VANGUARD 245 POST-MIX BEVERAGE DISPENSER

(This manual is applicable for equipment series number from 89E0630VDXXX)

SERVICE MANUAL

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Revision: G

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The products, technical information, and instructions contained in this manual are subject to change without notice.

These instructions are not intended to cover all details or variations of the equipment, nor to provide for every possible contingency in the installation, operation or maintenance of this equipment. This manual assumes that the person(s) working on the equipment have been trained and are skilled in working with electrical, plumbing, pneumatic, and mechanical equipment. It is assumed that appropriate safety precautions are taken and that all local safety and construction requirements are being met, in addition to the information contained in this manual.

This Product is warranted only as provided in Cornelius' Commercial Warrant applicable to this Product and is subject to all of the restrictions and limitations contained in the Commercial Warranty.

Cornelius will not be responsible for any repair, replacement or other service required by or loss or damage resulting from any of the following occurrences, including but not limited to, (1) other than normal and proper use and normal service conditions with respect to the Product, (2) improper voltage, (3) inadequate wiring, (4) abuse, (5) accident, (6) alteration, (7) misuse, (8) neglect, (9) unauthorized repair or the failure to utilize suitably qualified and trained persons to perform service and/or repair of the Product, (10) improper cleaning, (11) failure to follow installation, operating, cleaning or maintenance instructions, (12) use of "non-authorized" parts (i.e., parts that are not 100% compatible with the Product) which use voids the entire warranty, (13) Product parts in contact with water or the product dispensed which are adversely impacted by changes in liquid scale or chemical composition.

Contact Information:

To inquire about current revisions of this and other documentation or for assistance with any Cornelius product contact:

www.cornelius-usa.com

800-238-3600

Trademarks and Copyrights:

This document contains the original instructions for the unit described.

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SAFETY INSTRUCTIONS

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

Safety Overview

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

Recognition

Recognize Safety Alerts
 *This is the safety alert symbol. When you see it in this manual or on the unit, be alert to the potential of personal injury or damage to the unit.*

DIFFERENT TYPES OF ALERTS

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

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

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

SAFETY TIPS

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

QUALIFIED SERVICE PERSONNEL

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

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Safety Precautions

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

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

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

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

Shipping And Storage

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

CO_2 (Carbon Dioxide) Warning

DANGER:
CO_2 displaces oxygen. Strict attention **MUST** be observed in the prevention of CO_2 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 concentrations of CO_2 gas experience tremors which are followed rapidly by loss of consciousness and **DEATH**.

Mounting in or on a Counter

WARNING:
When installing the unit in or on a counter top, the counter must be able to support a weight in excess of **230** lbs. to insure adequate support for the unit. **FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

> **NOTE: Many units incorporate the use of additional equipment such as icemakers. When any addition equipment is used you must check with the equipment manufacturer to determine the additional weight the counter will need to support to ensure a safe installation.**

CAUTION:
PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation. Firmly secure cylinders upright to keep from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 52° C (125° F). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

CAUTION:
PRECAUTIONS TO BE TAKEN IN HANDLING: Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop cylinders. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g. wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. Never apply flame or localized heat directly to any part of the cylinder. High temperatures may damage the cylinder and could cause the pressure relief device to fail prematurely and venting the cylinder contents. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electrical circuit. For additional information on storage and handling, refer to Compressed Gas Association (CGA) pamphlet P-1, “Safe Handling of Compressed Gases in Containers,” available from the CGA.

EQUIPMENT HANDLING

CAUTION:
This equipment is NOT suitable for installation in an area where a water jet could be used and MUST NOT be cleaned by water jet.

CAUTION:
This equipment is top heavy and unstable when empty and MUST NOT be operated unless the unit is in place and the water bath is filled.

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GENERAL INFORMATION

GENERAL DESCRIPTION

This manual is a guide for installing, operating, and maintaining this equipment. This section gives the Unit Description, Theory of Operation, and Design Date for Vanguard 245 Post-Mix Beverage Over Counter Dispenser. This Unit must be installed and serviced by a qualified Service Person. This Unit Contains no User serviceable parts.

WARRANTY REFERENCE INFORMATION

Warranty Registration Date (to be filled out by customer)
Unit Part Number
Serial Number
Install Date
Local Authorized Serviced Center

UNIT DESCRIPTION

The Vanguard 245 over-the-counter, post-mix, beverage dispenser is compact and may be installed on a counter top as a self-service Unit or the Units are equipped with drop-in type refrigeration assemblies that are easily removed for service and maintenance. Adjustable water flow regulators and syrup flow regulators, located on the dispensing valves, are easily accessible to control the water flow rate of the dispensing valves and Water-to Syrup “Ratio” of the dispensed product.

The only requirements for operation are installation of the Unit on a counter top, installation of LOOSE-SHIPPED PARTS, filling water tank with water, connection to a remote carbonator (Unit requiring connection to a remote carbonator), connections to plain water and syrup supplies, adjustment of CO_2 regulators, plugging unit power cord into an electrical outlet, and adjusting the dispensing valves water and syrup flow regulators for proper water flow rate and Water-to-Syrup “Ratio” of the dispensed product.

The units are available in two sizes. both sizes can be ordered with or without built–in carbonator.

- Medium — six valve
- Large — eight valve

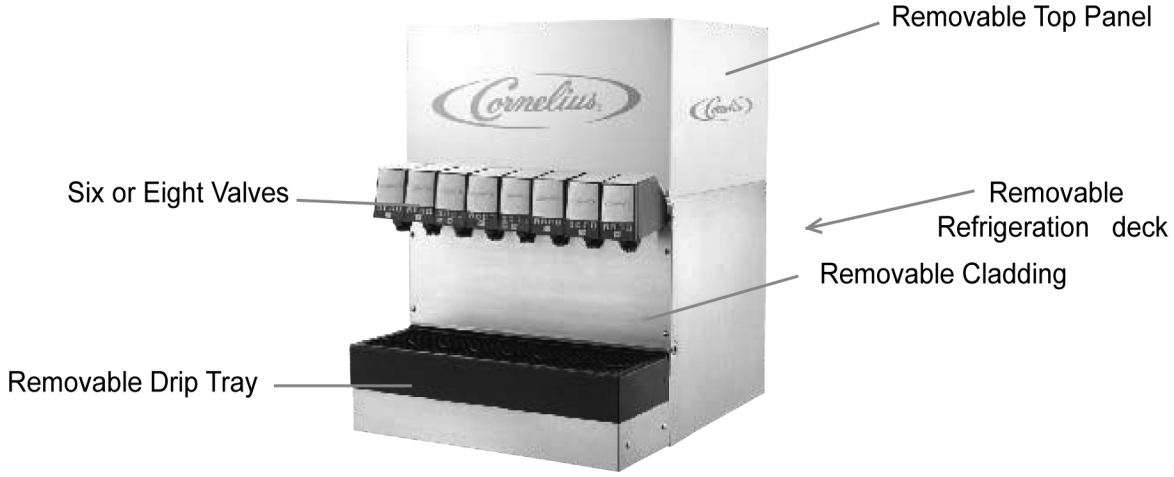

Figure 1. Vanguard 245 Dispenser (Eight-flavor Unit Shown)

The Vanguard 245 over the counter, post-mix, beverage dispenser offers the following features:

- Six or eight valves
- Built-in carbonator (optional)
- Removable refrigeration deck
- Removable drip tray
- Removable cladding

SPECIFICATIONS

DESIGN DATA

Description	Unit Requiring Connection to Remote Carbonator	Unit with Built-In Carbonator
Valve	6 or 8 valves	6 or 8 valves
Valve Positions Convertible To Water*	All	No. 3 & No. 4 (6 Valves)
		No. 4, No. 7 & No. 8 (8 Valves)
Nominal Ice Bank Weight	27 kg (50 pounds)	27 kg (50 pounds)
Water Bath Capacity (no ice bank)	80 L (21.25 gal.)	78 L (20.5 gal.)
Overall Height	788 mm (31 in)	788 mm (31 in)
Overall Width	622 mm (24-1/2 in)	622 mm (24-1/2 in)
Overall Depth	746 mm (29-3/8 in)	746 mm (29-3/8 in)
Counter Weight (empty water bath)	87.7 kg (193 lbs.)	97.8 kg (215 lbs.)
Shipping Weight	109 kg (240 pounds)	116 kg (255 pounds)
Counter Weight (filled water bath)	97.7 kg (215 pounds.)	104.6 kg (230 pounds)
NOTE: * Valves numbered right to left facing the front of the dispenser		

PART NUMBER

Unit requiring connection to Remote carbonator	
six-flavor unit (115 VAC, 60 Hz)	417306XXXXX
eight-flavor unit (115VAC, 60Hz)	417308XXXXX
six-flavor unit (208-230 VAC, 60 Hz)	477306XXXXX
eight-flavor unit (208-230 VAC, 60 Hz)	477308XXXXX
six-flavor unit (230 VAC, 50 Hz)	497306XXXXX
eight-flavor unit (230 VAC, 50 Hz)	497308XXXXX
Unit with built-in carbonator	
six-flavor unit (230 VAC, 60 Hz)	497316XXXXX
eight-flavor unit (230 VAC, 60 Hz)	497318XXXXX
six-flavor unit (230 VAC, 50 Hz)	497316XXXXX
eight-flavor unit (230 VAC, 50 Hz)	497318XXXXX

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CAPABILITY

Dispensing rate: 12 OZ. drinks 4 / min. or fewer 1000

NOTE: Number of drinks dispensed 4° C (40° F) or below @ 24 ° C (75° F) syrup and water inlet temperature and 24° C (75° F) ambient.

MISCELLANEOUS INFORMATION

Refrigerant	404A
Compressor HP	3/4 H.P
Standard Valve	LEV, LVV, FFV, UF-1
Cup Clearance	298 mm (11-3/4 inches)
	197 mm (7-3/4 inches) optional
Agency Listing	CE, NSF, UL
Electronic Controls	Electronic ice bank and liquid level control

THEORY OF OPERATION

UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR

NOTE: The unit is factory set to dispense non-carbonated water and carbonated water as per customer's requirement. It is available to convert carbonated waters to non-carbonated water valve(s). Non-carbonated water dispensing valve(s) may be converted to also dispense carbonated drink(s).

A CO_2 cylinder delivers carbon dioxide (CO_2) gas through adjustable CO_2 regulators to the applicable syrup tanks or bag-in-box syrup pumps and also the remote carbonator. Plain water enters the remote carbonator water tank and is carbonated by CO_2 gas pressure also entering the water tank. When dispensing valve is opened, CO_2 gas pressure exerted upon the applicable syrup tank contents or bag-in-box syrup pump pushes syrup from the syrup supply, through the Unit cooling coils, and on to the dispensing valve.

Carbonated water is pushed from the remote carbonator by CO_2 gas head pressure and is pushed through the Unit cooling coils to the dispensing valve. Syrup and carbonated water meet simultaneously at the dispensing valve resulting in a carbonated drink being dispensed. Still (non-carbonated) drink is dispensed in the same manner as the carbonated drink except plain water is substituted for carbonated water.

UNIT WITH INTEGRAL CARBONATOR

NOTE: The unit is factory set to dispense non-carbonated water and carbonated water as per customer's requirement. It is available to dispense at most 2 non-carbonated waters (6 Flavours) or 3 non-carbonated waters (8 Flavors) with carbonated water dispensing from the remaining valve(s). Non-carbonated water dispensing valve(s) may be converted to also dispense carbonated drink(s).

A CO_2 cylinder delivers carbon dioxide (CO_2) gas through adjustable CO_2 regulators to the applicable syrup tanks or bag-in-box syrup pumps and also the integral (built-in) carbonator. Plain water enters the integral carbonator carbonated water tank and is carbonated by CO_2 gas pressure also entering the water tank. When dispensing valve is opened, CO_2 gas pressure exerted upon the applicable syrup tank contents or bag-in-box syrup pump pushes syrup from the syrup supply, through the Unit syrup cooling coil, and on to the dispensing valve.

Carbonated water is pushed from the integral carbonator carbonated water tank by CO_2 gas head pressure and is pushed through the carbonated water manifold to the dispensing valve. Syrup and carbonated water meet simultaneously at the dispensing valve resulting in a carbonated drink being dispensed. Still (non-carbonated) drink is dispensed in the same manner as the carbonated drink except plain water is substituted for carbonated water.

INSTALLATION

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

All wiring and plumbing must conform to national and local codes. Failure to comply could result in serious injury, death or equipment damage.

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

DELIVERY INSPECTION AND UNPACKING

INSPECTION

Upon delivery inspect the unit for damage or irregularities and immediately report problems to the delivering carrier and file a claim with that carrier.

UNPACKING

- Remove shipping tape and other packing material.
- Remove four shipping nuts that secure the drop-in refrigeration assembly in the lower cabinet.
- Unpack the loose parts and make sure all items are present and in good condition.

Item No.	Part No.	Loose Part No.	Quantity
1	4771	Cup Rest	1
2	4772	Drip Tray	1
3	4778	Drip Tray Bracket	2
4	4123	Rear Access Cover	1
5	317784000	Screw, Thread Cutting	6
6	113500000	Drip Tray Drain Hose	1
7	140135000	Clamp, Drip Tray Drain Hose	1
8	3297	Water Lever Kit (see NOTE)	2
9	560000291	Air Filter (optional)	1
10	188072000	Screw	6
11	as request	Valve Stickers	1 Set
12	301135000E	Service Manual	1

IDENTIFICATION OF LOOSE-SHIPPED PARTS

1. Drip tray brackets to be installed on the unit, then drip tray to be installed on the drip tray brackets and secured with screws, thread cutting. Cup rest is then to be installed in the drip tray.
2. Rear access cover is used to cover the rear access hole on back of the Unit and secured with screws, thread cutting if drip tray and water tank drain hoses, water tank overflow hose, and the syrup and water source inlet Lines to be connected to the unit will not be routed through the access hole.
3. Drip tray drain hose is to be connected to the drip tray and secured with clamp, drip tray drain hose.
4. Water lever kit to be installed on dispenser's equipped with UF-1 dispensing valves.

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SELECTING LOCATION

DANGER:
To avoid possible fatal electrical shock or serious injury to the operator, it is required that a GFI (ground fault circuit interrupt) be installed in the electrical circuit for the domestic Units. It is required that an ELCB (earth leakage circuit breaker) be installed in the electrical circuit for the export Units.

This Unit may be installed on a countertop as a self-serve Unit or the Unit may be installed in a drive-through or a center-island installation. Locate the Unit so the following requirements are satisfied.

1. Near a properly grounded electrical outlet with proper electrical requirements. The electrical circuit must be properly fused (slow blow type fuse) or circuit must be connected through an equivalent HACR circuit breaker. The electrical outlet must be accessible for ease of connecting and 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.

CAUTION:
Do not place or store anything on top of the Unit.

2. Clearance above top of the Unit must be open to the ceiling. A minimum clearance of 300 mm (12 inches) must be maintained on the back side of the Unit and a minimum of 150 mm (6 inches) clearance to the nearest obstruction must be maintained on both sides of the Unit. These clearances must be provided to allow for proper air flow through the Unit to cool the refrigeration system. The Unit must be located close to a permanent drain to route and connect the Unit drip tray drain hose.

INSTALLATION

PLACING UNIT IN OPERATING POSITION

NOTE: 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.

The water tank drain hose, drip tray drain hose, and the water tank overflow hose may either be routed out through access hole on back of the Unit or they may be routed down through hole cut in the countertop under front of the Unit. The carbonated water (Unit with integral carbonator), plain water, and the syrup source inlet lines that are to be connected to the Unit may either be routed in through the back access hole or they may be routed up through hole cut in the countertop under front of the Unit. Proceed to applicable installation instructions.

1. Remove Unit front access panel by removing two screws securing the panel, then remove the panel.
2. Install drip tray brackets on front of Unit and secure with screws installed in the brackets.
3. Temporarily install the drip tray on the Unit by sliding the drip tray up on the drip tray brackets.
4. Place the Unit in operating position on the countertop.
5. Out Unit base back access hole - Route water tank drain hose, drip tray drain hose, and water tank overflow hose out Unit base back access hole. The carbonated water, plain water, and the syrup inlet lines that are to be connected to the Unit will be routed through the back access hole up to the front of the Unit for connection to the stainless-steel inlet tubes.
6. Through hole cut in the countertop, cut hole in countertop as indicated, then place Unit in position on the countertop. Cutting hole in the countertop allows routing the drip tray drain hose, water tank drain hose, and the water tank overflow hose down through the hole and syrup and water source inlet lines up through the hole to the stainless-steel inlet tubes on front of the Unit.

Route water tank and drip tray drain hoses and the water tank overflow hose down through hole in the countertop. Install rear access cover over Unit back access hole.

7. Place Unit in operating position on the countertop.
8. To comply with NSF International (NSF) requirements within the United States, the Unit base must be sealed to the countertop and all access holes in the Unit base must be closed and sealed. Proceed as follows to seal the Unit base to the countertop. an equivalent
   A. Tilt the Unit up to expose the bottom of it's base.
   B. Liberally apply silastic sealant (such as Dow Corning RTV 731 or equivalent) on Unit base bottom edges.

      NOTE: Do not move the Unit after positioning or the seal from the base to the countertop will be broken.

   C. Lower the Unit into operating position on the countertop to complete seal from the Unit base to the countertop.
   D. Apply additional sealant around bottom of the Unit base. The seal must have a minimum radius of 13 mm (1/2-inch) to prevent crevices and to ensure a complete seal.
   E. All access holes to inside of the Unit must be closed and sealed.

Installing Water Lever Kits

The water lever kits are loose-shipped only with dispenser's equipped with UF-1 dispensing valves. The water lever kits may be installed on dispensing valves to dispense plain or carbonated water only.

Refer to instructions included with the kits for installation instructions.

Connecting Drip Tray Drain Hose to a Permanent Drain

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

The drip tray drain hose must be attached to the drain to allow a 76cm (3-inch) air gap between the drain and the end of the hose. All connections must comply with local plumbing codes and health codes.

1. Connect drip tray hose to nipple on the drip tray. Secure connection with clamp.
2. Route lower end of drip tray drain hose to and attach to the drain allowing a 76cm (3-inch) air gap between the drain and end of the drain hose.

Connecting Syrup Source Lines to the Unit

NOTE: The Unit barbed stainless-steel syrup inlet tubes located on the front of the Unit are labeled to identify the dispensing valves they serve. For example, the barbed syrup inlet stainless-steel tube labeled "1" provides syrup to be dispensed from the No. 1 dispensing valve.

Proceed as follows to connect syrup source lines to the Unit.

1. Route the syrup source lines (numbered for identification) from the syrup source location up to the Unit barbed stainless-steel syrup inlet tubes on front of the Unit.
2. Connect the numbered syrup source lines to the corresponding labeled Unit barbed stainless-steel syrup inlet tubes.

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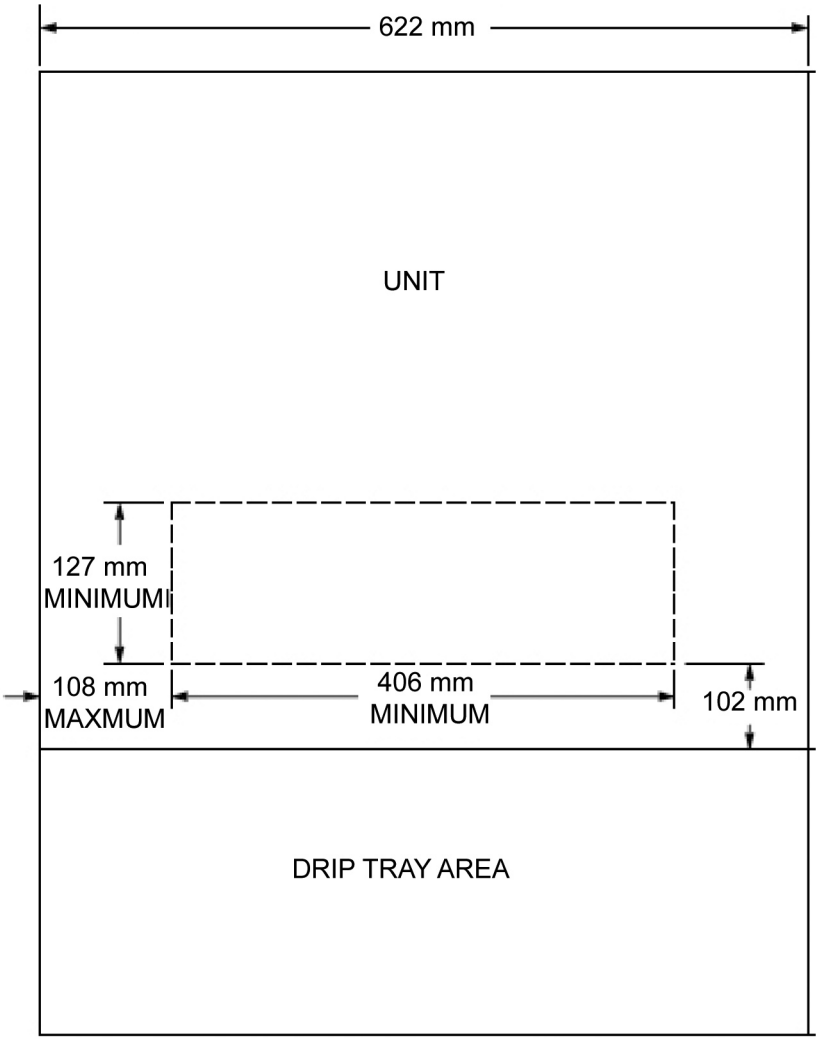

Figure 2. Vanguard 245 Counter Cutout

Connecting Carbonated Water Source (Unit Requiring Connection to Remote Carbonator)

Proceed as follows to connect carbonated water source line to Unit requiring connection to a remote carbonator.

1. Route carbonated water source line from the remote carbonator up to the Unit.
2. Connect the carbonated water source line to the labeled barbed stainless-steel carbonated water inlet tubes on front of the Unit.

Connecting Plain Water Source Line to Unit

NOTE: Cornelius Inc; recommends that a water shutoff valve and a water filter be installed in the plain water source to be connected to the Unit. The plain water source water pressure must not be less than 35-psi or more than 45-psi. If water pressure exceeds 45-psi, a water pressure regulator must be used to regulate the water pressure.

The plain water source to the equipment shall be installed with adequate back flow protection to comply with applicable Federal, State, and local codes.

Unit Requiring Connection to Remote Carbonator

Proceed as follows to connect plain water source line to No. 3 (six-flavor Unit) or No. 4 (eight-flavor Unit) dispensing valve on Unit requiring connection to a remote carbonator.

1. Route plain water source line from plain water source up to the Unit.
2. Connect plain water source line to barbed stainless-steel plain water inlet tube labeled “WTR 3” (six-flavor Unit) or “WTR 4” (eight-flavor Unit) on front of the Unit.

Unit with Integral (built-in) Carbonator

Proceed as follows to connect plain water source line to Unit with an integral (built-in) carbonator.

1. Route plain water source line from plain water source up to the Unit.
2. Connect plain water source line to carbonator barbed stainless-steel plain water inlet tube labeled “CARB WTR” and No. 4, No. 7 and No. 8 dispensing valves barbed stainless-steel plain water inlet tubes labeled “WTR 4”, “WTR 7” and “WTR 8”.

Connecting CO_2 Source Line (Unit With Integral Carbonator)

Proceed as follows to connect CO_2 source line to Unit with integral (built-in) carbonator.

1. Route CO_2 source line, connected to an adjustable CO_2 regulator, up to the Unit.
2. Connect CO_2 source line to CO_2 check valve on end of the Unit CO_2 inlet tube labeled “CO_2”.

Adjusting Carbonator CO_2 Regulator

UNIT REQUIRING CONNECTION TO A REMOTE CARBONATOR

Adjust CO_2 regulator (regulator controls carbonator CO_2 pressure) as instructed in manual provided with the remote carbonator.

UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR

Adjust CO_2 regulator (regulator controls Unit built-in carbonator CO_2 pressure) to a nominal 80-psi. CO_2 inlet pressure to the carbonator must not exceed 125-psi.

Adjusting Syrup Supplies CO_2 Regulator

SUGAR SYRUP TANKS CO_2 REGULATOR

Adjust syrup tanks CO_2 regulator to a minimum of 45-psi.

LOW-CALORIE (DIET) SYRUP TANK CO_2 REGULATOR

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

SYRUP PUMPS (BAG-IN-BOX SYSTEM)

Adjust the syrup pumps CO_2 regulator to 70-psi. **DO NOT EXCEED MAXIMUM PRESSURE SPECIFIED ON THE SYRUP PUMPS**.

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Fill Water Tank and Start the Refrigeration System

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

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

2. Remove plug from drop-in refrigeration assembly platform water fill hole. Fill the water tank with clean water until water flows out of the water tank overflow hose. USE A LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
3. Install plug in the water fill hole.
4. Unit with integral (built-in) carbonator–Activate plain water and CO2 supplies to the Unit. Make sure CO2 inlet pressure to the carbonator is adjusted to a nominal 80-psi. CO2 inlet pressure to the carbonator must not exceed 125-psi.

WARNING:
The Unit must be electrically grounded to avoid possible fatal electrical shock or serious injury to the operator. The 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.

5. Place dispensing valves keyed lock-out switch on side of the Unit in the “OFF” position.
6. 60 Hz Units.

Make sure Unit power switch (if applicable) is in “ON” position.

7. Plug the Unit power cord into an electrical outlet with the proper electrical requirements. The compressor, condenser fan motor, and agitator motor will start and begin forming an ice bank. When 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.
8. Unit With Integral Carbonator–Place carbonator motor power switch in “ON” position. The Unit integral carbonator water pump motor will start and begin filling the carbonated water tank when the Unit is put into operation. The carbonator water pump motor will stop after the water tank has been filled with carbonated water.

   IMPORTANT: Circulating air, required to cool the refrigeration assembly condenser coil, is drawn in through grille on back of the hood and is exhausted out through grille on top of the hood. For proper cooling of the condenser coil, the hood back grille must be positioned over the condenser coil on back side of the Unit.

9. Install hood on the Unit and secure with screw.

PREPARATION FOR OPERATION

1. ***Unit requiring connection to a remote carbonator***–Activate plain water and carbonated water supplies to the Unit.
2. Place dispensing valves keyed lock-out switch on side of the Unit in the “ON” position.
3. Dispense from all dispensing valves to purge all air from the carbonated water and the plain water systems.
4. Check entire system for plain water, carbonated water, and CO_2 leaks and repair any leaks.

   IMPORTANT: All syrup systems must be sanitized before the Unit is put into operation.

5. Sanitize all syrup systems as instructed in the SERVICE AND MAINTENANCE section of this manual.
6. Activate syrup supplies to the Unit.
7. Dispense from all dispensing valves to purge all air from the syrup systems.

   NOTE: The dispensing valves adjustable water flow regulators are factory adjusted and should require no further adjustment. If re-adjustment should become necessary, consult the dispensing valve manufacturer for the proper adjustment procedure.

8. Adjusting Dispensing Valves For Water-To-Syrup “Ratio” (Brix) Of Dispensed Product. The dispensing valves are each equipped with adjustable syrup flow regulators. The Water-To-Syrup “Ratio” (Brix) of the dispensed product is controlled by adjustment of these syrup flow regulators. Consult the dispensing valve manufacturer for the adjustment procedure.
9. If your dispenser is equipped with portion control dispensing valves, consult the dispensing valves manufacturer for the proper portion control adjustment procedure.
10. Recheck entire installation for CO_2, plain water, carbonated water, and syrup leaks and repair any leaks.
11. Install Unit front access panel on Unit and secure with two screws.
12. Slide drip tray all the way up on the drip tray brackets, then secure drip tray to brackets with two screws, thread rolling.

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OPERATOR'S INSTRUCTIONS

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

All wiring and plumbing must conform to national and local codes. Failure to comply could result in serious injury, death or equipment damage.

CAUTION:
Do not place or store anything on top of unit.

OPERATING CONTROLS

Dispensing Valve Operation

Push Button Dispensing Valve

The push button on front of the dispensing valve need only to be pressed and held until the cup or glass is full of product, then release the button.

DISPENSING VALVE WITH DISPENSE LEVER

The dispensing valve lever, located below the dispensing valve, need only to be pressed with a cup or glass to dispense product.

PORTION CONTROL DISPENSING VALVE

A. Place desired amount of ice in appropriate cup or glass.
B. Hold cup or glass under dispensing valve nozzle.
C. Press appropriate "S" (Small), "M" (Medium), "L" (Large), or "XL" (Extra Large) dispense switch to dispense product into cup or glass.

   NOTE: Dispensing of a portion control drink may be stopped by pressing the "CANCEL/POUR" switch. Drinks may be manually dispensed (non-portion control) by pressing and holding the "CANCEL/ POUR" switch.

UNIT POWER SWITCH (50 HZ UNITS EXCLUDED)

The Unit power switch, must be in "ON" position before the Unit will operate.

DISPENSING VALVES KEYED LOCK-OUT SWITCH

The dispensing valves keyed lock-out switch, located on side of the Unit must be in the "ON" (vertical) position to operate the electric dispensing valves. The keyed lock-out switch in the "OFF" (horizontal) position turns off electrical power to the dispensing valves only but the refrigeration system will continue to operate.

DAILY PRE-OPERATION CHECK

1. The CO_2 supply should be checked daily to make sure there is an adequate supply of CO_2. If necessary, replenish the CO_2 supply.
2. Make sure there is sufficient syrup supply. If necessary, replenish the syrup supply.
3. Make sure the drip tray is clean and clean cup rest is in place in the drip tray.

UNIT OPERATION

1. Make sure the Unit power switch (if applicable) is in the “ON” position.
2. Make sure the dispensing valves keyed lock-out switch, located on side of the Unit, is in the “ON” (vertical) position.
3. Hold cup or glass under the dispensing valve nozzle, then activate the valve to dispense product.

CLEANING AND SANITIZING

Daily Cleaning of Unit

Daily cleaning procedure for the Unit should be performed at the end of daily operation as instructed in SERVICE AND MAINTENANCE section of this manual.

Sanitizing Syrup Systems

The syrup systems should be sanitized every 90-days following Sanitizer Manufacturer’s recommendations as instructed in SERVICE AND MAINTENANCE section of this manual.

The sanitizing procedures should be performed by a qualified Service Person.

CHECKING DROP-IN REFRIGERATION ASSEMBLY CONDENSER COIL FOR RESTRICTIONS

CAUTION:

Circulating air, required to cool the refrigeration assembly condenser coil, is drawn in through grille on back of the hood and is exhausted out through grille on top of the hood. Restricting air in or out of the Unit will decrease the refrigeration system cooling efficiency. Failure to clean, and allowing the condenser coil to become clogged, will cause the refrigeration system to overheat which will eventually result in refrigeration compressor failure and will automatically void the factory warranty.

Area on top and back side of the hood must be kept free of obstructions at all times. Make sure nothing is stored on top of the hood. The Condenser coil must be cleaned every 30-days as instructed in SERVICE AND MAINTENANCE section of this manual to maintain proper cooling of the condenser coil. The condenser coil cleaning procedure should be performed by a qualified Service Person.

CHECKING ICE WATER BATH

A “gurgle” heard from the Unit indicates the water level in the water tank is low and more water should be added for maximum product cooling. Water should be added to the water tank as instructed in SERVICE AND MAINTENANCE section. This procedure should be performed by a qualified Service Person.

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CARBONATOR WATER PUMP YEARLY MAINTENANCE OR AFTER WATER SYSTEM DISRUPTIONS

Unit Requiring Connection to Remote Carbonator

The remote carbonator water pump water inlet strainer screen and the liquid double check valve must be inspected and cleaned by a qualified Service Person at least once a year under normal circumstances and after any water system disruption (plumbing work, earthquake, etc.). Refer to manual provided with the carbonator for the liquid double check valve inspection and cleaning procedure.

Unit with Integral (built-in) Carbonator

The water pump water strainer screen and the liquid double check valve must be inspected and cleaned as instructed at least once a year under normal circumstances and after any water system disruption (plumbing work, earthquake, etc.). Refer to SERVICE AND MAINTENANCE section of this manual for inspecting and cleaning procedure.

CLEANING CO_2 GAS CHECK VALVES

The CO_2 gas check valves must be inspected and serviced as instructed at least once a year under normal conditions and after any CO_2 system servicing or disruption. Servicing of the CO_2 gas check valves should be performed by qualified Service Personnel. Refer to SERVICE AND MAINTENANCE section of this manual for CO_2 as check valve inspecting and servicing procedure.

SERVICE

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

All wiring and plumbing must conform to national and local codes. Failure to comply could result in serious injury, death or equipment damage.

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

CAUTION:
Do not place or store anything on top of the Unit.

Preparing Unit for Shipping or Relocating

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

Hood and Front Access Panel Removal

Hood Removal

Remove screw securing the hood, then lift the hood straight up off the Unit to remove.

> **IMPORTANT: Circulating air, required to cool the refrigeration assembly condenser coil, is drawn in through grille on back of the hood and is exhausted out through grille on top of the hood. For proper cooling of the condenser coil, the hood back grille must be positioned over the condenser coil on back side of the Unit.**

Front Access Panel Removal

Remove two screws securing the front access panel, then remove the panel.

Periodic Inspection

1. Clean the drop-in refrigeration assembly condenser coil every 30-day as instructed in this manual section. Cleaning the condenser coil should be performed by a qualified Service Person. DO NOT place objects on top of or on back side of the Unit hood.

   Restricting circulating air in and out of the Unit hood will cause the refrigeration system to overheat.

2. Check the dispensing valves for dripping that indicates leakage and repair as necessary.

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ADJUSTMENTS

CO_2 REGULATORS ADJUSTMENTS

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.

ADJUSTING CARBONATOR CO_2 REGULATOR

Unit Requiring Connection to A Remote Carbonator

Adjust CO_2 regulator (regulator controls carbonator CO_2 pressure) as instructed in manual provided with the remote carbonator.

Unit With Integral (Built-In) Carbonator

Adjust CO_2 regulator (regulator controls Unit built-in carbonator CO_2 pressure) to a nominal 80-psi. CO_2 inlet pressure to the carbonator must not exceed 125-psi. Adjusting Syrup Supplies CO_2 Regulator.

SUGAR SYRUP TANKS CO_2 REGULATOR

Adjust syrup tanks CO_2 regulator to a minimum of 45-psi.

Low-calorie (Diet) Syrup Tank CO_2 Regulator

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

Syrup Pumps (Bag-in-box System)

Adjust the syrup pumps CO_2 regulator to 70-psi. DO NOT EXCEED MAXIMUM CO_2 PRESSURE SPECIFIED ON THE SYRUP PUMPS.

ADJUSTING DISPENSING VALVES FOR WATER FLOW RATE

The dispensing valves adjustable water flow regulators are factory adjusted and should require no further adjustment. If readjustment should become necessary, consult the dispensing valve manufacturer for the proper adjustment procedure.

ADJUSTING DISPENSING VALVES FOR WATER-TO-SYRUP "RATIO" (BRIX) OF DISPENSED PRODUCT

The dispensing valves are each equipped with adjustable syrup flow regulators. The Water-To-Syrup "Ratio" (Brix) of the dispensed product is controlled by adjustment of these syrup flow regulators. Consult the dispensing valve manufacturer for the proper adjustment procedure.

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

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

All wiring and plumbing must conform to national and local codes. Failure to comply could result in serious injury, death or equipment damage.

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.

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

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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 5 preceding.
7. Remove detergent solution source from the syrup system.

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 9 preceding.
11. Remove potable water source from the syrup system.

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) to 100° 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 steps 13 and 14 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.

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 19 and 20 preceding to purge sanitizing solution out of the remaining syrup systems and dispensing valves.
22. Remove potable water source from the syrup system.

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.

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CLEANING DROP-IN REFRIGERATION ASSEMBLY CONDENSER COIL

CAUTION:
The refrigeration assembly condenser coil must be cleaned every 30-days. Excessive accumulation of dust, lint, and grease on the condenser coil will restrict air flow through the coil and cause the refrigeration system to overheat. Operating the refrigeration system in an overheated condition will eventually lead to compressor failure and will automatically void the factory warranty. Clean the condenser coil and air filter as follows:

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

1. Remove screw securing the hood, then lift the hood straight up to remove from the Unit.
2. Vacuum or use a soft brush to clean the condenser coil. If available, use low-pressure compressed air.
3. Clean dust and dirt from around top of the drop-in refrigeration assembly.
4. Install hood on the Unit and secure with screw.
5. Connect electrical power to the Unit.

CHECKING ICE WATER BATH

A “gurgle” heard from the Unit indicates water level in the water tank is low and more water should be added for maximum cooling. Before adding more water, check the ice water bath for cleanliness and check the water tank coils for excessive mineral deposit build-up.

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

1. Remove screw securing the hood, then lift the hood straight up to remove from the Unit.
2. Remove plug from the drop-in refrigeration assembly platform water fill hole.
3. Using a flashlight, inspect the ice water bath and ice bank for cleanliness. The ice water bath should be clear and the ice bank should be free of foreign particles.
4. If cleaning of the water tank is necessary, refer to CLEANING WATER TANK in this section.
5. Fill the water tank with clean water until water runs out of the water tank overflow hose.

   USE LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
6. Install plug in the drop-in refrigeration assembly platform water fill hole.
7. Install Unit hood and secure with screw.
8. Connect electrical power to the Unit.

CLEANING WATER TANK

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

1. Remove screw securing the hood, then lift the hood straight up to remove from the Unit.
2. Unplug the drop-in refrigeration assembly and electric dispensing valve power cords.
3. **Unit with integral (built-in) carbonator**.
   A. Shut off CO_2 and plain water supplies to the Unit.
   B. Disconnect carbonated water tank ground wire (green with yellow stripe) connector, protruding up B. Disconnect carbonated water tank ground wire (green with yellow stripe) connector, protruding up through hole in drop-in refrigeration assembly deck, from mating ground wire connector on top of the refrigeration assembly deck.
   C. Disconnect two-conductor wiring harness connector from electrical terminals on top of the carbonated water tank.
   D. Pull up on the carbonated water tank relief valve ring protruding up through hole in the drop-in refrigeration deck (see Figure 8) to bleed off all pressure from the water tank.
   E. Disconnect plain water inlet and outlet lines from the carbonator water pump.
4. Extend the water tank drain hose to a waste container or floor drain. Remove plug from end of the drain hose and allow the water tank to drain.
5. Allow the ice bank to melt. Hot water may be used to speed melting.
6. Very carefully, lift the drop-in refrigeration assembly up and out of the Unit.

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

7. Use a fiber brush and carefully clean mineral deposit build-up from the agitator motor shaft and the ice bank sensing bulb.
8. Wash inside of the water tank and the drop-in refrigeration assembly evaporator coils, then rinse with clean water.
9. Install plug in end of the water tank drain hose.
10. Unit with integral (built-in) carbonator.

    IMPORTANT: For proper alignment when lowering drop-in refrigeration assembly into the Unit lower housing, steel tube welded on top of the carbonated water tank must align with alignment funnel fastened into top of the refrigeration assembly deck. The carbonated water tank ground wire (green with yellow stripe) must also be routed up through hole in the refrigeration assembly deck and be connected to mating ground wire connector on top of the refrigeration assembly deck. *Failure to* connect the carbonated water tank ground wire will cause erratic operation of the carbonator water pump motor.

    A. Referring to previous IMPORTANT note, very carefully, lower drop-in refrigeration assembly down into the Unit lower housing. Make sure carbonated water tank ground wire connector is routed up through hole in the refrigeration assembly deck.
    B. Connect carbonated water tank ground wire connector to mating ground wire connector on top of the refrigeration assembly deck.
    C. Connect two-conductor wiring harness connector to electrical terminals on top of the carbonated water tank.

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D. Connect plain water inlet and outlet lines to the carbonator water pump.
E. Restore CO_2 and plain water supplies to the Unit.

11. Remove plug from the drop-in refrigeration assembly platform water fill hole.
12. Fill the water tank with clean water until water runs out of the water tank overflow hose. USE LOW-MINERAL-CONTENT WATER WHERE A LOCAL WATER PROBLEM EXISTS.
13. Install plug in the drop-in refrigeration assembly platform water fill hole.
14. Plug drop-in refrigeration assembly and electric dispensing valve power cords into their mating connectors.
15. Install Unit hood and secure with screw.
16. Connect electrical power to the Unit.

CARBONATOR WATER PUMP YEARLY MAINTENANCE OR AFTER WATER SYSTEM DISRUPTIONS

WARNING:
The carbonator water pump water inlet strainer screen and the double liquid check valve must be inspected and cleaned 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 the system. A carbonated water pump with no screen or a defective screen in the strainer would allow foreign particles to foul the double liquid check valve. CO_2 gas could then back flow into the water system and create a health hazard in the water system.

UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR

The remote carbonator water pump water inlet strainer screen and the double liquid 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.). Refer to manual provided with the remote carbonator for servicing procedure.

UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR

The carbonator water pump water inlet strainer screen and double liquid 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.). This service procedure must be performed by a qualified Service Person.

SERVICING WATER PUMP WATER INLET STRAINER SCREEN

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

1. Shut off CO_2 and plain water supplies to the Unit.
2. Remove screw securing the hood, then lift hood up an off the Unit.
3. Pull up on the carbonated water tank relief valve ring protruding up through the drop-in refrigeration deck to bleed off all CO_2 pressure from the water tank.
4. Loosen screen retainer, then pull screen retainer and strainer screen from the water pump.
5. Pull screen from screen retainer. Clean any sediment from the screen retainer and the water pump screen.
6. Inspect screen for holes, restrictions, corrosion, and other damage. Discard damaged screen.

7. Check O-Ring on the screen retainer. Replace worn or damaged O-Ring.

   NOTE: A screen should always be used, otherwise particles could foul the double liquid check valve.

8. Install screen in screen retainer, then screw retainer into the water pump and tighten securely.
9. Proceed to servicing double liquid check valve and service the double liquid check valve as instructed.

SERVICING DOUBLE LIQUID CHECK VALVE

1. Service water inlet strainer screen as instructed in previous paragraph before servicing the double liquid check valve.
2. Disconnect plain water outlet line from double liquid check valve outlet, then remove double liquid check valve from the water pump outlet port.
3. Disassemble each check valve as shown in Figure 3.
4. 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 reassembly.

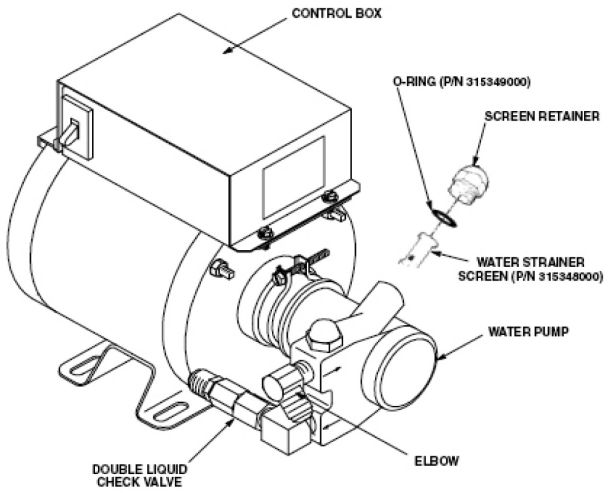

Figure 3. Water Strainer Screen and Double Liquid Check Valve

5. Re-assemble check valves.

   ALWAYS INSTALL NEW BALL SEAT (O-RING) AND FLAT WASHER.

   NOTE: Make sure when assembling the check valves together, the FLAT WASHER is in place inside female end of the check valve.

6. Assemble check valves together. DO NOT OVER TIGHTEN.
7. Install double liquid check valve in water pump outlet port, then connect plain water outlet line to the double liquid check valve outlet.
8. Restore CO_2 and plain water supplies to the Unit.
9. Connect electrical power to the Unit. The water pump will cycle on and fill the carbonated water tank with carbonated water. Check for water leaks and tighten any loose connections.
10. Pull up on the carbonated water tank relief valve ring protruding up through the drop-in refrigeration deck to release trapped air from inside the water tank.
11. Install hood on Unit and secure with screw.

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CLEANING CO_2 SYSTEM CO_2 GAS CHECK VALVES

The CO_2 regulators CO_2 gas check valves and the Unit CO_2 inlet line CO_2 gas check valve 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 BALL SEAT (QUAD RING SEAL) EACH TIME GAS CHECK VALVES ARE SERVICED.*

CONVERTING STILL (NON-CARBONATED) DRINK DISPENSING VALVE TO DISPENSE A CARBONATED DRINK

Units Requiring Connection to Remote Carbonator

Non-Carbonated Drink Dispensing Valve(s) can be converted into Carbonated Drink Dispensing Valve(s) by connecting a carbonated water rather than a plain line to the unit plain water line connected to dispensing valve(s).

Unit with Integral (Built-In) Carbonator

Non-Carbonated Drink Dispensing Valve(s) can be converted into Carbonated Drink Dispensing Valve(s) by connecting a carbonated water rather than a plain line to the unit plain water line connected to either No. 3 and No. 4 dispensing valve(s) (six-flavor unit) or the No. 4, No. 7 and No. 8 dispensing valve(s) (eight-flavor unit).

TROUBLE SHOOTING

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

All wiring and plumbing must conform to national and local codes. Failure to comply could result in serious injury, death or equipment damage.

WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

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

WARNING:
Water and CO_2 to the system must be turned off and the system depressurized prior to performing this service.

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

IMPORTANT: If repairs are to be made to one of the syrup circuits, disconnect applicable syrup tank and bleed pressure from the system before proceeding.

IMPORTANT: If repairs will be made to the CO_2 or carbonated water systems, disconnect electrical power to the carbonator, shut off CO_2 and water supplies, then bleed systems before proceeding.

TROUBLESHOOTING UNIT		
Trouble	**Probable Cause**	**Remedy**
Adjustment of dispensing valve syrup flow regulator does not increase to desired water-to syrup ratio.	1. No syrup supply.	1. Replenish syrup supply.
	2. Syrup supply container not securely connected into system.	2. Securely connect syrup supply container into syrup system.
	3. Tanks System-Syrup tanks secondary CO_2 regulator out of adjustment.	3. Adjust syrup tanks secondary CO_2 regulator as instructed.
	Bag-in-Box System Primary CO_2 regulator out of adjustment.	Adjust primary CO_2 regulator as instructed.
	4. Inoperative dispensing valve syrup flow control.	4. Repair dispensing valve syrup flow control.
	5. Tapered washer inside tube swivel nut connection distorted from being over tightened restricting syrup flow.	5. Replace tapered gasket. Make sure it seats properly.

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Only syrup dispensed.	***1. Remote Carbonator Unit*** Plain water inlet supply line shutoff valve closed. Carbonator not operating. *2. Integral (built-in) Carbonator Unit* Unit plain water inlet supply line shut off valve closed. Carbonator CO_2 regulator not properly adjusted. Inoperative carbonator liquid level control module or water tank liquid level probe. Inoperative water pump or water pump motor.	1. Open plain water inlet supply line shutoff valve. Refer to manual provided with carbonator. 2. Open plain water inlet supply line shut-off valve. Adjust carbonator CO_2 regulator as instructed. Replace inoperative component. Replace inoperative pump or motor
Water-to-syrup “Ratio” too low or too high.	1. Dispensing valve syrup flow regulator not properly adjusted. *2. Syrup Tanks System* CO_2 gas pressure to syrup tanks insufficient to push syrup out of tank. *Bag-In-Box System* CO_2 gas pressure to syrup pumps insufficient to operate pump	1. Adjust Water-to-Syrup “Ratio” as instructed. 2. Adjust CO_2 regulator for syrup tanks as instructed. 3. Adjust syrup pumps CO_2 regulator as instructed.
Adjustment of dispensing valve syrup flow regulator does not decrease to desired water-to-syrup ratio.	1. Dirty or inoperative dispensing valve syrup flow control.	1. Disassemble and clean dispensing valve syrup flow control.
Dispensed product carbonation too low.	1. Primary CO_2 regulator out of adjustment for existing water conditions or temperature. 2. Air in carbonator water tank. 3. Water, oil, or dirt, in CO_2 supply. 4. CO_2 supply depleted.	1. Adjust primary CO_2 regulator. As instructed. 2. Vent air out of carbonator water tank through relief valve. 3. Remove contaminated CO_2. Clean CO_2 system (lines, regulator, etc.) using a mild detergent. Install a clean CO_2 supply. 4. Replenish CO_2 supply.
Dispensed product comes out of dispensing valve clear but foams in cup or glass.	1. Oil film or soap scum in cups or glasses. 2. Ice used for finished drink is sub-cooled.	1. Use clean cups or glasses. 2. 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 dispensed drink.		

Dispensed product produces foam as it leaves dispensing valve.	1. Recovery rate of refrigeration of system exceeded, ice bank depleted.	1. Allow ice bank to recover.
	2. Primary CO_2 regulator pressure too high for existing water conditions or temperature.	2. Reduce primary CO_2 regulator pressure settings.
	3. Tanks System-Syrup overcarbonated with CO_2 as indicated by bubbles in inlet syrup lines leading to unit.	3. Remove syrup tanks quick disconnects. Relieve tank CO_2 pressure as many times as necessary to remove over-carbonation.
	4. Dispensing valve restricted or dirty.	4. Sanitize syrup system as instructed in Service and Maintenance Manual.
	5. Tapered gasket inside carbonated water line swivel nut connector distorted restricting carbonated water flow.	5. Replace tapered gasket. Make sure it is properly seated.
	6. Dirty water supply.	6. Check water filter. Replace cartridge.
	7. Finished drink above 4.4° C (40° F).	7. Check refrigeration system
No product dispensed.	1. Dispensing valves keyed lock-out switch in “OFF” position.	1. Place keyed lock-out switch in “ON” position.
	2. No electrical power to dispenser.	2. Plug in dispenser power cord or check for blown power fuse or tripped circuit breaker.
	3. Disconnected dispensing valves power cord.	3. Connect dispensing valves power cord.
	4. Disconnected or broken wiring to dispensing valve.	4. Connect or replace wiring.
	5. Inoperative transformer or dispensing valve solenoids.	5. Replace inoperative part.
Dispensed product carbonation too low.	1. Primary CO_2 regulator out of adjustment for existing water conditions or temperature.	1. Adjust primary CO_2 regulator as instructed.
	2. Air in carbonated water tank.	2. Vent air from carbonated water tank by dispensing from No. 1 dispensing valve to make carbonator water pump motor cycle on.
	3. water, oil or dirt in CO_2 supply.	3. Have service person remove contaminated CO_2 supply, then clean CO_2 system (lines, regulator, etc.) using a mild detergent. install a clean CO_2 supply.

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Only carbonated water dispensed.	1. Syrup supply container not securely connected into syrup system. 2. No syrup supply. 3. Bag-in-Box System – Inoperable syrup pump. Tanks System –Syrup tanks CO_2 regulator not properly adjusted. 4. Inoperable dispensing valve. 5. Dispensing valve syrup flow control not properly adjusted.	1. Securely connect syrup supply container into syrup system. 2. Replenish syrup supply. 3. Replace inoperable syrup pump. Adjust syrup tanks CO_2 regulator as instructed. 4. Repair dispensing valve. 5. Adjust dispensing valve syrup flow control (Water-to-Syrup ratio) as instructed.
Carbonator pump not operating	1. 3 minutes run limit exceeded. 2. Water supply to carbonator disrupted. 3. Carbonated water tank water level probe electrical wiring disconnected. 4. Inoperative carbonated water tank water level probe. 5. Inoperative carbonator pump or motor. 6. Inoperative control board.	1. Turn power OFF for 15 second. 2. Correct water supply problem. 3. Connect electrical wiring to water level probe (see note). 4. Replace probe (see note). 5. Replace pump or motor. 6. Replace control board.

Refrigeration compressor does not operate.	1. Ice bank sufficient.	1. No refrigeration called for.
	2. No water in water tank.	2. Fill water tank with water as instructed.
	3. Control board power switch on top of unit in “OFF” position.	3. Place control board power switch in “ON” position (will be a built-in 3-minute time delay before refrigeration compressor starts).
	4. Unit power cord unplugged, or drop-in refrigeration assembly power cord unplugged.	4. Plug in power cord.
	5. Ice sensor electrically disconnected.	5. Electrically connect or replace inoperable sensor.
	6. No power source (blown fuse or tripped circuit breaker).	6. Replace fuse or reset circuit breaker. (**Note:** Fuse or circuit breaker are not part of unit).
	7. Low/high voltage.	7. Voltage must be 103 volts (115VAC Unit) or 208 Volts (220 VAC Unit).
	8. Loose, disconnected, or broken wiring.	8. Tighten connections or replace broken wiring.
	9. Overload protector cut out; overheated compressor. Condenser fan motor not operating as required.	9. Compressor will cool enough to restart, Do not overdraw cooling capacity of unit. Refer to “Condenser Fan Motor Not Operating “in this section.
	10. Inoperative overload protector or start relay.	10. Replace inoperative part.
	11. Inoperative ice bank probe.	11. Replace ice bank probe.
	12. Inoperative control board.	12. Replace control board.
Compressor will not stop after sufficient ice bank is produced.	1. Ice bank probe location incorrect.	1. Place probe in proper location.
	2. Ice temperature sensor inoperative.	2. Replace ice temperature sensor.
	3. Control board inoperative.	3. Place power switch in ON position.
Compressor operates continuously but does not form sufficient ice bank.	1. Cooling capacity is exceeded by overdrawing.	1. Reduce amount of drinks drawn per given time.
	2. Unit located in excessively hot area or air circulation through condenser coil is restricted.	2. Relocate unit or check and if necessary, clean condenser coil as instructed.
Agitator motor not operating	1. No power source (blown fuse or tripped circuit breaker).	1. Replace fuse or reset circuit breaker. (NOTE: Fuse or circuit breaker are not part of unit).
	2. Agitator motor propeller obstructed.	2. Remove obstruction.
	3. Low Voltage.	3. Voltage must be 90- 135VAC (115 volt unit) or 180-260(230 VAC unit) at compressor terminals when compressor is trying to start.
	4. Loose, disconnected, or broken wiring.	4. Tighten connections or replace broken wiring.
	5. Inoperative agitator motor.	5. Replace agitator motor.

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COMPONENT SERVICE

The following are procedures for replacing the major components of the Vanguard.

CARBONATOR PUMP REPLACEMENT

1. Shut off water and CO_2 at their sources.
2. Remove the hood by removing screws on the top and lifting up.
3. Depressurize carbonator by dispensing drinks from any valve.
4. Disconnect power to the unit.
5. Disconnect water in and out lines.

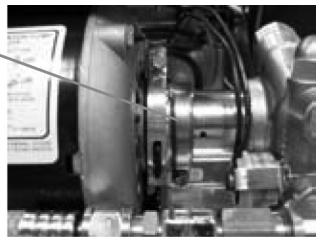

Figure 4.

6. Loosen the V - band clamp and remove pump.

Figure 5.

7. Install new pump by reversing this procedure.

   NOTE: Be sure there is anti-seize compound on the pump

PUMP MOTOR REPLACEMENT

1. Shut off water and CO_2 at their sources.
2. Remove the hood by removing screws on the top and lifting up.
3. Depressurize carbonator by dispensing drinks from any valve.
4. Disconnect power to the unit.
5. Disconnect water in and out lines.
6. Unplug motor harness.
7. Remove control box.

8. Loosen the V - band clamp and remove pump.

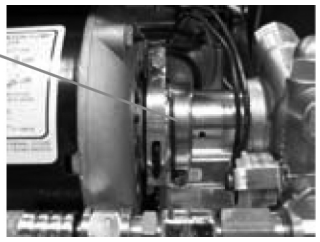

Figure 6.

9. Remove nuts from bolts and remove the motor.

Figure 7.

10. Install new motor by reversing this procedure.

    NOTE: Be sure there is anti-seize compound on the pump drive tang.

Figure 8.

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AGITATOR MOTOR REPLACEMENT

1. Shut off water and CO_2 at their sources.
2. Remove the hood by removing screws on the top and lifting up.
3. Remove carbonator cover by removing mounting bolts and lifting up.

Figure 9.

4. Remove mounting screws of condenser kit and lift up slightly.

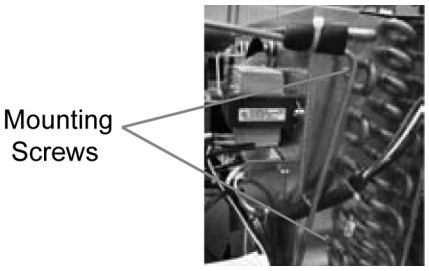

Figure 10.

5. Remove motor by reassembling mounting screws

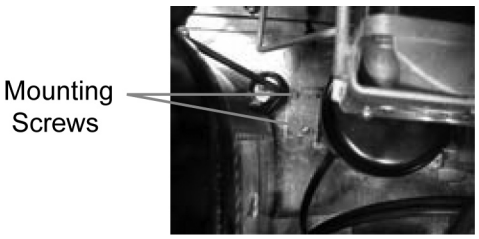

Figure 11.

6. Install new motor by reversing this procedure.

CONTROLLER BOARD REPLACEMENT

1. Shut off water and CO_2 at their sources.
2. Remove the hood by removing screws on the top and lifting up.
3. Remove controller cover by following:
   - remove mounting screw
   - lift up slightly and push back controller cover

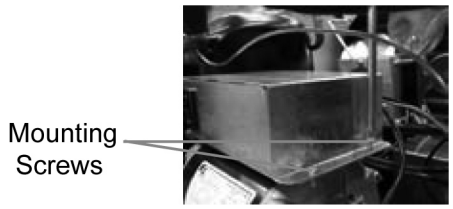

Figure 12.

4. Unplug all connectors.

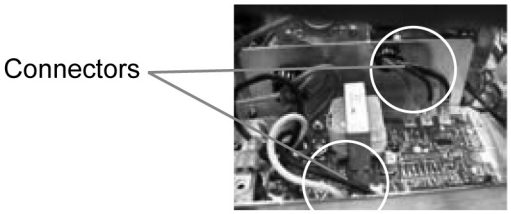

Figure 13.

5. Remove mounting screws.

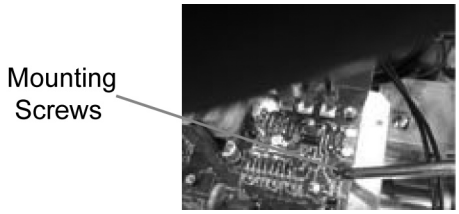

Figure 14.

6. Install new controller board by reversing this procedure.

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CONDENSER FAN MOTOR REPLACEMENT

1. Shut off water and CO_2 at their sources.
2. Remove the hood by removing screws on the top and lifting up.
3. Remove cover by removing two mounting screws.

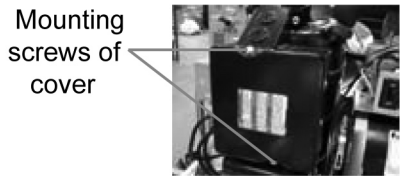

Figure 15.

4. Unplug harness.

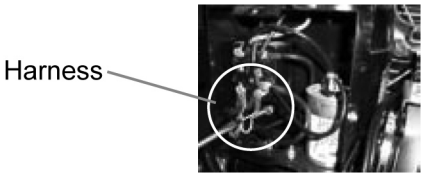

Figure 16.

5. Lift up condenser assembly cover by loose four mounting screws.

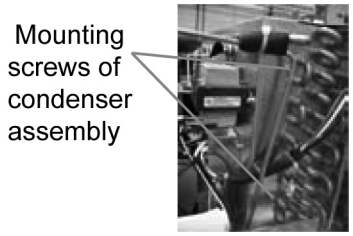

Figure 17.

6. Remove four mounting screws of motor bracket.

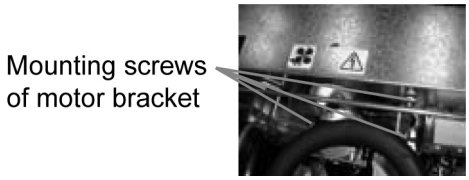

Figure 18.

7. Remove fan motor by disassembling three motor mounting screws.

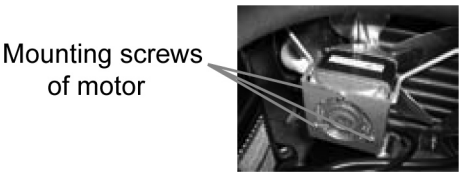

Figure 19.

8. Install new fan motor by reversing this procedure.

ASSE 1022 COMPLIANT VENTED CHECK VALVE OPTION

INSTRUCTION FOR CONVERSION OF CHUDNOW VALVE WITH ANDERSON VALVE

CHANGE 1:

The water inlet fitting of Carb Tank is changed as below picture, and the p/n of Carb Tank is changed from 560007415C to 890516707.

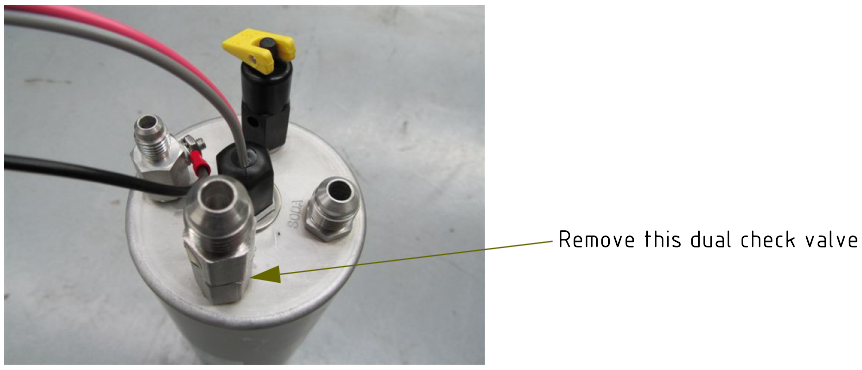

Figure 20.

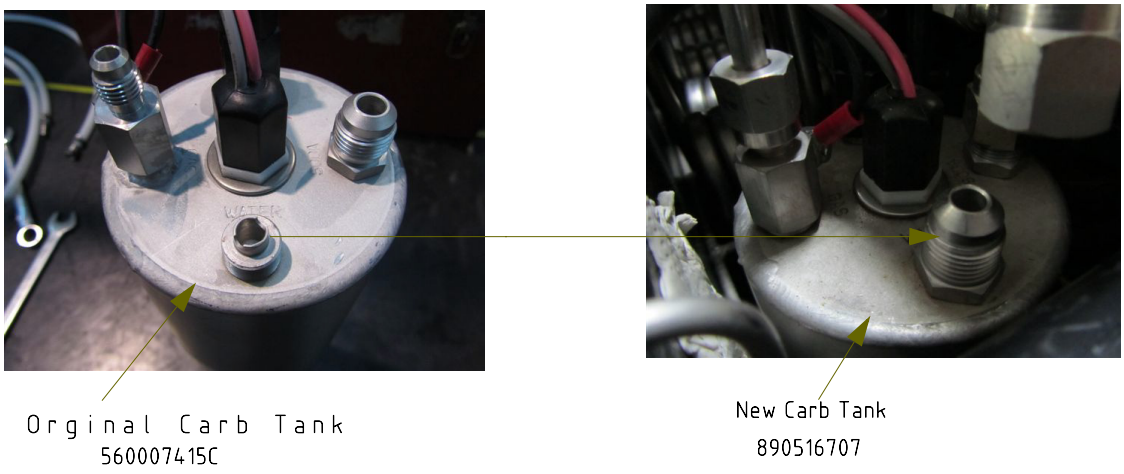

Figure 21.

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CHANGE 2:

The Transformer is moved from the Carb Motor Deck to the Refrigeration Deck as below picture.

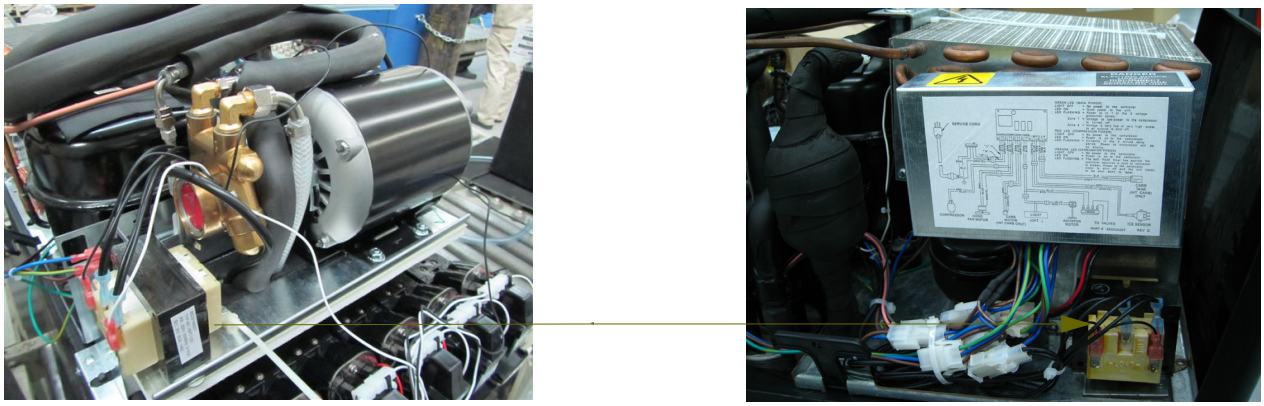

Figure 22.

CHANGE 3:

To assemble the Anderson Check Valve on the Carb pump Outlet as below picture.

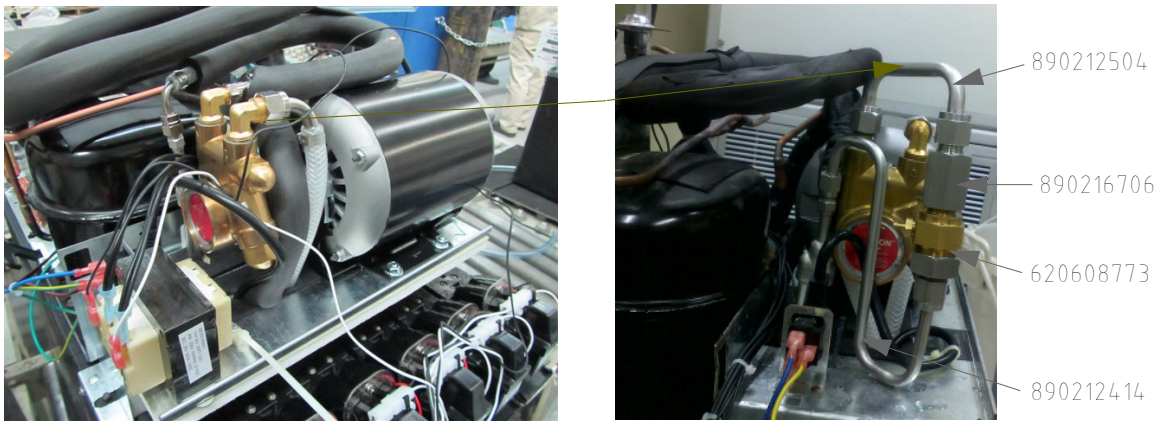

Figure 23.

CHANGED PARTS LIST

Part Number		Description	Qty.	Unit
New Parts Added	620608773	Valve CHK Vent Anderson	1	EA
	890216706	Fitg 3/8MPT 5/8-18NPT	1	EA
	891212504	Coil, Water Outlet Pump to Anderson Valve	1	EA
	890212414	Coil, CHK Valve to main Water Coil	1	EA

NOTE: This option is available for markets which demand the use of ASSE compliant vented double check valves in the syste. Based on the local plumbing laws, this option can be made available on customer discretion.

OLYMPUS VENTED DOUBLE CHECK VALVE INSTALLATION

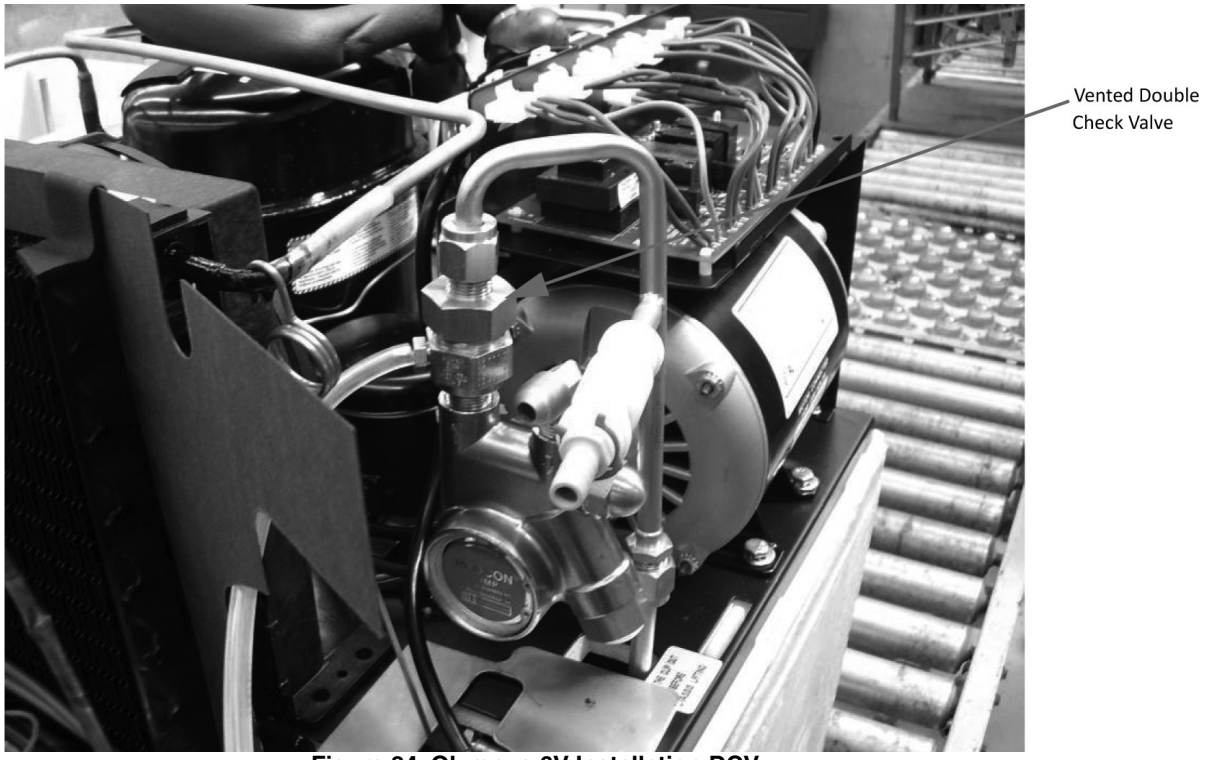

Figure 24. Olympus 6V Installation DCV

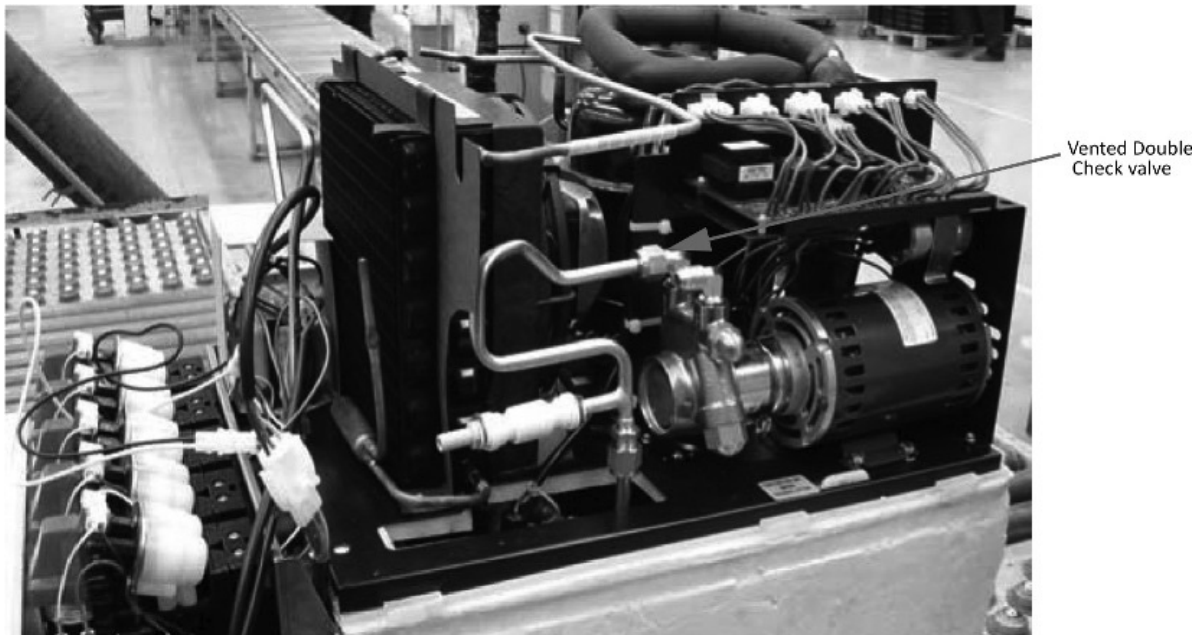

Figure 25. Olympus 5V Installation DCV

ILLUSTRATED PARTS LIST

VANGUARD 245 POST-MIX DISPENSER REMOTE

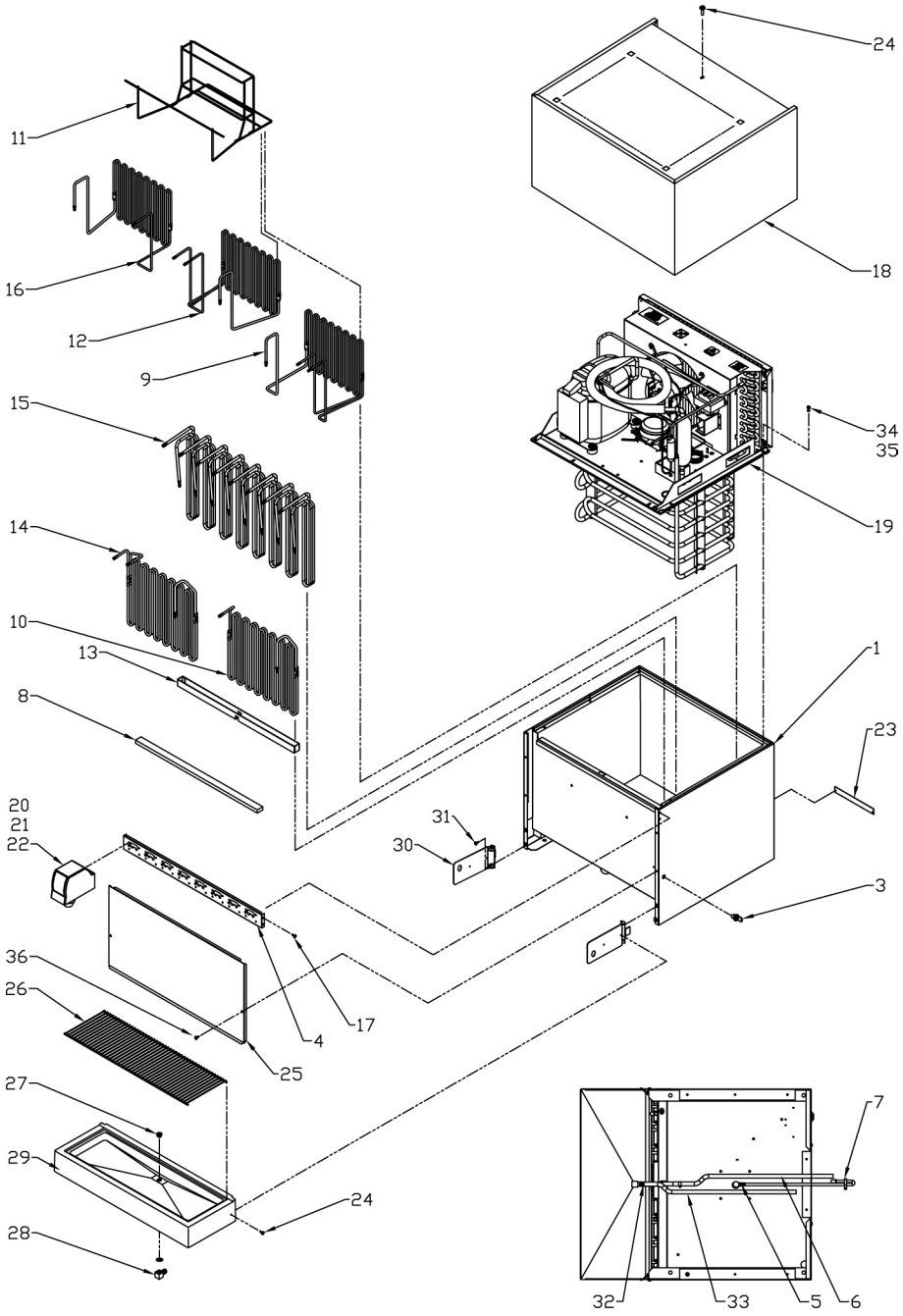

Figure 20.

VANGUARD 245 POST-MIX DISPENSER REMOTE

Table 1. Vanguard 245 post-mix dispenser remote

Item No.	Part No.	Description
1	560002628	Tank Assy.
2	4083	Harn Wire (Not Shown)
3	71827615	Swich KeyLock
4	4924	Panel Val 6-Flaver
	4228	Panel Val 8-Flaver
5	140135000	Clamp Hose
6	113500000	Tank Overflow Hose
7	113500000	Tank Drain Hose
8	4173	Insulation Tank
9	560001878	Coil Wtr No.2 6-Flaver
	560001881	Coil Wtr No.2 and 3 8-flavor
10	560001874	Coil Wtr No.3 6-Flavor
	560001876	Coil Wtr No.4 8-Flavor
11	560001886	Retainer Coil
12	560001882	Coil Wtr No.4 and 5 6-Flavor or No. 5 and 6 8-Flavor
13	4763	Retainer Coil Front
14	560001875	Coil Wtr No.6 6-Flavor
	560001877	Coil Wtr No.7 and 8 8-Flavor
15	560000862	Coil Syr Assy RH
16	560001880	Coil Wtr No.1
17	188072000	Screw SM 10 TRPH 16

Table 1. Vanguard 245 post-mix dispenser remote

Item No.	Part No.	Description
18	560001329	Hood Assy.
19	560003651	Chassis Rfg 120V 60HZ
	560003652	Chassis Rfg 240V 60HZ
	560003653	Chassis Rfg 230V 50HZ
20	317015000	O-Ring.239 I.D.
21		Dispensing Valve Assy.
22	318308000	Screw
23	4123	Cover Access Back
24	317784000	Screw
25	3982	Panel Accs
26	4771	Cup Rest
	560001449	Cup Rest (Optifill Valve)
27	77150200	Fitg Drain 1/2-20
28	77150300	Fitg Drain L 1/2-Barb
29	4772	Drip Tray
30	4778	Brkt Mtg Drip Tray
31	331309000	Screw
32	140135000	Clamp Hose
33	113500000	Tube Vynl.500 I.D.
34	200498003	Nut Hex No. 8-32
35	186207000	Washer Ft.219 I.D,
36	188072000	Screw

VANGUARD 245 POST-MIX DISPENSER (COLD CARBONATED)

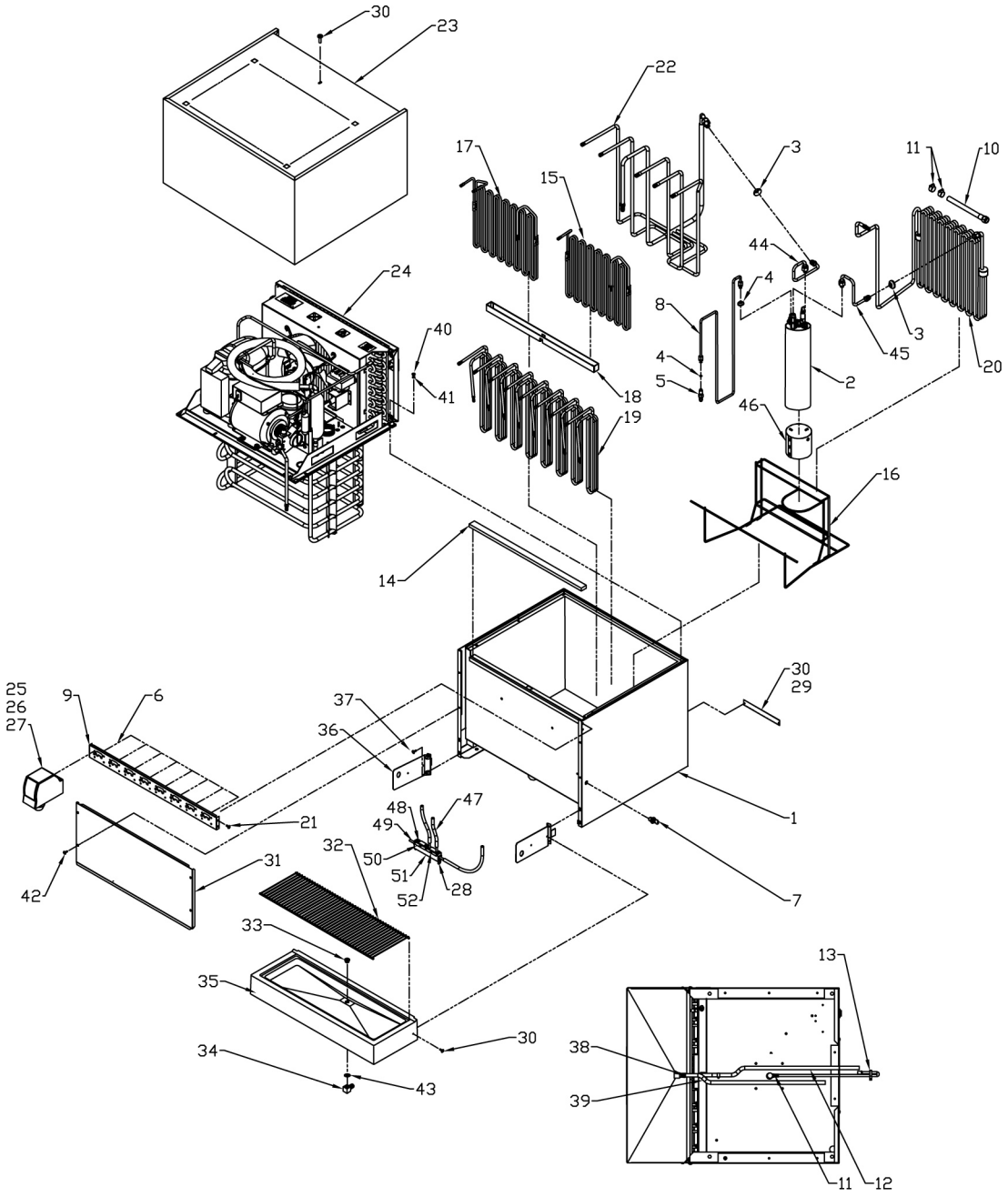

Figure 21.

VANGUARD 245 POST-MIX DISPENSER (COLD CARBONATED)

Table 2. Vanguard 245 post-mix dispenser (cold carb)

Item No.	Part No.	Description
1	560002628	Tank Assy.
2	560007415C	Tank Carb Assy.
	71860230	Valve Pres Relief
	710660001	Probe Assy. Insrt Mold
3	311304000	Gasket Male Flare
4	178025100	Gasket 1/4 Male Flare
5	183310000	Valve Chk Blkhd
6	4083	Harn Wire
7	71827615	Switch Keylock
8	620717788	Tube Inlet CO2
9	4924	Panel Val 6-Flavor
	4228	Panel Val 8-Flavor
10	560001487	Tube Conn.375 I.D.
11	140135000	Clamp Hose
12	113500000	Tank Over Flow Hose
13	140594000	Tank Drain Hose
14	4173	Insulation Tank
15	560001874	Coil Wtr No.3 6-Flaver
	560001876	Coil Wtr No.4 8-flavor
16	560002983	Retainer Coil
17	560001426	Coil Wtr No.4 6-Flaver
	560000753	Coil Wtr No.5 8-flavor
18	4763	Retainer Coil Front
19	560000862	Coil Syr Assy. RH
20	560000874	Coil Water Assy.
21	188072000	Screw
22	560001393	Manifold Wtr 6-Flavor
	560001342	Manifold Wtr 8-Flavor
23	560001329	Hood Assy.

Table 2. Vanguard 245 post-mix dispenser (cold carb)

Item No.	Part No.	Description
24	560003654	Chassis Rfg 230V 60HZ
25	317015000	O-Ring
26		Dispensing Balve Assy.
27	318308000	Screw
28	40407	Retainer S Prod Line
29	4123	Cover Access Back
30	317784000	Screw
31	3982	Panel Access
32	4771	Cup Rest
33	77150200	Fitg Drain 1/2-20
34	77150300	Fitg. Ddrain, L 1/2-Barb
35	4772	Drip Tray
36	4778	Brkt. Mtg. Drip Tray
37	331309000	Screw
38	140135000	Clamp Hose
39	113500000	Tube Vynl.500I.D.
40	200498003	Nut Hex No. 8-32
41	186207000	Washer Ft. 219 I.D.
42	188072000	Screw
43	150447000	Washer, .406 I.D. Drain Fitting
44	890222401	Tube Soda
45	620717789	P-Tube Water
46	620050381	P-Support Carb. Tank
47	174292000	Tube FlexCor
48	77050200	Plug
49	560006959	Fitg.-Val Dole 3/8 Barb STGT.
50	560006957	Retainer Prod Line
51	560006956	Manifold Block
52	398023208	Screw

VANGUARD 245 POST-MIX DISPENSER REMOTE

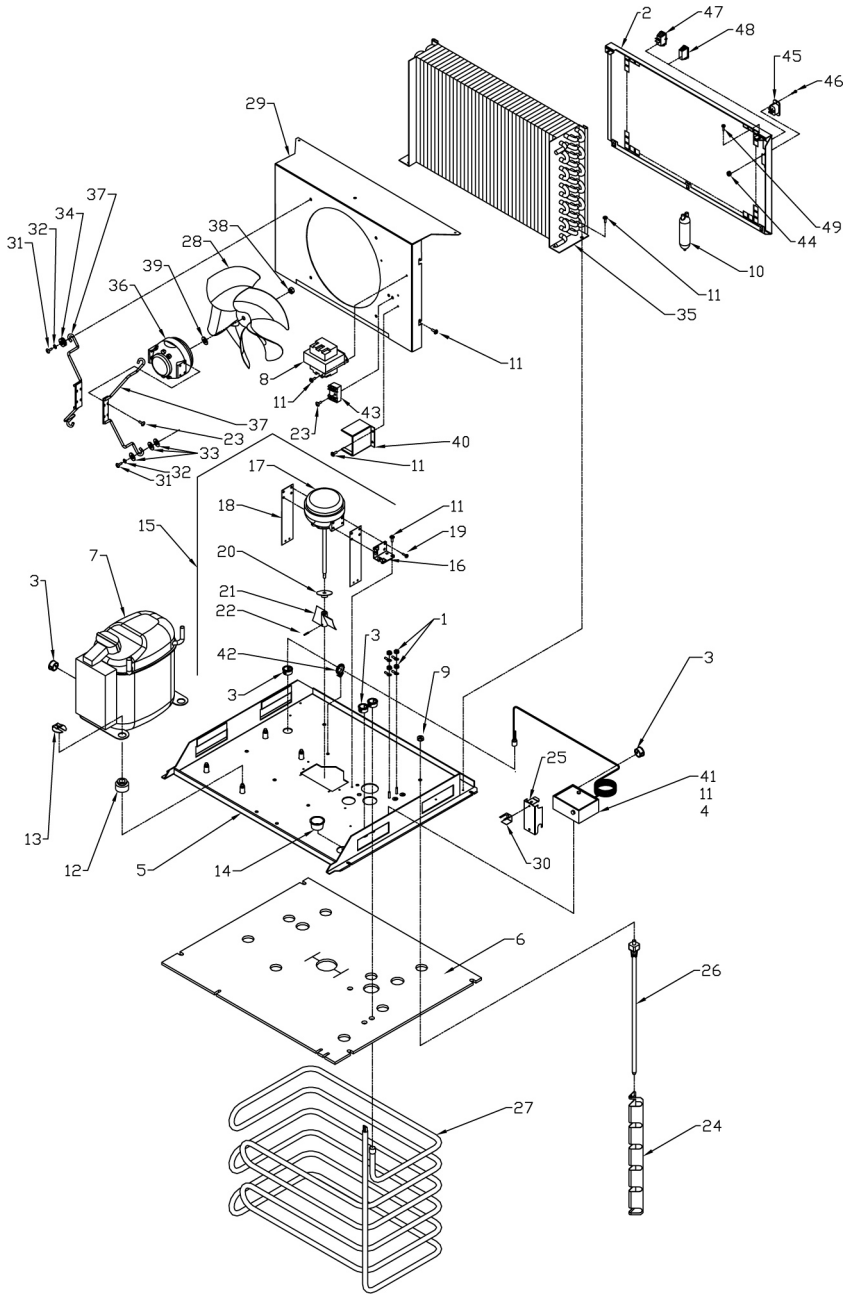

Figure 22.

VANGUARD 245 POST-MIX DISPENSER REMOTE

Table 3. Vanguard 245 post-mix dispenser remote

Item No.	Part No.	Description
1	200498003	Nut Hex No. 8-32
2	560002107	Panel Back
3	320389000	Bushing Snap
4	4680	Screw MA 8-32 PAPH 6
5	560001722	Platform Rfg.
6	560000755	Insulation Platform
7	4182	Kit Comp. 3/4 H.P. 120V 60HZ
	4408	Kit Comp. 3/4 H.P. 230V 60HZ
	4407	Kit Comp. 3/4 H.P. 230V 50HZ
8	449999999	Transformer 120V 60HZ-24V
	449999996	Transformer 240V 60HZ-24V
	560002114	Transformer 230V 50HZ-24V
9	186146000	Nut Hex 5/16-18
10	2602	Dryer
11	319941000	Screw TR 8-32 HXWS 12
12	189723000	Grommet Comp.
13	187888000	Clip Comp. Mtg.
14	316727000	Cap Plg.
15		Motor Assy.Sgit. 120V 60HZ
		Motor Assy.Sgit. 240V 60HZ
		Motor Assy.Sgit. 230V 50/60HZ
16	4932	Brkt. Mtr. Agit.
17	111778000	Motor Agit. 25W 120V 60HZ
	308912000	Motor Agit. 25W 240V 60HZ
	318168002	Motor Agit. 18W 230V 50/60HZ
18	319856000	Plate Heat Transfer
19	186154000	Screw SE 8-36 PAPH 12
20	186599000	Slinger Water
21	3600	Blade Agit 2-Bld
22	186610000	Pin Sprg.
23	186154000	Screw SE 8-36 PAPH 12
24	560003858	Spacer Evap.
25	560003071	Holder Ice Bank Probe
26	319347016	Rod Support Evap
27	4786	Evap. Coil
28	3113	Fan 5-Bid
29	560002108	Shroud Condenser
30	560001537	Holder C-Bulb
31	186770000	Screw MA 10-24 RDPH 20

Table 3. Vanguard 245 post-mix dispenser remote

Item No.	Part No.	Description
32	120227000	Washer LK.194 I.D.
33	320539000	Washer Ft. 191 I.D.
34	321484000	Grommet
35	560000292	Condenser Coil
36	4197	Motor Fan 35W 120V 60HZ
	560000123	Motor Fan 35W 240V 60HZ
	560000170	Motor Fan 23W 230V 50HZ
37	2944	Brkt. Motor Fan
38	189429000	Nut Hex 1/4-20
39	187394000	Cushion Fan Mount
40	560001720	Cover Terminal Block
41	4187	Control Ice Bank
42	2757	Retainer
43	309898000	Block Term
44	5119	Nut Hex NO.4-40
45	560001415	Receptacle
46	310780000	Screw MA 4-40 PAPH 20
47	309645000	Swt Rocker (120V 60HZ)
48	560001396	Plug Swt. (220/230V 50/60HZ)
49	188117000	Screw SM 8-TRPH 12

VANGUARD 245 POST-MIX DISPENSER (COLD CARBONATED)

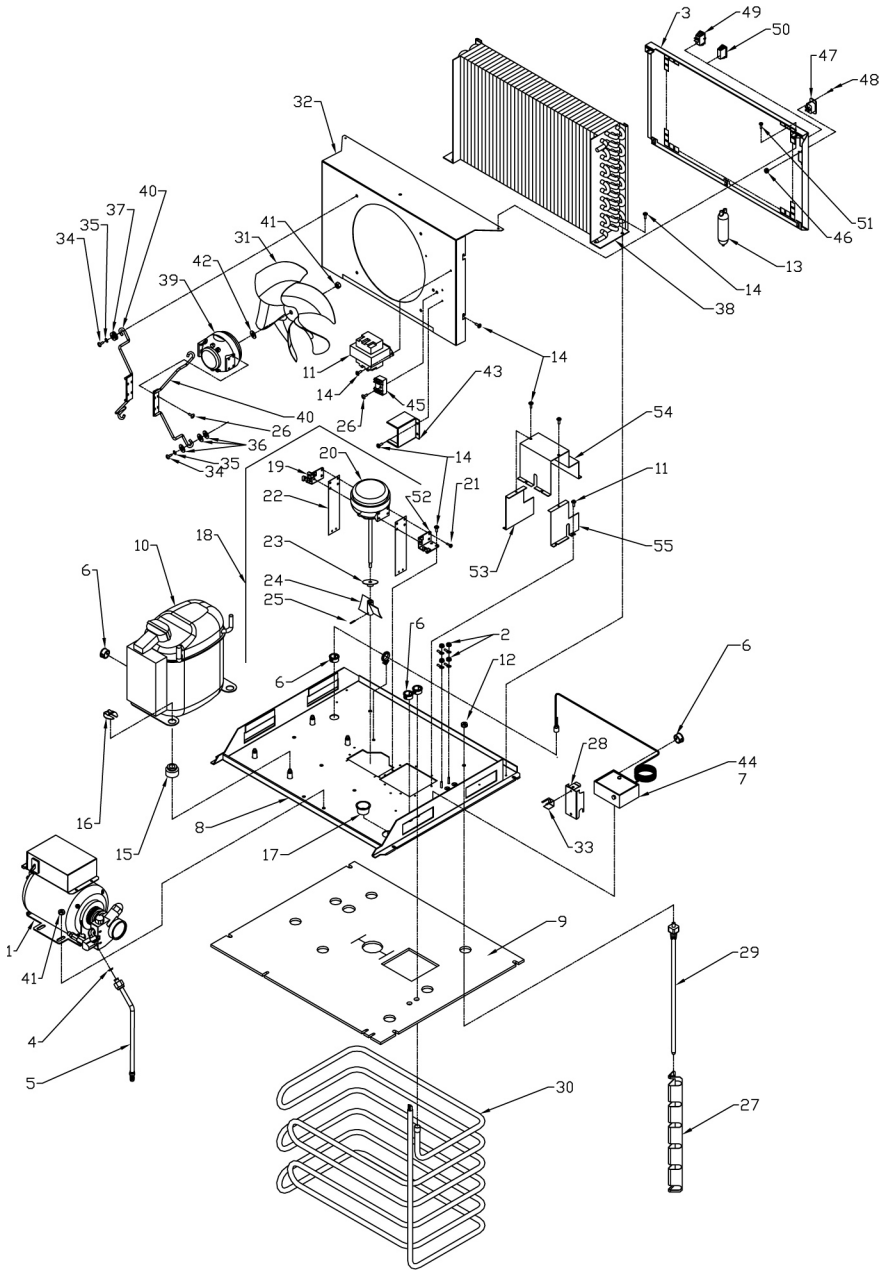

Figure 23.

VANGUARD 245 POST-MIX DISPENSER (COLD CARBONATED)

Table 4. Vanguard 245 post-mix dispenser (cold carb)

Item No.	Part No.	Description
1		Pump and Mot. Assy. 230 V 60
		Pump and Mot. Assy. 230 V 50HZ
2	200498003	Nut Hex No. 8-32
3	560002107	Panel Back Chassis
4	311304000	Gasket 3/8 Male Flare
5	560000754	Tube Inlet Pump
6	320389000	Bushing Snap
7	4680	Screw MA 8-32 PAPH
8	890221201	Platform Rfg.
9	620711936	Insulation Platform
10	4182	Kit Comp. 3/4 H.P. 120V 60HZ Kit
	4408	Comp. 3/4 H.P, 240V 60HZ
	4407	Kit Comp. 3/4 H.P, 230V 50HZ
11	449999999	Transformer 120V 60HZ-24V
	449999996	Transformer 240V 60HZ-24V
	560002114	Transformer 230V 50HZ-24V
12	186146000	Nut Hex 5-16-18
13	2602	Dryer
14	319941000	Screw TR 8-32 HXWS 12
15	189723000	Grommet Cop
16	187888000	Clip Comp. Mtg.
17	316727000	Cap Plug
18	5600005518	Motor Assy Agit 240V 60HZ
	5600004702	Motor Assy, Agit. 230V 50/60HZ
19	4932	Brkt. Motor Agititor
20	308912000	Motor Agit. 25W 240V 60HZ
	318168002	Motor Agit. 18W 230V 50/60HZ
21	186154000	Screw SE 8-36 PAPH 12
22	319856000	Plate Heat Transfer

Table 4. Vanguard 245 post-mix dispenser (cold carb)

Item No.	Part No.	Description
23	186599000	Slinger Water
24	3600	Blade Agit.
25	186610000	Pin Sprg
26	186154000	Screw SE 8-36 PAPH 12
27	560003858	Spacer Evap.
28	560003071	Holder Ice Bank Probe
29	319347016	Rod Support Evap.
30	4786	Evap. Coil
31	3113	Fan 5-Bid
32	560002108	Shroud Condenser
33	560001537	Holder C-Bulb
34	186770000	Screw MA 10-24 RKPH 20
35	120227000	Washer LK.194 I.D.
36	320539000	Washer Ft. 191 I.D.
37	321484000	Grommet
38	560000292	Condenser Coil
39	560000123	Motor Fan 35W 240V 60HZ
	560000170	Motor Fan 23W 230V 50HZ
40	2944	Brkt. Motor Fan
41	189429000	Nut Hex 1/4-20
42	187394000	Cushion Fan Mount
43	560001720	Cover Terminal Block
44	4187	Control Ice Bank
45	309898000	Block Term
46	5119	Nut Hex NO.4-40
47	560001415	Receptacle
48	310780000	Screw MA 4-40 PAPH 20
49	309645000	Swt Rocker (120V 60HZ)
50	560001396	Plug Swt. (220/230V 50/60HZ)
51	188117000	Screw SM 8-TRPH 12

PUMP AND MOTOR (COLD CARB) ASSEMBLY

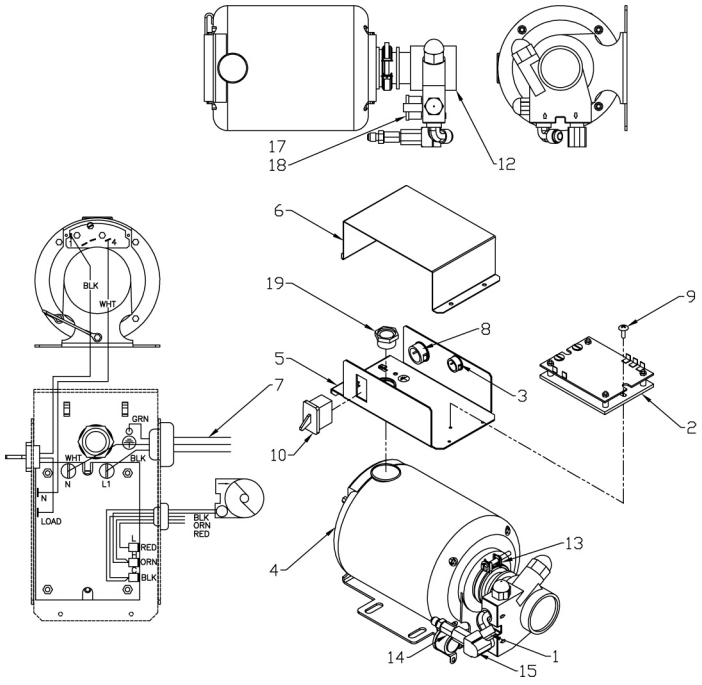

Figure 24.

Table 5. Pump and Motor (cold carb) assembly

Item No.	Part No.	Description
		Pump and Motor 230V 60HZ
		Pump and Motor 230V 50HZ
1	361003200	Fitg. L 3/8-MPT By 5/8-18
2	197359000	Control Liquid Level
3	395098000	Strain Relief
4	320626000	Motor Pump 1/4H.P. 240V 50/ 60HZ
	199020000	Motor Pump 1/4H.P. 230V 50HZ
5	560000863	Box Control
6	4967	Cover Elec. Box
7	560001630	Cord Jump

Table 5. Pump and Motor (cold carb) assembly

Item No.	Part No.	Description
8	319453000	Strain Relief
9	319941000	Screw TR 8-32 HXWS 12
10	313438000	Switch Toggle
11	3175	Harn Wire Carb. (Not Shown)
12	312996000	Pump Water
13	187483000	Clamp Pump and Motor
14	2991	Valve Chk. Dual
15	1151	Fitg. L 3/8-NPT
16	200498003	Nut Hex No. 8-32 (Not Shown)
17	317989555	Clip Thermo. Thermostat Control
18	318039000	Thermostat Control
19	168049000	Fitg. Chase Conduit

Publication Number: 301135000SER

REFERENCE MATERIAL

WIRING DIAGRAM

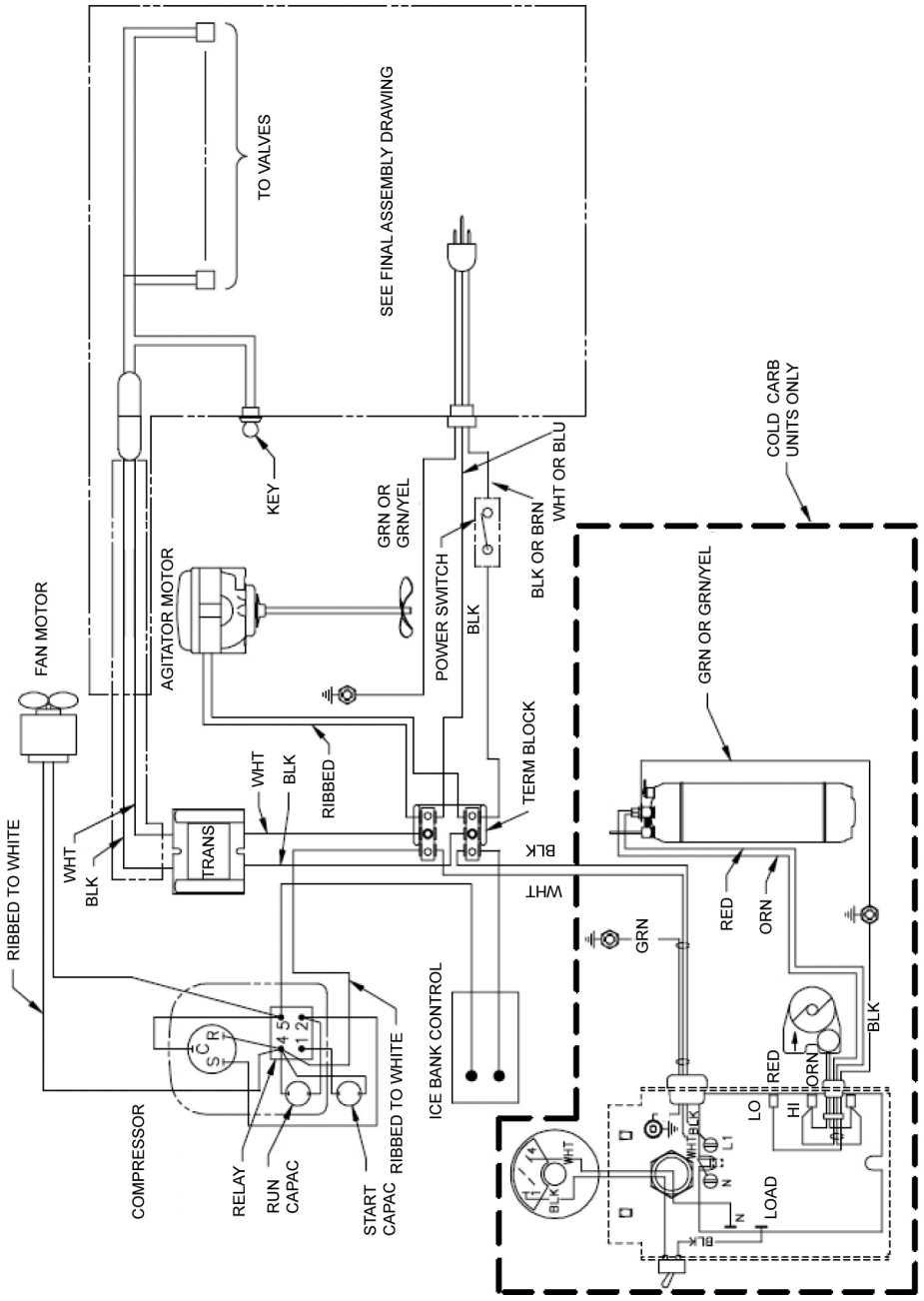

Figure 25. Wiring Diagram

FLOW DIAGRAM

Six-Flavor Unit Requiring Remote Carbonator

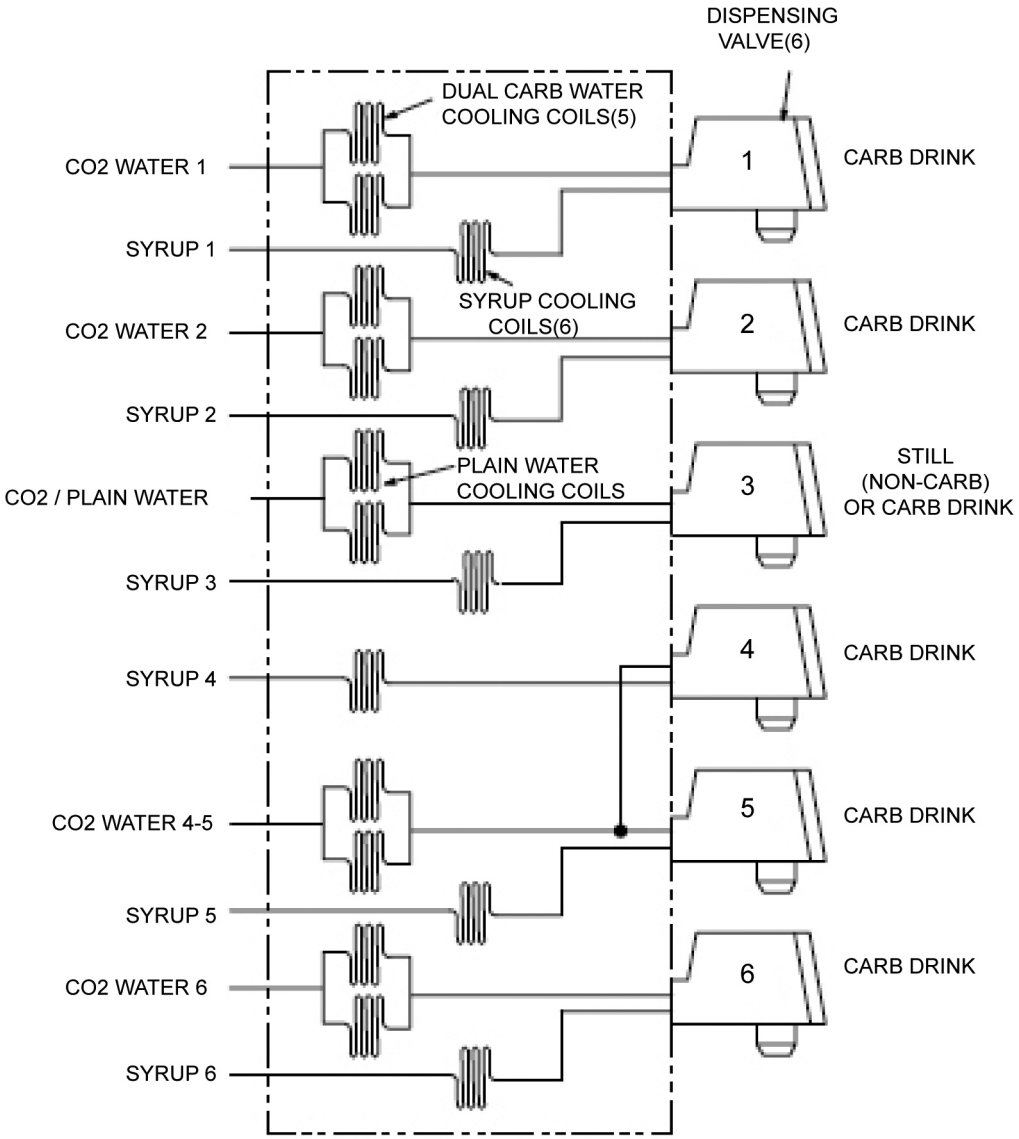

Figure 26. Flow Diagram

NOTE: The indicated CARB DRINK dispensing valves may be made to dispense still (non-carb) drinks by connecting plain water instead of carbonated water to the valves water inlet lines.

FLOW DIAGRAM

Eight-Flavor Unit Requiring Remote Carbonator

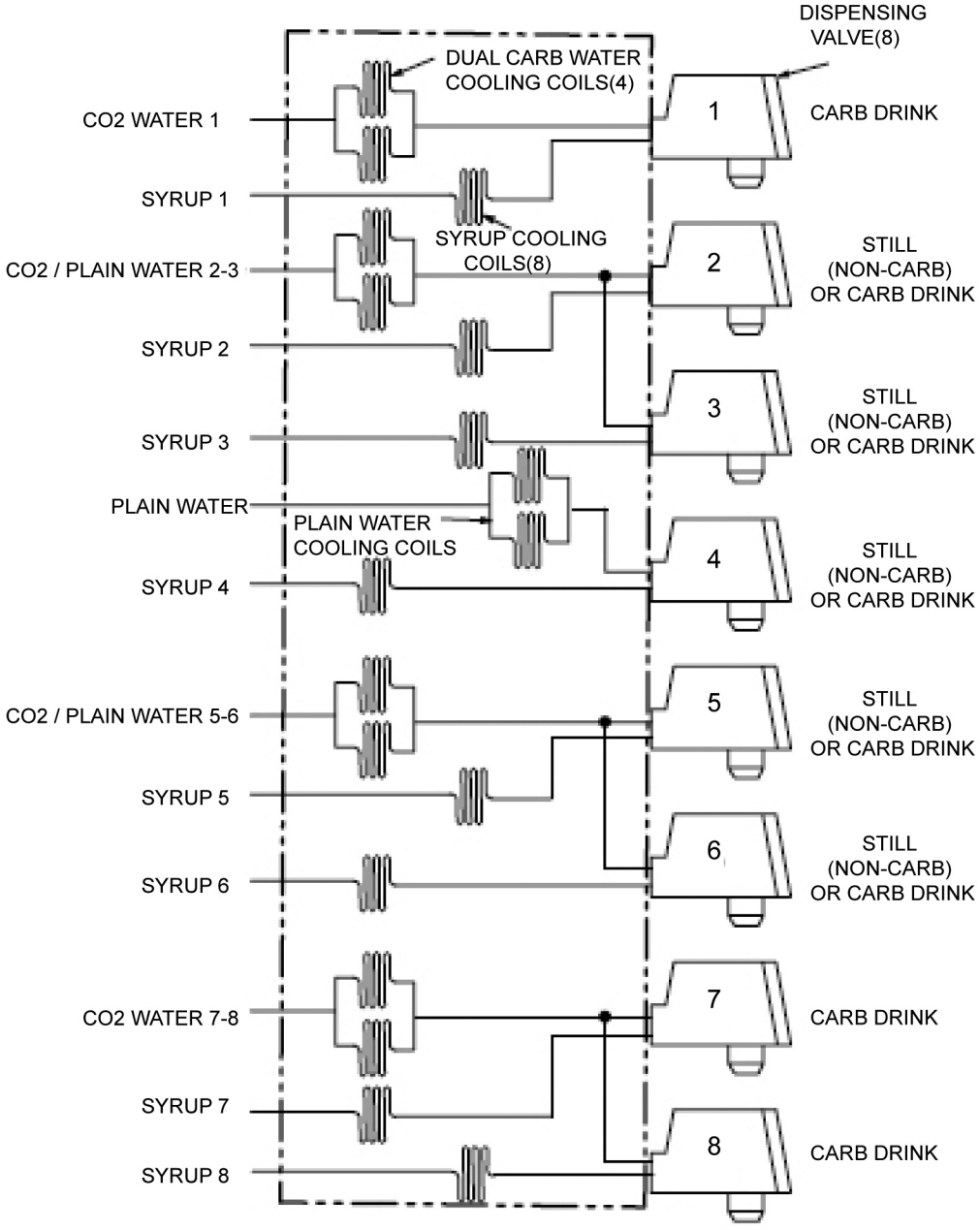

Figure 27. Flow Diagram

NOTE: The indicated CARB DRINK dispensing valves may be made to dispense still (non-carb) drinks by connecting plain water instead of carbonated water to the valves water inlet lines.

FLOW DIAGRAM

Six-Flavor Unit with Integral Carbonator

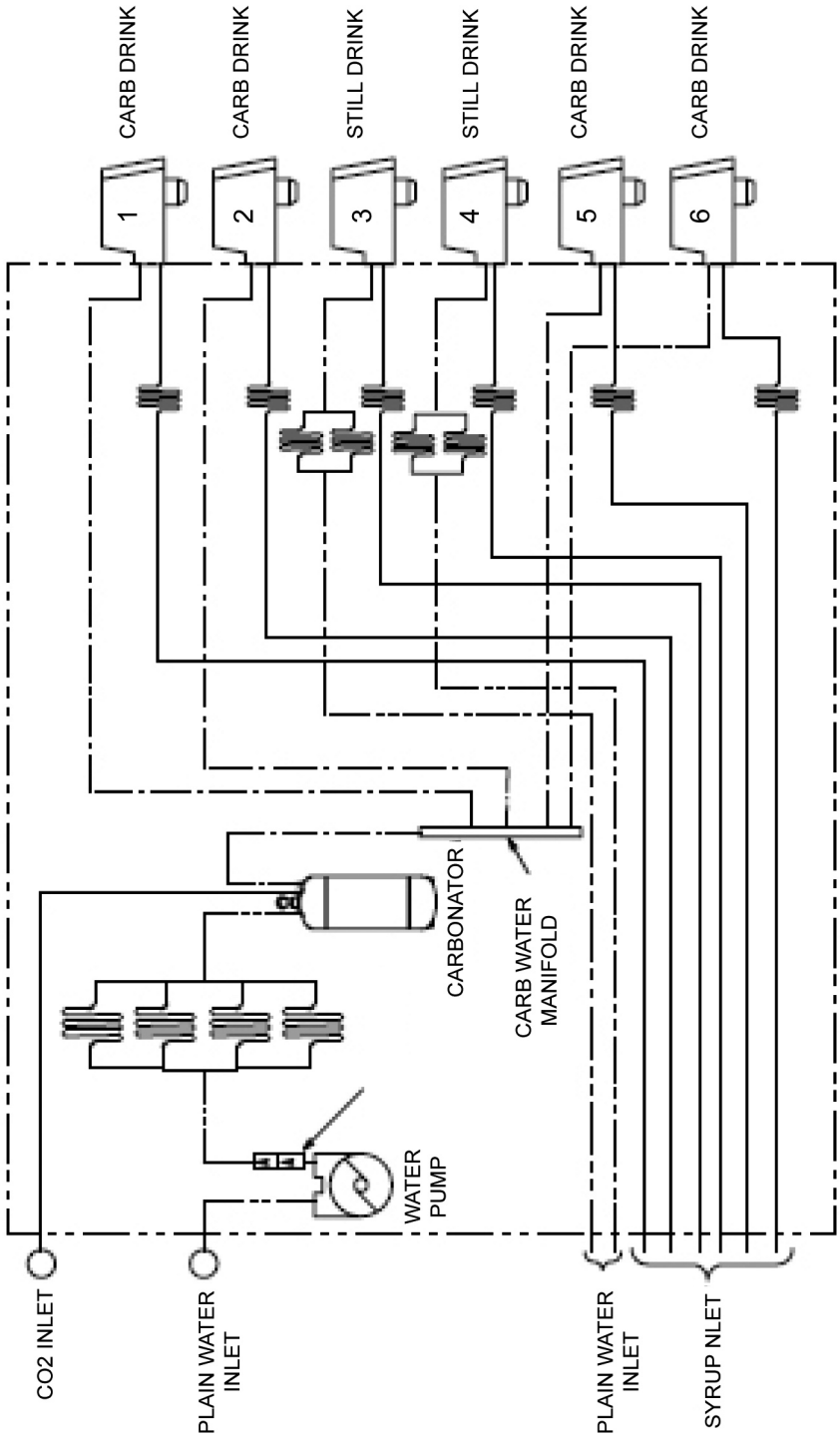

Figure 28. Flow Diagram

FLOW DIAGRAM

Eight-Flavor Unit with Integral Carbonator

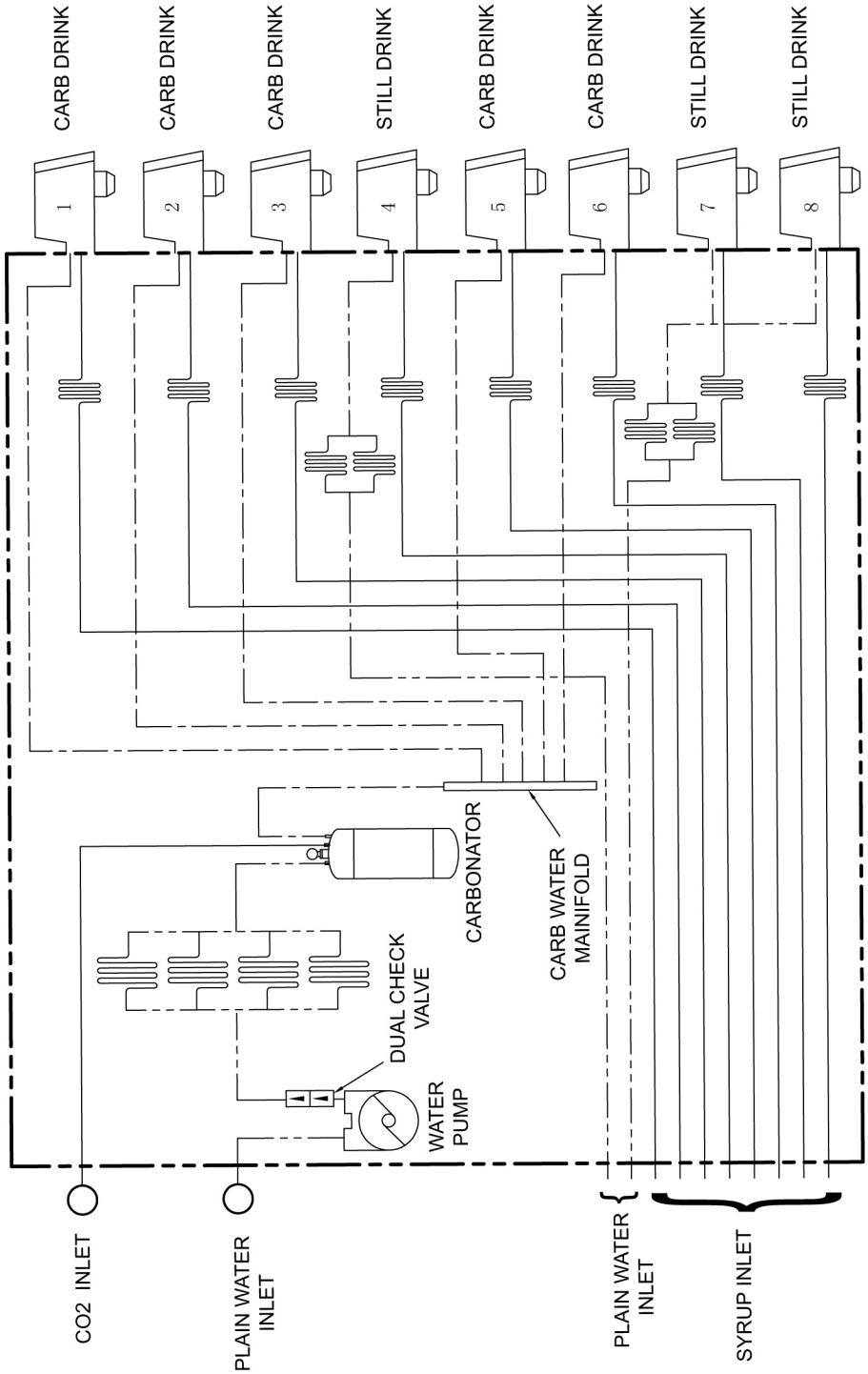

Figure 29. Flow Diagram

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