



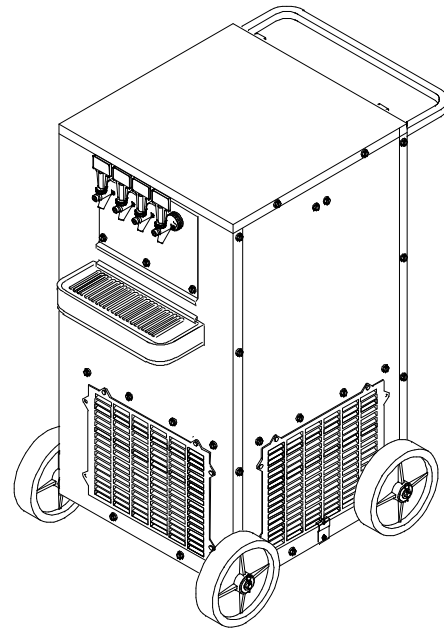
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# Installation Manual

## C-1550 UNIVERSAL PRE-MIX DISPENSER (R-404A REFRIGERANT)



Part No. 309989001  
January 7, 1986  
Revised: January 27, 1999  
Control Code A

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION

This Manual must be read and understood before installing or operating this equipment

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# SAFETY INFORMATION

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## Recognize Safety Information

This is the safety-alert symbol. When you see this symbol on our machine or in this manual, be alert to the potentially of personal injury.

Follow recommended precautions and safe operating practices.



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## Understand Signal Words

A signal word - **DANGER**, **WARNING**, OR **CAUTION** is used with the safety-alert symbol. **DANGER** identifies the most serious hazards.

Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.



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## Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Learn how to operate the machine and how to use the controls properly. Do not let anyone operate the machine without instructions. Keep your machine in proper working condition. Unauthorized modifications to the machine may impair function and/or safety and affect the machine life.

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## CO<sub>2</sub> (Carbon Dioxide) Warning

**CO<sub>2</sub> Displaces Oxygen.** Strict Attention *must* be observed in the prevention of CO<sub>2</sub> (carbon dioxide) gas leaks in the entire CO<sub>2</sub> and soft drink system. If a CO<sub>2</sub> gas leak is suspected, particularly in a small area, *immediately* ventilate the contaminated area before attempting to repair the leak. Personnel exposed to high concentration of CO<sub>2</sub> gas will experience tremors which are followed rapidly by loss of consciousness and suffocation.

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## Shipping, Storing, Or Relocating Unit

**CAUTION:** Before shipping, relocating, or storing this Unit, the product coils *must* be flushed with potable water, all water *must* be purged from the product coils, ice bank *must* be melted, and water *must* be drained from the water tank. A freezing ambient environment will cause residual water remaining inside the Unit to freeze resulting in damage to the Unit internal components.

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# GENERAL INFORMATION

## TO THE USER OF THIS MANUAL

This Manual is a guide for installing and operating this equipment. Refer to Table of Contents for page location of detailed information pertaining to questions that may arise during installation or operation of this equipment. A Service Manual (P/N 309989004) for this equipment is available upon request.

This Unit must be installed and serviced by a qualified Service Person. This Unit contains no User serviceable parts.

## CLAIMS INSTRUCTIONS

**Claims:** In the event of shortage, notify the carrier as well as IMI Cornelius immediately. In the event of damage, notify the carrier. **IMI Cornelius is not responsible for damage occurring in transit, but will gladly render assistance necessary to pursue your claim. Merchandise must be inspected for concealed damage within 15 days of receipt.**

## WARRANTY REFERENCE INFORMATION

<b>Warranty Registration Date</b> (to be filled out by customer)
<b>Unit Part Number:</b>
<b>Serial Number:</b>
<b>Install Date:</b>
<b>Local Authorized Service Center:</b>

## DESIGN DATA

Table 1. Design Data	
Unit Part Numbers:	
Universal C-1550XR Four-Flavor (115 VAC, 60 Hz)	2849749020
Universal C-1550XR Four-Flavor (115 VAC, 60 Hz)	2849749200
Universal C-1550XR Five-Flavor (115 VAC, 60 Hz)	2849759200
Universal C-1550XR Five-Flavor (230 VAC, 50 Hz)	4949759020
Universal C-1550XR Five-Flavor (115 VAC, 60 Hz)	2849759020
Universal C-1550XR Five-Flavor (230 VAC, 50 Hz)	4949759200
Overall Dimensions:	
Height	42-1/2 inches
Width	21-3/4-inches
Depth (with drip tray)	31-1/2 inches
Weights:	
Shipping (1 Carton)	189 pounds
Dry Weight	170 pounds
With Water Tank Full of Water	403 pounds
Ice Bank Weight	100 pounds
Capacities:	
Unit Water Bath (no ice bank) approx.	28 gallons

Table 1. Design Data (cont'd)	
Dispensing Rate:	
12-oz. drinks 8/minute	724 (see <b>Note</b> )
<b>NOTE: *Number of 12-oz. drinks that can be dispensed at 40° F or below with 75° F product inlet temperature and 75° F ambient.</b>	
Refrigerant Requirement	
See Unit Nameplate	
Ambient Operating Temperature	
40° F to 100° F	
Electrical Requirements:	
See Unit Nameplate	

## UNIT DESCRIPTION

The Unit (see Figure 1) is equipped with manually operated self-closing dispensing valves. The Unit is equipped with a handle and wheels which makes it a mobile Unit. The refrigeration system is equipped with a 3/4 H.P. compressor that is easily accessible for service and maintenance.

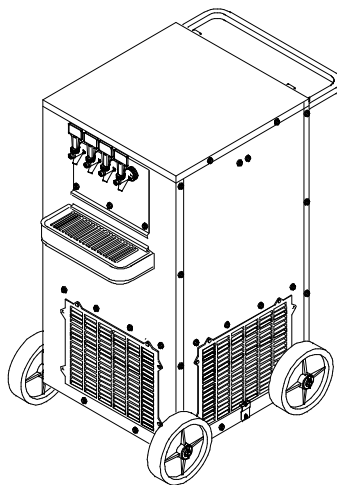
Installation of LOOSE-SHIPPED PARTS (see Table 2), filling the water tank with water, connection to product tanks with regulated CO<sub>2</sub> gas pressure, and connection to an electrical outlet with proper electrical requirements is all that is required to set the Unit up for operation.

## THEORY OF OPERATION

(see Figure 2)

A CO<sub>2</sub> cylinder delivers carbon dioxide (CO<sub>2</sub>) gas through adjustable CO<sub>2</sub> regulators to the product tanks. When dispensing valves are opened, CO<sub>2</sub> gas pressure exerted upon the product tanks pushes product from the tanks, through the Unit cooling coils, and on to the dispensing valves resulting in cold drinks being dispensed.

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



**FIGURE 1. UNIVERSAL C-1550XR (FOUR-FLAVOR UNIT SHOWN)**

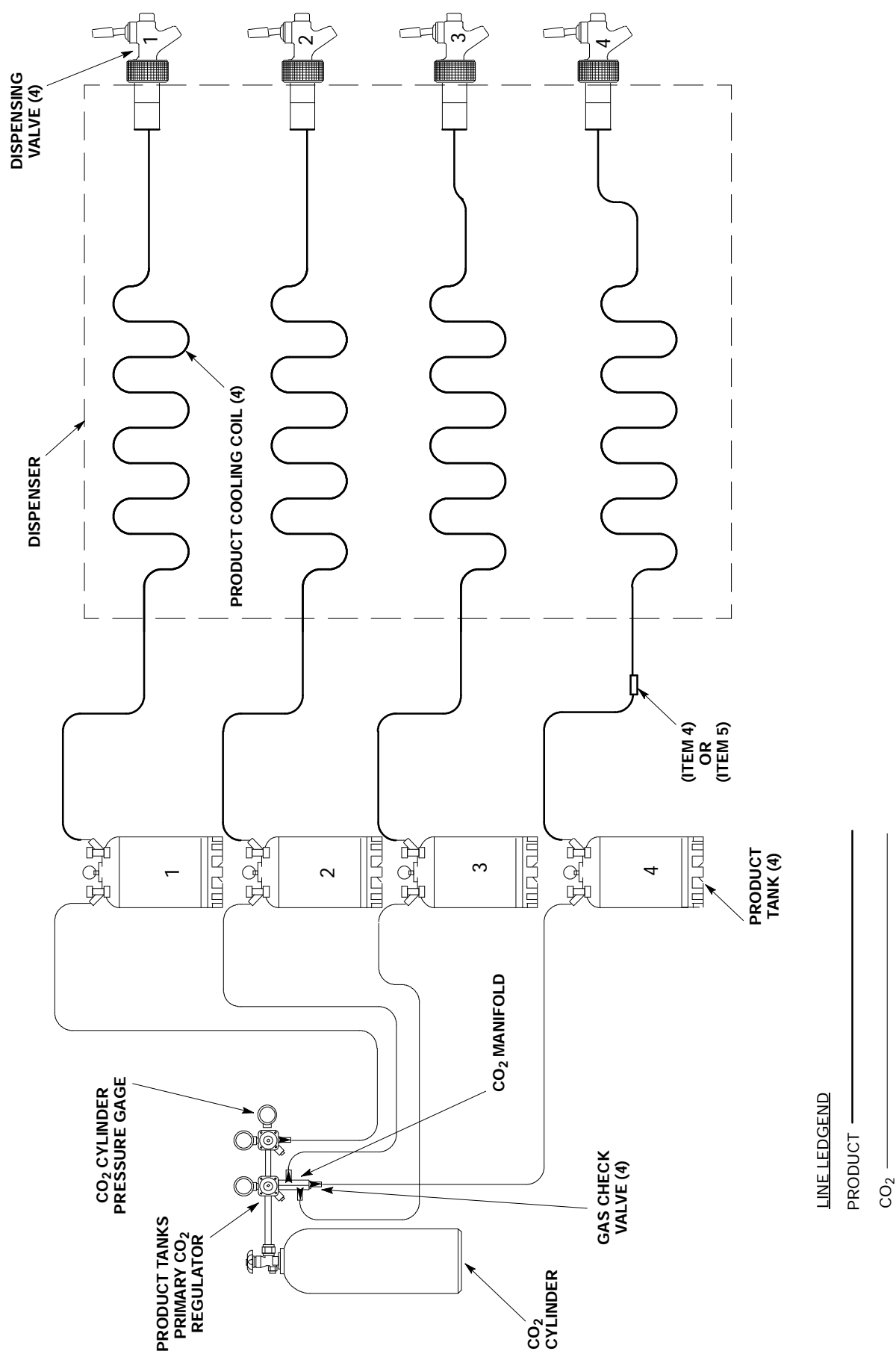


FIGURE 2. FLOW DIAGRAM (FOUR-FLAVOR UNIT SHOWN)



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# INSTALLATION

This section describes receiving the Unit, unpacking and inspection, location selection, installation, and preparation for operation.

## RECEIVING

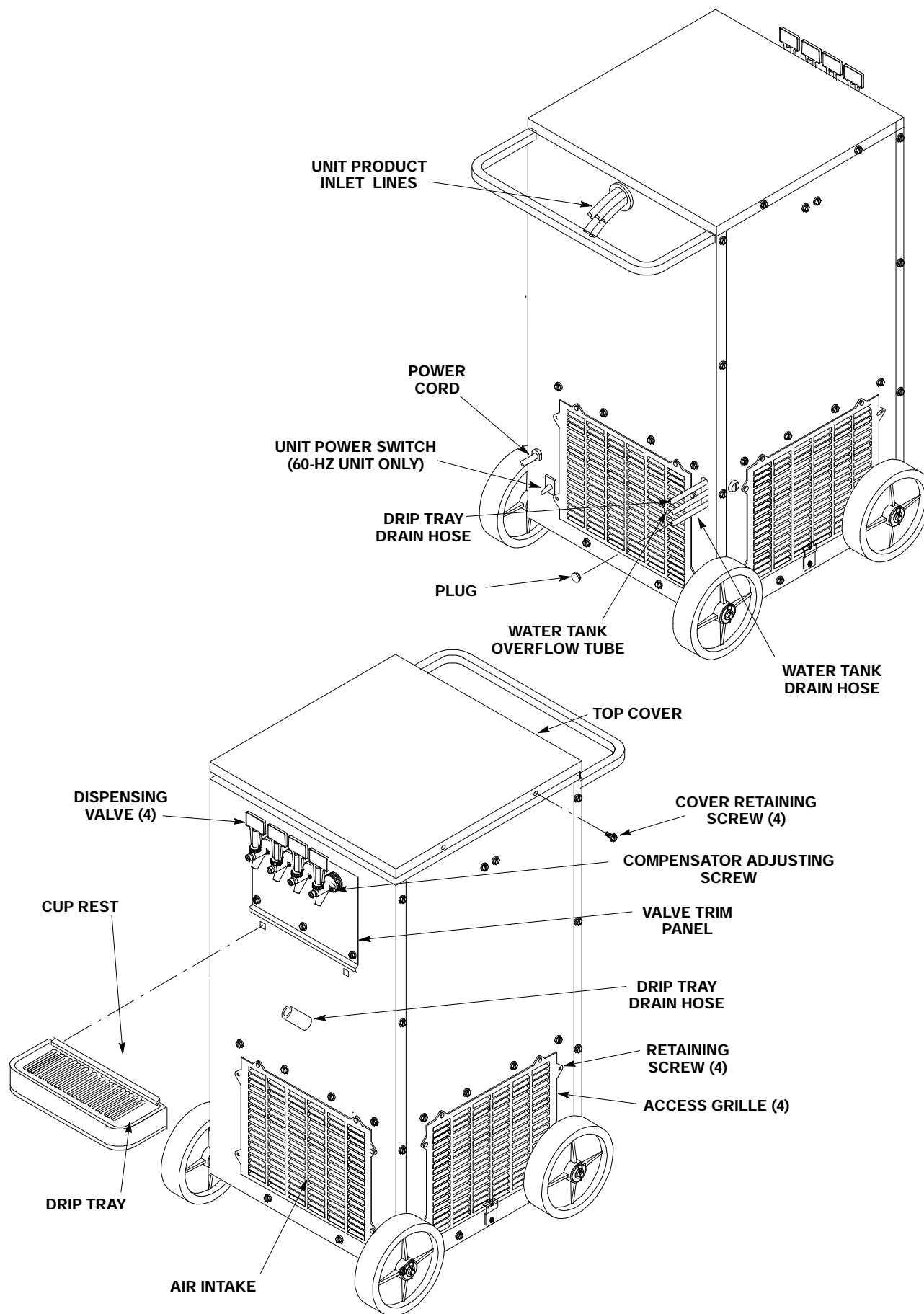
Each Unit is completely tested under operating conditions and is thoroughly inspected before shipment. At the time of shipment, the carrier accepts the Unit and any claim for damage in transit must be made with the carrier. Upon receiving the Unit from the delivering carrier, carefully inspect the carton for visible indication of damage. Any damage or irregularities should be noted at this time (not later than 15 days from date of delivery) and immediately be reported to the delivering carrier. Request a written inspection report from the carrier's claims inspector to substantiate the claim. File the claim with the delivering carrier *not* with IMI Cornelius Inc.

## UNPACKING AND INSPECTION

Unpack Unit as follows:

1. After the Unit has been unpacked, remove shipping tape and other packing material.
2. Carefully inspect the Unit for evidence of damage. If evidence of damage or irregularities is present, file a claim with the delivering carrier.
3. Unpack LOOSE-SHIPPED parts. Make sure all items are present and in good condition.

Table 2. Loose-Shipped Parts								
Item No.	Part No.	Name	2849749020 Qty	2849749200 Qty	2849759020 Qty	2849759200 Qty	4949759020 Qty	4949759200 Qty
1	151664702	Lens	2	-	2	-	2	-
2	186573039	Drip Tray	1	1	1	1	1	1
3	186642000	Cup Rest	1	1	1	1	1	1
4	150807100	Adapter Fitting, 7/16-20 male by 1/2-16 male	4	4	5	5	5	5
5	180740000	Reducer Fitting, 1/2-16 female by 7/16-20 male	-	4	-	5	-	5
6	178025100	Tapered Gasket, White	-	4	-	5	-	5
7	151741039	Knob, Dispensing Valve	4	4	5	5	5	5
8	322165000	Electrical Outlet, 20-amp	1	1	1	1	-	-
9	178025200	Tapered Gasket, Red	-	4	-	5	-	5
10	319941000	Thread Rolling Screw, Hex Washer Hd; No. 8-32 by 3/8-in. Long	4	4	4	4	4	4



**FIGURE 3. DISPENSER COMPONENTS (FOUR-FLAVOR UNIT SHOWN)**

## SELECTING LOCATION



**CAUTION:** This Unit is intended for indoor installation *only*. *Do not* install this Unit in an outdoor environment which would expose it to the outside elements.

**IMPORTANT:** For the most efficient operation of the Unit, the ambient operating temperature for the Unit should not exceed 90° F. Satisfactory temperatures may be obtained using blowers, air conditioning, etc. Check your local codes.

This Unit is equipped with a handle and wheels and is considered a mobile Unit.

Cooling air is drawn in through the front panel grille and is exhausted through grilles on both sides and back of the Unit.

1. Locate Unit to provide the following minimum clearances:
  - A. Clearance above the Unit ----- 12 inches to nearest obstruction.
  - B. Clearance back of Unit ----- 12 inches to nearest obstruction.
  - C. Clearance on sides of Unit ----- 12 inches to nearest obstruction.
  - D. Clearance on front of Unit ----- Open

## ELECTRICAL REQUIREMENTS



**DANGER:** To avoid possible fatal shock or serious injury to the Operator, it is *highly recommended* that a GFCI (ground fault circuit interrupt) be installed in the electrical circuit for the 115 VAC, 60 Hz Units. *It is required* that an ELCB (earth leakage circuit breaker) be installed in the electrical circuit for the 230 Vac, 50 Hz Units.

**NOTE:** An ELECTRICAL OUTLET, 20-AMP (item 8) is LOOSE-SHIPPED only with the 115 VAC, 60 Hz Units. This electrical outlet conforms to the Unit power cord plug configuration and is to be installed in the wall outlet box where the Unit power cord will be plugged into.

Locate the Unit near a properly grounded electrical outlet with proper electrical requirements. The electrical circuit *must* be properly fused (slow-blow type fuse) or the circuit *must* be connected through an equivalent HACR circuit breaker. The electrical outlet *must* be accessible for ease of connecting or disconnecting the Unit power cord. No other electrical appliance should be connected to this circuit. *ALL ELECTRICAL WIRING MUST CONFORM TO NATIONAL AND LOCAL ELECTRICAL CODES.*

## INSTALLATION

### FILL WATER TANK AND START REFRIGERATION SYSTEM

(see Figure 3)

**NOTE:** Use low-mineral-content water where a local water problem exists.

1. Make sure plug is secure in end of the water tank drain hose inside the cabinet.
2. Route water tank overflow tube out through hole in back of the cabinet to a waste container.
3. Fill water tank with clean water until water starts flowing from overflow tube into the waste container.
4. Install the Unit top cover and secure with four screws.
5. **115 VAC, 60 Hz Units only-** Replace existing fused (20A), grounded outlet with ELECTRICAL OUTLET, 20 AMP (item 8) provided in the LOOSE-SHIPPED parts.



**WARNING: The Unit must be electrically grounded to avoid possible fatal electrical shock or serious injury to the operator. The Unit power cord is equipped with a three-prong plug. If a three-hole (grounded) electrical outlet is not available, use an approved method to ground the Unit.**

6. **115 VAC, 60 Hz Units only**- Make sure the main power switch, located on the back of the Unit, is in the "OFF" (down) position. Plug Unit power cord into electrical outlet, then place the main power switch in the "ON" position.

**230 VAC, 50 Hz Unit**- Plug Unit power cord into electrical outlet.

The compressor, condenser fan motor, and agitator motor will start and begin forming an ice bank. When a full ice bank has been formed, the compressor and condenser fan motor will stop but the agitator motor will continue to operate circulating ice water bath in the water tank. Water will continue to drip from the water tank overflow tube until a full ice bank has been formed, then the tube may be removed from the waste container and stored inside the unit.

## DRIP TRAY DRAIN HOSE CONNECTION

(see Figure 3)

The Unit drip tray is self-contained and must be emptied periodically. If a drip tray drain is desired, cut out the center of the drain connection on the bottom center of the drip tray. Be sure to remove all plastic to open the drain to its maximum inside diameter which prevents any rough edges which will trap dirt. Install the DRIP TRAY (item 2) by inserting rear edge of the tray under lip of the valve trim panel and lifting up until bottom tray supports are inserted in the square holes provided in the front panel. Lock the drip tray in place by a slight downward pressure. Connect the drain hose below the drip tray to the drain connection on the drip tray. This drain hose runs to inside of the unit and must be routed out through the hole in the back of the Unit. The drain hose then must be routed to a waste container

## CONNECTING PRODUCT TANK SUPPLY LINES TO UNIT

(see Figure 2)

**NOTE: If 7/16-20 product tanks quick disconnects will be used, they may be connected directly to the Unit product inlet lines. If connecting 1/2-16 product tanks quick disconnects directly to the Unit product inlet lines, REDUCER FITTINGS (item 5), TAPERED GASKETS, WHITE (item 6) and TAPERED GASKETS, RED (item 9) must be used to make the connections.**

All Unit product inlet lines internal connections have been made at the factory. Perform the following to connect the Unit product inlet lines to the product tanks or product source supply lines.

**NOTE: The numbered Unit product inlet lines are labeled to identify the dispensing valves they serve. For example: The line labeled "1" is 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.)**

1. Install ADAPTOR FITTINGS (item 4) in ends of the Unit product inlet lines.
2. Make up lengths of tubing (product tanks supply lines) to reach from the remote product tanks location to the Unit product inlet lines.
3. Connect made up product tanks supply lines to the Unit product inlet lines.
4. Install 1/2-16 product tanks quick disconnects on ends of the ends of the product tanks supply lines using REDUCER FITTINGS (item 5), TAPERED GASKETS, WHITE (item 6), and TAPERED GASKETS, RED (item 9). The product tanks supply lines lines should be labeled for identification as to dispensing valves they serve).

## PREPARING UNIT FOR OPERATION

1. Install CUP REST (item 3) in the drip tray.

2. Install KNOBS, DISPENSING VALVES (item 7) on the dispensing valves by pushing the knobs down in place on the valves levers.



**WARNING:** CO<sub>2</sub> displaces oxygen. Strict attention *must* be observed in the prevention of CO<sub>2</sub> (carbon dioxide) gas leaks in the entire CO<sub>2</sub> and soft drink system. If a CO<sub>2</sub> gas leak is suspected, particularly in a small area, *immediately* ventilate the contaminated area before attempting to repair the leak. Personnel exposed to high concentration of CO<sub>2</sub> gas will experience tremors which are followed rapidly by loss of consciousness and suffocation.



**WARNING:** To avoid personal injury and/or property damage, always secure CO<sub>2</sub> cylinder in upright position with safety chain to prevent it from falling over. Should the valve become accidentally damaged or broken off, CO<sub>2</sub> cylinder can cause serious personal injury.

3. Open (counterclockwise) the CO<sub>2</sub> cylinder shutoff valve slightly to allow the lines to slowly fill with gas, then open valve fully to back-seat the valve. (Back-seating the valve prevents leakage around the valve shaft.)



**CAUTION:** Before opening the CO<sub>2</sub> cylinder shutoff valve, turn the CO<sub>2</sub> regulators adjusting screws to the left (counterclockwise) until all tension is relieved from the adjusting screws springs.

4. Adjust the product tanks CO<sub>2</sub> regulator as follows:

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

Set the product tank CO<sub>2</sub> regulator using the Cornelius PRE-MIX COMPUTER slide rule or the bottling room chart. Enter equilibrium pressure for the highest temperature encountered between the product tank storage area and the 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 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 the CO<sub>2</sub> regulator adjusting screw, then turn the adjusting screw to the right (clockwise) until the gage registers the desired pressure. Tighten the adjusting screw lock nut.

**IMPORTANT:** To prevent off-taste of the dispensed product, the product systems must be sanitized to remove residue that may be present inside the Unit cooling coils.

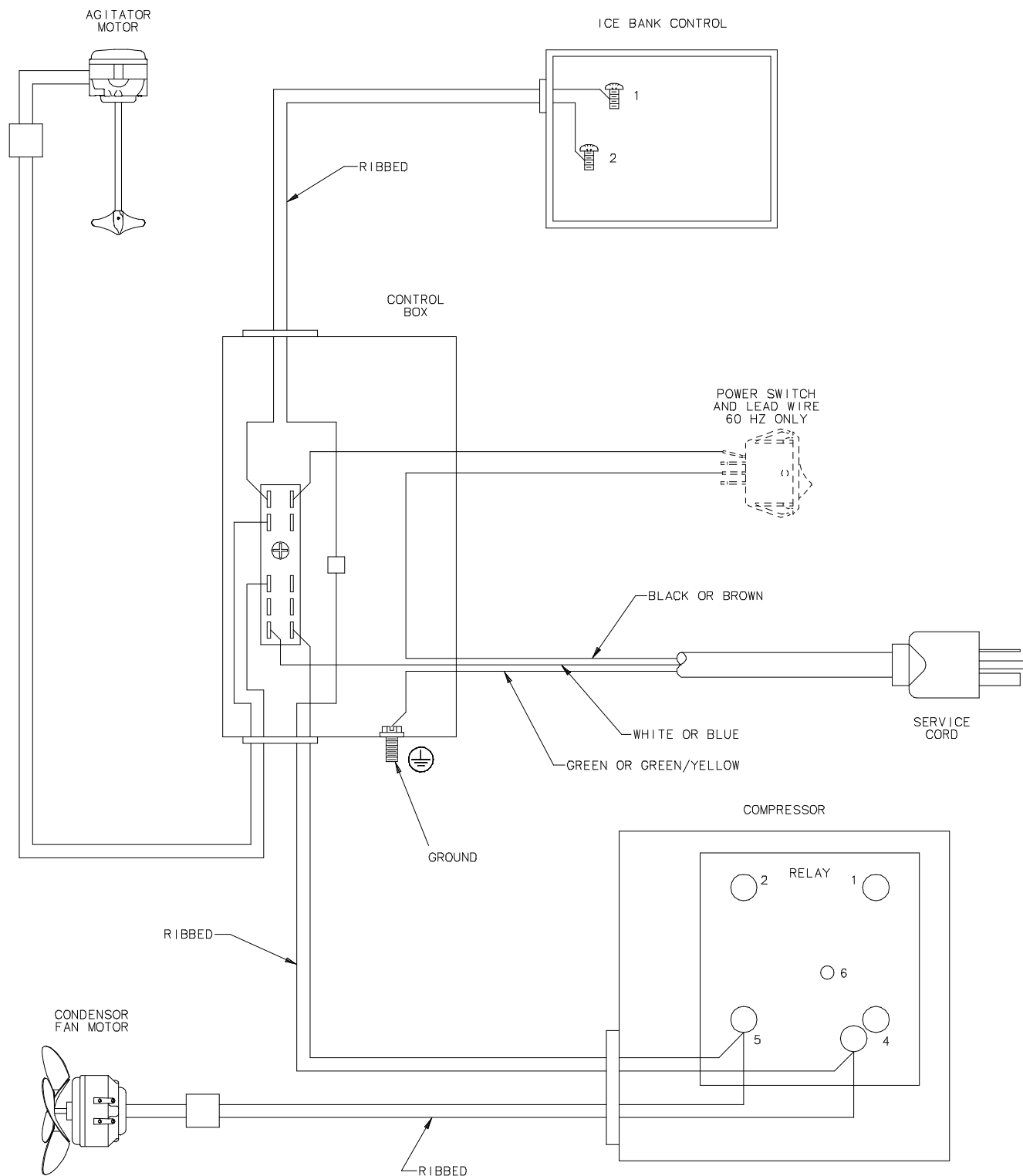
5. Sanitize all Unit product systems as instructed in the Operators manual (P/N 309989002).
6. Connect full product tanks into the product systems. Check for leaks and tighten any loose connections.

## UNIT OPERATION

1. Dispense from each dispensing valve until all air is purged from the product systems and only product is dispensed.
2. Check for leaks and tighten any loose connections.
3. Adjust dispensing valves for product flow rate by turning dispensing valve compensator adjusting screw (see Figure 3) to the left (counterclockwise) for higher product flow rate or to the right (clockwise) for a lower product flow rate.

## INSTALLING LENS

Where applicable, install LENS (1) on each side of the Unit.



**FIGURE 4. WIRING DIAGRAM**

# TROUBLESHOOTING

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



**WARNING:** If repairs are to be made to a product system, remove quick disconnects from the applicable product tank, then relieve the system pressure before proceeding. If repairs are to be made to the CO<sub>2</sub> system, stop dispensing, shut off the CO<sub>2</sub> supply, then relieve the system pressure before proceeding. If repairs are to be made to the refrigeration system, make sure electrical power is disconnected from the Unit.

## TROUBLESHOOTING PRODUCT SYSTEM

Trouble	Probable Cause	Remedy
NO PRODUCT DISPENSED.	A. Product tank quick disconnects not attached properly.	A. Attach quick disconnects securely.
	B. No product supply (product tank empty).	B. Replenish product supply as instructed.
	C. No CO <sub>2</sub> supply.	C. Replenish CO <sub>2</sub> supply as instructed.
DISPENSED PRODUCT COMES OUT OF DISPENSING VALVE CLEAR BUT FOAMS IN CUP OR GLASS	A. Oil film or soap scum in cup or glass.	A. Use clean cups and glasses.
	B. Ice used for finished drink is sub-cooled.	B. Do not use ice directly from freezer. Allow ice to become "wet" before using. (Refer to following <b>NOTE</b> )
<b>NOTE:</b> Crushed ice also causes dispensing problems. When dispensed drink hits sharp edges of ice, carbonation is released from dispensed drink.		
DISPENSED PRODUCT FOAMS AS IT LEAVES DISPENSING VALVE.	A. Recovery rate of unit exceeded (ice bank depleted).	A. Allow ice bank to recover.
	B. Product tanks CO <sub>2</sub> regulator adjusted too high.	B. Adjust product tanks CO <sub>2</sub> regulator to proper equilibrium pressure as instructed, then replace product supply.
	C. Dispensing valve restricted or dirty.	C. Sanitize product system as instructed in the Operator's Manual (P/N 309989004).
	D. Tapered nylon washer inside tube swivel nut connection distorted from being overtightened restricting product flow.	D. Replace nylon washer. Make sure it is properly seated.
	E. Oil, water, or dirt in CO <sub>2</sub> supply.	E. Remove contaminated CO <sub>2</sub> . Clean CO <sub>2</sub> system (lines, regulators, etc.). Install clean CO <sub>2</sub> supply.



Trouble	Probable Cause	Remedy
<b>TROUBLESHOOTING 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 place power switch in "ON" (up) position.
	C. No power source (blown fuse or tripped circuit breaker).	C. Replace fuse or reset circuit breaker. (Note: Fuse or circuit breaker are not part of Unit.)
	D. Low voltage at compressor terminals.	D. Voltage must be at least 103 volts (115 VAC Unit) or 208 (230 VAC Unit) at compressor terminals when compressor is trying to start.
	E. Loose, disconnected, or broken wiring.	E. Tighten connections or replace broken wiring.
	F. Overload protector cut out; over-heated compressor. Condenser fan motor not operating as required.	F. Compressor will cool enough to restart. Do not overdraw cooling capacity of Unit. 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.

**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.**

**NOTE: If overload protector cuts out compressor, condenser fan motor will continue to operate; otherwise; troubleshooting condenser fan motor problems is same as for "COMPRESSOR DOES NOT OPERATE" paragraph plus the following:**

Trouble	Probable Cause		Remedy
CONDENSER FAN MOTOR NOT OPERATING.	A.	Jumper cord loose or disconnected from motor or terminal block. Broken wire in cord.	A. Tighten connections or replace cord.
CONDENSER FAN MOTOR NOT OPERATING. (cont'd)	B.	Fan blade obstructed.	B. Remove obstructions.
	C.	Inoperative condenser fan motor.	C. Replace condenser fan motor.
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 or circuit breaker are not part of Unit.)
	C.	Agitator motor propeller obstructed.	C. Remove obstruction.
	D.	Low voltage.	D. Voltage must be at least 103 volts (115 VAC Unit) or 208 (230 VAC Unit) 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

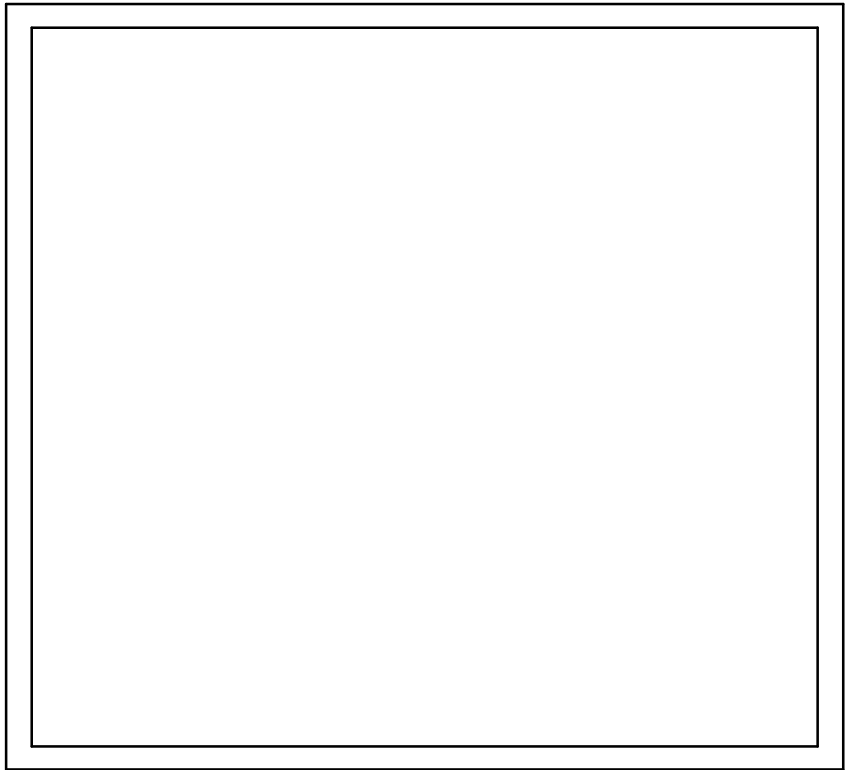
IMI Cornelius Inc. warrants that all equipment and parts are free from defects in material and workmanship under normal use and service. For a copy of the warranty applicable to your Cornelius, Remcor or Wilshire product, in your country, please write, fax or telephone the IMI Cornelius office nearest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

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