



# **PBD175 (SPIRE 3.0)**

## **Operator's Manual**



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The products, technical information, and instructions contained in this manual are subject to change without notice. These instructions are not intended to cover all details or variations of the equipment, nor to provide for every possible contingency in the installation, operation or maintenance of this equipment. This manual assumes that the person(s) working on the equipment have been trained and are skilled in working with electrical, plumbing, pneumatic, and mechanical equipment. It is assumed that appropriate safety precautions are taken and that all local safety and construction requirements are being met, in addition to the information contained in this manual.

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

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

### **Contact Information:**

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

**www.cornelius.com**  
**800-238-3600**

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This document contains the original instructions for the unit described.

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### **Correct Disposal of this Product**



**RECYCLE**

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

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# SAFETY INSTRUCTIONS

## READ AND FOLLOW ALL SAFETY INSTRUCTIONS

### Safety Overview

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

### Recognition



## DIFFERENT TYPES OF ALERTS

### **DANGER:**

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

### **WARNING:**

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

### **CAUTION:**

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

## SAFETY TIPS

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

## QUALIFIED SERVICE PERSONNEL

### **WARNING:**

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

## SAFETY PRECAUTIONS

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

### **WARNING:**

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

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

### **CAUTION:**

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

## SHIPPING AND STORAGE

### **CAUTION:**

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

## CO<sub>2</sub> (CARBON DIOXIDE) WARNING

### **DANGER:**

CO<sub>2</sub> displaces oxygen. Strict attention **MUST** be observed in the prevention of CO<sub>2</sub> 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 concentrations of CO<sub>2</sub> gas experience tremors which are followed rapidly by loss of consciousness and **DEATH**.

## MOUNTING IN OR ON A COUNTER

### **WARNING:**

When installing the unit in or on a counter top, the counter must be able to support a weight in excess of 1,000 lbs. to insure adequate support for the unit. **FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

## UNIT LOCATION

### **CAUTION:**

Appliance is not suitable for installation in an area where a water jet could be used.

### **CAUTION:**

The appliance must be placed in a horizontal position.

### **CAUTION:**

This unit is not designed for use in outdoor locations.

## MACHINE USAGE

**CAUTION:**

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

**CAUTION:**

Children should be supervised to ensure that they do not play with the appliance.

## NOISE LEVEL

This unit emits acoustical noise with an A-weighted sound pressure level no greater than 75dB, as measured in accordance with EN 60335-2-75.

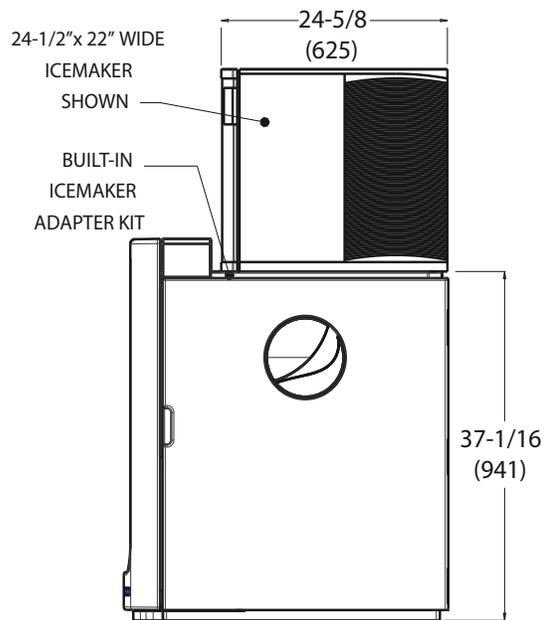
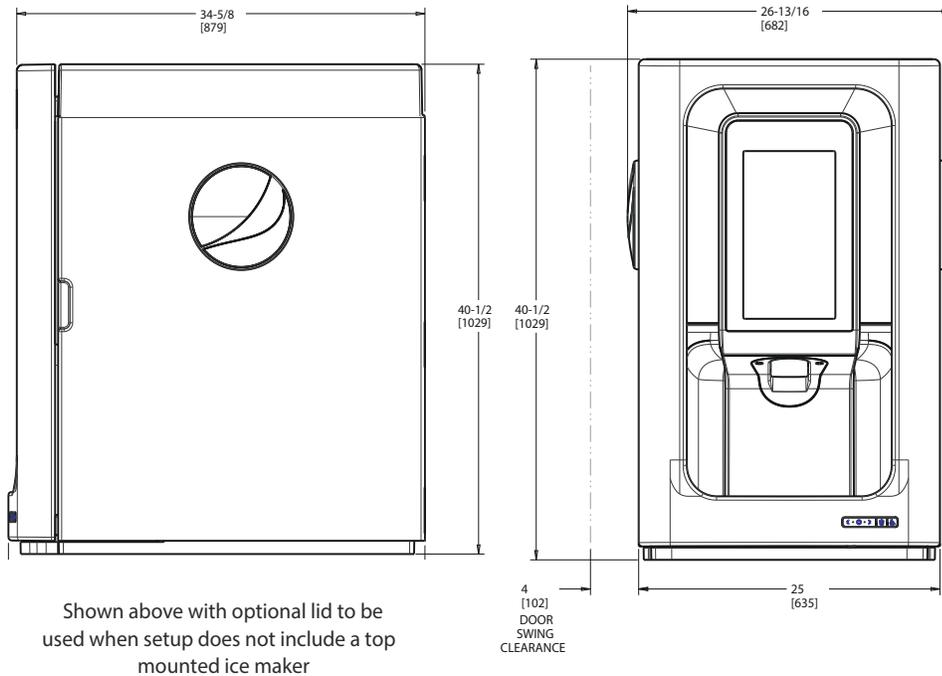
# START-UP AND OPERATING INSTRUCTIONS

## SYSTEM DESCRIPTION

The PBD175 (Spire 3.0) solves your ice and beverage service needs in a sanitary, space saving and economical way. It is designed to be manually filled with ice from any remote ice-making source, this dispenser dispenses cubes (up to 1-1/4 inch in size), cubelets and compressed (not flaked) ice. In addition, the unit includes a single, multi-brand dispensing valve, a cold plate, an internal carbonator tank and an external pump for the carbonator. It is designed to supply beverages direct from syrup tanks with no additional cooling required. Figure 1. shows the dimensions of the PBD175 (Spire 3.0) unit.

## SPECIFICATIONS

Model Description:	PBD175 (Spire 3.0)
Total Unit Weight, empty	260 lb. (117.9 kg)
Ice Storage:	175 lb. (79.4 kg)
Maximum Number of Brands/Flavors Available:	12/4
Built-in Cold Plate:	Yes
Internal Cold Carbonation	Yes
Electrical:	115 V/1Ph/60 Hz 220-240 V/1Ph/50/60Hz 15 Amp dedicated, protected circuit
Dimensions:	40-1/2 in. (1.03 m) tall, to top of lid (Manual Fill Unit) 26-13/16 in. (0.68 m) wide 35-3/16 in. (0.90 m) deep
CO2 Operating Pressure	75-psig (0.52 MPa) max
Ambient Operational Temperature	65 to 95° F. (18.3 to 35° C.)
Maximum Inlet Pressure	125 PSI (862 KPa)



SPIRE 3.0 HAS A BUILT-IN ICEMAKER ADAPTER  
 THE ADAPTER IS DESIGNED FOR 22" WIDE ICEMAKERS.  
 SMALLER FOOTPRINT ICEMAKERS WILL REQUIRE ADDITIONAL PARTS.

**Figure 1.**

## ICE DRINK DISPENSER INSTALLATION

The PBD175 (Spire 3.0) dispenser must be installed by qualified personnel following instructions given in the Installation manual (620062609INS).

## ICEMAKER CAPABILITY

The PBD175 (Spire 3.0) has a built-in icemaker adapter to accept a maximum 22" wide X 24" deep icemaker footprint. The dispenser is supplied and shipped with needed parts for this icemaker installation. Any ice maker smaller than these dimensions may require an additional kit for proper icemaker installation. Contact your Cornelius Sale Representative for additional information.

**NOTE: Icemaker needs to be equipped with a low level ice sensor (bin stat) to prevent hopper overflowing or icemaker harvest issues. Failure to install this sensor may result in equipment damage or ice dispensing issues.**

## DISPENSER POWER UP

If the screen is Black / OFF, to power up the PBD175 (Spire 3.0) unit, perform the steps below.

1. Open the display and turn on the computer by pressing the On/Off button on the computer. The system should come up to the normal display screen.

### IMPORTANT:

Assure the unit is plugged into a power receptacle. If yes, touch the screen and see if the screen displays, if not open the door. There is a oval slot in the upper galvanized E-Box cover, within this slot there is a reset button. Tap the button, do not push and hold this button and the button should turn blue, the screen will soon display.



Figure 2.



Figure 3.

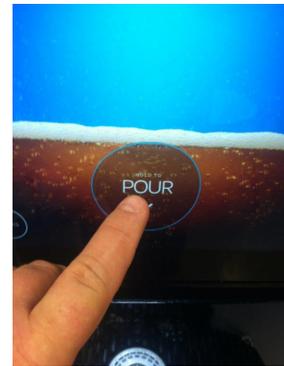
2. Close the display and tap the circle on the front of the unit near the lower center of the display. This displays the drink selection screen.



**Figure 4.**

3. Select the drink desired by tapping the appropriate icon on the drink selection screen.
4. After the drink is selected, the flavor shot screen is displayed. If flavor shots are desired, tap up to three of the flavors on the screen.

5. Press and hold the “Hold to Pour” icon to dispense the drink, as shown in Figure 5.



**Figure 5.**

6. The screen defaults back to the drink selection screen after 10 seconds. To manually return to the drink selection screen, press the “All drinks button” in the lower left corner of the screen.



**Figure 6.**

## ADA KEYPAD OPERATION

The PBD175 (Spire 3.0) unit features touch-sensitive buttons located in the lower right-hand area of the unit, as shown in Figure 7. These buttons allow disabled persons to navigate the drink selection and dispense screens. By pressing the Left or Right arrow, a yellow highlight moves to indicate the selected brand. When the desired brand is highlighted, press the Circle mark between the two arrow buttons. This displays the Flavor Shot screen. Repeat the process for the desired flavor shots and then press the Circle mark. Press the Pour button to dispense the drink.



Figure 7.

## FILLING THE ICE BIN

### ⚠ CAUTION:

The dispenser cannot be used with crushed or flaked ice. Use of bagged ice which has frozen into large chunks can void the warranty. The dispenser agitator is not designed to be an ice crusher. Use of large chunks of ice which jam up inside the bin will cause failure of the agitator motor and damage to the bin. If bagged ice is used, it must be carefully and completely broken into small, cube-sized pieces and left to “temper” or warm up for a minimum of 20 minutes at room temperature before loading it into the ice bin.

### ⚠ IMPORTANT:

After loading the ice into the bin, wait 30 minutes to allow the cold plate to chill the syrups to operating temperature.

To fill the ice bin, perform the procedure below.

1. Open the display.



Figure 8.

2. Remove the cover from the ice bin.

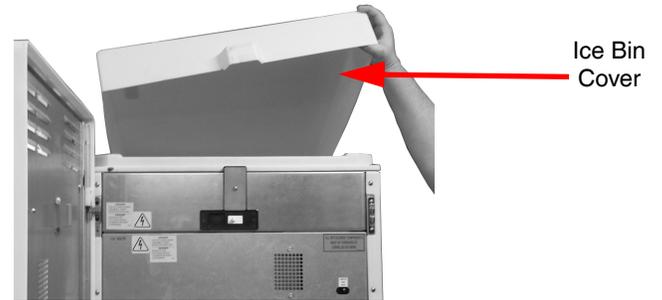


Figure 9.

3. Fill the bin with ice (175 lb. MAX).



**IMPORTANT:**

Do not overfill hopper.

4. Replace the ice bin cover.



**IMPORTANT:**

Assure the ice bin cover is in place as it contains part of a safety switch used to disable the agitator motor. If this cover is not in place the unit will not dispense ice.



**WARNING:**

Use caution to avoid spilling ice when filling the dispenser. Immediately clean up any spilled ice from filling or operating the unit. To prevent contamination of ice, the lid must be installed on the unit at all times.

**Failure to clean up spills could result in serious injury or death.**

# CLEANING AND MAINTENANCE INSTRUCTIONS

## **⚠ WARNING:**

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

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

## **⚠ WARNING:**

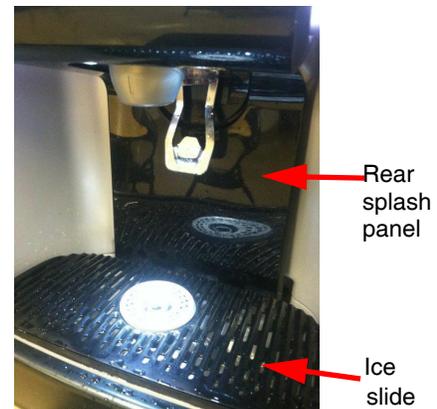
Do not use metal scrapers, sharp objects or abrasives on the ice storage hopper, top cover, agitator disc or exterior surfaces as damage to the unit may result. Do not use solvents or other cleaning agents as they may attack the material resulting in damage to the unit.

- **Soap solution** - Use a mixture of mild detergent and warm (100° F) potable water.
- **Sanitizing Solution** - Dissolve 1 packet [1 oz. (29.6 ml)] of Stera Sheen Green Label (or KAY-5 Sanitizer/Cleaner) into 2-1/2 gallons (3.79 l) of warm [80-100° F (26.7-37.8° C)] potable water to ensure 100 ppm of chlorine.

## DAILY CLEANING:

Perform the procedure below on a daily basis during low traffic times.

1. Remove the rear splash panel and the ice slide. Clean them with warm soapy water. Rinse them with clean water and allow them to air dry.



**Figure 10.**

2. Wipe down the enclave and the exterior of the unit using a soft cloth and warm soapy water. Rinse them with clean water and wipe them dry with a clean soft cloth.

3. Remove the valve nozzle and diffuser and wash them in warm soapy water. Rinse them in clean water and allow them to air dry.



**Figure 11.**

4. Clean the interior of the ice chute, using the brush provided with the unit. Use warm soapy water, rinse with clean water and allow it to air dry.



Figure 12.

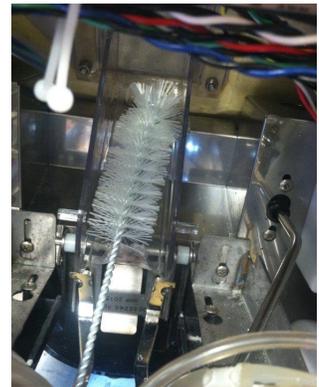


Figure 13.

5. Spray the ice chute inside and out with sanitizer and allow it to air dry.



Figure 14.

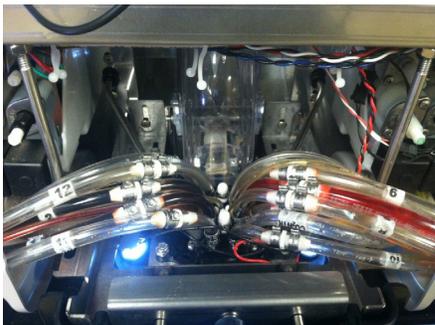


Figure 15.



Figure 16.



Figure 17.

6. Pour warm soapy water down the drain to keep them clean and flowing smoothly.

7. Reassemble the nozzle and diffuser and spray them inside and out with approved sanitizing solution. Reinstall them on the valve and allow them to air dry.



Figure 18.



Figure 19.



Figure 20.



Figure 21.

8. Reinstall the ice slide and the rear splash panel.
9. Pour all the remaining sanitizer solution down the drains to help keep the drain clear.

## WEEKLY MAINTENANCE:

In addition to the previous procedure, perform the following items weekly to maintain the unit in proper condition.

1. Check the temperature, smell and taste of the product.
2. Check that there is Ice in Bin.

3. Check the water pressure [60 - 65 psi, (0.45 MPa)], coming to the unit using the pressure gauges on the back room package.



Water Booster with Gauge

Figure 22.

4. Check the carbonation of the drink.
5. Check the level of the CO<sub>2</sub> cylinder in the back room supplying the unit.
6. Check the date on all of the BIBs in the back room package.

## MONTHLY CLEANING:

In addition to daily and weekly procedures, perform the procedure below monthly to clean the unit.

1. Flush and sanitize all syrup lines, as well as all of the syrup connectors. (See “Sanitize syrup lines, BIB Systems” on page 16).
2. Remove ice from the hopper. Clean and sanitize the hopper. (See “Cleaning Interior Surfaces (Monthly)” on page 14).

## YEARLY MAINTENANCE:

Perform the procedure below annually to maintain the unit.

1. Have the water pump and check valve inspected and cleaned, by a qualified service technician.
2. Have the CO<sub>2</sub> gas check valve inspected and cleaned, by a qualified service technician.
3. Remove the splash panel and cold plate cover to clean and sanitize the cold plate surface (See “Replenishing CO<sub>2</sub> Supply (As Required)” on page 17).

## CLEANING INTERIOR SURFACES (MONTHLY)

### CAUTION:

When pouring liquid into the ice bin, do not exceed the rate of 1/2 gallon per minute. Pouring more liquid into the bin could result in an overflow situation that may result in personal injury or damage to the equipment.

Perform the procedure below to clean the interior surfaces of the ice bin.

1. Remove the ice bin cover from the ice bin.



Figure 23.

2. Remove the agitator assembly.



Figure 24.

3. Using a nylon bristle brush, sponge or cloth, clean the interior of the bin, top cover and agitator assembly with a soap solution. Thoroughly rinse the bin, cover and agitator surfaces with clean potable water.



Figure 25.

4. Reassemble the agitator assembly. Take special care to ensure that the thumbscrew is tight.



Figure 26.

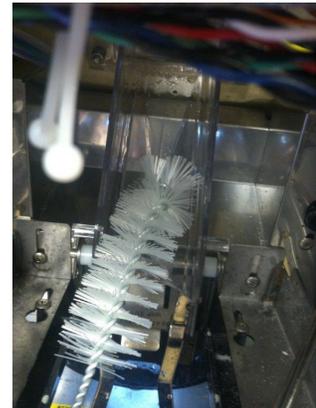
5. Using a mechanical spray bottle filled with sanitizing solution, spray the entire interior and agitator assembly. Allow them to air dry.



**Figure 27.**

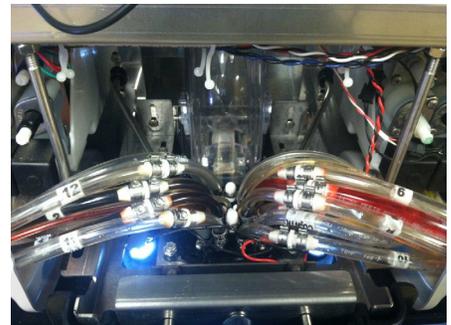
6. Open the display and remove the ice chute cover from the unit.

7. With a nylon bristle brush or sponge, clean the inside of the ice chute, gasket and cover with soap solution and rinse them thoroughly to remove all traces of detergent.



**Figure 28.**

8. Reassemble the ice chute assembly.



**Figure 29.**

9. Using a mechanical spray bottle filled with sanitizing solution, spray the inside of the ice chute. Allow the ice chute to air dry.



**Figure 30.**

10. Close the display securely.

## PRODUCT TUBING (MONTHLY)

### **⚠ WARNING:**

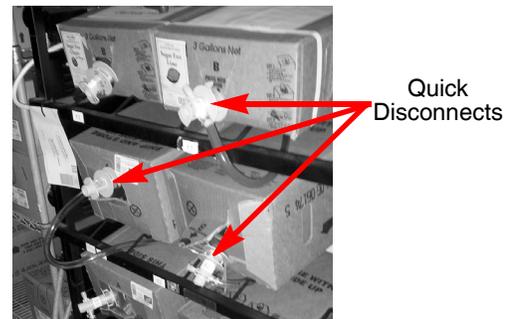
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

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

### Sanitize syrup lines, BIB Systems

Perform the procedure below to sanitize the syrup lines for BIB systems.

1. Remove all the quick disconnects from all the BIB containers in the back room.



**Figure 31.**

2. Fill a suitable pail or bucket with warm water and a soap solution.
3. Submerge all the disconnects (gas and liquid) in the soap solution and then clean them using a nylon bristle brush.

### **⚠ IMPORTANT:**

Do not use a wire brush.

4. Rinse them thoroughly with clean, potable water.
5. Using a large plastic pail, prepare approximately five (5) gallons of sanitizing solution (See Sanitizing Solution on page 10).
6. Soak the BIB disconnects in the sanitizing solution for a minimum of fifteen minutes.
7. Sanitizing fittings must be attached to each BIB disconnect. If these fittings are not available, the fittings from empty BIB bags can be cut from the bags and used. These fittings open the disconnect so the sanitizing solution can be drawn through the disconnect.



**Figure 32.**

8. Place all the BIB disconnects into the pail of sanitizing solution. Operate all the valves until the sanitizing solution is flowing from the valve. Allow sanitizer to remain in the lines for fifteen (15) minutes.

9. Remove the nozzle and syrup diffuser from the valve and clean them in a soap solution. Rinse with clean water and reassemble the nozzle and syrup diffuser to the valve.



**Figure 33.**

10. Remove the sanitizing fittings from the BIB disconnects and connect the disconnects to the appropriate BIB container. Operate the valves until all sanitizer has been flushed from the system and syrup is flowing freely.

## REPLENISHING CO<sub>2</sub> SUPPLY (AS REQUIRED)

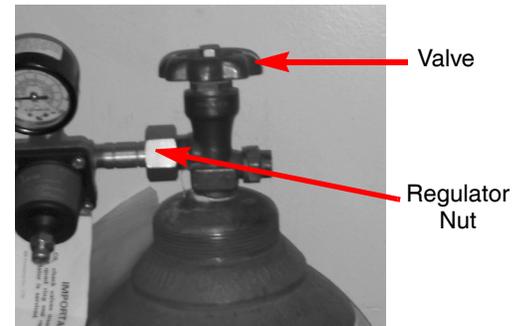
### DANGER:

CO<sub>2</sub> displaces oxygen. Strict attention **MUST** be observed in the prevention of CO<sub>2</sub> 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 concentrations of CO<sub>2</sub> gas experience tremors which are followed rapidly by loss of consciousness and **DEATH**.

**NOTE: When indicator on the 1800-psi gage is in the shaded (“change CO<sub>2</sub> cylinder”) portion of the dial, CO<sub>2</sub> cylinder is almost empty and should be changed.**

To change the CO<sub>2</sub> cylinder, perform the procedure below.

1. Fully close (clockwise) the CO<sub>2</sub> cylinder valve.



**Figure 34.**

2. Slowly loosen the CO<sub>2</sub> regulator assembly coupling nut, allowing CO<sub>2</sub> pressure to escape.
3. Remove the regulator assembly from the empty CO<sub>2</sub> cylinder.

4. Unfasten the safety chain and remove the empty CO<sub>2</sub> cylinder.



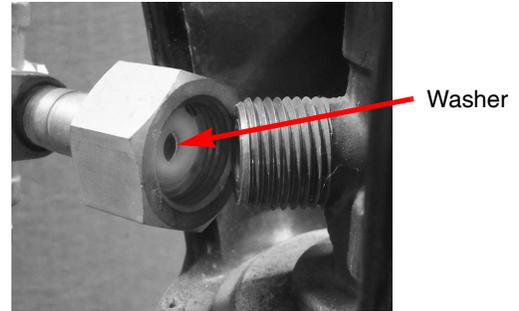
**Figure 35.**

### WARNING:

To avoid personnel injury and/or property damage, always secure the CO<sub>2</sub> cylinder with a safety chain to prevent it from falling over. Should the valve become accidentally damaged or broken off, a CO<sub>2</sub> regulator can cause serious personnel injury or death could occur.

5. Position the full CO<sub>2</sub> cylinder in its proper location and secure it with a safety chain.

6. Make sure the gasket is inside the CO<sub>2</sub> regulator assembly coupling nut and is properly seated.



**Figure 36.**

7. Install the regulator assembly on the CO<sub>2</sub> cylinder.
8. Open (counterclockwise) the CO<sub>2</sub> cylinder valve slightly to allow the lines to slowly fill with gas, then open the valve fully to back-seat the valve (back-seating the valve prevents gas leakage around the valve shaft).
9. Check all CO<sub>2</sub> connections for leaks. Tighten any loose connections.



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