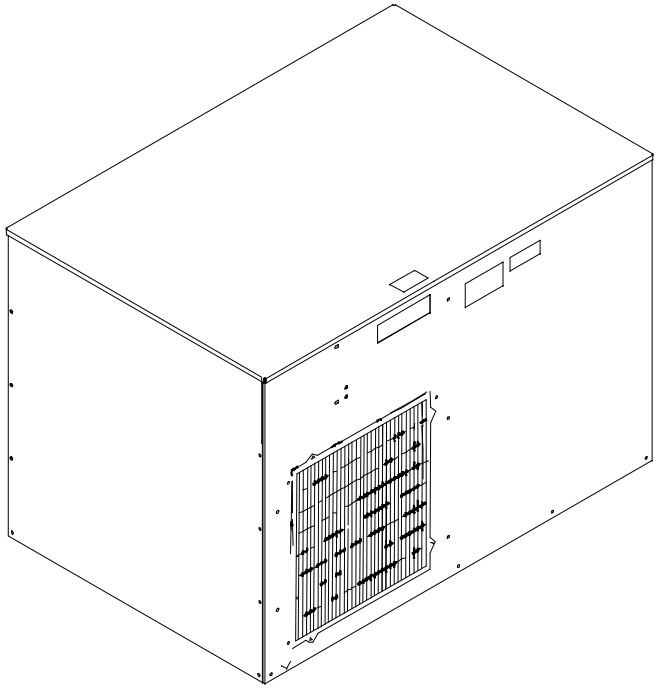
AURORA® 10,000 COOLING UNIT

Installation Manual



Part No. 300381000
July 13, 1988
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THIS DOCUMENT CONTAINS IMPORTANT INFORMATION
This Manual must be read and understood before installing or operating 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 trouble-shooting this equipment.

GENERAL DESCRIPTION

This section gives the description, theory of operation, and design data for the Aurora® 10,000 Cooling Unit, (hereafter referred to as a "Cooling Unit").

COOLING UNIT DESCRIPTION

The Cooling Unit is designed to provide cooled soft drink syrup, carbonated water, and plain water to dispensing station through an insulated python (length as ordered). On the standard Cooling Unit, refrigeration system is cooled by condenser coil and fan assembly located inside the Cooling Unit. Cooling Unit not provided with internal condenser coil and fan assembly is cooled by Remote Condenser Coil and Fan Assembly which is connected to Cooling Unit. The Cooling Unit consists basically of two carbonator tanks each having its own water pump to pump plain water into tanks, one carbonated water circulating pump, a Hydro Boostâ (carbonated water pre-cooler) which pre-cools carbonated water on its way to carbonated water circulating pump and a two horsepower refrigeration compressor. The cabinet panels are easily removed to facilitate installation and service and maintenance.

An optional Cooling Unit Stand (P/N 309309000) is available to elevate Cooling Unit up off floor. A System Status Display Kit (P/N 0913) is available and when installed on the Cooling Unit, allows operator or technician to monitor operation of Cooling Unit and to be aware when service is required. Also available is an Aurora Service System Analyzer (P/N 309197000) that may be used to analyze and troubleshoot the Aurora 10,000 Cooling Unit refrigeration system.

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

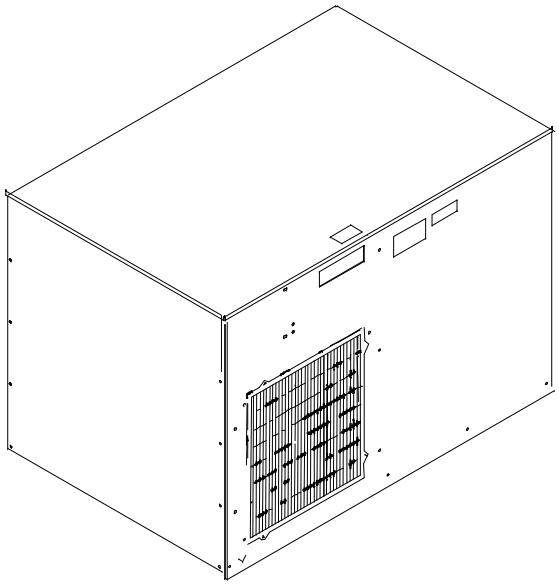

FIGURE 1. AURORA® 10,000 COOLING UNIT

Table 1. Design Data	
COOLING UNIT MODEL NUMBERS:	
60 HZ Unit:	
Standard Cooling Unit with Internal Condenser Coil and Fan Assembly	416593
Cooling Unit Requiring Connection to Remote Condenser Coil and Fan Assembly	416594
50 HZ Unit:	
Standard Cooling Unit with Internal Condenser Coil and Fan Assembly	496593

COOLING UNIT DATA

Overall Dimensions:	
Height	28-inches
Width	36-1/2 inches
Depth	24-1/2 inches
NOTE: Overall dimensions if Cooling Unit is placed on optional Cooling Unit Stand (P/N 309309069).	
Height (approximate)	75-5/16 inches
Width	37-1/2 inches
Depth	25-3/8 inches
Weights:	
Models 416593 and 496593:	
Shipping	378 pounds
Dry Weight	358 pounds
Model 416594:	
Shipping	381 pounds
Dry Weight	361 pounds
Ice Bank Weight	40 to 45 pounds
Capacities:	
Water Bath (no ice bank)	18 gallons
Compressor Horsepower	2 HP
Refrigeration System:	
Refrigerant Type and Charge	See Cooling Unit Nameplate
Ambient Operating Temp.	50°F to 100°F
Electrical Requirements:	
60 HZ Cooling Unit:	
Operating voltage Current Draw	See Cooling Unit Nameplate
50HZ Cooling Unit:	
Operating Voltage Current Draw	See Cooling Unit Nameplate

Table 1. Design Data (cont'd)	
REMOTE CONDENSER COIL AND FAN ASS'Y DATA (P/N 309602000)	
Overall Dimensions:	
Height	27 inches
Width	22-inches
Depth	38-inches
Weight:	
Shipping	85 pounds
Ambient Operating Temp.	-22°F to 158°F
Electrical Requirements:	
Operating Voltage	208/230VAC, Single Phase, 60Hz
Current Draw	2.5 Amps

SYSTEM THEORY OF OPERATION

(see Figure 2)

A CO_2 cylinder delivers carbon dioxide gas (CO_2) to primary CO_2 regulator assembly which delivers regulated CO_2 gas to adjustable secondary CO_2 regulators. Secondary CO_2 regulators deliver regulated CO_2 gas to both carbonated water tanks inside Cooling Unit and also to soft drink tanks. Plain water is pumped into carbonated water tanks by water pumps and is carbonated by regulated CO_2 gas pressure also entering tanks. Carbonated water leaves carbonated water tanks and passes through the Hydro Boost® (carbonated water pre-cooler) which pre-cools carbonated water on its way to carbonated water circulating pump. Pre-cooled carbonated water enters carbonated water circulating system through inlet side of carbonated water circulating pump. Carbonated water passes from outlet side of carbonated water circulating pump, through cooling coils inside water tank, and out through insulated line to turnaround inside dispensing station. Carbonated water returns to Cooling Unit by passing through insulated line, through cooling coils, and on to carbonated water circulating pump inlet which makes up the carbonated water circulating system. As carbonated water is being dispensed from dispensing station, carbonated water circulating system is continuously being replenished from both carbonated water tanks. Regulated CO_2 gas pressure, exerted upon soft drink tanks contents, forces syrup from tanks, through Cooling Unit cooling coils, and on to dispensing station through insulated lines.

Standard Cooling Unit.

The standard Cooling Unit refrigeration system is cooled by a condenser coil and fan assembly located inside Cooling Unit.

Cooling Unit Requiring Connection to Remote Condenser Coil and Fan Assembly.

The Cooling Unit refrigeration system is cooled by a Remote Condenser Coil and Fan Assembly (P/N 309602000) that is authorized by IMI Cornelius Inc. Use of any other Remote Condenser Coil and Fan Assembly must be authorized by IMI Cornelius Inc. Use of an unauthorized Remote Condenser Coil and Fan Assembly will automatically void the Cooling Unit factory warranty.

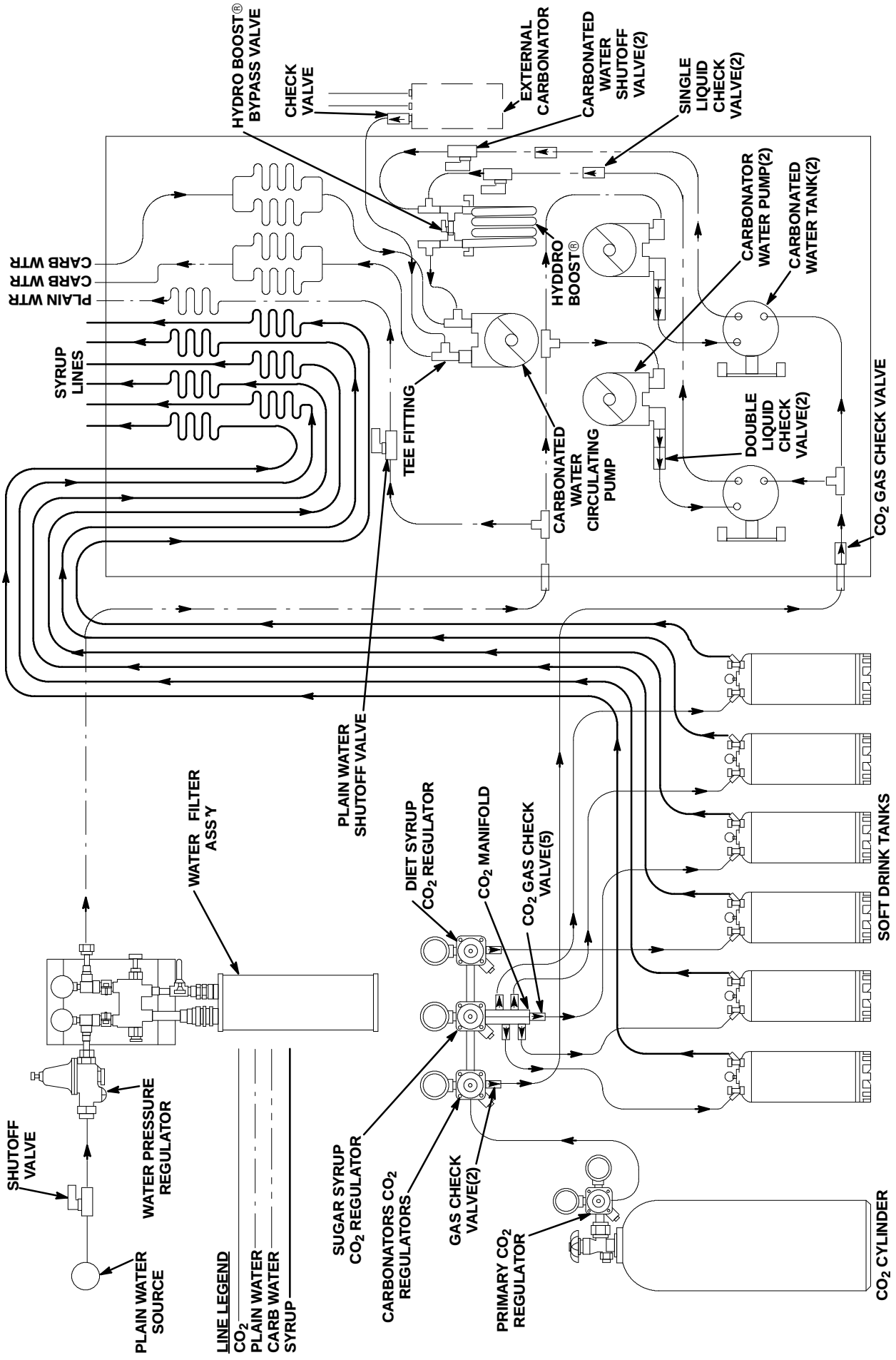

FIGURE 2. FLOW DIAGRAM (TYPICAL INSTALLATION)

INSTALLATION

This section covers unpacking and inspection, selecting location, installing Cooling Unit, preparing for operation, and operation.

UNPACKING AND INSPECTION

NOTE: The Cooling Unit was thoroughly inspected before leaving the factory and the carrier has accepted and signed for it. Any damage or irregularities should be noted at time of delivery (or not later than 15 days from date of delivery) and immediately reported to the delivering carrier. Request a written inspection report from Claims Inspector to substantiate any necessary claim. File claim with the delivering carrier, not with IMI Cornelius Inc.

1. After Cooling Unit has been unpacked, remove shipping tape and other packing material.
2. Unpack LOOSE-SHIPPED PARTS. Make sure all items are present and in good condition.

Table 2. Loose-Shipped Parts

Item No.	Part No.	Name	Qty.
1	110085000	Tubing Clamp	2
2	111353000	Tubing Clamp	7
3	311962000	Label, Line Identification	1
NOTE: The following Remote Condenser Coil and Fan Assembly and Refrigeration Lines Kits are recommended for use with the Cooling Units.			
4	309602000	Remote Condenser Coil and Fan Assy	1
5	300598025	Refrigeration Line Kit, 25-ft. long, 90°	1
	300598050	Refrigeration Line Kit, 50-ft. long, 90° Straight	1

IDENTIFICATION OF LOOSE-SHIPPED PARTS

1. TUBING CLAMPS (item 1) used to secure insulated python lines to Cooling Unit carbonated water outlet lines.
2. TUBING CLAMPS (item 2) used to secure insulated python lines to Cooling Unit syrup and plain water lines.
3. REFRIGERATION LINE KITS (item 5) is used to connect the REMOTE CONDENSER COIL AND FAN ASSY (item 4) to the Cooling Unit.

SELECTING LOCATION

COOLING UNIT

Select location for Cooling Unit installation that will (1) Allow the shortest possible insulated python route from the Cooling Unit to the Dispensing Station location; (2) Allow the shortest possible refrigeration lines (not to exceed 50-ft in length) route from Remote Condenser Coil and Fan Assembly to the Cooling Unit; (3) REFER TO THE COOLING UNIT NAMEPLATE FOR THE REQUIRED POWER CIRCUIT OPERATING VOLTAGE, HZ, AND THE MINIMUM CIRCUIT AMPACITY OF THE COOLING UNIT. The power circuit for the Cooling Unit must be wired through a 40-amp minimum rated disconnect switch (not provided) and the power circuit must be

fused as indicated on the Unit nameplate. The power circuit may also be wired through an equivalent HACR type circuit breaker rather then the disconnect switch. THE POWER CIRCUIT MUST BE MADE UP OF COPPER CONDUCTORS AND ALL WIRING MUST CONFORM TO NATIONAL AND LOCAL ELECTRICAL CODES; (4) Close to a plain water source supply line with proper requirements; (5) Allow sufficient space around Cooling Unit (see Figure 4) for proper air circulation (18-inches on sides and back, front side open to room, and top open to ceiling); (6) Be close to permanent floor drain to route Cooling Unit water tank drain and overflow hoses to the floor drain.

REMOTE CONDENSER COIL AND FAN ASS'Y (IF APPLICABLE)

1. An extreme warm climate installation may require extra caution in Remote Rooftop Condenser Coil and Fan Assembly location. Avoid hot sunny locations and seek shaded area if possible. The use of structure to shade unit from direct sun exposure and/or a platform extending unit an additional 18-inches above rooftop is highly recommended and will improve performance. Ample space must be provided on all sides and above unit for proper air circulation through unit and also access for service and maintenance. DO NOT BLOCK AIR CIRCULATION THROUGH UNIT.
2. Remote Condenser Coil and Fan Assembly must be installed in level position and must be anchored to rooftop with adequate fastening devices.

INSTALLING REMOTE CONDENSER COIL AND FAN ASS'Y (IF APPLICABLE)

see Figure 6

1. Remote Condenser Coil and Fan Assembly must be installed meeting requirements of SELECTING LOCATION. Remote Condenser Coil and Fan Assembly must be installed in level position and must be anchored to with adequate fastening devices.
2. Route REFRIGERATION LINES (item 5) from Remote Condenser Coil and Fan Assembly down to Cooling Unit location.
3. Connect ends of refrigeration lines to Remote Condenser Coil and Fan Assembly refrigeration connectors.

INSTALLING COOLING UNIT

NOTE: Cooling Unit outlet lines, plain water, CO_2, and syrup inlet lines, Remote Condenser Coil and Fan Assembly refrigeration lines and power circuit cable (if applicable), and Cooling Unit power circuit cable each must be long enough when connected to Cooling Unit to allow pulling unit out approximately 36-inches from operating position for service and maintenance. When Cooling Unit is in operating position, excess power circuit cable, Remote Condenser Coil and Fan Assembly refrigeration lines and power circuit cable (if applicable) and plain water source and CO_2 inlet lines may be coiled up behind unit.

NOTE: An external carbonator may be connected to Cooling Unit as shown in Figure 2 for larger supply of carbonated water.

PLACING COOLING UNIT IN LOCATION

NOTE: An optional Cooling Unit Stand (P/N 309309069) is available to elevate Cooling Unit up off floor.

1. Place Cooling Unit in position approximately 36-inches out from operating position to allow access all around unit.
2. Remove two screws securing Cooling Unit top cover, then remove cover.

CONNECTING REMOTE CONDENSER COIL AND FAN ASS'Y (IF APPLICABLE) REFRIGERATION LINES TO COOLING UNIT

(see Figure 6)

Connect refrigeration lines, from Remote Condenser Coil and Fan Assembly, to refrigeration connectors on back of Cooling Unit.

CONNECTING ELECTRICAL POWER CIRCUIT TO COOLING UNIT

(see Figures 5 or 6 and 15)

IMPORTANT: Before applicable single-phase 60HZ or 50HZ electrical power circuit is connected to the Cooling Unit, service power voltage entering the building must be identified. Service power voltage entering the building will either be 208 or 230VAC and may be posted on the main service box. If not, the installer must contact the local electrical power company for information. If these two voltage identification attempts should fail, a voltage reading must be performed. If service power voltage is below 218VAC, the red electrical wire connected to the 240VAC terminal on LINE (primary) side of the 240/24VAC power transformer inside the Cooling Unit switches electrical control box (see Figure 3 and 15) must be disconnected from the 240VAC terminal and be connected to the 208VAC terminal. If voltage is above 218VAC, power transformer red electrical wire will remain connected to the 240VAC terminal. If installer is not sure of the service power voltage entering the building, leave the red electrical wire connected to the 240VAC terminal on the power transformer. If service power voltage is below 218VAC, proceed as follows:

1. Remove four screws securing switches electrical control box (see Figure 5 or 6) to Cooling Unit cabinet.
2. Pull switches electrical control box out for access to the 240/24VAC power transformer.
3. Remove red electrical wire from the 240VAC terminal on LINE (primary) side of power transformer and connect it to the 208 VAC terminal.
4. Install Cooling Unit switches electrical control box and secure with four screws.

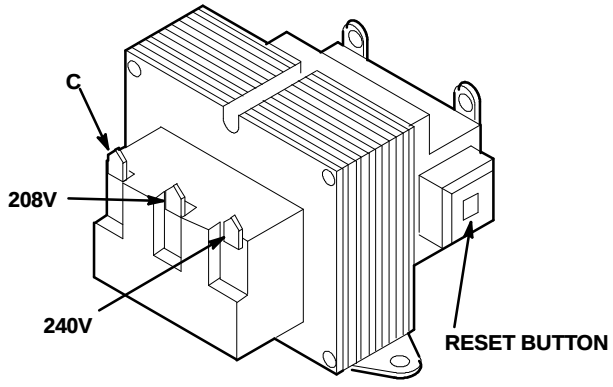

FIGURE 3. 240/24VAC POWER TRANSFORMER

WARNING: Make sure 40-amp minimum-rated disconnect switch or HACR circuit breaker (if applicable) is in "OFF" position.

1. Remove cover from electrical box on back of Cooling Unit.

WARNING: The Cooling Unit must be electrically grounded to avoid possible fatal electrical shock or serious injury to the operator. A green ground wire is provided inside electrical box to connect power circuit ground wire which electrically grounds the Cooling Unit.

2. 60HZ Cooling Unit

   Connect 208/230VAC Single Phase 60Hz electrical power circuit with a 40-amp minimum rated disconnect switch (not provided) fused at 40-amps (maximum) or circuit connected through an equivalent HACR circuit breaker to electrical wires inside electrical handy box on back of cooling unit. DO NOT CONNECT ELECTRICAL POWER TO COOLING UNIT AT THIS TIME.

   COOLING UNIT MUST BE PROPERLY GROUNDED, POWER CIRCUIT MUST BE MADE UP OF COPPER CONDUCTORS, AND ALL WIRING MUST CONFORM TO NATIONAL AND LOCAL ELECTRICAL CODES.

   50HZ Cooling Unit

   Connect 208/230VAC Single Phase 50Hz electrical power circuit with a 40-amp minimum rated disconnect switch (not provided) fused at 40-amps (maximum) or circuit connected through an equivalent HACR circuit breaker to electrical wires inside electrical handy box on back of cooling unit. DO NOT CONNECT ELECTRICAL POWER TO COOLING UNIT AT THIS TIME.

COOLING UNIT MUST BE PROPERLY GROUNDED, POWER CIRCUIT MUST BE MADE UP OF COPPER CONDUCTORS, AND WIRING MUST CONFORM TO APPLICABLE ELECTRICAL CODES.

CONNECTING ELECTRICAL POWER CIRCUIT TO REMOTE CONDENSER COIL AND FAN ASSY (IF APPLICABLE) see Figures 6 and 15)

CAUTION: The Cooling Unit refrigeration system is cooled by a Remote Condenser Coil and Fan Assembly (P/N 309602000) that is authorized by IMI Cornelius Inc. Use of an unauthorized Remote Condenser Coil and Fan Assembly will automatically void the Cooling Unit factory warranty.

Remote Condenser Coil and Fan Assembly (P/N 309602000)

NOTE: Electrical power circuit may be connected to the Remote Condenser Coil and Fan Assembly (P/N 309602000) in two ways. The preferred way is to draw electrical power from the Cooling Unit contactor which allows the Remote Condenser Coil and Fan assembly to operate only when the Cooling Unit refrigeration system is operating. The optional way is to connect a separate electrical power circuit (independent of the cooling unit) through an appropriately rated and fused disconnect switch or an equivalent HACR circuit breaker which allows the Remote Condenser Coil and Fan Assembly to operate at all times (independent of Cooling Unit operation).

Connect and route electrical power circuit cable from Remote Condenser Coil and Fan Assembly through fuse box (not provided), fused at 15-amps (maximum) down to Cooling Unit location. REMOTE CONDENSER COIL AND FAN ASSEMBLY MUST BE PROPERLY GROUNDED, POWER CIRCUIT MUST BE MADE UP OF COPPER CONDUCTORS, AND ALL WIRING MUST CONFORM TO NATIONAL AND LOCAL ELECTRICAL CODES.

A. Remove four screws securing electrical control box to Cooling Unit back panel, (see Figure 6) then pull control box out for access to contactor inside box.

B. Route Remote Condenser Coil and Fan Assembly power cable electrical wires through electrical handy box on back of Cooling Unit to inside of electrical control box.

C. Connect Remote Condenser Coil and Fan Assembly power cable electrical wires to T_1 and T_2 terminals on contactor inside Cooling Unit electrical control box.

D. Reinstall Cooling Unit electrical control box and secure with four screws.

E. Install cover on electrical handy box on back of Cooling Unit.

CONNECTING PLAIN WATER INLET SUPPLY LINE TO COOLING UNIT

(see Figure 2)

NOTE: IMI Cornelius Inc. recommends that a water shutoff valve be installed in plain water inlet supply line connected to Cooling Unit and that water supply be filtered. 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.

CAUTION: Plain water inlet supply line to Cooling Unit must be 1/2-inch I.D. minimum. Check water flow rate of water inlet supply line. MINIMUM FLOW RATE MUST BE AT LEAST 250-GALLONS PER HOUR. If flow rate is less than 250-gallons per hour, "starving" of carbonator water pump will occur. Starving will allow water pump to overheat causing safety thermostat on pump outlet to disrupt electrical power to and stop water pump motor. Carbonated water circulating pump overheating could occur if water inlet supply line flow rate drops below 250-gallons per hour. INCOMING PLAIN WATER INLET SUPPLY LINE WATER PRESSURE MUST REMAIN A MINIMUM OF 10-PSI BELOW THE CARBONATOR CO_2 OPERATING PRESSURE (Example: operating CO_2 pressure is 90-psi and maximum water pressure can be no more than 80-psi, etc.)

1. Before connecting plain water inlet supply line to Cooling Unit, open water line shutoff valve for a period of time to flush out any metal shavings and other contaminates that may have resulted from plumbing connections.

2. Connect flexible plain water inlet supply line (1/2-inch I.D. min.), meeting water inlet supply line requirements of preceding CAUTION note, to Cooling Unit 3/8-in. flare (5/8-18) bulkhead fitting on back of unit labeled "WATER INLET". DO NOT OPEN WATER INLET SUPPLY LINE SHUTOFF VALVE AT THIS TIME.

CONNECTING CO_2 INLET SUPPLY LINE TO COOLING UNIT

(see Figure 2)

WARNING: CO_2 displaces oxygen. Strict attention *must* be observed in the prevention of CO_2 (carbon dioxide) gas leaks in the entire CO_2 and soft drink system. If a CO_2 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_2 gas will experience tremors which are followed rapidly by loss of consciousness and suffocation.

Connect flexible CO_2 inlet supply line to Cooling Unit 1/4-in. flare (7/16-20) bulkhead fitting of back of unit labeled "CO_2 INLET". DO NOT TURN ON CO_2 SUPPLY TO COOLING UNIT AT THIS TIME.

CONNECTING SYRUP SOURCE LINES TO COOLING UNIT SYRUP INLET LINES

(see Figure 2)

Connect syrup source lines, from No. 1 through No. 6 soft drink tanks location, to Cooling Unit syrup inlet lines labeled No. 1 through No. 6. DO NOT CONNECT SOFT DRINK TANKS INTO SYRUP SYSTEMS AT THIS TIME.

CONNECTING COOLING UNIT SYRUP OUTLET LINES TO INSULATED PYTHON SYRUP LINES

(see Figure 2)

Connect Cooling Unit syrup outlet lines labeled No. 1 through No. 6, with barbed fittings on their ends, to insulated python lines labeled No. 1 through No. 6. Secure connections with TUBING CLAMPS (item 2).

CONNECTING COOLING UNIT PLAIN WATER OUTLET LINE TO INSULATED PYTHON PLAIN WATER LINE

(see Figure 2)

NOTE: Shutoff valve in plain water line inside Cooling Unit must remain closed if plain water is not desired at dispensing valve.

Connect Cooling Unit plain water outlet line, with barbed fitting on its end, to insulated python plain water line. Secure connection with TUBING CLAMP (item 2).

CONNECTING COOLING UNIT CARBONATED WATER OUTLET LINES TO INSULATED PYTHON CARBONATED WATER LINES

(see Figure 2)

Connect Cooling Unit carbonated water outlet lines, with barbed connectors on their ends, to insulated python carbonated water lines. secure Connections with TUBING CLAMPS (item 1).

PLACING COOLING UNIT IN OPERATING POSITION

1. Very carefully, move Cooling Unit back into operating position leaving space around unit (see Figure 4) as specified in SELECTING LOCATION. MAKE SURE THERE ARE NO KINKS IN SYRUP INLET LINES, INSULATED PYTHON INTERNAL LINES, CO_2 AND PLAIN WATER INLET LINES, AND REMOTE CONDENSER AND FAN ASSEMBLY REFRIGERATION LINES (IF APPLICABLE).

NOTE: To comply with National Sanitation Foundation (NSF) requirements, Cooling Unit not installed on optional Cooling Unit Stand (P/N 309309069) must have its base sealed to floor with Dow-Corning RTV 731 or equivalent.

1. Tilt Cooling Unit up to expose bottom of unit base.

2. Liberally apply silastic sealant such as Dow Corning (RTV 731) or equivalent on unit base bottom edges.

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

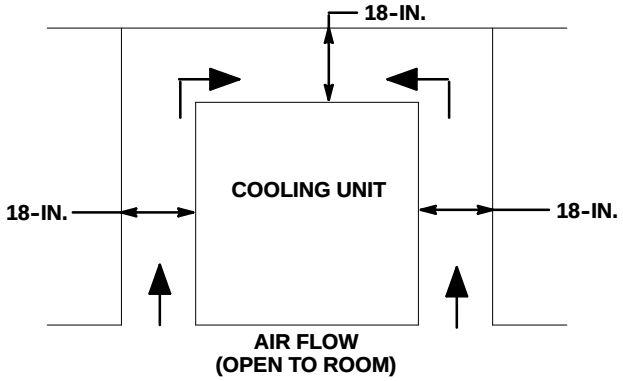

FIGURE 4. COOLING UNIT SPACE REQUIRED

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

4. Route Cooling Unit water tank overflow hose to permanent floor drain.

5. Seal area around overflow hose where they exit from unit using permagum sealant or equivalent.

PREPARING COOLING UNIT FOR OPERATION

1. Make sure plug in end of Cooling Unit water tank drain hose is secure.

2. Open shutoff valve in plain water inlet supply line. Due to slow water fill rate of water level float control, water tank may be hand filled until water runs out of water tank overflow hose. CLEAN LOW-MINERAL-CONTENT WATER MUST BE USED WHERE A LOCAL WATER PROBLEM EXIST.

3. Adjust primary CO_2 regulator (see Figure 2) on CO_2 cylinder to a minimum nominal setting of 120-psi or 24-psi higher than highest setting required by the secondary CO_2 regulators. Loosen CO_2 regulator adjusting screw locknut. Turn adjusting screw to the right (clockwise) until regulator gage registers nominal 120-psi, then tighten adjusting screw locknut.

4. Adjust carbonators secondary CO_2 regulator (see Figure 2) to a nominal 90-psi. Loosen CO_2 regulator adjusting screw locknut. Turn adjusting screw to the right (clockwise) until regulator gage registers nominal 90-psi, then tighten adjusting screw lock nut. CO_2 PRESSURE TO CARBONATORS MUST NOT EXCEED 120-PSIG.

CAUTION: Before starting refrigeration system, Hydro Boostâ coil must be completely flooded with carbonated water to prevent coil freeze-up. Proceed as follows to fill carbonated water system.

5. Make sure both carbonated water shutoff valves inside Cooling Unit (see Figure 2) are in "OPEN" (handles in line with tubing) positions.

6. Make sure Hydro Boostâ bypass valve inside Cooling Unit (see Figure 2) is in "CLOSED" (handle not in line with tubing) position.

7. Make sure Cooling Unit REFRIGERATION POWER, CARBONATOR MOTORS, and CIRCULATING MOTOR Power switches are in "OFF" (down) positions.

8. Connect electrical power to Cooling Unit at disconnect switch.

9. Place CARBONATOR MOTORS power switch in "ON" (up) position to start carbonators.

10. Dispense from dispensing station until carbonated water appears at valve indicating Hydro Boostâ and carbonated water system have been completely filled with carbonated water.

OPERATION

WARNING: Disconnect electrical power to Cooling Unit and Remote Condenser Coil and Fan Assembly (if applicable) to prevent personal injury before attempting any Cooling Unit or Remote Condenser Coil and Fan Assembly internal maintenance. Only qualified personnel should service internal components or electrical wiring.

STARTING COOLING UNIT REFRIGERATION SYSTEM

NOTE: As ice bank forms in water tank, water expansion will take place and excess water will escape through water tank overflow hose to permanent floor drain.

Cooling Unit Connected To Remote Condenser Coil and Fan Assembly. (P/N 309602000).

Place Cooling Unit REFRIGERATION POWER switch in "ON" (up) position. Refrigeration compressor, compressor cooling fan, agitator motor, and Remote Condenser Coil and Fan Assembly will start. Cooling Unit will begin forming an ice bank and refrigerated Hydro Boostâ coil will also be chilling water. When full ice bank has been formed, Remote Condenser oil and Fan Assembly, Cooling Unit compressor, and compressor cooling fan will stop but agitator motor will continue to operate circulating ice water bath in water tank.

Standard Cooling Unit Utilizing Condenser Coil and Fan Assembly.

Place Cooling Unit REFRIGERATION POWER switch in "ON" (up) position. Refrigeration 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 water tank.

STARTING CARBONATED WATER CIRCULATING PUMP

1. Place CIRCULATING MOTOR power switch in "ON" (up) position. Circulating pump will start and begin circulating carbonated water in system.
2. Dispense carbonated water from dispensing valve to make sure all air has been purged from system.
3. If Cooling Unit plain water outlet line is connected to dispensing system, open plain water shutoff valve inside unit. Dispense from valve until all air is purged from plain water system.

ACTIVATING SYRUP SYSTEMS

1. Adjust soft drink tanks secondary CO_2 regulators (see Figure 2) as follows:

   Sugar Syrup Soft Drink Tanks CO_2 Regulator.

   Adjust sugar syrup soft drink tanks secondary CO_2 regulator at 40-psig for syrup lines up to 10-feet in length plus one pound for each additional length of 10-feet, plus one pound for each 2-feet of vertical lift. For example: if syrup line total length is 30-feet and total vertical lift is 6-feet, then 40-psig + 2-psig (1-pound for every 10-feet of length over 10-feet which is 20-feet) + 3-psig (1-pound for every 2-feet of vertical lift which is 6-feet); total equals 40 + 2 + 3 = 45-psig CO_2 regulator setting.

   Low-Calorie (diet) Syrup Soft Drink Tank CO_2 Regulator.

   Adjust low-calorie (diet) soft drink tank secondary CO_2 regulator for low-calorie drink at 10-psig for syrup lines up to 30-feet in length. Syrup lines longer than 30-feet in length may require a slightly higher CO_2 regulator setting to 12-psig maximum. Excessive CO_2 pressure may cause low-calorie syrup carbonation resulting in foam.

IMPORTANT: Syrup systems must be sanitized as instructed before syrup is connected into syrup systems.

2. Connect soft drink tanks into syrup systems.
3. Dispense from all dispensing stations dispensing valves until product is dispensed.

LEAK CHECK AND INSULATING COOLING UNIT OUTLET LINES

1. Check all CO_2, plain and carbonated water, and syrup connections for leaks and repair if evident.
2. Make sure Cooling Unit outlet lines connections to insulated python lines are well insulated.
3. Install Cooling Unit top cover and secure with two screws.

DISPENSING STATION ADJUSTMENTS

ADJUSTING WATER FLOW RATE

Refer to Installation Instructions provided with dispensing station for dispensing valve water flow rate adjustment instructions.

ADJUSTING WATER-TO-SYRUP "RATIO" OF DISPENSED PRODUCT

Adjust dispensing station dispensing valves for Water- to-Syrup "Ratio" of dispensed product as instructed in dispensing station Installation Instructions.

INSTALLING LINE IDENTIFICATION LABEL

Install LABEL, LINE IDENTIFICATION (item 3) on Cooling Unit and record syrup flavors in proper spaces.

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OPERATORS INSTRUCTIONS

This section covers operating controls, daily pre-operation check, adjustments, replenishing CO_2 and syrup supplies, cleaning and sanitizing, Cooling Unit maintenance, Remote Condenser Coil and Fan Assembly (if applicable) maintenance, lubrication, and servicing CO_2 gas check valves.

WARNING: Disconnect electrical power to Cooling Unit to prevent personal injury before attempting any Cooling Unit or Rooftop Condenser Coil and Fan Assembly (if applicable) internal maintenance. Only qualified personnel should service internal components or electrical wiring.

OPERATING CONTROLS

COOLING UNIT REFRIGERATION POWER SWITCH

(see Figure 5 or 6)

REFRIGERATION POWER switch, located on front of Cooling Unit, placed in "OFF" position will interrupt electrical power to refrigeration compressor, agitator motor, condenser fan motor (if applicable), and carbonated water circulating pump. Switch must be in "ON" (up) position for operation. REFRIGERATION POWER SWITCH DOES NOT DISRUPT ELECTRICAL POWER TO CARBONATORS PUMPS MOTORS.

COOLING UNIT CARBONATOR MOTOR SWITCH

(see Figure 5 or 6)

CARBONATOR MOTORS power switch, located on front of Cooling Unit, placed in "OFF" (down) position will interrupt electrical power to both carbonators pumps motors. Switch must be placed in "ON" (up) position before carbonators will operate.

COOLING UNIT CIRCULATING MOTOR SWITCH

(see Figure 5 or 6)

CIRCULATING MOTOR power switch, located on front of Cooling Unit, placed in "OFF" (down) position will interrupt electrical power to carbonated water circulating pump. Switch must be placed in "ON" (up) position before circulating pump will operate.

REFRIGERATION SYSTEM TEMPERATURE SENSING DEVICE AND HIGH-PRESSURE CUTOUT SWITCH

Cooling Unit with Internal Condenser Coil and Fan Assembly.

(see Figure 5)

The Cooling Unit is equipped with a refrigeration system temperature sensor which will automatically initiate shutdown if the temperature of the liquid return line from the condenser exceeds 155°F. Temperature rise may be caused by a clogged condenser coil air intake filter, or refrigeration components problem. After cool down, the refrigeration system will restart as required.

CAUTION: If the refrigeration system continues to "short cycle" following restart, immediate attention is required to avoid compressor failure.

Cooling Unit Connected to Remote Condenser Coil and Fan Assembly.

(see Figure 6)

This Cooling Unit is equipped with a refrigeration system temperature sensing device and a high-pressure sensing cutout switch that will shut refrigeration system down should the system overheat due to a clogged condenser coil in the Remote Condenser Coil and Fan Assembly. If refrigeration system does not automatically restart itself after system has cooled down, high-pressure sensing cutout switch reset button (see Figure 6) will have to be pressed to reset switch. MAKE SURE REFRIGERATION SYSTEM PROBLEM IS CORRECTED. OPERATING REFRIGERATION SYSTEM IN THIS MANNER FOR PROLONGED PERIOD OF TIME COULD RESULT IN COMPRESSOR FAILURE.

DAILY PRE-OPERATION CHECK

1. Make sure CO_2 cylinder regulator assembly 1800-psi gage indicator is not in shaded ("change CO_2 cylinder") portion of dial. If so, CO_2 cylinder is almost empty and must be replaced.
2. Sufficient syrup supply in all soft drink tanks. If not, replenish syrup supply as instructed.

ADJUSTMENTS

ADJUSTING CO_2 REGULATORS

CO_2 regulators should be periodically checked for proper pressure settings and if necessary, adjusted as instructed.

ADJUSTING DISPENSING VALVES WATER FLOW RATE

If adjustment of dispensing valves water flow rate should be necessary, adjust as instructed in dispensing station Installation Instructions.

ADJUSTING WATER-TO-SYRUP "RATIO" OF DISPENSED PRODUCT

Water-To-Syrup "Ratio" of dispensed product should be checked and if necessary, adjusted as instructed in dispensing station Installation Instructions.

ADJUSTING SIZE OF DRINK DISPENSED

Adjust drink size of dispensed product as instructed in dispensing station Installation Instructions.

ADJUSTING CARBONATOR TANK LIQUID LEVEL

The carbonator tank liquid level (40 to 60-ounces) pump cut-in and cut-out were adjusted at the factory and should require no further adjustment. If incorrect adjustment is suspected, adjust as instructed.

REPLENISHING CO_2 SUPPLY

WARNING: CO_2 displaces oxygen. Strict attention *must* be observed in the prevention of CO_2 (carbon dioxide) gas leaks in the entire CO_2 and soft drink system. If a CO_2 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_2 gas will experience tremors which are followed rapidly by loss of consciousness and suffocation.

NOTE: When indicator on CO_2 cylinder regulator assembly 1800-psi gage is in shaded ("change CO_2 cylinder") portion of the dial, CO_2 cylinder is almost empty and should be changed. CO_2 supply should be checked daily and if necessary, replenished as instructed.

REPLENISHING SYRUP SUPPLY

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

CLEANING AND SANITIZING

DAILY CLEANING

Perform daily cleaning of dispensing station as instructed in dispensing station Installation Instructions. Outside of Cooling Unit must be cleaned periodically.

SANITIZING SYRUP SYSTEMS

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

COOLING UNIT MAINTENANCE

COOLING UNIT EQUIPPED WITH CONDENSER COIL AND AIR INTAKE FILTER

CAUTION: Cooling Unit equipped with condenser coil is equipped with an air filter that must be cleaned every 30 days as instructed. Circulating air, required to cool the coil, is drawn in through air filter on back, and is exhausted out through coil on front of Unit. Failure to clean and allowing air filter to become clogged, will cause refrigeration system to overheat which will automatically shut refrigeration system down. After refrigeration system has cooled down, system will automatically restart and operate until overheated and shut down again. OPERATING COOLING UNIT IN THIS MANNER FOR PROLONGED PERIOD OF TIME COULD RESULT IN COMPRESSOR FAILURE.

Area around Cooling Unit must be kept free of obstructions at all times for proper air circulation through the Unit. Air filter must be cleaned every 30 days as instructed.

COOLING UNIT CARBONATOR MAINTENANCE

Lubrication

Carbonator water pump motor bearings must be oiled periodically as instructed.

Water Pump Yearly Maintenance (or After Water System Disruptions).

Carbonator water pump water strainer screen and liquid double check valve must be inspected and cleaned at least once a year under normal circumstances and after any water system disruption (plumbing work, earthquake, etc.). Inspect and clean water strainer screen and liquid double check valve as instructed.

COOLING UNIT CARBONATED WATER CIRCULATING PUMP MOTOR LUBRICATION

Carbonated water circulating pump motor bearings must be oiled periodically as instructed.

REMOTE CONDENSER COIL AND FAN ASS'Y (IF APPLICABLE) MAINTENANCE

(see Figure 6)

CAUTION: Remote Condenser Coil and Fan Assembly connected to this Cooling Unit is equipped with a condenser coil that must be cleaned every 30-days. Allowing condenser coil to become clogged will cause refrigeration system to overheat which will automatically shut refrigeration system down. After condenser coil has been cleaned, high-pressure cutout switch reset button on top of switches electrical control box under Cooling Unit top cover will have to be pressed to restart refrigeration system. OPERATING COOLING UNIT IN THIS MANNER FOR PROLONGED PERIOD OF TIME COULD RESULT IN COMPRESSOR FAILURE.

Area on top of and around Remote Condenser Coil and Fan Assembly must be kept free of obstructions at all times. Condenser coil must be cleaned as instructed to maintain proper cooling of coil.

CLEANING CO_2 GAS CHECK VALVES

(see Figure 2)

The CO_2 gas check valves must be inspected and serviced at least once a year under normal conditions and after any CO_2 system servicing or disruption as instructed.

SERVICE AND MAINTENANCE

This section describes Service and Maintenance procedures to be performed on the Cooling Unit and the Remote Condenser Coil and Fan Assembly.

WARNING: Disconnect electrical power to Cooling Unit to prevent personal injury before attempting any Cooling Unit or Remote Rooftop Condenser Coil and Fan Assembly (if applicable) internal maintenance. Only qualified personnel should service internal components or electrical wiring.

PREPARING COOLING UNIT FOR SHIPPING, STORING, OR RELOCATING

CAUTION: Before shipping, storing, or relocating Cooling Unit, syrup systems must be sanitized and all sanitizing solution must be purged from syrup systems. All water must be purged from plain and carbonated water systems and ice bank must be melted and all water drained from water tank. A freezing ambient environment will cause residual water remaining inside unit to freeze resulting in damage to internal components.

PERIODIC INSPECTION

Cooling Unit Equipped With Condenser Coil and Air Intake Filter.(see Figure 5)

CAUTION: Cooling Unit equipped with condenser coil is equipped with an air filter that must be cleaned every 30 days as instructed. Circulating air, required to cool the coil, is drawn in through air filter on back, and is exhausted out through coil on front of Unit. Failure to clean and allowing the air filter to become clogged, will cause refrigeration system to overheat which will automatically shut refrigeration system down. After refrigeration system has cooled down, system will automatically restart and operate until overheated and shut down again. OPERATING COOLING UNIT IN THIS MANNER FOR PROLONGED PERIOD OF TIME COULD RESULT IN COMPRESSOR FAILURE.

Clean air filter every 30 days as instructed. Area around Cooling Unit must be kept free of obstructions at all times for proper air circulation through the unit.

Cooling Unit Utilizing a Remote Condenser Coil and Fan Assembly.

CAUTION: Remote Condenser Coil and Fan assembly connected to this Cooling Unit is equipped with a condenser coil that must be cleaned every 30-days. Allowing condenser coil to become clogged will cause refrigeration system to overheat which will automatically shut refrigeration system down. After condenser coil has been cleaned, high-pressure cutout switch reset button on top of switches electrical control box under Cooling Unit top cover will have to be pressed to restart refrigeration system. OPERATING COOLING UNIT IN THIS MANNER FOR PROLONGED PERIOD OF TIME COULD RESULT IN COMPRESSOR FAILURE.

Clean Remote Condenser Coil and Fan Assembly condenser coil every 30 days, as instructed. Make sure area on top and around unit are kept free of obstructions at all times. Air must be allowed to enter and leave unit to remove heat from condenser coil. Restricting air through condenser coil will cause Cooling Unit refrigeration system to overheat.

3. Check entire system for leaks or damaged components. Repair as necessary.

COOLING UNIT MAINTENANCE

PERIODIC CLEANING

Periodically wash all external surfaces of Cooling Unit, rinse with clean water, then wipe dry with a clean soft cloth. DO NOT USE ABRASIVE TYPE CLEANERS.

CLEANING CONDENSER COIL

Cooling Unit Equipped With Condenser Coil and Air Filter.

(see Figure 5)

CAUTION: Air filter on back of Cooling Unit must be removed and cleaned every 30 days. Excessive accumulation of dust, lint, and grease on air filter will restrict air flow through the Unit and cause refrigeration system to overheat

Condenser coil air intake filter on back of Cooling Unit may either be removed and washed out with detergent solution or may be vacuumed in place on Unit.

Remote Condenser Coil and Fan Assembly (If applicable).

see Figure 6

CAUTION: The Remote Condenser Coil and Fan Assembly condenser coil must be cleaned every 30 days. Circulating air, required to cool the coil, is drawn in at bottom and is exhausted out through top of unit. Failure to clean condenser coil will cause refrigeration system to overheat.

1. Disconnect electrical power to Cooling Unit at disconnect switch.
2. Clean bottom side of condenser coil using vacuum cleaner, whisk broom, or soft-bristle brush to remove any debris from coil.
3. Check and make sure fan blade moves freely and are not touching any surfaces, are not bent, or out of balance. Check and make sure wire guard is properly installed and securely fastened.
4. Check and make sure roof area immediately surrounding unit is free and clear of any debris that may have collected such as leaves, paper, trash, etc.
5. Restore electrical power to Cooling Unit at disconnect switch.

CHECKING ICE WATER BATH

(see applicable Figure 5 or 6)

A gurgle heard from Cooling Unit indicates water level in water tank is low. This indicates the water tank water level float control is not operating properly and must be repaired or replaced. If a continuous trickle of water is coming out of the water tank overflow tube, this indicates the water level float control is not shutting off properly and must be repaired or replaced. Ice water bath and ice bank should be checked for cleanliness and water tank coils and the water level float control should be checked for excessive mineral deposit build-up as follows:

1. Disconnect electrical power from Cooling Unit at disconnect switch.
2. Remove two screws securing Cooling Unit top cover, then remove cover.
3. Using flashlight, inspect ice water bath and ice bank for cleanliness, ice water bath should be clear and ice bank free of foreign particles.
4. If cleaning of water tank is necessary, refer to CHANGING ICE WATER BATH in this section.
5. Fill water tank with clean water until water starts flowing from water tank overflow hose. USE LOW MINERAL CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
6. Install Cooling Unit top cover and secure with two screws.
7. Restore electrical power to Cooling Unit at disconnect switch.

CHANGING ICE WATER BATH

(see Figures 5 or 6)

1. Disconnect electrical power from Cooling Unit at disconnect switch.
2. Close shutoff valve in plain water inlet supply line.
3. Remove two screws securing the Cooling Unit top cover, then remove the cover.
4. Make sure end of water tank drain hose is routed to the floor drain, then remove plug from end of hose and allow water to drain from water tank.

CAUTION: Never use an ice pick or other instrument to remove ice from evaporator coils. Such practice can result in punctured refrigeration circuit.

5. Allow ice bank to melt. Hot water may be used to speed melting.
6. Thoroughly rinse inside of water tank with clean water.
7. Install plug in end of water tank drain hose.
8. Open shutoff valve in plain water inlet supply line. Due to slow water fill rate of the water level float control, the water tank may be hand filled until water runs out of the overflow tube. USE LOW MINERAL CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
9. Install Cooling Unit top cover and secure with two screws.
10. Connect electrical power to Cooling Unit at disconnect switch.

WATER PUMP YEARLY MAINTENANCE (OR AFTER WATER SYSTEM DISRUPTIONS)

WARNING: The carbonators water inlet strainer screens, double liquid check valves, and carbonated water tanks water outlet lines single check valves, must be inspected and serviced at least once a year under normal circumstances, and after any disruptions (plumbing work, earthquake, etc.) to the water supply system that might cause turbulent (erratic) flow of water through system. Water pump with no screen or defective screen in the strainer would allow foreign particles to foul the liquid double check valve. CO_2 gas could then back flow into water system and create a health hazard in water system.

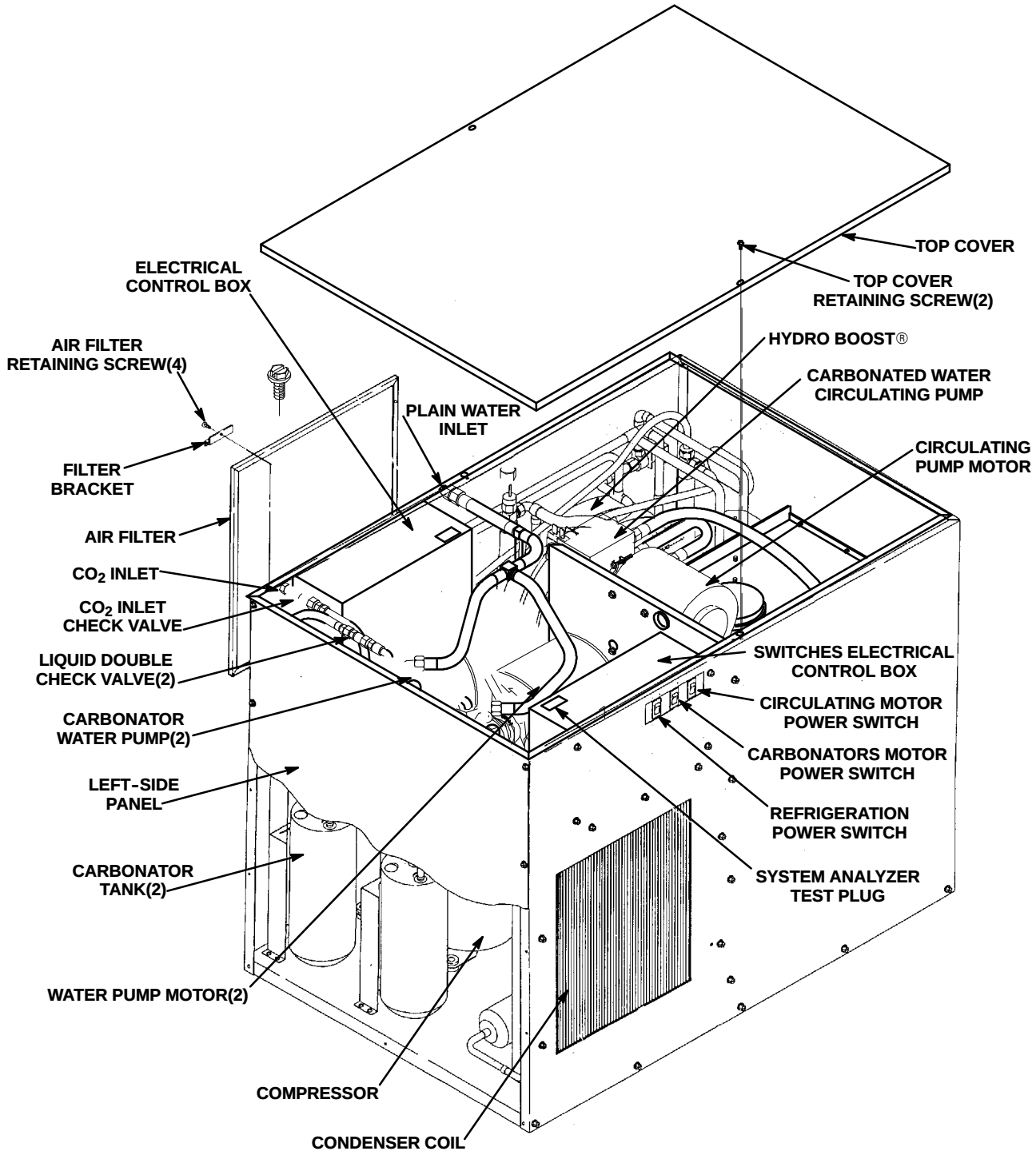


FIGURE 5. PARTS IDENTIFICATION (STANDARD COOLING UNIT W/INTERNAL CONDENSER COIL AND FAN ASSEMBLY)

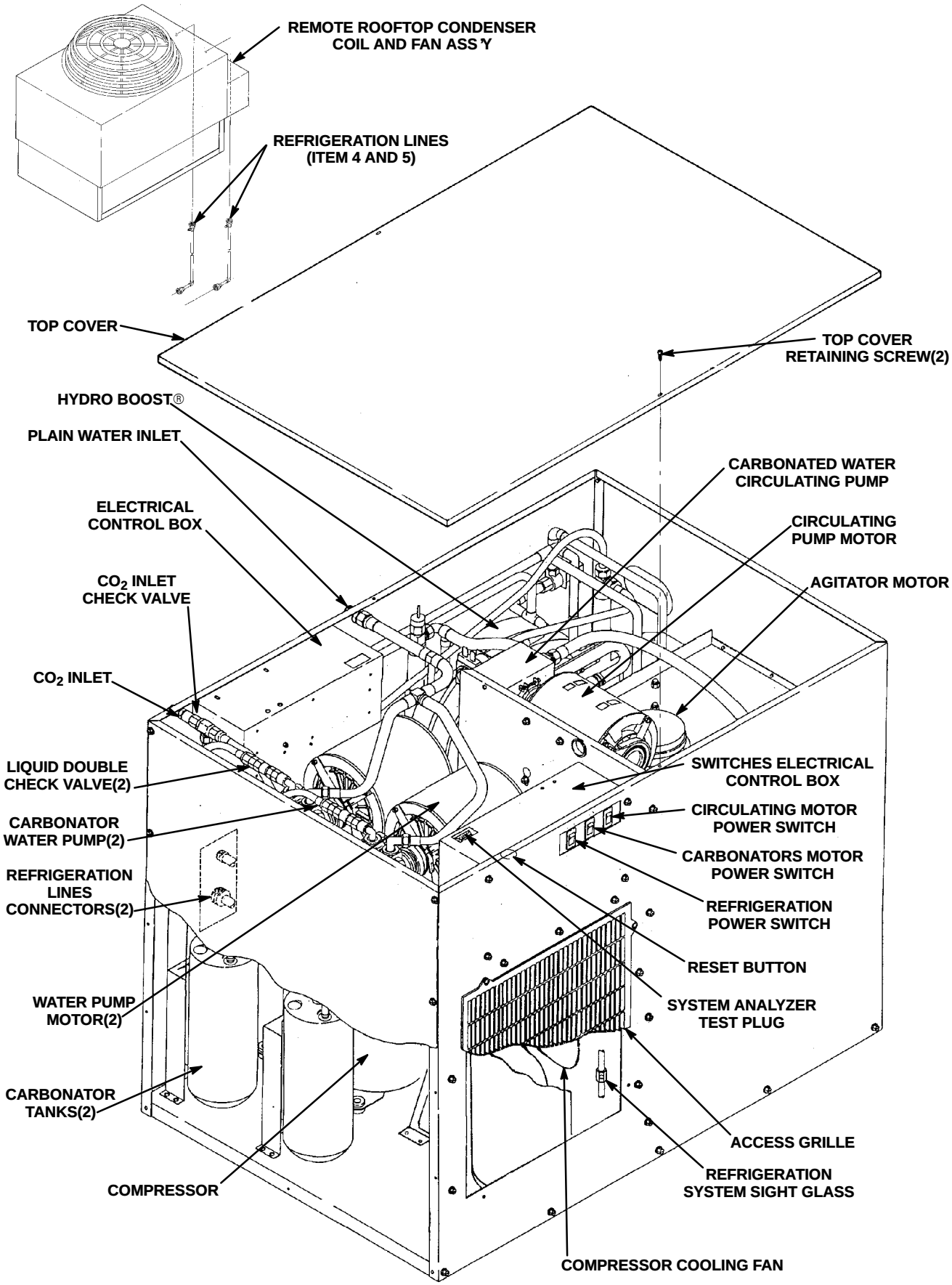


FIGURE 6. PARTS IDENTIFICATION (COOLING UNIT REQUIRING CONNECTION TO REMOTE CONDENSER COIL AND FAN ASSEMBLY)

Servicing Carbonator Water Pump Water Strainer Screen. (see applicable Figure 5 or 6 and 8)

1. Disconnect electrical power from Cooling Unit at disconnect switch.
2. Close shutoff valve in plain water inlet supply line.
3. Note pressure setting on carbonator CO_2 regulator, then turn regulator adjusting screw to the left (counterclockwise) until regulator gage reads 0-psi.
4. Remove two screws securing Cooling Unit top cover,then remove cover for access to carbonators water pumps.

CAUTION: Condenser Coil and Fan Assembly condenser coil must be cleaned every 30 days. Excessive accumulation of debris on condenser coil will restrict cooling air flow through coil and cause coil and refrigeration system overheat. Operating refrigeration system in overheated condition will eventually result in Cooling Unit compressor failure.

5. If left-side (facing front switch side) of Cooling Unit is obstructed, unit will have to be pulled out for removal of left-side panel for access to carbonator tanks and tanks carbonated water outlet lines liquid single check valves.
6. Remove Cooling Unit left-side panel.
7. Loosen carbonator water pump screen retainer, then pull screen retainer and strainer screen from water pump.
8. Pull strainer screen from screen retainer. Clean any sediment from screen retainer and pump screen retainer port.
9. Inspect strainer screen for holes, restrictions, corrosion and other damage. Discard damaged strainer screen.
10. Check O-Ring on screen retainer. Replace worn or damaged O-Ring (P/N 315349000). NOTE: *A strainer screen should always be used, otherwise particles could foul liquid double check valve.*
11. Install good or new strainer screen (P/N 315348000) in screen retainer, then screw retainer into water pump and tighten securely.
12. Service other carbonator water pump water strainer screen by repeating preceding steps 7 through 11.
13. Service carbonator water inlet liquid double check valve and carbonated water tank water outlet line single check valve. Refer to next paragraph, Servicing Carbonator Plain Water Inlet Liquid Double Check Valve and Carbonated Water Tank Carbonated Water Outlet Line Liquid Single Check Valve.

Servicing Carbonator Plain Water Inlet Liquid Double Check Valve and Carbonated Water Tank Carbonated Water Outlet Line Single Liquid Check Valve. (see Figures 2, 8, and 9)

1. Service water strainer screen as instructed in previous paragraph before servicing liquid double and single check valves.
2. Pull up on carbonator tanks relief valves to release CO_2 pressure from tanks.
3. Disconnect carbonator tank water inlet line from liquid double check valve outlet, then remove double check valve from elbow in water pump outlet.
4. Remove one check valve from the other, then disassemble each check valve as shown in Figure 9.
5. Wipe each part with clean lint-free cloth. Inspect each part, especially the ball, for burrs, nicks, corrosion, deterioration, and other damage. Discard ball seat and any damaged or suspicious parts and replace with new parts during reassemble.

6. Reassemble check valves as shown in Figure 9. ALWAYS INSTALL NEW BALL SEAT (QUAD RING) P/N 312418000.

NOTE: Make sure when assembling check valves together, check valve female end with white tapered gasket inside, is on inlet side of liquid double check valve assembly.

7. Assemble check valves together as shown in Figure 8 . DO NOT OVERTIGHTEN.

8. Make sure white tapered gasket is in place inside female end of liquid double check valve, then install double check valve on elbow in water pump outlet port.

9. Connect carbonator tank water inlet line to liquid double check valve outlet.

10. Remove liquid single check valve from carbonated water tank carbonated water outlet line.

11. Disassemble check valve as shown in Figure 9.

12. Wipe each part with clean lint-free cloth. Inspect each part, especially the ball, for burrs, nicks, corrosion, deterioration, and other damage. Discard ball seat and any damaged or suspicious parts and replace with new parts during reassemble.

13. Reassemble liquid check valve as shown in Figure 9. ALWAYS INSTALL NEW BALL SEAT (QUAD RING) P/N 312418-000.

14. Install check valve in carbonated water tank carbonated water outlet line.

15. Repeat procedures in Servicing Carbonator Water Pump Water Strainer Screen and this paragraph for servicing water strainer screen and liquid check valves on other carbonator.

16. Turn carbonator CO_2 regulator adjusting screw to the right (clockwise) until its gage indicates pressure setting observed in step 3 of Servicing Carbonator Water Pump Water Strainer Screen.

17. Open shutoff valve in plain water inlet supply line.

18. Restore electrical power to Cooling Unit at disconnect switch.

19. Dispense carbonated water at dispensing station and allow carbonators to cycle on and off. Check for water leaks and repair if evident.

20. Disconnect electrical power from Cooling Unit at disconnect switch.

21. Install Cooling Unit left-side panel and top cover. Place unit back in operating position if moved out for panel removal.

22. Restore electrical power to Cooling Unit at disconnect switch.

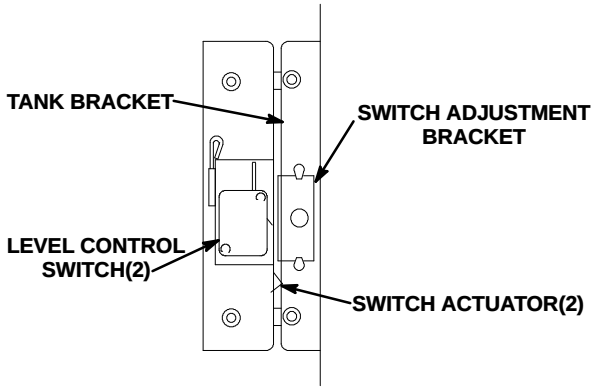


FIGURE 7. CARBONATOR LIQUID LEVEL CONTROL SWITCHES

CARBONATED WATER CIRCULATING PUMP MOTOR LUBRICATION

(see applicable Figure 5 or 6)

Carbonated water circulating pump motor bearings must be oiled periodically. Refer to oiling instructions on motor. DO NOT OVER OIL.

ADJUSTMENTS

NOTE: To readjust CO_2 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.

PRIMARY CO_2 REGULATOR

(see Figure 2)

Adjust primary CO_2 regulator on CO_2 cylinder to a minimum nominal setting of 120-psi or 24-psi higher than highest setting required by the secondary CO_2 regulators. Loosen CO_2 regulator adjusting screw locknut. Turn adjusting screw to the right (clockwise) until regulator gage registers nominal 120-psi, then tighten adjusting screw locknut.

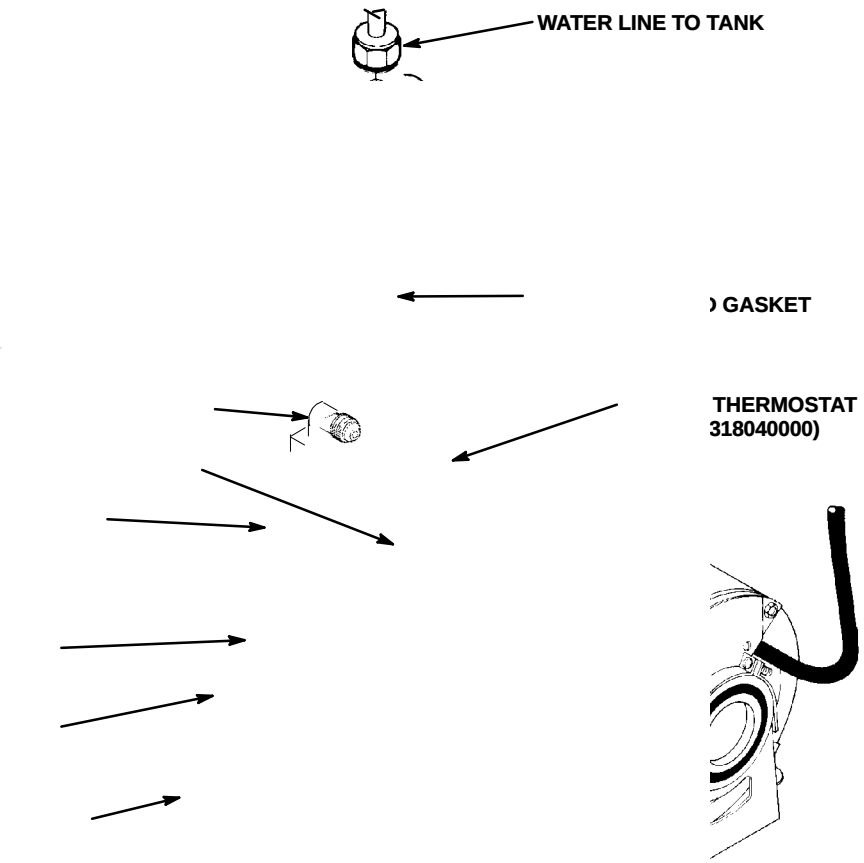
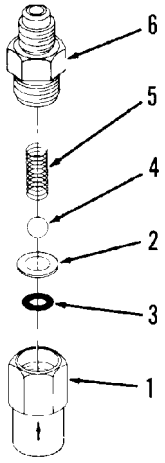


FIGURE 8. WATER STRAINER SCREEN AND LIQUID DOUBLE CHECK VALVE



Index No.	Part No.	Name
1	317963000	Housing
2	312415000	Flat Washer, Stainless Steel
3	*312418000	Ball Seat (quad ring)
4	312419000	Ball
5	312196000	Spring
6	317965000	Retainer
* Install new ball seat at each servicing.		

FIGURE 9. LIQUID CHECK VALVE ASSEMBLY

SECONDARY CO_2 REGULATORS

(see Figure 2)

Carbonator Secondary CO_2 Regulator.

Adjust carbonators secondary CO_2 regulator to a nominal 90-psi. Loosen CO_2 regulator adjusting screw locknut. Turn adjusting screw to the right (clockwise) until regulator gage registers nominal 90-psi, then tighten adjusting screw locknut. CO_2 PRESSURE TO CARBONATORS MUST NOT EXCEED 125-PSIG.

Sugar Syrup Soft Drink Tanks CO_2 Regulator.

Adjust sugar syrup soft drink tanks secondary CO_2 regulator at 40-psig for syrup lines up to10-feet in length plus one pound for each additional length of 10-feet, plus one pound for each 2-feet of vertical lift. For example: if syrup line total length is 30-feet and total vertical lift is 6-feet, then 40-psig+ 2-psig (1-pound for every10-feet of length over10-feet which is 20-feet)+3-psig (1-pound for every 2-feet of vertical lift which is 6-feet); total equals 40+2+3=45-psig CO_2 regulator setting.

Low-Calorie (diet) Syrup Soft Drink Tank CO_2 Regulator.

Adjust low-calorie (diet) soft drink tank secondary CO_2 regulator for low-calorie drink at 10-psig for syrup lines up to 30-feet in length. Syrup lines longer than 30-feet in length may require a slightly higher CO_2 regulator setting to 12-psig maximum. Excessive CO_2 pressure may cause low-calorie syrup carbonation resulting in foam.

WATER FLOW RATE

Refer to Installation Instructions provided with dispensing station for dispensing valve water flow rate adjustment instructions.

WATER-TO-SYRUP "RATIO" OF dISPENSED PRODUCT

Adjust dispensing station dispensing valves for Water-to-Syrup "Ratio" of dispensed product as instructed in dispensing station Installation Instructions.

ADJUSTING CARBONATORS TANKS LIQUID LEVELS

(see Figure 7)

NOTE: The carbonator tanks liquid levels (40 to 60-ounces) pump cut-in and cut-out were adjusted at the factory and should require no further adjustment. If incorrect adjustment is suspected, check and make necessary adjustment as follows:

Under 40-ounces of carbonated water dispensed.

If total amount of carbonated water dispensed is under 40-ounces, loosen screw securing switch adjustment bracket and move bracket up slightly. Moving bracket up allows weight of more water in tank to push tank further down before activating liquid level control switches which shuts off water pump. Tighten screw after adjustment.

Over 60-ounces of carbonated water dispensed.

If total measurement of carbonated water dispensed is over 60-ounces, loosen screw securing switch adjustment bracket and move bracket down slightly. Moving bracket down allows weight of less water in tank o activate liquid level control switches which shuts off water pump motor. Tighten screw after adjustment.

CLEANING AND SANITIZING

DAILY CLEANING OF UNIT

1. Remove cup rest from the drip tray.
2. Wash drip tray in place on the Unit, then rinse drip tray with hot water allowing water to drain out through the drain hose.
3. Wash cup rest, then rinse the cup rest with clean water. Install cup rest in the drip tray.
4. Clean all external surfaces of the Unit with a sponge. Rinse out the sponge with clean water, then wring excess water out of the sponge and wipe off all external surfaces on the Unit. Wipe Unit dry with a clean soft cloth. DO NOT USE ABRASIVE CLEANERS.
5. Remove nozzle and syrup diffusers from the dispensing valves. Place nozzles and syrup diffusers in sanitizing solution.
6. Wash the nozzles and syrup diffusers in sanitizing solution, then rinse them with potable water.
7. Re-install nozzles and syrup diffusers back on the dispensing valves.

SANITIZING POST-MIX SYRUP SYSTEMS

IMPORTANT: Only qualified Service Personnel should perform sanitizing procedure on the post-mix syrup systems.

The post-mix syrup systems should be sanitized every 90-days using a non-scented household liquid bleach containing a 5.25 % sodium hypochlorite concentration. Proceed as follows to sanitize the post-mix syrup systems.

1. Disconnect syrup supplies from syrup systems.
2. Rinse quick disconnects (syrup tanks systems) or bag-in-box connectors (syrup bag-in-box systems) in warm potable water.

STEP 1. WASH SYRUP SYSTEMS

3. Using a clean syrup tank (syrup tank system) or a five-gallon container (bag-in-box system), prepare a full tank or container of liquid dishwasher detergent by using 70° F (21° C) to 100° F (38° C) potable water and 0.5 oz. (15 ml) of liquid dishwasher detergent to one gallon of potable water. Stir detergent solution to thoroughly mix the solution.
4. Syrup Tank Systems.

   A. Observe and note CO_2 pressure setting on the syrup tanks CO_2 regulator, then re-adjust CO_2 regulator to 60 to 80-psi. Pressurize syrup tank containing detergent solution to 60 to 80-psi.

   B. Connect detergent solution tank, pressurized at 60 to 80-psi, into one of the syrup systems.

   Bag-in Box Syrup Systems.

   C. Install bag valves, cut from empty bag-in-box syrup containers, on ends of syrup containers syrup outlet tubes connectors.

   D. Place all syrup outlet tubes, with bag valves on their ends, in container containing detergent solution.

5. Flush the syrup system and dispensing valve as follows:

   A. Place waste container under applicable dispensing valve.

   B. Activate the dispensing valve for one minute to purge all syrup and flush out the syrup system.

   C. Continue to activate the dispensing valve in cycles ("ON" for 15-seconds, "OFF", then "ON" for 15-seconds). Repeat "ON" and "OFF" cycles for 15-cycles.

6. Connect detergent solution to the remaining syrup systems and flush syrup out of the syrup systems as instructed in step NO TAG preceding.
7. Remove detergent solution source from the syrup system.

STEP 2. FLUSH SYRUP SYSTEMS

8. Syrup Tank Systems.

   Connect syrup tank containing potable water, pressurized at 60 to 80-psi, into one of the syrup systems.

   Bag-in-Box Syrup System.

   Fill five-gallon container with potable water, then place all bag-in-box syrup containers syrup outlet tubes in container containing potable water.

9. Flush detergent solution out of the syrup system and dispensing valve as follows:

   A. Place waste container under applicable dispensing valve.

   B. Activate the dispensing valve for one minute to purge all detergent solution and flush out the syrup system.

C. Continue to activate the dispensing valve in cycles ("ON" for 15-seconds, "OFF", then "ON" for 15-seconds). Repeat "ON" and "OFF" cycles for 15-cycles.

10. Connect potable water source to the remaining syrup systems and flush detergent solution out of the syrup systems as instructed in step NO TAG preceding.

11. Remove potable water source from the syrup system.

STEP 3. SANITIZE SYRUP SYSTEMS

12. Using a clean syrup tank (syrup tanks system) or a five-gallon container (bag-in-box system), prepare sanitizing solution using 70° F (21° C) to100° F (38° C) potable water and 0.5 oz. (15 ml) of non-scented household liquid bleach that contains a 5.25 % sodium hypochlorite concentration to one gallon of potable water. This mixture *must not* exceed 200 PPM of chlorine. Stir sanitizing solution to thoroughly mix.

13. Syrup Tank Systems.

    Connect sanitizing solution tank, pressurized at 60 to 80-psi, into one of the syrup systems.

    Bag-in-Box Syrup System.

    Place all bag-in-box syrup containers syrup outlet tubes in container containing sanitizing solution.

14. Sanitize the syrup system and dispensing valve as follows:

    A. Place waste container under applicable dispensing valve.

    B. Activate the dispensing valve for one minute to purge all water from and install sanitizing solution in the syrup system and dispensing valve.

    C. Continue to activate the dispensing valve in cycles ("ON" for 15-seconds, "OFF", then "ON" for 15-seconds). Repeat "ON" and "OFF" cycles for 15-cycles.

15. Repeat stepsNO TAG and NO TAG to flush water out of and install sanitizing solution in the remaining syrup systems and dispensing valves.

16. Remove sanitizing solution source from the syrup system.

17. Allow sanitizing solution to remain in the syrup systems for not less than 10 or no more than 15-minutes (max.) contact time.

STEP 4. WATER FLUSH SYRUP SYSTEMS

WARNING: Flush sanitizing solution from the syrup systems as instructed. Residual sanitizing solution left in the syrup systems could create a health hazard.

18. Fill syrup tank (syrup tank system) or a five-gallon container (bag-in-box system) with potable water.

19. Syrup Tank Systems.

    Connect syrup tank containing potable water, pressurized at 60 to 80-psi, into one of the syrup systems.

    Bag-in-Box Syrup System.

    Place all bag-in-box syrup containers syrup outlet tubes in container containing potable water.

20. Flush sanitizing solution from the syrup system and the dispensing valve as follows:

    A. Place waste container under applicable dispensing valve.

    B. Activate the dispensing valve for one minute to purge all sanitizing solution out of the syrup system and the dispensing valve.

    C. Continue to activate the dispensing valve in cycles ("ON" for 15-seconds, "OFF", then "ON" for 15-seconds). Repeat "ON" and "OFF" cycles for 15-cycles.

21. Repeat steps NO TAG and NO TAG preceding to purge sanitizing solution out of the remaining syrup systems and
dispensing valves.

22. Remove potable water source from the syrup system.

STEP 5. PURGE WATER OUT OF SYRUP SYSTEMS (RESTORE OPERATION)

23. Syrup Tank Systems.

A. Noting syrup tanks CO_2 regulator pressure setting observed in step 4 preceding, readjust CO_2 regulator to the observed pressure setting,

B. Connect tanks containing syrup into syrup systems.

Bag-in-Box Syrup System.

C. Remove all bag valves from bag-in-box syrup containers outlet tubes connectors.

D. Connect bag-in-box syrup containers into the syrup systems.

24. Place waste container under dispensing valves. Dispense from all dispensing valves to permit syrup to purge all potable water from the syrup systems and the dispensing valves. Continue to dispense from the dispensing valves until only syrup is dispensed from the syrup systems and valves.

WARNING: To avoid possible personal injury or property damage, do not attempt to remove the syrup tank cover until CO_2 pressure has been released from the tank.

25. Dispose of waste sanitizing solution in a sanitary sewer, not in a storm drain, then thoroughly rinse the inside and the outside of the container that was used for sanitizing solution to remove all sanitizing solution residue.

REPLENISHING CO_2 SUPPLY

WARNING: CO_2 displaces oxygen. Strict attention *must* be observed in the prevention of CO_2 (carbon dioxide) gas leaks in the entire CO_2 and soft drink system. If a CO_2 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_2 gas will experience tremors which are followed rapidly by loss of consciousness and suffocation.

NOTE: When indicator on CO_2 cylinder primary CO_2 regulator assembly 1800-psi gage is in shaded ("change CO_2 cylinder") portion of dial, CO_2 cylinder is almost empty and should be changed.

1. Fully close (clockwise) CO_2 cylinder valve.

2. Slowly loosen primary CO_2 regulator assembly coupling nut allowing CO_2 pressure to escape, then remove regulator assembly from empty CO_2 cylinder.

3. Unfasten safety chain and remove empty CO_2 cylinder.

WARNING: To avoid personal injury and/or property damage, always secure CO_2 cylinder in upright position with safety chain to prevent it from falling over. Should valve become accidentally damaged or broken off, CO_2 cylinder can cause serious personal injury.

4. Position CO_2 cylinder and secure with safety chain.

5. Make sure gasket is in place inside primary CO_2 regulator coupling nut, then install regulator on CO_2 cylinder.

6. Open (counterclockwise) CO_2 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.)

REPLENISHING SYRUP SUPPLY

NOTE: The following instructions are applicable only when replenishing same flavor syrup. Refer to SYRUP FLAVOR CHANGE when changing syrup flavor.

1. Disconnect empty soft drink tank from syrup system.
2. Check soft drink tank quick disconnects for sticky or restricted operation. Wash disconnects in warm water.
3. Connect full tank of syrup into syrup system.

SYRUP FLAVOR CHANGE

1. Perform sanitizing procedure on syrup system syrup flavor change will be made on.
2. Check soft drink tank quick disconnects for sticky or restricted operation. Wash disconnects in warm water.
3. Connect full tank of new flavor syrup into syrup system.

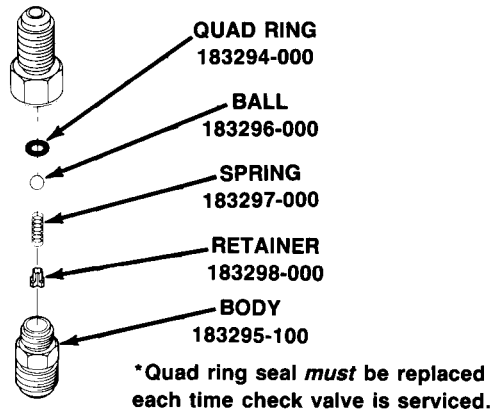


FIGURE 10. CO_2 GAS CHECK VALVE

CLEANING CO_2 SYSTEM GAS CHECK VALVES

SECONDARY CO_2 REGULATORS AND CO_2 MANIFOLD CO_2 GAS CHECK VALVES

(see Figures 2 and 10)

The secondary CO_2 regulators and CO_2 manifold CO_2 gas check valves must be inspected and serviced at least once a year under normal conditions and after any servicing or disruption of the CO_2 system. ALWAYS REPLACE QUAD RING SEAL EACH TIME GAS CHECK VALVES ARE SERVICED.

CARBONATORS CO_2 INLET LINES CO_2 GAS CHECK VALVE

(see Figures 2 and 10)

Carbonators CO_2 inlet lines CO_2 gas check valve, located inside Cooling Unit, must be inspected and serviced at least once a year under normal conditions and after any servicing or disruption of the CO_2 system. ALWAYS INSTALL NEW BALL SEAT (QUAD RING) P/N 312418000 EACH TIME CHECK VALVE IS SERVICED.

CONNECTING EXTERNAL CARBONATOR TO COOLING UNIT

An external carbonator may be connected to the Cooling Unit (see Figure 2) for a larger supply of carbonated water.

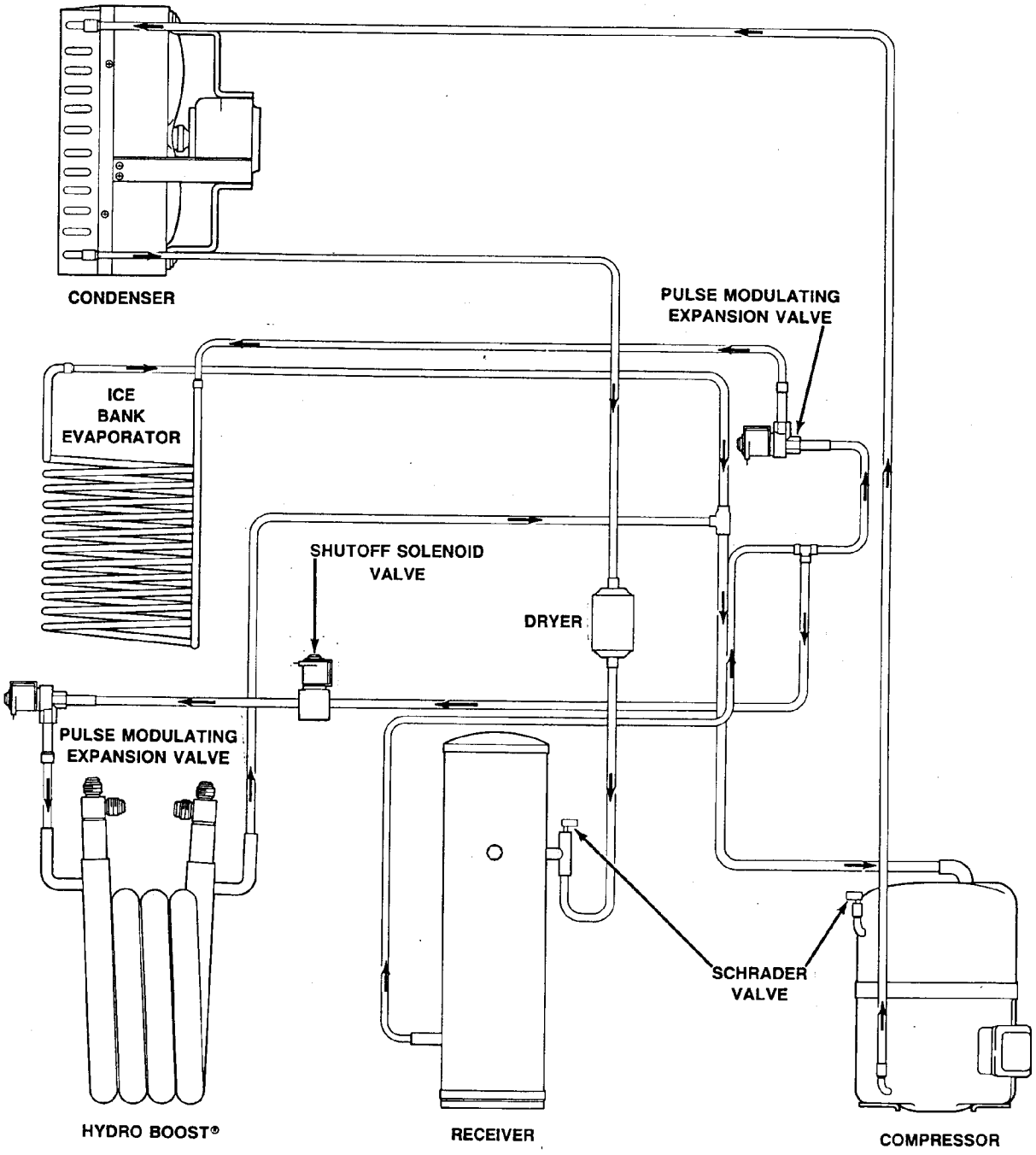


FIGURE 11. REFRIGERATION FLOW DIAGRAM (STANDARD COOLING UNIT W/INTERNAL CONDENSER COIL AND FAN ASS'Y)

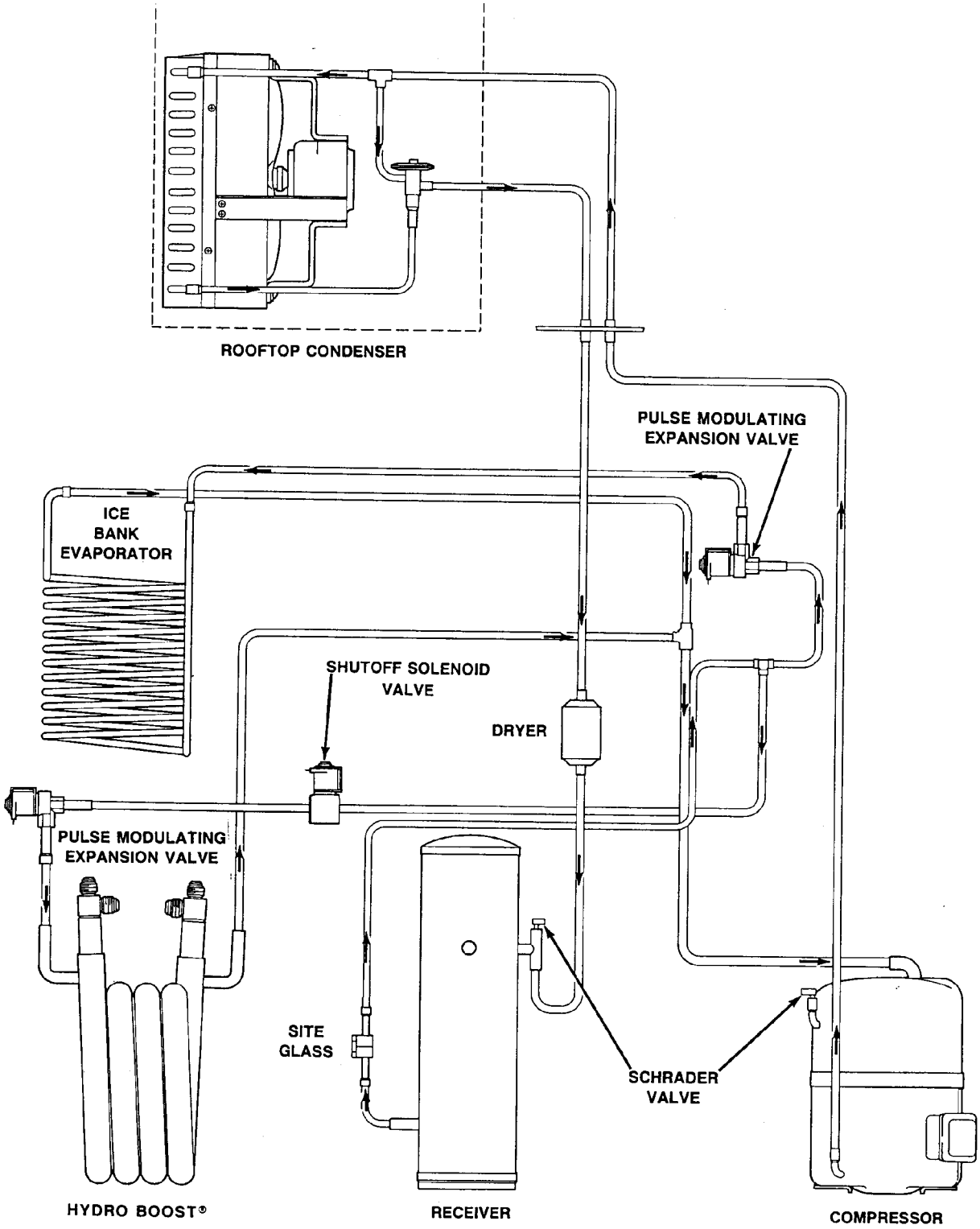


FIGURE 12. REFRIGERATION FLOW DIAGRAM (COOLING UNIT REQUIRING CONNECTION TO REMOTE CONDENSER COIL AND FAN ASS'Y)

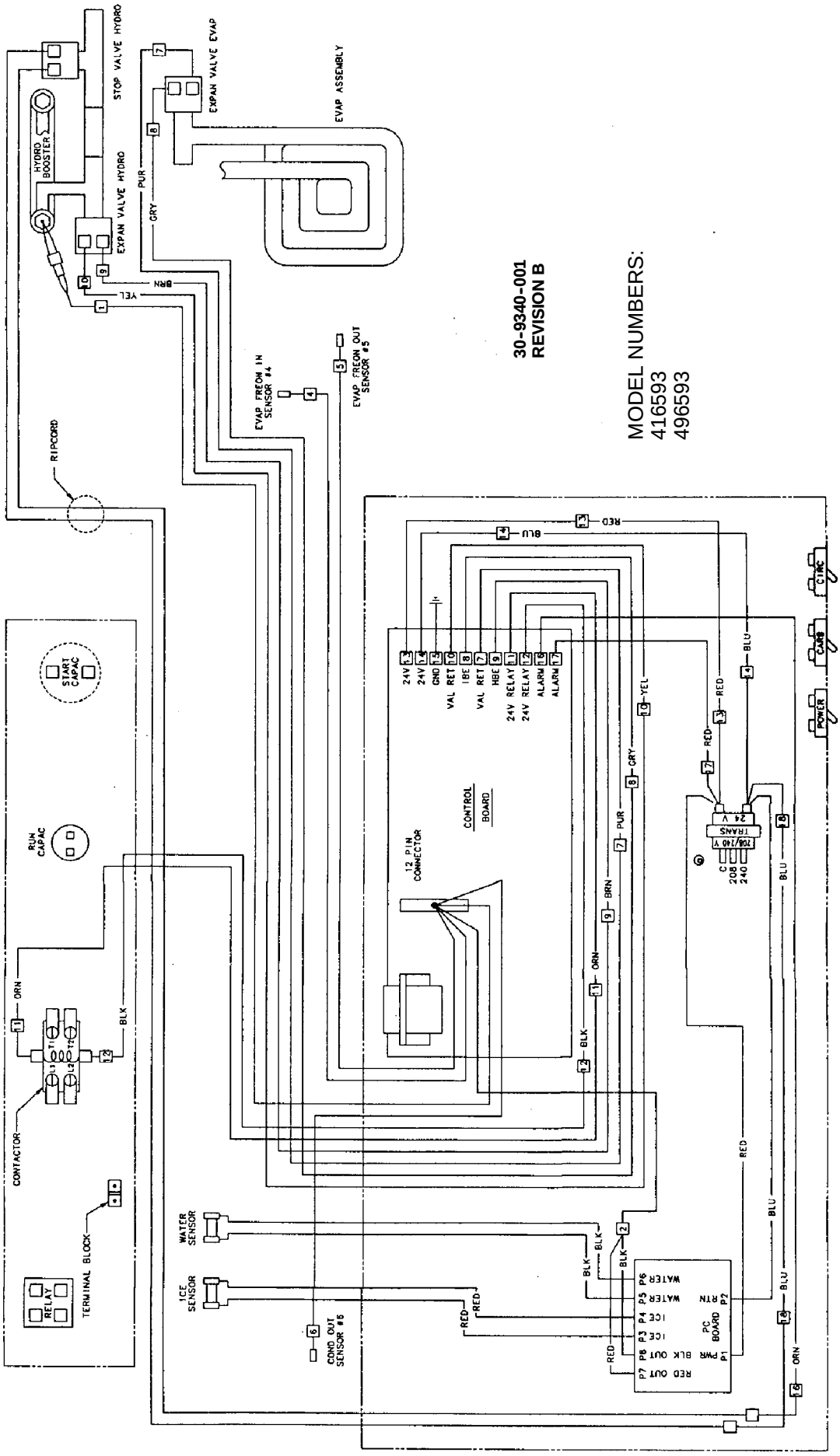
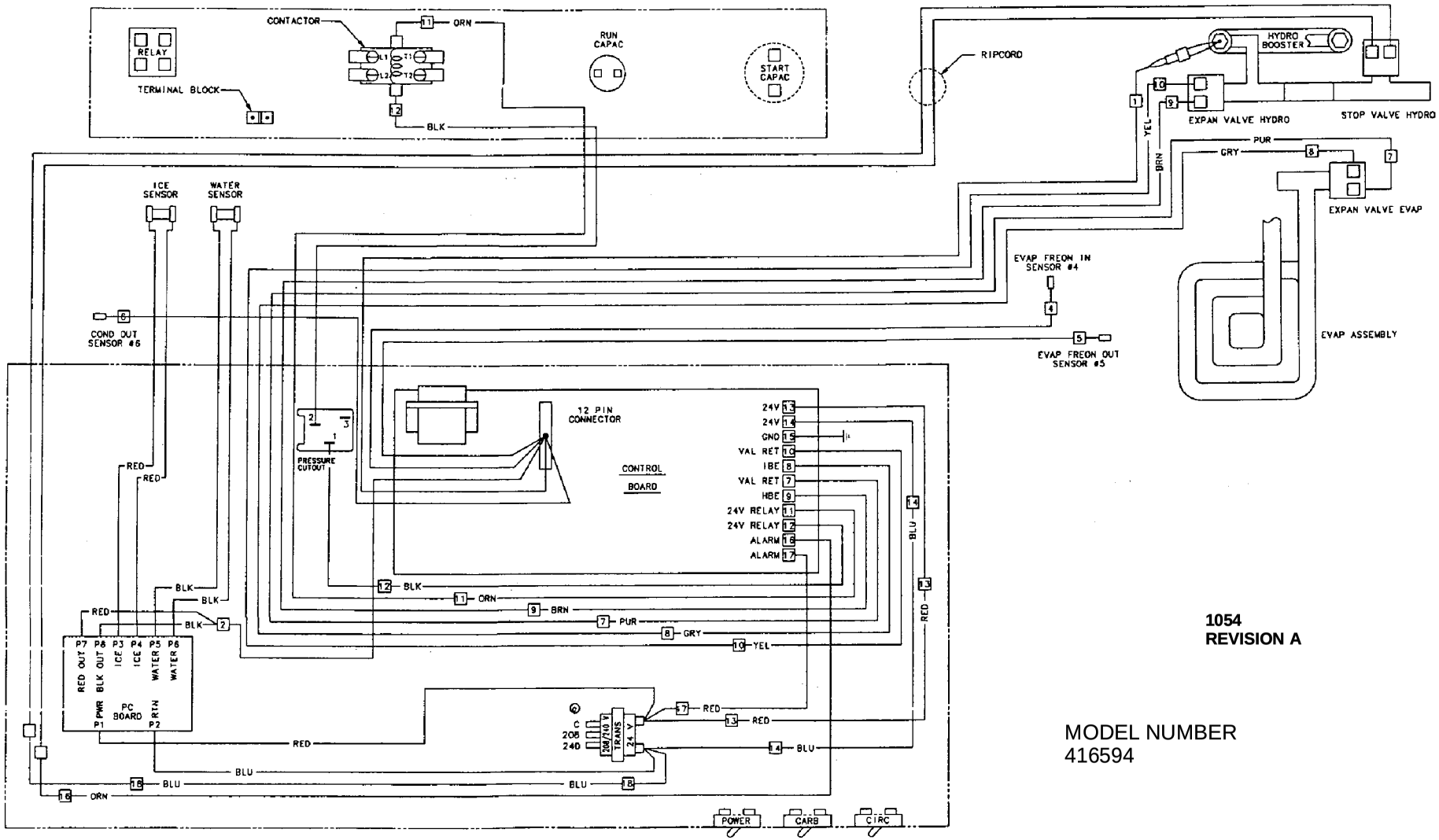


FIGURE 13. WIRING DIAGRAM (LOW-VOLTAGE SYSTEM)



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REVISION A

MODEL NUMBER
416594

FIGURE 14. WIRING DIAGRAM (LOW-VOLTAGE SYSTEM)

MODEL NUMBERS:
416593
416594
496593

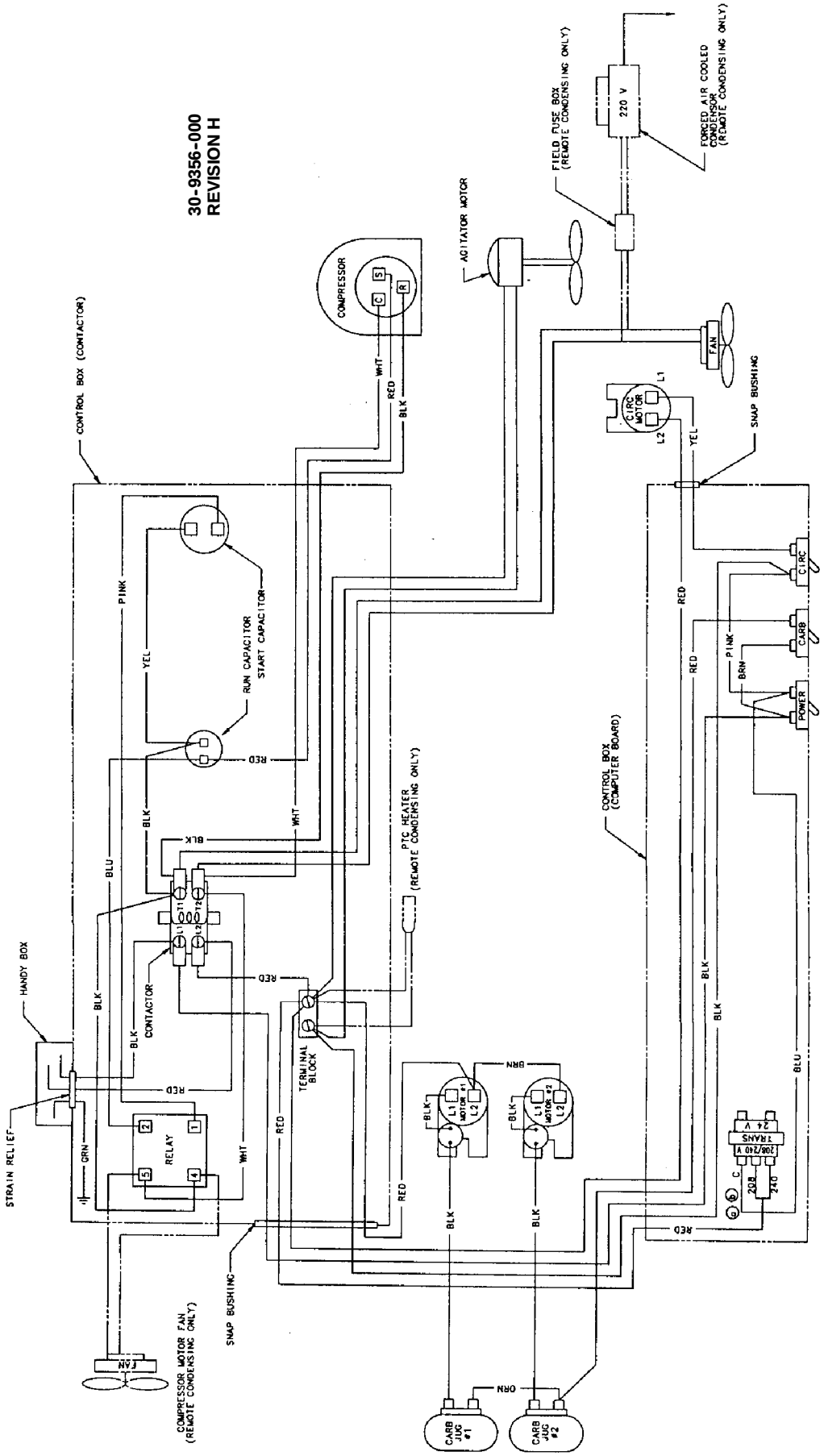

FIGURE 15. WIRING DIAGRAM (HIGH-VOLTAGE SYSTEM)

300381000

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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_2 system, stop dispensing, shut off the CO_2 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 POST-MIX SYSTEM

Trouble	Probable Cause	Remedy
WATER-TO-SYRUP "RATIO" OF DISPENSED DRINK TOO LOW OR TOO HIGH.	A. Dispensing valve syrup flow regulator not properly adjusted.	A. Adjust Water-To-Syrup "Ratio" (refer to dispensing station installation Instructions).
	B. CO_2 gas pressure to soft drink tanks insufficient to push syrup out of tanks.	B. Adjust soft drink tanks secondary CO_2 regulator as instructed.
ADJUSTMENT OF DISPENSING VALVE SYRUP FLOW REGULATOR DOES NOT INCREASE TO DESIRED WATER-TO-SYRUP "RATIO"	A. No syrup supply.	A. Replenish syrup supply as instructed.
	B. Soft drink tank quick disconnects not secure.	B. Secure quick disconnects.
	C. Soft drink tanks secondary CO_2 regulator out of adjustment.	C. Adjust soft drink tanks secondary CO_2 regulator as instructed.
	D. Dispensing valve syrup flow regulator, soft drink tank quick disconnect, or syrup line restricted.	D. Sanitize syrup system as instructed.
	E. Tapered nylon washer inside tube swivel nut connection distorted from being overtightened restricting syrup flow.	E. Replace nylon washer. Make sure washer seats properly in swivel nut.
	F. Dirty or inoperative piston or cylinder in dispensing valve syrup flow regulator.	F. Disassemble and clean dispensing valve syrup flow regulator.

Trouble	Probable Cause	Remedy
ADJUSTMENT OF DISPENSING VALVE SYRUP FLOW REGULATOR DOES NOT DECREASE TO DESIRED WATER-TO-SYRUP "RATIO".	A. Dirty or inoperative piston or cylinder in dispensing valve syrup flow regulator.	A. Disassemble and clean dispensing valve syrup flow regulator.
DISPENSED PRODUCT CARBONATION TOO LOW.	A. Carbonator CO_2 regulator out of adjustment for existing water conditions or temperature.	A. Adjust carbonator CO_2 regulator as instructed.
	B. Water, oil, or dirt in CO_2 supply.	B. Remove contaminated CO_2 supply. Clean CO_2 system (lines, regulators,etc.) using a mild detergent. Replenish with a clean CO_2 supply.
DISPENSED PRODUCT COMES OUT OF DISPENSING VALVE CLEAR BUT FOAMS IN CUP.	A. Oil film or soap scum in cups.	A. Use clean cups.
	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 NOTE)
NOTE: Crushed ice also causes dispensing problems. When finished drink hits sharp edges of ice, carbonation is released from finished drink.		
DISPENSED PRODUCT PRODUCES FOAM AS IT LEAVES DISPENSING VALVE.	A. Carbonator CO_2 regulator pressure set too high for existing water conditions or temperature.	A. Reduce carbonator CO_2 regulator pressure setting as instructed.
	B. Syrup over-carbonated with CO_2.	B. Remove soft drink tank quick disconnects. Relieve tank CO_2 pressure, shake tank vigorously, then relieve tank CO_2 pressure as many times as necessary to remove over-carbonation.
	C. Tapered nylon washer inside tube swivel nut connection distorted from being overtightened restricting syrup flow.	C. Replace nylon washer. Make sure washer is properly seated in swivel nut.
ONLY CARBONATED WATER DISPENSED.	A. Quick disconnect not secure on soft drink tank.	A. Secure quick disconnect on soft drink tank.
	B. Out of syrup.	B. Replenish syrup supply as instructed.
	C. Inoperable dispensing station.	C. Repair dispensing station.
	D. Dispensing valve syrup flow regulator not properly adjusted.	D. Adjust dispensing valve syrup flow regulator (refer to Installation Instructions provided with dispensing station).

Trouble	Probable Cause	Remedy
ONLY CARBONATED WATER DISPENSED (CONT'D)	E. Dispensing valve syrup flow regulator, soft drink tank quick disconnect, or syrup lines restricted.	E. Sanitize syrup system as instructed.
ONLY SYRUP DISPENSED.	A. Plain water inlet supply line shutoff valve closed.	A. Open plain water inlet supply line shutoff valve.
	B. CARBONATOR MOTORS power switch in "OFF" position.	B. Place switch in "ON" position.
	C. Water filter clogged.	C. Replace water filter.
	D. Frozen Hydro Boost® Coil.	D. Allow Hydro Boost® Coil to thaw, then check for refrigeration problem.
WARM PRODUCT BEING DISPENSED.	A. Carbonated water circulating pump CIRCULATING MOTOR power switch in "OFF" position.	A. Place circulating pump CIRCULATING MOTOR power switch in "ON" position.
	B. Inoperable carbonated water circulating pump or motor.	B. Replace pump or motor.

Trouble	Probable Cause	Remedy
TROUBLESHOOTING CARBONATOR		
WATER PUMP MOTOR WILL NOT OPERATE.	A. Inoperative water pump motor.	A. Replace water pump motor.
	B. Dirty balance mechanism.	B. Clean balance mechanism.
	C. Loose connections and/or open electrical circuit.	C. Tighten connections and/or repair open circuit.
	D. Overheated motor cut off by thermal overload protector.	D. Check for proper line voltage. Check for restricted pump discharge.
	E. Inoperative level control switches.	E. Replace level control switches.
	F. Binding or damaged balance mechanism.	F. Repair or replace balance mechanism.
	G. Water pump binding (new or replacement pumps only).	G. Remove water pump from motor, rotate pump or motor shaft 180 degrees, then recouple pump to motor.
	H. Water pump damaged.	H. Replace water pump as instructed.
	I. Safety thermostat inoperative.	I. Replace safety thermostat.
WATER PUMP MOTOR WILL NOT SHUT OFF.	A. Foreign object restricting tank movement.	A. Remove foreign object.
	B. Dirty balance mechanism.	B. Clean balance mechanism.
	C. Leak in carbonated water line.	C. Tighten or replace line.
	D. Inoperative level control switches.	D. Replace level control switches.

Trouble	Probable Cause	Remedy
	E. Binding or damaged balance mechanism.	E. Repair or replace balance mechanism.
ERRATIC CYCLING OF CARBONATOR.	A. Balance mechanism spring obstructed or "cocked".	A. Remove obstruction. Make sure spring is perpendicular to spring release and is not twisted.
	B. Dirty balance mechanism.	B. Clean balance mechanism.
WATER PUMP MOTOR OPERATES BUT WATER PUMP DOES NOT PUMP WATER	A. Water pump inlet water strain screen dirty.	A. Clean or replace water strainer screen as instructed.
	B. Kinked water supply line.	B. Straighten water supply line.
	C. Restriction between water pump outlet and carbonator tank inlet.	C. Remove restriction.
	D. Foreign object in water pump bypass.	D. Clean bypass. (Note: Count number of turns bypass screw makes when removing and install same number of turns.)
	E. Water pump worn out.	E. Replace water pump.
WATER PUMP CAPACITY TOO LOW.	A. Water pump inlet water strainer screen dirty.	A. Clean or replace water strainer screen as instructed.
	B. Water supply capacity too low.	B. Inlet water supply must be at a minimum of 250-gallons per hour with a maximum water pressure of 80-psi
	C. Water filter clogged.	C. Replace water filter cartridge as instructed.
	D. Inoperative water pump.	D. Replace water pump.
TROUBLESHOOTING REFRIGERATION SYSTEM		
COMPRESSOR DOES NOT OPERATE.	A. Ice bank sufficient.	A. Refrigeration not called for.
	B. REFRIGERATION POWER switch in "OFF" position.	B. Place REFRIGERATION POWER switch in "ON" position.
	C. Electrical power to Cooling Unit turned off.	C. Turn on electrical power to Cooling Unit.
	D. No Cooling Unit power source. Blown fuse or tripped circuit breaker.	D. Replace fuse or reset circuit breaker.
	E. Low voltage.	E. Voltage must be at least 208 volts at compressor terminals when compressor is trying to start.
	F. Loose, disconnected, or broken wiring.	F. Tighten connections or replace broken wiring.
	G. Inoperable contactor.	G. Replace contactor.
	H. Inoperable control board.	H. Replace control board.

Trouble	Probable Cause	Remedy
COMPRESSOR DOES NOT OPERATE (CONT D)	I. Hi-pressure cutout tripped (remote Cooling Unit only).	I. Reset pressure switch (see REFRIGERATION SYSTEM TEMPERATURE SENSING DEVICE AND HIGH-PRESSURE CUTOUT SWITCH in OPERATORS INSTRUCTIONS SECTION.
	J. No voltage to control board.	J. Check for loose or broken wiring. Check 240/24 VAC power transformer for 24 VAC output. (see NOTE below)
	K. Inoperative compressor.	K. Replace compressor.
	L. Temperature sensor is shorted or open circuit.	L. Check for loose, broken, or disconnected wire or plug at pre-cool coil. Repair or replace wire. Confirm which temperature sensor has failed by using the Aurora Series System Analyzer (P/N 309197-000).
	M. Loose or broken wire to satellite board from ice sensor probe on main control board (see low-voltage system wiring diagram).	M. Repair or replace wire.
NOTE: The 240/24 VAC power transformer has an overload reset button located on its 24 VAC output side (see Figure 3). An overload on the transformer will cause its reset button to pop out disrupting the 24 VAC output to the main control board. Overload reset button must be pressed in to restore 24 VAC output.		
COMPRESSOR OPERATES CONTINUOUSLY BUT DOES NOT FORM SUFFICIENT ICE BANK.	A. Cooling capacity is exceeded by overdrawing.	A. Reduce amount of drinks drawn per given time.
	B. **Standard Cooling Unit with condenser coil and fan assembly**– Cooling Unit located in excessively hot area or air circulation through condenser coil is restricted.	B. Relocate unit or check and if necessary, clean air filter as instructed.
	C. **Remote Rooftop Condenser Coil and Fan Assembly**– Air circulation through condenser coil is restricted.	C. Check and if necessary, clean condenser coil as instructed.
	D. Insufficient refrigerant charge.	D. Check refrigeration system with gage set and Aurora Series System Analyzer (P/N 309197000). Find and repair refrigeration leak, then replenish refrigerant charge.

Trouble	Probable Cause	Remedy
COMMPRESSOR OPERATES CONTINUOUSLS BUT DOES NOT FORM SUFFICIENT ICE BANK (CONT'D)	E. Inoperative or disconnected pulse-modulating expansion valve (see applicable REFRIGERATION FLOW DIAGRAM).	E. Check that expansion valve is operating by touch (should be able to feel valve pulse).Check for loose or disconnected wire to solenoid coil. If necessary, troubleshoot expansion valve with a gage set to see if it is opening. If expansion valve is not opening, suction pressure will be in a vacuum.
	F. Inoperative control board. No output from board to solenoids.	F. Check LED's on control board to see if they are modulating. Check for 24V output to pulse modulating expansion valve (see WIRING DIAGRAM). If control board green LED is on and yellow LED Is flashing; but no 24V output, replace board.

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

CONDENSER FAN MOTOR NOT OPERATING.	**Standard Cooling Unit with Condenser Coil and Fan Assembly**	
	A. Jumper cord loose or disconnected from condenser fan motor or terminals inside control box. Broken wire in cord.	A. Tighten connections or replace cord.
	B. Fan blade obstructed.	B. Remove obstruction.
	C. Inoperative condenser fan motor.	C. Replace condenser fan motor.
	Remote Condenser Coil and Fan assembly.	
	A. Blown power circuit fuse.	A. Replace power circuit fuse.
	B. Fan blade obstructed.	B. Remove obstruction.
	C. Inoperative condenser fan motor.	C. Replace condenser fan motor.
	D. Cooling unit contactor inoperable.	D. Replace Cooling Unit contactor.
AGITATOR MOTOR NOT OPERATING.	A. Agitator motor propeller obstructed.	A. Remove obstruction.
	B. Low voltage.	B. Voltage must be at least 208 volts at compressor terminals when compressor is trying to start
	C. Loose, disconnected, or broken wiring.	C. Tighten connections or replace broken wiring.
	D. Inoperative agitator motor.	D. Replace agitator motor.

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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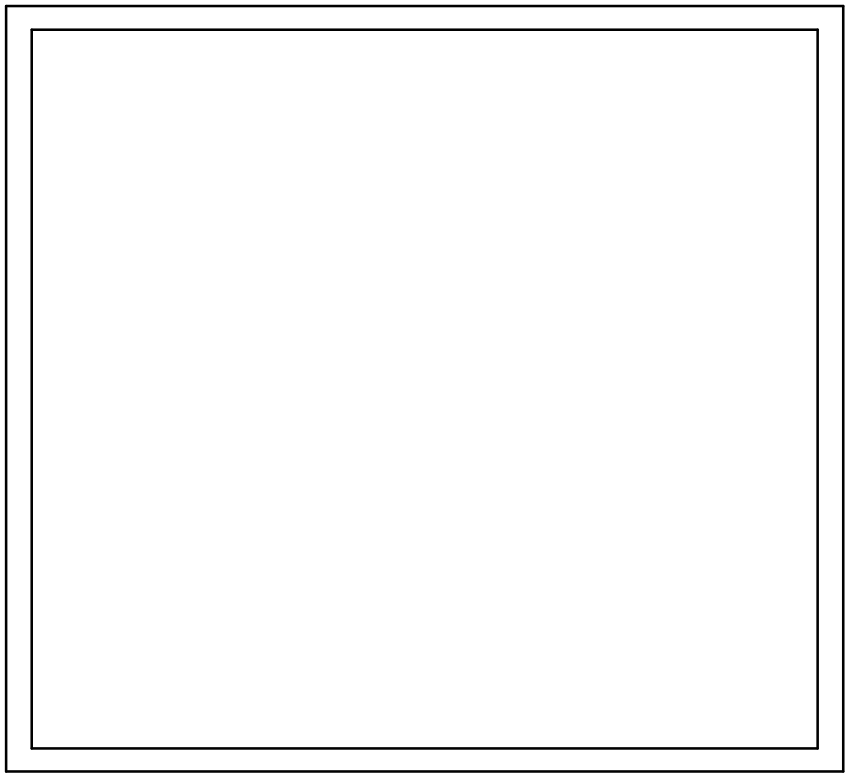

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