# INTELLICARB™
# ICE COOLED DISPENSER

## Installation Guide


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**Revision: F**

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

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

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## Contact Information:

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

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# SAFETY INSTRUCTIONS

## READ AND FOLLOW ALL SAFETY INSTRUCTIONS

### Safety Overview

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

### Recognition

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

## DIFFERENT TYPES OF ALERTS

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

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

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

## SAFETY TIPS

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

## QUALIFIED SERVICE PERSONNEL

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



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## Safety Precautions

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

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

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

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

## Shipping And Storage

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

## $CO_2$ ($CO_2$ Carbon Dioxide) Warning

**DANGER:**
$CO_2$ displaces oxygen. Strict attention MUST be observed in the prevention of $CO_2$ gas leaks in the entire $CO_2$ and soft drink system. If a $CO_2$ gas leak is suspected, particularly in a small area, IMMEDIATELY ventilate the contaminated area before attempting to repair the leak. Personnel exposed to high concentrations of $CO_2$ gas experience tremors which are followed rapidly by loss of consciousness and DEATH.

## Mounting in or on a Counter

**WARNING:**
When installing the unit in or on a counter top, the counter must be able to support a weight in excess of **CB 1522-230lbs, CB2323-340lbs, CB3023-390 lbs**. to insure adequate support for the unit. **FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

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

**CAUTION:**
The appliance is not suitable for installation in an area where a water jet could be used.

**CAUTION:**
If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

 

# SYSTEM OVERVIEW

## DROP-IN PRODUCT OVERVIEW

The Drop-In IntelliCarb™ consists of the following:

1. Front inlet fittings
2. 75 lbs., 80 lbs., 100 lbs., and 130 lbs. capacity ice bin
3. Foamed polyurethane insulation
4. Key lock switch
5. 9 3/4 inch cup clearance
6. Extended drip-tray for cup staging, removable for cleaning
7. High capacity 11/18 cold plate, 5-2-1 configuration
8. All fittings are 3/8 inch
9. Supports UF-1 fast flow (3.0 oz./sec.), UF-1 Ultra flow (4.5 oz./sec.), and UFB 2.0 - 4.0 valves
10. Improved ability to clean outlet line area
11. Lighted and non-lighted merchandiser options
12. Optional cabinet stand for free standing installations.


**Figure 1. Drop-in Unit**



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# SPECIFICATIONS

## Drop-In Dimensions (CB1522)

| | |
|---|---|
| Counter Top Cutout | 15 1/4 x 23 1/4 inches |
| Height above counter | 18 inches |
| Width | 15 inches |
| Depth | 23 inches |
| Shipping weight (approx) | 235 pounds |

## Drop-In Dimensions (CB2323)

| | |
|---|---|
| Counter Top Cutout | 23 1/4 x 23 1/4 inches |
| Height above counter | 18 inches |
| Width | 23 inches |
| Depth | 23 inches |
| Shipping weight (approx) | 235 pounds |

## Drop-In Accessories — Optional

| | |
|---|---|
| Lighted marquee merchandise | 166208004 |
| Cabinet stand | 165492000 |

## Custom Compact Dimensions

| | |
|---|---|
| Counter Top Cutout | 23 1/4 x 23 1/4 inches |
| Height above counter | 18 inches |
| Height of Merchandiser | 8 inches |
| Width | 23 inches |
| Depth | 23 inches |
| Shipping weight (approx) | 235 pounds |

## Drop-in Dimensions (CB3023)

| | |
|---|---|
| Counter Top Cutout | 30 1/4 x 23 1/4 inches |
| Height above counter | 18 inches |
| Width | 23 inches |
| Depth | 23 inches |
| Shipping weight (approx) | 285 pounds |

 

# INSTALLATION

**WARNING:**
It is the responsibility of the installer to ensure that the water supply to the dispensing equipment is provided with portion backflow by an air gap as defined in ANSI A112.1.2-1979; or an approved vacuum break or other such method as proved effective by test and must comply with all federal, state and local codes.

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

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

## INSTALLATION REQUIREMENTS

## Requirements Summary

| | |
|---|---|
| Weight: | Counter must be level and able to support 450 lbs. |
| Environment: | Indoor installation only |
| Temperature: | 40 to 100° F ambient temperature |
| $CO_2$: | 75 psi at unit |
| Syrup: | 60 psi. min., .70 –.75 ounces per sec., not to exceed 3.75 oz/sec Finished Product Flow Rate (.6 gpm) at unit |
| Water Pressure | 60 psi (0.4136 Mpa) max. at pump |
| Electrical: | See name plate |
| Water Volume | 125 gph |
| Product Supply Beverage Tubing | .375 min. |

**CAUTION:**
The appliance is not suitable for installation in an area where a water jet could be used.

**IMPORTANT: Maximum tilt of appliance for safe operation is 10 Deg.**



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# DELIVERY INSPECTION AND UNPACKING

## Inspection

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

Open loose parts packages and inspect parts.


**Figure 2.**

Make sure all items are present.

| Part Name | Drop-In | |
|---|---|---|
| | P/N | Qty. |
| Pump &motor assy. | 629087457 | 1 |
| 4" legs | N/A | N/A |
| Clamps | Oetiker | N/A |
| Drain pan drain line | 167090002 | 1 |
| Cold plate drain line | 167467072 | 1 |
| Merchandiser assy. | 166167010 | 1 |
| Transformer | 630001233 | 1 |
| Ftg-3/4 Soc x 3/4 fpt | N/A | N/A |
| Ftg-3/4 mptx1” barb | N/A | N/A |

 

# INSTALLATION PROCEDURE

## Back Room Package

## Tubing

**NOTE: Tubing, hoses, and cabling can come from underneath or in back of the unit.**

Run bundled tubing from back room to dispenser location.

## Water

1. Install water filter system between booster pump and water pressure regulator.

**Figure 3. Pre filter (P/N 605620)**

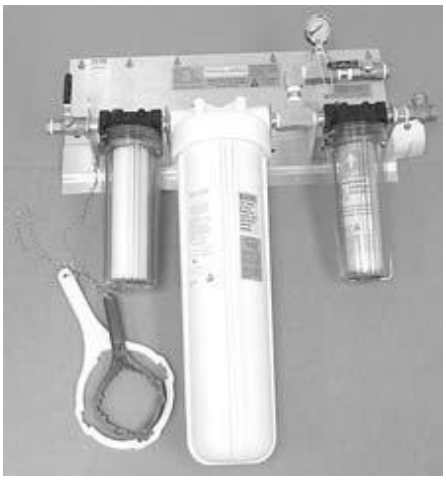

**Figure 4.Main Filter (P/N 605625ST)**

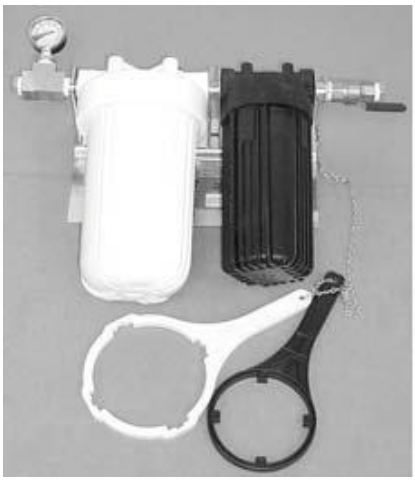

**Figure 5. Polyphosphate feeder (Ice maker)**

**NOTE: Recommended shut off valve be installed on outlet side of filter system.**

2. Run water line from source to inlet connection on booster pump.
3. Connect water line from booster pump outlet to water filter system inlet.



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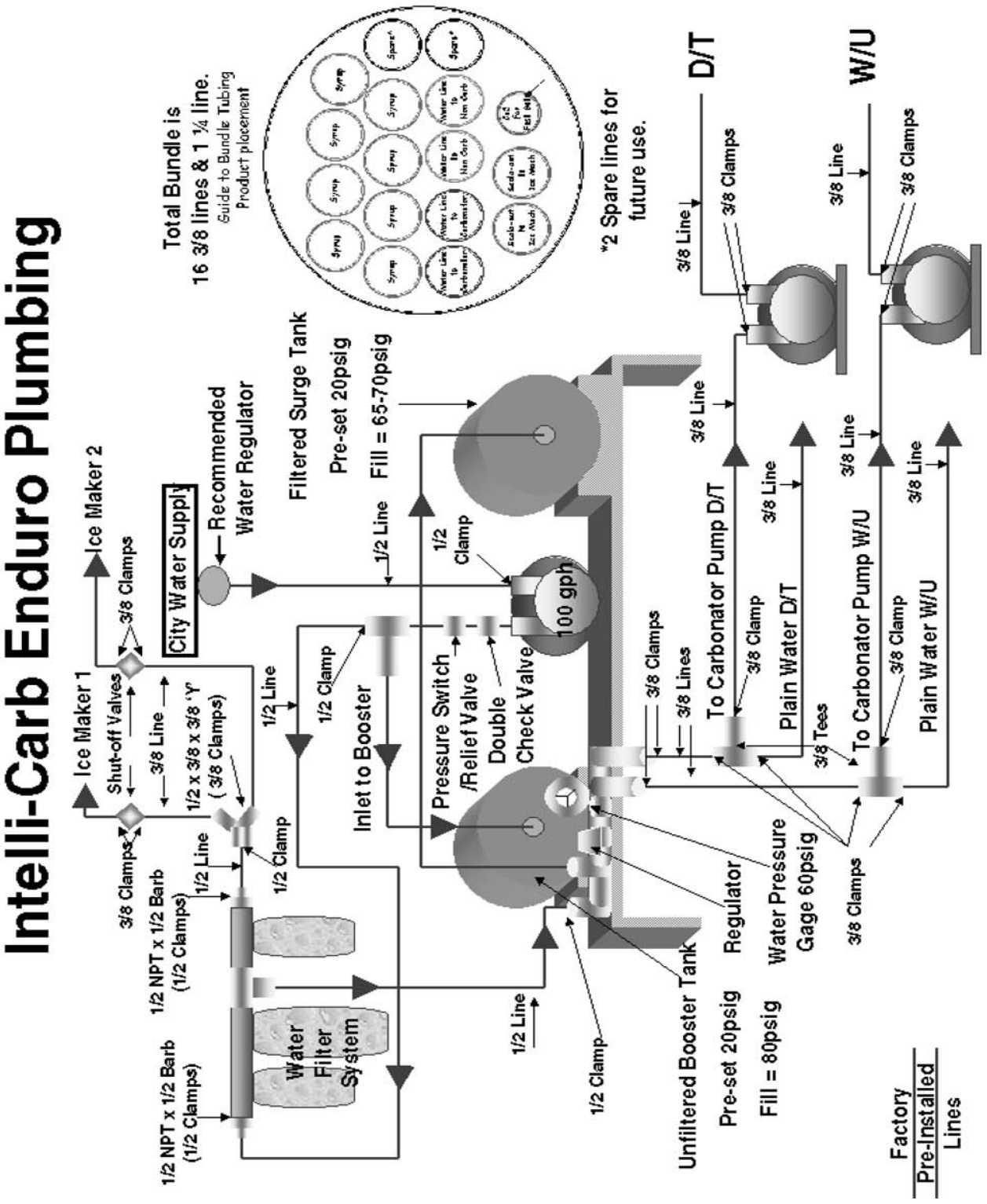


**Figure 6.**

**NOTE: Do not route beverage make up water through polyphosphate feeder.**

 

4. Connect from water filter system outlet to water regulator assembly and tee to surge tank.

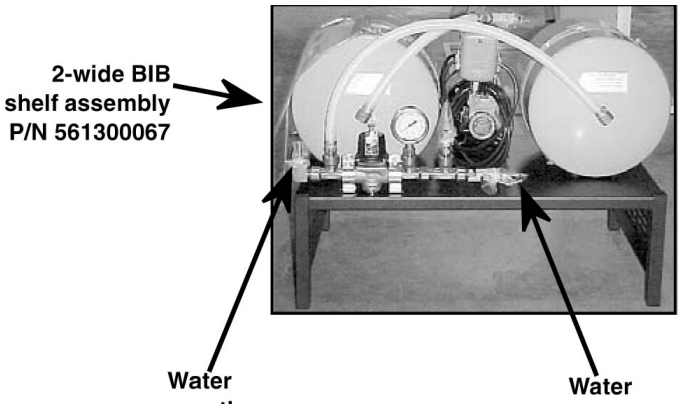


**Figure 7. 2-Wide BIB Shelf Assembly**

5. Connect water lines from manifold outlet to water line going to each dispenser.

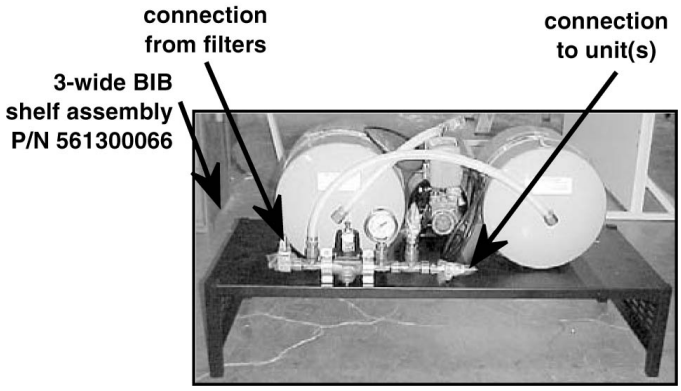


**Figure 8. 3-Wide BIB Shelf Assembly**

## Syrup

Connect syrup lines from bundled tubing to BIB pump outlet fitting.

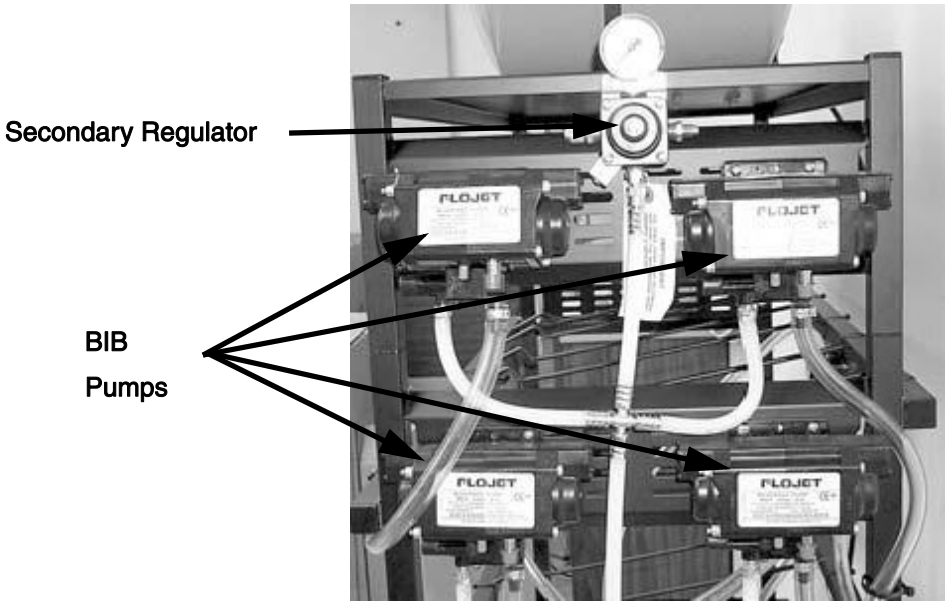


**Figure 9.**



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## High Pressure Cylinder $CO_2$

1. Connect primary regulator manifold to high pressure cylinder $CO_2$ source and connect tubing to the secondary regulator mounted on the side of BIB rack.
2. Connect one $CO_2$ line from the bundled tubing to the primary regulator manifold on $CO_2$ source to supply each dispenser.

## Bulk $CO_2$ Tank

Connect bulk $CO_2$ tank to the secondary regulator mounted on the side of BIB rack. **DO NOT USE PRIMARY REGULATOR WITH BULK $CO_2$ TANKS.**

## Non Carb to Carb Conversions

### 1522-2323-3023 Drop-In 8-Valve Units 5-2-1 Coldplate Conversion Instructions Non Carb to Carb Valves

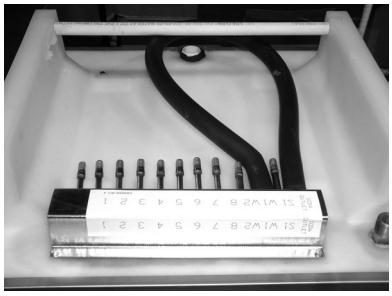

**Figure 10. For One Additional Carbonated Valve.**

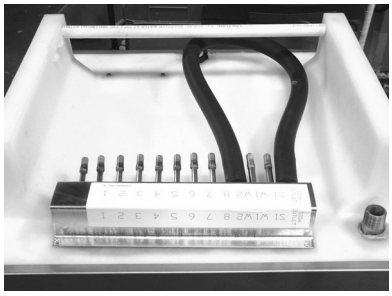

**Figure 11. For Two Additional Carbonated Valves**

**Figure 12. For All Carbonated Valves**

**NOTE: Use wye fitting from the bag assembly for this option.**

 

## 1522 Drop-In 6 Valve Units 5-1 Cold plate
## Conversion Instructions Non Carb to Carb Valves

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

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

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

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

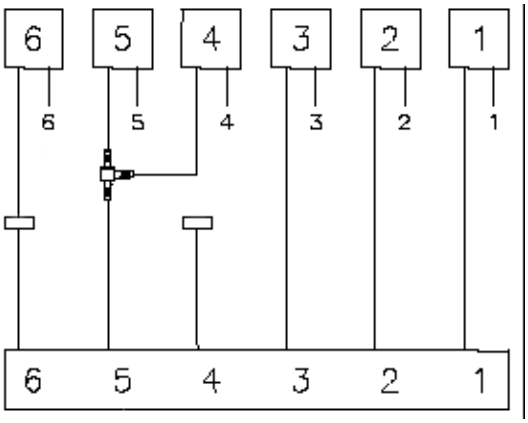


**Figure 13. For One Additional Carbonated Valve**

1. Remove the drip tray, cup rest and front panel.
2. Cut the water line to valve number 4 at the inlet to the mounting block.
3. Cap the line on the cold plate side.
4. Cut the number 5 carbonated water line, put a barbed stainless steel tee into the number 5 carbonated water line and run from the branch of the tee to the inlet or the number 4 valve.

## Conversion Instruction Carb to Non Carb Valves

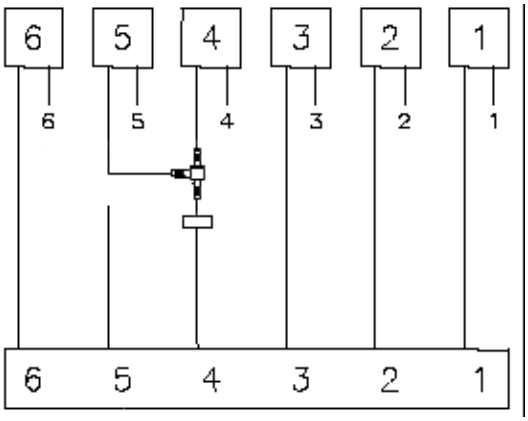


**Figure 14. For One Additional Non Carbonated Valve**

1. Remove the drip tray, cup rest and front panel.
2. Cut the water lines to the valve number 5 at the inlet to mounting block.
3. Cap the line on the cold plate side.
4. Cut the number 4 non carbonated water line, put a barbed, stainless steel tee into the number 4 non carbonated water line and run from the branch of the tee to the inlet of the number 5 valve.



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## Drop-In Installation

1. Install dispenser in counter following standard procedures.
2. Use the Template supplied to mark the location of the hole to be cut into the counter top. Cut the hole as marked and remove the material.
3. Apply the double stick tape (if supplied with the loose shipped parts).

   **NOTE: To comply with the National Sanitation Foundation (NSF) requirements, the unit must be sealed to the counter top.**
4. Liberally apply a sealant, such as Dow Corning RTV 731 or equivalent, to the unit flange bottom surface.
5. Lower the unit into position to complete the seal of the rim to the counter top. Apply additional sealant around the rim to ensure a complete seal.

   **NOTE: Do not move the unit after positioning or the seal will be broken.**
6. Remove any excess sealant.

   **NOTE: For non-electrical valves, skip the next step.**
7. Mount the Transformer power supply under the counter, in a position to allow access to the electrical outlet and to allow the 24V power cord to reach the dispenser.
8. Install the drain hose to the ice bin drain fitting and route the drain hose to a permanent drain.
9. Mount secondary $CO_2$ regulator, carbonator pump with motor, and valve transformer in a convenient location, no more than 7 feet from the unit.


**Figure 15.**

10. Connect carbonator motor 3 wire plug to the tower 3 wire harness. Connect the tower 2 wire harness to the transformer
11. Connect $CO_2$ line from bundled tubing to fixed secondary regulator inlet fitting.Connect tubing from secondary regulator outlet to carbonator tank $CO_2$ inlet.Route $CO_2$ line down center channel raceway with wire harness.


**Figure 16.**

 

12. For 2323 Drop-In install a tee in water line (must be before pump). Run one line to carbonator pump inlet. Run other line to another tee.Connect two lines from second tee to “W1 & W2” plain water connections. Connect carbonator pump outlet to “S”
13. Connect syrup lines.
14. Connect fittings and drain hoses to ice bin and drip tray drains. Run separate hoses all the way to the drain. Allow a 3” air gap between the drain and the end of the hose. All connections must comply with local plumbing and health codes.

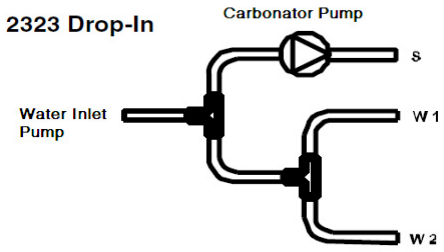


**Figure 17.**

15. Turn water supply on. Plug in water booster pump (on BIB rack). After the booster pump cycles off, check that water pressure regulator is set at 60 psi.
16. Turn $CO_2$ source on. Set secondary regulator for BIB pumps (located on side of rack) at 60 psi min. Bleed carbonator.
17. Fill bin with ice.
18. Plug in Pump Motor and valve transformer.The carbonator tank should fill in 7 to 12 seconds.Open each valve until carbonated water comes out.


**Figure 18.**

19. Connect syrup lines to bag-in-boxes. Bleed syrup from each valve.

## Free-Standing Dispenser

1. Install the 6” legs to the dispenser cabinet if they are to be used.
2. Place the dispenser in the location selected. Be sure the dispenser is level. This is important to ensure that the bin drains properly.
3. Mount the Transformer power supply in a convenient location to allow access to the electrical outlet and to allow the 24V power cord to reach the dispenser.
4. Install the drain hose to the ice bin drain fitting and route the drain hose to a permanent drain.



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# CLEANING AND MAINTENANCE INSTRUCTIONS

These instructions are used on all Cornelius ice drink dispensers. Some models may have additional cleaning requirements. Those models will have addition procedures listed later in the manual.

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

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

**⚠ CAUTION:**
Do not 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 2 packets (4 oz) of Stera Sheen Green Label into 2 gallons of warm (80 – 100° F) potable water to ensure 200 ppm of chlorine.

## DAILY CLEANING:

1. Remove cup rest from drip tray and clean with warm soapy water, rinse with clean water and allow to air dry.
2. Wipe down the exterior of the unit with warm soapy water, rinse with clean water and allow to air dry.
3. Remove valve nozzles and diffusers and wash in warm soapy water, rinse in clean water and allow to air dry.
4. Clean the interior of the ice chute using the brush provided with the unit with warm soapy water, rinse with clean water and allow to air dry.
5. Spray the ice chute inside and out with sanitizer and allow to air dry.
6. Pour warm soapy water down the drains to keep them clean and flowing smoothly.
7. Spray the nozzles and diffusers inside and outside with approved sanitizing solution, reinstall them on the valves and allow to air dry.
8. Reinstall the cup rest into the drip tray.
9. Pour all remaining sanitizer solution down the drains to help keep the drain clear.

## DAILY MAINTENANCE:

1. Check the temperature, smell and taste of the product.
2. Check the water pressure coming to the unit using the pressure gauges on the back room package.
3. Check carbonation of the drink
4. Check level of $CO_2$ supply to the system.
5. Check the date on all of the BIB's (bags in boxes).

## MONTHLY CLEANING: (IN ADDITION TO DAILY AND WEEKLY PROCEDURES)

1. Flush and sanitize all syrup lines as well as all of the syrup connectors. (See the sanitize syrup lines section shown later in this manual).
2. Remove ice from hopper and clean and sanitize the hopper. (See the Cleaning the interior surfaces section shown later in this manual).

 

## YEARLY MAINTENANCE:

1. Have the water pump and check valve inspected and cleaned by a qualified service technician.
2. Have the $CO_2$ gas check valve inspected and cleaned by a qualified service technician.

## Dispensing Valves: (Daily Cleaning)

Refer to addendum supplied with the unit that is applicable to the manufacturer of the valves installed on the unit.

## PRODUCT TUBING (MONTHLY CLEANING)

**IMPORTANT: Only trained and qualified persons should perform these cleaning and sanitizing procedures.**

### Sanitize Pre-Mix And Post–Mix Tank System

1. Remove all the quick disconnects from all the tanks. Fill a suitable pail or bucket with soap solution.
2. Submerge all disconnects (gas and liquid) in the soap solution and then clean them using a nylon bristle brush. (Do not use a wire brush). Rinse with clean water.
3. Prepare sanitizing solution and using a mechanical spray bottle, spray the disconnects. Allow to air dry.
4. Using a clean, empty tank, prepare five (5) gallons of the sanitizing solution. Rinse the tank disconnects with approximately 9 oz. of the sanitizing solution. Close the tank.
5. Prepare cleaning tank by filling clean five (5) gallon tank with a mixture of mild detergent and potable water ($120^oF$).
6. Connect a gas disconnect to the tank and then apply one of the product tubes to the cleaning tank. Operate the appropriate valve until liquid dispensed is free of any syrup.
7. Disconnect cleaning tank and hook up sanitizing tank to syrup line and $CO_2$ system.
8. Energize beverage faucet until chlorine sanitizing solution is dispensed through the faucet. Flush at least two (2) cups of liquid to ensure that the sanitizing solution has filled the entire length of the syrup tubing.
9. Allow sanitizer to remain in lines for fifteen (15) minutes.
10. Repeat the step above, applying a different product tube each time until all tubes are filled with the sanitizing solution.
11. Remove the nozzle and syrup diffuser and clean them in a mild soap solution. Rinse with clean water and reassemble the nozzle and syrup diffuser on the valve.
12. Rinse the parts in clean water, reassemble the valve and reconnect it to the dispenser.
13. Discard the tank of sanitizing solution and reconnect the product syrup tanks. Operate the valves until all sanitizer has been flushed from the system and only product syrup is flowing.

### Sanitize syrup lines, B–I–B Systems

1. Remove all the quick disconnects from all the B–I–B containers.
2. Fill a suitable pail or bucket with soap solution.
3. Submerge all disconnects (gas and liquid) in the soap solution and then clean them using a nylon bristle brush. (Do not use a wire brush). Rinse with clean water.
4. Using a plastic pail, prepare approximately five (5) gallons of sanitizing solution.
5. Rinse the B–I–B disconnects in the sanitizing solution.
6. Sanitizing fittings must be attached to each B–I–B disconnect. If these fittings are not available, the fittings from empty B–I–B bags can be cut from the bags and used. These fittings open the disconnect so the sanitizing solution can be drawn through the disconnect.



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7. Place all the B–I–B 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 lines for fifteen (15) minutes.
8. Remove the nozzle and syrup diffuser from each valve and clean them in a soap solution. Rinse with clean water and reassemble the nozzle and syrup diffuser to the valve.
9. Remove the sanitizing fittings from the B–I–B disconnects and connect the disconnects to the appropriate B–I–B container. Operate the valves until all sanitizer has been flushed from the system and syrup is flowing freely.

## Replenishing $CO_2$ Supply (As Required)

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

1. Fully close (clockwise) the $CO_2$ cylinder valve.
2. Slowly loosen the $CO_2$ regulator assembly coupling nut allowing $CO_2$ pressure to escape, then remove the regulator assembly from the empty $CO_2$ cylinder.
3. Unfasten safety chain and remove the empty $CO_2$ cylinder.

**WARNING:**
To avoid personnel injury and/or property damage, always secure the $CO_2$ cylinder with a safety chain to prevent it from falling over. Should the valve become accidentally damaged or broken off, a $CO_2$ regulator can cause serious personnel injury or death could occur.

4. Position the full $CO_2$ cylinder and secure with a safety chain.
5. Make sure gasket is in place inside the $CO_2$ regulator assembly coupling nut, then install the regulator assembly on the $CO_2$ cylinder.
6. Open (counterclockwise) the $CO_2$ 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).
7. Check $CO_2$ connections for leaks. Tighten any loose connections.

## Cleaning the Ice Bin

1. Prepare a mild detergent soap solution in 100°F potable water.
2. Using a nylon (not wire) bristle brush, clean the cold plate and the interior of the ice bin with the soap solution.
3. Rinse the cold plate and interior bin surfaces with clean potable water.
4. Using a mechanical spray bottle, prepare a sanitizing solution according to the manufacture's directions and spray the entire interior bin surfaces. Allow to air dry.

## Connecting Product to the Dispenser

**NOTE: All inlet connections are clearly marked with a label adjacent to the inlet connections.**

**NOTE: Always leak check all connections.**

Post-Mix units must have syrup, carbonated water and plain water connected. The number of syrups will depend on the number of valves on the dispenser. Refer to the plumbing diagram for details of the hookup.

Pre-Mix units must have a pre-mix supply connected to each inlet for each valve supplied. Refer to plumbing diagram for details of the hook-up.

**NOTE: A plumbing diagram when supplied with the unit, can be found in the dispensing tower.**

 

## Preparing for Operation

On units Without Electrically Operated Valves, Skip Steps 1 and 2 Below

1. Plug transformer into electrical outlet. The 24V supply must be connected in the dispensing tower.
2. Turn the key-switch to the ON position. The ice-bin lid must be closed to allow the valves to operate.
3. Adjust the $CO_2$ regulators as indicated in the following chart:

| Post-Mix | |
|---|---|
| **Regulator** | **Pressure Setting** |
| Primary (Carbonator) feed line to Carb secondary regulator | 90-120 PSI |
| Secondary, Sugared Syrup Tank | 55 PSI min. |
| Secondary, Diet Syrup Tank | 8-12 PSI |
| Secondary, B-I-B | 60 PSI min |

4. Operate each valve until product is flowing.
5. Fill the bin with 32°F ice. DO NOT use ice taken directly from the freezer.
6. Adjust the brix (water-to-syrup ratio) for post-mix valves.



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# ADJUST WATER-TO-SYRUP RATIO

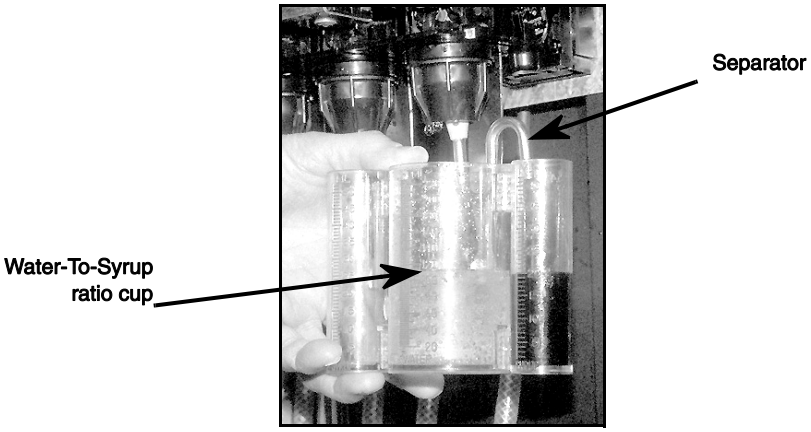


**Figure 19.**

1. Remove valve cover and install syrup separator over the diffuser and through the nozzle.
2. Hold cup under valve and dispense beverage for a specific time (i.e. 2 seconds).

**NOTE: Water and syrup must be cold before checking ratios.**

3. Adjust carbonated water flow to the desired rate (such as 90 to 110 ml (3 to 3.75 oz.) per second).
4. Turn the flow adjuster 1/4 of a turn at a time and recheck the flow. To increase reading turn clockwise.
5. Set syrup flow adjuster to get the desired ratio.
6. Test the valve and adjust until a consistent ratio is delivered three consecutive times.
7. Repeat procedure for other valves.

| Valve Type | |
|---|---|
| **Manufacturer** | **Maximum Operating Pressure** |
| **Portion Control** | |
| Cornelius | 130 psi |
| Flowmatic | 100 psi |
| **Pushbutton** | |
| Cornelius | 130 psi |
| Flowmatic | 100 psi |
| **Lever Type** | |
| Cornelius | 130 psi |
| Flowmatic | 100 psi |
| **Autofill Lever** | |
| Cornelius | 130 psi |
| Flowmatic | 100 psi |
| **Non-Electric** | |
| Cornelius | 130 psi |

 

# 5-2-1 Cold Plate Plumbing & Wiring Diagram for CB3232 and CB3023

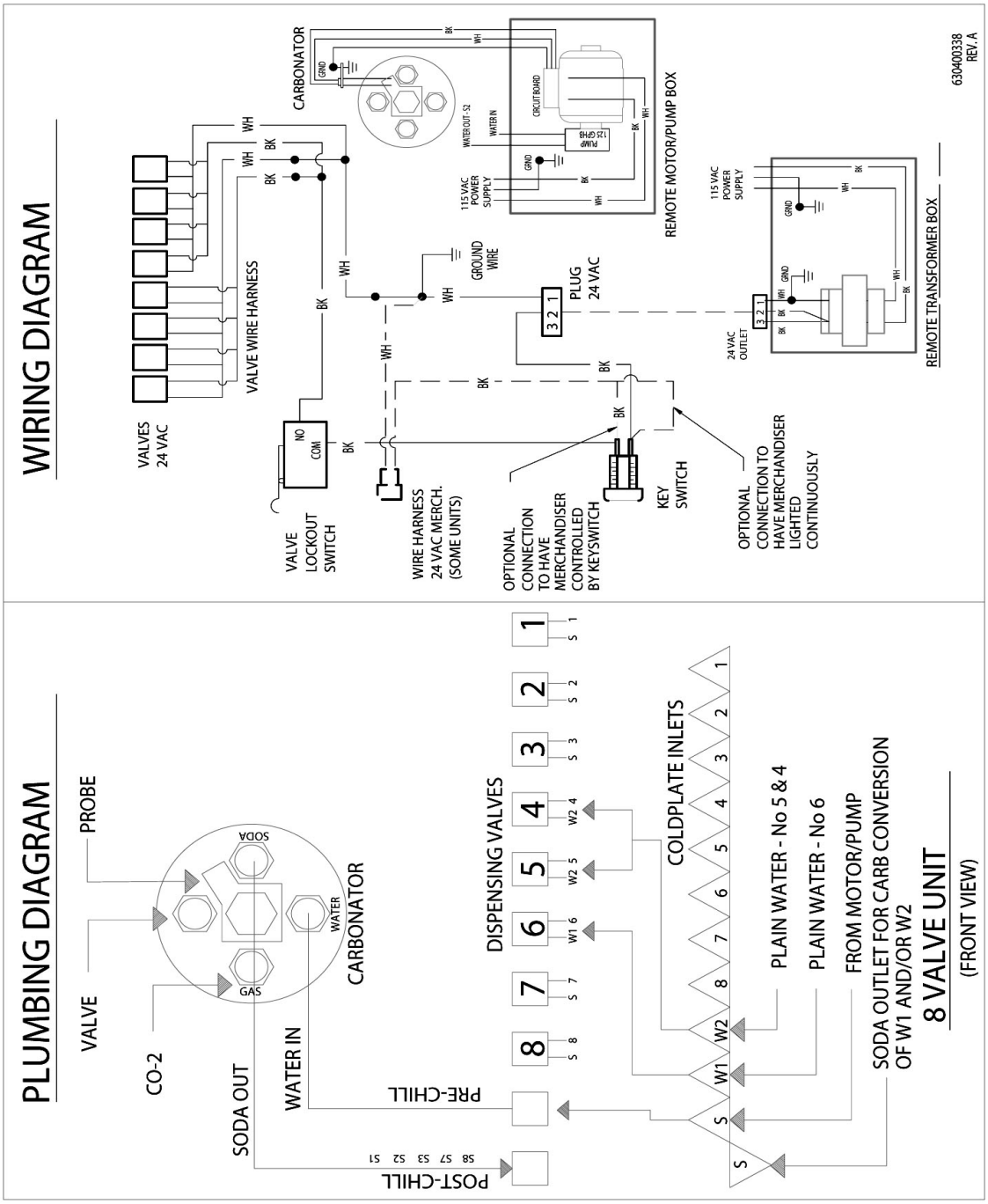


**Figure 20.**

# 5-1Cold Plate Plumbing & Wiring Diagram for CB1522

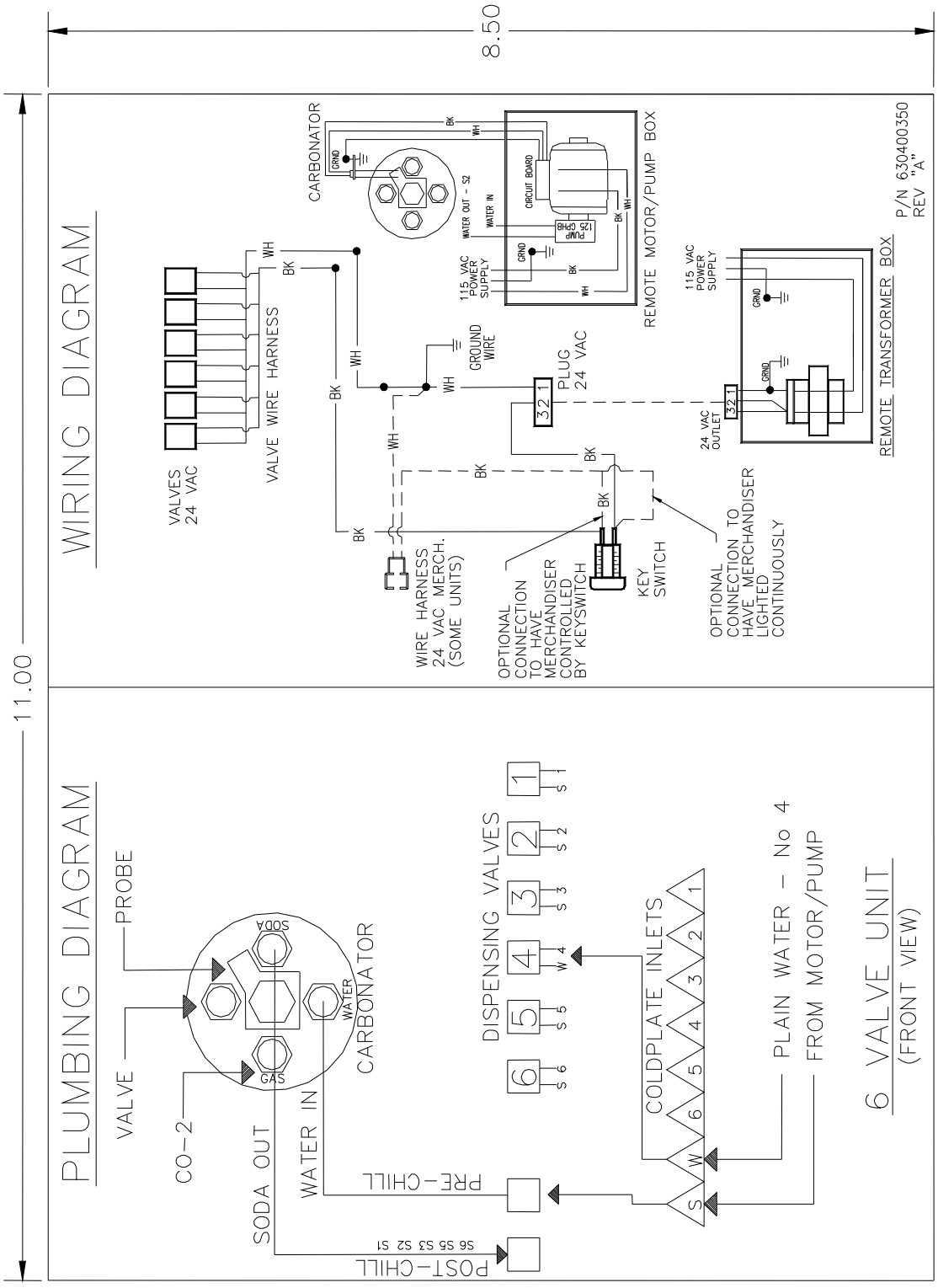


**Figure 21.**

 

# IntelliCarb™ Back Room Plumbing and Settings

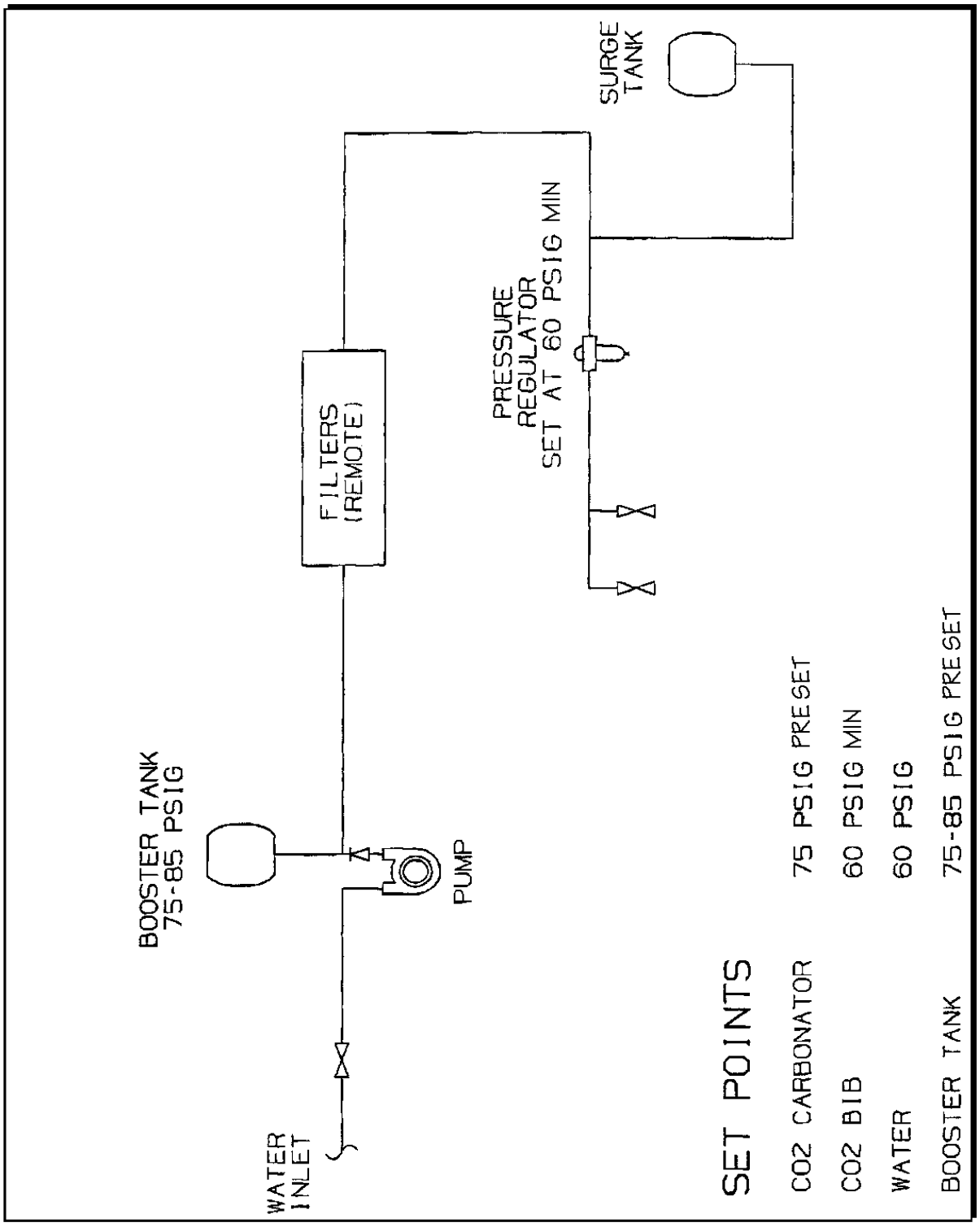


**Figure 22.**

## Removal and Installation of Carbonator

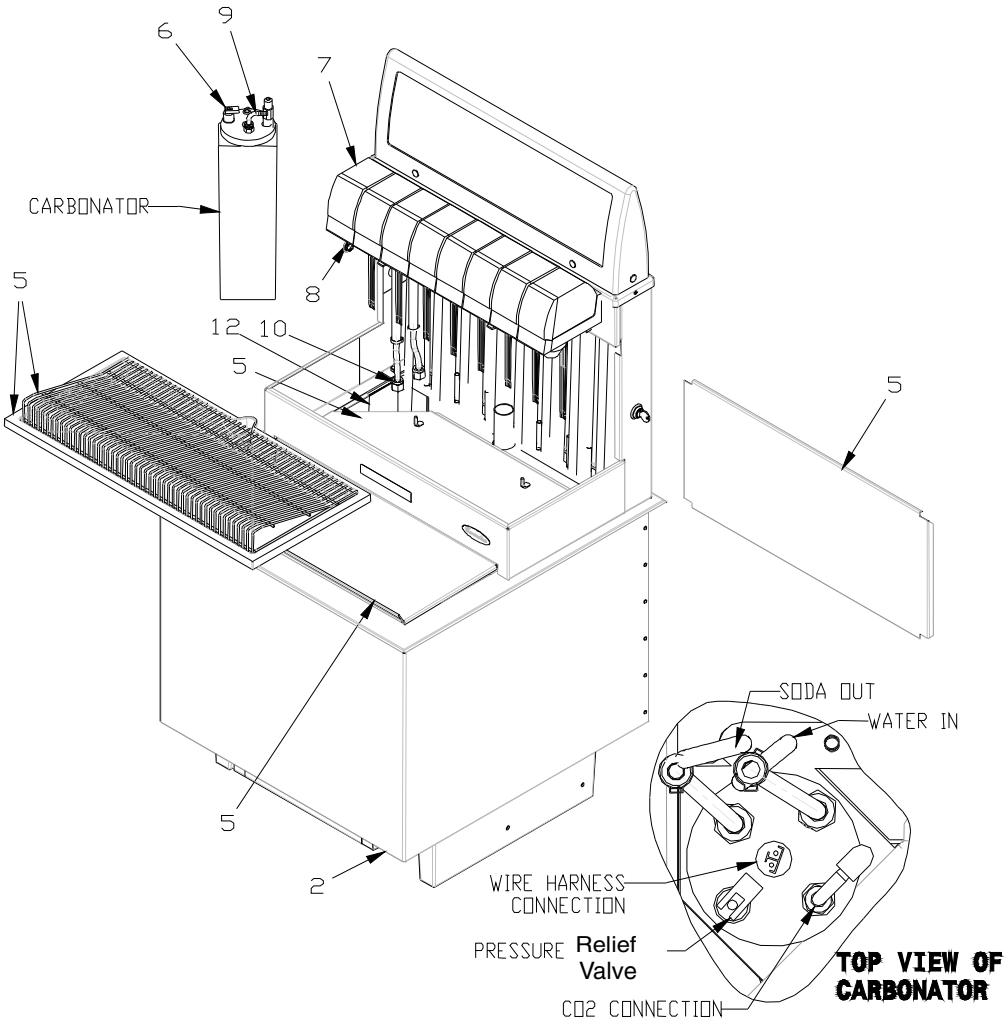


**Figure 23.**

## Carbonator Removal

**WARNING:**

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

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

**WARNING:**

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

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

1. Remove ice from bin.
2. Disconnect the power to the unit and to the pump and motor.
3. Shut off the $CO_2$ supply that is connected to the Carbonator.
4. Shut off the water supply that is connected to the pump and motor.

 

5. Remove Cup Rest, Splash Panel, Drip Tray, Sliding Lid and Sanitary Plate.
6. Relieve pressure in the system by flipping the pressure relief valve to the up position on the Carbonator.
7. Remove front cover, back cover and valve body of No. 8 (left side).
8. Remove the plug button on the left side of tower and cover hole with tape (safety).
9. Disconnect the barb fitting for the $CO_2$ line on Carbonator.
10. Disconnect the barb fitting on the Carbonator lines to the cold plate tubes.
11. Disconnect probe wire from pump and motor harness.
12. Cut the silicone seal with putty knife around Carbonator a minimum of 1.5” deep and remove.

## Carbonator Installation

**Figure 24.**

1. Clean around Carbonator tank opening removing all silicone, and make sure cavity is clean and dry.
2. Place new Carbonator in place of the old one.
3. Reconnect probe wire harness to pump and motor.
4. Seal top of Carbonator with silicone.
5. Connect the $CO_2$ line from the barbed fitting Carbonator and tighten to 80+/- 10 in pounds (Note: replace white gasket).
6. Reconnect the Carbonator lines to the Carbonator.
7. Reinstall valve body, back cover and front cover of the valve No. 8 to unit.
8. Turn on the $CO_2$ supply that is connected to the Carbonator.
9. Turn on the water supply that is connected to the pump and motor.
10. Reconnect the power to the unit and to the pump and motor.
11. Test system and pump and motor for leaks.
12. Apply insulation tape as needed to cover tubes on Carbonator.
13. Remove and clean all foreign substance from bin and replace ice.
14. Replace Sanitary Plate, Sliding Lid, Drip Tray, Splash Panel and Cup Rest.



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# PARTS LIST

## CB 1522 INTELLICARB™ STAINLESS TOWER 75 lb with 12X4 Carbonator

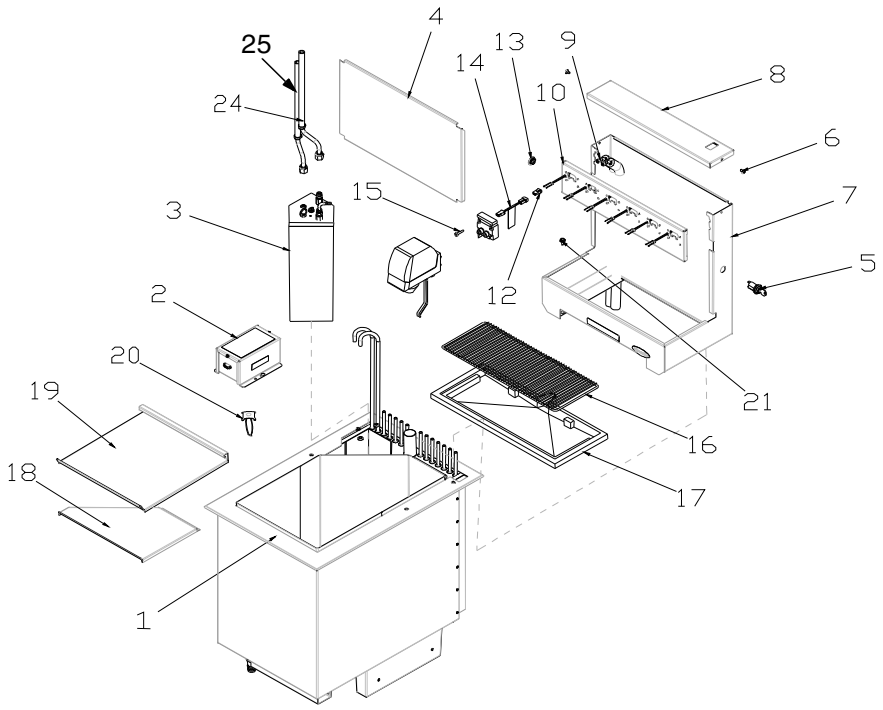


**Figure 25.**

| Item No. | Part No. | Name |
|---|---|---|
| 1 | 630201450 | Frame Dec CB1522 |
| 2 | 630001233 | Transformer 115/24 RMT 75VA |
| | 740001323 | Transformer 230/24 , 96VA |
| 2a | 620049959-000 | Power Cord (See note below) |
| 3 | 630001125 | Tank Carb Foam Asy 4X12 |
| 4 | 167491001 | Splashguard Panl SBR TWR GE |
| 5 | 163545001 | Switch Key-Lock Termi |
| 6 | 161168014 | Screw Ma 1032 012TR SS PH |
| 7 | 630000794 | Tower W/A 18” SS BLT DN 1522 |
| 8 | 167244008 | Cover TWR 18.5 x 3.5 SS |
| 9 | 162968004 | Hose 0.265F 16” |
| 10 | 630201568 | Panel 6 Vlv 18” SS Twr Variety Hole . |
| 11 | 630300344 | Harn Wire 6 Val 2CR 3.50SPC |
| 12 | 163518000 | Conn Elec Mate-N-Lok 2CR |
| 13 | 168462002 | Plug-Butn 1/2 Hole STNI SWC |

| Item No. | Part No. | Name |
|---|---|---|
| 14 | 630300373 | Harn Wire Jumper (Opti-Fill only) |
| 15 | 620700602 | Screw TF SM 10-16 RDPH 32 SS |
| 16 | 630200858 | Cup-Rest CB1522 Opti (Opti-Fill only) |
| | 167787000 | Cup-Rest 1522SST STND |
| 17 | 630900910 | Drip-Tray 18” 1522 Intelli Carb |
| 18 | 630201065 | Plate Sanitary 75# Intelli Carb |
| 19 | 630201068 | Lid Sliding 1522 Intelli Carb |
| 20 | 162865010 | Strainer Corner Drain W/A |
| 21 | 168745001 | Bolt MA 1/4-20 HX 16 STZI |
| 22 | 630300341 | Harn Wire TWR 96” 2 CR 25R |
| 23 | 629087457 | Pump Asy MTR |
| 24 | 630000952 | Hose Asy Carb to C-PLT S-Tube 1522 |
| 25 | 630000951 | Hose Asy Carb to C-PLT Barb 2.47” |

**NOTE: 2a, only pertain to International products. Please contact your Cornelius’ International Sales representative for a specific Country AC Line Cord part number.**

## CB 2323 INTELLICARB™ STAINLESS TOWER

### 100/ lb With 12 X 4 Carbonator

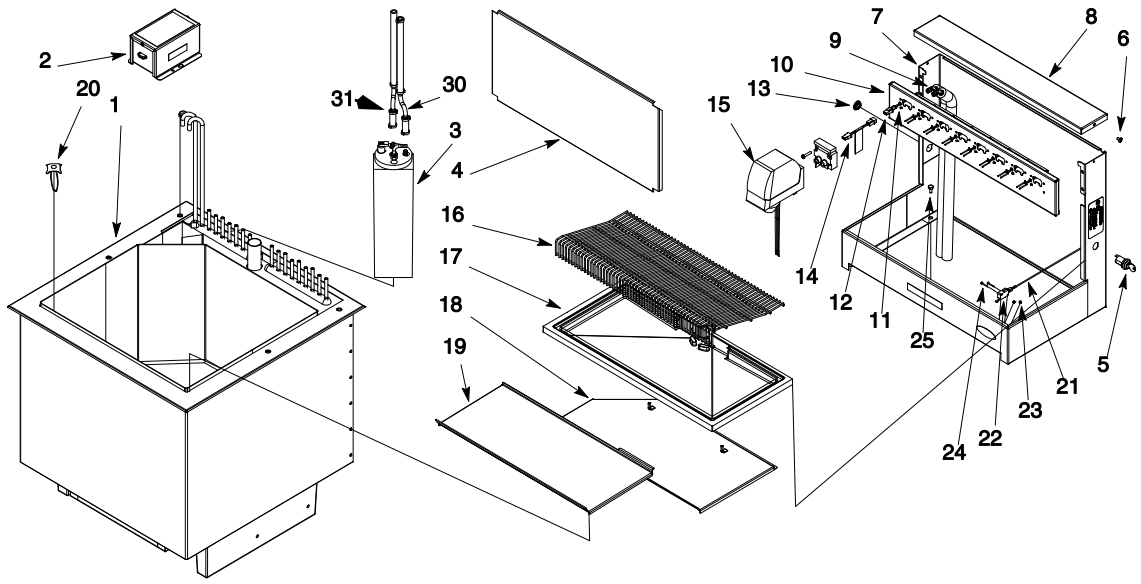


**Figure 26.**

| Item No. | Part No. | Name |
|---|---|---|
| 1 | 630201423 | Decorative Frame |
| 2 | 630001233 | Transformer Ass'y, 115/24V RMT 5V |
| | 740001323 | Transformer 230/24 , 96VA |
| 2a | 620049959-000 | Power Cord (See note below) |
| 3 | 630001125 | Carbonator (12 X 4) |
| 4 | 167491003 | Panel, Splash |
| 5 | 163545001 | Switch, Key Lock |
| 6 | 161168014 | Machine Screw, Phil Truss Hd., No. 10-32 By 3/8-In. Long |
| 7 | 630000631 | Tower |
| 8 | 167244007 | Cap, Tower |
| 9 | 162968004 | Hose,.265 I.D. |
| 10 | 630201551 | Panel 8vlv 23" SS TWR Variety Hole |
| | 630201561 | Panel Val 23" Twr 6 Fl SS Variety Val |
| 11 | 630300344 | Wire Harness, 6-Flavor |
| | 630300345 | Wire Harness, 8-Flavor |
| 12 | 163518000 | Connector, 2 Circuit |
| 13 | 168462000 | Button Plug |
| 14 | 630300373 | Wire Harness (Opti-Fil Valves only) |
| 15 | 620700602 | Screw TF SM 10-16 RDPH 32 SS |

| Item No. | Part No. | Name |
|---|---|---|
| 16 | 630900042 | Cup Rest, Grille (Opti-Fill) |
| | 167787002 | Cup Rest (Standard) |
| 17 | 63015005 | Drip Tray |
| 18 | 630000630 | Plate, Sanitary |
| 19 | 630200832 | Lid, Sliding |
| 20 | 162865010 | Strainer |
| 21 | 630300357 | Lead Wire, Black) |
| 22 | 167570001 | Switch, Valve Lockout |
| 23 | 21633 | Hex Nut, No. 4-40 |
| 24 | 21632 | Machine Screw, Rd Hd, No. 4-40 By 3/4-In. Long |
| 25 | 168745001 | Machine Screw, 1/4-20 By 1/2-In. Long |
| 26 | 630300341 | Wire Harness, Power Supply to Tower |
| 27 | 41710 | Fitting, 3/4-MPT By 3/4-Barb |
| 28 | 161508006 | Fitting, 3/4-FPT By 3/4-Barb |
| 29 | 629087457 | Pump and Motor with Double Check Valve |
| 30 | 630000951 | Hose Ass'y, Carb to Cold Plate |
| 31 | 630000952 | Hose Ass'y, Carb to Cold Plate S-Tube |

**NOTE: 2a, only pertain to International products. Please contact your Cornelius' International Sales representative for a specific Country AC Line Cord part number.**



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## CB 2323 INTELLICARB™ STAINLESS TOWER 80 lb With 8 X 4 Carbonator

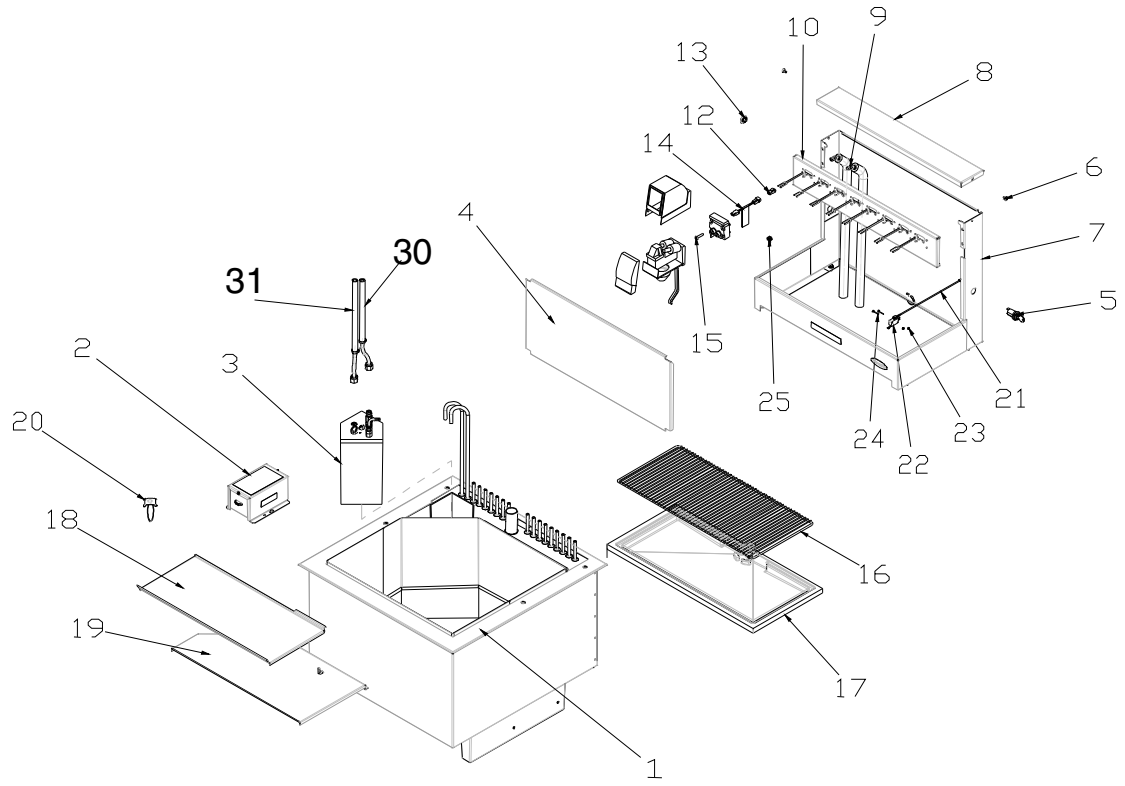


**Figure 27.**

| Item No. | Part No. | Name |
|---|---|---|
| 1 | 630201423 | Decorative Frame |
| 2 | 630001233 | Transformer Ass'y, 115/24V RMT 75V |
| | 740001323 | Transformer 230/24 , 96VA |
| 2a | 620049959-000 | Power Cord (See note below) |
| 3 | 630001124 | Carbonator (8 X 4) |
| 4 | 167491003 | Panel, Splash |
| 5 | 163545001 | Switch, Key Lock |
| 6 | 161168014 | Machine Screw, Phil Truss Hd.,No.10-32 By 3/8-In. Long |
| 7 | 630000631 | Tower |
| 8 | 167244007 | Cap, Tower |
| 9 | 162968004 | Hose,.265 I.D. |
| 10 | 630201551 | Panel 8VLV 23" SS TWR Variety Hole |
| | 630201561 | Panel Valve, 8-Flavor |
| 11 | 630300344 | Wire Harness, 6-Flavor |
| | 630300345 | Wire Harness, 8-Flavor |
| 12 | 163518000 | Connector, 2 Circuit |
| 13 | 168462000 | Button Plug |
| 14 | 630300373 | Wire Harness (Opti-Fil Valves only) |
| 15 | 620700602 | Screw TF SM 10-16 RDPH 32 SS |
| 16 | 630900042 | Cup Rest, Grille (Opti-Fil) |
| | 167787002 | Cup Rest (Standard) |
| 17 | 63015005 | Drip Tray |

| Item No. | Part No. | Name |
|---|---|---|
| 18 | 630000630 | Plate, Sanitary |
| 19 | 630200832 | Lid, Sliding |
| 20 | 162865010 | Strainer |
| 21 | 630300357 | Lead Wire, Black) |
| 22 | 167570001 | Switch, Valve Lockout |
| 23 | 21633 | Hex Nut, No. 4-40 |
| 24 | 21632 | Machine Screw, Rd Hd, No. 4-40 By 3/4-In. Long |
| 25 | 168745001 | Machine Screw, 1/4-20 By 1/2-In. Long |
| 26 | 630300341 | Wire Harness, Power Supply to Tower |
| 27 | 41710 | Fitting, 3/4-MPT By 3/4-Barb |
| 28 | 161508006 | Fitting, 3/4-FPT By 3/4-Barb |
| 29 | 629087457 | Pump and Motor with Double Check Valve |
| 30 | 630000952 | Hose Ass'y, Carb to Cold Plate |
| 31 | 630000951 | Hose Ass'y, Carb to Cold Plate |

**NOTE: 2a, only pertain to International products. Please contact your Cornelius' International Sales representative for a specific Country AC Line Cord part number.**

## CB 3023 INTELLICARB™ STAINLESS TOWER 130 lb With 12 X 4 Carbonator

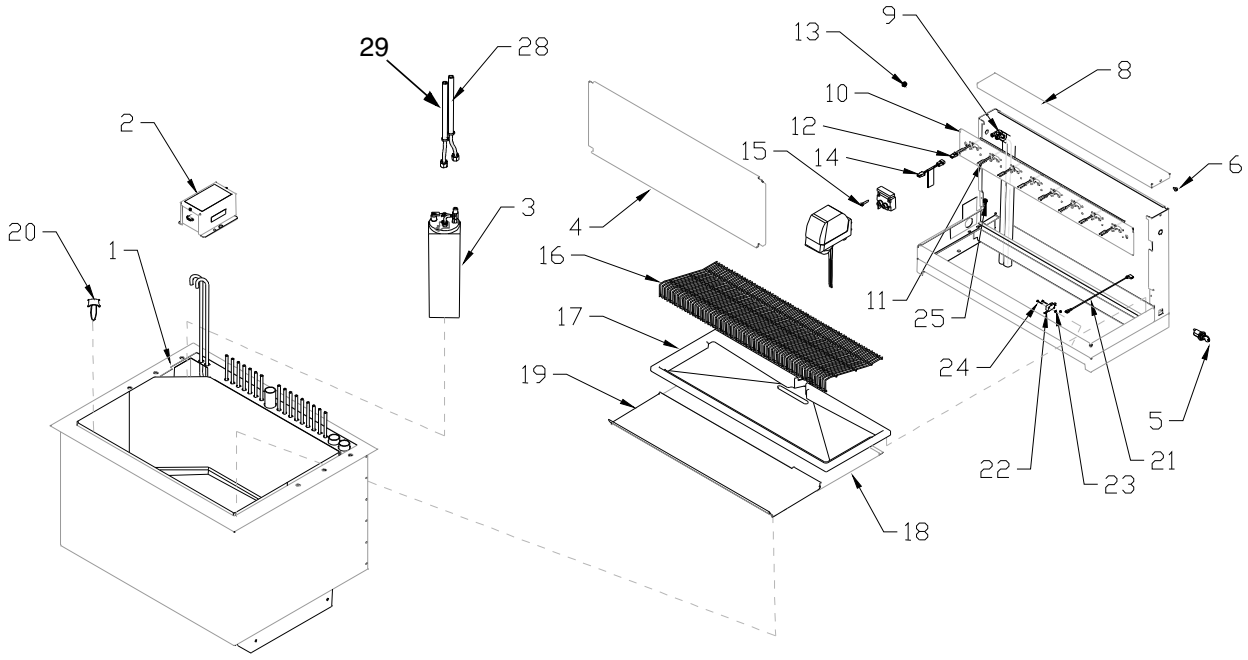


**Figure 28**

| Item No. | Part No. | Name |
|---|---|---|
| 1 | 630201469 | Frame Dec CB3023 |
| 2 | 630001233 | Transformer 115/24 RMT 75VA |
| | 740001323 | Transformer 230/24 , 96VA |
| 2a | 620049959-000 | Power Cord (See note below) |
| 3 | 630001125 | Carbonator Tank Assy |
| 4 | 167491009 | Splashguard Panl 30” SST |
| 5 | 163545001 | Switch Key-Lock Termi |
| 6 | 161168014 | Screw Ma 1032 012TR SS PH |
| 7 | 166114012 | Tower W/A 30” SS |
| 8 | 167244011 | Cover TWR 30” SS TWR |
| 9 | 162968004 | Hose 0.265F 16” |
| 10 | 630001123 | Panel 8vlv 30" SS TWE W/A Variety Hole |
| 11 | 630300345 | Harn Wire 8 Val 2CR 2.56SPC |
| 12 | 163518000 | Conn Elec Mate-N-Lok 2CR |
| 13 | 168462002 | Plug-Butn 1/2 Hole STNI SWC |
| 14 | 630300373 | Harn Wire Jumper (Opti-Fill only) |
| 15 | 620700602 | Screw TF SM 10-16 RDPH 32 SS |

| Item No. | Part No. | Name |
|---|---|---|
| 16 | 167787013 | Cup-Rest CB3023 Opti (Opti-Fill only) |
| | 167787007 | Cup-Rest 3023SST STND |
| 17 | 167481019 | Drip-Tray 30” TWR BLK |
| 18 | 630000658 | Plate Sanitary W/A 30” Intelli |
| 19 | 630200933 | Lid SLI 3023 Intelli Carb |
| 20 | 162865010 | Strainer Corner Drain W/A |
| 21 | 630300357 | Lead Wire 22” BK 20G2 187-250 |
| 22 | 167570001 | Switch Val Lock-Out |
| 23 | 21633 | Nut Hex 04-40 STZI |
| 24 | 21632 | Screw MA 04-40 RD 24 STZI |
| 25 | 168745001 | Bolt MA 1/4-20 HX 16 STZI |
| 26 | 630300341 | Harn Wire TWR 96” 2CR 25R |
| 27 | 629087457 | Pump Asy Mtr |
| 28 | 630001001 | Hose Asy Carb to C-Plt S-Tube |
| 29 | 630001006 | Hose.375 12” OPNXOPN |

**NOTE: 2a, only pertain to International products. Please contact your Cornelius’ International Sales representative for a specific Country AC Line Cord part number.**



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# TROUBLESHOOTING

**WARNING:**
If repairs are to be made to $CO_2$, concentrate, or plain water systems, close $CO_2$ cylinder shutoff valve, disconnect concentrate bag-in-box container, shutt off plain water and bleed systems pressures by operating the dispensing valves.

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

| Trouble | Probable Cause | Remedy |
|---|---|---|
| Adjustment of dispensing valve syrup flow regulator does not increase to desired water-to-syrup "ratio" | A. Dispensing Valve syrup flow regulator, syrup tank quick disconnect, or syrup line restricted. | A. Sanitize syrup system as instructed. |
| | B. Syrup tank quick disconnects not secure. | B. Secure quick disconnects. |
| | C. Syrup tanks secondary $CO_2$ regulator out of adjustment. | C. Adjust syrup tanks secondary $CO_2$ regulator as instructed. |
| | D. No syrup supply. | D. Replenish syrup supply. |
| | E. Improper syrup Baume. | E. Replace syrup supply. |
| | F. Dirty or inoperative piston or spring in dispensing valve syrup flow regulator. | F. Disassemble and clean dispensing valve syrup flow regulator. |
| | G. Tapered nylon washer inside tube swivel nut connector distorted from being overtightened. | G. Replace nylon washer and make sure it seats properly. |
| Adjustment of dispensing valve syrup flow regulator does not decrease to desired water-to-syrup "ratio" | Dirty or inoperative piston or spring in dispensing valve syrup flow regulator. | Disassemble and clean dispensing valve syrup flow regulator. |
| Dispensed product carbonation too low | A. Air in carbonator tank. | A. Vent air out of carbonator tank through relief valve. Actuate dispensing valve carbonated water lever to make carbonator pump cycle on. |
| | B. Water, oil or dirt in $CO_2$ supply | B. Remove contaminated $CO_2$. Clean $CO_2$ system (lines, regulators, ect.) using a clean $CO_2$ 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. | A. Use clean cup or glass. |
| | B. Ice used for finished drink is subcooled. | B. Do not use ice directly from freezer. Allow ice to become "wet" before using. (Refer to following NOTE). |
| **NOTE: Crushed ice in the glass also causes dispensing problems. When finished drink hits sharp edges of ice, carbonation is released from dispensed drink.** | | |

 

| Trouble | Probable Cause | Remedy |
|---|---|---|
| | C. Syrup over-carbonated with $CO_2$ as indicated by bubbles in inlet syrup lines leading to unit. | C. Remove syrup tanks quick disconnects. Relieve tank $CO_2$ pressure, shake tank vigorously, then relieve tank $CO_2$ pressure as many times as necessary to remove over-carbonation. |
| | D. Warm product-No ice in bin, bridged ice on cold plate or plugged drain. | D. Replenish ice, break ice up to eliminate bridging, unplug the drain. |
| **NOTE: If water supply is dirty, be sure to flush lines and carbonator completely. It may be necessary to remove lines to carbonator tank. Flush tank and all inlet lines to remove any foreign particles or dirt.** | | |
| No product dispensed from one dispensing valve | A. Broken or disconnected wiring.<br>B. Inoperative dispensing valve solenoid coil.<br>C. Inoperative dispensing valve micro switch. | A. Repair or connect wiring.<br>B. Replace solenoid coil as instructed.<br>C. Replace micro switch as instructed. |
| Only carbonated water dispensed. | A. Quick disconnects not secure on syrup tanks.<br>B. Out of syrup.<br>C. B-I-B connectors not properly connected.<br>D. Syrup secondary $CO_2$ regulator not properly adjusted.<br>E. Inoperable dispensing valve.<br>F. Dispensing valve syrup flow regulator not properly adjusted.<br>G. Dispensing valve syrup flow regulator, syrup tank quick disconnect, or syrup lines restricted. | A. Secure quick disconnects on syrup tanks.<br>B. Replenish syrup supply as instructed.<br>C. Properly attach the connectors.<br>D. Adjust syrup tanks secondary $CO_2$ regulator as instructed.<br>E. Repair dispensing valve.<br>F. Adjust dispensing valve syrup flow regulator (Water-to Syrup “Ratio”) as instructed.<br>G. Sanitize syrup system as instructed. |
| Only syrup dispensed | A. Plain water inlet supply line shutoff valve closed.<br>B. Carbonator power cord unplugged from electrical outlet. | A. Open plain water inlet supply line shutoff valve.<br>B. Plug carbonator power cord into electrical outlet. |



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| Troubleshooting for Carbonator | | |
|---|---|---|
| **Trouble** | **Probable Cause** | **Remedy** |
| Pump motor will not run | A. Locked pump rotor-dirt or pipe compound in pump; pump seized. | A. Remove and check for free rotation or replace. Also check $CO_2$ supply, faulty single check valve, liquid level control or probe. |
| | B. Carbonator flooded. | B. Main water supply pressure higher than $CO_2$ pressure within the carbonator. If maximum water supply pressure is within 20 PSI of $CO_2$ pressure, install water pressure regulator. |
| | C. No power. | C. Check source of electrical supply and for loose connections. |
| Pump runs continuously | A. Pump water supply restricted. | A. Check water filter and pump inlet strainer and clean. NOTE: Noisy pump operation usually indicates restricted water supply. Also check for faulty double check valve, water leak or low pump bypass. |
| | B. Pump discharge line restricted. | B. Water inlet check valve may be plugged. Remove, clean, or replace rubber O-Rings. |
| | C. Inefficient or worn pump. | C. To test for efficiency, disconnect discharge line from pump. Connect a 300 pound gauge and hand shut off valve to pump discharge. Start pump. Bleed off any air, close hand valve then observe pressure. If it is approximately 180 PSI, pump is O.K. If it is significantly below 180 PSI, it may be increased by adjusting the pump by-pass. Increasing the by-pass is accomplished by removing sealing acorn cap and turning the adjusting screw in. If pressure rises to 180 PSI, pump is O.K. If it is still below 150 PSI, and the screw is turned all the way in, the pump is worn. Replace. NOTE: Abadly worn pump and/or premature failure usually indicates foreign material in the supply water. Install a water filter in supply line. Also check for faulty liquid level control, corroded electrode, or broken pump shaft. |
| | D. Overdrawing. | D. Check capacity of pump. The combined rate of flow from dispensing valves should not exceed the stated GPH for pump, or pump will run continuously. |

 

## Troubleshooting for Carbonator

| Trouble | Probable Cause | Remedy |
|---|---|---|
| Noisy pump | A. Bad motor bearings or worn pump shaft. | A. Repair or replace motor. |
| | B. Failure of Triac on liquid level control. | B. Repair or replace liquid level control. |
| | C. Insufficient water supply. | C. Check that water supply is on. Also check for clogged water filter, ruptured tank or bad double check valve. |
| Valve delivers $CO_2$ gas continuously | A. Pump motor will not run. | A. See Pump Motor Will Not Run. |
| | B. Pump water supply restricted. | B. Clean strainer. Check for faulty double check valve. |
| | C. Relief valve venting. | C. Repair or replace. |
| | D. Worn pump. | D. See Pump Motor Will Not Stop. |
| Valve delivers soda water and $CO_2$ gas intermittenly | A. Pump water supply restricted. | A. Clean strainer. Check for faulty single check valve, clogged water filter, water supply off or blocked, ruptured tank, faulty liquid level control or double check valve. |
| | B. Relief valve venting. | B. Replace or repair. |
| | C. Inefficient or worn pump. | C. See Pump Motor Will Not Stop. |
| Poor carbonation | A. Flooded carbonator. | A. See Pump Motor Will Not Run. |
| | B. Water temperature too high (warm). | B. Check water inlet temperature. Lower temperature provides better carbonation. |
| | C. Oil in water supply. | C. Check pipe thread compound. Remove and clean and replace with PTFE pipe thread tape. |
| | D. Supply water containing too much air in solution. | D. To remove air before it enters pump, it will be necessary to install an open tank with float to control water level. |
| | E. Poor quality paper cups. | E. Purchase quality cups made for this application. |
| | F. Dirty or greasy glassware. | F. Wash all glassware. |
| | G. Excessive foam. | G. $CO_2$ BIB pump pressure too high, contamination within the beverage system, poor quality paper cups or dirty glassware. |
| | H. Flat drinks. | H. Draw drinks against side of glass or cup. Check for insufficient $CO_2$ contamination, bad check valve, ruptured $CO_2$ line |



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| TROUBLESHOOTING | | |
|---|---|---|
| **Trouble** | **Probable Cause** | **Remedy** |
| Drink has off-taste or odor (water contamination) | A. Leaking check valves. | A. Replace O-Rings in double check valve or replace double check valve. See check valve installation instruction section. |
| | B. Too much plumbers pipe compound on pipe joints. | B. Remove pipe compound and clean joints. Use PTFE pipe thread tape. |
| | C. Soda water and beverage lines made of brass or copper. | C. Carbonated water reacts with brass or copper and should not be dispensed through lines of this material. Replace lines with stainless steel or beverage grade plastic. |
| | D. High chlorine level. | D. Install water filter to eliminate chlorine in excess of 1.5 ppm. Use type that do not remove all chlorine. |
| | E. Tank corrosion. | E. Replace tank. |
| | F. Contaminated $CO_2$ | F. Check that $CO_2$ is beverage grade. |

 

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