARNING:** To avoid personal injury and/or property damage, always secure CO<sub>2</sub> cylinder with safety chain to prevent it from falling. Should valve become accidentally damaged or broken off, CO<sub>2</sub> cylinder can become an unguided missile.

4. Position CO<sub>2</sub> cylinder and secure with safety chain.
5. Make sure gasket is in place inside CO<sub>2</sub> regulator coupling nut, then install regulator on CO<sub>2</sub> cylinder.
6. Open (counterclockwise) CO<sub>2</sub> cylinder valve slightly to allow lines to slowly fill with gas, then open valve fully to back-seat valve. (Back-seating valve prevents leakage around valve shaft).
7. Check CO<sub>2</sub> connections for leaks. Tighten loose connections.

### **REPLENISHING PRODUCT SUPPLY**

1. Remove inlet (CO<sub>2</sub>) disconnect (grey) and outlet disconnect (black) from empty product tank, then remove tank.
2. Place full product tank in position, then connect inlet (CO<sub>2</sub>) disconnect (grey) and outlet disconnect (black) to tank.

### **PRODUCT FLAVOR CHANGE**

Sanitize applicable system as instructed, then install full tank of new flavor product.

### **CLEANING CONDENSER COIL**

**NOTE:** Air circulation through condenser coil, required to cool coil, is drawn in through grille on front panel and is exhausted out through grilles on sides and back of unit. Restricting air circulation through unit will decrease its cooling efficiency.

Excessive accumulation of dust, lint, and grease on condenser coil will restrict air flow through coil and cause a loss of cooling efficiency. Perform following procedure to clean condenser coil.

1. Flip unit power switch, located on back of unit, to "OFF" (down) position.
2. Remove four screws securing grille on front panel, then remove grille.

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3. Vacuum or use a soft brush to clean condenser coil. If available, use low-pressure compressed air.
4. Install grille on front panel and secure with four screws.
5. Flip unit power switch to "ON" (up) position.

### **CHECKING ICE WATER BATH** (see Figures 3 and 4)

A "gurgle" heard from unit indicates water level in evaporator tank is low and more water should be added for maximum product cooling. Before adding more water, ice water bath and ice bank should be checked for cleanliness and agitator motor shaft, ice bank sensing bulb, and anode checked for excessive mineral deposit build-up.

1. Flip unit power switch, located on back of unit, to "OFF" (down) position.
2. Remove four screws securing unit top cover, then lift cover straight up and off.
3. Unit with sealed evaporator tank only.
  - A. Remove quick disconnects (black) from product tanks outlets.
  - B. Relieve pressure from systems by opening each dispensing valve.
  - C. Disconnect agitator motor ground wire and power cord.
  - D. Disconnect product inlet lines swivel nut connections from fittings on evaporator tank cover. Be careful not to lose tapered gaskets.
  - E. Remove hex nuts securing evaporator tank coils line fittings to evaporator tank cover.
  - F. Remove screws securing evaporator tank cover to unit, then lift cover straight up to remove. Be careful not to lose rubber washers on tank coils line fittings.
4. Check condition of ice water bath and ice bank. Ice water bath should be clear and ice bank free of foreign particles.
5. Check agitator motor shaft, ice bank sensing bulb, and anode for excessive mineral deposit build-up.
6. If cleaning of evaporator tank is necessary, refer to CLEANING EVAPORATOR TANK in this section.

\*WATER FILL PLUG  
VALUE TRIM  
PANEL  
DISPENSING VALVE (4)  
2            3

DRIP TRAY  
DRAIN HOSE

ACCESS  
GRILLE (4)

ACCESS GRILLE  
RETAINING SCREW (4)

COMPENSATOR  
ADJUSTING  
SCREW

COVER  
RETAINING SCREW (2)

\*EVAPORATOR TANK  
OVERFLOW TUBE

PLUG

EVAPORATOR TANK  
DRAIN HOSE

UNIT POWER  
SWITCH

\*UNIT WITH SEALED EVAPORATOR TANK.

EVAPORATOR  
TANK

ALUMINUM  
SCREW

ANODE

AGITATOR  
MOTOR

FIGURE 4. EVAPORATOR TANK (STANDARD UNIT SHOWN)

7. Fill evaporator tank with water up to top of stainless steel product coils. USE LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
8. Unit with sealed evaporator tank only.
  - A. Install evaporator tank cover and coils line fittings, connect agitator motor ground wire and power cord, and connect product inlet lines swivel nut connections to fittings on evaporator tank cover.
  - B. Install quick disconnects (black) on product tanks outlets.
  - C. Dispense from dispensing valves to bleed air from systems.
  - D. Check for leaks and repair if evident.
9. Install unit top cover and secure with four screws.
10. Flip unit power switch to "ON" (up) position.

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**CLEANING EVAPORATOR TANK** (see Figure 4)

**NOTE: Ice water bath should be changed as often as necessary to keep evaporator tank clean. A convenient time to perform this operation is at time unit is being sanitized. To save time, water can be drained from the evaporator tank while unit is being sanitized.**

1. Flip power switch, on back of unit, to "OFF" (down) position.
2. Remove four screws securing unit top cover, then remove cover.
3. Remove four screws securing either side or back access grille, then remove grille.
4. Extend drain hose from bottom of evaporator tank inside unit out through removed access grille to waste receptacle or drain. Remove plug and allow water to drain from evaporator tank.
5. Unit with sealed evaporator tank only.

Refer to step 3 CHECKING ICE WATER BATH and perform procedures to disconnect product tanks from systems, relieve systems pressures, and remove evaporator tank cover.

**NOTE: If ice bank is clear and contains no foreign particles, it does not have to be melted down. Skip steps 6 and 7 and proceed with step 8).**

- If ice bank is dirty, allow it to melt. Hot water may be used to speed melting.



**CAUTION:** Never use an ice pick or other instrument to remove ice from evaporator. Such practice can result in punctured refrigerant circuit or damage to corrosion protective coating on evaporator tank.

- Wash inside of evaporator tank with a mild soap solution.



**CAUTION:** Function of the anode in the ice water bath is to draw corrosive agents to itself and away from evaporator tank. Make sure ice bank sensing bulb and anode, with its rubber insulator in place on top end, are properly placed in their respective position. Anode must be completely insulated from other metal components and only an aluminum screw must be used to secure its connecting wire to evaporator tank. If anode is allowed to contact other metal parts, its effectivity will be destroyed, allowing corrosive action to take place on evaporator tank.

- Use fiber brush and carefully clean mineral deposit build-up from agitator motor shaft, ice bank sensing bulb, and anode. If after cleaning anode, and it is found to be badly corroded, replace with a new one. Make sure only an aluminum screw is used to secure anode connecting wire to evaporator tank.
- Rinse all parts and flush evaporator tank with clean water.
- Install plug in drain hose, then place hose back inside unit.
- Install grille and secure with four screws.
- Fill evaporator tank (if no ice bank is present) with approximately 10 gallons of water up to top of stainless steel product coils. USE LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
- Unit with sealed evaporator tank only.

Refer to step 8 CHECKING ICE WATER BATH and perform procedures to install evaporator tank cover, connect product tanks into systems, bleed air from systems, and check for leaks.

- Flip unit power switch on back of unit to "ON" (up) position. Make sure compressor condenser fan motor, and agitator motor are operating.

## CLEANING AND SANITIZING

### DAILY CLEANING OF UNIT

**NOTE:** Drip tray that is connected to drain hose routed to waste container or permanent drain need not be removed from unit to be cleaned. Remove cup rest, then wash out and rinse drip tray in place on unit allowing water to escape through drain hose to waste container or drain. Wash and rinse cup rest, then install cup rest in drip tray. If drip tray is not connected to drain, proceed as follows:

- Lift drip tray up slightly and at the same time, tip front of drip tray up to disengage its bottom supports from square holes in unit front panel. Slide drip tray down to disengage its upper rear edge from under valve trim panel lip.
- Remove cup rest from drip tray. Wash cup rest and drip tray, then rinse them with potable water.
- Install cup rest in drip tray, then install drip tray on unit by reversing removal procedure.
- Rinse out sponge with clean water, then wring excess water out of sponge. Wipe off external surfaces of unit, then wipe unit dry with a clean soft cloth. DO NOT USE ABRASIVE TYPE CLEANERS.

KNOB LEVER BONNET                      KNOB  
 FRICTION WASHER  
 COMPENSATOR  
 O-RING  
 SHAFT AND SEAT ASS'Y  
 BODY  
 INNER SLEEVE  
 OUTER SLEEVE  
 PHILLIPS-HEAD SCREW  
 SPRING  
 COMPENSATOR ADJUSTING SCREW  
 O-RING  
 LEVER  
 BALL WASHER

**FIGURE 5. CLEANING DISPENSING VALVE**

## WEEKLY CLEANING OF DISPENSING VALVES (see Figure 5)

Dispensing valves should be cleaned at least weekly for proper operation. A convenient time to clean dispensing valves is at time unit is being sanitized. Perform following procedure to clean dispensing valves.

1. Remove quick disconnects (black) from product tanks outlets.
2. Open dispensing valves to relieve pressure on systems.
3. Remove dispensing valve knobs by pulling knobs up and off valves.
4. Using a spanner wrench, loosen and remove coupling nuts from dispensing valves, then remove valves from unit.
5. Remove phillips-head screw on end of dispensing valve, then remove outer sleeve, spring, and inner sleeve.
6. Loosen and remove knob lever bonnet securing lever in dispensing valve body, then remove lever.
7. Slide shaft and seat assembly out through rear of dispensing valve body.
8. Wash disassembled dispensing valve parts in warm potable water.
9. Assemble dispensing valve by reversing disassembly procedure steps 5 through 7 preceding.
10. Disassemble and clean remaining dispensing valve by performing steps 5 through 9 preceding.
11. Remove compensators from inside sleeve and coupling nut assemblies.
12. Wash compensators in warm potable water, then install compensators in sleeve and coupling nut assemblies.
13. Install dispensing valves on unit. Make sure coupling nuts are tight.
14. Install quick disconnects on product tanks outlets.
15. Open dispensing valves to bleed air from systems and until product flows from valves.

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## SANITIZING UNIT

**NOTE: This unit should be sanitized every 90 days following Sanitizer Manufacturer's recommendations. Use Chlor-Tergent (Oakite Products, Inc.) or equivalent sanitizer. An economic practice would be to arrange any product flavor changeover to coincide with sanitizing operation.**

1. Remove quick disconnects from product tanks. Rinse quick disconnects in potable water.
2. Following Sanitizer Manufacturer's instructions, fill clean empty product tank with sanitizing solution.
3. Connect tank containing sanitizing solution into system to be sanitized.
4. Place waste container under applicable dispensing valve. Open dispensing valve to permit sanitizing solution to push product out of line, coil, and dispensing valve. Continue to draw from valve until only sanitizing solution is dispensed.
5. Repeat steps 3 and 4 preceding to purge product from, and install sanitizing solution in, remaining systems.
6. Follow Sanitizer Manufacturer's application instructions.



**WARNING: To avoid possible personal injury or property damage, do not attempt to remove product tank cover until CO<sub>2</sub> pressure has been released from tank.**

7. Remove tank containing sanitizing solution from system and install tank containing potable water.



**WARNING: Flush sanitizing solution from system as instructed. Residual solution left in system could create a health hazard.**

8. Place waste container under dispensing valve. Open dispensing valve to permit flush water to purge sanitizing solution out of line, coil, and dispensing valve. Continue to draw from valve until only flush water is dispensed.
9. Install tank containing flush water on remaining systems, then repeat step 8 preceding to flush sanitizing solution from systems until only flush water is dispensed.

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**WARNING: To avoid possible personal injury or property damage, do not attempt to remove product tank cover until CO<sub>2</sub> pressure has been released from tank.**

10. Remove tank containing flush water from system and install clean empty product tank.

11. Place waste container under applicable dispensing valve and blow residual water from system.
12. Repeat step 11 preceding to blow residual water from remaining systems.

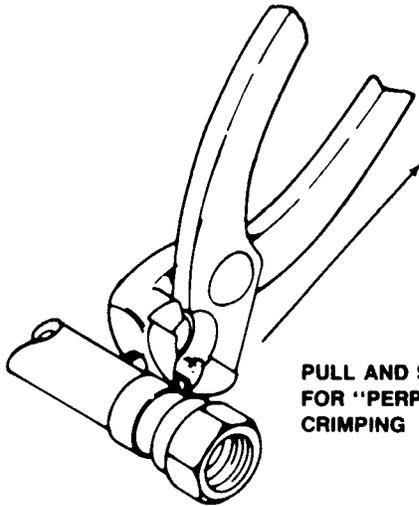
Install product tanks in systems.

Open each dispensing valve until all gas is purged from systems and product is dispensed.

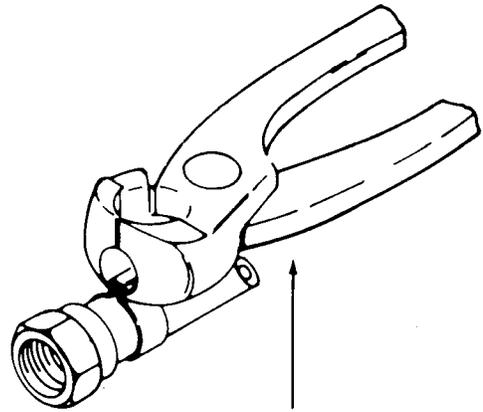
AGITATION MOTOR  
RECEPTACLE  
POWER SWITCH  
WIRE SPLICE  
CAP  
WHITE  
POWER  
CORD  
GREEN  
ICE BANK  
CONTROL  
COMPRESSOR  
CONDENSER  
FAN MOTOR  
CONTROL BOX

**FIGURE 6. WIRING DIAGRAM**

**INSTRUCTIONS  
for  
CRIMPING TUBE CLAMPS**

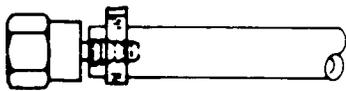


**PULL AND SQUEEZE PINCER  
FOR "PERPENDICULAR"  
CRIMPING**



**LIFT AND SQUEEZE PINCER  
FOR "PARALLEL" OR  
"SIDE SADDLE" CRIMPING**

**SLIDE CLAMPS ON  
TUBING BEFORE INSTALLING  
TUBING ON FITTING**



**POSITION CLAMP BEHIND  
FIRST BARB FITTING  
FOR CRIMPING**

**DO**

**PROPER  
CRIMPING**



**DON'T**

**IMPROPER  
CRIMPING**



**ONE-SIDED**



**TWISTED**



**OVER-  
CRIMPED**

**FIGURE 7. INSTRUCTIONS FOR CRIMPING TUBE CLAMPS**

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# TROUBLESHOOTING

**IMPORTANT:** Only qualified personnel should service internal components or electrical wiring.



**WARNING:** If repairs are to be made to carbonated water system, disconnect electrical power to Cooling Unit, shut off plain water and CO<sub>2</sub> supplies, and relieve the carbonated water system pressure before proceeding. If repairs are to be made to syrup system, remove quick disconnects from applicable syrup tank, then relieve the system pressure before proceeding. If repairs are to be made to CO<sub>2</sub> system, stop dispensing, shut off CO<sub>2</sub> supply, then relieve the system pressure before proceeding.  
If repairs are to be made to an existing Remote Condensing unit, disconnect the power to the condensing unit before proceeding

Trouble	Probable Cause	Remedy
NO PRODUCT DISPENSED.	<ul style="list-style-type: none"> <li>A. Product tank quick disconnects not attached.</li> <li>B. No product supply (tank empty).</li> <li>C. No CO<sub>2</sub> supply.</li> </ul>	<ul style="list-style-type: none"> <li>A. Attach quick disconnects.</li> <li>B. Replenish product supply as instructed.</li> <li>C. Replenish CO<sub>2</sub> supply as instructed.</li> </ul>
DISPENSED PRODUCT COMES OUT OF DISPENSING VALVE CLEAR BUT FOAMS IN CUP OR GLASS	<ul style="list-style-type: none"> <li>A. Oil film or soap scum in cup or glass.</li> <li>B. Ice used for finished drink is sub-cooled.</li> </ul>	<ul style="list-style-type: none"> <li>A. Use clean cups and glasses.</li> <li>B. Do not use ice directly from freezer. Allow ice to become "wet" before using. (Refer to following NOTE)</li> </ul>
<b>NOTE: Crushed ice also causes dispensing problems. When dispensed drink hits sharp edges of the ice, carbonation is released from drink.</b>		
DISPENSED PRODUCT FOAMS AS IT LEAVES DISPENSING VALVE.	<ul style="list-style-type: none"> <li>A. Recovery rate of unit exceeded (ice bank depleted).</li> <li>B. Product tanks CO<sub>2</sub> regulator adjusted too high.</li> <li>C. Dispensing valve restricted or dirty.</li> <li>D. Tapered nylon washer inside tube swivel nut connection distorted from being overtightened restricting product flow.</li> <li>E. Oil, water, or dirt in CO<sub>2</sub> supply.</li> </ul>	<ul style="list-style-type: none"> <li>A. Allow ice bank to recover.</li> <li>B. Adjust product tanks CO<sub>2</sub> regulator to proper equilibrium pressure as instructed, then replace product supply.</li> <li>C. Clean dispensing valve as instructed.</li> <li>D. Replace nylon washer. Make sure it is properly seated.</li> <li>E. Remove contaminated CO<sub>2</sub>. Clean CO<sub>2</sub> system (lines, regulators, etc.). Install a clean CO<sub>2</sub> supply.</li> </ul>

Trouble	Probable Cause	Remedy
<b>REFRIGERATION SYSTEM</b>		
COMPRESSOR DOES NOT OPERATE.	A. Ice bank sufficient.	A. Refrigeration not called for.
	B. Unit power cord unplugged or unit power switch in "OFF" (down) position.	B. Plug in power cord or flip power switch to "ON" (up) position.
	C. No power source (blown fuse or tripped circuit breaker).	C. Replace fuse or reset circuit breaker. (Note: Fuse is not part of unit)
	D. Low voltage at compressor terminals.	D. Voltage must be at least 103 volts (115 VAC model) or 208 volts (230 VAC model) at compressor terminals when compressor is trying to start.
	E. Loose, disconnect, or broken wiring.	E. Tighten connections or replace broken wiring.
	F. Overload protector cut out; over-heated compressor.	F. Compressor will cool enough to Condenser fan restart. Do not overdraw cooling motor not operating as required. capacity of dispenser. Refer to "CONDENSER FAN MOTOR NOT OPERATING" in this section.
	G. Inoperative overload protector or start relay.	G. Replace inoperative part.
	H. Inoperative ice bank control.	H. Replace ice bank control.
	I. Inoperative compressor.	I. Replace compressor.
COMPRESSOR WILL NOT STOP AFTER SUFFICIENT ICE BANK IS FORMED. (NOTE-ICE BANK SHOULD JUST COVER CONTROL BULB).	A. Ice bank control cap tube kinked or broken.	A. Replace ice bank control.
	B. Ice bank control stuck in closed position.	B. Replace ice bank control.
COMPRESSOR OPERATES CONTINUOUSLY BUT DOES NOT FORM SUFFICIENT ICE BANK.	A. Cooling capacity is exceeded by over-drawing.	A. Reduce amount of drinks drawn per given time.
	B. Unit located in excessively hot area or air circulation through condenser coil is restricted.	B. Relocate unit or determine and correct condenser coil restriction.
	C. Refrigeration system leak.	C. Repair refrigeration system.
<b>NOTE: Ice bank freezes from bottom of evaporator upward. A refrigerant leak or insufficient charge might show an ice bank at bottom and not at top of evaporator.</b>		

Trouble	Probable Cause	Remedy
CONDENSER FAN MOTOR NOT OPERATING.	<b>NOTE: If overload protector cuts out compressor, condenser fan motor will continue to run; otherwise, troubleshooting condenser fan motor problems is same as for "COMPRESSOR DOES NOT OPERATE" paragraph plus the following:</b>	
	A. Jumper cord loose or disconnected from motor or terminal block. Broken wire is cord.	A. Tighten connections or replace cord.
	B. Fan blade obstructed.	B. Remove obstructions.
AGITATOR MOTOR NOT OPERATING.	A. Unit power cord or agitator motor power cord disconnected or unit power switch in "OFF" position.	A. Plug in power cords or place unit power switch in "ON" position.
	B. No power source (blown fuse or tripped circuit breaker).	B. Replace fuse or reset circuit breaker. (Note: Fuse is not part of unit).
	C. Agitator motor propeller obstructed.	C. Remove obstructions.
	D. Low voltage.	D. Voltage must be at least 103 volts (115 VAC model or 208 volts (230 VAC model) at compressor terminals when compressor is trying to start.
	E. Loose, disconnected, or broken wiring.	E. Tighten connections or replace broken wiring.
	F. Inoperative agitator motor.	F. Replace agitator motor as instructed.

# WARRANTY

IMI Cornelius Inc. warrants that all equipment and parts are free from defects in material and workmanship under normal use and service. For a copy of the warranty applicable to your Cornelius, Remcor or Wilshire product, in your country, please write, fax or telephone the IMI Cornelius office nearest you. Please provide the equipment model number, serial number and the date of purchase.

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