



# Installation/Service Manual

## VANGUARD 245 POST-MIX DISPENSER

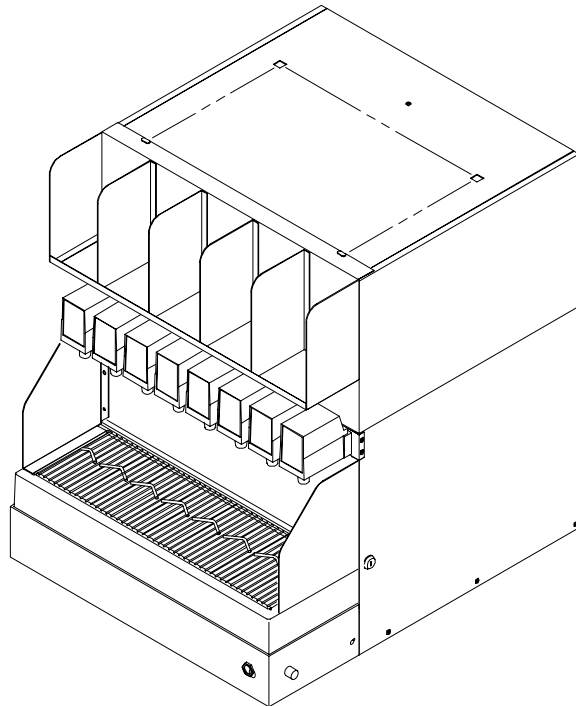
(Mc DONALD'S® APPLICATIONS)

### **IMPORTANT:**

#### **TO THE INSTALLER.**

It is the responsibility of the Installer to ensure that the water supply to the dispensing equipment is provided with protection against backflow by an air gap as defined in ANSI/ASME A112.1.2-1979; or an approved vacuum breaker or other such method as proved effective by test.

Water pipe connections and fixtures directly connected to a potable water supply shall be sized, installed, and maintained according to Federal, State, and Local Codes.



Part No. 569000203  
September 20, 1996  
Revised: July 2, 2002  
Revision D

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION

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

# TABLE OF CONTENTS

	Page
<b>SAFETY INFORMATION</b> .....	<b>1</b>
RECOGNIZE SAFETY INFORMATION .....	1
UNDERSTAND SIGNAL WORDS .....	1
FOLLOW SAFETY INSTRUCTIONS .....	1
CO <sub>2</sub> (CARBON DIOXIDE) WARNING .....	1
SHIPPING, STORING, OR RELOCATING UNIT .....	1
<b>GENERAL INFORMATION</b> .....	<b>3</b>
UNIT DESCRIPTION .....	3
WARRANTY REFERENCE INFORMATION .....	3
THEORY OF OPERATION .....	5
UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR .....	5
UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR .....	5
<b>INSTALLATION</b> .....	<b>11</b>
UNPACKING AND INSPECTION .....	11
IDENTIFICATION OF LOOSE-SHIPPED PARTS .....	11
SELECTING LOCATION .....	12
INSTALLATION .....	12
PLACING UNIT IN OPERATING POSITION .....	12
INSTALLING OPTIONAL PLAIN WATER COOLING COIL (ITEM 15) .....	13
CONNECTING DRIP TRAY DRAIN HOSE TO A PERMANENT DRAIN .....	13
CONNECTING SYRUP SOURCE LINES TO THE UNIT .....	13
CONNECTING CARBONATED WATER SOURCE LINE TO THE UNIT (UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR) .....	13
CONNECTING PLAIN WATER SOURCE LINES TO UNIT .....	14
CONNECTING CO <sub>2</sub> SOURCE LINE (UNIT WITH INTEGRAL CARBONATOR) .....	15
SEALING UNIT BASE TO COUNTERTOP .....	15
CO <sub>2</sub> REGULATORS ADJUSTMENTS .....	15
FILL WATER TANK AND START THE REFRIGERATION SYSTEM .....	17
PREPARATION FOR OPERATION .....	18
INSTALLING FRONT ACCESS PANEL, SPLASH GUARDS, DRIP TRAY, AND CUP REST .....	19
INSTALLING OPTIONAL CUP LID HOLDER .....	20
INSTALLING OPTIONAL STRAW HOLDER .....	20
<b>OPERATOR'S INSTRUCTIONS</b> .....	<b>21</b>
OPERATING CONTROLS .....	21
DISPENSING VALVE OPERATION .....	21
UNIT POWER SWITCH (50 HZ UNITS EXCLUDED) .....	21
DISPENSING VALVES KEYED LOCK-OUT SWITCH .....	22
DAILY PRE-OPERATION CHECK .....	22
UNIT OPERATION .....	22
CLEANING AND SANITIZING .....	22
DAILY CLEANING OF UNIT .....	22
SANITIZING SYRUP SYSTEMS .....	22

## TABLE OF CONTENTS (cont'd)

	Page
CHECKING DROP-IN REFRIGERATION ASSEMBLY CONDENSER COIL FOR RESTRICTIONS .....	22
CHECKING ICE WATER BATH .....	23
CARBONATOR WATER PUMP YEARLY MAINTENANCE OR AFTER WATER SYSTEM DISRUPTIONS .....	23
UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR .....	23
UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR .....	23
CLEANING CO2 GAS CHECK VALVES .....	23
<b>SERVICE AND MAINTENANCE .....</b>	<b>25</b>
PREPARING UNIT FOR SHIPPING OR RELOCATING .....	25
HOOD AND FRONT ACCESS PANEL REMOVAL .....	25
HOOD REMOVAL .....	25
FRONT ACCESS PANEL REMOVAL .....	25
PERIODIC INSPECTION .....	25
ADJUSTMENTS .....	26
CO2 REGULATORS ADJUSTMENTS .....	26
ADJUSTING DISPENSING VALVES FOR WATER FLOW RATE .....	26
CHECKING WATER VOLUME (PORTION-CONTROL DISPENSING VALVES) .....	31
CHECKING DISPENSING VALVES SYRUP CALIBRATION (BRIX) .....	32
PORTION CONTROL ADJUSTMENT (DOLE AND CC-1 DISPENSING VALVES) .....	34
CLEANING AND SANITIZING .....	34
DAILY CLEANING OF UNIT .....	34
SANITIZING POST-MIX SYRUP SYSTEMS .....	35
CLEANING DROP-IN REFRIGERATION ASSEMBLY CONDENSER COIL ....	37
CHECKING ICE WATER BATH .....	37
CLEANING WATER TANK .....	38
CARBONATOR WATER PUMP YEARLY MAINTENANCE OR AFTER WATER SYSTEM DISRUPTIONS .....	39
UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR .....	39
UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR .....	39
CLEANING CO2 SYSTEM CO2 GAS CHECK VALVES .....	42
CONVERTING STILL (NON-CARBONATED) DRINK DISPENSING VALVE TO DISPENSE A CARBONATED DRINK .....	42
UNITS REQUIRING CONNECTION TO REMOTE CARBONATOR .....	42
<b>TROUBLESHOOTING .....</b>	<b>45</b>
TROUBLESHOOTING UNIT .....	45
WATER-TO-SYRUP "RATIO" TOO LOW OR TOO HIGH. ....	45
ADJUSTMENT OF DISPENSING VALVE SYRUP FLOW REGULATOR DOES NOT INCREASE TO DESIRED WATER-TO-SYRUP "RATIO" .....	45
ADJUSTMENT OF DISPENSING VALVE SYRUP REGULATOR DOES NOT DECREASE TO DESIRED WATER-TO-SYRUP "RATIO". ....	46
DISPENSED PRODUCT CARBONATION TOO LOW. ....	46

## TABLE OF CONTENTS (cont'd)

	<b>Page</b>
DISPENSED PRODUCT COMES OUT OF DISPENSING VALVE CLEAR BUT FOAMS IN CUP OR GLASS. ....	46
DISPENSED PRODUCT PRODUCES FOAM AS IT LEAVES DISPENSING VALVE. ....	46
NO PRODUCT DISPENSED FROM ALL DISPENSING VALVES. ....	47
ONLY CARBONATED WATER DISPENSED. ....	47
ONLY SYRUP DISPENSED. ....	48
TROUBLESHOOTING REFRIGERATION SYSTEM .....	48
COMPRESSOR DOES NOT OPERATE. ....	48
COMPRESSOR DOES NOT OPERATE. (CONT'D) .....	49
COMPRESSOR WILL NOT STOP AFTER SUFFICIENT ICE BANK IS PRODUCED. ....	49
COMPRESSOR OPERATES CONTINUOUSLY BUT DOES NOT FORM SUFFICIENT ICE BANK. ....	49
CONDENSER FAN MOTOR NOT OPERATING. ....	49
AGITATOR MOTOR NOT OPERATING. ....	49
<b>WARRANTY</b> .....	<b>56</b>

### LIST OF FIGURES

FIGURE 1. VANGUARD 245 DISPENSER (EIGHT-FLAVOR UNIT SHOWN) ..	3
FIGURE 2. FLOW DIAGRAM (DISPENSER P/N 497306660WS) REQUIRES REMOTE CARBONATOR .....	6
FIGURE 3. FLOW DIAGRAM (SIX-FLAVOR UNIT) REQUIRES REMOTE CARBONATOR .....	7
FIGURE 4. FLOW DIAGRAM (EIGHT-FLAVOR) REQUIRES REMOTE CARBONATOR .....	8
FIGURE 5. FLOW DIAGRAM (SIX-FLAVOR UNIT WITH INTEGRAL CARBONATOR) .....	9
FIGURE 6. FLOW DIAGRAM (EIGHT-FLAVOR UNIT WITH INTEGRAL CARBONATOR) .....	10
FIGURE 7. COUNTERTOP HOLE CUTOUT .....	16
FIGURE 8. DRIP TRAY INSTALLATION .....	19
FIGURE 9. VANGUARD 245 POST-MIX DISPENSER (P/N 497306660WS) REQUIRES CONNECTION TO REMOTE CARBONATOR .....	27
FIGURE 10. VANGUARD 245 POST-MIX DISPENSER (REQUIRES CONNECTION TO REMOTE CARBONATOR) .....	28
FIGURE 11. VANGUARD 245 DISPENSER (WITH INTEGRAL CARBONATOR) .....	29
FIGURE 12. PORTION CONTROL COVER .....	30
FIGURE 13. WATER STRAINER SCREEN AND DOUBLE LIQUID CHECK VALVE .....	40
FIGURE 14. DOUBLE LIQUID CHECK VALVE ASS'Y .....	41
FIGURE 15. CO2 GAS CHECK VALVE ASSEMBLY .....	42
FIGURE 16. WIRING DIAGRAM (REMOTE OR INTEGRAL CARBONATOR UNIT) .....	43
FIGURE 17. WIRING DIAGRAM (DISPENSER P/N 497306660WS) .....	44
FIGURE 18. VANGUARD 245 POST-MIX DISPENSER ASSEMBLY .....	52
FIGURE 19. VANGUARD 245 REFRIGERATION ASSEMBLY .....	54

# TABLE OF CONTENTS (cont'd)

Page

## LIST OF TABLES

TABLE 1. DESIGN DATA .....	4
TABLE 2. LOOSE-SHIPED PARTS .....	11

# SAFETY INFORMATION

---

## Recognize Safety Information

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

Follow recommended precautions and safe operating practices.



---

## Understand Signal Words

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

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

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



---

## Follow Safety Instructions

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

---

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

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

---

## Shipping, Storing, Or Relocating Unit

**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 temperature will cause residual water remaining inside the Unit to freeze resulting in damage to internal components of the Unit.

---

THIS PAGE LEFT BLANK INTENTIONALLY

# GENERAL INFORMATION

This manual is a guide for installing, operating, and maintaining this equipment. Refer to Table of Contents for page location of detailed information pertaining to questions that arise during installation, operation, service and maintenance, or troubleshooting this equipment. This section gives the unit description, theory of operation, and design data for the Six and Eight-Flavor Vanguard 245 Post-Mix Overcounter Dispensers (hereafter referred to as Units).

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

## UNIT DESCRIPTION

The Units are compact and may be installed on a countertop as a self-serve Unit or the Unit may be installed in a drive-through or may be center-island mounted. The Units are equipped with 3/4 H.P. 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 six-flavor Vanguard 245 Post-Mix Dispenser (P/N 497306660WS) is equipped with a plain water dispensing spout located between No. 5 and No. 6 dispensing valves (see Figure 2 and 9) that when activated, will dispense chilled plain water.

The only requirements for operation are installation of the Unit, 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<sub>2</sub> 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.

Available is an optional Straw Holder (P/N 560000440) that provides a place to store drink straws and a Cup Lid Holder (P/N 560000439) that provides a place to store a supply of cup lids. A Plain Water Cooling Coil (P/N 560000477) is available that may be installed in the Unit that provides pre-cooled plain water that may be connected to a remote Orange Juice Dispenser. Also available is a CO<sub>2</sub> "OUT" Light Kit (P/N 1983) and a Dispenser Leg Kit (P/N 560000126) to raise the Dispenser up off the countertop.

## WARRANTY REFERENCE INFORMATION

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

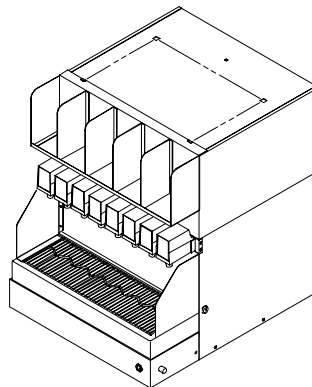


FIGURE 1. VANGUARD 245 DISPENSER (EIGHT-FLAVOR UNIT SHOWN)



**Table 1. Design Data**

<b>Table 1. Design Data</b>	
Unit Part Numbers:	
Units Requiring Connection to Remote Carbonator:	
Six-Flavor Unit (115 VAC, 60 Hz)	417306660XX
Eight-Flavor Unit (115 VAC, 60 Hz)	417308660XX
Six-Flavor Unit (208-230 VAC, 60 Hz)	477306660XX
Eight-Flavor Unit (208-230 VAC, 60 Hz)	477308660XX
Six-Flavor Unit (220 VAC, 50 Hz)	497306660XX
Six-Flavor Unit W/Plain Water Spout (220 VAC, 50 Hz)	497306660WS
Eight-Flavor Unit (220 VAC, 50Hz)	497308660XX
Units with Integral (Buit-in) Carbonator:	
Six-Flavor Unit (230 VAC, 50 Hz)	497316660XX
Eight-Flavor Unit (230 VAC, 50 Hz)	497318660XX
Overall Dimensions:	
Width	24-1/2 inches (622 MM)
Height	31 inches (787 MM)
Depth	29-3/8 inches (746 MM)
Weights:	
Units Requiring Connection to Remote Carbonator:	
Shipping (one carton) approximate	240 pounds (109 Kg)
Dry Weight (approximate)	236 pounds (107 Kg)
Ice Bank Weight (approximate)	50 pounds (27 Kg)
Drop-In Refrigeration Assembly	100 pounds (45 Kg)
Units with Integral (Buit-in) Carbonator:	
Shipping (one carton) approximate	255 pounds (116 Kg)
Dry Weight (approximate)	230 pounds (104 Kg)
Ice Bank Weight (approximate)	50 pounds (27 Kg)
Drop-In Refrigeration Assembly	130 pounds (59 Kg)
Water Bath Capacity (no ice bank) approximately	
Units Requiring Connection to Remote Carbonator	21.25 gallons (80 LITERS)
Units with Integral (Buit-in) Carbonator:	20.5 gallons gallons (78 LITERS)
Dispensing Rate:	
12-oz. (355 ml) drinks 4/min. or fewer	*1000
<b>NOTE: *Number of drinks dispensed 40° F (4.4° C) or below @ 75° F (24° C) syrup and water inlet temperature and 75° F (24° C) ambient.</b>	
Refrigeration Requirements:	
Refrigerant Type and Amount	See Unit Nameplate
Ambient Operating Temperature	40° F (4.4° C) to 105° F (40.5° C)
Electrical Requirements:	
Operating Voltage	see Unit nameplate
Current Draw	see Unit nameplate
Electric Dispensing Valves	24VAC
*Operating Voltage Range	
115 VAC, 60 Hz Unit	103-127 VAC
208-230 VAC, 60 HZ Unit	198-253 VAC
230 VAC, 50 Hz Unit	207-253 VAC

# THEORY OF OPERATION

## UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR

(see applicable Figure 2, 3, or 4)

**NOTE: The Unit was set up at the factory to dispense a still (noncarbonated) drink from No. 3 dispensing valve (six-flavor Unit) or No. 4 dispensing valve (eight-flavor Unit) and carbonated drinks from remaining dispensing valves. The still (non-carbonated) drink dispensing valves may be converted to also dispense a carbonated drinks. Refer to TABLE OF CONTENTS for converting still (non-carbonated) drink dispensing valves to dispense carbonated drinks.**

A CO<sub>2</sub> cylinder delivers carbon dioxide (CO<sub>2</sub>) gas through adjustable CO<sub>2</sub> 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<sub>2</sub> gas pressure also entering the water tank. When dispensing valve is opened, CO<sub>2</sub> 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<sub>2</sub> 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. A still (non-carbonated) drink is dispensed from the No. 3 dispensing valve (six-flavor Unit) or No. 4 dispensing valve (eight-flavor) Unit in the same manner as the carbonated drink except plain water is substituted for carbonated water.

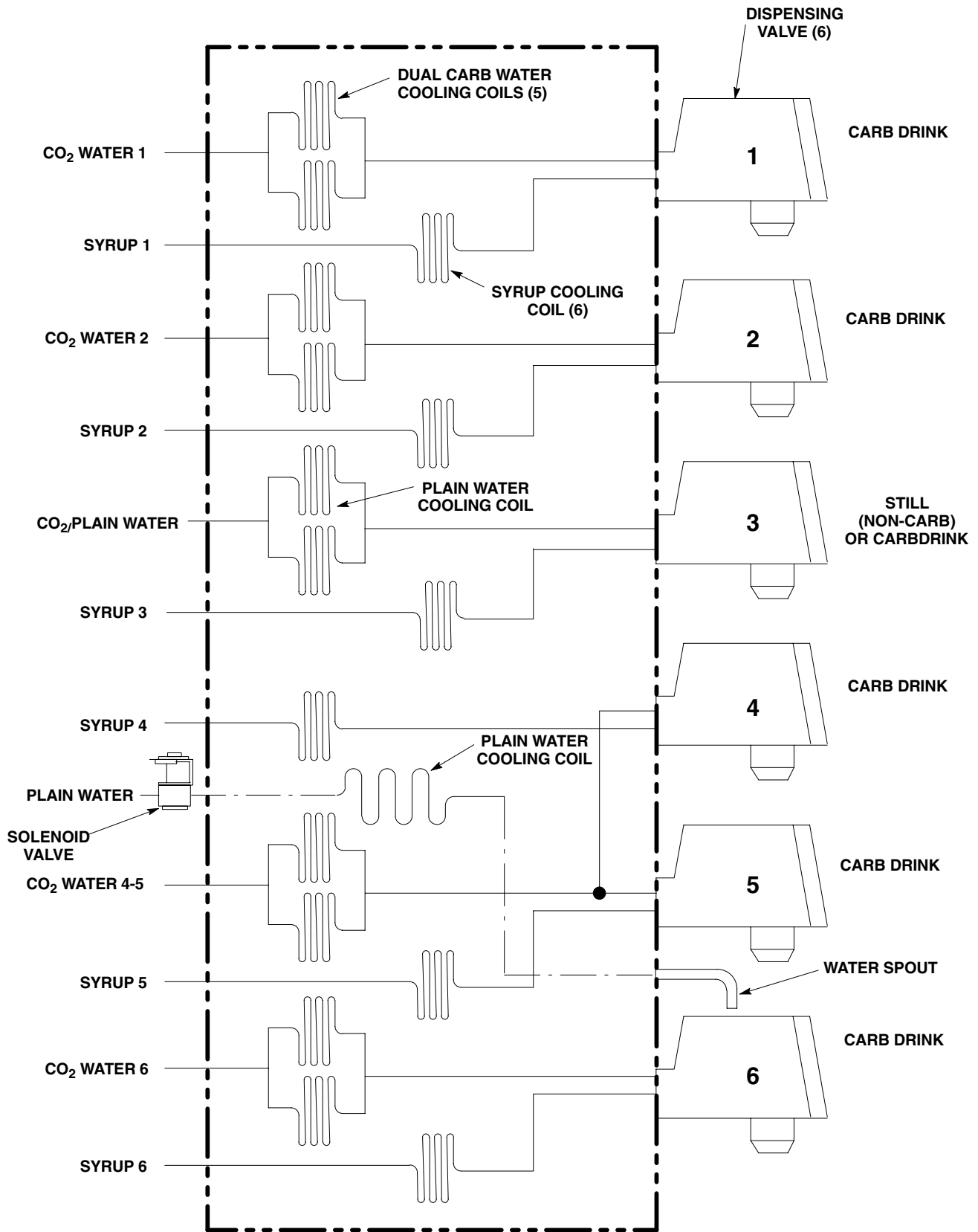
The six-flavor Vanguard 245 Post-Mix Dispenser (P/N 497306660WS) is equipped with a plain water dispensing spout located between No. 5 and No. 6 dispensing valves (see Figure 2 and 9). A filtered plain water supply line is connected to the plain water solenoid valve on top of the refrigeration deck. Pressing the plain water dispense switch on side of the drip tray support opens the electrically operated plain water solenoid valve which permits chilled plain water to be dispensed.

## UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR

(see applicable Figure 5 or 6 )

**NOTE: The Unit was set up at the factory to dispense still (noncarbonated drinks) from No. 4 and No. 5 dispensing valves and carbonated drinks from the remaining dispensing valves. If the factory installed option to convert No.4 or 5 or both No.4 and 5 to dispense a carbonated drink instead of a still (non-carbonated) drink was installed on your Unit, refer to TABLE OF CONTENTS for the conversion instructions.**

A CO<sub>2</sub> cylinder delivers carbon dioxide (CO<sub>2</sub>) gas through adjustable CO<sub>2</sub> 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<sub>2</sub> gas pressure also entering the water tank. When dispensing valve is opened, CO<sub>2</sub> 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<sub>2</sub> 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. A still (non-carbonated) drink is dispensed from No. 4 and No. 5 dispensing valves in the same manner as the carbonated drink except plain water is substituted for carbonated water.



**FIGURE 2. FLOW DIAGRAM (DISPENSER P/N 497306660WS) REQUIRES REMOTE CARBONATOR**

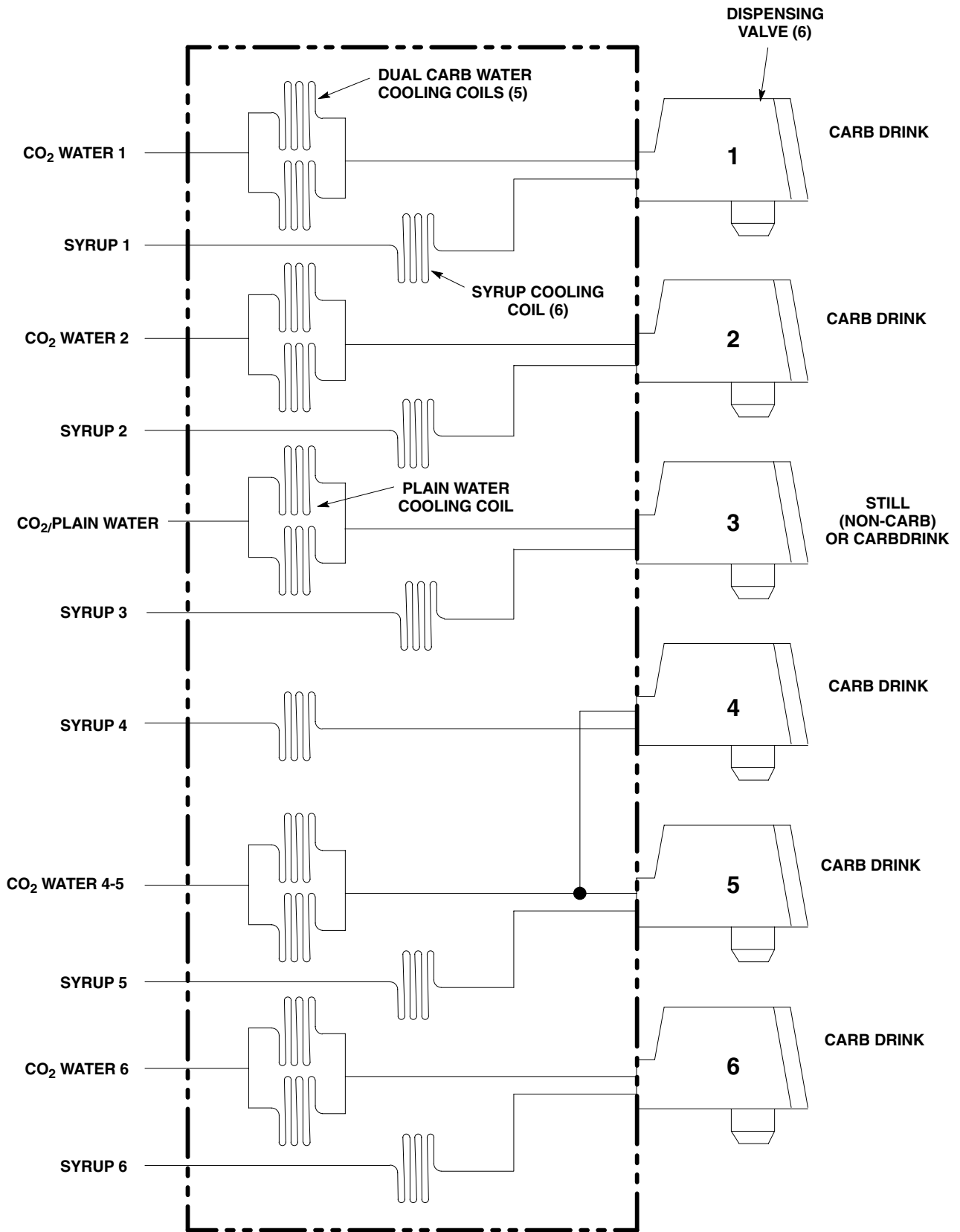


FIGURE 3. FLOW DIAGRAM (SIX-FLAVOR UNIT) REQUIRES REMOTE CARBONATOR

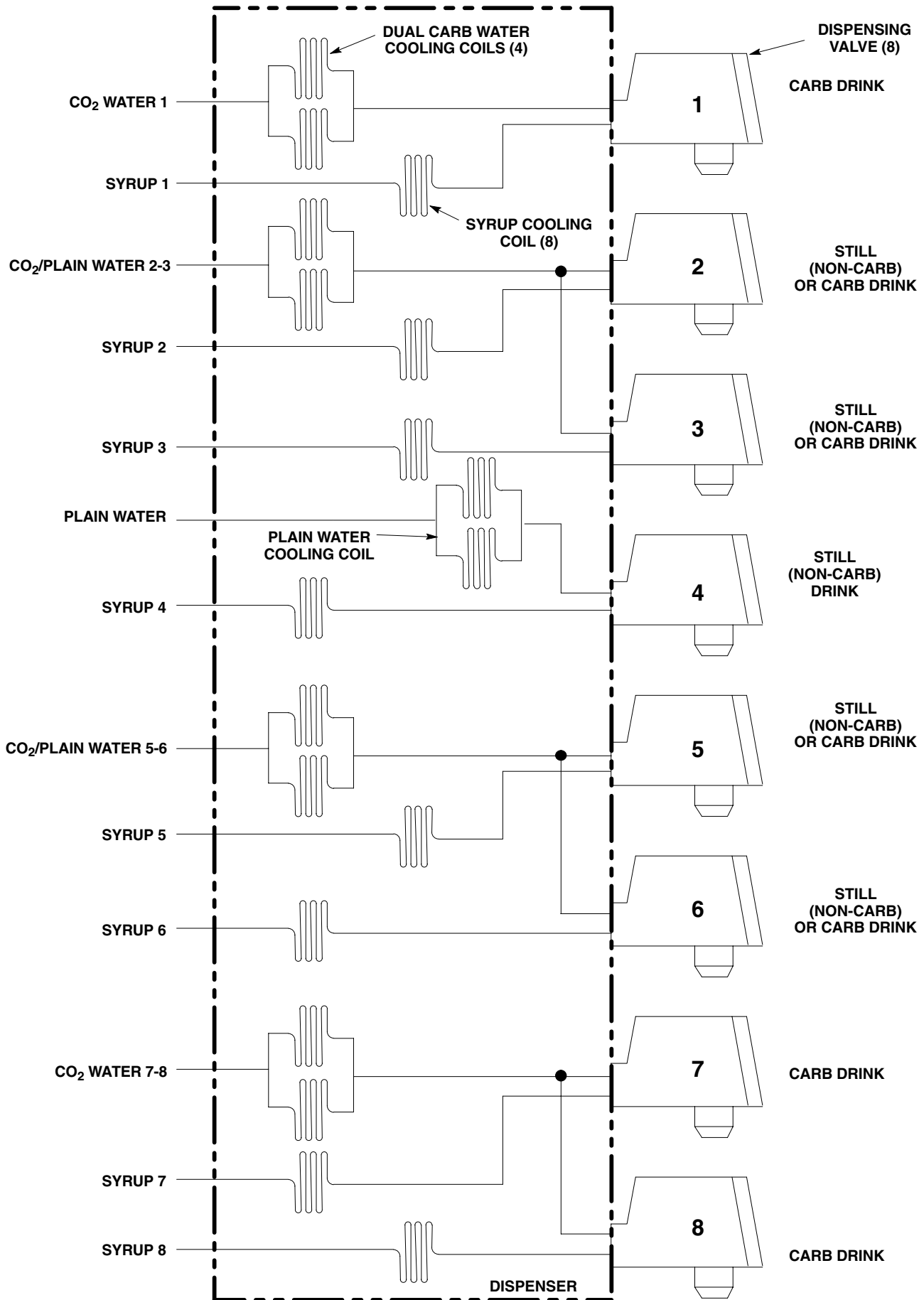


FIGURE 4. FLOW DIAGRAM (EIGHT-FLAVOR) REQUIRES REMOTE CARBONATOR

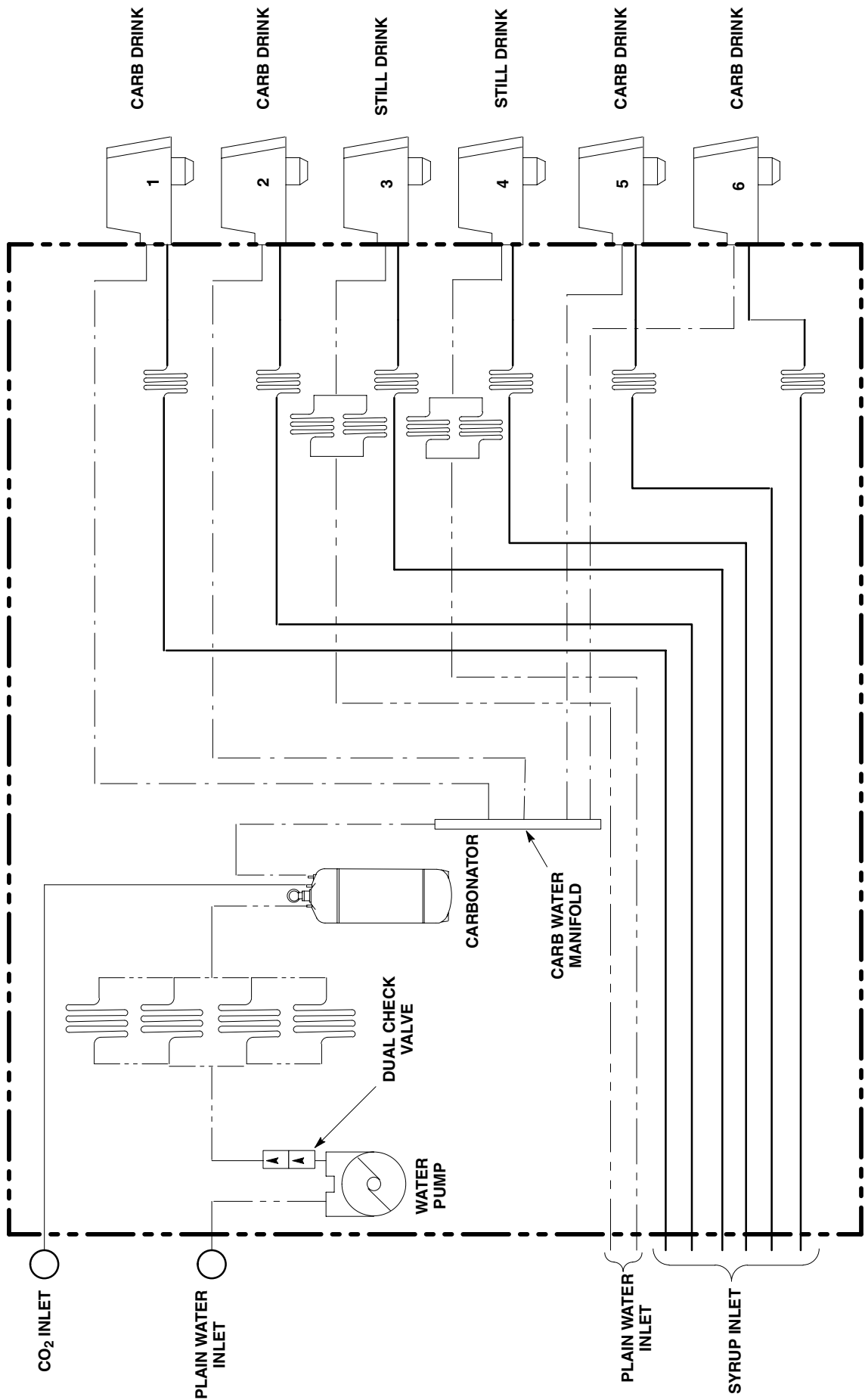
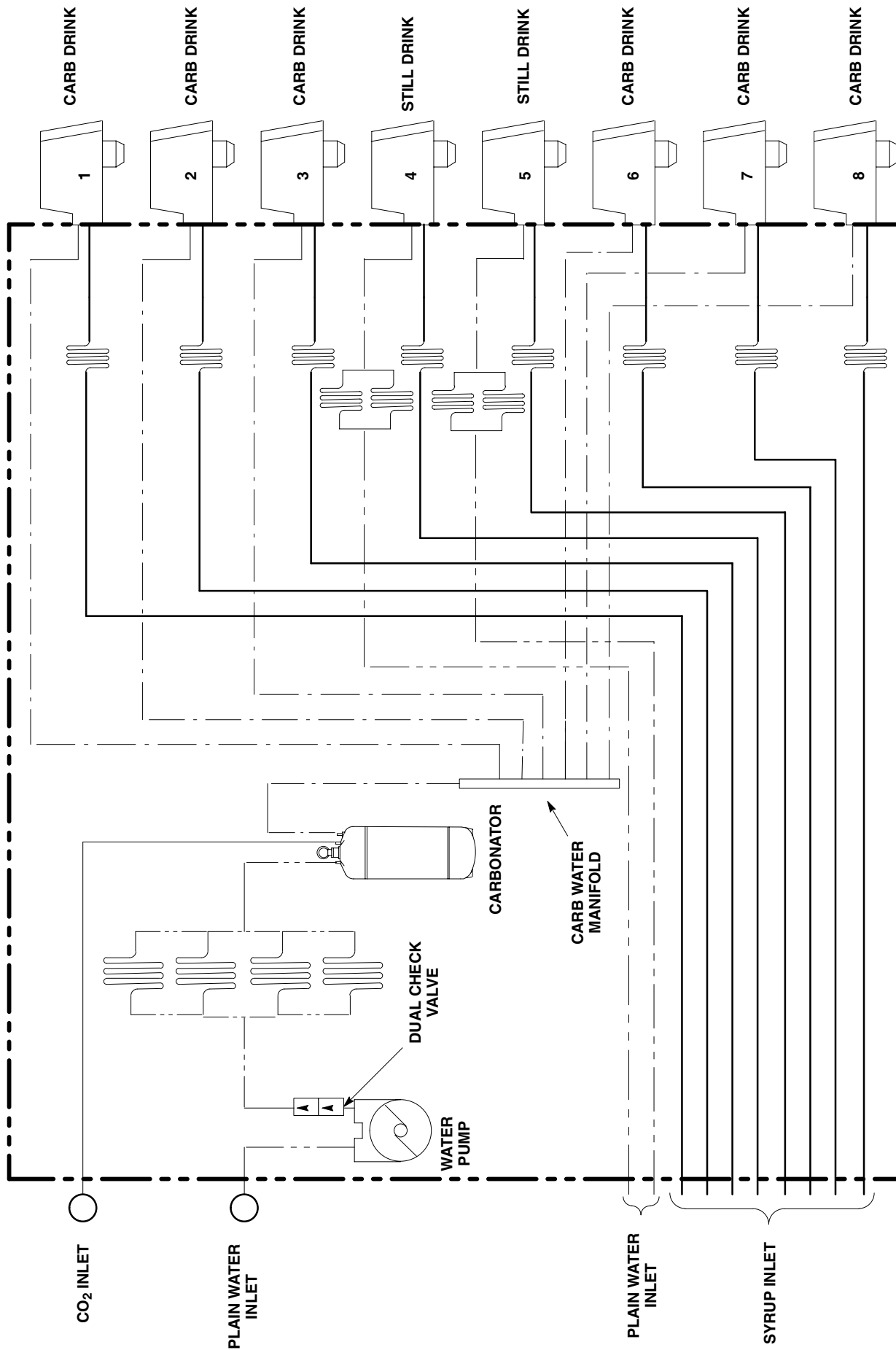


FIGURE 5. FLOW DIAGRAM (SIX-FLAVOR UNIT WITH INTEGRAL CARBONATOR)



**FIGURE 6. FLOW DIAGRAM (EIGHT-FLAVOR UNIT WITH INTEGRAL CARBONATOR)**

# INSTALLATION

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

## UNPACKING AND INSPECTION

(see applicable Figure 9,10, or 11)

**NOTE: The 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 Cornelius Inc.**

1. Unpack Unit and remove shipping tape and other packing material.
2. Remove four shipping nuts that secure the drop-in refrigeration assembly in the lower cabinet.
3. Unpack LOOSE-SHIPPED PARTS. Make sure all items are present and in good condition.

<b>Table 2. Loose-Shipped Parts</b>			
<b>Item No.</b>	<b>Part No.</b>	<b>Name</b>	<b>Qty</b>
1	560000428 560000429	Cup Rest (Eight-Flavor Unit) Cup Rest (Six-Flavor Unit)	1 1
2	4772	Drip Tray	1
3	560000417	Drip Tray Holder	1
4	4778	Drip Tray Holder Bracket	2
5	331309000	Screw, Sheet Metal Phillips Hd; No. 8 by 1/2-in. Long	4
6	4123	Rear Access Cover	1
7	560000439	Cup Lid Holder (optional)	1
8	560000426	Splash Guard (Right Side)	1
9	560000427	Splash Guard (Left Side)	1
10	317784000	Screw, Thread Cutting Phillips Hd; No. 8-18 by 1/2-in. Long	2
11	151707000	Screw, Thread Rolling Slotted Hd; No. 8-32 by 1/2-in Long	1
12	310445000	Drip Tray Drain Hose	1
13	140135000	Clamp, Drip Tray Drain Hose	1
14	560000440	Straw Holder (optional)	1
15	560000477	Plain Water Cooling Coil (optional)	1
16	560000291	Air Filter (optional)	1

## IDENTIFICATION OF LOOSE-SHIPPED PARTS

(see applicable Figure 9, 10, or 11)

1. DRIP TRAY HOLDER BRACKETS (item 4) to be installed on the Unit and secured with SCREWS (item 5), then DRIP TRAY HOLDER (item 3) to be installed on the drip tray holder brackets and secured with SCREWS (item 10). DRIP TRAY (item 2) is to be installed in the drip tray holder, then the CUP REST (item 1) is to be installed in the drip tray.



2. REAR ACCESS COVER (item 6) is used to cover the rear access hole on back of the Unit 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. SCREW, THREAD ROLLING (item 11) is used to secure hood on the Unit.
4. SPLASH GUARDS (items 8 and 9) are to be installed on the Unit and secured with front access panel retaining screws.
5. DRIP TRAY DRAIN HOSE (item 12) is to be connected to the drip tray and secured with CLAMP, DRIP TRAY DRAIN HOSE (item 13).
6. CUP LID HOLDER (optional) item 7 to be installed on the Unit as shown in applicable Figure 10 or 10.
7. STRAW HOLDER (optional) item 14 to be installed on the Unit as shown in applicable Figure 10 or 10.
8. PLAIN WATER COOLING COIL (optional) item 15 to be installed on the Unit. The plain water cooling coil provides pre-cooled plain water to be connected to a remote Orange Juice Dispenser.

## SELECTING LOCATION



**DANGER:** To avoid possible fatal electrical shock or serious injury to the operator, it is ***required*** that a GFCI (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 may be center-island installed. Locate the Unit so the following requirements are satisfied.

1. Near a properly grounded electrical outlet with proper electrical requirements. The electrical circuit should be fused at 20-amps (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 12-inches (305 MM) *must* be maintained on the back side of the Unit and a minimum of 6-inches (152.4 MM) 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



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

## PLACING UNIT IN OPERATING POSITION

The water tank drain hose, DRIP TRAY DRAIN HOSE (item 12) , 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, 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 four screws securing the panel, then remove the panel.
2. Install the DRIP TRAY HOLDER BRACKETS (item 4) on front of the Unit (see applicable Figure 9, 10, or 11) and secure with SCREWS (item 5) installed in the brackets.
3. Install the DRIP TRAY HOLDER (item 3) on the drip tray brackets. Secure drip tray holder to the drip tray holder brackets with two SCREWS (item 10) as shown in applicable Figure 9, 10, or 11.
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 (item 12) , 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* - Referring to Figure 7, 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 (item 12), 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 drain hose, DRIP TRAY DRAIN HOSE (item 12) and the water tank overflow hose down through hole in the countertop. Install REAR ACCESS COVER (item 6) over Unit back access hole.

## INSTALLING OPTIONAL PLAIN WATER COOLING COIL (ITEM 15)

The purpose of the optional PLAIN WATER COOLING COIL (item 15) is to provide pre-cooled plain water to be connected to a remote Orange Juice Dispenser. If applicable to install the plain water cooling coil (see applicable Figure 9 or 10), it will be necessary to remove the drop-in refrigeration assembly from the Unit lower housing to install the plain water cooling coil in between two cooling coils already existing in the housing.

## 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 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 (item 12) to nipple on the drip tray. Secure connection with CLAMP (item 13).
2. Route lower end of drip tray drain hose to and attach to the drain allowing a 3-inch air gap between the drain and end of the drain hose.

## CONNECTING SYRUP SOURCE LINES TO THE UNIT

(see applicable Figure 2, 3, 4, 5, or 6 and applicable Figure 9, 10, or 11)

**NOTE: The Unit stainless-steel syrup inlet tubes located on the front of the Unit are labeled to identify the dispensing valves they serve. For example, the syrup inlet stainless-steel tube labeled “S1” provides syrup to be dispensed from the No. 1 dispensing valve (No. 1 dispensing valve is the valve on the left side facing front side of the Unit).**

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

## CONNECTING CARBONATED WATER SOURCE LINE TO THE UNIT (UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR)

(see applicable Figure 2, 3, or 4, and applicable Figure 9 or 10)

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

## **CONNECTING PLAIN WATER SOURCE LINES 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.**

**NOTE: No. 1 dispensing valve is the valve on the left side facing front side of the Unit.**

### **UNIT REQUIRING CONNECTION TO REMOTE CARBONATOR**

(see applicable Figure 2, 3, or 4)

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**

(see applicable Figure 5 or 6)

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 barbed stainless-steel plain water inlet tubes for No. 3 and 4 (six-flavor Unit) dispensing valves or No. 4 and 5 (eight-flavor Unit) dispensing valves.

### **CONNECTING PLAIN WATER SOURCE LINE TO DESIRED DISPENSING VALVES**

(see applicable Figure 2, 3, 4, 5, or 6 and applicable Figure 9, 10, or 11)

1. Route plain water source line from plain water source up to the Unit.
2. Connect the plain water source line to the desired labeled stainless-steel water inlet tube(s) on front of the Unit.

## CONNECTING PLAIN WATER SOURCE LINE TO CHILLED PLAIN WATER DISPENSING SYSTEM (UNIT P/N 497306660WS)

(see Figures 2, and 9).

1. Route plain water source line from plain water source up to the Unit.
2. Route plain water line up under Dispenser, up behind Dispenser front access panel, and on to the plain water solenoid valve on top of the refrigeration deck.
3. Connect plain water line to inlet of the plain water solenoid valve.

## CONNECTING CO<sub>2</sub> SOURCE LINE (UNIT WITH INTEGRAL CARBONATOR)

(see Figures 5 or 6 and 11)

Proceed as follows to connect CO<sub>2</sub> source line to Unit with integral (built-in) carbonator.

1. Route CO<sub>2</sub> source line, connected to an adjustable CO<sub>2</sub> regulator, up to the Unit.
2. Connect CO<sub>2</sub> source line to CO<sub>2</sub> check valve on end of the Unit CO<sub>2</sub> inlet tube labeled "CO<sub>2</sub>".

## SEALING UNIT BASE TO COUNTERTOP

**NOTE: An alternate arrangement to avoid sealing the Unit to the countertop as described below, would be to install the optional Leg Kit (P/N 560000126) to raise the Dispenser up off the countertop.**

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 sealed with permagum or an equivalent sealant material. Proceed as follows to seal the Unit base to the countertop.

1. Tilt the Unit up to expose the bottom of it's base.
2. Liberally apply silastic sealant (such as Dow Corning RTV 731 or equivalent) on Unit base bottom edges.

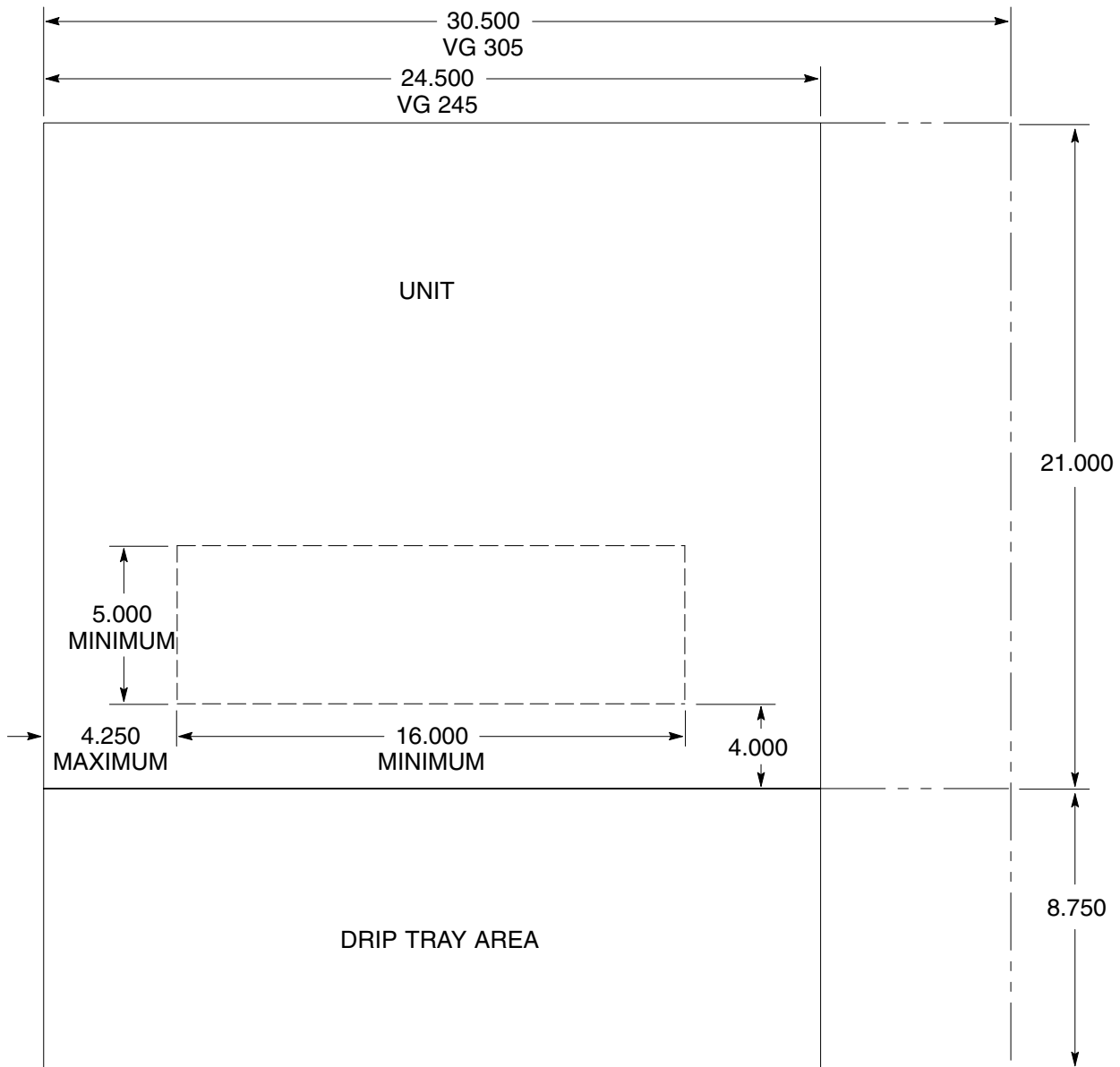
**NOTE: Do not move the Unit after positioning or the seal from the base to the countertop will be broken.**

3. Lower the Unit into operating position on the countertop to complete seal from the Unit base to the countertop.
4. Apply additional sealant around bottom of the Unit base. The seal must have a minimum radius of 1/2-inch (12.7 MM) to prevent crevices and to ensure a complete seal.
5. Seal all access holes to the Unit base with permagum or an equivalent sealant material.

## CO<sub>2</sub> REGULATORS ADJUSTMENTS



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



**VANGUARD 245 COUNTER CUTOUT**

**FIGURE 7. COUNTERTOP HOLE CUTOUT**

## ADJUSTING CARBONATOR CO<sub>2</sub> REGULATOR

### Unit Requiring Connection To a Remote Carbonator.

Adjust CO<sub>2</sub> regulator (regulator controls carbonator CO<sub>2</sub> pressure) as instructed in manual provided with the remote carbonator.

### Unit With Integral (Built-in Carbonator.

Adjust CO<sub>2</sub> regulator (regulator controls Unit built-in carbonator CO<sub>2</sub> pressure) to a nominal 80-psi (5.5 BARS). CO<sub>2</sub> inlet pressure to the carbonator must not exceed 125-psi (8.6 BARS).

## ADJUSTING SYRUP SUPPLIES SECONDARY CO<sub>2</sub> REGULATORS

### Sugar Syrup Supplies Secondary CO<sub>2</sub> Regulators.

Adjust syrup tanks secondary CO<sub>2</sub> regulator to a minimum of 45-psi (3.1 BARS).

### Low-Calorie (Diet) Syrup Tank Secondary CO<sub>2</sub> regulator.

Adjust low-calorie (diet) syrup tank secondary CO<sub>2</sub> regulator to 10-psi (0.69 BAR) for syrup lines 30-feet (9.1 M) in length. Syrup lines longer than 30-feet in length may require a slightly higher setting of 12-psi (0.82 BAR) maximum. Excessive CO<sub>2</sub> pressure may cause low-calorie syrup carbonation resulting in foam.

### Syrup Pumps (Bag-In-Box System) CO<sub>2</sub> or Compressed Air Regulator.

Adjust the syrup pumps CO<sub>2</sub> or compressed air regulator to 70-PSI (4.82 BARS). **DO NOT EXCEED MAXIMUM PRESSURE SPECIFIED ON THE SYRUP PUMPS.**

## FILL WATER TANK AND START THE REFRIGERATION SYSTEM

(see applicable Figure 9, 10 or 11)

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 CO<sub>2</sub> supplies to the Unit. Make sure CO<sub>2</sub> inlet pressure to the carbonator is adjusted to a nominal 80-psi (5.5 BARS) CO<sub>2</sub> inlet pressure to the carbonator must not exceed 125-psi (8.6 BARS).



**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 (item 11).

## PREPARATION FOR OPERATION

### Unit (P/N 497306660WS).

Activate the chilled plain water dispensing system (see Figures 2 and 9) as follows:

1. Activate plain water supply to the Unit.
2. Place cup or glass under plain water spout located between No. 5 and No. 6 dispensing valves.
3. Press water dispense switch on side of the drip tray support and dispense until all air is purged from the chilled plain water system, then release dispense switch.

Activate dispensing valves carbonated water and plain water systems (all Units) as follows:

1. 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<sub>2</sub> 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.

**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.**

8. Install hood on the Unit and secure with SCREW (item 11).

**NOTE: The dispensing valves adjustable water flow regulators are factory adjusted and should require no further adjustment. If readjustment should become necessary, refer to SERVICE AND MAINTENANCE section for the proper adjustment procedure.**

9. 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. Refer to SERVICE AND MAINTENANCE section for the adjustment procedure.

10. Re-check entire installation for CO<sub>2</sub>, plain water, carbonated water, and syrup leaks and repair any leaks.

## INSTALLING FRONT ACCESS PANEL, SPLASH GUARDS, DRIP TRAY, AND CUP REST

(see applicable Figure 9, 10 or 11)

1. Place front access panel in position on the Unit.
2. Place right-side SPLASH GUARD (item 8) in position on the Unit . Secure splash guard and front access panel to the Unit with two screws that were removed when removing the front access panel. *LEAVE SCREWS LOOSE FOR THE TIME BEING.*
3. Place left-side SPLASH GUARD (item 9) in position on the Unit . Secure splash guard and front access panel to the Unit with other two screws that were removed when removing the front access panel. *LEAVE SCREWS LOOSE FOR THE TIME BEING.*
4. Install DRIP TRAY (item 2) in drip tray holder as follows:.

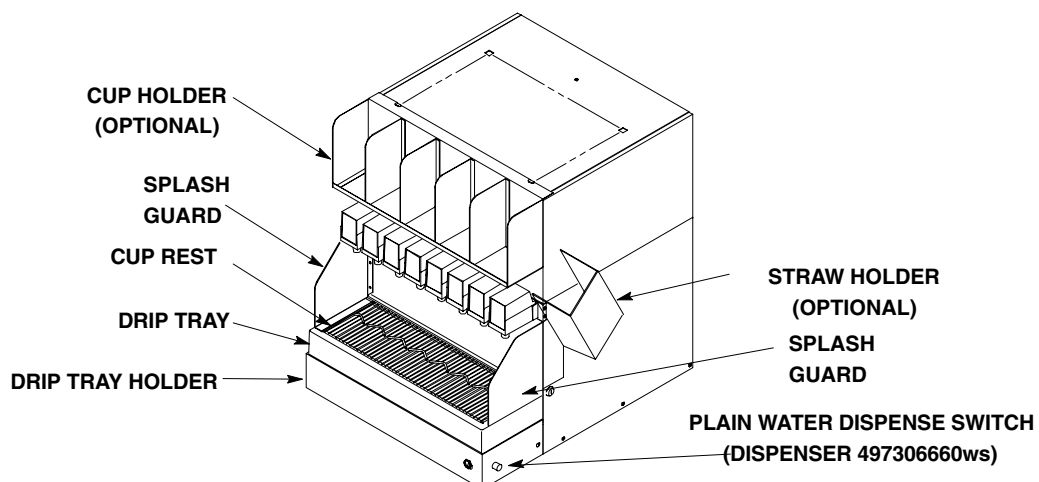
**IMPORTANT: Before installing Dispenser (Unit P/N 497306660WS) front access panel, make sure the two-wire electrical wiring harness (see Figure 9) with spade clip terminals on it's end (intended for connection to the push-button plain water dispense switch on the drip tray support) is hanging down out bottom of the Dispenser. This wiring harness *must* be connected to the plain water dispense switch before installing the drip tray in the drip tray support.**

5. Hold DRIP TRAY (item 2) up in position above the drip tray holder.
6. Connect drip tray drain hose to the drip tray and secure with DRAIN HOSE CLAMP (item 13).
7. Place the drip tray so that the two splash guard steps rest on the drip tray edge, then tip back of the drip tray down and place it's back edge up under bottom of the loosely installed front access panel.
8. When the drip tray is in this position, work the front corners of the drip tray down until the drip tray sits in it's proper position on the the drip tray holder.
9. Tighten all four screws securing the front access panel.
10. Using a silastic sealant (such as Dow Corning RTV 731 or equivalent), seal cracks on outsides of the splash guards where they enter the drip tray holder.
11. Using a silastic sealant (such as Dow Corning RTV 731 or equivalent), Seal cracks on insides of the splash guards where the drip tray and the splash guards surfaces meet. Also seal front edge of the drip tray where it sets on the drip tray holder.

**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 3-inch air gap between the drain and the end of the hose. All connections *must* comply with local plumbing codes and health codes.**

12. Preferably, route the lower end of the drip tray drain hose and connect it to a permanent drain.
13. Place CUP REST (item 1) in the drip tray.



**FIGURE 8. DRIP TRAY INSTALLATION**



## **INSTALLING OPTIONAL CUP LID HOLDER (ITEM 7)**

(see Figure 8 and applicable Figure 10 or 10)

The optional CUP LID HOLDER (item 7) is to be hung on front of the Unit hood as follows:

1. Hold Cup Lid Holder up in position on front of the Unit hood.
2. Pull bottom of the Cup Lid Holder out slightly from the hood and at the same time, insert two pegs on top of the Cup Lid Holder into slots in the plastic grille on top of the hood.
3. Lower bottom of the Cup Lid Holder and allow it to rest on the hood. The Cup Lid Holder is now in place on the Unit.

## **INSTALLING OPTIONAL STRAW HOLDER (ITEM 14)**

(see Figure 8 and applicable Figure 9, 10 ,or 11)

The optional STRAW HOLDER (item 14) is to be installed on the Unit as follows:

1. Loosen two screws securing right side of the front access panel to the Unit.
2. Pull the front access panel out from the Unit just far enough to allow inserting the slotted portion of the Straw Holder in between the front access panel and the Unit. The Straw Holder must be positioned on the Unit as shown in Figure 8.
3. After properly positioning the Straw Holder on the Unit, tighten the two screws securing the front access panel which secures the Straw Holder to the Unit.

# OPERATOR'S INSTRUCTIONS

This section covers operating controls, daily pre-operation check, Unit operation, and service and maintenance procedures.



**WARNING: Disconnect electrical power to the Unit to prevent personal injury before attempting any internal maintenance. Only qualified personnel should service the internal components or electrical wiring.**



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

#### Dispensing Chilled Plain Water Only (Unit P/N 497306660WS).

Chilled plain water may be dispensed from the plain water dispensing spout located between No. 5 and No. 6 dispensing valves (see Figure 9).

1. Place cup or glass under the plain water spout.
2. Press plain water dispense switch on side of the drip tray support (see Figure 9) until cup or glass is full of chilled water, then release dispense switch.

### UNIT POWER SWITCH (50 Hz UNITS EXCLUDED)

The Unit power switch, located on lower back side of the Unit *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 (see applicable Figure 9, 10 or 11), 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<sub>2</sub> supply should be checked daily to make sure there is an adequate supply of CO<sub>2</sub>. If necessary, replenish the CO<sub>2</sub> 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 (60-Hz Units) on lower back side of the Unit 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.

**For proper cooling of the condenser coil, the hood back grille must be positioned over the condenser coil on back side of the Unit.**

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.

## 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<sub>2</sub> GAS CHECK VALVES

The CO<sub>2</sub> gas check valves must be inspected and serviced as instructed at least once a year under normal conditions and after any CO<sub>2</sub> system servicing or disruption. Servicing of the CO<sub>2</sub> gas check valves should be performed by qualified Service Personnel. Refer to SERVICE AND MAINTENANCE section of this manual for CO<sub>2</sub> gas check valve inspecting and servicing procedure.

THIS PAGE LEFT BLANK INTENTIONALLY

# SERVICE AND MAINTENANCE

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

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



**WARNING:** Disconnect electrical power from the Unit to prevent personal injury before attempting any internal maintenance. Only qualified personnel should service the internal components or electrical wiring.

## 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

(see applicable Figure 9, 10 opr 11)

### HOOD REMOVAL



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

Remove screw securing the hood, then lift the hood straight up off 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

1. Remove four screws securing the left and right-side splash guards and the front access panel to the Unit, then remove splash guards and access panel. Re-install the left and right-side splash guards and the front access panel by reversing the removal procedures.

## PERIODIC INSPECTION

1. Clean the drop-in refrigeration assembly condenser coil every 30-days 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.

# ADJUSTMENTS

## CO<sub>2</sub> REGULATORS ADJUSTMENTS



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

### Adjusting Carbonator Primary CO<sub>2</sub> Regulator.

UNIT REQUIRING CONNECTION TO A REMOTE CARBONATOR.

Adjust CO<sub>2</sub> regulator (regulator controls carbonator CO<sub>2</sub> pressure) as instructed in manual provided with the remote carbonator.

UNIT WITH INTEGRAL (BUILT-IN) CARBONATOR.

Adjust CO<sub>2</sub> regulator (regulator controls Unit built-in carbonator CO<sub>2</sub> pressure) to a nominal 80-psi. (5.5 BARS) CO<sub>2</sub> inlet pressure to the carbonator must not exceed 125-psi. (8.6 BARS)

### Adjusting Syrup Supplies CO<sub>2</sub> Regulator.

SUGAR SYRUP TANKS SECONDARY CO<sub>2</sub> REGULATOR

Adjust syrup tanks secondary CO<sub>2</sub> regulator to a minimum of 45-psi (3.1 BARS).

LOW-CALORIE (DIET) SYRUP TANK SECONDARY CO<sub>2</sub> REGULATOR

Adjust low-calorie (diet) syrup tank secondary CO<sub>2</sub> regulator to 12-psi (0.82 BAR) maximum.

SYRUP PUMPS (BAG-IN-BOX SYSTEM)

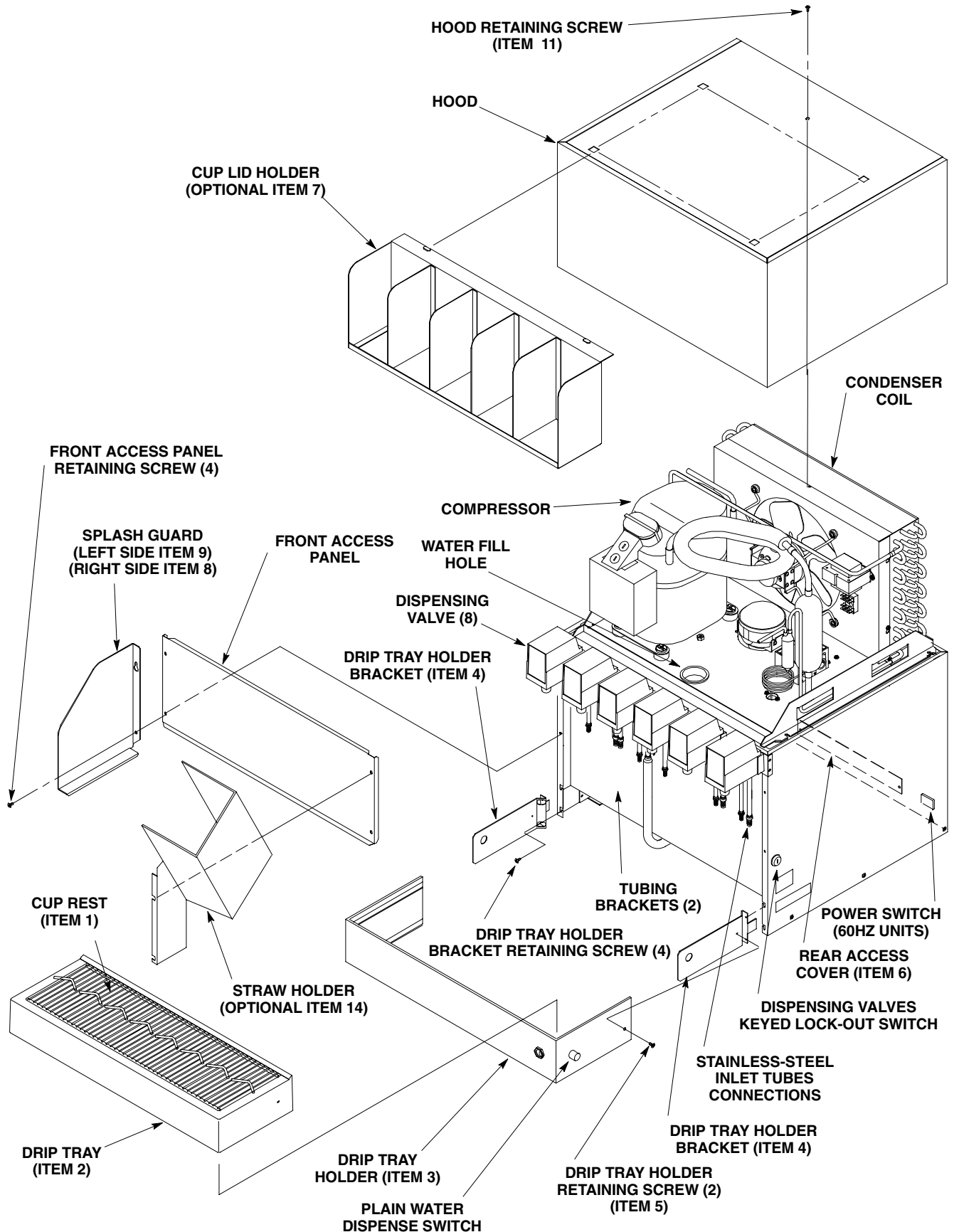
Adjust the syrup pumps CO<sub>2</sub> regulator to 70-psi (4.82 BARS). **DO NOT EXCEED MAXIMUM CO<sub>2</sub> PRESSURE SPECIFIED ON THE SYRUP PUMPS.**

## ADJUSTING DISPENSING VALVES FOR WATER FLOW RATE

### Dole Dispensing Valve.

The dispensing valves adjustable water flow regulators are factory adjusted and should require no further adjustment. If readjustment should become necessary, proceed as follows:.

1. Disconnect syrup supply from the dispensing valve the water flow rate check will be performed on.
2. Remove front cover from the dispensing valve by pulling out on the bottom of the cover.
3. Remove top cover from the dispensing valve by loosening screw on front of the valve, then remove the cover.
4. Turn syrup shutoff valve (right-side shutoff valve) to the "CLOSED" (extreme COUNTERCLOCKWISE) position.



**FIGURE 9. VANGUARD 245 POST-MIX DISPENSER (P/N 497306660WS) REQUIRES CONNECTION TO REMOTE CARBONATOR**





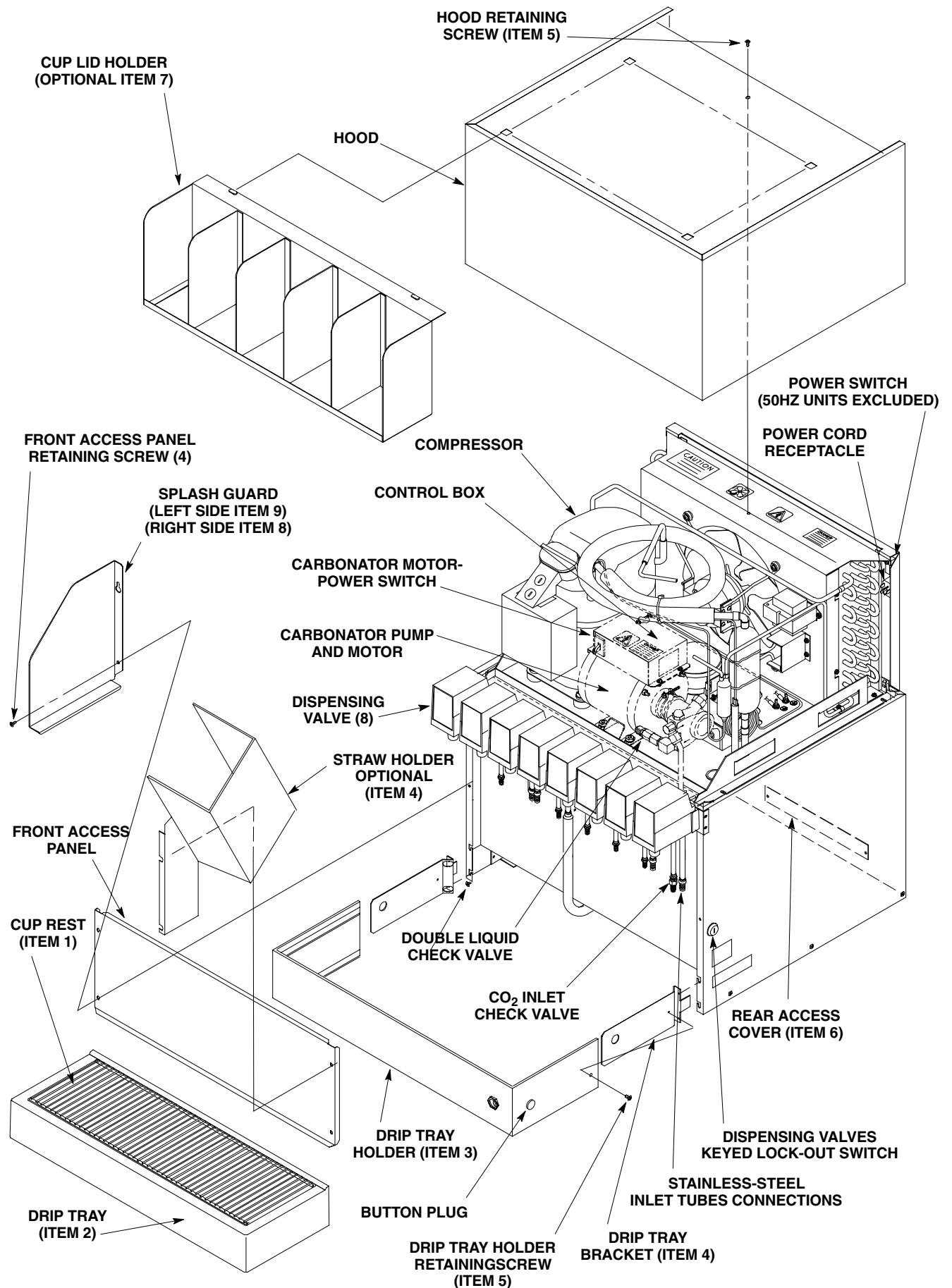
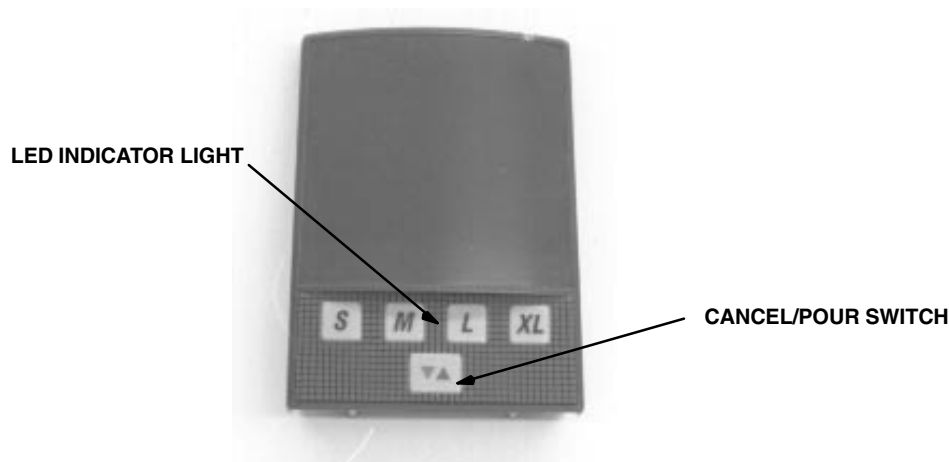


FIGURE 11. VANGUARD 245 DISPENSER (WITH INTEGRAL CARBONATOR)

**NOTE: Do not confuse syrup and water shutoff valves with dispensing valve flow control adjusting screws.**

**NOTE: The dispensing valve water shutoff valve must be in the fully “OPEN” position.**



**FIGURE 12. PORTION CONTROL COVER**

5. Position volume cup under the dispensing valve nozzle.
6. Dispense from the regular dispensing valve for four-seconds or press “CANCEL/POUR” switch (portion control dispensing valve) as shown in Figure 12 and hold for four-seconds.

**NOTE: 10-fluid ounces (296 ml) of water should have been dispensed into the volume cup for sugar-based drinks and 7.6-fluid ounces (225-ml) for sugar-free based drinks.**

7. If the water volume is correct, proceed with step 8. If the water flow rate is not correct, proceed with step 9.
8. Turn dispensing valve water flow control adjusting screw to the right (CLOCKWISE) to increase water flow rate or to the left (“COUNTERCLOCKWISE”) to decrease the water flow rate.

**NOTE: One (1) turn of the water flow control adjusting screw will change the water flow rate approximately 2-fluid ounces (59-ml) per 4-second draw.**

9. Repeat steps 2 through 7 for each dispensing valve until all valves are checked and/or calibrated (as required). The water flow rate check is complete.
10. Turn syrup shutoff valve (right-side shutoff valve) to the “OPEN” (extreme CLOCKWISE) position.
11. Install top cover on the dispensing valve and secure with screw.
12. Install front cover on the dispensing valve.
13. Re-connect syrup supply to the dispensing valve

#### CC-1 Dispensing Valve.

1. Disconnect syrup supply from the dispensing valve the water flow rate check will be performed on.
2. Remove applicable dispensing valve portion control cover by sliding the cover up and off the top cover.
3. Remove dispensing valve top cover by loosening screw securing the cover, then lift cover up and off the valve.
4. Position volume cup under the dispensing valve nozzle.

5. Press “CANCEL/POUR” switch (see Figure 12) and hold for four-seconds.

**NOTE: 10-fluid ounces (296 ml) of water should have been dispensed into the volume cup for sugar-based drinks and 7.6-fluid ounces (225-ml) for sugar-free based drinks.**

6. If the water volume is correct, proceed with step 10. If the water flow rate is not correct, proceed with step 7.
7. Remove plastic cover from the water flow regulator labeled “WATER”.
8. Turn the dispensing valve water flow control adjusting screw CLOCKWISE to increase or COUNTERCLOCKWISE to decrease the water flow rate.

**NOTE: One (1) turn of the water flow control adjusting screw will change the water flow rate approximately 2-fl. ounces (59-ml) per 4-second draw.**

9. Install plastic cover on the dispensing valve water flow control.
10. Install dispensing valve top cover and secure with screw.
11. Install dispensing valve portion control cover by sliding the portion control cover down into place on the top cover.
12. Re-connect syrup supply to the dispensing valve

## CHECKING WATER VOLUME (PORTION-CONTROL DISPENSING VALVES)

### Dole Dispensing Valve.

1. Remove front cover from the dispensing valve by pulling out on the bottom of the cover.
2. Remove top cover from the dispensing valve by loosening screw on front of the valve, then remove the cover.
3. Turn syrup shutoff valve (right-side shutoff valve) to the “CLOSED” (extreme COUNTERCLOCKWISE) position.

**NOTE: The dispensing valve water shutoff valve *must* be in the fully “OPEN” position. The shutoff valves *are not* to be used for calibrating. They *are* to be used for shutting off the syrup and/or water supply.**

4. At the same time, press and hold the “S” (small) and the “XL” (extra large) dispense switches (see Figure 12) on the dispensing valve front cover until the LED indicator light on the cover starts blinking. A blinking LED indicates the portion control “set mode“ has been activated.
5. Place volume cup under the dispensing valve nozzle.
6. Press dispense switch labeled “S” (small) and dispense until water volume noted in the following **CHART 1** (for sugar-base or sugar-free diet drink) is dispensed, then release the switch.

**CHART 1**

DISPENSE SWITCH	CUP SIZE	WATER ONLY LEVEL 4.75:1 (SUGAR-BASE SYRUP DRINK)	WATER ONLY LEVEL 5.25:1 (SUGAR-FREE SYRUP DRINK)
“S” (small)	12-fl oz. (355 ml)	6.96-fl. oz. (206 ml)	7.07-fl. oz. (209 ml)
“M” (medium)	16-fl. oz. (472 ml)	9.60 fl. oz. (284 ml)	9.76-fl. oz. (289 ml)
“L” (large)	21 fl. oz. (621 ml)	13.79 fl. oz. (408 ml)	14.02-fl. oz. (414 ml)
“XL” (extra large)	32 fl. oz. (446 ml)	20.42 fl. oz. (604 ml)	20.76-fl. oz. (614 ml)

7. Repeat steps 5 and 6, with exception of using the “M” (medium), “L” (large), or “XL” (extra large) dispensing switches, to adjust the remaining water volumes noted in **CHART 1**.
8. After completion of checking and adjusting all dispensed water volumes, press and release the “CANCEL/POUR” switch to cancel the portion control “set mode” and return to the portion control mode.
9. Turn the syrup shutoff valve (right-side shutoff valve) to the fully open position.
10. Install dispensing valve top cover and secure with screw.
11. Install dispensing valve front cover.
12. Repeat steps 1 through 11 to adjust the other dispensing valves dispensed water volumes.

#### CC-1 Dispensing Valve.

1. Disconnect syrup supply from the dispensing valve the water volume check check will be performed on.
2. At the same time, press and hold the “S” (small) and “XL” (extra-large) dispense switches (see figure 12) on the dispensing valve front cover until the LED indicator light on the cover starts blinking. The blinking LED indicates the portion control “set mode” has been activated.
3. Place volume cup under the dispensing valve nozzle.
4. Press dispense switch labeled “S” (small) and dispense until water volume noted in **CHART 1** (for sugar-base or sugar-free diet drink) is dispensed, then release the dispense switch.
5. Repeat steps 3 and 4 preceding, with exception of using the “M” (medium), “L” (large), or “XL” (extra large) dispense switches, to adjust the remaining water volumes noted in **CHART 1**.
6. After completion of checking and adjusting all dispensed water volumes, press and release the “CANCEL/ POUR” switch to cancel the portion control “set mode” and return to the portion control mode.
7. Re-connect syrup supply to the dispensing valve

### **CHECKING DISPENSING VALVES SYRUP CALIBRATION (BRX)**



**CAUTION: To prevent any water or syrup leaks at the valves, be sure that all valve latches are secure.**

**NOTE: If water flow or water volume are to be checked, check syrup calibration last.**

#### Dole Dispensing Valve.

1. Make sure all of the CO<sub>2</sub> regulators (carbonator, sugar syrup, and low-calorie (diet) are properly adjusted as instructed.
2. Remove front cover from the dispensing valve by pulling out on the bottom of the cover.
3. Remove nozzle from the dispensing valve by turning the nozzle and pulling down.
4. Place the syrup/water separator on the dispensing valve by pushing up and turning the separator to tighten.
5. Dispense from the regular dispensing valve or press “CANCEL/POUR” switch (portion control dispensing valve) as shown in Figure 12 momentarily to fill the separator with syrup.

6. Place brix cup under the syrup/water separator, the large section of the cup under the large round body of the separator and the small section of the cup under the extended arm, which is the syrup tube.
7. Dispense from the regular dispensing valve or press “CANCEL/POUR” switch (portion control dispensing valve) and fill the brix cup to approximately 3/4 of the cup capacity.

**NOTE: For non U.S.A. locations, check local specifications for dispensed product water to syrup ratio specifications. The following are dispensed product water-to-syrup ratio specifications for U.S.A. locations**

<b>Sugar syrup dispensed drinks</b>	<b>4.75 parts water to 1 part syrup</b>
<b>Diet (sugar-free) dispensed drinks</b>	<b>5.25 parts water to 1 part syrup</b>

8. If the ratios are correct, proceed to step 10. If the ratios are not correct, proceed to step 9.
9. Turn dispensing valve syrup flow control labeled “S4” (right-side control) adjusting screw to the left (counterclockwise) for more syrup or to the right (clockwise) for less syrup.
10. Remove the syrup/water separator by turning the separator and pulling down.
11. Re-install the nozzle by pushing up and turning the nozzle until it is locked.
12. Repeat steps 6 through 11 preceding until the water-to-syrup ratios are correct on all of the dispensing valves. Syrup calibration is complete.
13. Install dispensing valve front cover.

CC-1 Dispensing Valve.

1. Remove dispensing valve portion control cover by sliding the cover up and off the top cover.
2. Remove dispensing valve top cover by loosening screw securing the cover, then lift cover up and off the valve.
3. Remove nozzle from the dispensing valve by turning and pulling down on the nozzle.
4. Remove syrup diffuser from the dispensing valve by pulling the diffuser down and out of the valve.
5. Place the syrup/water separator on the dispensing valve by pushing up and turning the separator to tighten.
6. Press the portion control cover “CANCEL/POUR” switch (Figure 12) momentarily to fill the syrup/water separator with syrup.
7. Place the brix cup under the syrup/water separator— large section of the cup under the large round body of the separator and the small section of the cup under the small tube, which is the syrup tube.
8. Press dispensing valve cover “CANCEL/POUR” switch and fill the brix cup to approximately 3/4-cup capacity, then release the switch.

**NOTE: For non U.S.A. locations, check local specifications for dispensed product water to syrup ratio specifications. The following are dispensed product water-to-syrup ratio specifications for U.S.A. locations**

<b>Sugar syrup dispensed drinks</b>	<b>4.75 parts water to 1 part syrup</b>
<b>Diet (sugar-free) dispensed drinks</b>	<b>5.25 parts water to 1 part syrup</b>

9. If the syrup calibrations (brix) ratios are correct, proceed to step 12. If the ratios are not correct, proceed to step 10.

10. Turn the dispensing valve syrup flow control labeled “SYRUP” (right-side control) adjusting screw to the left (counterclockwise) for less syrup or to the right (clockwise) for more syrup.
11. Re-check the dispensing valve syrup calibration and adjust the syrup flow control until the desired water-to-syrup ratio is achieved.
12. Remove the syrup/water separator from the dispensing valve by turning and pulling down on the separator.
13. Re-install the syrup diffuser and nozzle on the dispensing valve.
14. Install the dispensing valve top cover and secure with screw.
15. Install portion control cover on the top cover by sliding the portion control cover down into place on the top cover.

## **PORTION CONTROL ADJUSTMENT (DOLE AND CC-1 DISPENSING VALVES)**

**NOTE: In case of electrical power failure, dispensing valves portion controls have full memory function.**

1. At the same time, press and hold the “S” (small) and the “XL” (extra large) dispense switches (see Figure 12) on the dispensing valve front cover until the LED indicator light on the cover starts blinking. A blinking LED indicates the portion control “set mode” has been activated.
2. Fill a 12-fl. ounce (355 ml) cup with desired amount of ice, then place cup under the dispensing valve nozzle.
3. Press and hold dispense switch labeled “S” (small) on dispensing valve cover until cup is filled to the desired level, then release the switch.
4. Repeat steps 2 and 3, with exception of using the “M” (medium), “L” (large), or “XL” (extra-large) dispense switches to adjust sizes of the dispensed drinks.
5. Repeat steps 1 through 4 preceding to adjust remaining dispensing valves portion controls for sizes of drinks dispensed.

Any one of the dispensing valves dispensed portion sizes may be re-programmed by at the same time, pressing and holding the “S” (small) and the “XL” (extra-large) dispense switches (activate “set mode”), re-program drink size, then press the “CANCEL/POUR” switch to return to the portion control operation.

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 the “CANCEL/POUR switch.

## **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<sub>2</sub> pressure setting on the syrup tanks CO<sub>2</sub> regulator, then re-adjust CO<sub>2</sub> 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 5 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) 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.

### 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 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.

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

23. Syrup Tank Systems.

A. Noting syrup tanks CO<sub>2</sub> regulator pressure setting observed in step 4 preceding, readjust CO<sub>2</sub> 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<sub>2</sub> 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.

## CLEANING DROP-IN REFRIGERATION ASSEMBLY CONDENSER COIL

(see applicable Figure 10 or 11)



**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:**

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

## CHECKING ICE WATER BATH

(see applicable Figure 9, 10, or 11)

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.

1. Disconnect electrical power from the Unit.
2. Remove screw securing the hood, then lift the hood straight up to remove from the Unit.
3. Remove plug from the drop-in refrigeration assembly platform water fill hole.
4. 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.
5. If cleaning of the water tank is necessary, refer to CLEANING WATER TANK in this section.
6. 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.
7. Install plug in the drop-in refrigeration assembly platform water fill hole.
8. Install Unit hood and secure with screw.
9. Connect electrical power to the Unit.

## CLEANING WATER TANK

(see applicable Figure 9, 10 or 11)

1. Disconnect electrical power from the Unit.
2. Remove screw securing the hood, then lift the hood straight up to remove from the Unit.
3. Unplug the drop-in refrigeration assembly and electric dispensing valve power cords.
4. Unit with integral (built-in) carbonator.
  - A. Shut off CO<sub>2</sub> and plain water supplies to the Unit.
  - 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 11) to bleed off all pressure from the water tank.
  - E. Disconnect plain water inlet and outlet lines from the carbonator water pump.
5. 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.
6. Allow the ice bank to melt. Hot water may be used to speed melting.
7. 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.**

8. Use a fiber brush and carefully clean mineral deposit build-up from the agitator motor shaft and the ice bank sensing bulb.
9. Wash inside of the water tank and the drop-in refrigeration assembly evaporator coils, then rinse with clean water.

10. Install plug in end of the water tank drain hose.

11. 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.
  - D. Connect plain water inlet and outlet lines to the carbonator water pump.
  - E. Restore CO<sub>2</sub> and plain water supplies to the Unit.
12. Remove plug from the drop-in refrigeration assembly platform water fill hole.
13. 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.
14. Install plug in the drop-in refrigeration assembly platform water fill hole.
15. Plug drop-in refrigeration assembly and electric dispensing valve power cords into their mating connectors.
16. Install Unit hood and secure with screw.
17. Connect electrical power to the Unit.

## CARBONATOR WATER PUMP YEARLY MAINTENANCE OR AFTER WATER SYSTEM DISRUPTIONS



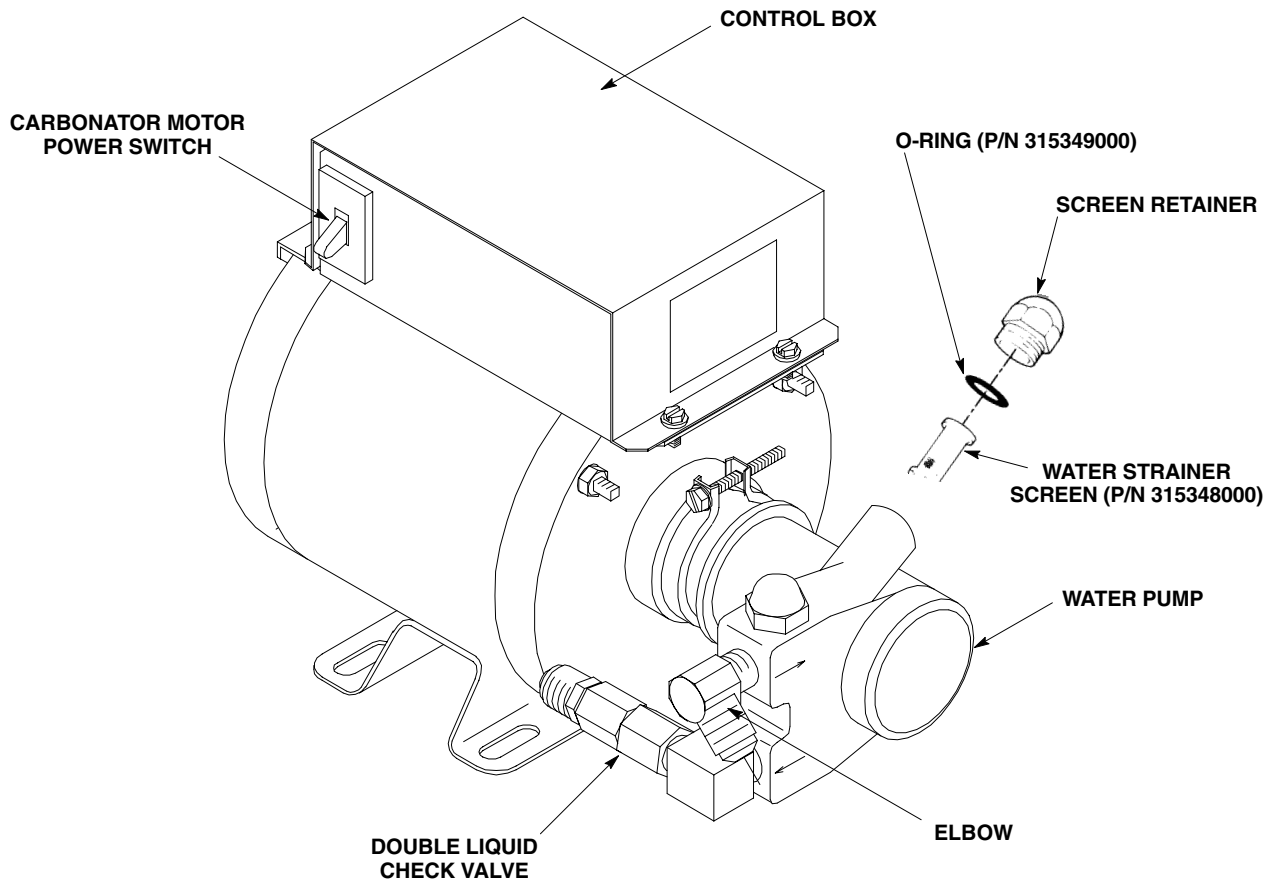
**WARNING:** The carbonator water pump water inlet strainer screen and the double liquid check valve must be inspected and cleaned at least once a year under normal circumstances, and after any disruptions (plumbing work, earthquake, etc.) to the water supply system that might cause turbulent (erratic) 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<sub>2</sub> 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.



**FIGURE 13. WATER STRAINER SCREEN AND DOUBLE LIQUID CHECK VALVE**

Servicing Water Pump water inlet Strainer Screen.

(See Figures 11 and 13)

1. Disconnect electrical power from the Unit.
2. Shut off CO<sub>2</sub> and plain water supplies to the Unit.
3. Remove screw securing the hood, then lift hood up and off the Unit.
4. Pull up on the carbonated water tank relief valve ring protruding up through the drop-in refrigeration deck (see Figure 11) to bleed off all CO<sub>2</sub> pressure from the water tank.
5. Loosen screen retainer, then pull screen retainer and strainer screen from the water pump.
6. Pull screen from screen retainer. Clean any sediment from the screen retainer and the water pump screen.
7. Inspect screen for holes, restrictions, corrosion, and other damage. Discard damaged screen.
8. Check O-Ring on the screen retainer. Replace worn or damaged O-Ring (P/N 315349000).

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

9. Install screen (P/N 315348000) in screen retainer, then screw retainer into the water pump and tighten securely.
10. Proceed to Servicing Double Liquid Check Valve and service the double liquid check valve as instructed.

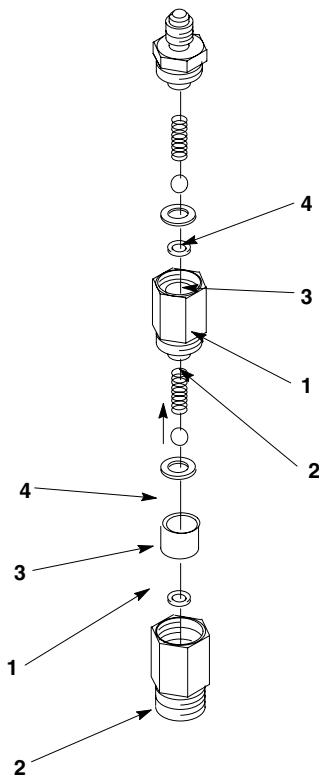
Servicing Double Liquid Check Valve Assembly.

(See Figures 11, 13, and 14)

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 14.
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.
5. Re-assemble check valves as shown in Figure 14. *ALWAYS INSTALL NEW BALL SEAT (O-RING) item 2 AND FLAT WASHER (ITEM 1).*

**NOTE: Make sure when assembling the check valves together, the FLAT WASHER (item 1) 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<sub>2</sub> 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 (see Figure 11) to release trapped air from inside the water tank.
11. Install hood on Unit and secure with screw.



INDEX NO.	PART NO.	NAME
	3253	CHUDNOW DUAL CHECK VALVE ASS'Y
1	*560000480	FLAT WASHER
3	312419	BALL
2	*560000432	BALL SEAT (O- RING)
4	560000481	SPRING

**\* INSTALL NEW BALL SEAT (ITEM 2) AND FLAT WASHER (ITEM 1) AT EACH SERVICING.**

**FIGURE 14. DOUBLE LIQUID CHECK VALVE ASS'Y**

## CLEANING CO<sub>2</sub> SYSTEM CO<sub>2</sub> GAS CHECK VALVES

The CO<sub>2</sub> regulators CO<sub>2</sub> gas check valves and the Unit CO<sub>2</sub> inlet line CO<sub>2</sub> gas check valve (integral carbonator Unit, see Figure 11) must be inspected and serviced at least once a year under normal conditions and after any servicing or disruption of the CO<sub>2</sub> system. *ALWAYS REPLACE BALL SEAT (QUAD RING SEAL) EACH TIME GAS CHECK VALVES ARE SERVICED.*

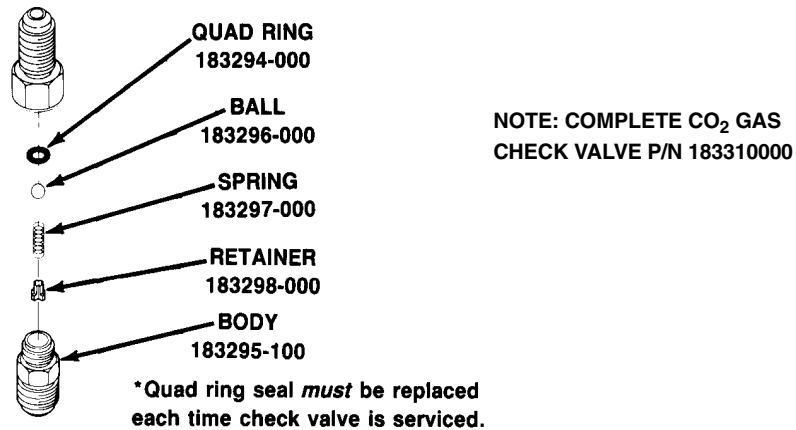


FIGURE 15. CO<sub>2</sub> GAS CHECK VALVE ASSEMBLY

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

### UNITS REQUIRING CONNECTION TO REMOTE CARBONATOR

(see applicable Figure 2, 3, or 4)

The No. 3 dispensing valve (six-flavor Unit) or the No. 4 dispensing valve (eight-flavor Unit), on Units requiring connection to a remote carbonator, may be converted to dispense a carbonated drink by connecting a carbonated water rather than a plain water line to the Unit plain water inlet line connected to either the No. 3 or No. 4 dispensing valves.





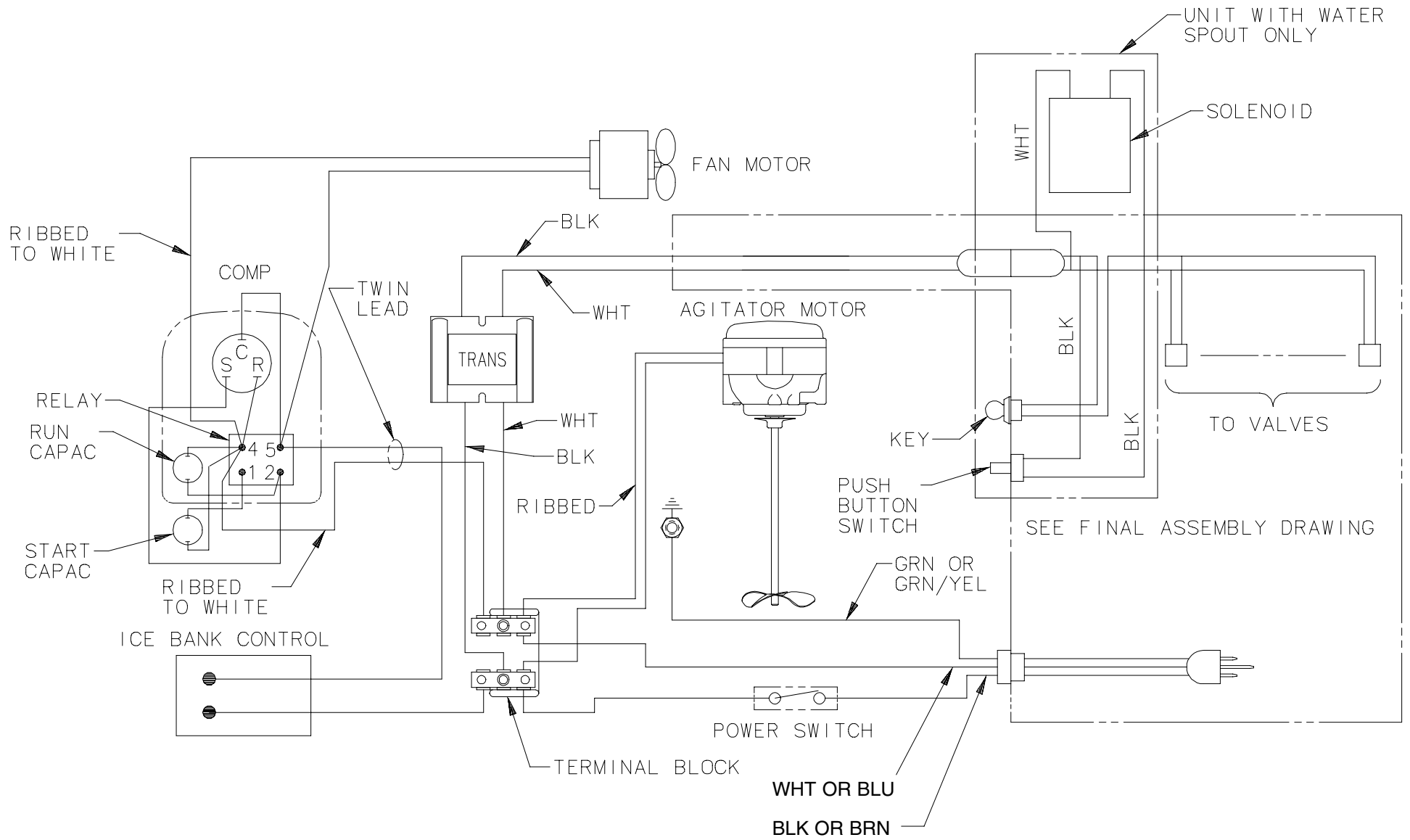


FIGURE 17. WIRING DIAGRAM (DISPENSER P/N 497306660WS)

# TROUBLESHOOTING

**IMPORTANT:** Only a qualified Service Person should service internal components or electrical wiring.



**WARNING:** Disconnect electrical power to the Unit to prevent personal injury before attempting any electrical repairs to the internal components. If repairs are to be made to one of the syrup systems, disconnect syrup supply from the system, then bleed system pressure before proceeding. If repairs will be made to the CO<sub>2</sub> or the carbonated water system, disconnect electrical power to the carbonator, shut off CO<sub>2</sub> and plain water supplies, then bleed systems pressures before proceeding.

## TROUBLESHOOTING UNIT

Trouble	Probable Cause	Remedy
WATER-TO-SYRUP "RATIO" TOO LOW OR TOO HIGH.	A. Dispensing valve syrup flow regulator not properly adjusted.	A. Adjust Water-to-Syrup "Ratio" as instructed.
	B. <b><u>Syrup Tanks System.</u></b> CO <sub>2</sub> gas pressure to syrup tanks insufficient to push syrup out of tank.	B. Adjust CO <sub>2</sub> regulator for syrup tanks as instructed.
	<b><u>Bag-In-Box System.</u></b> CO <sub>2</sub> gas pressure to syrup pumps insufficient to operate pumps.	Adjust syrup pumps CO <sub>2</sub> 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.
	B. <b><u>Syrup Tanks system.</u></b>  Syrup tanks CO <sub>2</sub> regulator out of adjustment.	B. Adjust CO <sub>2</sub> regulator for syrup tanks as instructed.
	<b><u>Syrup Bag-In-Box System.</u></b>  Syrup pumps CO <sub>2</sub> regulator out of adjustment.	Adjust syrup pumps CO <sub>2</sub> regulator as instructed.
	C. Dispensing valve syrup flow control or syrup line restricted.	C. Sanitize syrup system as instructed.
	D. Improper syrup Baume.	D. Replace syrup supply.
	E. Inoperative dispensing valve syrup flow control.	E. Repair dispensing valve syrup flow control.
F. Tapered gasket inside tube swivel nut connection distorted from being overtightened restricting syrup flow.	F. Replace tapered gasket. Make sure it is properly seated.	

Trouble	Probable Cause	Remedy
ADJUSTMENT OF DISPENSING VALVE SYRUP REGULATOR DOES NOT DECREASE TO DESIRED WATER-TO-SYRUP "RATIO".	A. Dirty or inoperative dispensing valve syrup flow control.	A. Disassemble and clean dispensing valve syrup flow control.
DISPENSED PRODUCT CARBONATION TOO LOW.	A. Carbonator CO <sub>2</sub> regulator out of adjustment for existing water conditions or temperature. B. Air in carbonated water tank. C. Water, oil, or dirt, in CO <sub>2</sub> supply.	A. Adjust carbonator CO <sub>2</sub> regulator (Reference manual provided with carbonator). B. Vent air out of carbonated water tank by dispensing from dispensing valve to make carbonator water pump motor cycle on. C. Remove contaminated CO <sub>2</sub> . Clean CO <sub>2</sub> system (lines, regulator, etc.) using a mild detergent. Install a clean CO <sub>2</sub> supply.
DISPENSED PRODUCT COMES OUT OF DISPENSING VALVE CLEAR BUT FOAMS IN CUP OR GLASS.	A. Oil film or soap scum in cup or glass. B. Ice used for finished drink is subcooled.	A. Use clean cups and glasses. B. Do not use ice directly from freezer. Allow ice to become "wet" before using. (Refer to following NOTE.)
<b>NOTE: Crushed ice also causes dispensing problems. When finished drink hits sharp edges of ice, carbonation is released from dispensed drink.</b>		
DISPENSED PRODUCT PRODUCES FOAM AS IT LEAVES DISPENSING VALVE.	A. Recovery rate of refrigeration unit exceeded, ice bank depleted. <b>CAUTION: The refrigeration assembly condenser coil <i>must</i> be cleaned every 30-days. Excessive accumulation of dust, lint, and grease on the condenser coil will restrict cooling air flow through coil and cause refrigeration system to overheat. Operating refrigeration system in an overheated condition will eventually lead to refrigeration compressor failure and will automatically void the factory warranty.</b> B. Condenser coil plugged. C. Carbonator CO <sub>2</sub> regulator pressure too high for existing water conditions or temperature. D. Dispensing valve restricted or dirty. E. Tapered gasket inside carbonated water line swivel nut connector distorted restricting carbonated water flow.	A. Allow ice bank to recover. B. Clean condenser coil as instructed. C. Reduce carbonator CO <sub>2</sub> regulator pressure setting. D. Sanitize syrup system as instructed. E. Replace tapered gasket. Make sure it is properly seated.

Trouble	Probable Cause	Remedy
DISPENSED PRODUCT PRODUCES FOAM AS IT LEAVES DISPENSING VALVE. (cont'd)	F. Dirty water supply.	F. Check water filter. Replace cartridge (see <b>NOTE</b> ).
<b>NOTE: If water supply is dirty, be sure to flush lines and carbonator carbonated water tank completely. It may be necessary to remove lines to the carbonated water tank, invert the tank, then flush tank and all inlet lines to remove any foreign particles or dirt.</b>		
NO PRODUCT DISPENSED FROM ALL DISPENSING VALVES.	A. Unit power switch (60-Hz Unit) in "OFF" position.	A. Place power switch in "ON" position.
	B. Dispensing valves keyed lock-out switch in "OFF" (horizontal) position.	B. Place dispensing valves keyed lock-out switch in "ON" (vertical) position.
	C. No electrical power to Unit.	C. Plug in Unit power cord or check for blown power fuse or tripped circuit breaker. (Note: Fuse or circuit breaker are not part of Unit.)
	D. Disconnected dispensing valves power cord.	D. Connect dispensing valves power cord.
	E. Disconnected or broken wiring to dispensing valve.	E. Connect or replace wiring.
	F. Inoperative transformer.	F. Replace transformer.
ONLY CARBONATED WATER DISPENSED.	A. Out of syrup	A. Replenish syrup supply as instructed.
	B. Inoperable dispensing valve.	B. Repair dispensing valve.
	C. Dispensing valve syrup flow control not properly adjusted.	C. Adjust dispensing valve syrup flow control (Water-to-Syrup "Ratio") as instructed.
	D. Dispensing valve syrup flow control or syrup lines restricted.	D. Sanitize syrup system as instructed.

Trouble	Probable Cause	Remedy
ONLY SYRUP DISPENSED.	A. <u>Remote Carbonator Unit</u> Plain water inlet supply line shutoff valve closed.	A. Open plain water inlet supply line shutoff valve.
	Carbonator not operating.	Refer to manual provided with carbonator.
	B. <u>Integral (built-in) Carbonator Unit</u> Unit plain water inlet supply line shut off valve closed.	Open plain water inlet supply line shutoff valve.
	Carbonator CO <sub>2</sub> regulator not properly adjusted.	Adjust carbonator CO <sub>2</sub> regulator as instructed.
	Inoperative carbonator liquid level control module or water tank liquid level probe.	Replace inoperative component.
	Inoperative water pump or water pump motor.	Replace inoperative pump or motor.

---

#### **TROUBLESHOOTING REFRIGERATION SYSTEM**

---

COMPRESSOR DOES NOT OPERATE.	A. Ice bank sufficient.	A. Refrigeration not called for.
	B. Unit power cord unplugged, Unit power switch (60-Hz Unit) in "OFF" position, or drop-in refrigeration assembly power cord unplugged.	B. Plug in power cord or place Unit power switch in "ON" position.
	C. No power source (blown fuse or tripped circuit breaker).	C. Replace fuse or reset circuit breaker. (Note: Fuse or circuit breaker are not part of Unit.)
	D. Inoperative Unit power switch (60-Hz Unit) or Unit power cord unplugged.	D. Replace power switch or plug Unit power cord into electrical outlet.
	E. Low voltage.	E. Voltage must be at least 103 volts (115 VAC Unit) or 208 volts (220 VAC Unit) at compressor terminal when compressor is trying to start.
	F. Loose, disconnected, or broken wiring.	F. Tighten connections or replace broken wiring.
	G. Overload protector cut out; overheated compressor. Condenser fan motor not operating as required.	G. Compressor will cool enough to restart. Do not overdraw cooling capacity of Unit. Refer to "CONDENSER FAN MOTOR NOT OPERATING" in this section.
	H. Inoperative overload protector or start relay.	H. Replace inoperative part.

Trouble	Probable Cause	Remedy
COMPRESSOR DOES NOT OPERATE. (cont'd)	I. Inoperative ice bank control.	I. Replace ice bank control.
	J. Inoperative compressor.	J. Call Service Person.
COMPRESSOR WILL NOT STOP AFTER SUFFICIENT ICE BANK IS PRODUCED.	A. Ice bank control cap tube kinked or broken.	A. Replace ice bank control.
	B. Ice bank control stuck in closed position.	B. Replace ice bank control.
COMPRESSOR OPERATES CONTINUOUSLY BUT DOES NOT FORM SUFFICIENT ICE BANK.	A. Cooling capacity is exceeded by over-drawing.	A. Reduce amount of drinks drawn per given time.
	B. Unit located in excessively hot area or air circulation through condenser coil is restricted.	B. Relocate Unit or check and if necessary, clean condenser coil filter as instructed.
<b>NOTE: Ice bank freezes from bottom of evaporator upward. A refrigerant leak or insufficient charge might show an ice bank at bottom and not at the top of evaporator.</b>		
CONDENSER FAN MOTOR NOT OPERATING.	<b>NOTE: If overload protector cuts out compressor, condenser fan motor will continue to operate; otherwise; troubleshooting condenser fan motor problems is same as for "COMPRESSOR DOES NOT OPERATE" paragraph plus the following:</b>	
	A. Jumper cord loose or disconnected from motor or terminal block. Broken wire in cord.	A. Tighten connections or replace cord.
	B. Inoperative condenser fan motor.	B. Replace condenser fan motor.
AGITATOR MOTOR NOT OPERATING.	A. Unit power cord or refrigeration assembly power cord unplugged.	A. Connect power cord(s).
	B. No power source (blown fuse or tripped circuit breaker).	B. Replace fuse or reset circuit breaker. (Note: Fuse or circuit breaker are not part of Unit.)
	C. Agitator motor propeller obstructed.	C. Remove obstruction.
	D. Low voltage.	D. Voltage must be at least 103 volts (115 VAC Unit) or 208 volts (220 VAC Unit) at compressor terminals when compressor is trying to start.
	E. Loose, disconnected, or broken wiring.	E. Tighten connections or replace broken wiring.
	F. Inoperative agitator motor.	F. Replace agitator motor.

THIS PAGE LEFT BLANK INTENTIONALLY



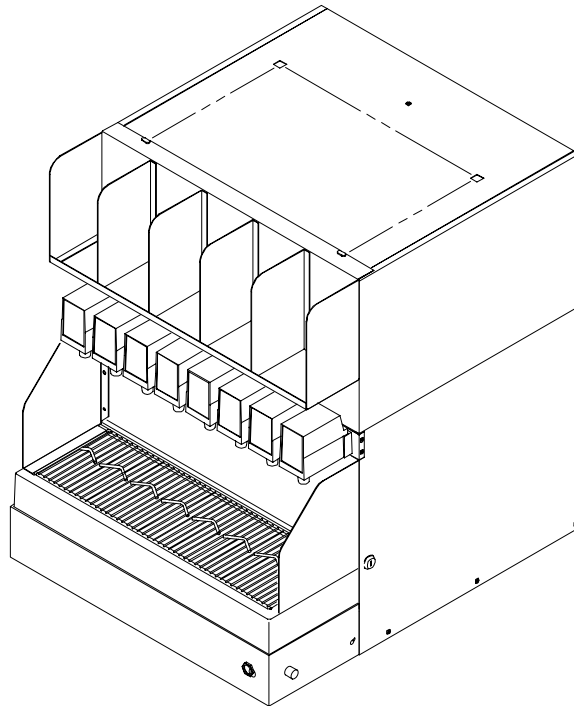
## ILLUSTRATED PARTS LIST

---

### VANGUARD 245 (McDONALDS APPLICATION) POST-MIX DISPENSER

#### PART NO.

417306660xx  
417308660xx  
477306660xx  
477308660xx  
497306660xx  
497306660WS  
497308660xx  
497316660xx  
497318660xx







# ILLUSTRATED PARTS LIST

## VANGUARD 245 (McDONALDS APPLICATION) POST-MIX DISPENSER

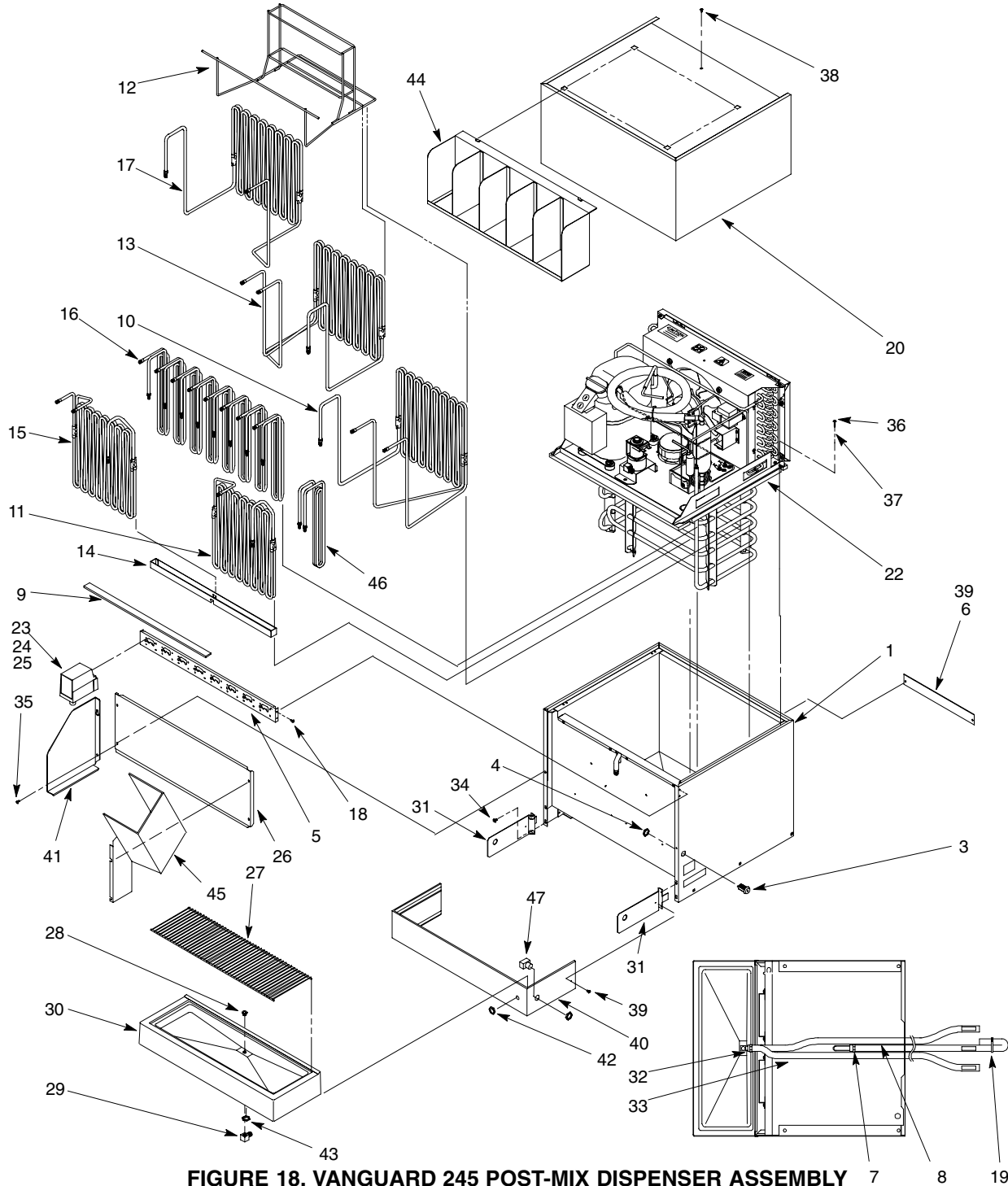


FIGURE 18. VANGUARD 245 POST-MIX DISPENSER ASSEMBLY



## ILLUSTRATED PARTS LIST

### VANGUARD 245 (McDONALDS APPLICATION) POST-MIX DISPENSER

Item No.	Part No.	Name
	560001868	Base Ass'y, 6-Flavor (Includes 1-19)
	560001869	Base Ass'y, 8-Flavor (Includes 1-19)
	560002645	Base Ass'y, 6-Flavor W/ Water Spout (Includes 1-19)
1	560002628	Base
2	4083	Wire Harness (Not Shown)
	560002642	Wire Harness W/Water Spout (Not Shown)
3	2758	Switch, Lock
	2799	Key, Switch
4	2921	Hex Nut
5	4228	Panel, Valve (8-Flavor)
	4924	Panel, Valve (6-Flavor)
	560002643	Panel, Valve W/Water Spout (6-Flavor)
6	4123	Cover, Rear Access
7	140135000	Clamp, Drain Tube
8	310445000	Drain Tube, .500 I.D. By 60-In. Long
9	4173	Insulation, Tank
10	560001881	Coil, Carb Water, No. 2 and 3 (8-Flavor)
	560001878	Coil, Water, No. 2 (6-Flavor)
11	560001876	Coil, Plain Water, No. 4 (8-Flavor)
	560001874	Coil, Water, No. 3 (6-Flavor)
12	560001886	Retainer, Coil, Inner
13	560001882	Coil, Carb Water, No. 5 and 6 (8-Flavor)
	560001879	Coil, Water, No. 4 and 5 (6-Flavor)
14	4763	Retainer, Coil, Front
15	560001877	Coil, Carb Water, No. 7 and 8 (8-Flavor)
	560001875	Coil, Water, No. 6 (6-Flavor)
16	560000862	Coil, Syrup
17	560001880	Coil, Carb Water, No. 1
	560000477	Coil, Carb Water, No. 1 W/Water Spout
18	188072000	Sheet Metal Screw, Phil Tr Hd., No. 10 By 1/2-In. Long
19	309938000	Hose Clamp
20	560001329	Hood Ass'y

Item No.	Part No.	Name
21	560002646	Tube Ass'y, .265 I.D. By 36-In. Long, W/Water Spout (Not Shown)
22	560001671	Refrigeration Ass'y, 115V 60HZ (See Figure 20)
	560001672	Refrigeration Ass'y, 230V 60HZ (See Figure 20)
	560001673	Refrigeration Ass'y, 230V 50HZ (See Figure 20)
23	317015000	O-Ring, .239 I.D. By .070 C.S.
24		Dispensing Valve Ass'y (See Manufactures Manual)
25	318308000	Thread Rolling Screw, Phil Pan Hd, No. 10-32 By 1-In. Long
26	560000419	Panel, Access
27	560000428	Cup Rest (8-Flavor)
	560000429	Cup Rest (6-Flavor)
28	77150200	Fitting, Drain, 1/2-20
29	77150300	Fitting, Drain, Elbow, 1/2-Barb
30	4772	Drip Tray
31	4778	Bracket, Drip Tray
32	140135000	Clamp, Drain Tube
33	310445000	Drain Tube, .500 I.D. By 60-In. Long
34	331309000	Sheet Metal Screw, Phil Truss Hd., No. 8 By 1/2-In. Long
35	188072000	Sheet Metal Screw, Phil Tr Hd., No. 10 By 1/2-In. Long
36	200498003	Hex Nut, No. 8-32
37	186207000	Washer, .219 I.D.
38	320240000	Thread Rolling Screw, Phil Pan Hd., No. 8-32 By 1/2-In. Long
39	317784000	Thread Cutting Screw, Phil Truss Hd., No. 8-18 By 1/2-In. Long
40	560000417	Wrap, Drip Tray
41	560000426	Splash Guard, Left-Hand
	560000427	Splash Guard, Right-Hand
42	300479000	Button Plug
43	150447000	Washer, .406 I.D., Drain Fitting
44	560000439	Holder, Cup Lid (Optional)
45	560000440	Holder, Straw (Optional)
46	560000477	Coil, Plain Water (Optional)
47	318515000	Switch, W/Water Spout





## ILLUSTRATED PARTS LIST

### VANGUARD 245 COLD CARBONATED (McDONALDS APPLICATION) POST-MIX DISPENSER

Item No.	Part No.	Name
1	560001702	Base Ass'y, 6-Flavor (Includes 2-23)
	560001302	Base Ass'y, 8-Flavor (Includes 2-23)
2	560002628	Base
3	560007415C	Carbonator Tank Ass'y
	71860230	Relief Valve Ass'y
	710660001	Probe Ass'y
	65267001	Check Valve
4	311304000	Tapered Gasket, Black
5	178025100	Tapered Gasket, White
6	183310000	Check Valve Ass'y (See Figure 23)
7	4083	Wire Harness
8	2758	Switch, Lock
	2799	Key, Switch
9	2921	Hex Nut
10	560000872	Coil, CO <sub>2</sub> Inlet
11	4924	Panel, Valve, 6-Flavor
	4228	Panel, Valve, 8-Flavor
12	560001487	Tube Ass'y, Water Coil
13	140135000	Clamp, Drain Tube
14	310445000	Drain Tube, .500 I.D. By 60-In. Long
15	4173	Insulation, Tank
16	560001874	Coil, Plain Water, No. 3, 6-Flavor
	560001876	Coil, Plain Water, No. 4, 8-Flavor
17	560002983	Retainer, Coil
18	560001426	Coil, Carb Water, No. 4, 6-Flavor
	560000753	Coil, Carb Water, No. 5, 8-Flavor
19	4763	Retainer, Coil, Front
20	560000862	Coil, Syrup
21	890001393	Manifold Ass'y, 6-Flavor
	560006868	Manifold Ass'y, 8-Flavor
22	188072000	Sheet Metal Screw, Phil Tr Hd., No. 10 By 1/2-In. Long
23	560000874	Coil, Water, Pre-Chill

Item No.	Part No.	Name
24	560001413	Hood Ass'y, Coke
25	560001301	Refrigeration Ass'y, 220V 50HZ (See Figure 4)
26	317015000	O-Ring, .239 I.D. By .070 C.S.
27		Dispensing Valve Ass'y (See Manufactures Manual)
28	318308000	Machine Screw, Phil Pan Hd, No. 10-32 By 1-In. Long
29	4123	Cover, Rear Access
30	317784000	Thread Cutting Screw, Phil Truss Hd., No. 8-18 By 1/2-In. Long
31	320240000	Thread Rolling Screw, Phil Pan Hd., No. 8-32 By 1/2-In. Long
32	569000203	Panel, Access
33	560000428	Cup Rest, 8-Flavor
	560000429	Cup Rest, 6-Flavor
34	77150200	Fitting, Drain, 1/2-20
35	77150300	Fitting, Drain, Elbow, 1/2-Barb
36	4772	Drip Tray
37	4778	Bracket, Drip Tray
38	331309000	Sheet Metal Screw, Phil Truss Hd., No. 8 By 1/2-In. Long
39	140135000	Clamp, Drain Tube
40	310445000	Drain Tube, .500 I.D. By 60-In. Long
41	200498003	Hex Nut, No. 8-32
42	186207000	Washer, .219 I.D.
43	188072000	Sheet Metal Screw, Phil Truss Hd., No. 10 By 1/2-In. Long
44	560000417	Wrap, Drip Tray
45	560000426	Splash Guard, Left-Hand
	560000427	Splash Guard, Right-Hand
46	300479000	Button Plug
47	150447000	Washer, .406 I.D., Drain Fitting
48	560000439	Holder, Cup Lid (Optional)
49	560000440	Holder, Straw (Optional)
50	560000477	Coil, Plain Water (Optional)





## ILLUSTRATED PARTS LIST

### VANGUARD 245 (McDONALDS APPLICATION) POST-MIX DISPENSER

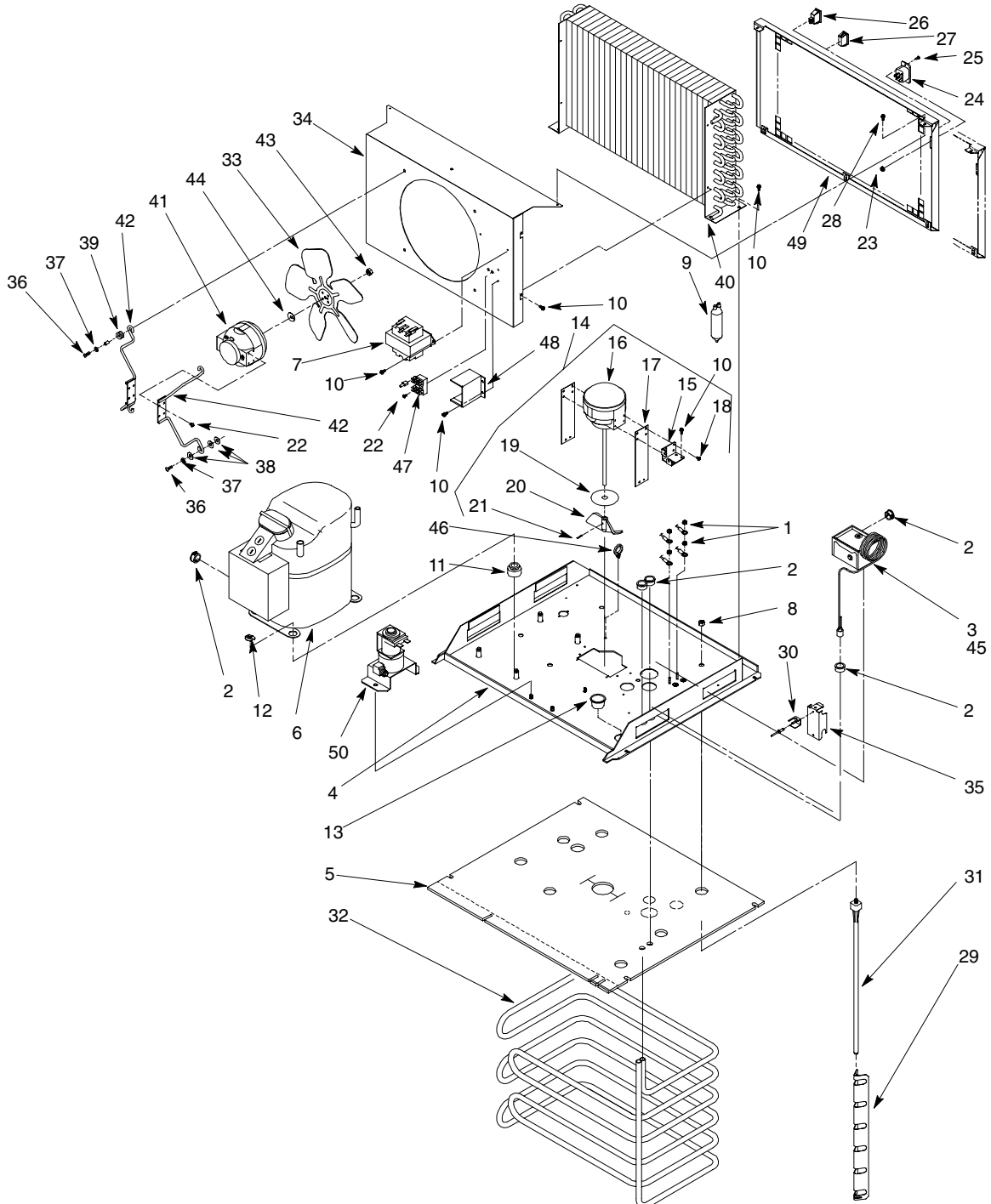


FIGURE 20. VANGUARD 245 REFRIGERATION ASSEMBLY



## ILLUSTRATED PARTS LIST

### VANGUARD 245 (McDONALDS APPLICATION) POST-MIX DISPENSER

Item No.	Part No.	Name
1	200498003	Hex Nut, No. 8-32
2	320389000	Snap Bushing
3	4680	Machine Screw, Phil Pan Hd., No. 8-32 By 3/16-In. Long
4	560001722	Platform
5	560000755	Insulation, Platform
6	4740	Compressor Kit, 3/4 H.P., 115V 60HZ
	569000206	Compressor Kit, 3/4 H.P., 230V 60HZ
	569000205	Compressor Kit, 3/4 H.P., 220V 50HZ
7	449999999	Transformer, 120/25V 80VA
	449999996	Transformer, 230V 60HZ 80VA
	560002114	Transformer, 230V 50HZ 80VA
8	186146000	Hex Nut, 5/16-18
9	2602	Dryer
10	319941000	Thread Rolling Screw, Hex Washer Hd., No. 8-32 By 3/8-In. Long
11	189723000	Grommet
12	187888000	Clip
13	316727000	Plug, Water Fill
14	560001724	Motor, Agitator, 115V 25W (Includes 15-21)
	560001726	Motor, Agitator, 220V 25W (Includes 15-21)
	560001725	Motor, Agitator, 240V 18W (Includes 15-21)
15	4932	Bracket, Agitator Motor
16	111778000	Motor, Agitator, 115V 25W
	308912000	Motor, Agitator, 220V 25W
	318168002	Motor, Agitator, 240V 18W
17	319856000	Plate, Heat Transfer
18	186154000	Machine Screw, Phil Pan Hd., No. 8-36 By 3/8-In. Long
19	186599000	Slinger
20	3600	Blade, Agitator
21	186610000	Pin

Item No.	Part No.	Name
22	186154000	Machine Screw, Phil Pan Hd., No. 8-36 By 3/8-In. Long
23	5119	Hex Nut, No. 4-40
24	560001415	Receptacle
25	310780000	Machine Screw, Phil Pan Hd, No. 4-40 By 5/8-In. Long
26	309645000	Switch, Power
27	560001396	Switch, Cutout
28	188117000	Sheet Metal Screw, Phil Truss Hd, No. 8 By 3/8-In. Long
29	4784	Spacer, Evaporator Coil
30	560001537	Retainer, Ice Bank Control
31	319347015	Rod, Support
32	4786	Evaporator Coil
33	3113	Fan, Condenser, 5-Blade
34	560002108	Shroud, Condenser
35	560003071	Bracket, Ice Bank Control
36	186770000	Machine Screw, Phil Rd Hd., No. 10-24 By 5/8-In. Long
37	120227000	Washer, Lock, No. 10
38	320539000	Washer, Flat, .191 I.D.
39	321484000	Grommet
40	560000292	Condenser Coil
41	4197	Motor, Condenser Fan, 115V 35W
	560000123	Motor, Condenser Fan, 220V 35W
	560000170	Motor, Condenser Fan, 230V 23W
42	2944	Bracket, Condenser Fan motor
43	189429000	Hex Nut, 1/4-20
44	187394000	Silencer
45	4187	Ice Bank Control
46	2757	Retainer
47	309898000	Terminal Block
48	560001720	Cover, Terminal Block
49	560002107	Panel, Back
50	560002644	Solenoid Valve Ass'y, W/Water Spout



## ILLUSTRATED PARTS LIST

### VANGUARD 245 COLD CARBONATED (McDONALDS APPLICATION) POST-MIX DISPENSER

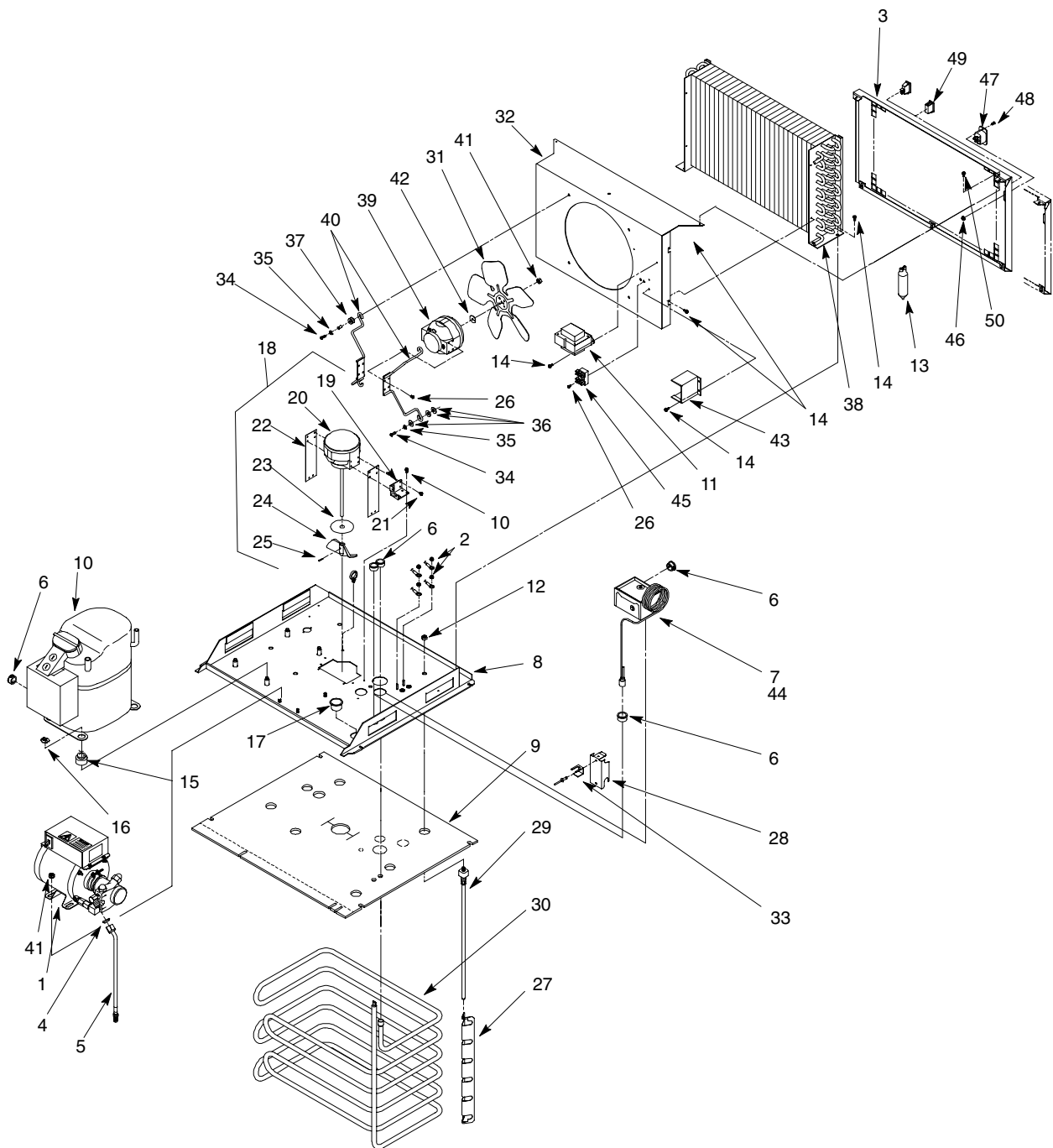


FIGURE 21. VANGUARD 245 REFRIGERATION (COLD CARB) ASSEMBLY





## ILLUSTRATED PARTS LIST

### VANGUARD 245 COLD CARBONATED (McDONALDS APPLICATION) POST-MIX DISPENSER

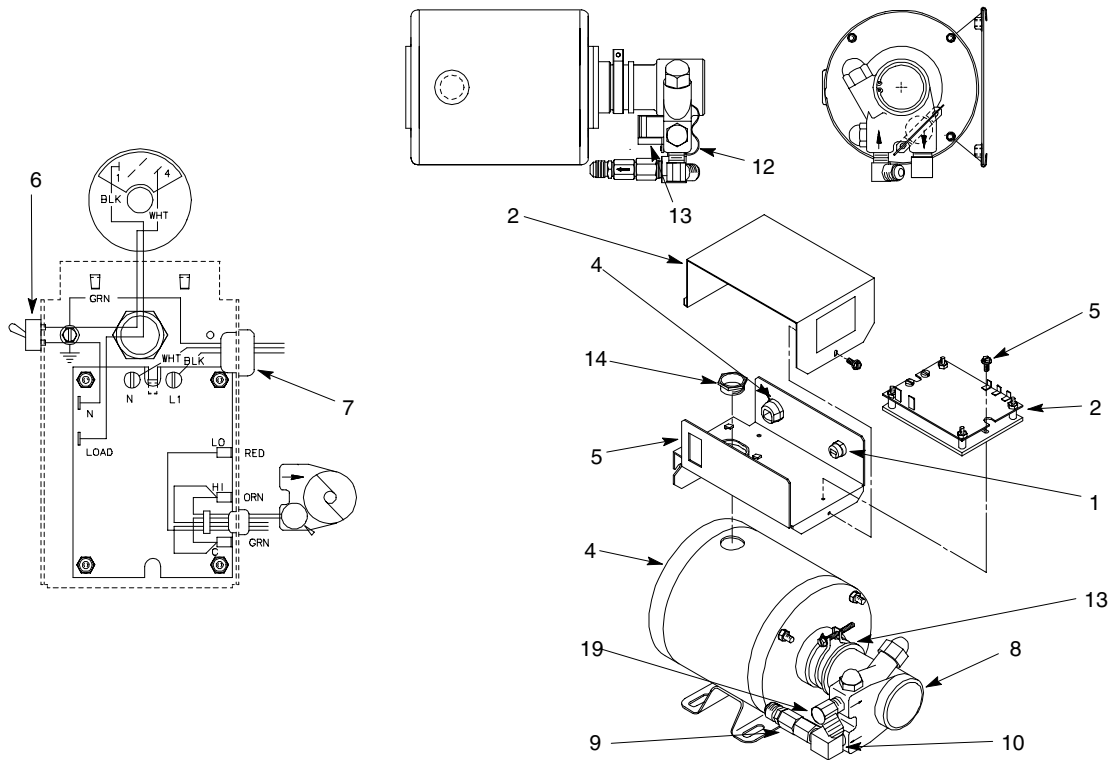
Item No.	Part No.	Name
1	560001297	Pump and Motor Ass'y, 230V 50HZ (See Figure 22)
2	200498003	Hex Nut, No. 8-32
3	560002107	Panel, Back
4	311304000	Tapered Gasket, Black
5	560000754	Tube Ass'y, Pump Inlet
6	320389000	Snap Bushing
7	4680	Machine Screw, Phil Pan Hd, No. 8-32 By 3/16-In. Long
8	560000734	Platform
9	560000755	Insulation, Platform
10	569000205	Compressor Kit, 3/4 H.P., 230V 50HZ
11	560002114	Transformer, 230V 50/60HZ 80VA
12	186146000	Hex Nut, 5/16-18
13	2602	Dryer
14	319941000	Thread Rolling Screw, Hex Washer Hd., No. 8-32 By 3/8-In. Long
15	189723000	Grommet
16	187888000	Clip
17	316727000	Plug, Water Fill
18	560001726	Agitator Motor Ass'y, 220V 50HZ (Includes 19-25)
19	4932	Bracket, Agitator Motor
20	318168002	Motor, Agitator, 240V 18W 1300RPM
21	186154000	Machine Screw, Phil Pan Hd., No. 8-36 By 3/8-In. Long
22	319856000	Plate, Heat Transfer
23	186599000	Slinger
24	3600	Blade, Agitator

Item No.	Part No.	Name
25	186610000	Pin, Blade
26	186154000	Machine Screw, Phil Pan Hd., No. 8-36 By 3/8-In. Long
27	560003858	Spacer, Evaporator Coil
28	560003071	Holder, Ice Bank Control
29	319347015	Rod, Support
30	4786	Evaporator Coil
31	3113	Fan, Condenser, 5-Blade
32	560002108	Shroud, Condenser
33	560001537	Spacer, Ice Bank Control
34	186770000	Machine Screw, Phil Rd Hd., No. 10-24 By 5/8-In. Long
35	120227000	Washer, Lock, No. 10
36	320539000	Washer, Flat, .191 I.D.
37	321484000	Grommet
38	560000292	Condenser Coil
39	560000170	Motor, Condenser Fan, 220V 50HZ
40	2944	Bracket, Condenser Fan motor
41	189429000	Hex Nut, 1/4-20
42	187394000	Silencer
43	560001720	Cover, Terminal Block
44	4187	Ice Bank Control
45	309898000	Terminal Block
46	5119	Hex Nut, No. 4-40
47	560001415	Receptacle
48	310780000	Machine Screw, Phil Pan Hd, No. 4-40 By 5/8-In. Long
49	560001396	Plug, Switch (220/230V 50/60HZ)
50	188117000	Sheet Metal Screw, Phil Truss Hd, No. 8 By 3/8-In. Long



## ILLUSTRATED PARTS LIST

### VANGUARD 245 COLD CARBONATED (McDONALDS APPLICATION) POST-MIX DISPENSER



**FIGURE 22. PUMP AND MOTOR (COLD CARB) ASSEMBLY**

Item No.	Part No.	Name
	560001296	Pump and Motor Ass'y, 230V 60HZ
	560001297	Pump and Motor Ass'y, 230V 50HZ
1	361003200	Fitting, Elbow, 3/8-MPT By 5/8-18
2	197359000	Control Board
3	395098000	Strain Relief
4	320626000	Motor, 1/4HP 240V 60HZ
	199020000	Motor, 1/4HP 230V 50HZ
5	560000863	Control Box
6	4967	Cover, Control Box
7	560001630	Service Cord
8	319453000	Strain Relief

Item No.	Part No.	Name
9	319941000	Thread Rolling Screw, Hex Washer Hd, No. 8-32 By 3/8-In. Long
10	313438000	Switch
11	3175	Wire Harness, Carbonator (Not Shown)
12	312996000	Pump, Water, 90GPH
13	187483000	Clamp, Pump to Motor
14	2991	Check Valve Ass'y (See Figure 24)
15	1151	Fitting, Elbow, 3/8-NPT
16	200498003	Hex Nut, No. 8-32 (Not Shown)
17	317989000	Thermostat
18	318039000	Clip, Thermostat
19	168049000	Nipple



## ILLUSTRATED PARTS LIST

### VANGUARD 245 COLD CARBONATED (McDONALDS APPLICATION) POST-MIX DISPENSER

Item No.	Part No.	Name
	183310	Check Valve Ass'y
1	183294	Quad Ring, .145 I.D. By .070 C.S.
2	183295-100	Body
3	183296	Ball, .187 Dia.
4	183297	Spring
5	183298	Retainer, Spring
6	183309	Bulkhead

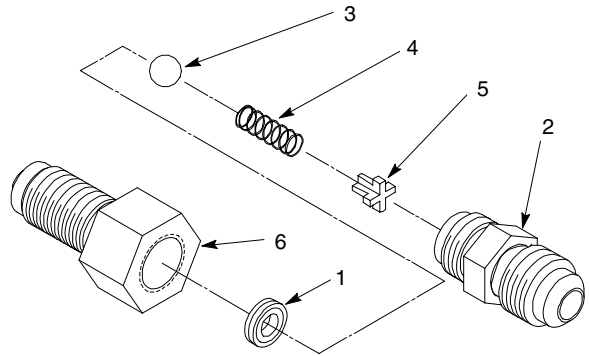


FIGURE 23. CO<sub>2</sub> CHECK VALVE ASSEMBLY

Item No.	Part No.	Name
	2991	Dual Check Valve Ass'y
1	560000480	Flat Washer
2	560000432	Ball Seat (O-Ring)
3	312419	Ball
4	560000481	Spring

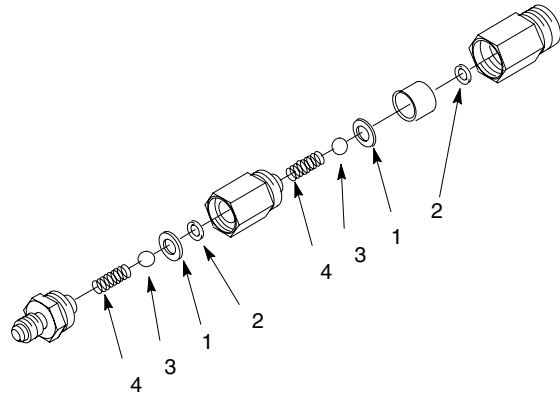


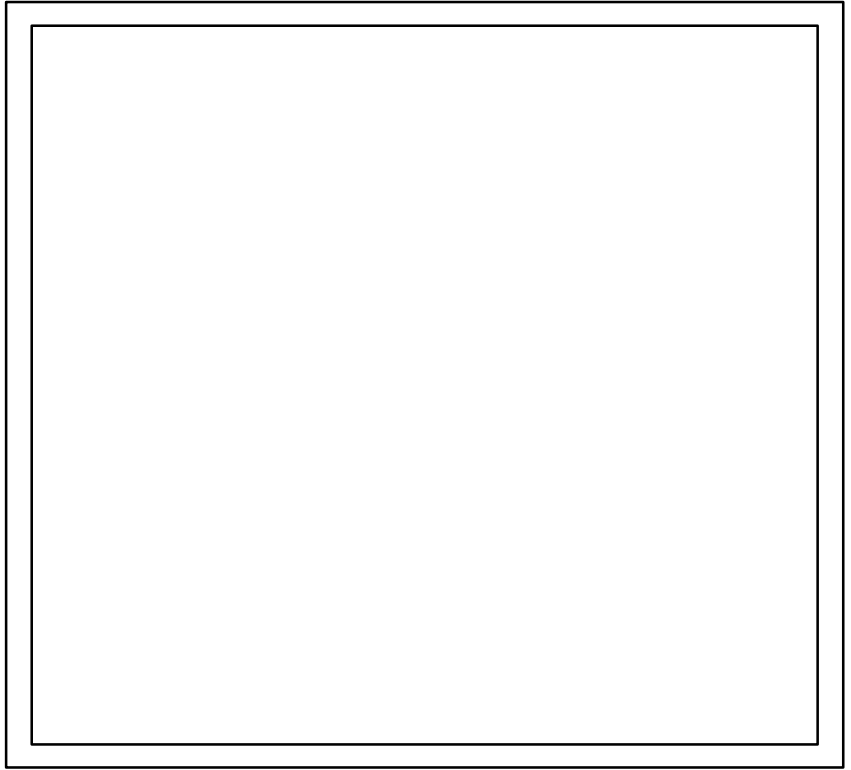
FIGURE 24. LIQUID DUAL CHECK VALVE ASSEMBLY



## **WARRANTY**

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 Cornelius office nearest you. Please provide the equipment model number, serial number and the date of purchase.

THIS PAGE LEFT BLANK INTENTIONALLY



**CORNELIUS INC.**

---

**CORPORATE HEADQUARTERS:**

No. 12 Xintai Road,  
TEDA, Tianjin, P.R.C. 300457  
Tel: + 86-22-2529-0858

