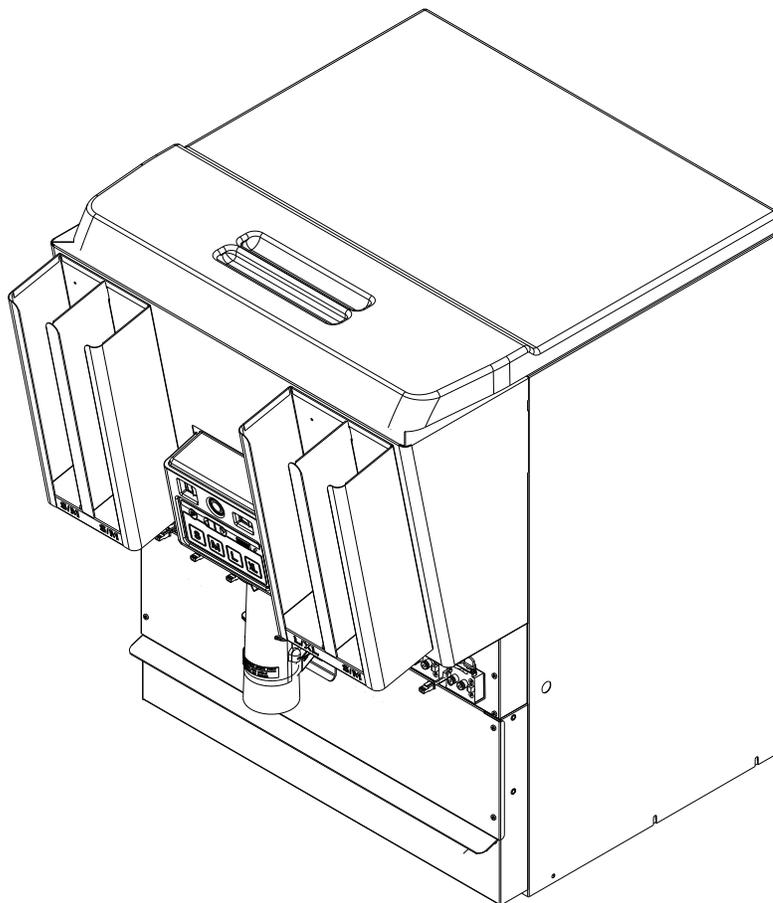


IN-N-OUT BURGERS NGF 255 PROGATE DRIVE THRU Installation Manual



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Revision: B

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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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This document contains the original instructions for the unit described.

CORNELIUS INC
101 Regency Drive
Glendale Heights, IL
Tel: + 1 800-238-3600

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SAFETY INSTRUCTIONS

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

Safety Overview

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

Recognition

Recognize Safety Alerts



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

DIFFERENT TYPES OF ALERTS

DANGER:

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

WARNING:

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

CAUTION:

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

SAFETY TIPS

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

QUALIFIED SERVICE PERSONNEL

WARNING:

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

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.

CO₂ (CARBON DIOXIDE) WARNING

DANGER:

CO₂ displaces oxygen. Strict attention **MUST** be observed in the prevention of CO₂ gas leaks in the entire CO₂ and soft drink system. If a CO₂ 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 CO₂ 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 **615 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.



UNIT SPECIFICATION

DESCRIPTION

The Ice Drink Cornelius (IDC) series of dispensers solves your ice and beverage service needs in a sanitary, space saving, economical way. Designed to be manually filled with ice from any remote ice-making source, these dispensers will dispense cubes (up to 1-1/4 inch in size), cubelets, and compressed (not flaked). In addition, the units include beverage faucets, a cold plate, an internal carbonator tank and an external pump for the carbonator, and are designed to be supplied direct from syrup tanks with no additional cooling required.

VALVE CONFIGURATIONS

- IDC 255 Progate Drive Thru Unit with 8 LEV Valves

SPECIFICATIONS

Model Descriptions	NGF 255 B=Beverage C=Coldplate H=Internal Carb P=Progate Z=No Drip Tray
Unit Weight	368 Pounds
Ice Storage	255 Pounds
Maximum Number of Faucets	10
Built in Cold Plate	Yes
Electrical	120/1/60 9.3 Amps of Total Unit Draw OR 220/1/50 4.7 Amps of Total Unit Draw
Dimensions	Width 29.90 inch (.76 m) Height 39.75 inch (1.0 m) Depth 36.90 inch (.94 m)
CO2 Operating Pressure	75-psig (max)
Water	100 psi (7 bar) maximum static pressure. 40 psi (2.8 bar) minimum dynamic pressure. 3/8" minimum water line recommended.

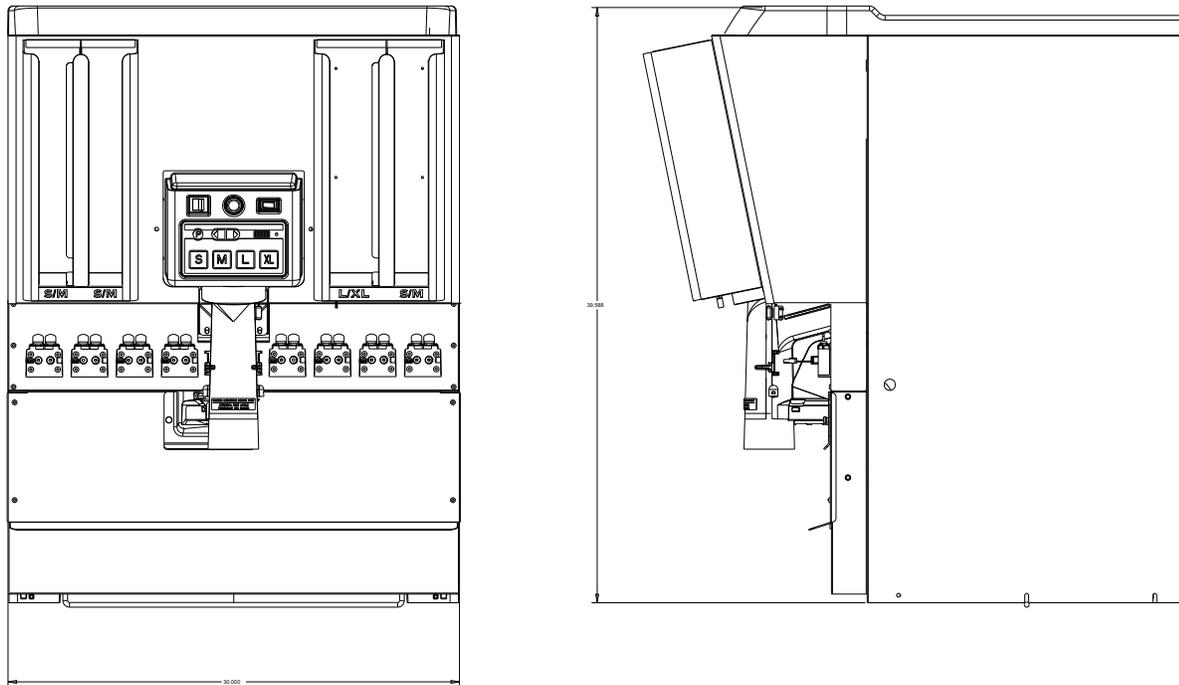


Figure 1.

Electrical Connections: 6 ft long power cord with 3-prong plug attached to dispenser.

Power Requirements: 9.3 amps at 120 volts dedicated power supply.

Water Supply Requirements: 100 psi (7 bar) maximum static pressure 40 psi (28 bar) minimum dynamic pressure. 3/8" minimum water line recommended.

CO2 Requirements: 100 psi max to unit regulated to 35 psi (2.4 bar) to Progate 2 ice gate system, 75 psi (5.2 bar) carbonator.

PROGATE 2 FEATURES

Progate Portion Ice Control Features

- 4 Programmable ice dispense sizes
- Automatic/Manual Ice Dispense Modes
- Unit Power On/Off Switch
- Programmable Agitation Time

Apply a continuous bead of *NSF International* (NSF) silastic sealant (Dow 732 or equal) approximately 1/4-inch inside of the unit outline dimensions and around all openings. Then, position the unit on the counter within the outline dimensions. **All excess sealant must be wiped away immediately.**

- The beverage tubes, drain tube and power cord are routed through the large opening in the bottom of the unit. See the MOUNTING TEMPLATE for locating the required clearance opening in the counter for these utility lines.

DRIP TRAY DRAIN ASSEMBLY: Route the drain tube to an open drain with the end of the tube above the “flood” level of the drain. Use the tubing, fittings, clamps, and insulation provided with the Dispenser to assemble the drain. The completed drain line *must* pitch continuously downward and contain no “traps” or improper drainage will result.

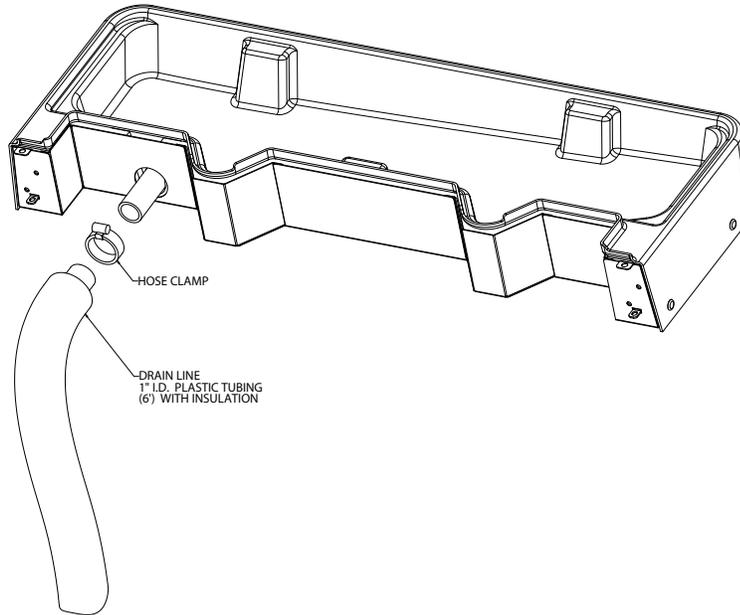


Figure 3.

NOTE: Cornelius Inc. recommends that a water shutoff valve and water filter be installed in the plain water inlet supply line. A Cornelius Water Filter (P/N 313860000) and QUICK DISCONNECT SET (P/N 313867000) are recommended.

CAUTION:

Check the minimum flow rate and the maximum pressure of the plain water inlet supply line. **MINIMUM FLOW RATE MUST BE AT LEAST 125-GALLONS PER HOUR.** If flow rate is less than 125-gallons per hour, starving of the carbonator water pump will occur. Starving will overheat the carbonator’s water pump, causing the safety thermostat on the pump outlet to stop the water pump motor. Overheating could occur if the plain water supply line flow rate drops below 125-gallons per hour. **INCOMING PLAIN WATER INLET SUPPLY LINE WATER TO PUMP PRESSURE MUST REMAIN A MINIMUM OF 10 psi BELOW THE CARBONATED CO₂ OPERATING PRESSURE.** (Example: Carbonator CO₂ operating pressure is 75 psi and the maximum water pressure can be no more than 65 psi, etc.). Static water pressure higher than the static CO₂ pressure can cause carbonator flooding, malfunction, and leakage through the carbonator relief valve. If water is exceeding maximum pressure specifications, a Water Pressure Regulator Kit must be installed in the plain water inlet supply line.

- Cut power to the carbonator by turning off its power switch, the switch is located on the junction box of the pump and motor assembly. Locate the carbonator pump assembly and connect to power cord from the Ice/Drink Unit to the pump. The cord is connected to the unit’s electrical box and has an electrical connector on the end that plugs into a receptacle in the junction box at the carbonator pump assembly. Connect inlet water to pump and pump outlet to Ice/Drink Unit using 3/8-inch food-grade tubing.
- Connect the beverage system product tubes as indicated in applicable Flow Diagram in this manual or on the back of the splash panel. This work should be done by a qualified service person.

NOTE: Refer to Water Installation section or Decal on the lower front of the unit for the location of syrup and water connections.

5. Clean the hopper interior.
6. Connect the unit power cord to a 120 volt, 60 cycle, 3-wire grounded receptacle. For 220-240 Volt International Units, a 3-wire power cord is provided. An adapter plug for the particular country will need to be provided by the Installer.

ADJUST CARBONATOR CO₂ REGULATOR AND TURN WATER INLET SUPPLY LINE ON

1. Open (counterclockwise) CO₂ cylinder valve slightly to allow lines to slowly fill with gas, then open the valve fully to back-seat the valve. (Back-seating the valve prevents leakage around the valve shaft).
2. The carbonator CO₂ regulator is fixed at a nominal 75 psi.
3. Open one of the post-mix dispensing valves to exhaust trapped air inside the carbonator tank.
4. Open the water inlet supply line shutoff valve.

CO₂ INSTALLATION

WARNING: Machine is designed to work only with CO₂. Store air supplied from a compressed air system could contain moisture and oils that could damage and/or cause the Ice Gate to loose performance or malfunction.

1. Use 1/4" tubing capable of handling a minimum of 120 psi.
2. Guide CO₂ lines from back of machine to front.
3. Locate CO₂ line and connect to the barb fitting.
4. Use Oetiker clamps to secure all lines to barbed fittings.
5. Replace lower splash panel to frame.

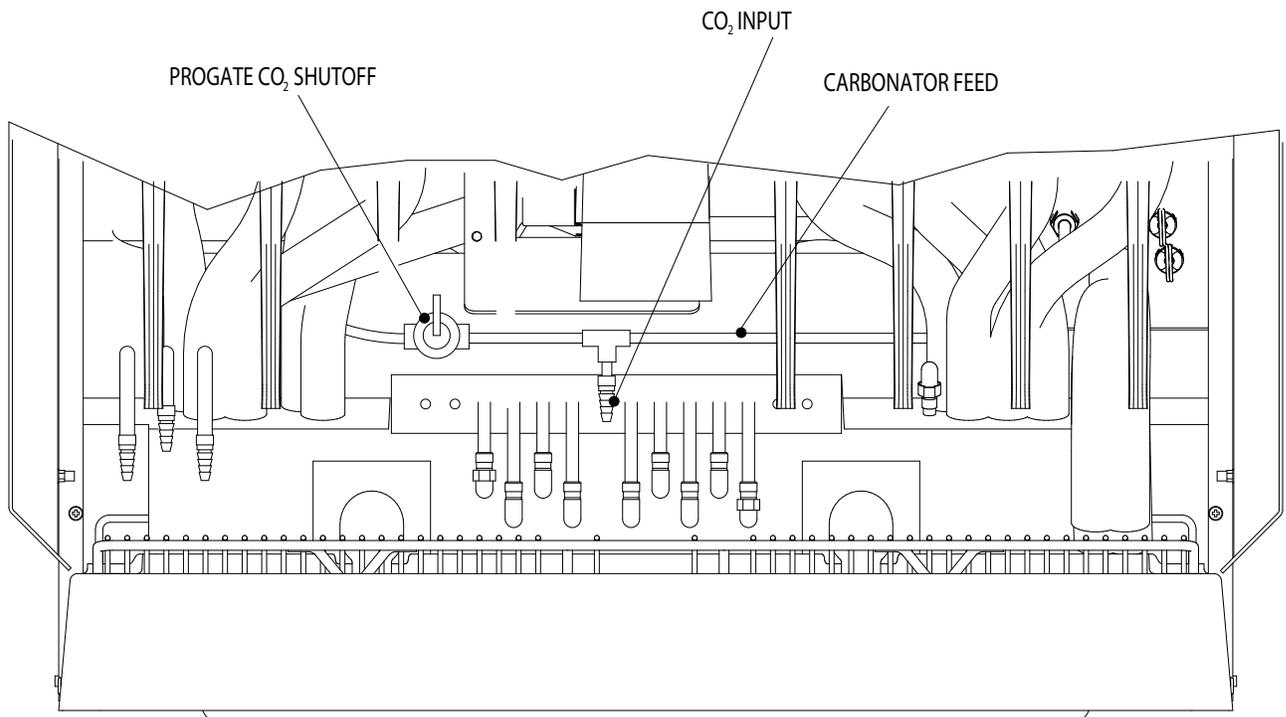


Figure 4.

POWER INSTALLATION

The machine is equipped with a 3 Prong plug (hot, neutral, ground) and is plugged into any standard wall outlet capable of handling 9.3 amps at 120 volts. Cord may be wrapped and stored under machine for shipment.

WATER INSTALLATION

To access cold plate water inlets

1. Remove screws holding attaching lower splash panel to frame and slide panel away from machine.
2. Use Oetker clamps to secure lines to barbed fittings.



Figure 5



Figure 6

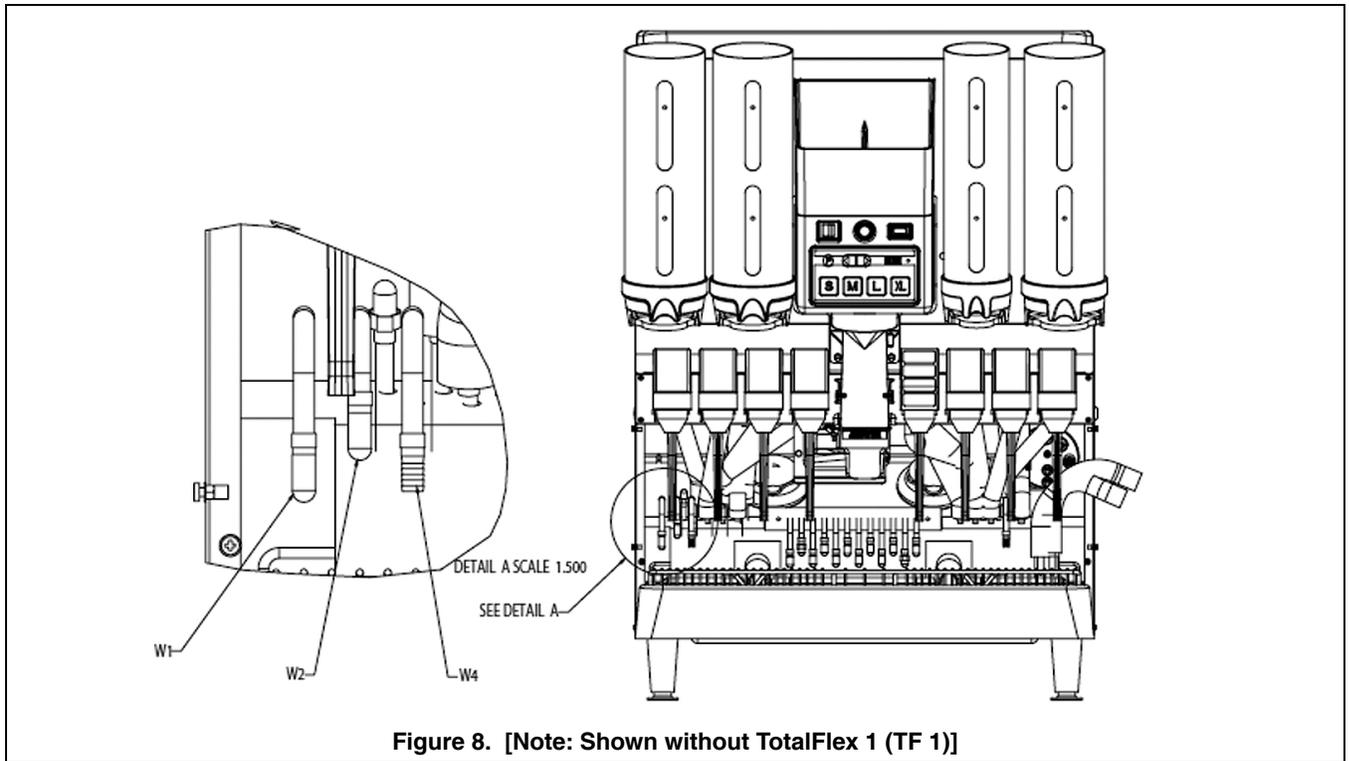
3. Use 3/8" tubing capable of handling a minimum of 120 psi. Approved for food applications.
4. Guide water lines from back of machine to left front and attach to cold plate lines W1 (carbonator water line) and W2 (plain water or mains water line).

NOTE: W4 is the re-circulation line which is connected to a remote tower (A&W remote tower).

5. Turn on pressure and check for leaks.



Figure 7



OPERATION INSTRUCTIONS

UNIT OPERATION

⚠ WARNING:

The unit must be electrically grounded to avoid possible fatal electrical shock or serious injury to the operator. The unit power cord is equipped with a three-prong plug. If a three-hole (grounded) electrical outlet is not available, use an approved method to ground the unit.

Failure to ground the unit could result in serious Injury, Death or Damage to the Equipment.

⚠ CAUTION:

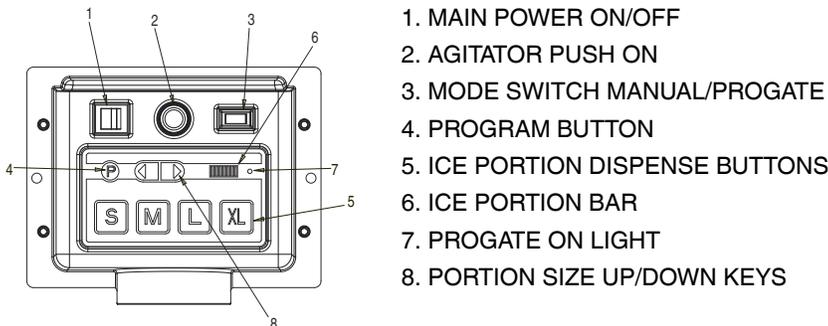
Never operate the carbonator pump with the water inlet supply line shutoff valve closed. "Dry running" the water pump will burn out the pump. A pump damaged in this manner is not covered by warranty.

1. Connect electrical power to the Unit.
2. Locate the switch on the junction box of the carbonator pump, and turn it ON. The water pump will start and fill the carbonator tank with carbonated water. The water pump will stop when the carbonator tank is full.
3. Check for water and CO₂ leaks, and tighten any loose connections
4. Dispense several drinks until the carbonator pump cycles on. The refill time should be about 5-7 seconds.
5. If the carbonator pump appears to be short-cycling, meaning a refill time of 1-2 seconds, refer to the Trouble-shooting section in the back of this manual.

PROGATE 2 CONTROL BOX OPERATION

Portion Control Box Functions

The portion control box on the PROGATE 2 has several functions including dispensing 4 programmed ice portions for 4 cup sizes, programming and a manual dispense mode.



1. **Main Power ON OFF:** Turns power to the entire machine off. Lights Orange when ON.
2. **Agitator Push ON:** Turns on agitator and opens ice gate allowing continuous dispense. This button will turn green in the manual mode and be off in PROGATE automatic. This button will also agitate in the automatic mode but not dispense ice.
3. **Mode Switch Manual/Progate:** Turns on agitator and opens ice gate allowing unlimited ice portion.
4. **Program Button:** The programming button is used with cup size button enabling the user to enter the portion programming mode to adjust the ice portions. The programming button is used with the directional arrow buttons to adjust the agitation time.
5. **Ice Portion Dispense Buttons:** Used to dispense the appropriate ice portion. Can also be used in conjunction with the program button to program a portion size.

6. **Ice Size Program Bar:** The program bar is only active in the program mode as a visual aid in setting the portion size.
7. **Light:** On start up of the unit or during a mode change (Manual to Progate) this light turns orange to inform the user that the unit is going through a self diagnostic test. On completion of this test the light turns green to inform the user that the machine is ready to dispense. If the light remains solid on red and the unit is not dispensing any ice when an ice portion is pressed this should generate a service call. During ice dispense if there is insufficient ice in the ice chute then the light turns red instantaneously to inform the user that there is insufficient ice. Once the user releases the portioned button then the red light goes out.
8. **Portion Up/Down Buttons:** The program bar is only active in the program mode to change the ice dispense program size.

Programming (Changing) the Ice Portion

To change the size of any of the four ice dispense sizes follow the steps below.

1. To enter the program mode press the **Program Button**  and **Desired Size button**  at the same time and hold for 5 seconds.
2. The Ice Portion Bar will come on. 
3. Press the UP ARROW button  to increase the amount of dispensed ice. The LED will move towards the right indicating the Ice Portion has been increased.
4. Press the DOWN ARROW button  to decrease the amount of dispensed ice. The LED will move towards the left indicating the Ice Portion has been decreased.
5. To exit the program mode press the Desired Size button  or wait 10 seconds and the control will return to the dispense mode.
6. Place a cup under the ice chute and press the just programmed dispense size button.  If amount dispense amount is not the desired amount repeat the process.

Agitation Time

The software coding for the progate system involves a direct relationship between the dispense time and the agitation time.

Dispense Rime (mS)	Agitation Ratio	Agitation Time (mS)
50	10	500
70	10	700
90	10	900
110	10	1100
130	10	1300
150	10	1500
170	10	1700
190	10	1900
210	10	2100
230	10	2300

Dispense Time (mS)	Agitation Ratio	Agitation Time (mS)
50	16	800
70	16	1120
90	16	1440
110	16	1760
130	16	2080
150	16	2400
170	16	2720
190	16	3040
210	16	3360
230	16	3680

Dispense Time (mS)	Agitation Ratio	Agitation Time (mS)
50	28	1400
70	28	1960
90	28	2520
110	28	3080
130	28	3640
150	28	4200
170	28	4760
190	28	5320
210	28	5880
230	28	6440

The relationship is expressed below.

$$\text{Agitation Time (A}_T\text{)} = \text{Dispense Time (D}_T\text{)} \times \text{Agitation Ratio}^2\text{ (R}_A\text{)}$$

The agitation time equals the dispense time multiplied by the agitation ratio. The user is given the flexibility to change the agitation ratio thereby altering the agitation time in order to ensure that the ice chute is always filled with ice for all the different ice types.

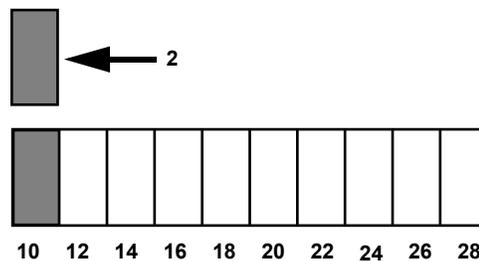


Figure 9.

Programming (Changing) the Agitation Time

1. Simultaneously Press and hold for 3 seconds, the  button and also both direction arrow buttons   to enter the programming mode.

2. The LED meter turns ON once the programming mode is entered. Visual feedback of ratio/agitation time is obtained from the visual programming LED.  The LED meter shows the existing agitation ratio enabling the user to.
3. Vary the agitation time using the directional arrow buttons. Left to decrease and right direction arrow button to increase.

Ice Portion Bar

The portion bar is used to determine the amount of time programmed for each size button. Each button has a minimum and maximum amount of time that can be programmed. If a button cannot be adjusted to the size desired use another button to get the desired results.

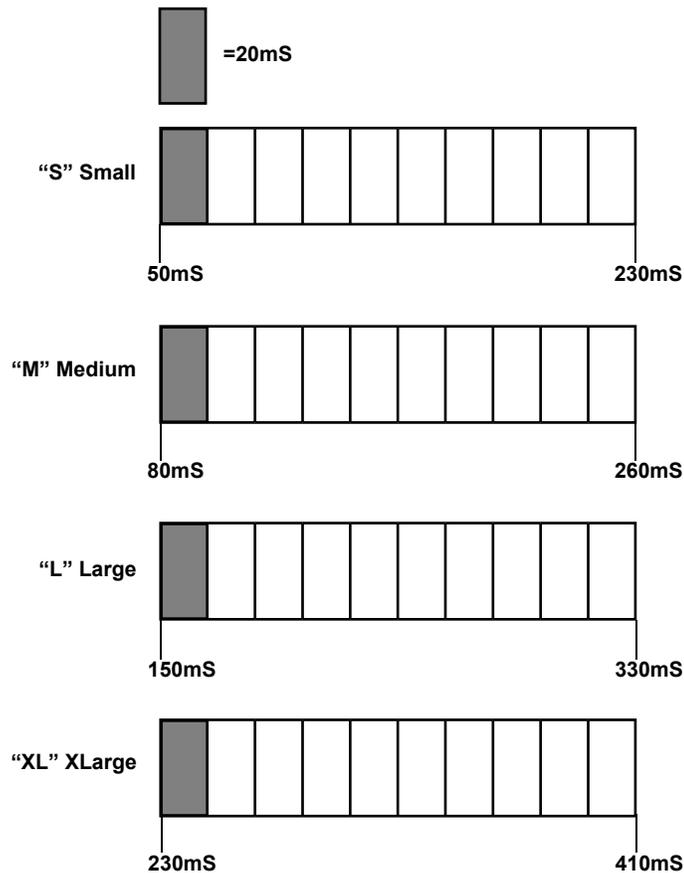


Figure 10.

DIAGRAMS

8 LEV Valves with Internal Carbonation By-Pass

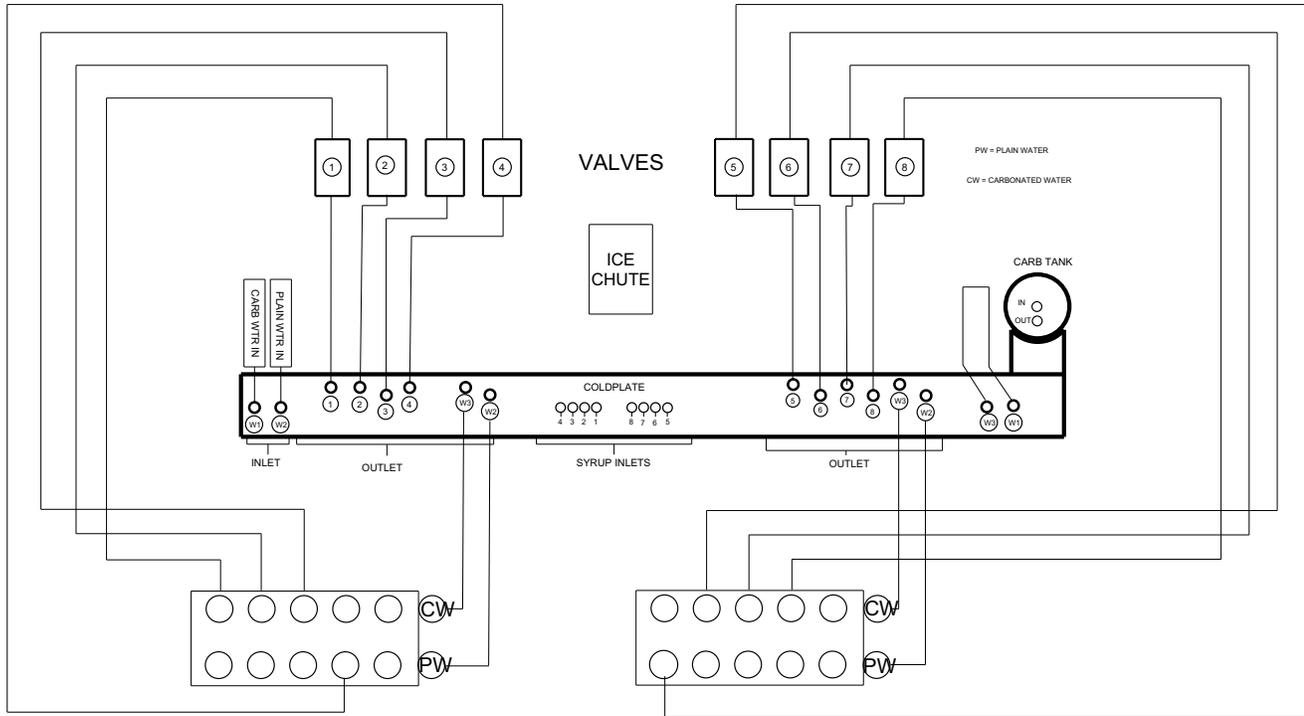


Figure 11.

E-BOARD OFF CYCLE AGITATION ADJUSTMENTS

When Ice is not being dispensed from the machine such as during off hours it is essential to move or agitate the ice to keep it from clumping and to replenish the ice in the cold plate. The amount of time the agitator runs and the time between the agitation cycles can be adjusted depending on ice type or application. The settings for this function are located on the E-Board found in the E-BOX. Using a screwdriver follow the diagram (Figure 12) below and set the agitator for the desired settings.

- | | |
|---------------|---------------|
| MOTOR ON TIME | |
| ===== | |
| FULL CCW | - 0.5 SECONDS |
| FULL CW | - 5 SECONDS |
| | |
| OFF TIME | |
| ===== | |
| FULL CCW | - 10 MINUTES |
| FULL CW | - 3 HOURS |

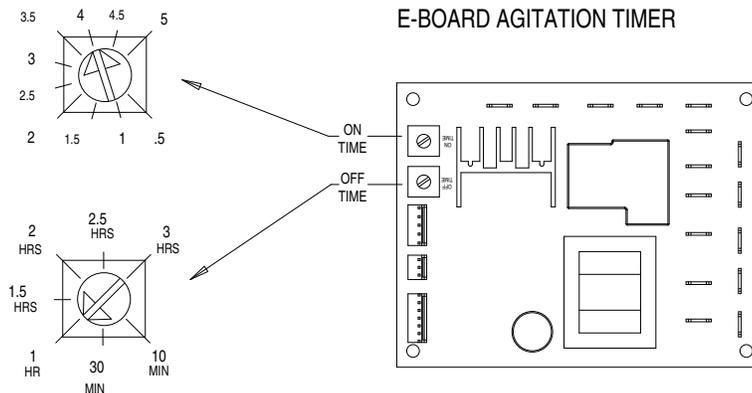


Figure 12.



Manufacturer Recommended Agitation Settings			
Model	Ice Fill/Ice Type	Motor ON Time	Motor OFF time
NGF 255	Manual/Hard Ice (Cube)	4 Seconds	1 Hour
	Automatic (Top-Mount Ice Maker/Hard Ice (Cube)	0.5 Seconds	20 Minutes
	Manual & Automatic/Cornelius Chunklet, Scotsman & Hoshizaki Compressed Ice	0.5 Seconds	3 Hours
B - Beverage C-Coldplate		*NO FLAKED ICE*	

ELECTRICAL SCHEMATIC

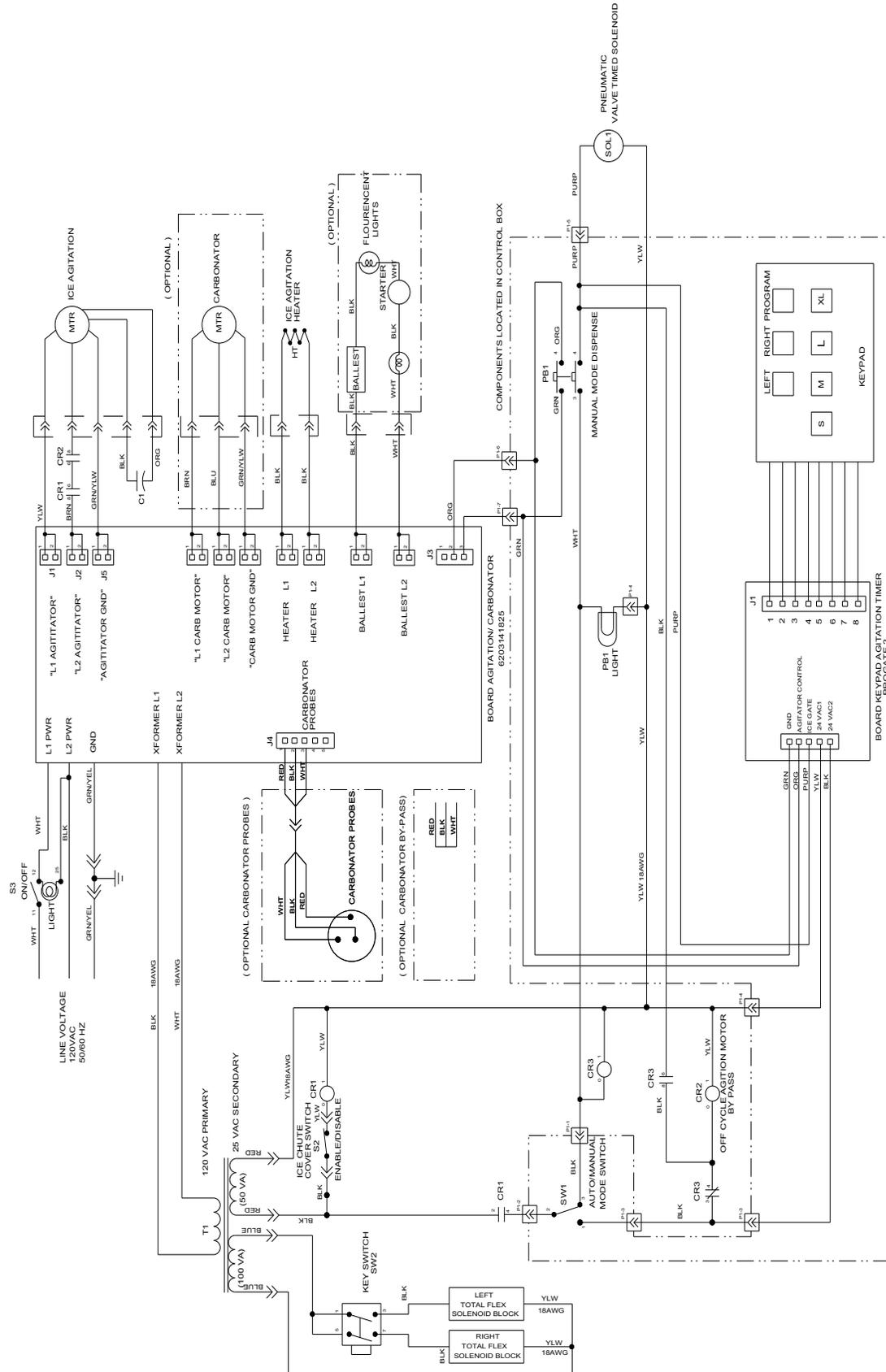


Figure 13.

MAIN ELECTRICAL BOX ASSEMBLY

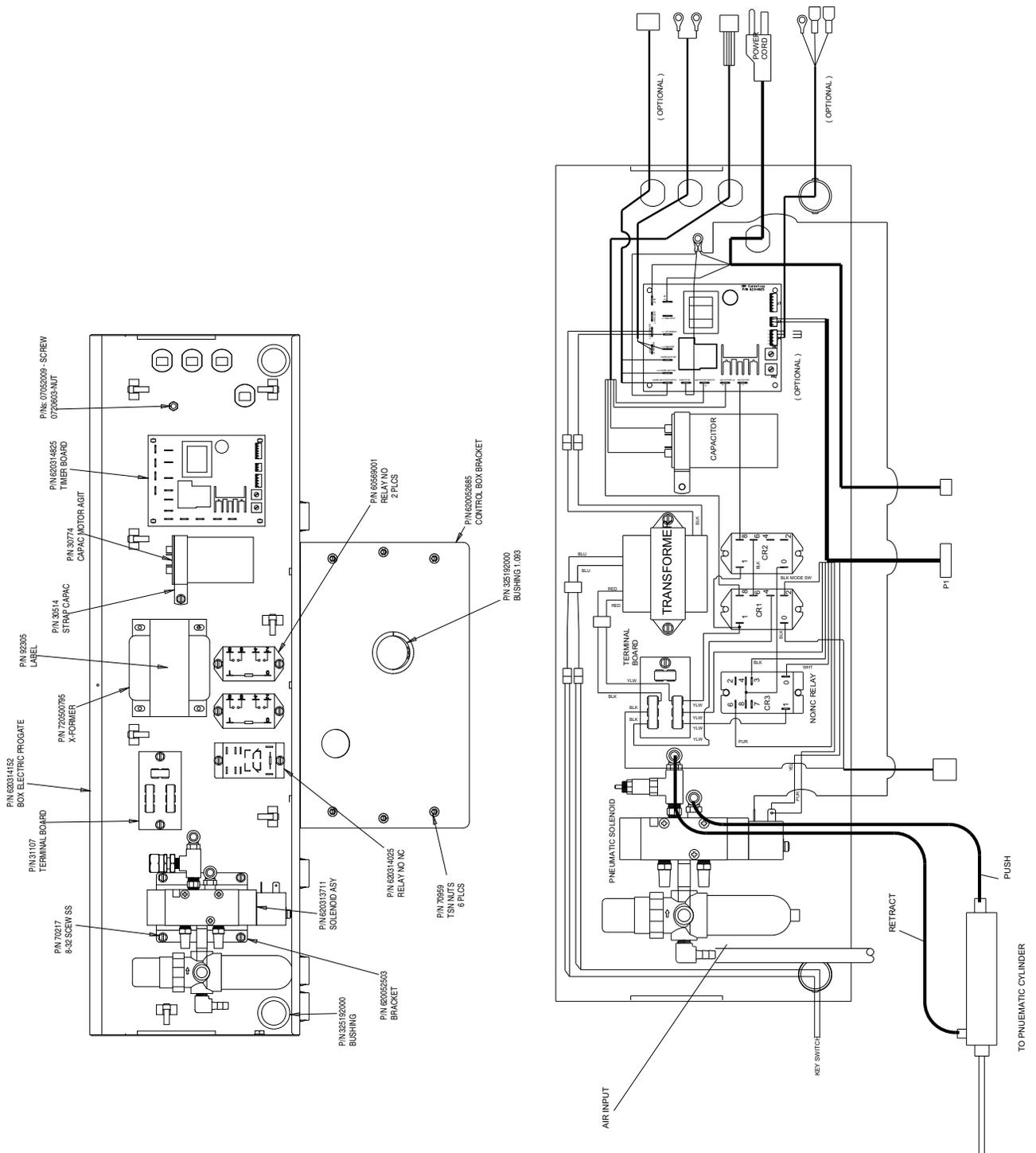
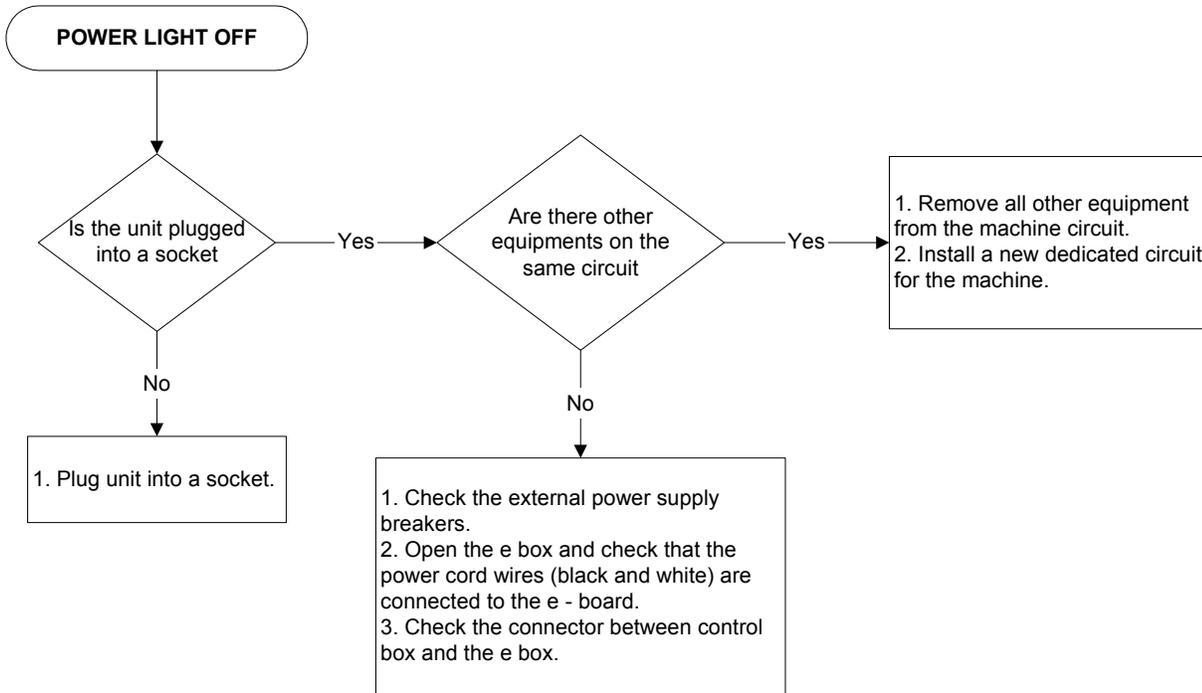


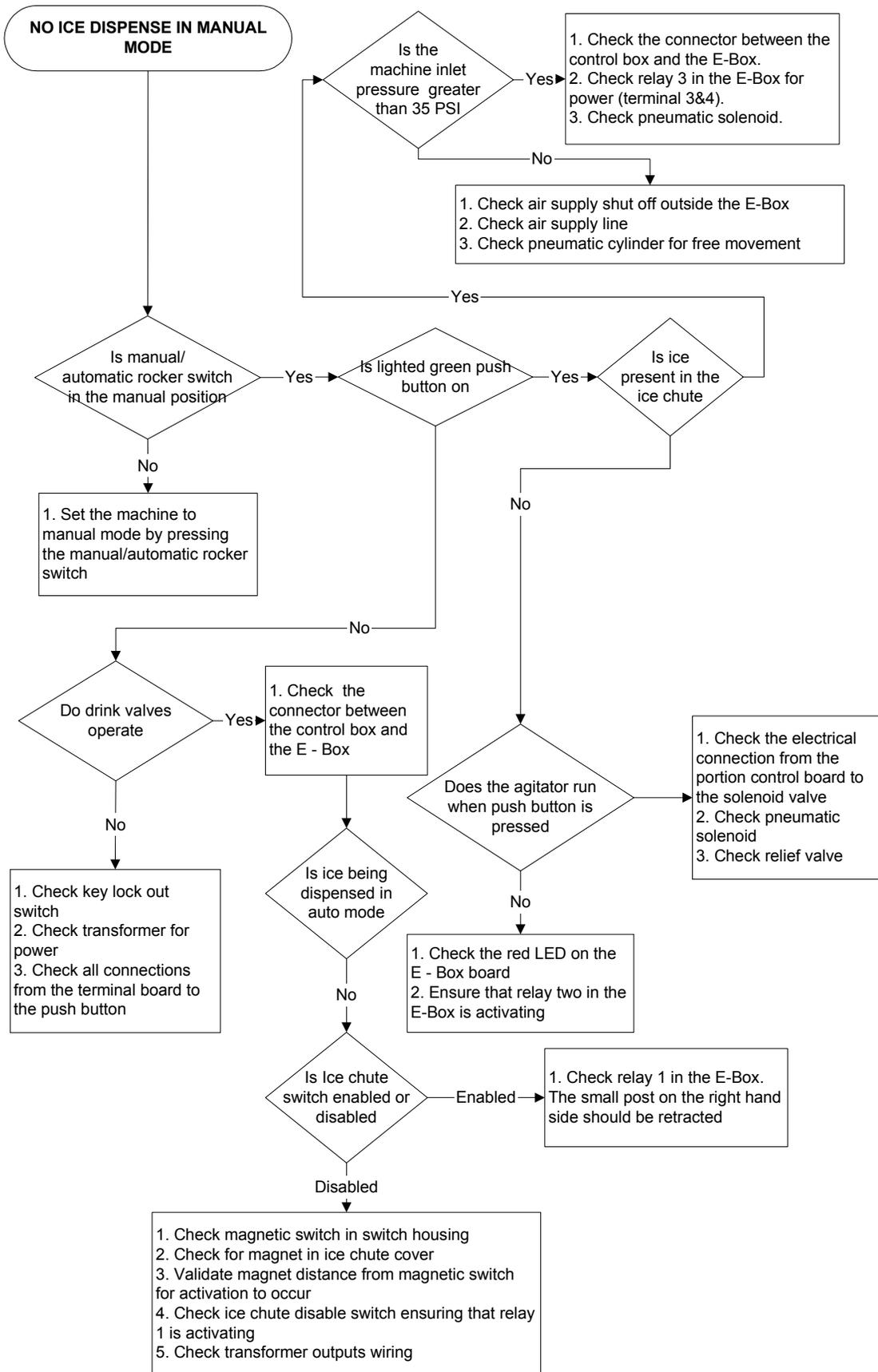
Figure 14.

TROUBLESHOOTING

POWER LIGHT OFF

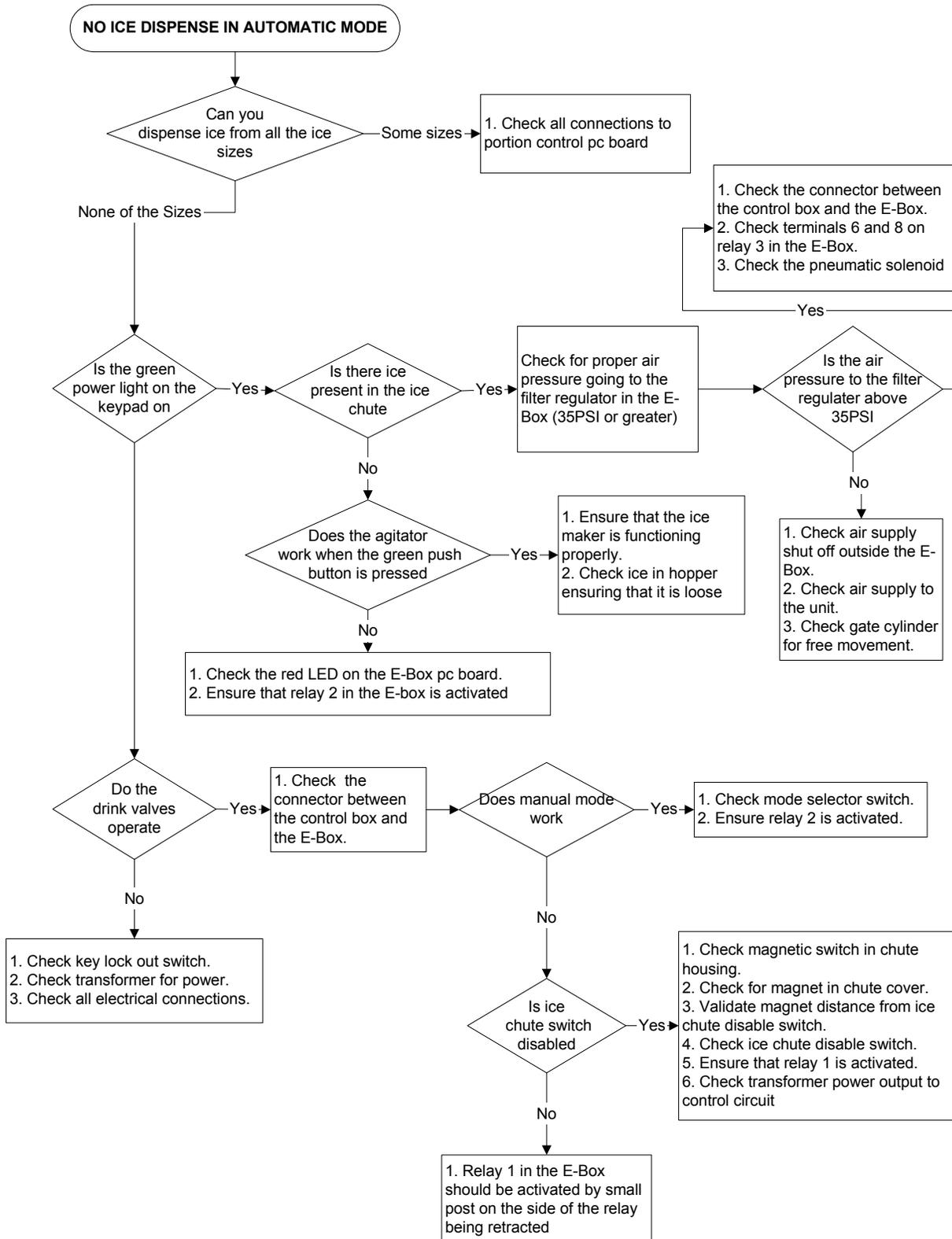


NO ICE DISPENSE IN MANUAL MODE

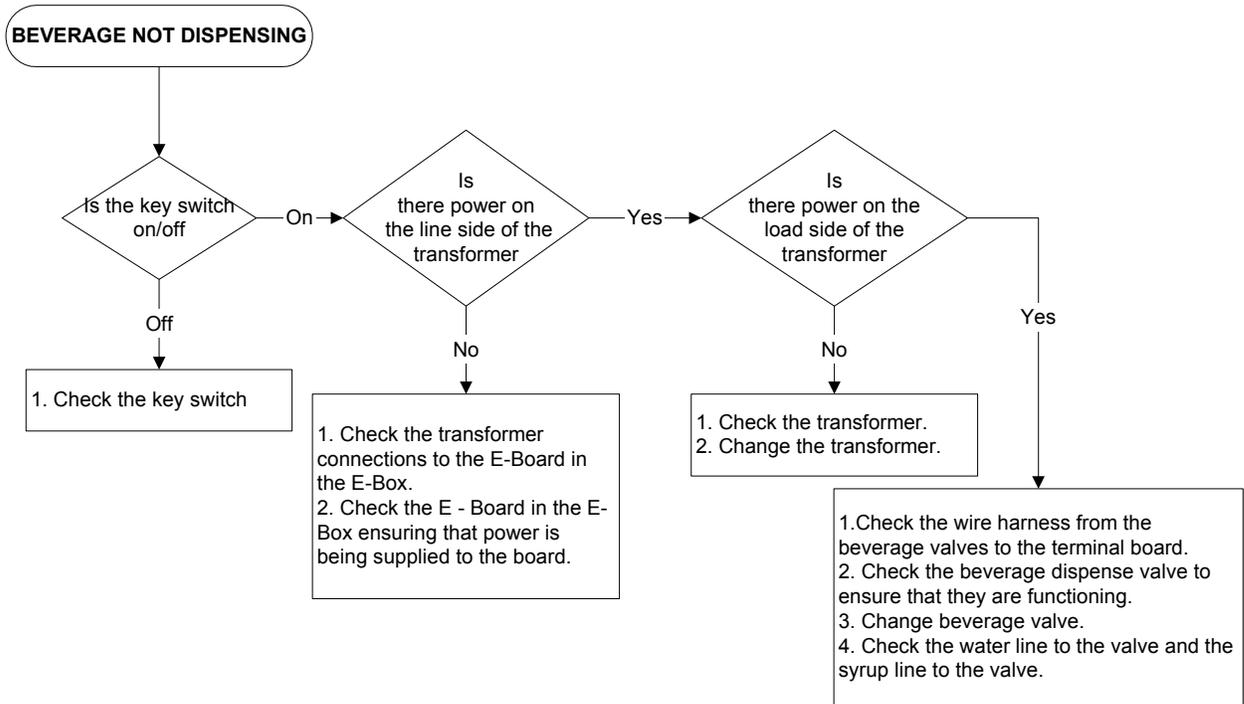




No ICE DISPENSE IN AUTOMATIC MODE

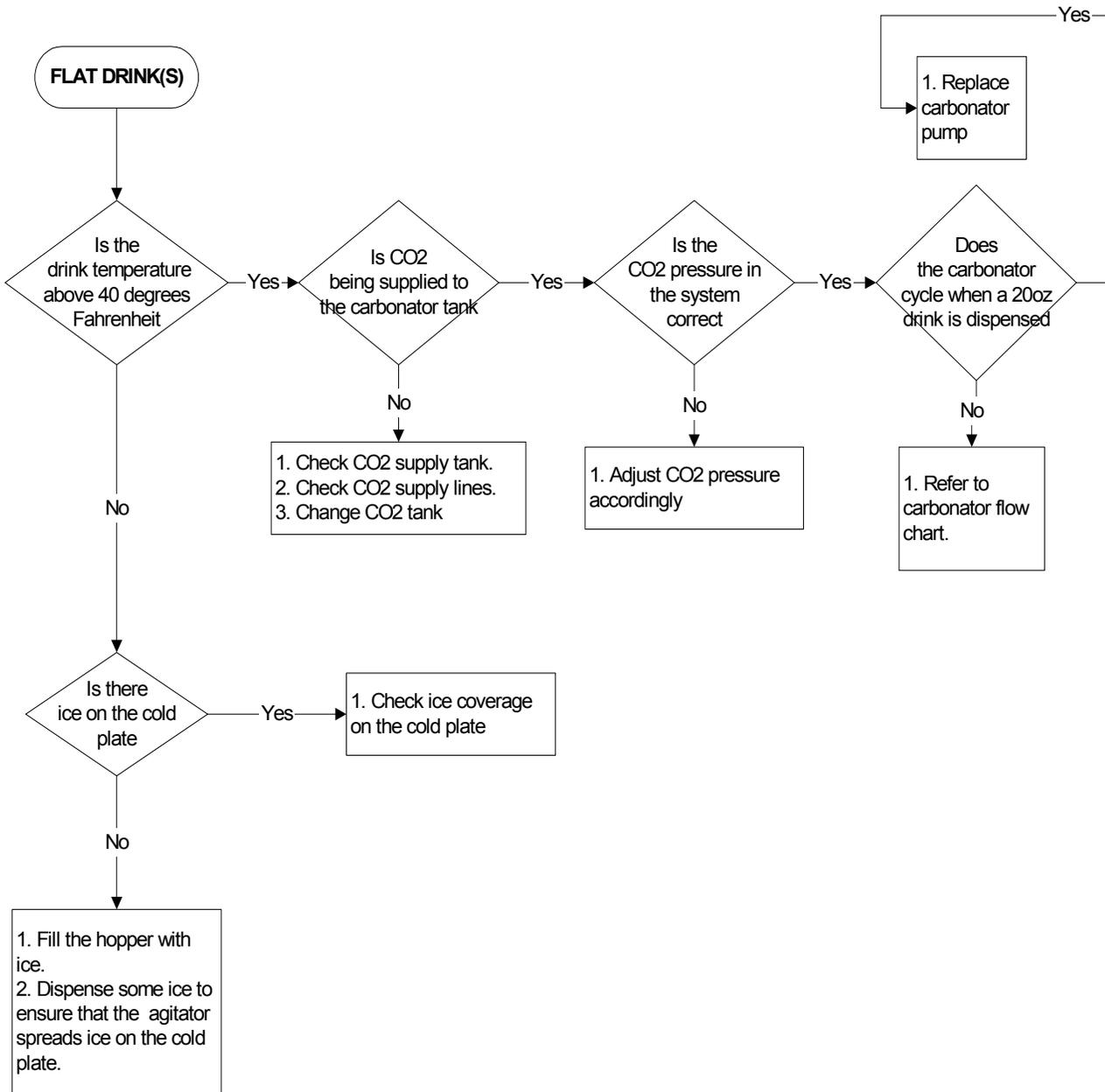


BEVERAGE NOT DISPENSING

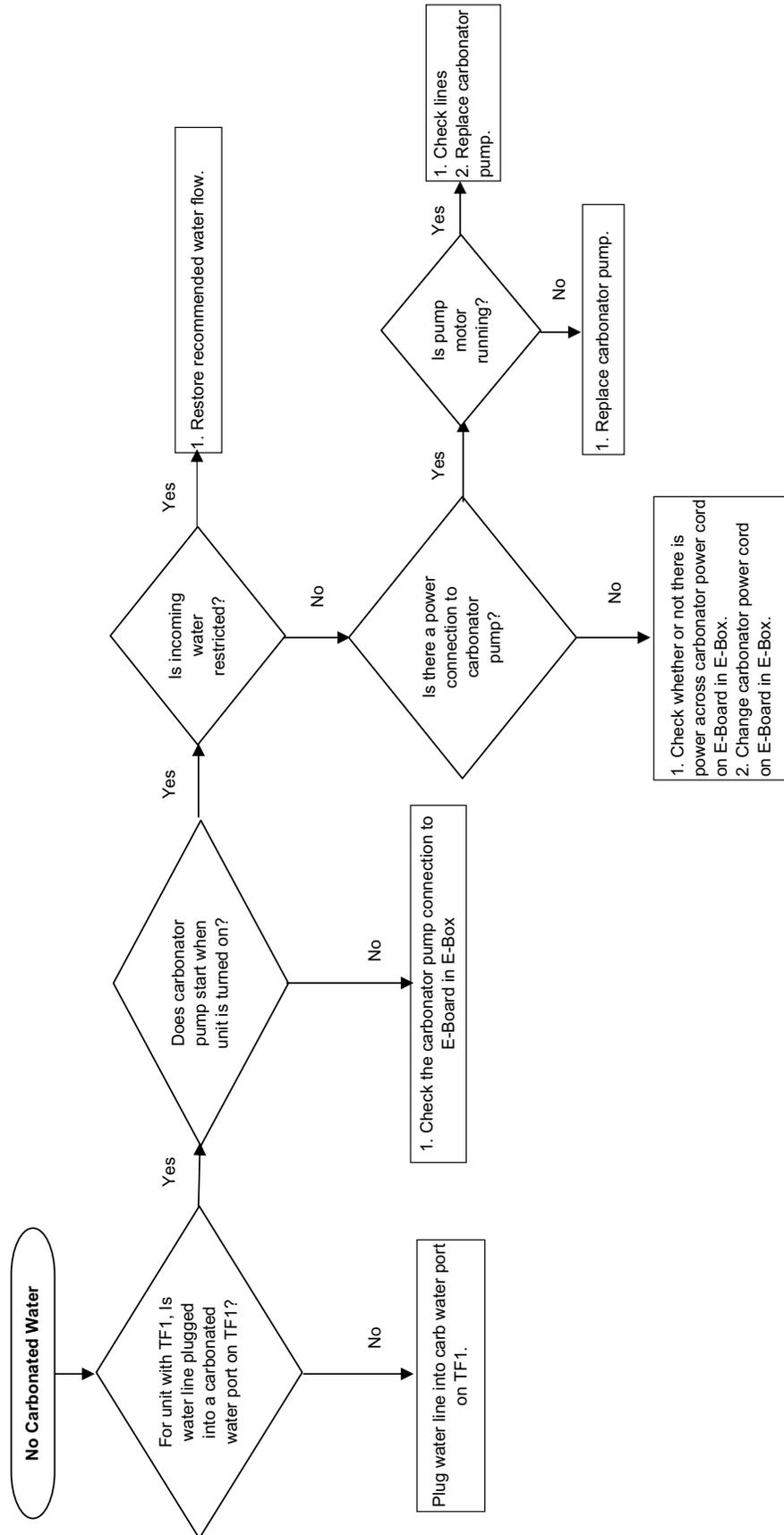




FLAT DRINKS



No CARBONATED WATER





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