



# **Blu-CE\_4 POST-MIX DISPENSER**

## **Installation, Operation & Service 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.

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### **Contact Information:**

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This document contains the original instructions for the unit described.

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# SAFETY INSTRUCTIONS

## READ AND FOLLOW ALL SAFETY INSTRUCTIONS

### Safety Overview

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

### Recognition



## 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.**

## ( CARBON DIOXIDE ) WARNING

 **WARNING:**

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 concentration of CO<sub>2</sub> gas will experience tremors which are followed rapidly by loss of consciousness and death.

 **CAUTION:**

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

 **CAUTION:**

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

## 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.**

 **WARNING:**

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

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance.

Cleaning and user maintenance shall not be made by children without supervision.

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

The appliance has to be placed in a horizontal position.

The appliance must not be cleaned by a water jet.

The A-weighted sound pressure level is below 70dB.

The access to the service area should only be permitted to persons having knowledge and practical experience of the appliance, in particular as far as safety and hygiene are concerned.

The appliance is only to be installed in locations where its use and maintenance is restricted to trained personnel.

 **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.

## COUNTER-TOP INSTALLATION

 **WARNING:**

When installing the unit in or on a counter top, the counter must be able to support a weight in excess of 400 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.**

**Note: This appliance is for indoor use only.**

### **Correct Disposal of this product**

This marking indicates that this product should not be disposed with other household wastes through 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.

# GENERAL INFORMATION

## GENERAL DESCRIPTION

This manual is a guide for installing, operating, and maintaining this equipment. This section gives the unit description, theory of operation and design data for Pathfinder post-mix beverage over counter dispenser. This unit must be installed and serviced by a qualified service person. This unit contains no user serviceable parts.

## WARRANTY REFERENCE INFORMATION

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

## UNIT DESCRIPTION

over the counter, post-mix, beverage dispenser is compact, lightweight, and can be ordered with or without a built-in carbonator. Syrup pump kits are available for the units.

### Blu-CE\_4 valve

The units may be island mounted or installed on a front or rear counter. The refrigeration deck is easily removed for service and maintenance. Adjustable water flow regulators and syrup flow regulators, located on dispensing valves, are easily accessible.

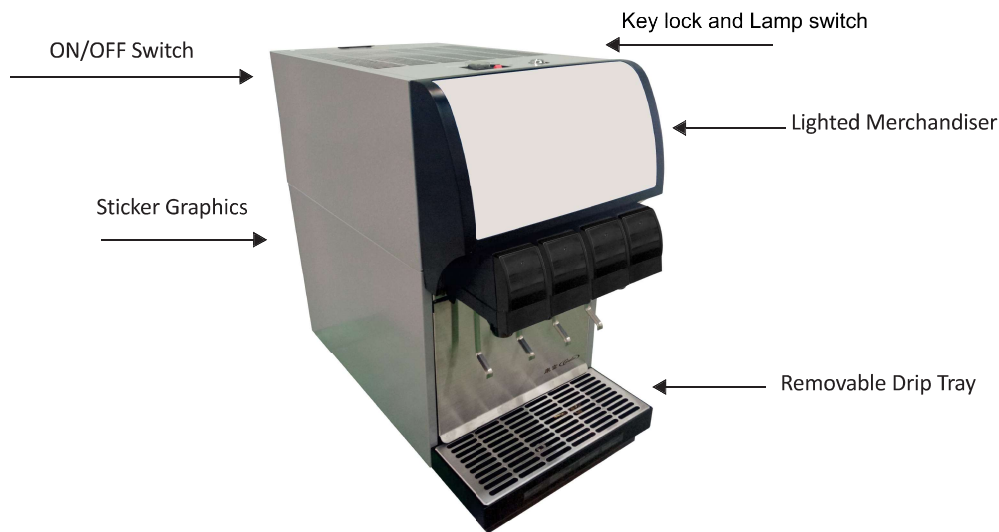


Figure 1.

Blu-CE\_4 over counter, post-mix, beverage dispenser offers the following features:

- Key-lock switch
- 4 valves on the unit
- Removable front panel
- Removable drip tray



## SPECIFICATIONS

Table 1.Dimensions		
Height	26 4/5 inches	680 mm
Width	13 4/5 inches	350 mm
Depth	25 3/5 inches	650 mm
Shipping Weight (approx.)	132 pounds	60 kg
Water Bath Size	9.5 gal (US)	36 l
Ice Bank Size	16.5 lb	7.5 kg

## Part Numbers

50 Hz Model, 230 VAC see nameplate

60 Hz Model, 230 VAC see nameplate

## Capacity

Assuming the following:

- 90°F (32°C) ambient temperature , drink Capacity 56 Cups ;
- 3 oz./sec. dispensing rate
- One 12 Oz.(340g) drink per minute at 90°F ( 32 °C) ambient temperature
- Drinks dispensed at 40° F (4.4 °C) or below for CSD drink
- Drinks dispensed at 45° F ( 7.2°C) or below for NCB drink

## THEORY OF OPERATION

**Note: The dispenser has one basic configure according to customer requirement.**

- 1.Flexible (Default setting is two CSD valve from right side and one NCB valve on the left, just only middle valve can transform CSD or NCB)**
2. ALL CSD Model;
3. ALL NCB Model;

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 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 in the same manner as the carbonated drink except plain water is substituted for carbonated water.

# INSTALLATION

**⚠ WARNING:**

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

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

**⚠ WARNING:**

This equipment must be installed to comply with the International Plumbing Code of the International Code Council and the Food Code Manual 01 the Food and Drug Administration (FDA). For models installed outside the U.S.A., you must comply with the applicable Plumbing/Sanitation Code for your area.

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

**⚠ WARNING:**

It is the responsibility of the installer to ensure that the water supply to the dispensing equipment is provided with protection back flow by an air gap as defined in ANSI A 112.1.2-1979; or an approved vacuum breaker 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.

## DELIVERY INSPECTION AND UNPACKING

### Inspection

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

### Unpacking

Remove shipping tape and other packing material. Unpack the loose parts and make sure all items are present.

Table 2.Loose Parts	
Name	Qty
Cup rest	1
Drip tray	1
Drain hose	1
Hose clamp	1
Service Manual	1

## INSTALLATION REQUIREMENTS

Table 3. Requirements Summary	
Weight	Counter must be level and able to support 400 lbs. (180 kg)
Environment	Indoor installation only
Temperature	59 ° F to 90° F (15° C - 32° C) ambient temperature
Clearance	18 - inches (0.45 m) above 6 - inches (0.15 m) on sides and rear
CO2	85 psi (5.9 bar)
Syrup	60 psi (4 bar)
Water	20-65psi (1.4-4.5bar) Use NCB must keep the pressure not less than 65psi
Electrical	See nameplate on unit for electrical requirements

### Electrical Requirements

Before connecting electrical power to the unit refer to nameplate to verify power requirements.

 **DANGER:**

To avoid possible serious injury or death the ELCB (earth leakage circuit breaker) must be installed in electrical circuit of all 50 Hz units.

 **WARNING:**

To avoid possible electrical shock the unit must be electrically grounded using the green grounding screw provided inside the electrical contactor box.

 **CAUTION:**

The wiring must be properly grounded and connected through a 10 - amp disconnect switch (slow-blow fuse or equivalent HVAC/R circuit breaker). **All wiring must conform to national and local codes. make sure unit is properly grounded.**

### Environmental Requirements

Ambient (room) temperature **MUST NOT EXCEED 90° F (32° C)**. Temperatures in excess of 90° F (32° C) will void the factory warranty and may eventually result in refrigeration system failure.

 **CAUTION:**

To avoid overheating and damaging to the unit, and voiding the warranty, there must be at least 6 - inch (0.15 m) of clearance on all sides and 18-inch (0.45 m) on the top of the unit.

 **CAUTION:**

This unit is designed for indoor installation only (in non-harsh environments).

 **CAUTION:**

If the unit is exposed to freezing temperature, water in the unit will freeze and may damage the unit.

 **CAUTION:**

Avoid spillage into the top vents.

# INSTALLATION PROCEDURE

## Counter-top Installation

1. Place the unit on a level counter capable of supporting at least 400 pounds (180 kg).
2. Remove drip tray and front access panel.



Figure 2.

Remove  
Splash  
Panel



Figure 3.

**⚠ 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.**

3. Remove two screws at top cladding. Next, lift the top cladding.
4. Fill the water bath with clean water until it comes out the overflow tube. Make sure the overflow tube is not blocked or plugged. Use loeral tap water, not distilled or de-ionized water.

open the red cap  
fill water through the hole



Figure 4.

**NOTE: Water bath must be filled with water before running the unit.**

5. Re-install the red cap, screws on the top cladding and grounding wire.
6. Connect LED wire and install the merchandiser.

## **Global Ice Bank Control (GIBO), Theory of operation**

Once electrical power is supplied to the unit, the agitator motor will start. There will be a 30 seconds delay before the refrigeration compressor and the condenser fan motor will start. This delay will occur each time electrical power to the unit is interrupted. The unit will continue to operate until ice covers all two stainless-steel pins on the ice bank control probe. The ice bank control module senses this by measuring the difference in electrical resistance between the water and the ice. When the ice on the evaporator coil becomes thick enough, it covers the two stainless-steel pins on the ice bank control probe. The control module senses there is enough ice and turns the refrigeration compressor and the condenser fan motor off. The unit remains off until the ice bank control three stainless-steel pins are free of ice. Once this happens, the ice bank control module starts the refrigeration compressor and the condenser fan motor.

## **Carbonator Control**

The carbonator control operates the mechanical switch to maintain the water level in the carbonator tank within pre-established limits.

## Connect Syrup, Water and Carbonated Water Lines

1. Route syrup and plain water lines from the back side of the unit and under the unit to the front. Connect the to the appropriate inlet connections.



Figure 5.

**⚠ WARNING:**

It is the responsibility of the installer to ensure that the water supply to the dispensing equipment is provided with protection back flow by an air gap as defined in ANSI A 112.1.2-1979; or an approved vacuum breaker 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.**

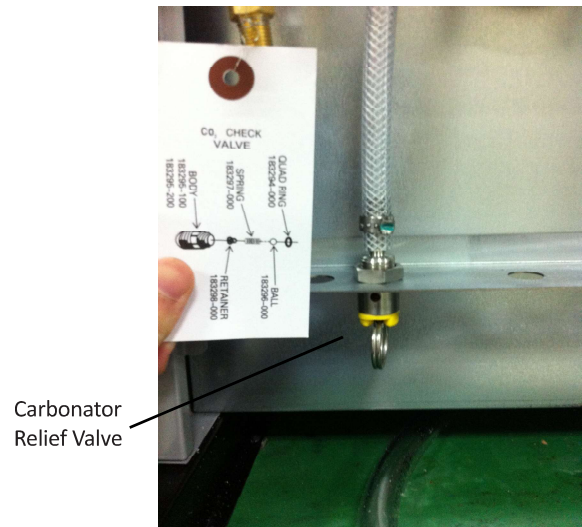
Water pipe connections and fixtures directly connected to a potable water supply shall be sized, installed and maintained according to Federal, State and Local laws.

**NOTE: If water supply pressure to the unit is less than 20 psi, a water pressure booster is required. If water supply pressure to the unit is more than 75 psi, a water pressure regulator must be installed in the supply line.**

**NOTE: A water shutoff valve and water filter in the water supply line are recommended.**

2. Connect optional drip tray drain hose (if used). Be sure remove the black cap if the drain hose is used.
3. Be sure that all syrup sources are connected and is on. Bleed each valve into a bucket until syrup comes out.
4. Re-install drip tray and position water bath overflow hose in drip tray indent.
5. Check the system for gas leaks by pressurizing the system and then turning off the cylinder valve. Wait a couple of minutes and check the cylinder gage to see if the pressure has dropped.
6. Supply the water, connect the power cord.

7. Supply the CO2 @85PSI to the unit, and keep it on.
8. Pull down and hold the ring of the relief valve for 5 seconds, to vent the air from carbonator tank. Wait for 1 minute and then repeat this operation for one more time.



**Figure 6.**

9. Turn on the unit, the carbonator pump will run. Then push the lever of all valves to vent the air in the water coils until water flow out normally;
10. Pull down and hold the ring of the relief valve for 5 seconds again, to make sure discharge all the air in the carbonator
11. Draw 3 drinks from every CSD valve and check whether there is still water drip at the relief valve.
12. Check the system for water and syrup leaks.
13. Re-install top and front vented panels as well as the front stainless steel panel.

## Adjust Water-To-Syrup Ratio

1. Remove valve front cover and install syrup diversion assembly in place of nozzle.

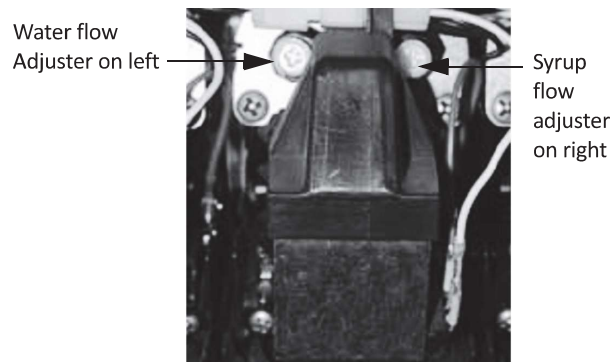


Figure 7.

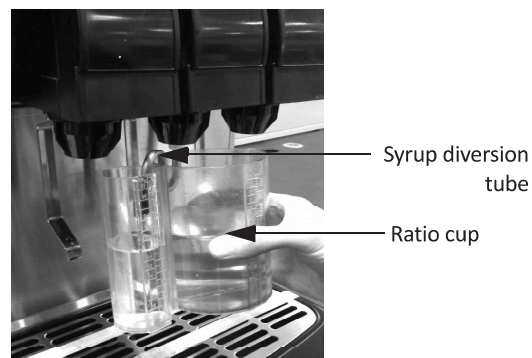


Figure 8.

2. Adjust carbonated water flow to the desired rate (such as 2.50 oz. / sec.) Turn the adjuster 1/4 of a turn at a time and re-check the flow. To increase flow turn clockwise.
3. Adjust the syrup-to-water ratio of each valve using the syrup adjuster on the left side of each valve. Hold cup under valve and dispense beverage for a specific time (such as 4 seconds).

## Adjusting flow rates

Flow rates of the water and syrup are adjusted based on the desired ratio. For example, if the desired ratio is 5:1, then the flow rate of the water is 5 times that of the syrup. If the desired finished drink flow rate is 3.0 ounces per second, then the water flow rate is 2.5 oz./sec. and the syrup flow rate is 0.5 oz./sec. The water at 2.5 oz./sec. is five times the 0.5 oz./sec. syrup flow rate.

Table 4. Flow rates based on 5:1 Ratio

Finished Drink oz./sec.	Water oz./sec.	Syrup oz./sec.
1.5	1.25	0.25
2.0	1.67	0.33
2.5*	2.08	0.42
3.0**	2.50	0.50
3.5	2.92	0.58
4.0	3.33	0.67
4.5	3.75	0.75

**NOTE:** \* Be applicable in NCB

\*\* Be applicable in CSD



# OPERATIONS

## STARTING AND STOPPING THE UNIT



Figure 9.

1. Push power ON/OFF switch to ON to power on the unit.
2. Push lamp switch ON/OFF to ON to power on the merchandiser LED light.
3. Insert key into key lock and turn to the ON to activate valves (and optional illuminated front merchandiser).

## Dispensing Product

To dispense beverage press a cup or glass against the lever or push the button on the valve cover.

## Replenishing Syrup Supply

### Tank System:

1. Remove the empty syrup tank by disconnecting the syrup tube first, then the CO2 tube.
2. Rinse the disconnects in warm water to remove any syrup residue.
3. Move a full tank into position and connect the CO2 tube first, then the syrup tube.

### Bag-In-Box System:

1. Disconnect the syrup tube from the empty Bag-in-Box and remove the empty box.
2. Rinse the disconnects in warm water to remove any syrup residue.
3. Install a full Bag-in-Box and connect the syrup tube.

## Adjustments

### Water-to-Syrup Ratio Adjustment

The ratio adjustment should only be done by a qualified service person.

## CLEANING AND CHECK 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.

### DAILY CLEANING:

1. Remove nozzle assembly and rinse with warm (not hot )water.If possible, soak nozzle assembly over night in carbonated water then rinse with warm water.
2. Wash external surfaces with mild soap solution, rinse with clean water,and wipe dry. Remove the drip tray , wash with mild soap solution , rinse and dry.

**Note: Do not use abrasive or harsh cleaners on the units.**

### DAILY Checks :

1. Check CO2 supply.
2. Check syrup supply.

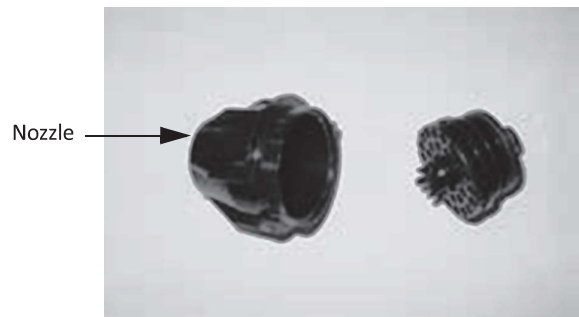


Figure 10.

### Sanitizing Syrup Systems

The syrup systems should be sanitized at least every 120-day and before or after storage. Use a non-scented liquid household bleach containing a 5.25% sodium hypo chlorite concentration as per the follow procedure.

### Sanitizing Syrup Tank Systems

1. Disconnect Syrup: Remove quick disconnects from syrup tanks and rinse disconnects in potable water.

### **CAUTION:**

To avoid possible personal injury or property damage, DO NOT remove the syrup tank cover until CO2 pressure has been released from the tank.

## 2. Wash System

- A. Using a clean empty syrup tank, prepare a washing solution by mixing 1/2 oz. (14 g) liquid dish washing detergent per gallon of 70°F – 100°F (20°C - 38°C) potable water. Shake tank to mix.
- B. Connect tank containing the solution to one of the syrup circuits.
- C. Place waste container under dispensing valve. Dispense for one minute to purge all syrup from the circuit.
- D. Repeat this process for each syrup circuit.

## 3. Flush System

- A. Connect a tank containing clean potable water to syrup circuit and pressurize to 60 – 80 psi. (4 - 5.5 bar).
- B. Place waste container under dispensing valve. Dispense from the valve for one minute to flush the circuit.
- C. Repeat this process for each syrup circuit.

## 4. Sanitize System

- A. Using a clean empty syrup tank, prepare a sanitizing solution by mixing 1/2 oz. (14 g) non-scented liquid household bleach per gallon of 70°F - 100°F (20°C - 38°C) potable water. Shake tank to mix.

**NOTE: Use bleach with a 5.25% sodium hypochlorite solution. The flushing solution must not exceed 200 PPM chlorine.**

- B. Connect the tank containing the solution to syrup circuit and pressurize to 60-80 psi. (4-5.5 bar).
- C. Place waste container under dispensing valve. Dispense from the valve for one minute to purge the circuit.
- D. Repeat this process for each syrup circuit.
- E. Allow the sanitizing solution to remain in circuits for at least 10 minutes but no more than 15 minutes.



### **CAUTION:**

Flush the system thoroughly, residual sanitizing solution left in the system could create a health hazard.

## 5. Flush System

- A. Connect a tank containing clean potable water to the syrup circuit and pressurize to 60 - 80 psi. (4 - 5.5 bar).
- B. Place waste container under dispensing valve. Dispense from the valve for one minute to flush the circuit.
- C. Repeat this process for each syrup circuit.

### **Sanitizing Bag-In-Box Syrup System**

To sanitize a Bag-in-Box system follow the same procedure as the tank system described above, with following exceptions:

1. Use a clean container (like a 5 gallon (20 l) plastic bucket) to mix solutions and hold flushing water.
2. Cut bag valves from empty BIB containers. Clean them and connect them to the ends of the syrup lines.
3. Place syrup lines with bag valves into the container of solution.

### **Condenser Cleaning**

Accumulation of dust and grease on the refrigeration condenser can cause overheating. The condenser should be cleaned as often as necessary to avoid overheating using the following procedure.

1. Remove merchandiser. Disconnect wires to LED board.
2. Remove top cladding.
3. Vacuum or use a soft brush to clean condenser coil. If available, use low pressure compressed air.
4. Clean around top of refrigeration assembly.
5. Re-install top cladding, wires to LED board and merchandiser

# SERVICE

**⚠ WARNING:**

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

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

## PREVENTATIVE MAINTENANCE

Procedure	Frequency
Sanitize Unit	3 months
Check Ratio	6 months
Clean Condenser	6 months and as needed
Carbonator Double Liquid Check Valve	annually
Check for Leaks	annually
Clean BIB Connectors	3 months or after replaced BIB
Clean Air Filter	2 weeks and as needed

### SANITIZING

The syrup systems should be sanitized every 3 months using Diversol DX or KAY5 disinfectant. See the Service section of this manual for sanitizing procedure.

### CHECK RATIO

Refer to Section “installation” on page 11

### CHECK FOR LEAKS

Refer to Section “installation” on page 10  
Should be done whenever flavors are changed.

### CLEAN CONDENSER

Refer to Section “operations” on page 14

### CLEAN BIB CONNECTORS

Refer to Section “operations” on page 14

## ADJUSTMENTS

### CO<sub>2</sub> Connection

1. Unscrew protector cap (with chain attached) from CO<sub>2</sub> cylinder valve. Open CO<sub>2</sub> cylinder valve slightly counter-clockwise to blow any dirt or dust from outlet fitting before installing primary CO<sub>2</sub> regulator, then close valve.
2. Remove shipping plug from primary CO<sub>2</sub> regulator assembly coupling nut and make sure gasket is in place inside nut. Install regulator assembly on CO<sub>2</sub> cylinder so gages can be easily read, then tighten coupling.
3. Connect soft drink tanks CO<sub>2</sub> lines to primary CO<sub>2</sub> regulator manifold assembly.
4. Install gas quick disconnects on ends of soft drink tank CO<sub>2</sub> lines.

 **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**.

 **CAUTION:**

To avoid personal injury and property damage always secure CO<sub>2</sub> cylinder in upright position with a safety chain to prevent it from falling over.

### Primary and Secondary CO<sub>2</sub> Regulator Settings

1. Open CO<sub>2</sub> cylinder valve slightly to allow lines to slowly fill with gas. When lines are fully pressurized open the valve all the way until it back-seats itself (this prevents leaks from the valve).
2. Adjust the cylinder CO<sub>2</sub> regulator to 60 psi (4.1 bar) for Bag-in-Box applications. 60 psi (4.1 bar) for sugar base tank applications and 30 psi (2.0 bar) for diet base tank applications.

**NOTE: The Pathfinder dispenser with carbonator requires CO<sub>2</sub> supply pressure of 95psi (6.5 bar).**

3. Bleed air from the lines with the relief valves.
4. Check the system for gas leaks.

# TROUBLESHOOTING

**⚠ WARNING:**

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

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

**⚠ WARNING:**

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

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

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

**IMPORTANT:** If repairs will be made to the CO2 or carbonated water systems, disconnect electrical power to the carbonator, shut off CO2 and water supplies, then bleed systems before proceeding.

**Table 6.TROUBLESHOOTING POST-MIX SYSTEM**

Trouble	Probable Cause	Remedy
Adjustment of dispensing valve syrup flow regulator does not increase to desired water-to-syrup ratio.	<ol style="list-style-type: none"> <li>No syrup supply.</li> <li>Syrup supply container not securely connected into system.</li> <li>Tanks System: Syrup tanks secondary CO2 regulator out of adjustment. Bag-in-Box System: Primary CO2 regulator out of adjustment.</li> <li>Inoperative dispensing valve syrup flow control.</li> <li>Tapered washer inside tube swivel nut connection distorted from being over-tightened restricting syrup flow.</li> </ol>	<ol style="list-style-type: none"> <li>Replenish syrup supply.</li> <li>Securely connect syrup supply container into syrup system.</li> <li>Adjust syrup tanks secondary CO2 regulator as instructed. Adjust primary CO2 regulator as instructed.</li> <li>Repair dispensing valve syrup flow control.</li> <li>Replace tapered gasket. Make sure it seats properly.</li> </ol>
Adjustment of dispensing valve syrup flow regulator does not decrease to desired water-to-syrup ratio.	Dirty or inoperative dispensing valve syrup flow control.	Disassemble and clean dispensing valve syrup flow control.
Dispensed product carbonation too low.	<ol style="list-style-type: none"> <li>Primary CO2 regulator out of adjustment for existing water conditions or temperature.</li> <li>Air in carbonator water tank.</li> <li>Water, oil, or dirt in CO2 supply.</li> </ol>	<ol style="list-style-type: none"> <li>Adjust primary CO2 regulator as instructed.</li> <li>Vent air out of carbonator water tank through relief valve.</li> <li>Remove contaminated CO2. Clean CO2 system (lines, regulator, etc.) using a mild detergent. Install a clean CO2 supply.</li> </ol>

<b>TROUBLESHOOTING POST-MIX SYSTEM</b>		
<b>Trouble</b>	<b>Probable Cause</b>	<b>Remedy</b>
Dispensed product comes out of dispensing valve clear but foams in cup or glass.	<ol style="list-style-type: none"> <li>1. Oil film or soap scum in cups or glasses.</li> <li>2. Ice used for finished drink is sub-cooled.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use clean cups or glasses.</li> <li>2. Do not use ice directly from freezer. Allow ice to become "wet" before using. (refer to following NOTE).</li> </ol>
<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.	<ol style="list-style-type: none"> <li>1. Recovery rate of refrigeration of system exceeded, ice bank depleted.</li> <li>2. Primary CO<sub>2</sub> regulator pressure too high for existing water conditions or temperature.</li> <li>3. Tanks System-Syrup over carbonated with CO<sub>2</sub> as indicated by bubbles in inlet syrup lines leading to unit.</li> <li>4. Dispensing valve restricted or dirty.</li> <li>5. Tapered gasket inside carbonated water line swivel nut connector distorted restricting carbonated water flow.</li> <li>6. Dirty water supply.</li> </ol>	<ol style="list-style-type: none"> <li>1. Allow ice bank to recover.</li> <li>2. Reduce primary CO<sub>2</sub> regulator pressure settings.</li> <li>3. Remove syrup tanks quick disconnects. Relieve tank CO<sub>2</sub> pressure as many times as necessary to remove over-carbonation.</li> <li>4. Sanitize syrup system as instructed in Operation Section.</li> <li>5. Replace tapered gasket. Make sure it is properly seated.</li> <li>6. Check water filter. Replace cartridge.</li> </ol>
Only syrup dispensed.	<ol style="list-style-type: none"> <li>1. Water inlet supply line shutoff valve closed.</li> <li>2. Carbonator not operating.</li> <li>3. Primary CO<sub>2</sub> regulator not properly adjusted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Open water inlet supply line shutoff valve.</li> <li>2. Restore carbonator operation.</li> <li>3. Adjust primary CO<sub>2</sub> regulator as instructed.</li> </ol>
Dispensed product carbonation too low.	<ol style="list-style-type: none"> <li>1. Primary CO<sub>2</sub> regulator out of adjustment for existing water conditions or temperature.</li> <li>2. Air in carbonated water tank.</li> <li>3. Water, oil or dirt in CO<sub>2</sub> supply.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust primary CO<sub>2</sub> regulator as instructed.</li> <li>2. Vent air from carbonated water tank by dispensing from No.1 dispensing valve to make carbonator water pump motor cycle on.</li> <li>3. Remove contaminated CO<sub>2</sub> supply, then clean CO<sub>2</sub> system (lines, regulator, etc.) using a mild detergent. Install a clean CO<sub>2</sub> supply.</li> </ol>



**Table 7.TROUBLESHOOTING CARBONATOR**

Trouble	Probable Cause	Remedy
Only carbonated water dispensed.	<ol style="list-style-type: none"> <li>1. Syrup supply container not securely connected into syrup system.</li> <li>2. No syrup supply.</li> <li>3. Bag-in-Box System – Inoperable syrup pump. Tanks System – Syrup tanks CO<sub>2</sub> regulator not properly adjusted.</li> <li>4. Inoperable dispensing valve.</li> <li>5. Dispensing valve syrup flow control not properly adjusted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Securely connect syrup supply container into syrup system.</li> <li>2. Replenish syrup supply.</li> <li>3. Replace inoperable syrup pump. Adjust syrup tanks CO<sub>2</sub> regulator as instructed.</li> <li>4. Repair dispensing valve.</li> <li>5. Adjust dispensing valve syrup flow control (Water-to-Syrup ratio) as instructed.</li> </ol>
Carbonator pump not operating	<ol style="list-style-type: none"> <li>1. 2 minutes run limit exceeded.</li> <li>2. Water supply to carbonator disrupted.</li> <li>3. Carbonated water tank microswitch electrical wiring disconnected.</li> <li>4. Inoperative carbonated water tank microswitch.</li> <li>5. Inoperative carbonator pump or motor.</li> <li>6. Inoperative control board.</li> <li>7. Inoperative spring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cut down the power and reset.</li> <li>2. Correct water supply problem.</li> <li>3. Connect electrical wiring to microswitch.</li> <li>4. Replace microswitch.</li> <li>5. Replace pump or motor.</li> <li>6. Replace control board.</li> <li>7. Replace spring.</li> </ol>

**Table 8.TROUBLESHOOTING REFRIGERATION SYSTEM**

Trouble	Probable Cause	Remedy
Refrigeration compressor does not operate.	<ol style="list-style-type: none"> <li>1. Ice bank sufficient.</li> <li>2. No water in water tank.</li> <li>3. Control board power switch on top of unit in "OFF" position.</li> <li>4. Unit power cord un-plugged, or drop-in refrigeration assembly Power cord unplugged.</li> </ol>	<ol style="list-style-type: none"> <li>1. No refrigeration called for.</li> <li>2. Fill water tank with water as instructed.</li> <li>3. Place control board power switch in "ON" position (there will be a built-in 30-second time delay before refrigeration compressor starts).</li> <li>4. Plug in power cord.</li> </ol>



Trouble	Probable Cause	Remedy
	5. Ice sensor electrically disconnected.  6. No power source (blown fuse or tripped circuit breaker).  7. Low/high voltage.  8. Loose, disconnected, or broken wiring.  9. Overload protector cut out; overheated compressor. Condenser fan motor not operating as required.  10. Inoperative overload protector or start relay.  11. Inoperative ice bank probe.  12. Inoperative control board.	5. Electrically connect or replace inoperable sensor.  6. Replace fuse or reset circuit breaker. Fuse or circuit breaker are not part of unit.  7. Voltage must be in $\pm 10\%$ of the nameplate voltage when compressor is trying to start.  8. Tighten connections or replace broken wiring.  9. Compressor will cool enough to restart, <b>Do Not</b> overdraw cooling capacity of unit.  10. Replace inoperative part.  11. Replace ice bank probe.  12. Replace control board.
Compressor will not stop after sufficient ice bank is produced.	1. Ice bank probe location incorrect. 2. Ice temperature sensor inoperative. 3. Control board inoperative.	1. Place probe in proper location. 2. Replace ice temperature sensor. 3. Place power switch in ON position.
Compressor operates continuously but does not form sufficient bank.	1. Cooling capacity is exceeded by overdrawing. 2. Unit located in excessively hot area or air circulation through condenser coil is restricted.	1. Reduce amount of drinks drawn per given time. 2. Relocate unit or check and if necessary, clean condenser coil as instructed.
Agitator motor not operating.	1. No power source (blown fuse or tripped circuit breaker).  2. Agitator motor propeller obstructed. 3. Low Voltage.  4. Loose, disconnected, or broken wiring.  5. Inoperative agitator motor.	1. Replace fuse or reset circuit breaker. <b>NOTE: Fuse or circuit breaker are not part of unit.</b> 2. Remove obstruction. 3. Voltage must be in $\pm 10\%$ of the nameplate voltage when agitator motor is trying to start. 4. Tighten connections or replace broken wiring. 5. Replace agitator motor.

# COMPONENT SERVICE

The following are procedures for replacing the major components of the Pathfinder dispenser.

## PUMP OR MOTOR REPLACEMENT

1. Shut off the main power.
2. Shut off water sources.
3. Open the valve and drain the water.
4. Shut off gas sources.

Press Valve Solenoid to depressurize



Figure 11.

Disconnect the pump motor connector

5. Depressurize carbonator by removing the solenoid dust cover from any dispensing valve and push down Press Valve Solenoid to on the solenoid.



Figure 12.

6. Unplug harness.

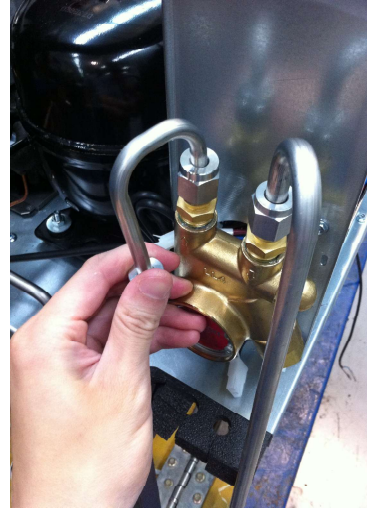
Remove screws

7. Remove four screws.



Figure 13.

8. Disconnect water in and out lines.



9. Install new pump or motor by reversing this procedure.

Figure 14.

## AGITATOR MOTOR REPLACEMENT

1. Shut off the main power.
2. Remove the following:
  - Remove merchandiser.
  - Remove two screws on the top.
  - Remove top cladding.
3. Unplug motor harness
4. Remove mounting screws

Mounting  
Screw

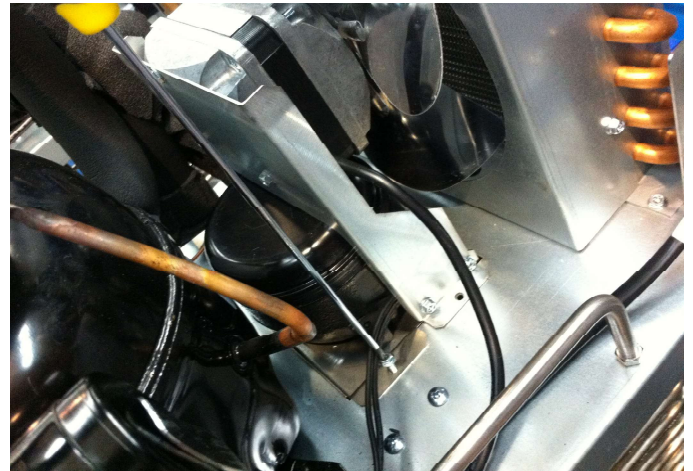


Figure 15.

5. Slide motor out of retainer slots and lift up.
6. Install new motor by reversing this procedure.

## CONDENSER FAN MOTOR REPLACEMENT

1. Shut off the main power.
2. Remove the following:
  - Remove merchandiser.
  - Remove two screws on the top.
  - Remove top cladding.
3. Unplug motor harness.
4. Remove four screws on mounting bracket.
5. Lift mounting bracket front tab out of slot, then pull out fan motor assembly parts.

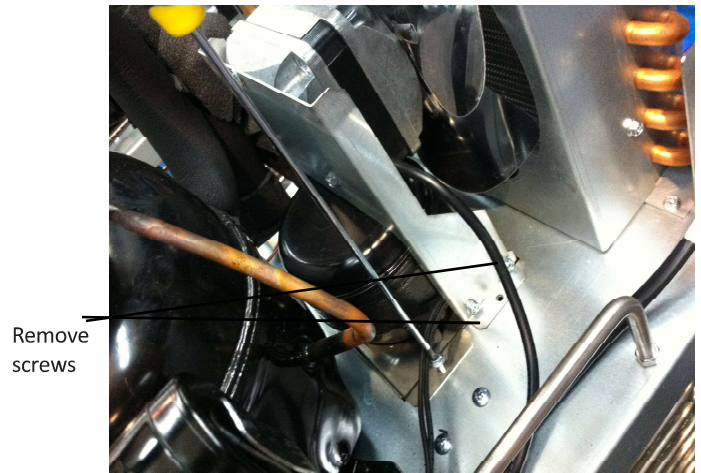


Figure 16.

6. Remove three screws holding motor to bracket and remove motor.

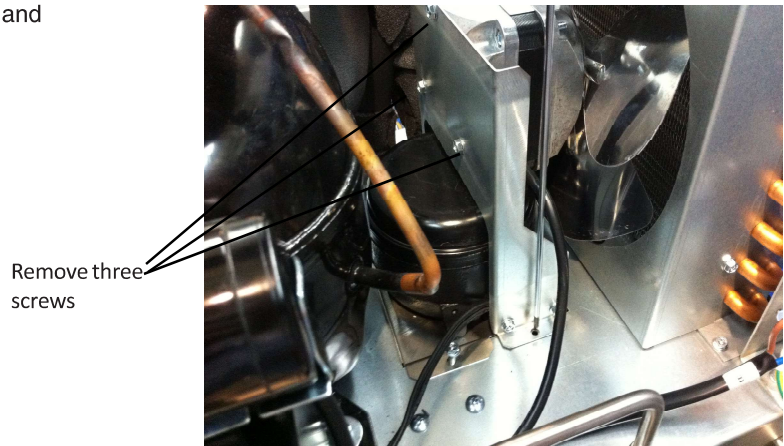
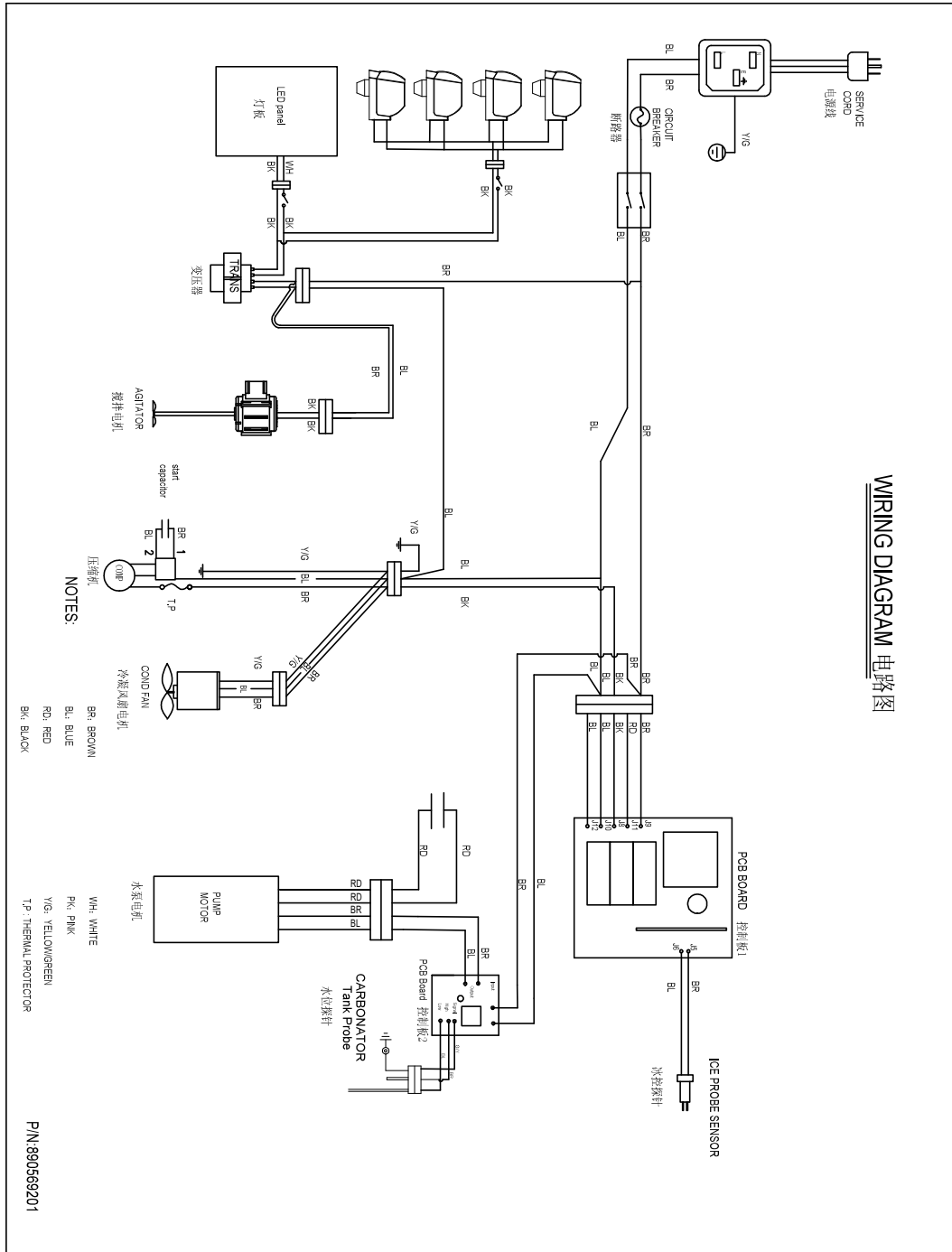


Figure 17.

7. Install new motor by reversing this procedure.

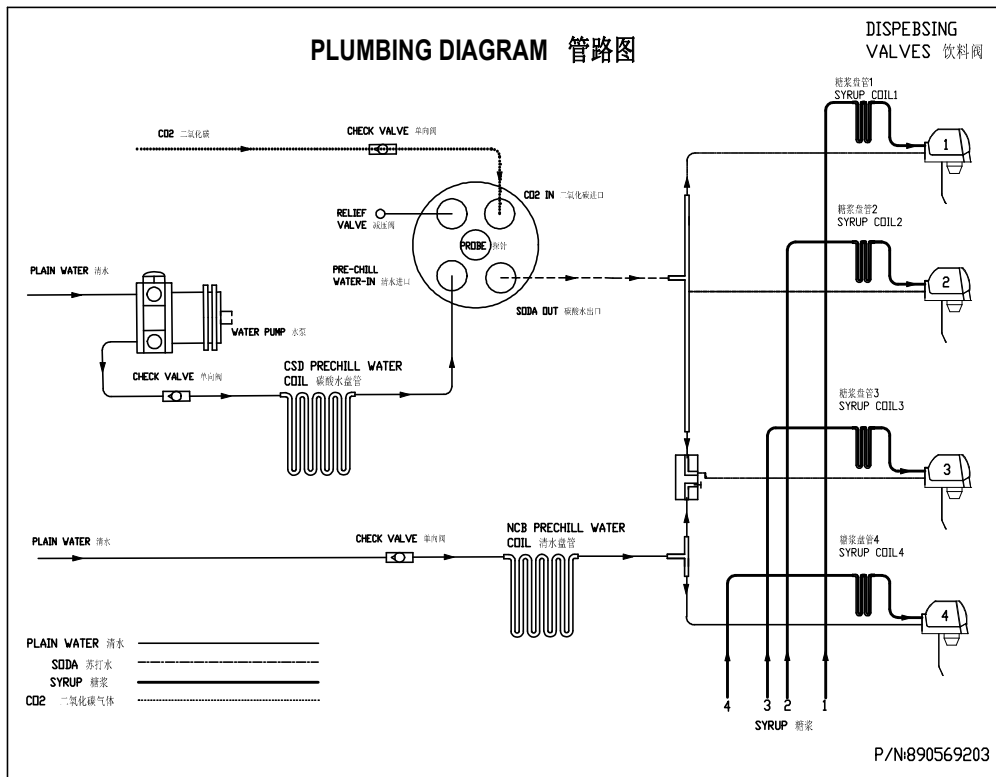
# REFERENCE MATERIAL

## WIRING DIAGRAM

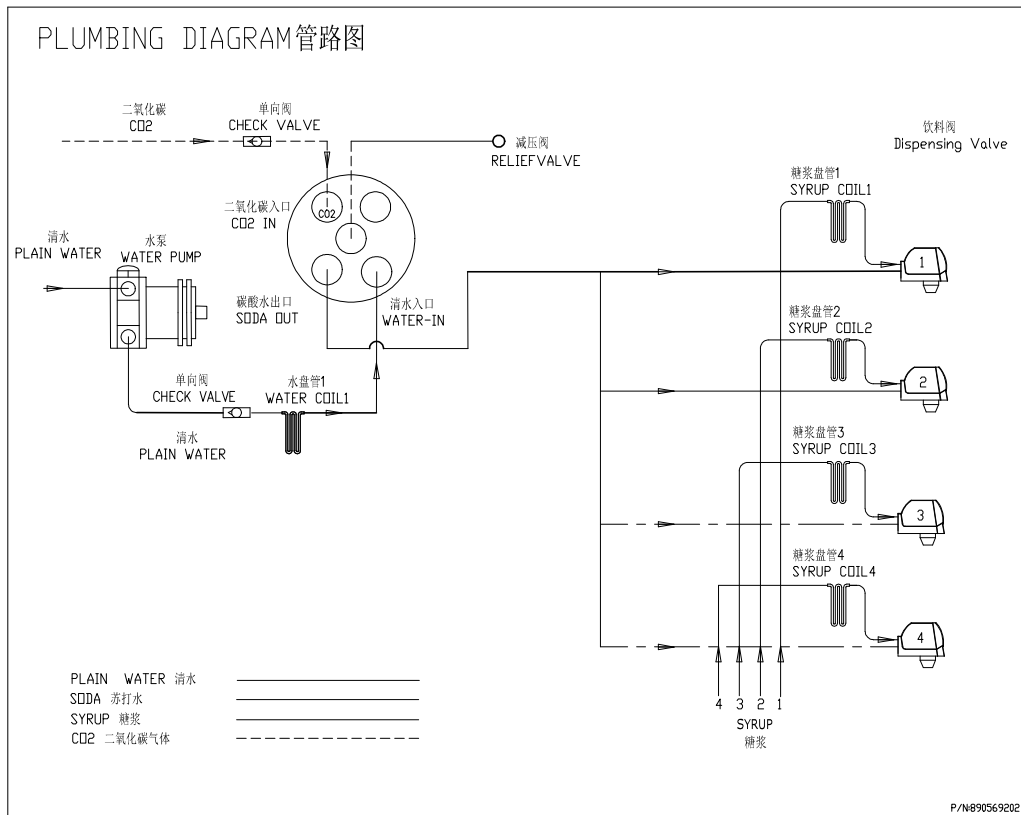


# PLUMBING DIAGRAM

## Plumbing Diagram - Flexible



## Plumbing Diagram - All CSD



## NOTE



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**NOTE**



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