



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) for immediate access, or for your convenience, scan this QR code with a mobile device (app required) for immediate access. Contact Lancer Customer Service for assistance as required.

ABOUT THE VALVE

The volumetric valve dispenses post-mix beverages accurately over a broad range of pressures and syrup viscosities. Configurations, from a cup lever to a portion control panel interface, allow the volumetric valve to fit many different applications. The Volumetric Valve mounts to a standard LEV® back block and utilizes the same cover as the LEV®.

SPECIFICATIONS

FINISHED DRINK FLOW RATES:

- 3.0 ounces per sec (88.7 ml/sec), Standard
- 2.25 ounces per sec (66.5 ml/sec)
- 1.50 ounces per sec (44.4 ml/sec)

MOUNTING:

Mounts on the same hole pattern with the same mounting screws as the following valves: Lancer LEV®
Cornelius SF-1 Dole SEV McCann Turbo Flo Jr. Dole FFV

PRESSURE REQUIREMENTS:

Flowing pressure (at the valve)

	Minimum	Maximum
Water	40 psig (2.8 Kg/cm ²)	110 psig (7.7 Kg/cm ²)
Syrup (Sugar)	20 psig (1.4 Kg/cm ²)	70 psig (4.9 Kg/cm ²)
Syrup (Diet)	10 psig (0.7 Kg/cm ²)	70 psig (4.9 Kg/cm ²)

MAINTENANCE TOOLS:

When troubleshooting and accessing the Volumetric Valve, the following tools will be needed:

Standard

- #2 Phillips Head Screw Driver
- Flat End Screw Driver
- Dow Corning® 111 Valve Lubricant & Sealant
- Volumetric Valve Hand Held Programmer (Lancer PN 52-1420/02; CCPN 532179)

Optional

- 3/16 inch Hex Socket Driver
- Ohmmeter

ELECTRICAL REQUIREMENT:

24 VAC, 50/60 Hz

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.

1. PRINCIPLE OF OPERATION

- Three systems in the Volumetric Valve work together to maintain an accurate syrup to water ratio: 1) The circuit board with its computer, 2) The water measuring system, and 3) The syrup injecting system.
- Set the ratio by using the hand held programmer (Lancer PN 52-1420/02; CCPN 532179).
- When a customer activates the valve, the water starts flowing to the nozzle. The flow washer ensures that the water does not flow too fast.
- The paddle wheel in the flowmeter begins to spin, sending signals to the circuit board (see below).
- The computer on the circuit board monitors the signals and determines when to inject syrup into the water stream. The circuit board energizes one syrup solenoid and then the other. This alternating action injects a metered amount of syrup into the water. This happens seven to eight (7-8) times a second.
- The circuit board indicates which solenoid is activated with the LEDs mounted on the front of the board. The green LED corresponds to the water solenoid and the red LEDs correspond to the syrup solenoids.



2. CLEANING AND SANITIZING INSTRUCTIONS

GENERAL INFORMATION

- A. The cleaning and sanitizing procedures provided 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.
- B. Lancer equipment (new or reconditioned) is shipped from the factory cleaned and sanitized in accordance with NSF guidelines. The equipment must be cleaned and sanitized after installation is complete. The operator of the equipment must provide continuous maintenance as required by this manual and state and local health department guidelines to ensure proper operation and sanitation requirements are maintained.
- C. Cleaning and sanitizing should be accomplished only by trained personnel. Sanitary gloves are to be used during cleaning and sanitizing operations. Applicable safety precautions must be observed. Instruction warnings on the product being used must be followed.

2.1 CLEANING SOLUTION

Mix a mild, non-abrasive detergent (e.g. Sodium Laureth Sulfate, dish soap) with clean, potable water at a temperature of 90 to 110°F (32 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 to 110 degrees F. Extended lengths of product lines may require additional cleaning solution.

2.2 SANITIZING SOLUTION

Prepare sanitizing solutions in accordance with the manufacturer's written recommendations and safety guidelines. The solution must provide 50 to 100 parts per million (PPM) chlorine (e.g. Sodium Hypochlorite or bleach). A minimum of five gallons of sanitizing solution should be prepared. Any sanitizing solution may be used as long as it is prepared in accordance with the manufacturer's written recommendations and safety guidelines, and provides 50 to 100 parts per million (PPM) chlorine.



WARNING IF A POWDER SANITIZER IS USED, DISSOLVE IT THOROUGHLY WITH HOT WATER PRIOR TO ADDING TO THE SYRUP SYSTEM. ENSURE SANITIZING SOLUTION IS REMOVED FROM THE DISPENSER AS INSTRUCTED. AVOID GETTING SANITIZING SOLUTION ON CIRCUIT BOARDS. 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.

ADVERTENCIA SI SE USA UN HIGIENIZADOR EN POLVO, DISUÉLVALO BIEN EN AGUA ANTES DE AGREGARLO AL SISTEMA DE CONCENTRADO. EL USO DE AGUA CALIENTE CONTRIBUYE A DISOLVER LOS HIGIENIZADORES EN POLVO. ASEGÚRESE DE HABER ELIMINADO LA SOLUCIÓN DE ESTERILIZACIÓN DEL DISPENSADOR DE ACUERDO CON LAS INSTRUCCIONES. LOS RESIDUOS DE LA SOLUCIÓN DE ESTERILIZACIÓN REPRESENTAN UN PELIGRO PARA LA SALUD. EVITE QUE LA SOLUCIÓN DE ESTERILIZACIÓN LLEGUE A LAS PLACAS DE CIRCUITOS. NO USE LAVANDINAS NI DETERGENTES QUE PODRÍAN QUITAR EL COLOR Y CORROER DISTINTOS MATERIALES. NO USE RASPADORES METÁLICOS, OBJETOS FILOSOS, LANA DE ACERO, ESTROPAJOS, ABRASIVOS NI SOLVENTES EN EL DISPENSADOR. NO USE AGUA CALIENTE A MÁS DE 140 °F (60 °C). PODRÍA DAÑAR EL DISPENSADOR.

AVERTISSEMENT AVANT L'INJECTION DANS LE SYSTÈME, IL FAUDRA QUE LA POUDRE SEPTIQUE SOIT DISSOLUE ENTIÈREMENT DANS CHAUDE. L'EAU CHAUDE PERMETTRA UN MEILLEUR PROCÈS DE DISSOLUTION. SUIVANT LES INSTRUCTIONS JOINTES, IL EST IMPÉRATIF QUE LA SOLUTION SEPTIQUE SOIT ENTIÈREMENT ENLEVÉE. EVITEZ DE METTRE LA SOLUTION EN CONTACT AVEC LES CIRCUITS. N'UTILISEZ PAS DE JAVELLISANTS OU DEDÉTERGENTS FORTS; CEUX-CI PEUVENT DÉCOLORER ET CORRODER DIVERS MATÉRIAUX. N'UTILISEZ PAS DE RACLEURS EN MÉTAL, D'OBJETS POINTUS, DE LAINE D'ACIER, DE TAMPONS À RÉCURER, D'ABRASIFS OU DE SOLVANTS SUR LE DISTRIBUTEUR. N'UTILISEZ PAS DE L'EAU CHAUDE DE PLUS DE 140 DEGRÉS F (60 DEGRÉS C). CECI PEUT ENDOMMAGER LE DISTRIBUTEUR.

2.3 DAILY NOZZLE/DIFFUSER CLEANING

Use the following procedures to clean the nozzle, and the diffuser assembly, each day:

- A. Remove nozzle by twisting it counter-clockwise and pulling it down.
- B. Pull the diffuser assembly down to remove it from the valve.
- C. Wash the nozzle and diffuser with warm water.
- D. If needed, apply 111 lubricant to the o-ring on the diffuser assembly. Next, carefully press it into the diffuser mounting area on the underside of the valve.
- E. Install the nozzle by inserting it into the bottom plate and twisting it clockwise to lock it in place.

2.4 MONTHLY NOZZLE/DIFFUSER SANITIZING

- A. Disconnect power, so the valve will not be inadvertently activated while cleaning.
- B. Remove nozzle by twisting it counter-clockwise and pulling it down.
- C. Pull the diffuser assembly down to remove it from the valve.
- D. Wash the nozzle and diffuser with the cleaning solution.
- E. Immerse the nozzle and diffuser in a bath of the sanitizing solution for 15 minutes.
- F. While the parts are in the sanitizing solution, visually inspect around the nozzle mounting area on the valve for syrup residue. Using a cloth or nozzle brush and warm water, clean this area.

2.4 MONTHLY NOZZLE/DIFFUSER SANITIZING (CONTINUED)

- G. Wipe off the dispensing lever and any other areas that may have been splashed by syrup.
- H. Wearing sanitary gloves, remove, drain, and air dry the nozzle and diffuser.
- I. Wearing sanitary gloves, carefully press the diffuser into the mounting area on the underside of the valve.
- J. Wearing sanitary gloves, install the nozzle by inserting it into the bottom plate and twisting it clockwise to lock it in place.
- K. Connect power and replace cover. Valve is ready for operation.
- L. Draw drinks to flush residual sanitizing solution. Taste the beverage to verify that there is no off taste. If an off taste is found, additional flushing may be required.

2.5 VALVE AND SYSTEM SANITIZING

- A. The complete valve and dispenser system must be sanitized during initial installation. Follow the manufacturer's instructions when scheduling and conducting dispenser sanitizing. The valve must be sanitized once every two weeks. The valve may remain on the dispensing tower during the sanitizing process.
- B. For syrup side line priming, and cleaning and sanitization procedures, refer to the Syrup Purge Plug (Lancer PN 52-1912) in the Valve Set-Up Section.

3. VALVE SETUP

The following steps provide an overview of the valve set-up procedures:

- A. Mount valve on back block (see Section 9).
- B. Verify that power supply is 24 VAC, 50/60 Hz, then connect to valve.
- C. Connect water (soda) and syrup supplies. Flowing pressures must meet valve specifications (see Specifications).
- D. Set ratio and select carbonation. See Section 6 for hand held programmer procedures.
- E. Set the syrup restrictor for either diet or sugar syrup (see Section 4).
- F. Purge syrup lines using the hand held programmer (see Section 6).
- G. Install valve cover, and if necessary, connect ID panel (see Section 8).
- H. Activate valve to test dispensing.

4. SYRUP RESTRICTOR SETTING

- A. SUGAR SYRUP AND DIET SYRUP FROM FIGALS: Restrictor out and down. Syrup restrictor is not in use.
- B. DIET SYRUP FROM BAG-IN-A BOX: Restrictor in and up. Syrup restrictor is in use.

5. SYRUP PURGE PLUG

- A. The Syrup Purge Plug (PN 52-1912), places the valve in continuous syrup side operation.
- B. The targeted uses for the purge plug consist of priming the syrup line on an initial Volumetric Valve install, and for cleaning and sanitization of the syrup side of the dispensing unit.



CAUTION VALVE CONSUMES 12VA IN A CONTINUOUS SYRUP SIDE OPERATION. USING A STANDARD 75VA TRANSFORMER, UP TO SIX (6) VOLUMETRIC VALVES CAN BE OPERATED IN SYRUP PURGE MODE SIMULTANEOUSLY.

PRECAUCIÓN LA VÁLVULA CONSUME 12VA EN UNA OPERACIÓN LATERAL DE OPERACIÓN DEL JARABE, USANDO UN TRANSFORMADOR ESTÁNDAR DE 75VA, SE PUEDEN OPERAR HASTA SEIS (6) VÁLVULAS VOLUMÉTRICAS SIMULTÁNEAMENTE EN UN MODO DE PURGA DEL JARABE.

ATTENTION LA PUISSANCE ÉLECTRIQUE CONSOMMÉE PAR L'ÉLECTRO-VANNE EST DE L'ORDRE DE 12 VOLTS-AMPÈRES EN COURS DE TRAITEMENT CONTINU DU CÔTÉ SIROP. LORSQU'UN TRANSFORMATEUR STANDARD DE 75 VOLTS-AMPÈRES SERA UTILISÉ, JUSQU'À SIX (6) VANNES VOLUMÉTRIQUES POURRONT ÊTRE MISES EN OEUVRE SIMULTANÉMENT EN MODE PURGE.

5.1 OPERATION OF THE SYRUP PURGE PLUG

- A. Turn off electrical power to all valves.
- B. Install syrup purge plugs into the valve or valves to be primed or sanitized. The syrup purge plug installs in the ten-pin connector of the Volumetric Valve circuit board.
- C. Turn on electrical power to the valves. At this time, the syrup side of the valves will begin continuous operation.
- D. When through with the priming or sanitization operation, syrup purge operation can be stopped either of two ways:

Method 1: Turn off electrical power to all valves, remove syrup purge plugs from the valves. Turn on electrical power to all valves. Tap valve lever or push button to ensure proper operation of all valves.

Method 2: Remove syrup purge plug from the valves while they are in purge operation. In this case, the valve may continue in the purge mode for up to six (6) seconds after removal of the plug (this is normal). Tap valve lever or push button to ensure proper operation of all valves.

- E. Using a standard 75 VA transformer, up to six (6) Volumetric Valves can be operated in the syrup purge mode simultaneously.

6. PROGRAMMER OPERATING PROCEDURES

6.1 CONNECTING

- A. Remove the ID panel from the front of the valve.
- B. Insert the programmer's 10-pin connector into the ID Panel plug on the front of the circuit board.
- C. When properly connected, the programmer will run a self diagnostic test. The display will show all "8"s with the decimal points lighted. After three (3) seconds, the display indicates the setting of the dip switches.
- D. If the programmer does not run its diagnostic test properly, disconnect it and try plugging it in again. If the programmer still fails, replace the programmer.

6.2 SETTING THE RATIO/CARBONATION

- A. Connect the programmer to the Valve.
- B. Press the **[Read Mem]** button.
- C. Press the **[Ratio +]** or the **[Ratio -]** key until the desired ratio is displayed.
- D. Verify drink type. Press **[Carb Toggle]** to select **[C]** for carbonated or **[n]** for non-carbonated.
- E. Press the **[Enter]** button to program the valve with the setting on the display
- F. Verify Ratio by pressing **[Read Mem]**.
- G. Disconnect the programmer.

7. PORTION CONTROL PROGRAMMING PROCEDURES

The following procedures describe the operation and programming of portion control ID panels for the Volumetric Valve.

7.1 OPERATION

- A. Cup buttons are Small, Medium, Large, Extra-Large.
- B. Press and release the desired cup size. Valve will fill cup as programmed.
- C. Pour/Cancel Button:
 1. Push and release to cancel or stop valve dispensing.
 2. Push and hold for continuous pour.
- D. Water Button:
 1. Push and hold for continuous water pour.
 2. Valve will dispense carbonated or non-carbonated water, depending on its location on the dispenser.

7.2 TEACH AND LEARN PORTION CONTROL PROGRAMMING

In this mode, the valve will record (learn) the steps to fill each cup size, including the top off delay time. When activated, the valve dispenses the appropriate drink volume. If a top off has been entered, the valve will pause for the programmed length of time. Finally, the valve will dispense the correct top off amount.

- A. Initial Install Procedure
 1. Simultaneously, press and hold the small cup button and the extra-large cup button switches on the portion control until the LED light in center of module starts blinking, then release switches. The blinking LED indicates that the set mode is active.
 2. Put desired amount of ice in cup, place cup under valve and push selected size button (small, medium, large, or extra-large). Hold button in until cup fills to desired portion, then release button.
 3. Top off: If a top off is not needed, go to Step 4. Wait for foam to settle, then actuate button again to top off.
NOTE: Only one (1) top off is allowed.
 4. Repeat steps 2 and 3 for other drink sizes. Go to Step 5 to exit program mode.
 5. Press and release pour/stop button to return the portion control to the operational mode. Blinking LED light will go out.
 6. Repeat steps 1 through 5 for remaining valves.

7.3 TO CHANGE DISPENSE SIZE

Use procedures in the Initial Install Procedure discussed above; it is not necessary to reprogram every size.

7.4 CALIBRATED CUP PORTION CONTROL PROGRAMMING

In this mode, the valve adds the volume from each programming step to the total drink size. When activated, the valve dispenses the total drink, without pauses.

- A. Simultaneously, press and hold the small and large buttons on the portion control until the LED light in the center starts blinking, then release switches.
- B. Place volume cup under nozzle of valve to be calibrated.
- C. Press appropriate size switch and fill volume cup to a point just short of the calibration mark on the volume cup. The LED will stay lighted constantly while programming an individual cup size.

7.4 CALIBRATED CUP PORTION CONTROL PROGRAMMING (CONTINUED)

- D. Let foam settle, jog size switch until liquid reaches the calibration mark on the volume cup.
- E. Press pour/stop button to end programming for selected cup size. LED will start blinking.
- F. To program another cup size, repeat steps B through E, this section (above).
- G. To exit the calibrated cup programming mode, press the pour/stop button when the LED is blinking. If the LED is lighted constantly, press the pour/stop button once to end the cup size program (LED starts blinking) and again to exit the program mode (LED off).

8. COVER AND ID PANEL

8.1 REMOVAL

- A. ID panel: Slide ID panel up until it detaches from cover.



CAUTION PULL CAREFULLY, IF WIRES FOR A PUSHBUTTON OR PORTION CONTROL ARE ATTACHED.

PRECAUCIÓN TIRE CUIDADOSAMENTE SI ESTÁN ADHERIDOS LOS CABLES A UN BOTÓN DE EMPUJE O UN CONTROL DE PORCIÓN.

ATTENTION SI L'ENSEMBLE EST RELIÉ PAR FILS À UN BOUTON-POUSSOIR DE COMMANDE OU À UNE COMMANDE DE RÉGLAGE DE DÉBIT INDIVIDUEL, LE TIRER DÉLICATEMENT.

- B. ID panel connector (If applicable): The circuit board connector on the Volumetric Valve has an interlock feature that acts to keep an ID panel plug or Hand Held Programmer (HHP) plug properly connected. The interlock feature consists of a recess in the circuit board connector housing and a raised tab on the housing plug.

When removing the connector, it is important to hold the housing and not the wires. The housing easily slides out of the circuit board connector by placing a very slight downward pressure onto the housing as it is removed.

NOTE: Pulling straight out while holding onto the wires is not recommended and will likely cause damage to the valve, ID panel and/or HHP cable.

- C. Cover: Loosen, but do not remove, cover screw. Pull cover straight up, until it is clear of the valve body.

NOTE: Push Button ID panel or lever must be connected to run "Syrup Pour" test from dip switches. Push Button ID panel or lever must be disconnected to use the hand held programmer.

8.2 INSTALLATION

- A. Plug the ID panel connector (if applicable) into the front of the circuit board.
- B. Slide cover over valve, making certain that wires do not get pinched.

NOTE: If solenoids were replaced or moved, ensure terminal blocks do not interfere with cover. Check for proper orientation.

- C. Tighten cover screw.



CAUTION DO NOT PINCH OR DAMAGE ID PANEL WIRES DURING INSTALLATION.

PRECAUCIÓN NO PERFORE O DAÑE LOS CABLES DEL PÁNEL DURANTE LA INSTALACIÓN.

ATTENTION S'ASSURER DE NE PAS Pincer OU ENDOMMAGER LES FILS DU PANNEAU ÉLECTRIQUE ID LORS DU MONTAGE.

- D. Align the bottom of the ID panel with the guide slots on the front of the cover. Slide the ID panel down into place.

NOTE: Attach the ID panel connector before installing cover to keep wires out of the way.

9. VALVE

9.1 REMOVAL FROM BACK BLOCK

- A. Remove cover and ID panel.
- B. Turn back block shut-offs to the closed position.
- C. Activate the valve (press lever arm or pushbutton) to relieve pressure.
- D. Unplug 24 Volt supply.
- E. Raise valve retainer. **NOTE:** The retainer cannot be pulled up until the back block shut-offs are properly closed.
- F. Pull the valve off of the back block.

9.2 MOUNTING ON BACK BLOCK

- A. Check o-rings on back block. Replace o-rings, if necessary.
- B. Apply 111 Lubricant to o-rings, if necessary.
- C. Press valve into the back block.
- D. Lower the valve retainer to lock the valve in place.
- E. Turn the back block shut-offs to the open position.
- F. Connect the 24 Volt supply to the plug on the circuit board.
- G. Install cover and ID panel.

10. LEVER ARM

10.1 REMOVAL

- A. Remove cover and ID panel.
- B. Remove valve from back block.
- C. Insert lever arm into bottom plate and snap pivot axle into back of valve.

10.2 INSTALLATION

- A. With the valve detached from the back block, insert the magnet end of the lever arm into the hole on the bottom, backside of the valve.
- B. Pull the lever arm back while pushing it into the valve, so the pivot axle can be positioned over the slot formed by the valve body and bottom plate. Release the valve to allow the pivot axle to be seated in the slot.
- C. Mount valve in back block.
- D. Install ID panel and cover.

11. NOZZLE/DIFFUSER

11.1 REMOVAL

- A. Remove nozzle, by twisting it counter-clockwise and pulling it in a downward direction.
- B. Remove the diffuser assembly, by pulling it in a downward direction.

11.2 ASSEMBLY

- A. Slide o-ring into the groove on the end of the diffuser assembly, if necessary.
- B. Apply 111 Lubricant to o-ring, as required.
- C. Insert diffuser assembly carefully into the underside of the valve.
- D. Install nozzle by inserting it into the bottom plate and twisting it in a clockwise direction to lock it into place.

12. CIRCUIT BOARD

12.1 REMOVAL

- A. Unplug 24 Volt supply.
- B. Use a flat end screw driver to remove each of the screws holding the circuit board in place.
- C. Disconnect the solenoids and flowmeter from the circuit board, by pressing each connectors locking tab and pulling it down out of its socket.
- D. Lift the circuit board off of the valve.

12.2 INSTALLATION

- A. Plug the connector from the rear syrup solenoid into the receptacle on the underside of the circuit board near the rear of the valve.
- B. Plug the connector from the soda solenoid into the receptacle located at the front, left corner of the circuit board.

NOTE: Each solenoid plugs into the nearest circuit board socket.

- C. Plug the connector from the front syrup solenoid into the receptacle between the soda solenoid connector and the 10-pin connector on the front of the circuit board.
- D. Plug the 4-pin connector from the flowmeter in the 4-pin receptacle near the front corner of the circuit board.
- E. Position circuit board on the mounting posts on top of the syrup body 10-pin connector to the front.
- F. Secure circuit board with two (2) screws.
- G. Connect 24 Volt supply.

13. FLOWMETER

13.1 REMOVAL

- A. Remove cover and ID panel (see Cover and ID Panel, Section 8).
- B. Remove valve from back block (see Valve, Section 9).
- C. Remove nozzle/diffuser (see Nozzle/ Diffuser, Section 11).
- D. Remove lever arm, if applicable (see Lever Arm, Section 10).

13.1 REMOVAL (CONTINUED)

- E. Remove four (4) screws holding the bottom plate in place.
- F. Pull bottom plate off.



CAUTION USE CARE WHEN REMOVING THE SCREWS TO AVOID DAMAGING THE FLOWMETER SENSOR WIRES.

PRECAUCIÓN TENGA CUIDADO CUANDO RETIRE LOS TORNILLOS PARA EVITAR DAÑAR LOS CABLES DEL SENSOR DEL FLUXÓMETRO.

ATTENTION LORSQU'IL S'AGIRA DE DÉPOSER LES VIS, IL CONVIENDRA DE PRENDRE SOIN DE NE PAS ENDOMMAGER LES FILS DU CAPTEUR DUDÉBITMÈTRE.

- G. Remove four (4) screws holding the flowmeter body in place.
- H. Carefully pull the flowmeter body and o-ring off of the valve. Use caution to not pull the rotor and bearings out of the flowmeter body as ball bearings are snapped into place.

13.2 INSTALLATION

- A. Place the o-ring in the groove in the flowmeter body.



CAUTION DO NOT PINCH THE FLOWMETER O-RING DURING INSTALLATION. THE O-RING MUST STAY IN THE GROOVE ON THE FLOWMETER BODY.

PRECAUCIÓN NO PELLIZQUE EL ANILLO O- DEL FLUXÓMETRO DURANTE LA INSTALACIÓN. EL ANILLO O- DEBE MANTENERSE EN LA RANURA SOBRE EL CUERPO DEL FLUXÓMETRO.

ATTENTION FAIRE ATTENTION DE NE PAS Pincer LE JOINT TORIQUE DU DÉBITMÈTRE LORS DU MONTAGE. LE JOINT TORIQUE DEVRA RESTER LOGÉ DANS LA RAINURE PRÉVUE SUR LE CORPS DU DÉBITMÈTRE.

- B. If necessary, carefully apply a small amount of 111 Lubricant to o-ring.

NOTE: Do not get lubricant in the flowmeter.

- C. With the wires exiting toward the front of the valve, carefully press the flowmeter sub-assembly into place on the underside of the valve body. The flat surface of the flowmeter must be flush against the mounting surface of the valve body.
- D. Install four (4) screws to hold the flowmeter in place. Gently position the sensor wires so they are not pinched or scraped when the screws are installed.

NOTE: The flowmeter screws are 5/8" long, and are longer than the bottom plate screws.

- E. Thread the connector attached to the flowmeter sensor wires through hole on the valve body that is in front of flow washer mounting port.
- F. Place the flowmeter sensor wires around the outside of the flow washer mounting port, so that they will not interfere with the bottom plate installation.



CAUTION DO NOT PINCH ANY WIRES WITH THE BOTTOM PLATE.

PRECAUCIÓN NO PELLIZQUE NINGÚN CABLE CON EL FONDO.

ATTENTION VEILLER À CE QUE L'EMBASE NE VIENNE PAS Pincer LES FILS.

- G. Line up holes on the bottom plate with the screw holes on the underside of the valve body. The raised sections around the screw holes should fit completely in the counterbores on the bottom plate.
- H. Secure bottom plate in place with four (4) screws.
- I. Replace nozzle/diffuser and lever arm (if applicable).
- J. Install ID panel and cover.

14. FLOW WASHER ASSEMBLY

14.1 REMOVAL

- A. Remove cover and ID panel (see Cover and ID Panel, Section 8).
- B. Remove valve from back block (see Valve, Section 9).
- C. Remove nozzle/diffuser (see Nozzle/ Diffuser, Section 11).
- D. Remove lever arm, if applicable (see Lever Arm, Section 10).
- E. Remove four (4) screws holding the bottom plate in place.
- F. Pull bottom plate off.
- G. Pull the flow washer assembly out of its port, next to the nozzle mount on the underside of the valve. The flow washer assembly will be one of the following:
 - 1. Gray, 3.0 ounce/sec product flow.
 - 2. White, 2.25 ounce/sec product flow.
 - 3. Red, 1.5 ounce/sec product flow.

14.2 INSTALLATION

- A. Install o-rings, if necessary.
- B. Apply 111 Lubricant to the o-rings, if necessary.
- C. Install the appropriate flow washer assembly into the keyed port on the underside of the valve body.

NOTE: The flow washer has a flat side and a concave side. The flow washer must be installed with the concave side facing the small diameter hole in the flow washer retainer.

- D. Place the flowmeter wires around the outside of the flow washer mounting port, so that they will not interfere with the bottom plate installation.
- E. Line up holes on the bottom plate with the screw holes on the underside of the valve body. The raised sections around the screw holes should fit completely in the counterbores on the bottom plate.



CAUTION DO NOT PINCH ANY WIRES DURING INSTALL

PRECAUCIÓN NO NO PELLIZQUE NINGÚN CABLE DURANTE LA INSTALACIÓN.

ATTENTION VEILLER À NE COINCER AUCUN FIL LORS DU MONTAGE.

- F. Secure bottom plate in place with four (4) screws.
- G. Mount valve in back block.
- H. Replace nozzle/diffuser and lever arm (if applicable).
- I. Install ID panel and cover.

15. SYRUP REGULATOR

15.1 REMOVAL

- A. If the syrup regulator plug or its o-rings need to be replaced, remove the valve from the back block and take off the bottom plate.
- B. Pull the regulator plug from the regulator port near the back of the underside of the valve body.

NOTE: There is nothing mounted inside the regulator port.

15.2 INSTALLATION

- A. Install o-rings in groove on regulator plug.
- B. Apply 111 Lubricant to the o-ring.
- C. Insert regulator plug into keyed hole on the underside of the valve body.
- D. Place the flowmeter wires around the outside of the flow washer assembly, so that they will not interfere with the bottom plate installation.



CAUTION DO NOT PINCH ANY WIRES DURING INSTALL

PRECAUCIÓN NO NO PELLIZQUE NINGÚN CABLE DURANTE LA INSTALACIÓN.

ATTENTION VEILLER À NE COINCER AUCUN FIL LORS DU MONTAGE.

- E. Line up holes on the bottom plate with the screw holes on the underside of the valve body.



CAUTION BOTTOM PLATE HOLDS THE REGULATOR PLUG AND THE FLOW WASHER RETAINER IN PLACE. DO NOT PRESSURIZE UNTIL BOTTOM PLATE IS FIRMLY ATTACHED.

PRECAUCIÓN LA PLACA INFERIOR SOSTIENE LA CLAVIJA DEL REGULADOR Y LA ARANDELA DE RETENCIÓN DEL FLUJO EN SU LUGAR. NO LA PRESIONE HASTA QUE LA PLACA INFERIOR SE HAYA COLOCADO FIRMEMENTE.

ATTENTION L'EMBASE MAINTIEN LE CLAPET DU RÉGULA-TEUR AINSI QUE LE COLLIER DE RETENUE DU RÉDUCTEUR DE PRESSION EN PLACE. NE PAS METTRE SOUS PRESSION AVANT QUE L'EMBASE NE SOIT SOLIDEMENT FIXÉE.

- F. Secure bottom plate in place with four (4) screws.
- G. Mount valve on back block.
- H. Replace nozzle/diffuser and lever arm (if applicable).
- I. Install ID panel and cover.

16. WATER SOLENOID ACCESS

16.1 REMOVAL

- A. Disconnect valve from back block (see Valve, Section 9).
- B. Remove circuit board (see Circuit Board, Section 12).



CAUTION AVOID DAMAGING OR DROPPING THE SOLENOID OR COMPONENTS WHEN THE RETAINER IS REMOVE.

PRECAUCIÓN EVITE DAÑAR O TIRAR EL SOLENOIDE O LOS COMPONENTES CUANDO RETIRE EL RETENEDOR.

ATTENTION ÉVITER D'ENDOMMAGER OU DE FAIRE TOMBER L'ÉLECTROVANNE OU AUTRES COMPOSANTS LORSQUE.

- C. Remove three (3) screws holding the water solenoid retainer in place. Remove the retainer.
- D. Take the water solenoid assembly out of the valve.

16.2 INSTALLATION

If a water seat is already installed, skip to Step H.

- A. Put o-ring in groove on water seat.



CAUTION USE CARE TO NOT DAMAGE SEATING AREA WHILE INSERTING WATER SEAT INTO VALVE BODY.

PRECAUCIÓN TENGA CUIDADO DE NO DAÑAR EL ÁREA DE ASIENTO MIENTRAS QUE INSERTA EL ASIENTO DE AGUA DENTRO DEL CUERPO DE LA VÁLVULA.

ATTENTION VEILLER À NE PAS ENDOMMAGER LA ZONE D'ÉTANCHÉITÉ À L'EAU LORS DE L'INSERTION DU SIÈGE DANS LE CORPS DE LA VANNE.

- B. Apply 111 Lubricant to outside edges of o-ring.
- C. Carefully press water seat into the hole at the base of the water solenoid mounting area in the valve body. Make certain that the water seat remains completely inserted into the hole. Apply more lubricant to the o-ring, if necessary.
- D. If necessary, install flow washer (See Flow Washer Assembly, Section 14).



CAUTION DO NOT PINCH ANY WIRES DURING INSTALL

PRECAUCIÓN NO NO PELLIZQUE NINGÚN CABLE DURANTE LA INSTALACIÓN.

ATTENTION VEILLER À NE COINCER AUCUN FIL LORS DU MONTAGE.

- E. Place the flowmeter wires around the outside of the flow washer assembly, so that they will not interfere with the bottom plate installation.
- F. Secure bottom plate in place with four (4) Screws.
- G. Apply 111 Lubricant to the outside edge of o-ring on the water solenoid sub-assembly.



CAUTION DO NOT GET LUBRICANT ON THE SPRING OR CORE IN THE SOLENOID.

PRECAUCIÓN NO PERMITA QUE EL LUBRICANTE SE INTRODUZCA EN EL RESORTE O EN EL CORAZÓN DEL SOLENOIDE.


ATTENTION FAIRE ATTENTION DE NE PAS RÉPANDRE DE LA GRAISSE SUR LE RESSORT OU LE NOYEAU-PLONGEUR DE L'ÉLECTRO-AIMANT.

- H. Turn valve body over and insert water solenoid sub-assembly into the hole where the water seat is mounted. Carefully twist the solenoid while pressing it into place, so that the o-ring does not get pinched. The terminal block on the side of the solenoid must be on the outside edge of the valve body, turned so that it touches the single solenoid retainer post towards the front of the valve. Hold the solenoid in place until the retainer is firmly mounted.
- I. Place the water solenoid retainer on top of the solenoid and install three (3) screws. The water solenoid sub-assembly must remain firmly seated during installation to avoid damaging the o-ring. Tighten each screw a little at a time, so that the retainer stays perpendicular to the water solenoid.
- J. Install the circuit board.
- K. Reconnect the valve.

17. WATER SOLENOID ASSEMBLY

17.1 DISASSEMBLY

- A. Remove the core/spring assembly from the solenoid.
- B. Slide the o-ring off the end of the solenoid.
- C. Lift the solenoid washer off the end of the solenoid.

	CAUTION THE PLUG NUT MAY PULL OUT OF THE COIL, WHEN TRYING TO LOOSEN. THE COIL CAN BE DAMAGED IF DROPPED.
	PRECAUCIÓN LA TUERCA DE LA CLAVIJA PUEDE ZAFARSE DE LA BOBINA, CUANDO SE TRATA DE AFLOJARLA. SI SE CAE LA BOBINA SE PUEDE DAÑAR.
	ATTENTION IL SERA POSSIBLE QUE L'ÉCROU DE BLOCAGE DE LA BOBINE SE DÉSolidARISE DE CETTE DERNIÈRE LORS DU DESSERRAGE DE L'ENSEMBLE. VEILLER À NE PAS FAIRE TOMBER LA BOBINE, AU RISQUE DE L'ENDOMMAGER.

- D. Carefully hold the wire terminal block on the side of the coil while pulling the solenoid bonnet to loosen the water plug nut. When the water plug nut has been pulled out of the coil enough, remove it and the bonnet by hand.

17.2 ASSEMBLY


- A. Slide o-ring into the groove on the water plug nut.
- B. Slide bonnet over coil.
- C. Apply 111 Lubricant to o-ring in plug nut.
- D. Press plug nut into top of coil/bonnet assembly.
- E. Place solenoid washer on bottom end of the coil/bonnet assembly.
- F. Place o-ring over end of coil extending through the solenoid washer.
- G. Insert core/spring assembly into the end of the solenoid assembly.

NOTE: Water and syrup solenoid coils are interchangeable.

18. SYRUP BODY ACCESS

18.1 REMOVAL


- A. Remove valve from back block (see Valve, Section 9).
- B. Remove circuit board (see Circuit Board, Section 12).
- C. Remove nozzle/diffuser (see Nozzle/Diffuser, Section 11).
- D. Remove lever arm, if applicable (see Lever Arm, Section 10).
- E. Remove four (4) screws holding the bottom plate in place.
- F. Pull bottom plate off.
- G. Remove two (2) screws located at front and rear of syrup body.
- H. Turn valve assembly over and remove the two (2) screws on the underside of the main body, holding the syrup body in place.

	CAUTION PARTS OF THE SYRUP SOLENOIDS MAY FALL OUT WHEN THE SYRUP BODY IS REMOVED.
	PRECAUCIÓN PARTES DE LOS SOLENOIDES DEL JARABE SE PUEDEN CAER CUANDO SE RETIRA EL CUERPO DEL JARABE.
	ATTENTION CERTAINS COMPOSANTS DES ÉLECTRO-AIMANTS DU CÔTÉ SIROP POURRONT TOMBER LORSQUE LE CORPS DE LA VANNE SERA DÉPOSÉ.

- I. Lift the syrup body subassembly off of the syrup solenoids.
- J. Pull the syrup down tube restrictor assembly out of the port on the side of the syrup body.

18.2 INSTALLATION

- A. If necessary, install an o-ring on either end of the syrup down tube restrictor assembly.
- B. Apply 111 Lubricant around each end of the syrup down tube restrictor, if necessary.
- C. Insert syrup down tube restrictor assembly into port on the side of the syrup body sub-assembly.
- D. Apply 111 Lubricant to the outside edge of o-ring on the syrup solenoids.

	CAUTION DO NOT GET LUBRICANT ON THE SPRING OR CORE IN THE SOLENOID.
	PRECAUCIÓN NO PERMITA QUE EL LUBRICANTE SE INTRODUZCA EN EL RESORTE O EN EL CORAZÓN DEL SOLENOIDE.
	ATTENTION FAIRE ATTENTION DE NE PAS RÉPANDRE DE LA GRAISSE SUR LE RESSORT OU LE NOYEAU-PLONGEUR DE L'ÉLECTRO-AIMANT.

- E. Rotate the front syrup solenoid until its terminal block rests in groove, towards the syrup down tube port.

18.2 INSTALLATION (CONTINUED)

F. Rotate the back syrup solenoid, so that its terminal block rests against the water solenoid retainer mount.



CAUTION SYRUP SOLENOIDS MUST BE SEATED AGAINST MAIN BODY. IF SOLENOIDS BECOME UNSEATED, SEE SYRUP SOLENOID ACCESS, INSTALLATION, SECTION 19.

PRECAUCIÓN LOS SOLENOIDES DEL JARABE DEBEN ESTAR ASENTADOS CONTRA EL CUERPO PRINCIPAL. SI LOS SOLENOIDES NO ESTÁN ASENTADOS, VEA EN LA SECCIÓN 19 DE LA INSTALACIÓN EL ACCESO A LOS SOLENOIDES DE

ATTENTION LES ÉLECTRO-AIMANTS DU CÔTÉ SIROP DEVRONT RESTER PLAQUÉS CONTRE LE CORPS PRINCIPAL. SI LES ÉLECTRO-AIMANTS SORTENT DE LEUR SIÈGE, CONSULTEZ LES INSTRUCTIONS RELATIVES À LEUR ACCÈS ET MONTAGE CONTENUES DANS LA SECTION 19.

G. Carefully press the syrup body sub-assembly into place on top of the syrup solenoids. If the syrup body will not smoothly press into place, then apply more 111 Lubricant to the solenoid o-rings, so that they will not be pinched.

1. Make certain the syrup down tube restrictor assembly goes into the down tube port on the valve body.
2. Hold the syrup body firmly in place until the mounting screws are completely installed.

NOTE: Mounting screws must be tight. Loose screws will cause leaks and alter valve performance.

H. Install screw at front and rear of syrup body.

I. Install two (2) screws on the underside of the main body, to secure syrup body.

J. Install circuit board (see Circuit Board, Section 12) and secure with two (2) screws.

K. Place the flowmeter wires around the outside of the flow washer assembly, so that they will not interfere with the bottom plate installation. Connect to circuit board.



CAUTION DO NOT PINCH ANY WIRES DURING INSTALL

PRECAUCIÓN NO NO PELLIZQUE NINGÚN CABLE DURANTE LA INSTALACIÓN.

ATTENTION VEILLER À NE COINCER AUCUN FIL LORS DU MONTAGE.

L. Line up holes on the bottom plate with the screw holes on the underside of the valve body.

M. Secure bottom plate with four (4) screws.

N. Install nozzle/diffuser

O. Install lever arm, if applicable.

19. SYRUP SOLENOID ACCESS

19.1 REMOVAL

A. Remove valve from back block (see Valve, Section 9).

B. Remove circuit board (see Circuit Board, Section 12).

C. Remove nozzle/diffuser (see Nozzle/ Diffuser, Section 11).

D. Remove lever arm, if applicable (see Lever Arm, Section 10).

E. Remove four (4) screws holding the bottom plate in place.

F. Pull bottom plate off.

G. Remove the two (2) screws that hold the syrup body in place.

H. Turn valve assembly over and remove the two (2) screws, on the underside of the main body, holding the syrup body in place.

I. Lift the syrup body off of the syrup solenoids.



CAUTION PARTS OF THE SYRUP SOLENOIDS MAY FALL OUT WHEN THE SYRUP BODY IS REMOVED.

PRECAUCIÓN PARTES DE LOS SOLENOIDES DEL JARABE SE PUEDEN CAER CUANDO SE RETIRA EL CUERPO DEL JARABE.

ATTENTION CERTAINS COMPOSANTS DES ÉLECTRO-AIMANTS DU CÔTÉ SIROP POURRONT TOMBER LORSQUE LE CORPS DE LA VANNE SERA DÉPOSÉ.

J. Lift each syrup solenoid out of the valve.

NOTE: The o-ring mounted under neath the solenoid may stick to the solenoid when it is removed.

19.2 INSTALLATION

A. Install an o-ring over the port in the bottom of each syrup solenoid mounting area on the main body. Ensure that o-ring seats to bottom of mounting port.

B. Apply 111 Lubricant to the outside edges of the o-rings.

19.2 INSTALLATION (CONTINUED)

- C. Insert syrup solenoid sub-assembly into the rear mounting area on the main body. Twist the solenoid while pushing it into place to avoid pinching the o-ring at the bottom of the mounting area. Turn the solenoid, so that the terminal block rests against the water solenoid retainer post.
- D. Insert syrup solenoid sub-assembly into the front mounting area on the main body. Twist the solenoid while pushing it into place to avoid pinching the o-ring at the bottom of the mounting area. Turn the solenoid so that the terminal block rests in groove towards, but not over, the syrup down tube port.
- E. Apply 111 Lubricant around each of the o-rings on the syrup down tube.



CAUTION DO NOT GET LUBRICANT ON THE SPRING OR CORE IN THE SOLENOID.

PRECAUCIÓN NO PERMITA QUE EL LUBRICANTE SE INTRODUZCA EN EL RESORTE O EN EL CORAZÓN DEL SOLENOIDE.

ATTENTION FAIRE ATTENTION DE NE PAS RÉPANDRE DE LA GRAISSE SUR LE RESSORT OU LE NOYEAU-PLONGEUR DE L'ÉLECTRO-AIMANT.

- F. Insert syrup down tube into port on the side of the syrup body sub-assembly.
- G. Apply 111 Lubricant to the outside edge of o-ring on the syrup solenoids.
- H. Carefully press the syrup body sub-assembly into place on top of the syrup solenoids. If the syrup body will not smoothly press into place, then apply more 111 Lubricant to the solenoid o-rings, so that they will not be pinched. Make certain the syrup down tube goes into the down tube port on the valve body. If the solenoid assembly becomes unseated, remove solenoid assembly and repeat Steps A through D above. Hold the syrup body firmly in place until the mounting screws are completely installed.
- I. Install two (2) upper screws located at front and rear of syrup body.
- J. Install two (2) screws on the underside of main body, to secure the syrup body.
- K. Place the flowmeter wires around the outside of the flow washer assembly, so that they will not interfere with the bottom plate installation.



CAUTION DO NOT PINCH ANY WIRES DURING INSTALL

PRECAUCIÓN NO NO PELLIZQUE NINGÚN CABLE DURANTE LA INSTALACIÓN.

ATTENTION VEILLER À NE COINCER AUCUN FIL LORS DU MONTAGE.

- L. Line up holes on the bottom plate with the screw holes on the underside of the main body.
- M. Secure bottom plate in place with four (4) screws.
- N. Install nozzle/diffuser
- O. Install lever arm, if applicable.
- P. Install circuit board (see Circuit Board, Section 12).

20. SYRUP SOLENOID ASSEMBLY

20.1 DISASSEMBLY

- A. Remove the core/spring assembly from the solenoid.
- B. Slide the o-ring off the end of the solenoid.
- C. Lift the solenoid washer off the end of the solenoid.
- D. If the o-ring remains in the end of the syrup plug nut or on the post inside the syrup solenoid mounting area on the main body, remove it.



CAUTION THE PLUG NUT MAY PULL OUT OF THE COIL, WHEN TRYING TO LOOSEN. THE COIL CAN BE DAMAGED IF DROPPED.

PRECAUCIÓN LA TUERCA DE LA CLAVIJA PUEDE ZAFARSE DE LA BOBINA, CUANDO SE TRATA DE AFLOJARLA. SI SE CAE LA BOBINA SE PUEDE DAÑAR,

ATTENTION IL SERA POSSIBLE QUE L'ÉCROU DE BLOCAGE DE LA BOBINE SE DÉSolidARISE DE CETTE DERNIÈRE LORS DU DESSERRAGE DE L'ENSEMBLE. VEILLER À NE PAS FAIRE TOMBER LA BOBINE, AU RISQUE DE L'ENDOMMAGER.

- E. Carefully hold the wire terminal block on the side of the coil while pulling the solenoid bonnet to loosen the syrup plug nut. When the syrup plug nut has been pulled out of the coil enough, remove it and the bonnet by hand.

20.2 ASSEMBLY

- A. Slide o-ring into the groove on the syrup plug nut.
- B. Slide bonnet over coil.
- C. Apply 111 Lubricant to o-ring in plug nut, then press plug nut into top of coil/bonnet assembly.
- D. Place solenoid washer on bottom end of coil/bonnet assembly.
- E. Place o-ring over end of coil extending through solenoid washer.
- F. Insert the core/spring assembly into the end of the solenoid assembly.

NOTE: Water and syrup solenoid coils are interchangeable.

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LANCER[®]

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