



# Multi-Valve Unit (MVU) Tower

## LANCER INSTALLATION GUIDE



**FOR QUALIFIED INSTALLER ONLY.** This basic Installation Sheet is an initial release. If a complete Operations Manual (for the unit being installed) is required or needed, please refer to the Lancer web site ([lancercorp.com](http://lancercorp.com)) for immediate access, or for your convenience, scan this QR code with a mobile device (app required) for immediate access to other Technical Documents and alternative translations (if available) pertaining to this unit. Contact Lancer Customer Service for assistance as required.



### ABOUT THIS MANUAL

This booklet is an integral and essential part of the product and should be handed over to the operator after the installation and preserved for any further consultation that may be necessary. Please read carefully the guidelines and warnings contained herein as they are intended to provide the user with essential information for the continued safe use and maintenance of the product. In addition, it provides **GUIDANCE ONLY** to the user on the correct services and site location of the unit.

### BEFORE GETTING STARTED

Each unit is tested under operating conditions and is thoroughly inspected before shipment. At the time of shipment, the carrier accepts responsibility for the unit. Upon receiving the unit, carefully inspect the carton for visible damage. If damage exists, have the carrier note the damage on the freight bill and file a claim with carrier. Responsibility for damage to the dispenser lies with the carrier.

***The installation and relocation, if necessary, of this product must be carried out by qualified personnel with up-to-date safety and hygiene knowledge and practical experience, in accordance with current regulations.***

## IMPORTANT SAFETY INSTRUCTIONS

### ⚠ Intended Use

The dispenser is for indoor use only. This unit is not a toy. Children should not be supervised not to play with appliance. It should not be used by children or infirm persons without supervision. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Cleaning and user maintenance shall not be performed by children without supervision. The min/max ambient operating temperature for the dispenser is 40°F to 90°F (4°C to 32°C). Do not operate unit below minimum ambient operation conditions. Should freezing occur, cease operation of the unit and contact authorized service technician. Service, cleaning and sanitizing should be accomplished only by trained personnel. Applicable safety precautions must be observed. Instruction warnings on the product being used must be followed.



### **Electrical Warning**

Check the dispenser name plate label, located behind the splash plate, for the correct electrical requirements of unit. Do not plug into a wall electrical outlet unless the current shown on the serial number plate agrees with local current available. Follow all local electrical codes when making connections. Each dispenser must have a separate electrical circuit. Do not use extension cords with this unit. Do not 'gang' together with other electrical devices on the same outlet. The keyswitch does not disable the line voltage to the transformer primary. Always disconnect electrical power to the unit to prevent personal injury before attempting any internal maintenance. The resettable breaker switch should not be used as a substitute for unplugging the dispenser from the power source to service the unit. Only qualified personnel should service internal components of electrical control housing. Make sure that all water lines are tight and units are dry before making any electrical connections!

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

- **WARNING:** Carbon Dioxide (CO<sub>2</sub>) is a colorless, noncombustible gas with a light pungent odor. High percentages of CO<sub>2</sub> may displace oxygen in the blood.
- **WARNING:** Prolonged exposure to CO<sub>2</sub> can be harmful. Personnel exposed to high concentrations of CO<sub>2</sub> gas will experience tremors which are followed by a loss of consciousness and suffocation.
- **WARNING:** If a CO<sub>2</sub> gas leak is suspected, immediately ventilate the contaminated area before attempting to repair the leak.
- **WARNING:** 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.

### **Water Notice**

Provide an adequate potable water supply. Water pipe connections and fixtures directly connected to a potable water supply must be sized, installed, and maintained according to federal, state, and local laws. The water supply line must be at least a 3/8 inches (9.525 mm) pipe with a minimum of 25 PSI (0.172 MPA) line pressure, but not exceeding a maximum of 50 PSI (0.345 MPA). Water pressure exceeding 50 PSI (0.345 MPA) must be reduced to 50 PSI (0.345 MPA) with the provided pressure regulator. Use a filter in the water line to avoid equipment damage and beverage off-taste. Check the water filter periodically, as required by local conditions. The water supply must be protected by means of an air gap, a backflow prevention device or another approved method to comply with NSF standards. A leaking inlet water check valve will allow carbonated water to flow back through the pump when it is shut off and contaminate the water supply. Ensure the backflow prevention device complies with ASSE and local standards. It is the responsibility of the installer to ensure compliance.

## SPECIFICATIONS & FEATURES

### DIMENSIONS

Width: 7.25 inches (184.15 mm)  
Depth: 9 inches (228.6 mm)  
Height: 16.5 inches (419 mm)

### WEIGHT

Shipping: 15 lbs (7.0 kg)

### ELECTRICAL

115 VAC / 60 Hz

### PLAIN/CARBONATED WATER SUPPLY

Min Flowing Pressure: 25 PSI (0.172 MPA)  
Max Static Pressure: 50 PSI (0.345 MPA)

*This unit emits a sound pressure level below 70 dB*

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

Min Pressure: 70 PSIG (0.483 MPA)  
Max Pressure: 80 PSIG (0.552 MPA)

### FITTINGS

Plain/Carb Water Inlet: 3/8 inch barb  
Brand Syrup Inlets: 3/8 inch barb

## READ THIS MANUAL

This manual was developed by the Lancer Corporation as a reference for the owner/operator and installer of this dispenser. Please read this guide before installation and operation of this dispenser. If service is required please call your Lancer Service Agent or Lancer Customer Service. Always have your model and serial number available when you call.

Your Service Agent: \_\_\_\_\_

Service Agent Telephone Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

# INSTALLATION

## Unpack the Dispenser

1. The Lancer dispenser is shipped in a corrugated shipping carton.
2. Remove dispenser from corrugated shipping carton.

### NOTE

Inspect unit for concealed damage. If evident, notify delivering carrier and file a claim against the same.

## Selecting/Preparing Counter Location

### NOTE

The dispenser should only be installed in a location where it can be overseen by trained personnel

1. Select a level, well ventilated location that is in close proximity to a properly grounded electrical outlet, within five (5) feet (1.5 m) of a drain, a water supply that meets the requirements shown in the Specifications section found on page 2, and away from direct sunlight or overhead lighting.
2. The dispenser is designed to be installed permanently to a counter and must be sealed with a bead of clear silicone caulk or sealant which provides a smooth and easily cleanable bond to the counter.

### NOTE

NSF listed units must be sealed to the counter or have four (4) inch legs installed.

3. Select a location for the remote chiller system, syrup pumps, CO<sub>2</sub> tank, syrup containers, and water filter (recommended).
4. Cut out required opening in counter for the water/soda and syrup lines in the designated dispenser location.

## Leveling the Dispenser:

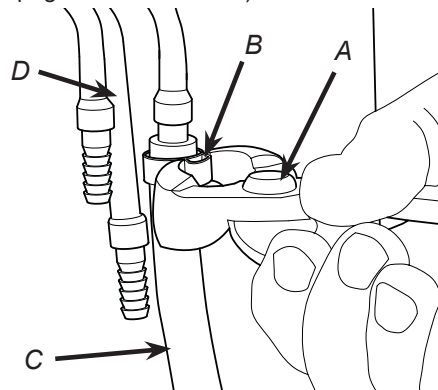
In order to facilitate proper dispenser drainage, ensure that the dispenser is level, front to back and side to side. Place a level on the top of the rear edge of the dispenser. The bubble must settle between the level lines. Repeat this procedure for the remaining three sides. Level unit if necessary. For optimum performance place the unit at a 0° tilt. The maximum tilt is 5°.

### NOTE

To assure that beverage service is accessible to all customers, Lancer recommends that counter height and equipment selection be planned carefully. The 2010 ADA Standards for Accessible Design states that the maximum reach height from the floor should be no more than 48" if touch point is less than 10" from the front of the counter, or a maximum of 46" if the touch point is more than 10" and less than 27" from the front of the counter. For more information about the customer's legal requirements for the accessibility of installed equipment, refer to 2010 ADA Standards for Accessible Design - <http://www.ada.gov>.

## Tower Installation

1. Route appropriate tubing from the water source to the plain water inlet at tower and connect tubing to inlet using the oetiker pliers and fittings, (see Plumbing Diagram on unit or page 11 for reference).



A. Oetiker Pliers  
B. Fitting  
C. Tubing  
D. Syrup/Water Inlet

2. Connect tubing to water source then flush water line to check for leaks.
3. Route appropriate tubing from the remote chiller system location to the carbonated water inlet on tower and connect tubing to inlet.

### NOTE

Unit is designed to be supported by a remote chiller system or remote ice cooled system. Please see the manufacturer's specifications and instructions for installation.

4. Route appropriate tubing from the syrup pump location to the syrup inlets and connect tubing to inlet. Repeat for remaining syrup lines
5. Route the power supply cord to a grounded electrical outlet of the proper voltage and amperage rating.

### ⚠ WARNING

**DO NOT PLUG UNIT INTO GROUNDED ELECTRICAL OUTLET AT THIS TIME.** Make sure that all water lines are tight and unit is dry before making any electrical connections

6. Connect drain line to fitting at the bottom of the drip tray and route to designated open type floor drain.

### ⚠ CAUTION

Drain line must be insulated with a closed cell insulation. Insulation must cover the entire length of the drain hose, including fittings. The drain should be installed in such a manner that water does not collect in sags or other low points, as condensation will form.

### ⚠ ATTENTION

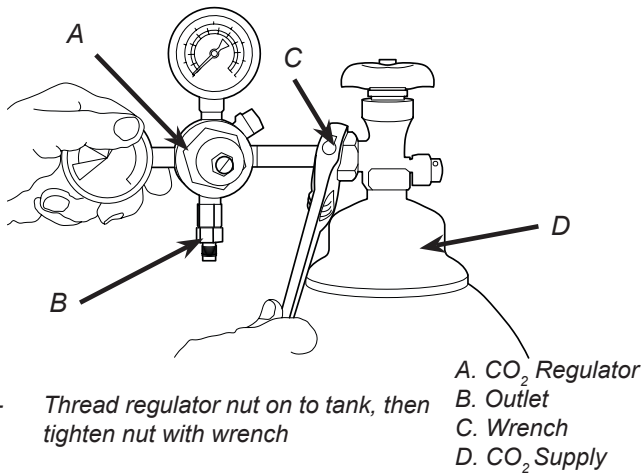
Pouring hot water down the drain may cause the Drain Tube to collapse. Allow only luke warm or cold water to enter the Drain Tube. Pouring coffee, tea, or other similar substances down the drain may cause the Drain Tube to become clogged.

## Installing CO<sub>2</sub> Supply

1. Connect high pressure CO<sub>2</sub> regulator assembly to CO<sub>2</sub> cylinder or bulk system.

### ⚠ ATTENTION

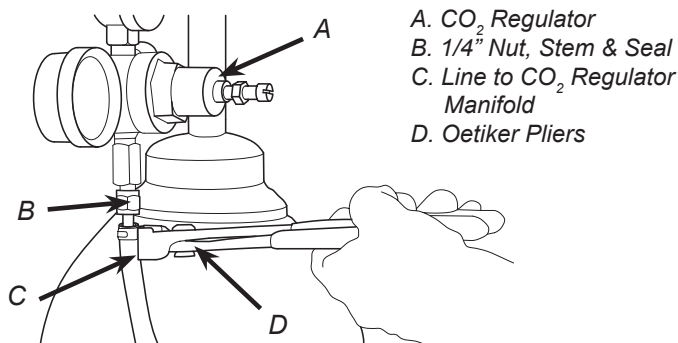
Before installing regulator, assure that a seal (washer or o-ring) is present in regulator attachment nut.



2. Connect a 1/4" nut, stem and seal to CO<sub>2</sub> regulator outlet.
3. Route appropriate tubing from the low pressure CO<sub>2</sub> regulator manifold location to the 1/4" nut, stem on the high pressure CO<sub>2</sub> regulator attached to source and connect tubing.

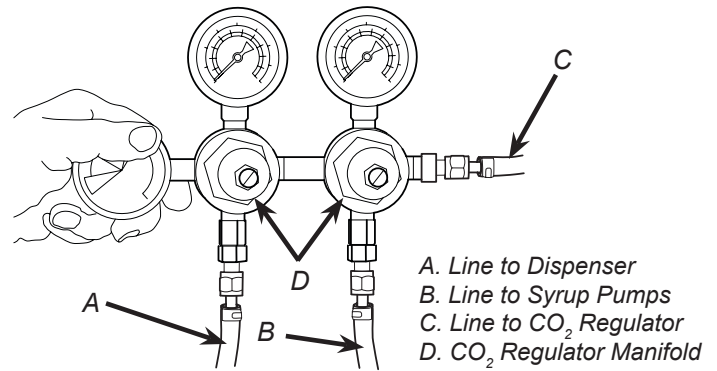
### ⚠ ATTENTION

A dedicated CO<sub>2</sub> regulator is required to supply the CO<sub>2</sub> inlet at the remote chiller as well as to all syrup pumps.



4. Route appropriate tubing from one of the low pressure CO<sub>2</sub> regulator manifold outlets to the inlet at the remote chiller.

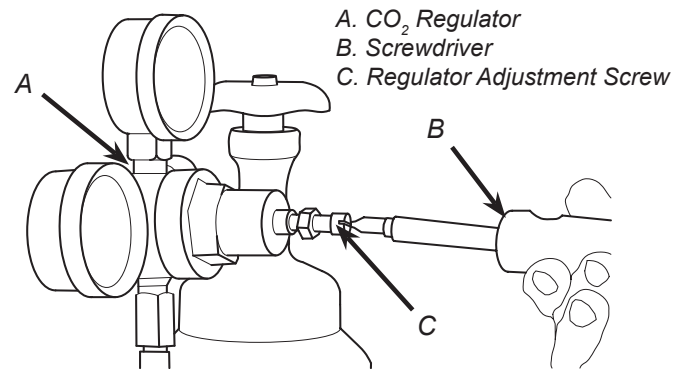
5. Route appropriate tubing from the second outlet of the low pressure CO<sub>2</sub> regulator manifold to the syrup pumps location.



6. Using a wrench, loosen lock nut on the regulator adjustment screw of the high pressure CO<sub>2</sub> regulator connected to the source, then using a screwdriver back out lock nut screw all the way.

### ⚠ WARNING

DO NOT TURN ON CO<sub>2</sub> SUPPLY AT THIS TIME



7. Repeat Step 6 for both low pressure CO<sub>2</sub> regulators on the regulator manifold routed to the unit and the syrup pumps.

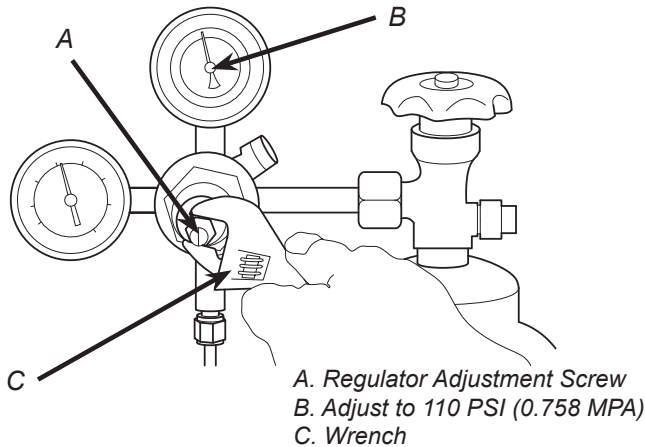
## Dispenser Setup

1. Turn on water source.
2. Open the pressure relief valve located on the remote chiller system or remote carbonator by flipping up on the valve cap lever. Hold open until water flows from the relief valve then close (flip down) relief valve.
3. Verify all Bag-In-Box contains syrup and check all connections for leaks.
4. Connect tower and remote chiller power cords to grounded electrical outlet.

### ⚠ WARNING

The dispenser must be properly electrically grounded to avoid serious injury or fatal electrical shock. The power cord has a three-prong grounded plug. If a three-hole grounded electrical outlet is not available, use an approved method to ground the unit. Follow all local electrical codes when making connections. Each dispenser must have a separate electrical circuit. Do not use extension cords. Do not connect multiple electrical devices on the same outlet.

5. Activate each valve to ensure a good flow of water is achieved.
6. Ensure pump deck is turned OFF before turning on CO<sub>2</sub>.
7. Turn on CO<sub>2</sub> at the source then, using a screwdriver, adjust the high pressure regulator at the source to 110 PSI (0.758 MPA) then tighten locknut with wrench.



8. Adjust both of the low pressure regulators on the regulator manifold to 75 PSI (0.517 MPA) then tighten locknut with wrench.
9. Activate each valve until gas-out.
10. Plug in the remote carbonator pump deck, if not already done so, and turn the switch to the ON position.
11. Activate each valve until the carbonator pump comes on. Release the button, allow carbonator to fill and stop. Repeat this process until a steady flow of carbonated water is achieved.

#### NOTE

The pump deck has a 3 minute timeout feature. If the timeout occurs, turn the deck OFF then ON by flipping the switch on the control box.

#### NOTE

To check for CO<sub>2</sub> leaks, close the valve on the CO<sub>2</sub> cylinder and observe if the pressure to the system drops with the cylinder valve closed for five minutes. Open the cylinder valve after check.

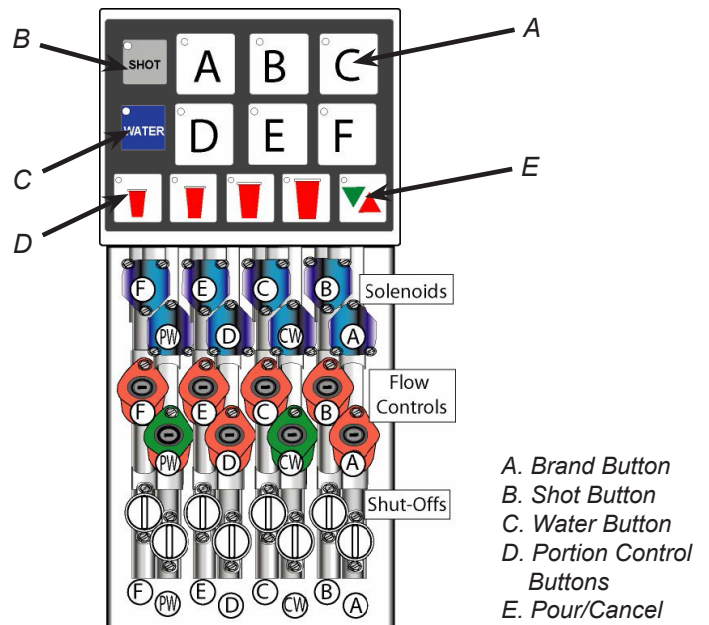
12. Activate each valve to purge air from the syrup lines.

## MULTI-VALVE UNIT (MVU) PROGRAMMING

### Overview

The MVU module is designed to dispense up to 6 beverages and/or shots through one dispense nozzle. The MVU consists of: an electronic board, touch pad which is used to both program and dispense drinks, 8 solenoids (one for each circuit), 8 flow controls (one for each circuit), and 8 shut-offs

1. Positions A and D are plumbed through the cold plate meaning that the syrup is chilled in each of those locations.
2. Positions B, C, E, and F bypass the cold plate so the syrups are not chilled and should **NOT** be used for carbonated beverages.
3. The water flow controls are green in color the plain water control is labeled with "PW", and the carbonated water is labeled with "CW". There are no stickers on the water flow controls.
4. The syrup flow control modules are red and correspond to the touch pad, (touchpad position A activates solenoid A).
5. The 8 solenoids are 24 VDC, activated by the touch pad, and controlled by the MVU circuit board.





## Set MVU for Carb, Non-Carb, or Flavor Shot Only

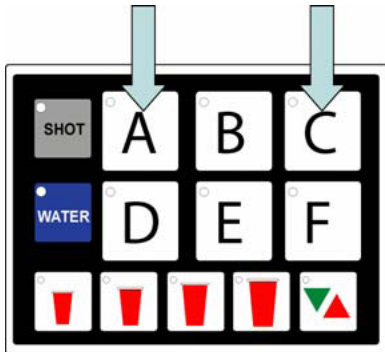
### NOTE

Refer to Overview Illustration for touch pad reference.

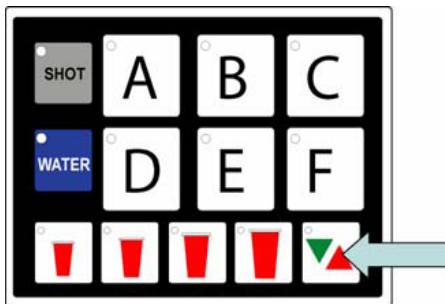
1. On the MVU panel, press and hold both of the A and C brand buttons at the same time to enter programming mode.

### NOTE

The Pour/Cancel LED will illuminate and the Shot button LED will blink one time, once in programming mode.



2. Observe brand LED's to identify the water setting for each button:
  - Lights on = Plain Water
  - Lights flashing = Carb Water
  - Lights off = No Water (Deactivated unless set for shot)
3. To change a brand from its factory setting, press that button to toggle between plain water, soda water, or no water.
4. Repeat this process for each brand for positions B, C, D, E, and F
5. Press the Pour/Cancel to save the changes and exit the programming mode.



### NOTE

The Program will save automatically in 60 seconds if no additional changes are made in that time frame; however, you can exit any time within the 60 second window by pressing Pour/Cancel. The changes you've made will be saved.

## Set MVU for Flavor Shots

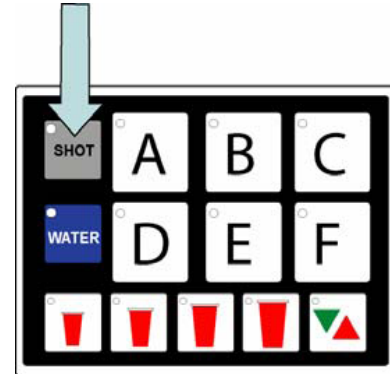
### NOTE

Refer to Overview Illustration for touch pad reference.

1. On the MVU panel, press and hold both of the A and C brand buttons at the same time for a minimum of 5 seconds to enter programming mode.
2. Press the "Shot" button.

### NOTE

The "Shot" button will illuminate. Brands enabled for shots will be illuminated.



3. Press the "Brand" button to turn the shot mode for that brand on or off.
4. Press the Pour/Cancel Button to save changes in place and exit the programming mode.

### NOTE

The Program will save automatically in 60 seconds if no additional changes are made in that time frame; however, you can exit any time within the 60 second window by pressing Pour/Cancel. The changes you've made will be saved.

## MVU Flow Rate Check

### NOTE

Refer to Overview Illustration for touch pad reference.

1. To check the flow rate, remove the splashguard and MVU front plate to expose the flow controls and solenoids.

### NOTE

CW = Carbonated Water

PW = Plain Water

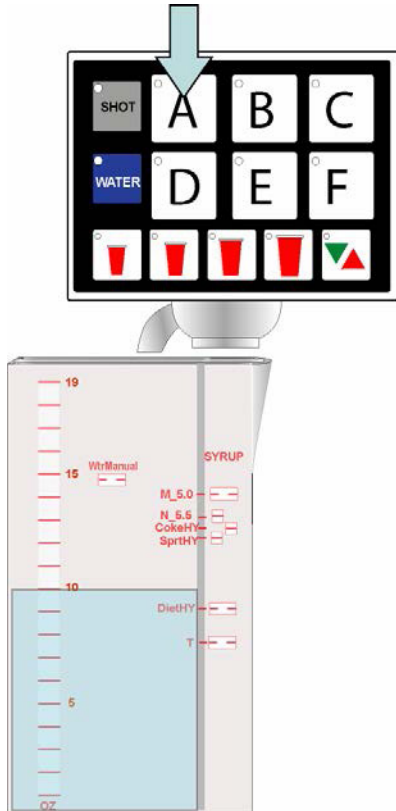
Green is for water and Red is for syrup

2. Press and hold the A and B brand buttons at the same time for a minimum of 5 seconds.

### NOTE

The “Pour/Cancel” button will illuminate and the “Shot” button will blink 5 times.

3. Remove outer nozzle and insert syrup separator.
4. Place a ratio cup under the nozzle and press a brand button.



### NOTE

The brand's water module will open and pour for 4 seconds to prime the separator. Only water will pour during the flow rate check.

5. Press the brand button again to pour for 4 seconds.
6. Check for 10 oz of water in the ratio cup:

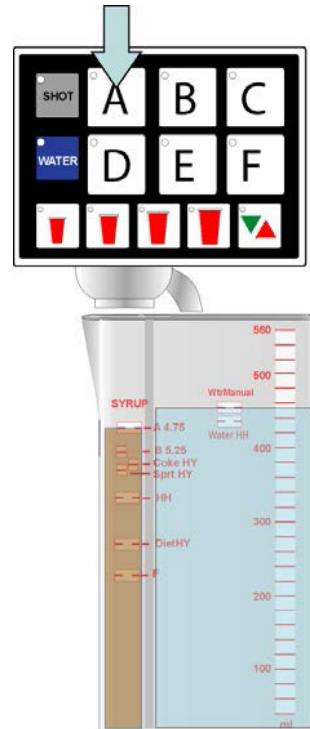
### NOTE

If above or below 10 oz., adjust the water flow control. Water should not be adjusted after this step.

7. Repeat process for other water type.
8. Press Pour/Cancel to exit programming mode.

## Ratio Process

1. Prime syrup by running the valve.
2. Press and fill the ratio cup to the appropriate level.



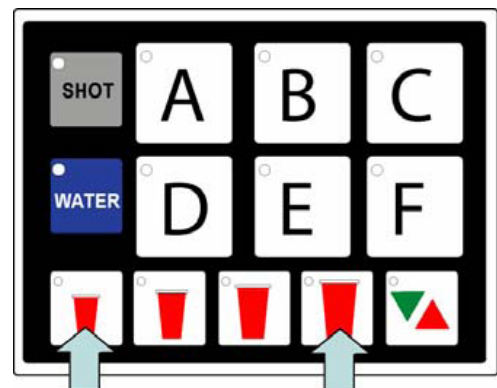
3. Check/Adjust Ratio on each brand.
4. Use flow controls to adjust syrup only. Do not adjust water.
5. Replace MVU front plate when all adjustments have been made.

## Portion Control Programming

1. Press the S and XL portion control size buttons at the same time for a minimum of 5 seconds to enter portion setting mode.

### NOTE

The “Pour/Cancel” button will illuminate and the “Shot” button will blink 2 times.



2. Press the brand button(s) to select for portion control setting, the selected brand's LED will illuminate.

#### NOTE

Multiple brands can be programmed at the same time to pour the same amounts for each size during this step by selecting several brands. However, the first button selected will illuminate and only its beverage will pour while the other brands selected will flash slowly.

#### NOTE

In multi-brand programming mode, do not set carbonated drinks and non-carbonated drinks at the same time because carbonated drinks tend to foam.

#### NOTE

The LED will blink twice and turn off if the brand has been programmed as a flavor shot only. You will need to reprogram the brand as a drink prior to setting the portion if it needs to be programmed as a drink as well as a flavor shot.

3. Fill a cup 1/3 full with ice and place it under the nozzle, push and hold a drink "size" button until the cup is full.
4. Once the pour is completed, the LED will blink slowly to indicate that a new pour duration has been programmed for that size.
5. Repeat this step for each of the other size cups.

6. Select other brands and repeat these steps for each of them.
7. Press "Pour Cancel" button to save programming.

#### NOTE

The Program will save automatically in 60 seconds if no additional changes are made in that time frame; however, you can exit any time within the 60 second window by pressing Pour/Cancel. The changes you've made will be saved.

### MVU Shot Size Programming

1. While in Portion Control Programming, press the Shot button. If pressed again, it will exit "Shot Size Programming."
2. Press any "Brand" button. The brand button will illuminate.

#### NOTE

If brand is not enabled for shot mode, the LED light on that brand will blink twice and turn off.

3. Place a graduated cylinder under the nozzle.
4. Press and hold the XL portion button until it reaches the target of 30 ml (1 oz) of syrup.

#### NOTE

The XL LED will blink slowly to indicate that it has been programmed. The other size buttons are automatically set and do not require adjusting.

5. Repeat steps 2 through 4 for each of the other brands.
6. Press Pour/Cancel to save the settings.

## CLEANING AND SANITIZING

### GENERAL INFORMATION

Lancer equipment (new or reconditioned) is shipped from the factory cleaned and sanitized in accordance with NSF guidelines. The operator of the equipment must provide continuous maintenance as required by this manual and/or state and local health department guidelines to ensure proper operation and sanitation requirements are maintained.

The cleaning procedures provided herein pertain to the Lancer equipment identified by this manual. If other equipment is being cleaned, follow the guidelines established by the manufacturer for that equipment.

Cleaning should be accomplished only by trained personnel. Sanitary gloves are to be used during cleaning operations. Applicable safety precautions must be observed. Instruction warnings on the product being used must be followed.

#### ⚠ ATTENTION

- Use sanitary gloves when cleaning the unit and observe all applicable safety precautions.
- **DO NOT** use a water jet to clean or sanitize the unit.
- **DO NOT** disconnect water lines when cleaning and sanitizing syrup lines, to avoid contamination.
- **DO NOT** use strong bleaches or detergents; These can discolor and corrode various materials.
- **DO NOT** use metal scrapers, sharp objects, steel wool, scouring pads, abrasives, or solvents on the dispenser.
- **DO NOT** use hot water above 140° F (60° C). This can damage the dispenser.
- **DO NOT** spill sanitizing solution on any circuit boards. Insure all sanitizing solution is removed from the system.



## Cleaning Solution

Mix a mild, non-abrasive detergent (e.g. Sodium Laureth Sulfate, dish soap) with clean, potable water at a temperature of 90°F to 110°F (32°C to 43°C). The mixture ratio is one ounce of cleaner to two gallons of water. Prepare a minimum of five gallons of cleaning solution. Do not use abrasive cleaners or solvents because they can cause permanent damage to the unit. Ensure rinsing is thorough, using clean, potable water at a temperature of 90°F to 110°F. Extended lengths of product lines may require additional cleaning solution.

## Sanitizing Solution

Prepare the sanitizing solution in accordance with the manufacturer's written recommendations and safety guidelines. The type and concentration of sanitizing agent recommended in the instructions by the manufacturer shall comply with 40 CFR §180.940. The solution must provide 200 parts per million (PPM) chlorine (e.g. Sodium Hypochlorite or bleach) and a minimum of five gallons of sanitizing solution should be prepared.

## Scheduled Maintenance/Cleaning

<b>As Needed</b>	<ul style="list-style-type: none"><li>Keep exterior surfaces of tower clean using a clean, damp cloth.</li></ul>
<b>Daily</b>	<ul style="list-style-type: none"><li>Using the cleaning solution, clean all exterior stainless steel surfaces of tower</li><li>Remove cup rest then clean the drip tray and cup rest. Replace cup rest when finished.</li><li>Wipe clean all splash areas using a damp cloth soaked in cleaning solution.</li><li>Clean and sanitize tower nozzle as specified by the section <i>Cleaning and Sanitizing Tower Nozzle</i>.</li></ul>
<b>Every Six Months</b>	<ul style="list-style-type: none"><li>Clean and sanitize the syrup lines as specified by the section <i>Cleaning and Sanitizing Syrup Lines - Bag in Box</i>.</li></ul>

### Cleaning and Sanitizing Tower Nozzle

1. Disconnect power, so as to not activate valve while cleaning.
2. Remove nozzle by twisting counter clockwise and pulling down.
3. Remove diffuser by pulling down.
4. Rinse nozzle and diffuser with warm water.
5. Wash nozzle and diffuser with cleaning solution then immerse in sanitizing solution and let sit for fifteen (15) minutes.
6. Set nozzle and diffuser aside and let air dry. **DO NOT** rinse with water after sanitizing.
7. Reconnect diffuser and nozzle.
8. Connect power.
9. Taste the drink to verify that there is no off-taste. If off-taste is found, flush syrup system again.

#### ⚠ CAUTION

Following sanitization, rinse with end-use product until there is no aftertaste. Do not use a fresh water rinse. This is a NSF requirement. Residual sanitizing solution left in the system creates a health hazard.

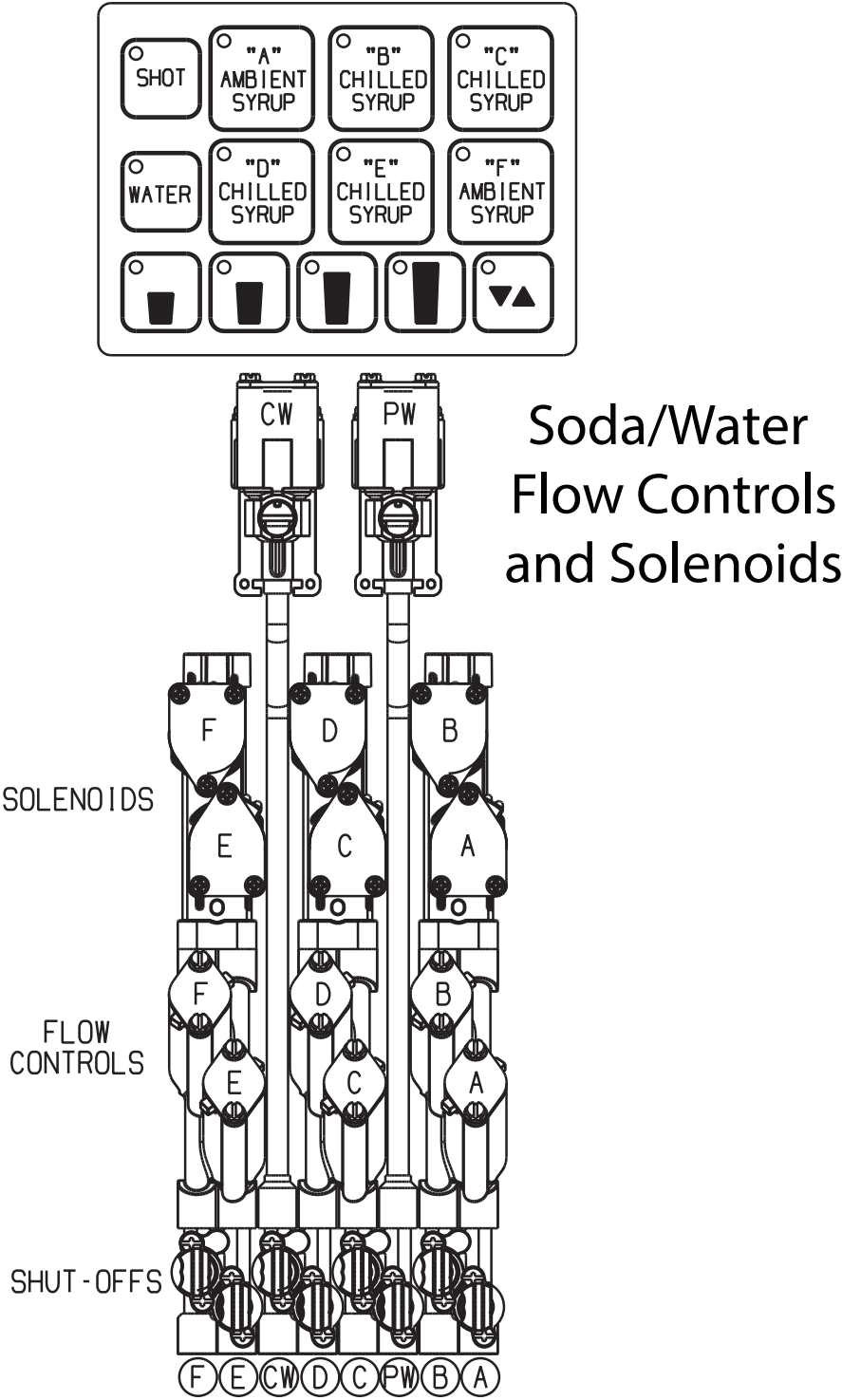
### Cleaning and Sanitizing Syrup Lines - Bag in Box

1. Disconnect syrup lines from BIB's
2. Place syrup lines, with BIB connectors, in a bucket of warm water.
3. Activate each valve to fill the lines with warm water and flush out syrup remaining in the lines.
4. Prepare Cleaning Solution described on previous page.
5. Place syrup lines, with BIB connectors, into cleaning solution.
6. Activate each valve until lines are filled with cleaning solution then let stand for ten (10) minutes.
7. Flush out cleaning solution from the syrup lines using clean, warm water.
8. Prepare Sanitizing Solution described on previous page.
9. Place syrup lines into sanitizing solution and activate each valve to fill with sanitizer. Let sit for ten (10) minutes.
10. Reconnect syrup lines to BIB's and draw drinks to flush solution from the dispenser.
11. Taste the drink to verify that there is no off-taste. If off-taste is found, flush syrup system again.

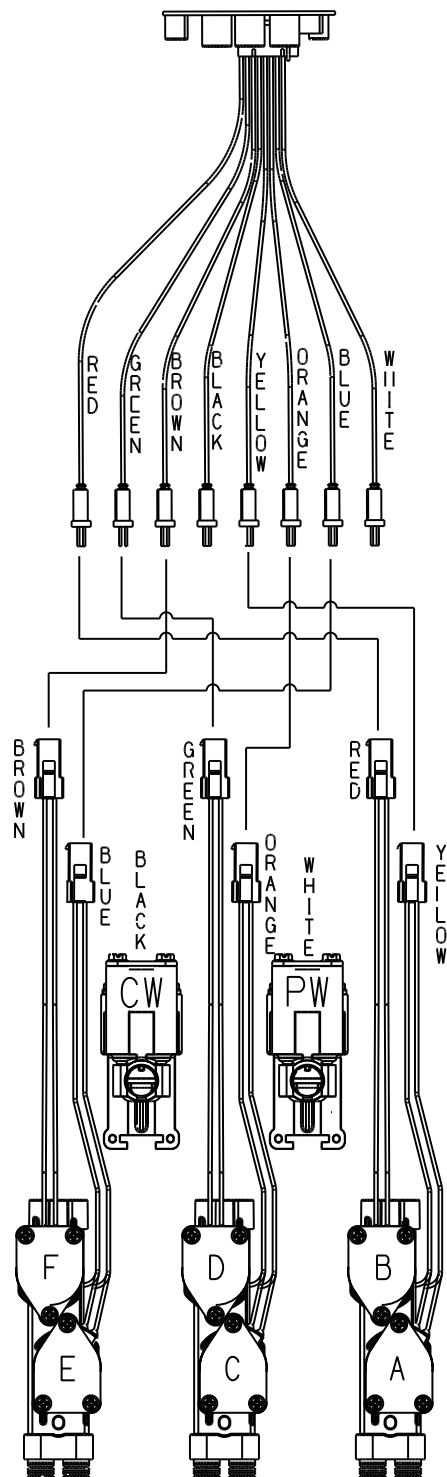
#### ⚠ CAUTION

Following sanitization, rinse with end-use product until there is no aftertaste. Do not use a fresh water rinse. This is a NSF requirement. Residual sanitizing solution left in the system creates a health hazard.

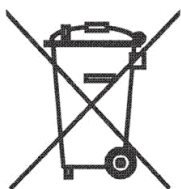
PLUMBING DIAGRAM



## WIRING DIAGRAMS



## Dispenser Disposal



To prevent possible harm to the environment from improper disposal, recycle the unit by locating an authorized recycler or contact the retailer where the product was purchased. Comply with local regulations regarding disposal of the refrigerant and insulation.

---

***LANCER***<sup>®</sup>

Lancer Corp.  
800-729-1500  
Technical Support/Warranty: 800-729-1550  
custserv@lancercorp.com  
lancercorp.com