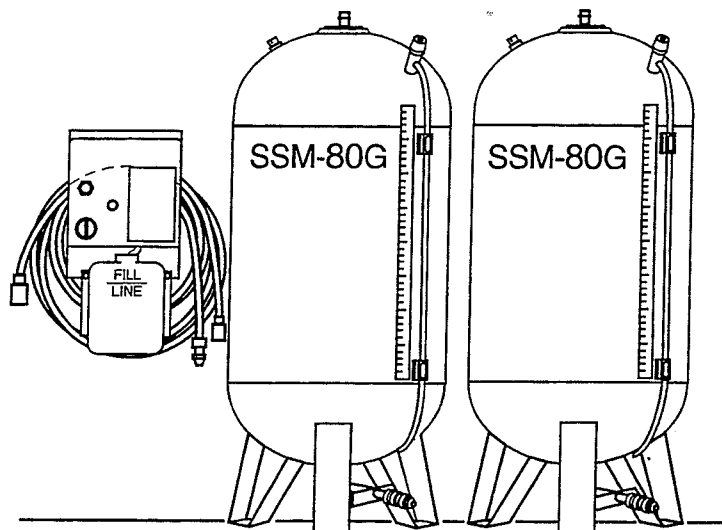


Service Manual



SSM-80G Hybrid Bulk Syrup System



I PREFACE

This manual covers the service of the MVE Inc. Hybrid Bulk Syrup System, often referred to as “McBulk” or “Hybrid McBulk”. The specific components of the McBulk system described in this manual include:

- SSM-80G Bulk Syrup Tank (Part Number 10667511)
- SSM-80G CB Mobile Bulk Syrup Tank (Part Number 10667503)
- Hybrid Bulk Syrup Installation Kit (Part Number 10667431) with:
 - InterBulk Syrup Clean-In-Place Panel (Part Number 97-2310-9)
 - Hybrid Bulk Syrup Label Kit (Part Number 10667440)
- Hybrid Bulk Syrup Tubing Kit (Part Number 10667466)

In addition, this manual also describes components associated with or connected to the McBulk system, but which are not part of the bulk syrup system and not necessarily supplied by MVE. These associated components include:

- The beverage machine
- The bulk CO₂ system

For further details regarding the installation or service of these components consult the manufacturers’ installation and service manuals.

This manual does not cover equipment, service or installations for the five boroughs of New York City, which must meet special conditions and standards set by the New York City Fire Department.

This manual is intended for use by experienced personnel only.

No attempt should be made to service or use this equipment until this manual, the installation manual and the users/equipment manual have been read and fully understood.

To assure proper operation and reliability of the McBulk syrup system, it must be serviced and installed in accordance with MVE’s instructions. Failure to do so may void the manufacturer’s warranty. Deficiencies in the service are the responsibility of the service agent (or store owner or management, in some cases).

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III SAFETY INFORMATION

SAFETY INFORMATION

The McBulk system is designed for the storage, dispensing and receiving of beverage syrup and for the sanitizing of the McBulk syrup tanks. No modifications of the equipment should be made without the proper authorization of MVE, Inc.

PRESSURE WARNING

Some components of McBulk operate under water or gas pressures of up to 90 psi (6.2 bars). Before removing, disconnecting or loosening any component which might be under pressure be sure to release any pressure in a safe manner and wear eye protection. Failure to do so may result in personal injury due to the sudden release of pressure.

CARBON DIOXIDE WARNING

McBulk and some of the related systems use carbon dioxide (CO₂) gas. Carbon dioxide is an asphyxiant, it does not support life. Concentrations of 10% or more can produce unconsciousness or death. Lower concentrations can cause headache, sweating, rapid breathing, increased heart rate, shortness of breath or dizziness. CO₂ is an odorless gas and should be treated as a material with poor warning properties.

CO₂ is heavier than air, so high concentrations may be found in low areas, such as basements. Excess use of CO₂ or exposure to CO₂ should be avoided.

RESCUE AND FIRST AID

Do not attempt to remove an individual without utilizing proper rescue equipment or you may also become a casualty.

If the exposed person is unconscious, obtain assistance and put into effect established emergency procedures.

If the person has inhaled large amounts of CO₂ and is exhibiting adverse effects, move the individual to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep the exposed individual warm and at rest. Get medical attention as soon as possible.

For more information, contact either your CO₂ supplier or the Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, Virginia 22202, USA.

The McDonald's Bulk (McBulk) Syrup System is designed to provide sanitary storage and continuous supply of Coca-Cola® Classic Syrup for fountain beverages. The Hybrid McBulk Syrup System consists of two or more stainless steel bulk syrup tanks. Each tank holds 75 gallons of Coca-Cola® syrup and replaces fifteen 5-gallon syrup tanks or BIB boxes. A Hybrid McBulk System also features a semi-automatic InterBulk clean-in-place panel (CIP) for sanitizing the tanks before each refill.

The McBulk tanks work very much like 5-gals. Syrup is fed to the beverage machine by pressurized CO₂. When one tank is close to being empty, it is jumpered in series to another full tank. This insures a continuous supply of syrup without changing empty tanks or boxes.

Before refilling an empty syrup tank, it must be sanitize. The empty tank is connected to the InterBulk clean-in-place (CIP), which rinses, sanitizes and purges the tank, preparing it for the next bulk syrup delivery.

Bulk syrup deliveries are part of the store's regular delivery service. The sanitized tank is connected by a syrup delivery hose to a 75 gallon bulk delivery tank located in the delivery truck. The McBulk tank is always refilled with 75 gallons of Coca-Cola® syrup during each ordered bulk syrup delivery.

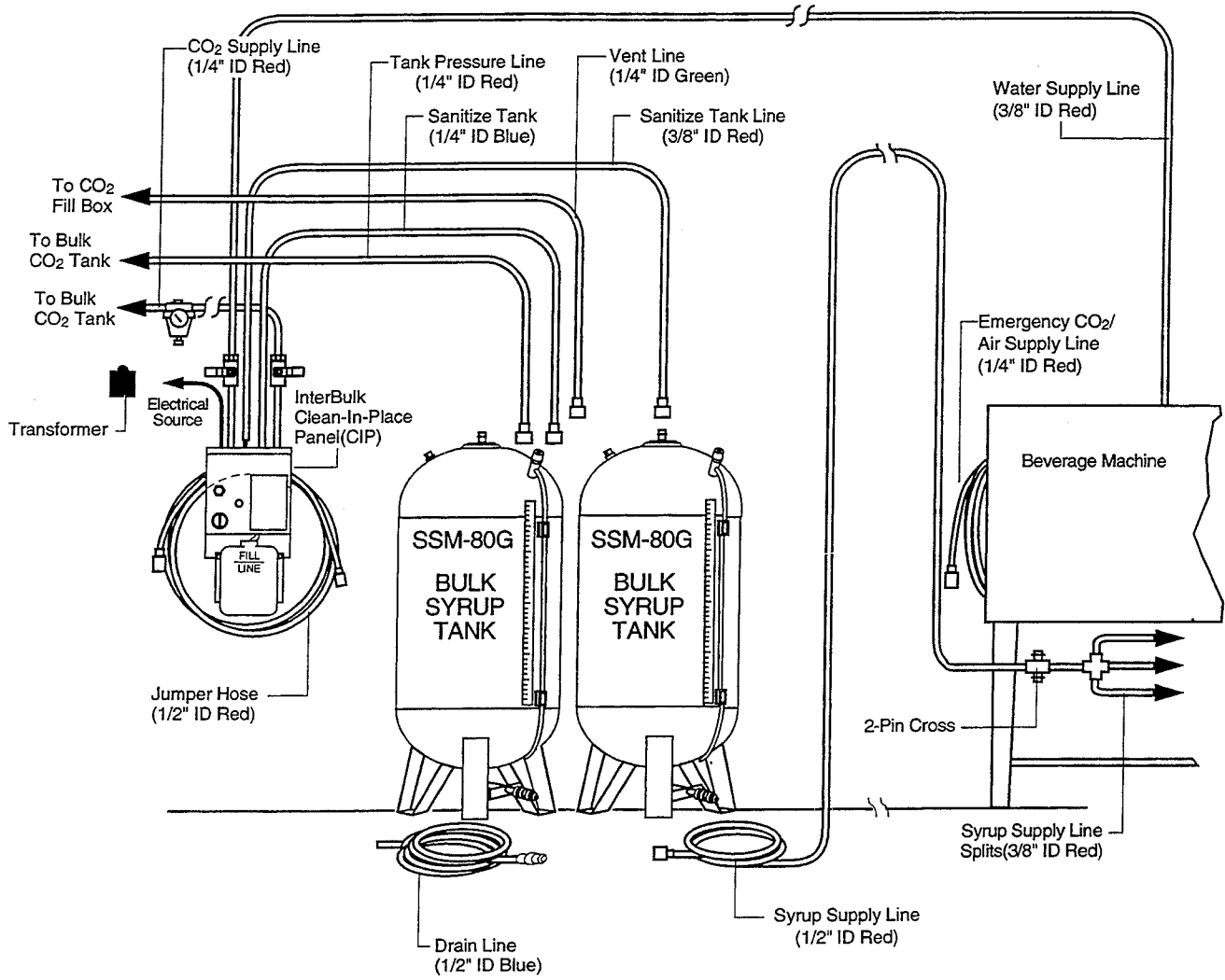
There are two models of McBulk syrup tanks. The first is the permanently installed, nonmobile, model SSM-80G, which is the most commonly used model. The second model is the SSM-80G CB, which is a mobile tank mounted on a caster base with a handle bar. The mobile SSM-80G CB operates exactly like the permanently installed tank, except it can be moved within the building for filling, sanitizing and/or syrup dispensing.

To operate, the Hybrid McBulk Syrup System requires a supply of low pressure CO₂ gas. The most common source of CO₂ for bulk syrup is an MVE McDonald's approved bulk CO₂ tank. If the store does not have a McDonald's approved and bulk syrup compatible bulk CO₂ tank, then it may use CO₂ from the 90psi CO₂ supply in the beverage machine and the distribution center delivery truck must supply compressed air for the syrup delivery.

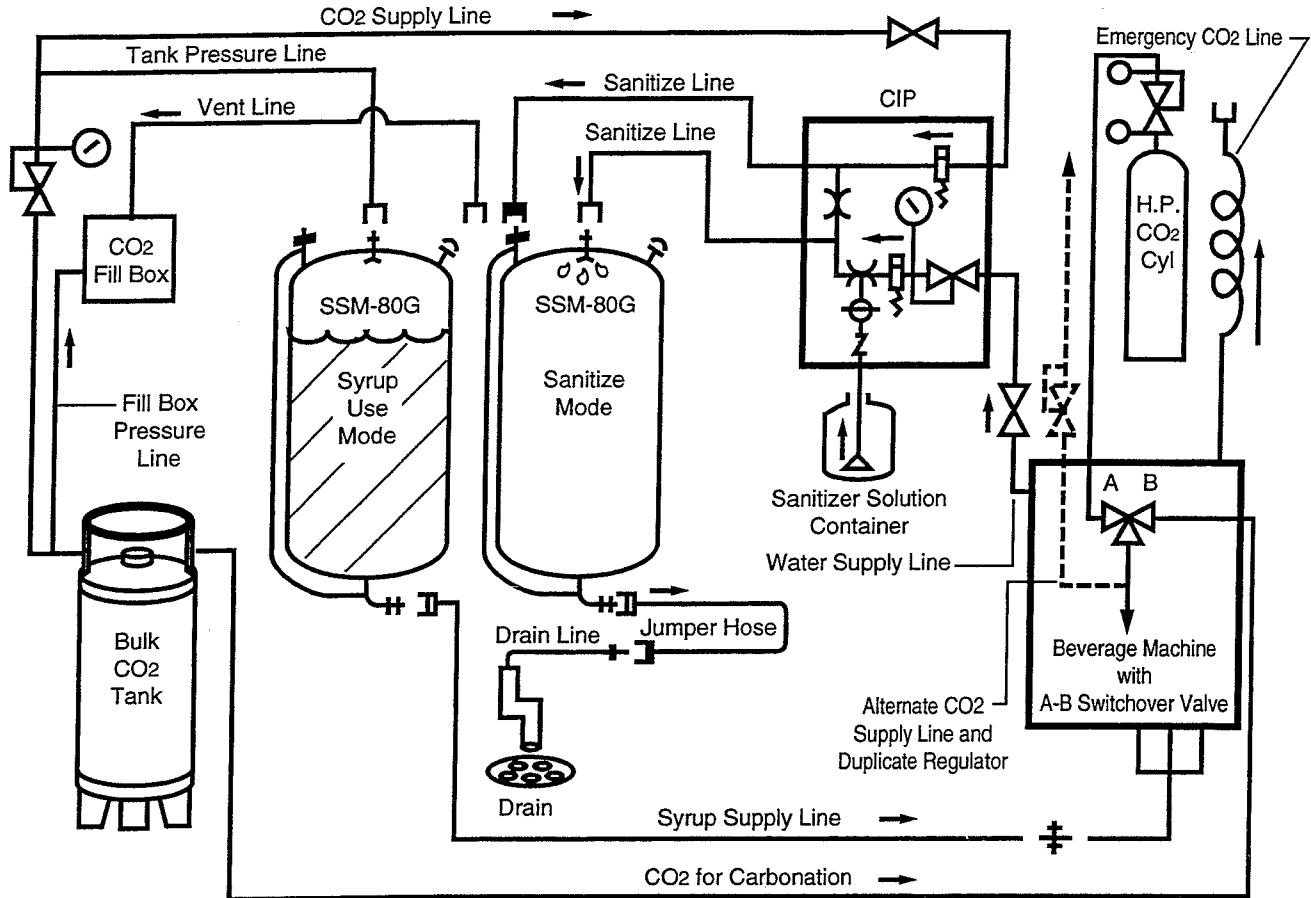
To assure proper operation and reliability, the Hybrid McBulk Syrup System must be installed and serviced in accordance with these instructions. Failure to do so may void the warranty. Deficiencies in the installation or service are the responsibility of the agent (or, in some cases, the store owner or management).

IV INTRODUCTION













HYBRID BULK SYRUP SYSTEM



HYBRID BULK SYRUP FLOW SCHEMATIC



KEY

	2-Pin Connections		Regulator		Burst Disc
	1/2" Q.C. Connections		2-Pin Cross		Isolation Valve
	3/4" Q.C. Connections		Venturi		Solenoid Valve
	Switchover Valve		Orifice		Needle Valve

V SERVICE AND PARTS POLICIES

WARRANTY VERSUS NON-WARRANTY

MVE's warranty to McDonald's Restaurants is presented in Section VI of this manual. Service agents should be familiar with the terms of this warranty and its administration before making any statements regarding a possible warranty issue or submitting a warranty claim. MVE reserves for itself the right to make the final decision on any issue related to the application of its warranty. Service agents are advised to contact MVE for prior warranty approval if in doubt or for any possible claim which might exceed \$100.00 U.S. for parts and labor.

In basic terms, MVE's warranty covers manufacturer's defects in workmanship or materials for a period of one year from the date of purchase by the original purchaser. The warranty applies to parts and reasonable labor, as determined by MVE.

MVE's warranty does not cover the following:

1. Damage or losses which occur during shipping, in temporary or transit storage, or after leaving MVE's manufacturing or inventory facilities,
2. Normal wear and tear
3. Misuse or abuse
4. Damage or loss caused by acts of God
5. Unauthorized modification
6. Parts or labor not supplied by MVE, including from: installers, service agents, store personnel, or parts suppliers
7. Secondary, incidental, or consequential losses or damage, eg. lost syrup due to a leak
8. Taxes, duties, customs fees, fines, license fees, permits, or other governmental fees
9. Mileage, freight charges, forwarder's or broker's fees, storage or handling charges, etc.

WARRANTY CLAIMS PROCEDURE

1. Service agents are responsible for obtaining prior approval for any warranty claim whose cost of parts and labor might exceed \$100.00 U.S. or where doubt exists about warranty

coverage. Prior authorization may be obtained by contacting MVE's Technical Service Group at:

Phone: 612-853-9600 or 800-253-1769
Facsimile: 612-853-9661
Address: MVE, Inc.
Technical Service Manager
Two Appletree Square, Suite 100
8011 34th Avenue South
Bloomington, MN 55425-1636
USA

2. Service agents are responsible to advise the store that the store will be invoiced by the agent for any service or parts that are not covered by warranty.
3. Agents are responsible for retaining any parts removed or replaced under warranty, along with appropriate supporting documentation, for a period of at least six (6) months after a warranty claim has been submitted to MVE or until MVE has advised the agent of the disposition of the parts. MVE may require the return of parts and copies of documentation in order to verify warranty coverage, or to inspect, to test, or to rebuild the parts. Any parts which MVE requests be returned should be shipped in accordance with the instructions supplied by MVE and include an MVE Customer Return Authorization (CRA) number.
4. The procedure for submitting a warranty claim is as follows:
 - A. Send the invoice for the completed service to MVE's technical service manager at the address shown in paragraph 1. The invoice should include:
 - (1) The total charges should be separated to indicate the costs for labor, parts, transportation, and taxes.
 - (2) The hourly rates charged.

SERVICE AND PARTS POLICIES V

- (3) The address to which payment should be sent.
- B. Include with the invoice a service report which contains the following information:
- (1) A detailed description of the reason for the service visit and the work performed.
 - (2) An itemized list of parts, labor, and travel time.
 - (3) Model and serial number of the equipment serviced.
 - (4) The McDonald's store number, address, telephone number, and names of appropriate contact person(s).
 - (5) Name of the service agent who performed the work.
 - (6) Date the service was performed.
 - (7) Signature of the McDonald's store manager or owner who approved the service work.
 - (8) The date and name of the person at MVE who authorized warranty coverage, if appropriate.
 - (9) The Return Materials Authorization (RMA) number obtained from MVE for the return of any defective parts, if appropriate.
- C. Claims which are not properly documented or which are not legible will either be returned for completion or require additional time to process. In either case, incomplete claims will delay reimbursement.
- D. Reimbursement guidelines:
- (1) MVE, at its option, will reimburse, credit or replace defective parts covered under warranty, provided:
 - a. The parts were originally purchased from MVE.
 - b. If requested by MVE, the defective parts are returned to MVE in accordance with MVE's instructions.
 - (2) MVE will pay for a maximum of one (1) hour travel time. Any travel time over one hour must be approved by MVE in advance.
 - (3) MVE will not pay for:
 - a. Finance charges
 - b. Travel or similar charges when warranty service is performed in conjunction with other service work
 - c. Any charges which are also billed to another party, i.e. double billing
 - d. Multiple service visits caused by the fact that the service agent did not have service parts on hand
 - e. Overtime or holiday charges
 - f. Syrup or CO2
 - g. Labor charges for time spent calibrating gauges or instruments, studying manuals, or cleaning
 - h. Margins for parts supplied by MVE
 - (4) Any items charged on the service agent's invoice, but not covered under MVE's warranty, will be deducted from the invoice and a written description of the change will be provided.
 - (5) Normal processing time for a complete warranty claim is at least 30 days from receipt of the invoice. If additional information is required because the claim is incomplete, then the processing time is substantially increased.

V SERVICE AND PARTS POLICIES

HOW TO ORDER PARTS

For prompt parts service contact the local MVE distributor or the MVE technical service department. For information about local distributors or if no local distributor is available, then contact MVE's Technical Service Group at:

Telephone: 612-853-9600 or 800-253-1769
Facsimile: 612-853-9661

To ensure prompt and accurate processing of the order, list each item separately, being careful to specify the quantity, the part number, the description and item number of each part being ordered.

All orders should clearly state a ship-to address, billing address, name of a contact person, shipping instructions, telephone and facsimile numbers and any additional information needed by the distributor to process your order.

TERMS OF SALE AND PAYMENT

Local distributors and Coca-Cola® establish their own terms and are not obligated to use the terms set by MVE.

The terms or conditions of payment for all orders are subject to the approval of MVE's credit manager prior to acceptance or shipment. Prices are ex-works and are payable in U.S. dollars. All taxes, duties, bank charges, transportation costs, and insurance are the responsibility of the buyer. Prices, terms, designs, materials, specifications, weights, and dimensions for equipment and parts are subject to change without prior notice.

METHOD OF SHIPMENT

All equipment and parts quoted or sold by MVE are priced as EX-WORKS or EX-FACTORY. All shipments are carefully packed and labeled to prevent damage or loss. Orders whose routing is not specified by the purchaser will be shipped at MVE's discretion via the best method available without liability on MVE's part for such selection. Purchasers are advised to insure their orders against damage or loss during shipment.

DAMAGED OR LOST SHIPMENTS

MVE's responsibility for damage or losses ceases upon acceptance of the equipment or parts in good condition by the carrier. Any damage or losses sustained in transit are the responsibility of the purchaser or the carrier. Shipments should be inspected upon delivery for damage or missing boxes or crates and any problems should be reported to the carrier immediately. A detailed inspection of the contents should be made as soon as possible. In many cases carriers set very brief limits on the time allowed to submit a valid claim.

DEFECTIVE OR MISSING PARTS

MVE, Inc. has a rigorous quality assurance program; however, it is still possible for parts or kits to arrive with defects or missing parts. When this occurs MVE is anxious to know about it. Defective or missing parts should be reported to the supplier from whom they were purchased. A copy of the report should be sent to MVE's Technical Service Manager at the address or telephone/facsimile number shown in this section of the manual.

MVE will replace missing or defective parts which are determined to be the result of a manufacturer related failure. Any parts whose defects are felt to be manufacturer related should be retained pending MVE's determination about the return of the defective part. MVE will not cover the labor, transportation, or other incidental or consequential costs related to the installation of the replacement parts.

MVE will not replace, credit, or reimburse service agents for losses or damage which occur after the parts have left MVE's possession. Agents should inspect all deliveries promptly and report any losses or damage to the carrier.

SERVICE AND PARTS POLICIES V

RETURN POLICY

1. No parts, equipment, or kits are to be returned to MVE without prior approval of MVE's Technical Service Manager. (See telephone, facsimile, and address listed in this section.)
2. All merchandise being returned must include a Customer Return Authorization Number (CRA #), which is provided by MVE at the time that the approval is granted.
 - A. The CRA number should be printed on the outside of the return packaging and any accompanying documentation.
 - B. If MVE has provided a copy of the CRA form prior to return of the merchandise, include a copy of the form with the returned merchandise.
 - C. The absence of the CRA number will cause delays in resolving claims or returns.
3. All merchandise must be returned in compliance with MVE's instructions. In most cases, returned merchandise should be sent to our factory at the following address:

MVE, Inc.
Distributed Products Division
Interstate 575 and Airport Drive
Canton, Georgia 30114 USA
Facsimile No.: 404-479-4603
4. MVE is not responsible for any merchandise not returned in accordance with MVE's instructions.
5. The service agent or purchaser must pre-pay the transportation costs for all returned merchandise.
6. Merchandise returned for credit or reimbursement:
 - A. Acceptance of merchandise for reimbursement or credit is subject to the prior approval and post receiving inspection by MVE.
 - B. Merchandise must be in NEW, unused, saleable condition and in its original packaging. (This does not apply to defective parts being returned for inspection at MVE's request.)
 - C. No credit or reimbursement will be made for merchandise not purchased from MVE.
 - D. Credit or reimbursement will be allowed in an amount equal to the original purchase price from MVE or MVE's current selling price, whichever is the lesser, less a 15% restocking charge with a minimum charge of \$20.00 U.S. for each return. Any costs incurred by MVE to bring the merchandise into saleable condition will also be deducted from the credit.

VI WARRANTY AND CLAIMS PROCEDURE

MVE, Inc. warrants to McDonald's Restaurants (the Purchaser) the hybrid bulk syrup equipment for one (1) year after purchase, that said equipment shall be free from any defects in workmanship and materials.

Purchaser agrees that as a pre-condition to any MVE liability hereunder, Purchaser or its appointed agents shall fully inspect all goods immediately upon delivery and shall give MVE written notice of any claim or purported defect within ten (10) days after discovery of such defect. As a further pre-condition to any MVE liability hereunder, both part replacement and labor must be supplied by an approved MVE service company. MVE may elect to repair or replace such equipment or any defective component or part thereof which proves to be defective, or to refund the purchase price paid by the original Purchaser. Alterations or repairs by others or operation of such equipment in a manner inconsistent with MVE accepted practices and all operating instructions, unless pre-authorized in writing by MVE, shall void this Warranty. MVE shall not be liable for defects caused by the effects of normal wear and tear, erosion, corrosion, fire, explosion, misuse, or unauthorized modification.

MVE's sole and exclusive liability under this Warranty is to the Purchaser and shall not exceed the lesser of the cost of repair, cost of replacement, or refund of the net purchase price paid by the original Purchaser. MVE is not liable for any losses, damages, or costs of delays, including incidental or consequential damages. MVE specifically makes no warranties or guarantees, expressed or implied, including the warranties of merchantability or fitness for a particular purpose or use, other than those warranties expressed herein.

WARRANTY CLAIMS PROCEDURE

1. All warranty claims must be previously authorized by MVE, Inc. Telephone/electronic approval may be obtained by contacting Technical Service at:

Telephone : 800-253-1769
Facsimile : 612-882-5185

or by writing to the Technical Service Manager at:

MVE, Inc.
3505 County Road 42 West
Burnsville, MN 55306-3803
U.S.A.

2. Authorization must be obtained from MVE prior to shipment of any equipment to our facilities.

OPERATING PRINCIPLES VII

CLEAN-IN-PLACE PANEL (CIP)

The function of the CIP is to mix and control the distribution of sanitizing solution and CO₂ to sanitize the syrup tanks. To accomplish this function the CIP relies on two processes.

The first process is the control of timing and the manifold block. Within the CIP this process is done by the electronic circuit board, the solenoid valves, and portions of the manifold block. The control process determines when the various cycles start, how long they last, which valves are opened or closed and the routing of the sanitize solution or CO₂ to the tank.

The control process divides the sanitize mode into six cycles: two rinse or sanitize cycles (when sanitize solution is injected into the tank), two purge cycles (when CO₂ is injected into the tank), and two drain cycles. The rinse and sanitize cycles are duplicates of each other and are controlled by the same timer (a potentiometer), solenoid valve, and portions of the manifold.

The purge and drain cycles are likewise duplicates of each other. In one sense, there are only three cycles, each of which has two repetitions. If a problem develops in one cycle or a change is made to one cycle (for example, changing the rinse cycle time) the problem or change will also be observed in its duplicate cycle (in the example, the change would also be reflected in a change to sanitize cycle time). The potentiometers which control the sanitize mode are factory set, but can be adjusted, if needed.

The second process is the mixing process during which a sanitizer concentrate is blended with water to make the sanitize solution that is

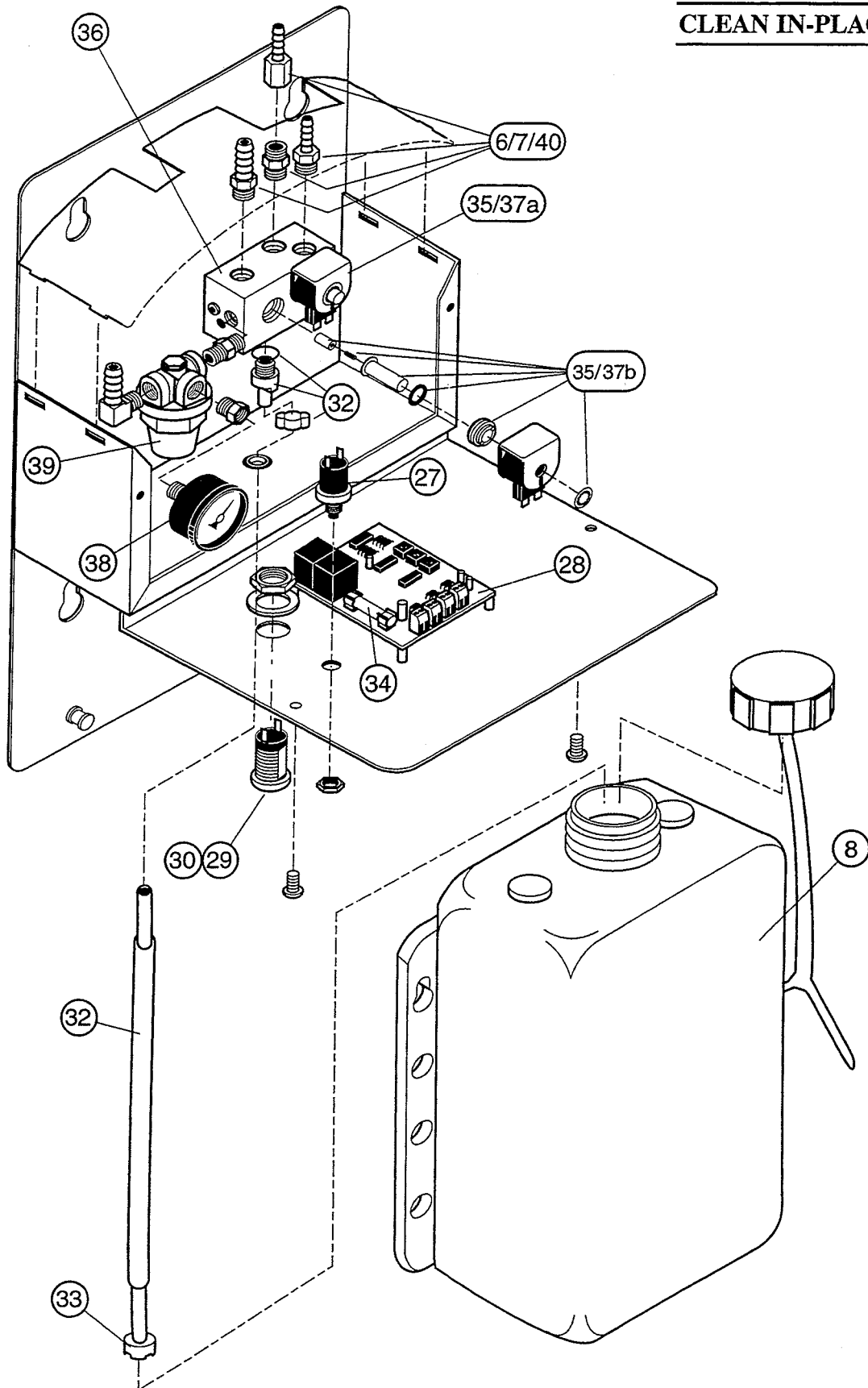
sprayed into the tank. The mixing process uses a pressurized stream of water passing through a Venturi orifice to syphon the concentrate from its container at a controlled rate.

To achieve the correct blend (about 100 parts per million of chlorine solution) three factors must be in balance. The water flow from the water supply line must be at about 35 psi to 40 psi (2.42 bars to 2.76 bars) dynamic pressure (i.e. when the water is flowing). The pressure drop through the sanitize lines and spray head must be correct. The spray head is factory set and the lines and CIP location should be within the guidelines set in the Installation Manual. And, the syphon rate must be at a level to match the water pressure and the downstream pressure drop. The syphon rate can be adjusted, if needed, by means of a needle valve in the manifold block. (Of course, even if the blend is correct, but the timing is not, then the sanitize cycle will not meet the required standards and must be corrected.)

The CIP requires four inputs to operate. First, 24 volt A.C. electricity at 50 or 60 hertz and a minimum of 30 volt-amps. Second, clean potable water at sufficient pressure and flow to maintain 35 psi to 40 psi of dynamic water pressure. Third, CO₂ gas at a pressure of 90 psi (6.2 bars). Both the CO₂ and the water come to the CIP from the beverage machine. And fourth, the CIP needs the correct amount and blend of sanitizer concentrate which it siphons out of the sanitizer solution container.

VII INTERBULK SERVICE PARTS

CLEAN IN-PLACE PANEL



INTERBULK SERVICE PARTS VII

Clean In Place Panel (97-2310-9)

ITEM NO.	PART NO.	DESCRIPTION	QTY	FUNCTION
8	10526954	Sanitation Solution Container	1	Holds sanitizer solution used to sanitize bulk syrup tanks.
27	46-1422-R	Manual CO ₂ Purge Button	1	Activates the manual (non-automatic) purge process to flush any remaining sanitizer from syrup tank.
29	46-1390-R	Key Switch Assembly	1	Turns power ON and OFF.
30	46-1391-R	Key	2	Operates the key switch assembly.
32	10526962	Sanitizer Inlet Tube Kit with clamp, barbed connector, tubing, o-ring, and check ball	1	Permits siphoning of sanitizer into the CIP.
33	10527025	Sanitizing Strainer	1	Eliminates particles from CIP.
28	10526938	Circuit Board with timer light and electrical fuse	1	Controls the timing and operation of the CIP.
35/37 a	10526946	Electric Solenoid Coil with clip	2	Activates the solenoid valves for water and CO ₂ .
35/37 b	10526920	Solenoid Valve Kit with hex spanner nut, clip, retaining nut, o-ring, stem tube, spring and plunger	2	Controls the flow of water or CO ₂ used in sanitizing process.
36	10526911	Manifold Block Kit with mounting screws, syphon needle, 2 valves, 3 barbs, extension, and regulator nipple	1	Routes water, sanitizer solution and CO ₂ during sanitizing.
38	10526903	Water Pressure Gauge, 0-60 psi, Kit with mounting bushing	1	Indicates inlet water pressure.
39	10526891	Water Pressure Regulator Kit with mounting nipple and barbed elbow	1	Regulates incoming water pressure.
6/7 /40	10526882	Barbed Connector Kit with (1) 3/8" and (2) 1/4" barbs and (1) nipple extension	1	Connects CO ₂ supply line and two sanitizer lines to manifold block.
34	46-1506-9	Electrical Fuse, 5 AMP	1	Protects electrical circuit. Supplied with circuit board (10526938).
35/37 c	10526874	Hex Spanner Nut (Not shown)		Tool needed to remove or install solenoid valves. (Also supplied as part of solenoid valve kit, part no. 10526920.)
39 a	10526866	Rebuild Kit for water regulator		Internal replacement parts for water regulator.

VIII TROUBLESHOOTING

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TROUBLESHOOTING VIII

PROBLEM: SYRUP OR SANITIZER COMING FROM VENT LINE DURING SYRUP DELIVERY

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
Tank being filled contained syrup when filling began (more than 5 gallons).	Tank was not empty prior to syrup delivery and syrup is coming from the vent line.	<ol style="list-style-type: none"> 1. Immediately disconnect syrup delivery hose from tank. 2. Deliver remaining syrup into another sanitized empty tank, if available. 3. Notify distribution center so syrup can be tested if there is any concern about contamination of the syrup by sanitizer solution or water.
Tank being filled contains sanitizer solution.	Tank was not properly drained after sanitizing, syrup coming from vent line, and beverages made with contaminated syrup may have a "metallic" taste.	<ol style="list-style-type: none"> 1. Immediately disconnect syrup delivery hose from tank. 2. Deliver remaining syrup into another sanitized empty tank, if available. 3. Notify distribution center so syrup can be tested for contamination. 4. Do NOT use contaminated syrup.

VIII TROUBLESHOOTING

PROBLEM: TANK(S) APPEAR TO GAIN SYRUP INAPPROPRIATELY

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
Syrup or something else is being added to the tank contents.	Tank closure may show evidence of having been opened and volume changes may not be from most full to least full tank.	<p>Install SHURflo reverse flow inhibitors (RFI) on both SSHs just prior to the ASV inlet ports.</p> <ol style="list-style-type: none"> 1. Advise store management of possible contamination. 2. If liquid being added is not known, then store should contact distribution center to arrange a test for possible contamination.
Water from 1 or more sanitize lines connected to tank and CIP turned ON.	Sanitize line(s) connected to tank and key in ON position.	<ol style="list-style-type: none"> 1. Disconnect sanitizer line(s) from tank. 2. Advise store management of possible contamination. 3. Test syrup for possible contamination.

PROBLEM: TIMER LIGHT AND SOLENOIDS ON CIP FAIL TO OPERATE

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
24 volt transformer is not properly connected.	No electricity at CIP.	Ensure transformer is plugged in and that no wires have been broken or disconnected.
		Repair or replace defective transformer and/or lines.
Electrical fuse or circuit breaker in store's electrical system has failed.	No electricity to transformer.	<ol style="list-style-type: none"> 1. Replace fuse or reset circuit breaker in building. 2. Correct electrical problem that caused the fuse or circuit breaker to open. 3. Repeat sanitation mode.
CIP inoperative.	CIP receiving correct electrical current, but electrical functions do not occur when switch is ON.	<p>Check and test following components for operation and replace as needed:</p> <ul style="list-style-type: none"> (a) key switch (b) circuit board fuse (c) all wires and connections (d) manual purge button (e) solenoid coils. <p>If these items operate properly and problem still persists then replace the circuit board. See service procedures.</p>

TROUBLESHOOTING VIII

PROBLEM: SANITIZE CONTAINER CONTAINS MORE THAN 1/2 LITER OF SOLUTION AFTER SANITIZE MODE IS COMPLETED

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
Sanitize solution container was over-filled at start of sanitize mode.	Sanitize container accidentally over-filled.	No action required. (In the future fill sanitize solution container only to "fill line" with sanitizer solution.)
Strainer on sanitizer inlet tube is plugged	Holes in strainer are obstructed.	Remove container and clean strainer with warm water and soft brush.
		Replace strainer.
		Ensure McD Sink Pak Sanitizer (HCS) is thoroughly dissolved before starting sanitation cycle.
		Repeat sanitation mode.
Sanitizing Inlet Tube was either bent, damaged, obstructed, or not placed in sanitize solution container.	Tube is bent, crimped or obstructed.	1. Inspect inlet tube for damage or obstructions. 2. If tube is functional, repeat sanitation mode, making sure inlet tube is in the container.
		Replace damaged inlet tube. See service procedures.
Power to CIP was interrupted	Blown fuse or circuit breaker, loss of power, or key turned OFF.	See troubleshooting section above on Timer Light and repeat sanitation mode.
One or both sanitize lines not properly connected to tank.	One or both lines not fully connected to tank.	1. Remove sanitize lines from tank fittings, inspect, and firmly reconnect. 2. Check both connections by giving a light pull on couplers. 3. Repeat sanitation mode.
Sanitize line(s) bent or obstructed.	Evidence of sharp bends, crimping, or compression in line(s).	1. Check lines. 2. Eliminate any obstructions, bends, or crimping. 3. Repeat sanitation mode.
Spray head inside tank damaged or plugged. (Continued on next page)	Evidence of mineral build-up, diffusion plate bent, or liquid or air will not flow through spray head.	1. Remove tank closure from tank and examine spray head. See service procedures. 2. Remove spray head from closure and 2-pin connector, do not lose o-ring gasket and inspect and clean ports. (Continued on next page)

VIII TROUBLESHOOTING

PROBLEM: SANITIZE CONTAINER CONTAINS MORE THAN 1/2 LITER OF SOLUTION AFTER SANITIZE MODE IS COMPLETED (Continued)

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
Spray head inside tank damaged or plugged. (continued)	Evidence of mineral build-up, diffusion plate bent, or liquid or air will not flow through spray head. (continued)	<ol style="list-style-type: none"> 3. Reassemble parts, put water into CIP sanitize container, connect sanitize line to 2-pin connector on closure, hold the closure and spray head in a bucket or sink, turn CIP key to ON, observe the spray head pattern, and then clean spray head again or replace if spray pattern is not correct. See service procedures. 4. Reassemble closure into tank.
Timing for rinse/sanitize cycles is too short.	Time of rinse and sanitize cycles is less than 3 minutes 45 seconds each.	<ol style="list-style-type: none"> 1. Repeat steps 1 to 7 of sanitation mode instructions contained in User's Manual. 2. Turn key switch ON and start timing rinse cycle. 3. Stop timing when CO₂ purge begins. 4. If time is less than 3 minutes 45 seconds, adjust water (rinse/sanitize) timer (potentiometer) on CIP circuit board. See service procedures.
Insufficient water flow or pressure to CIP.	Water pressure gauge in CIP reads less than 40 psi when CIP is not operating and/or gauge reads less than 35 psi when CIP is operating in the rinse or sanitize cycles.	Open water isolation/shut-off valve from beverage system.
		<ol style="list-style-type: none"> 1. Inspect water pressure gauge inside CIP. 2. Insure at least 40 psi (2.8 bars) of water pressure is coming from beverage machine when water is not flowing and at least 35 psi (2.5 bars) when the water is flowing into CIP during rinse and sanitize cycles. See service procedures.
		Adjust water pressure regulator until water pressure gauge reads 35 psi to 40 psi during rinse/sanitize cycles. See service procedures.
		If water pressure is still too low, then either increase water supply line size, connect water supply line into a higher pressure source, or install a water pressure boost pump.

TROUBLESHOOTING VIII

PROBLEM: SANITIZE CONTAINER CONTAINS MORE THAN 1/2 LITER OF SOLUTION AFTER SANITIZE MODE IS COMPLETED (continued)

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
CIP inoperative.	All other options have been excluded.	<ol style="list-style-type: none">1. Prepare tank and CIP to perform a test sanitize, open front panel of CIP, and start sanitize mode.2. Check the following:<ol style="list-style-type: none">(a) solenoid valves are opening(b) water is flowing through the regulator(c) sanitizer is being siphoned up the inlet tube(d) syphon control needle valve is not improperly adjusted. See service procedures.3. Adjust or replace components or CIP as needed. See service procedures.

VIII TROUBLESHOOTING

PROBLEM: SANITIZE SOLUTION CONTAINER EMPTIES BEFORE SANITIZE CYCLE ENDS

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
Container was not filled to the "fill line."	Insufficient sanitize solution.	Repeat sanitation mode making sure to properly fill the sanitize solution container to "fill line".
Timing for rinse/sanitize cycles is too long.	Time for rinse and sanitize cycles are each longer than 4 minutes 15 seconds.	<ol style="list-style-type: none"> 1. Repeat steps 1 thru 7 of sanitation instructions contained in the User's Manual. 2. Turn key switch ON and start timing the rinse cycle. See service procedures. 3. Stop timing when CO₂ purge begins. 4. If time is more than 4 minutes 15 seconds, adjust the water (rinse/sanitize) timer (potentiometer) on the CIP circuit board. See service procedures.
Water flow or inlet pressure is too high.	Water pressure during rinse and sanitize cycles is greater the 40 psi when water is flowing.	<p>If water pressure gauge inside the CIP reads above 40 psi (275 kPa) during rinse/sanitize cycles (when water is flowing), adjust water regulator pressure down to between 35 psi to 40 psi. See service procedures.</p> <p>If pressure into CIP water regulator is above 90 psi then install an additional water regulator upstream of the CIP and lower incoming pressure to about 60 psi (4.14 bars).</p>
Syphon rate of sanitize solution into CIP is too high.	Flow rate of sanitize solution up syphon is too fast.	Adjust the syphon control needle valve located on the CIP manifold block until approximately 200 ml remains in the container at the conclusion of the sanitize mode. See service procedures.

TROUBLESHOOTING VIII

PROBLEM: SANITIZE SOLUTION NOT DRAINING OR PURGING FROM TANK(S)

POSSIBLE CAUSE	SYMPTOM	CORRECTIVE ACTION
<p>Jumper hose and drain line are not connected to tank during sanitation mode.</p>	<p>Jumper hose and drain line not connected to supply/ drain fitting and tank contains about 40 liters of sanitizer solution.</p>	<ol style="list-style-type: none"> 1. Connect jumper hose and drain line to supply/drain fitting on tank. 2. Push manual purge button several times and allow tank to drain/purge until empty. 3. Repeat sanitation mode instructions starting with step 9 as shown in the User's Manual. <p>NOTE: Do not disconnect jumper hose and drain line from tank until tank is thoroughly drained and manually purged.</p>
<p>No CO₂ for purging.</p>	<p>No pressure in sanitize lines or gas flow sounds during purge or manual purge cycles.</p>	<p>Open CO₂ isolation/shut-off valve.</p>
		<p>Change CO₂ cylinder or switch to back-up CO₂ cylinder.</p>
		<ol style="list-style-type: none"> 1. Push manual purge button with sanitize line connected and listen for gas flow. 2. If gas flows properly, then cause is probably in the electric circuit board or the setting on the timer (potentiometer) for the purge cycles. Adjust, repair or replace as necessary. See service procedures. 3. If gas fails to flow properly, cause could be in electronics, timer, or solenoid valve for gas supply. Adjust, repair, or replace as necessary. See service procedures.
<p>Drain line is obstructed.</p>	<p>Line is bent, crimped, compressed, or blocked, perhaps at the drain end.</p>	<p>Clear obstruction.</p>
<p>Tank closure is OPEN.</p>	<p>Bail handle on closure is OPEN and/or closure o-ring is missing or not in place.</p>	<p>CLOSE tank closure using bail handle.</p>
		<p>Replace tank closure o-ring if missing and close tank closure.</p>

IX SERVICE PROCEDURES

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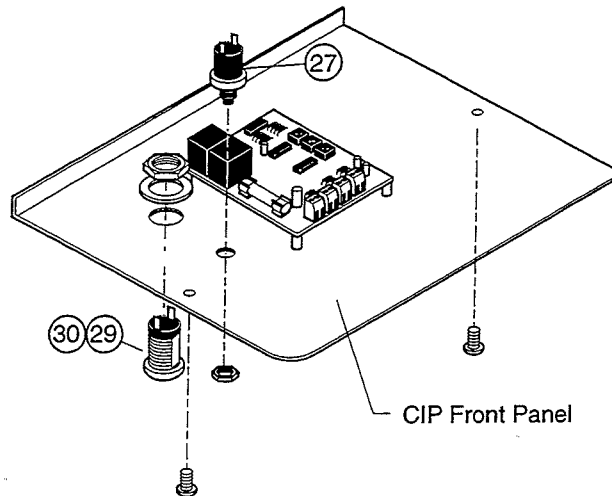
TEST THE SANITIZE SPRAY PATTERN

1. Put clean water into the sanitizer solution container; 1 or 2 liters is sufficient.
2. Remove the tank closure from the syrup tank. (Be careful not to drop the tank closure o-ring into the syrup tank when removing the closure.)
3. Connect the 3/8" sanitize line onto the 2-pin connector on the closure.
4. Hold the closure assembly in a sink or large bucket with the spray head facing down.
5. Turn ON the key switch on the CIP.
6. Watch the spray pattern produced by the water as it leaves the spray head. The water spray pattern should:
 - Cover 360 degrees
 - Be symmetrical and uniform
 - Be a gentle spray and
 - Reach a distance of 11" to 12" (280mm to 305mm).
7. If the sprayer does not have all of the above characteristics, then clean or replace the spray head. Follow the procedure to clean and/or replace the spray head.
8. Turn OFF the key switch.

CLEAN AND/OR REPLACE THE SPRAY HEAD

1. Remove the air intake filter and check valve from the tank closure.
2. Remove the tank closure from the syrup tank. (Be careful not to drop the tank closure o-ring into the syrup tank when removing the closure.)
3. Remove the spray head from the closure by unscrewing the spray head and the 2-pin connector. Use a 1" and 13/16" open end wrench.
4. Examine all o-rings and replace if needed.
5. Examine the spray head by looking into the threaded end of the spray head. Look for contamination or mineral deposit build-up especially in the small orifices at the bottom of the spray head.
6. Remove all contamination or replace with a new spray head.
7. Install all o-rings and reassemble spray head, 2-pin connector, and closure.
8. Test spray head by following the procedure to test the sanitizer spray pattern.
9. Reinstall tank closure into syrup tank and replace the filter and check valve.

IX SERVICE PROCEDURES



REPLACE THE KEY SWITCH ASSEMBLY ON THE CLEAN-IN-PLACE PANEL (CIP)

NOTE: Electrical power, CO₂ and water supplies to the CIP should be shut OFF before this procedure is performed.

1. Shut off the CO₂ supply line and water supply lines to the CIP and either turn off or disconnect the electrical power to the CIP.
2. Open the front of the CIP cabinet by removing the screws in the front panel.
3. Before disconnecting the wires from the switch, note the location of the electrical wires and the key switch terminals. Disconnect the wires to the terminals on the back of the key switch with a screwdriver. Be careful not to misplace the screws and lock washers.
4. Loosen and remove the key switch retaining nut on the back side of the switch.
5. Pull the switch out the front of the panel, being careful not to disturb the circuit board or purge button.
6. Insert the new key switch through the front of the panel, being sure to position the switch right side up when the panel is closed.
7. Reconnect the retaining nut and tighten and

reattach the electrical wires to the correct terminals.

8. Close the CIP cabinet and secure with the screws.
9. Turn on the electrical power to the CIP and then turn on the key switch while observing the timer light to verify the switch and CIP are operating.
10. Open the CO₂ and water supply lines to the CIP.

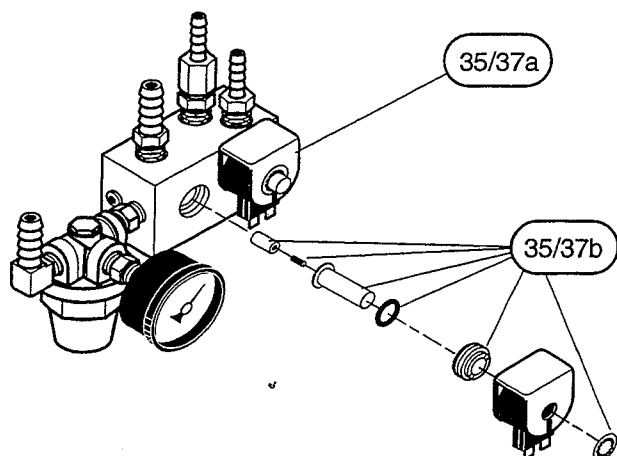
REPLACE THE MANUAL PURGE BUTTON IN THE CIP

NOTE: Electrical power, CO₂ and water supplies to the CIP should be shut OFF before this procedure is performed.

1. Shut off the CO₂ supply line and water supply lines to the CIP and either turn off or disconnect the electrical power to the CIP.
2. Open the front of the CIP cabinet by removing the screws in the front panel.
3. Disconnect the electrical wires from the terminals on the back of the purge button by using a soldering iron to soften the solder. Be careful not to damage the wires, circuit board, or key switch with the hot soldering iron or solder. Note the location of wires and terminals.
4. Loosen and remove the purge button retaining nut from the front of the button and pull the button out the back of the panel.
5. Insert the new button and replace and tighten the retaining nut.
6. Reconnect the wires to the button terminals using 60-40 rosin core solder.
7. Close and secure the CIP front panel using the screws.
8. Turn on the electrical power to the CIP.

SERVICE PROCEDURES IX

9. Test the new manual purge button by pressing the button several times and listening for the clicking sound as the solenoid valve opens and closes.
10. Open the CO₂ and water supply lines to the CIP.



REPLACE THE SOLENOID COIL

NOTE: Electrical power to the CIP should be shut OFF before this procedure is performed.

1. Turn OFF or disconnect the electrical power to the CIP.
2. Open the front panel of the CIP by removing the two screws.
3. Disconnect the two electrical wires from the terminals on the old coil.
4. Use a small screwdriver and carefully pry the retaining clip off the solenoid valve stem tube.
5. Remove the old coil and replace it with the new coil.
6. Replace the coil retaining clip.
7. Reconnect the two wire leads to the terminals on the new coil.
8. Close the front panel of the CIP and secure with the screws.
9. Turn ON or reconnect the electrical power to the CIP and test the solenoid and coil operation.

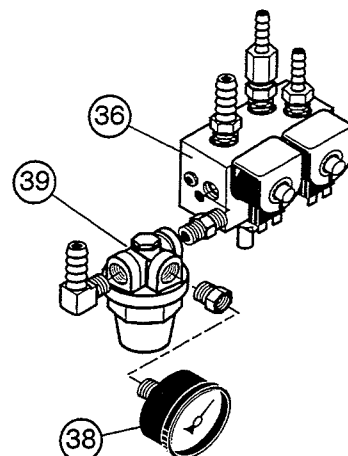
REPLACE THE SOLENOID VALVE

NOTE: Electrical power, water, and CO₂ should be shut OFF during a major portion of this procedure.

1. Turn OFF the water supply to the CIP.
2. Ensure the key switch is in the OFF position and then purge the manifold block and both sanitize lines of any liquid.
 - a. Either connect both sanitize lines to an empty unsanitized tank (if the tank is already sanitized it should be sanitized after completion of this procedure) or have several people hold the sanitize line quick couplers over a sink, drain, or bucket with the poppets held open.
 - b. Press the manual CO₂ purge button for 5 to 10 seconds to purge out any liquid. (Individuals holding the couplers with the poppets open can expected to get wet!)
3. Turn OFF the CO₂ supply to the CIP.
4. Press the manual purge button for 5 to 10 seconds to relieve pressure. (The sanitize lines must still be connected to the tank or at least one sanitize line coupler poppet must be OPEN.)
5. Open the front panel of the CIP by removing the screws.
6. Turn the key switch ON and OFF several times until the water pressure gauge reads 0 psi.
7. Turn OFF or disconnect the electrical power to the CIP.
8. Use a small screwdriver and carefully pry off the solenoid coil retaining clip from the solenoid valve stem tube.
9. Remove the coil from the stem tube, leaving the electrical wire attached.

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10. Slide the hex spanner nut onto the stem tube with the teeth pointing towards the manifold block until the teeth engage the slots on the solenoid retaining nut.
11. Place a wrench or spanner onto the hex spanner nut and then loosen and remove the solenoid retaining nut.
12. Remove the solenoid valve components from the cavity in the manifold block.
13. Inspect the cavity to ensure that it is empty and clean.
14. Insert the new solenoid valve assembly into the cavity.
15. Replace and tighten the retaining nut using the hex spanner nut. Tighten the retaining nut to hand tight plus 1/4 turn.
16. Replace the coil on the stem tube and secure it with the coil retaining clip.
17. Turn ON or reconnect the electrical power to the CIP.
18. Turn the key switch ON and OFF several times to test the operation of the solenoid valve.
19. Turn ON the water and CO₂ supplies to the CIP.
20. Turn ON the key switch and inspect the area around the solenoid for water or gas leaks, depending upon which valve is replaced.
21. Close the CIP panel and secure with the screws.
22. Disconnect the sanitize lines or perform a sanitize procedure on the empty tank, if appropriate or needed.

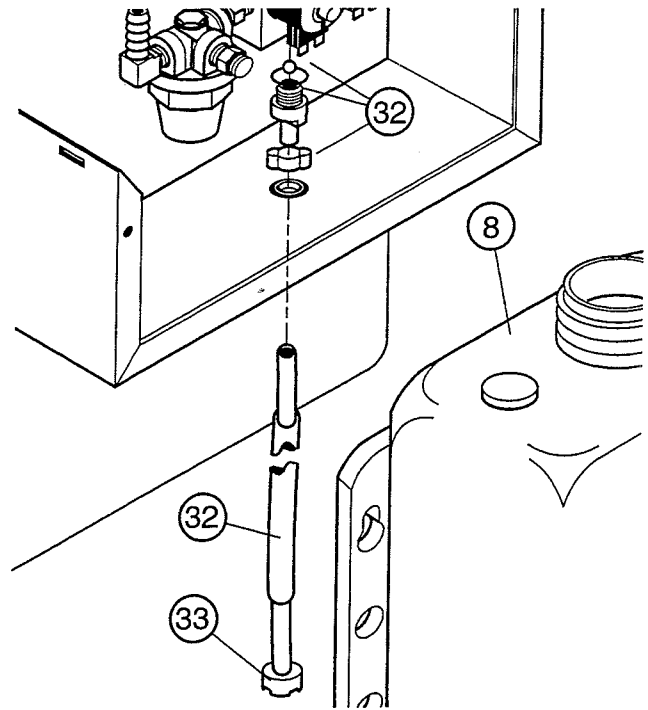


REPLACE THE WATER REGULATOR IN THE CIP

1. Turn OFF water supply to the CIP.
2. Open the front panel of the CIP by removing the 2 access screws and remove the top curved panel.
3. Turn the key switch "ON" and "OFF" several times until the pressure gauge reads 0 psi.
4. Remove water pressure gauge and pipe bushing from the water regulator by unscrewing them.
5. Remove CIP panel from the wall. (This must be done to gain access to the manifold block mounting screws at the back of the CIP cabinet.)
6. Remove the 4 manifold block mounting screws with a 1/8" hex key wrench.
7. Use a 9/16" open end wrench to loosen the pipe nipple between the water regulator and the manifold block. Unscrew the nipple from the manifold block and remove the nipple and water regulator.

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8. Clean out any contaminants from the threads and water port of the manifold block.
9. Screw the new water regulator and pipe nipple into the manifold block.
10. Tighten pipe nipple hand tight plus 2 full turns.
11. Orient the water regulator so pressure gauge port faces towards the front of the CIP cabinet.
12. Clean the old Teflon tape off of the pipe bushing attached to pressure gauge.
13. Apply new Teflon tape to the pipe bushing, 1-1/2 to 2 wraps.
14. Screw the pipe bushing into the water regulator.
15. Tighten pipe bushing hand tight plus 2 full turns.
16. Reattach the manifold block to the CIP cabinet using the 4 mounting screws.
17. Check for adequate clearance between pressure gauge and the CIP circuit board. A minimum of 3/32" (2 mm to 3 mm) is required between the gauge and board when the CIP front panel is closed.
18. Replace the top curved panel, close the front panel of the CIP and install the 2 access screws.
19. Turn ON the water supply to the CIP.
20. Check the water pressure on the pressure gauge. If the water pressure is not 40 psi then follow the procedure to adjust the water regulator pressure.



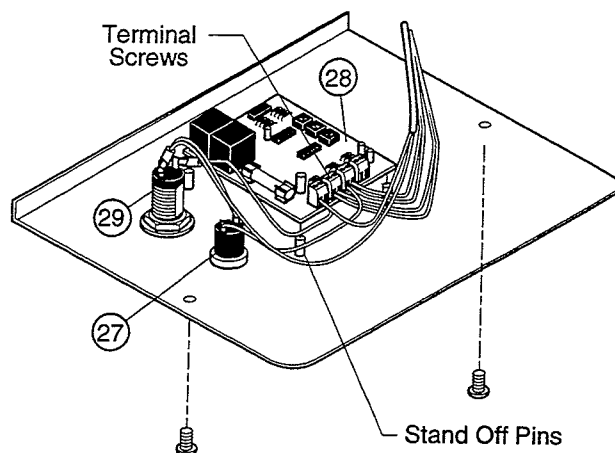
REPLACE THE SYPHON INLET TUBE

NOTE: Electrical power, CO₂ and water supplies to the CIP should be shut OFF before this procedure is performed.

1. Shut off the CO₂ and water supplies to the CIP and either turn off or disconnect the electrical power to the CIP.
2. Remove the sanitizer solution container from the CIP.
3. Open the front panel of the CIP by removing the 2 access screws.
4. Cut the flexible portion of the syphon inlet tube. The cut should be made inside the CIP and at a point on the tube close to the barb fitting that attaches the tube to the manifold block.
5. Pull the flexible hose through the grommet located at the bottom of the CIP cabinet.

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6. Using a 1/2" open end wrench, unscrew the syphon tube barb fitting from the manifold block. A 5/32" diameter ball and an o-ring should either fall out or be removed from the cavity in the manifold block after the barbed fitting is removed.
7. Set aside all of the used parts. They are not to be reused.
8. Install the new o-ring supplied in the kit into the o-ring groove located on the new syphon tube barb fitting.
9. Place the new 5/32" diameter ball into the end of the syphon tube barb fitting.
10. Screw the syphon tube barb fitting into the manifold until it is hand tight plus 1/2 turn. (Install the ball and fitting from the bottom side of the manifold to prevent the ball from falling out during installation.)
11. Run the flexible sanitize hose through the rigid plastic pipe and then through the grommet in the bottom of the CIP cabinet.
12. Slide the 2-eared circle clamp over the end of the flexible inlet tube after it passes through the grommet.
13. Press the flexible inlet tube onto the syphon tube barb fitting.
14. Slide the hose clamp up until it is over the barb on the barb fitting.
15. Crimp the hose clamp at each tab (2 places). After the first crimp, rotate the hose clamp 180 degrees in order to get to the second tab.
16. Close the front panel of the CIP and install the two access screws.
17. Reinstall the sanitizer solution container on the CIP.
18. Turn ON the CO₂ and water supplies and reconnect or turn ON the electrical power to the CIP.



REPLACE THE CIP CIRCUIT BOARD

NOTE: Electrical power to the CIP should be shut OFF before performing this procedure.

1. Turn off or disconnect electrical power to the CIP.
2. Open the front panel of the CIP by removing the 2 access screws.
3. Locate the 3 terminal blocks on the circuit board.
4. Diagram and mark the location of the seven electrical wire leads and their connection points on the terminal block.
5. Loosen the appropriate terminal screws that grip (hold) the wire leads into the terminal block.
6. Remove the wire leads from the terminal blocks.
7. Carefully pry the corners of the old circuit board up and off the four stand-off pins with your fingers. No tools should be used.
8. Align the new circuit board over the four stand-off pins and firmly press each corner down with your fingers. No tools should be used.
9. Insert the electrical wire leads into the terminal blocks on the new circuit board.
10. Tighten the hold-down screws on the terminal blocks.

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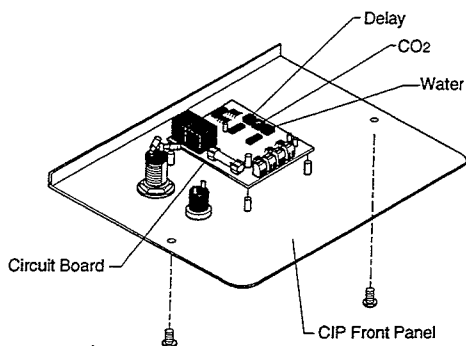
11. Close the front panel of the CIP and install the 2 access screws.
12. Turn ON or reconnect the electrical power to the CIP panel.
13. Turn key switch ON and test the operation of the CIP.

VERIFY THE SANITIZE SOLUTION PROPORTIONS

NOTE: This procedure requires the use of an empty bulk syrup tank.

1. Perform a sanitize procedure with the following special changes:
 - a. Do NOT add McD Sink Pak Sanitizer (HCS) when preparing the sanitize solution container.
 - b. Do NOT connect the drain line to the tank.
 - c. Open the handle on the relief valve to allow gas to vent during the purging cycles. (The relief valve handle should be in the UP or raised position when the valve is open.)
 - d. Consider adding about 1 liter (1 quart) of Coke® syrup into the tank before starting the sanitize procedure. This will improve the visibility of the sanitize solution when it is trapped in the tank. Remember sanitize solution is normally clear and will be very difficult to see inside the liquid level gauge, especially if the tanks are located in a poorly lighted area.
 - e. Time the rinse and sanitize cycles to verify timer settings.
2. After the sanitize procedure is complete, observe how much liquid still remains in the sanitize solution container on the CIP. Approximately 200 ml should remain; that is about 3/4" or 19 mm of liquid in the bottom when the container is level.
3. Use a flashlight or electric torch to back-light the liquid level gauge and observe the amount of sanitizer solution trapped or held in the syrup tank. The tank should contain approximately 35 to 36 liters.
4. If the liquid quantities are not as described in steps 2 and 3 above then the mixture ratios of sanitizer solution concentrate to water may not be correct or the timing of the cycles may be incorrect and adjustments may have to be made. See the Troubleshooting Guide for the corrective procedures to use. Always start by checking the rinse and sanitize cycle times before making any other adjustments.
5. Insert the drain line into the stand pipe at the floor drain.
6. Connect the drain line to the syrup supply/drain fitting on the tank.
7. Close the relief valve. The handle should be in the DOWN or lowered position when closed.
8. Press the manual purge button on the CIP for approximately 45 to 60 seconds.
9. Allow the tank to drain until empty.

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SET TIMER(S) ON CIP CIRCUIT BOARD

1. Turn OFF water and CO2 supplies to the CIP.
2. Open the front panel of the CIP by removing the 2 access screws.
3. Locate the 3 adjustable timers (potentiometers) on the right side of circuit board. They have red tamper-evident paint applied to the screw driver slots.
4. Find the timer (water, CO2, or delay) that needs to be adjusted. See diagram or look on the circuit board next to the timers to identify the timers by location and function.
 - a. The timers/potentiometers operate in the following sequence when the CIP key switch is turned ON:

Cycle	Timer	Solenoid Valve Affected
1. Rinse	Water	Water 4 min
2. Purge	CO2	CO2 3/4 min.
3. Drain	Delay	None 6 1/2 min
4. Sanitize	Water	Water 4 min
5. Purge	CO2	CO2 3/4 min.
6. Drain	Delay	None 6 1/2 min.

- b. Note that adjusting the "water timer" adjusts both the rinse and sanitize cycles (numbers 1 and 4). Adjusting the "CO2 timer" adjusts both the purge cycles (numbers 2 and 5). And adjusting the "delay timer" adjusts both the drain cycles (numbers 3 and 6).
- c. Note that to adjust a timer the CIP must be turned ON and the timer to be adjusted must also be ON or operating in one of the cycles it controls.

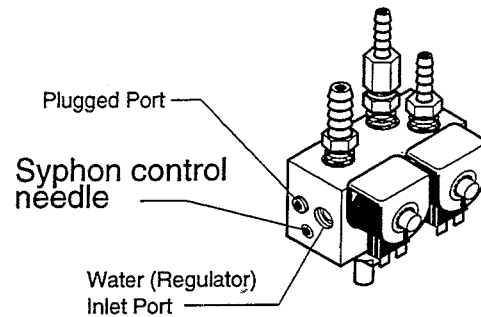
5. Turn the key switch "ON". Wait for the cycle to change to the cycle that you want to adjust. For example, if you want to adjust the drain cycles (remember, changing the delay timer will change both drain cycles), wait until the rinse cycle (# 1) and the first purge cycle (#2) have completed and the first drain cycle (# 3) has begun.
6. After the cycle to be adjusted has begun, watch the red timer light on the front of the CIP panel and count the number of red timer light flashes in 1 minute. Repeat the count if necessary to ensure an accurate count.
7. Use the formula below to determine how long the cycle will run.

$$128 / (\# \text{ of flashes in 1 min.}) = \# \text{ of min. in cycle}$$

8. If the timer must be adjusted, then use the formula below to determine how many flashes must occur in 1 minute when you count them.

$$128 / (\# \text{ of min. wanted}) = \text{number of flashes in 1 min.}$$

9. Use a small screw driver to adjust the set screw in the appropriate timer.
10. Turn the set screw in the timer (potentiometer) **CLOCKWISE** to decrease the number of flashes. Turn the set screw **COUNTER-CLOCKWISE** to increase the number of flashes.
 - a. Turn the set screw in small increments to avoid over adjusting.
 - b. Be careful when counting the number of flashes in 1 minute. An error in the count of one (1) flash will result in a variation of eight (8) seconds.
 - c. Repeat the adjustments, and the counting of the flashes until the desired time is obtained. It may be necessary to repeat several cycles before the correct time and number of flashes is achieved.
11. Close the front panel of the CIP and install the 2 access screws.
12. Turn **ON** the water and CO₂ supplies to the CIP.
13. If an empty syrup tank is available, test the timer(s) by performing a sanitize procedure and measure the time of at least one cycle for the water, CO₂, and delay timers.



ADJUST THE SYPHON CONTROL NEEDLE IN CIP

NOTE: The sanitizer solution flow rate through the syphon inlet tube is factory set using a flowmeter and controlled conditions. The following "field" procedure must rely on care and the good judgement of the service agent to achieve accurate results. It is very important to keep the following guidelines in mind:

- Check all other options (or causes) which affect the mixing of the sanitizer solution (including: dynamic water pressure, the syphon inlet tube and strainer, the spray head, the correct positioning of InterBulk components according to the installation guidelines, electric power interruptions, etc.) before adjusting the syphon control needle.
- The needle adjustment is very sensitive! Turn or rotate the needle no more than 1/8 of a turn per adjustment!
- Perform a complete sanitize procedure to test the results of the last needle adjustment before making any more 1/8 turn adjustments.
- It is unlikely that a needle will require more than a 1/4 turn adjustment.
- Turn the needle **CLOCKWISE** to reduce the flow or use of sanitizer solution concentrate from the solution container. Turn the needle **COUNTER-CLOCKWISE** to increase the syphon flow of sanitizer concentrate.
- Use a 4" long ball style hex key wrench to adjust the syphon control needle.

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NOTE: This procedure cannot be performed without an empty syrup tank.

1. Open the front panel of the CIP by removing the 2 access screws.
2. Locate the syphon control needle.

- On most CIPs the syphon control needle will be located on the left side of the manifold block. The head of the needle contains a 1/8" hex or Allen head, is recessed slightly into the manifold block, and is located in the center of the block from back to front and about 3/4 of way down the side of the block. (The other two features located on the left side of the block are the water inlet port [where the water regulator is connected] and a plugged port used when machining portions of the manifold's internal system. The plugged port is located directly behind the water inlet, is larger than the control needle and protrudes slightly; it should not be confused with the control needle and should never be opened.)

- On a very small number of CIPs the syphon control needle is located on a separate brass adapter attached to the bottom of the manifold block. In these CIPs the control needle is near the front of the brass adapter. The syphon inlet tube also is connected into this adapter at the bottom.
3. Insert an 1/8" hex wrench into the syphon needle socket.
 4. Turn the hex wrench **CLOCKWISE** (to decrease) or **COUNTER-CLOCKWISE** (to increase) 1/8 turn.
 5. Run a complete sanitize mode and then check the sanitizer level in the sanitizer solution container.
 6. If the sanitizer level is too high or too low, adjust the syphon needle as outlined above in steps 1 through 5 until the level is correct.
 7. Close the front panel of the CIP and install the 2 access screws.

SERVICE PROCEDURES IX

VERIFY AND/OR ADJUST THE PRESSURE ON THE WATER REGULATOR IN THE CIP

NOTE: This procedure should be done with electrical power ON and the water supply ON.

NOTE: The CIP has two water pressures that must be verified and may have to be adjusted. The first is the static water pressure, which is the pressure seen on the water pressure gauge when no water is flowing. The second pressure is the dynamic water pressure, which is the pressure seen on the pressure gauge when the water is flowing, i.e. during the rinse and sanitize cycles. Normally if the static pressure is correct at 40 psi, then the dynamic pressure will also be correct at between 35-40 psi. However, the dynamic water pressure is the most important of the two pressures and must be at the correct setting.

1. Connect the 3/8" sanitize line to an empty tank. (If an empty tank is not available, it will be necessary at a later step to have someone hold open the poppet of the 2-pin coupler on the 3/8" sanitize line over a drain, sink, or bucket.)
2. Open the front panel of the CIP by removing the 2 access screws.
3. Use the water pressure gauge on the water regulator to verify and monitor the water pressure.
4. Locate the 7/16" hex-head screw at the bottom of the water regulator.
5. With the CIP key switch in the OFF position, turn the hex-head screw **CLOCKWISE** (in) to increase water pressure or **COUNTER-CLOCKWISE** (out) to decrease water pressure to a static pressure of 40 psi.
6. Turn the key switch ON and OFF several times to verify the water pressure setting. (If an empty tank is not being used, it will be necessary to hold open the poppet on the 2-pin coupler on the 3/8" sanitize line during this step.)
7. Repeat steps 4, 5, and 6 if the static water pressure is not at 40 psi.
8. Verify the dynamic water pressure is between 35-40 psi by turning ON the key switch and observing the water pressure gauge during a portion of the rinse cycle. (Sanitize line must be connected to an empty tank or the poppet on the 2-pin coupler must be held open.)
9. If the dynamic pressure is not between 35-40 psi, then adjust the regulator by turning the hex-head screw either **CLOCKWISE** (in) to increase pressure or **COUNTER-CLOCKWISE** (out) to decrease the pressure. This step must be done during either the rinse or the sanitize cycle when water is flowing. (Sanitize line must be connected to an empty tank or the poppet on the 2-pin coupler must be held open.)
10. If the dynamic water pressure cannot be adjusted to a minimum of 35 psi and the sanitize solution is not properly mixed during the sanitize process, even after the hex-head screw has been turned completely in or **CLOCKWISE**, then consult the Installation Manual. The CIP is either receiving water at too low a pressure or at too low a flow rate or is incorrectly installed.
11. Close the front panel of the CIP and secure with the two screws.



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