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IMPORTANT: To the user of this manual — This manual is a guide for installing, operating, and maintaining this equipment. Refer to Table of Contents for page location of detailed information pertaining to questions that arise during installation, operation, service and maintenance, or trouble-shooting this equipment.

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Parts Lists and Wiring Diagram are in the center of this manual, printed on yellow paper.

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FOR THE INSTALLER

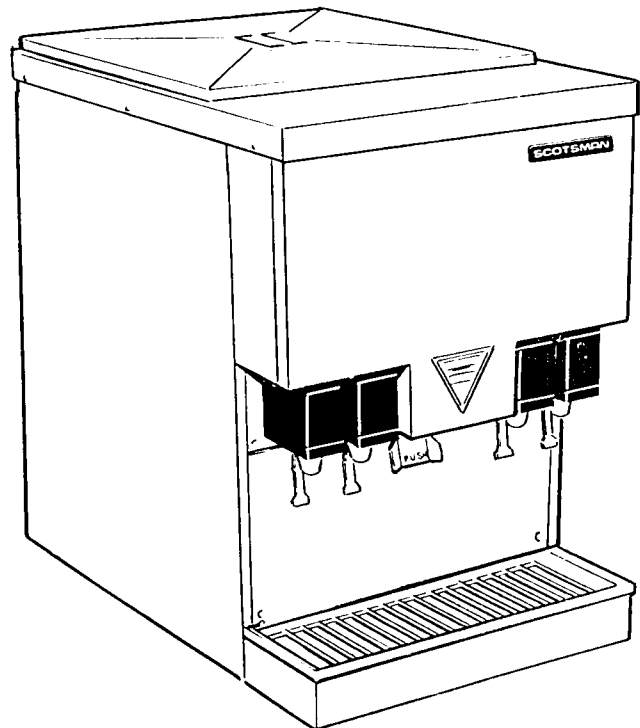
GENERAL DESCRIPTION

This section gives the unit description and design data for the six-flavor SD-100 and the four-flavor SD-60 Ice and Soft Drink Post-Mix Dispenser, with Cornelious Electric Dispensing Valves.

UNIT DESCRIPTION

The unit is compact and may be island-mounted or installed on front or rear counter. Dispensed product is cooled by a sealed-in aluminum eight-circuit cold plate that is easily cleaned. Adjustments on dispensing valves are easily accessible to control Water-to-Syrup "Ratio" of dispensed drinks.

Installation of LOOSE-SHIPPED PARTS, installation of unit on countertop, connections to remote carbonator, and syrup supplies, filling ice bin with ice, plugging unit power cord into electrical outlet, and adjusting dispensing valves for Water-to-Syrup "Ratio" of dispensed drinks is all that is required for unit operation.



SPECIFICATIONS

Model Number	(Height - w/o Legs) Dimensions H" x W" x D"	Bin Cap.	Ice Prod. Cap. 24 Hrs. *	Cube Size	Cond. Unit	Finish	Basic Electrical	Comp. H.P.	No. of Wires	Min. Circuit Ampa- city †	Max. Fuse Size	Ship. Wt. lbs./kg.
SD100S-1A SELF SERVE ICE DISPENSER												
SD100S-1A-CP	36 $\frac{3}{4}$ x 30 x 28	100	—	—	—	SS	115/60/1	—	2	4.0	15	225/102
SD60S-1A SELF SERVE ICE DISPENSER												
SD60S-1A-CP	32 $\frac{1}{2}$ x 20 $\frac{3}{8}$ x 28 $\frac{1}{2}$	60	—	—	—	SS	115/60/1	—	2	4.0	15	180/82

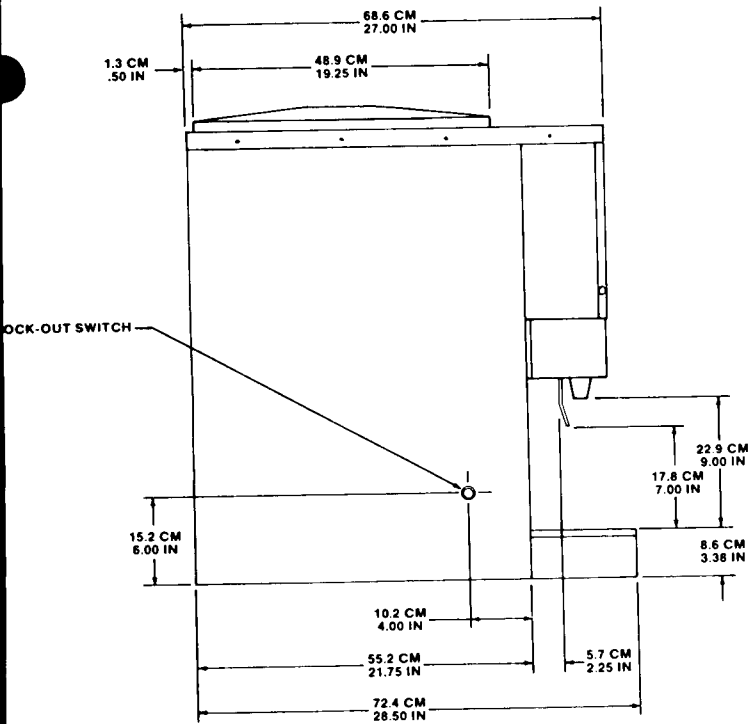
Scotsman Ice Systems are designed and manufactured with the highest regard for safety and performance.

Scotsman assumes no liability or responsibility of any kind for products manufactured by Scotsman that have been altered in any way, including the use of any parts and/or other components not specifically approved by Scotsman.

Scotsman reserves the right to make design changes and/or improvements at any time. Specifications and designs are subject to change without notice.

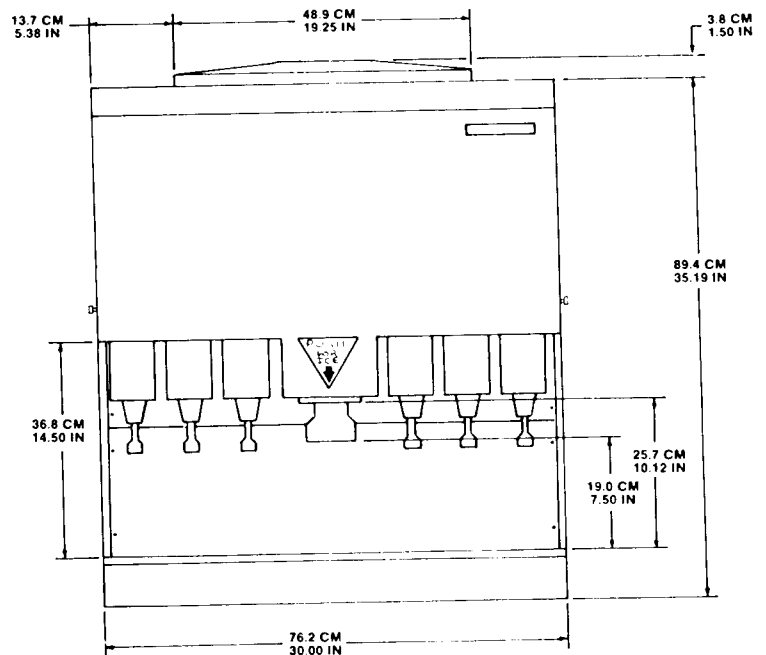
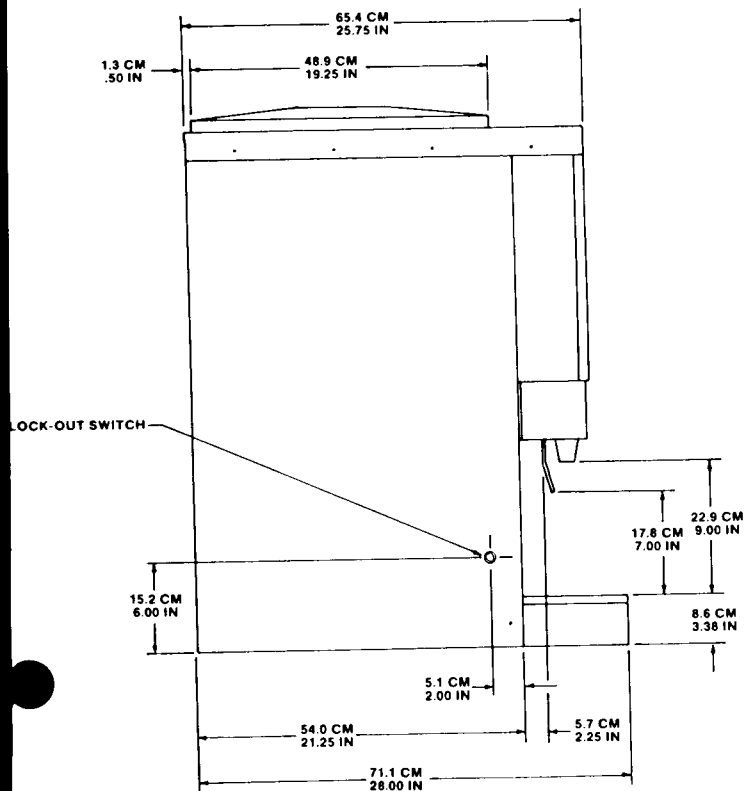
CAUTION: Before shipping, relocating, or storing unit, syrup coils must be flushed with potable water, all water purged from syrup and water coils, and ice in ice bin melted and all water drained from ice bin. A freezing ambient environment will cause residual water remaining inside syrup and water coils to freeze resulting in damage to unit.

MODEL SD-60



6' ELECTRICAL CORD INCLUDED

MODEL SD-100



FOR THE INSTALLER

INSTALLATION

This section covers unpacking and inspection, selecting location, installing unit, preparing unit for operation, and unit operation.

UNPACKING AND INSPECTION

NOTE: The unit was thoroughly inspected before leaving factory and the carrier has inspected and signed for it. Any damage or irregularities should be noted at time of delivery and immediately reported to the delivering carrier. Request a written inspection report from Claims Inspector to substantiate any necessary claim. File claim with the delivering carrier.

1. After unit has been unpacked, remove shipping tape and other packing material.
2. Unpack LOOSE-SHIPPED PARTS. Make sure all items are present and in good condition.

LOOSE-SHIPPED PARTS

Item No.	Name	Qty.
1	Leveling Leg, 4-in.	4
2	Drain Hose, Drip Tray, 72-in.	1
3	Tee Fitting, Drain Hose	1
4	Tubing Clamp, Gear	7
5	Cleaning Brush, 1/4-in. Dia.	1

**NOTE: Item 1 is not with SD-100.
Legs are not recommended for the SD-100.**

SELECTING LOCATION

This unit may be island-mounted or installed on a front or rear counter. Locate unit so the following requirements are satisfied.

1. Near a properly grounded electrical outlet with proper electrical requirements. Circuit should be fused and no other electrical appliance should be connected to this circuit. **ALL ELECTRICAL WIRING MUST CONFORM TO NATIONAL AND LOCAL ELECTRICAL CODES.**
2. Allow sufficient clearance above unit for removal of ice bin cover to replenish ice supply.

INSTALLING UNIT

PLACING UNIT IN OPERATING POSITION

1. Remove drip tray from unit.
2. Remove two screws securing front access panel, then remove panel.
3. Unit inlet supply lines, power cord, and ice bin and drip tray drain hoses must be routed through hole cut in countertop under unit. Move unit into operating position on countertop, mark hole location on countertop, then move unit off to one side. Cut 4-inch hole in countertop.

NOTE: A 6-inch hole will be required for gear motor removal unless the 4-inch Leg Kit is used. If you are going to seal to the counter, be sure to cut a 6-inch hole.

NOTE: An alternate to sealing unit base to countertop is to install optional Four-Inch Leg Kit (SD-60 only).

4. To comply with National Sanitation Foundation (NSF) requirements, unit base must be sealed to countertop as follows, or above leg kit used.
 - a. Place unit in operating position on countertop.
 - b. Tilt unit up to expose bottom of unit base.
 - c. Liberally apply silastic sealant such as Dow Corning (RTV 731) or equivalent on unit base bottom edges.

Do Not Lift Unit by the Sink Frame

NOTE: Do not move unit after positioning or seal from unit base to countertop will be broken.

5. Lower unit into operating position to complete seal from unit base to counter. Apply additional sealant around bottom of base. Seal must have a minimum radius of 1/2-inch to prevent cracks and crevices and to insure a complete seal.
6. Route unit power cord and ice bin drain hose through hole cut in countertop. **DO NOT PLUG UNIT POWER CORD INTO ELECTRICAL OUTLET AT THIS TIME.**
7. Connect ice bin drain hose to permanent drain.

FOR THE INSTALLER

CONNECTING SYRUP AND CARBONATED WATER SOURCE LINES TO UNIT

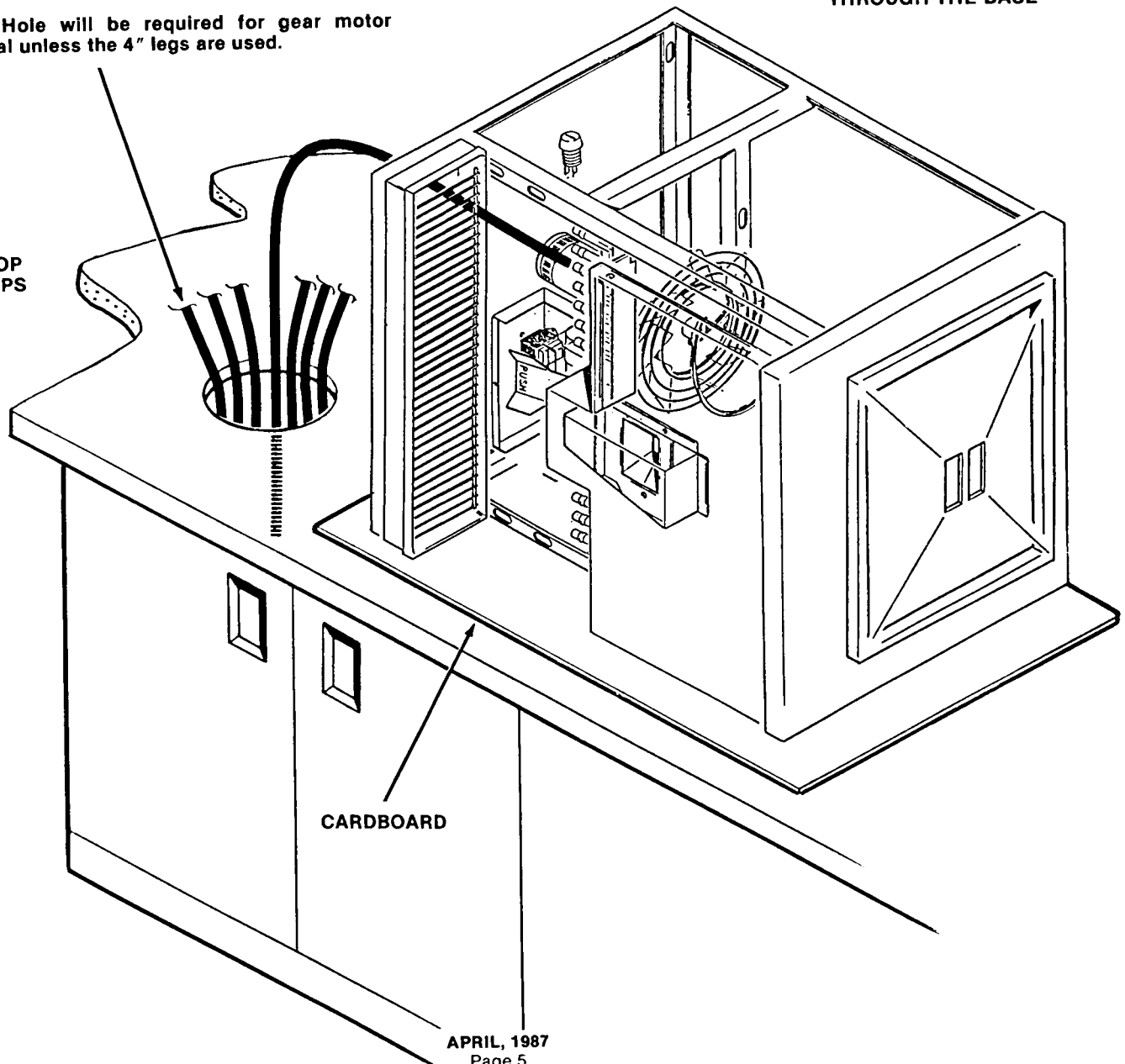
All unit **internal** syrup and carbonated water connections between cold plate outlets and dispensing valves have been made at the factory. Perform the following to connect syrup and carbonated water, source lines to cold plate inlets.

The best position to place the unit in for the hookup is on its side, or upside down. Carefully lay the unit down, using cardboard to protect the cabinet.

1. Route, and label for identification on both ends, syrup source, lines (.265 I.D. minimum) from syrup tanks to inside of unit.
2. Remove caps from cold plate connections.
3. Connect syrup source line labeled No. 1 to No. 1 syrup inlet fitting on left side (facing dispensing valve side of unit) of cold plate. Secure connection with TUBING CLAMP.

NOTE: A 6" Hole will be required for gear motor removal unless the 4" legs are used.

HOLE IN COUNTERTOP FOR HOOKUPS



DISPENSER LAYED ON SIDE FOR EASY HOOKUP THROUGH THE BASE

SD100 FLOW DIAGRAM — FOR THE INSTALLER

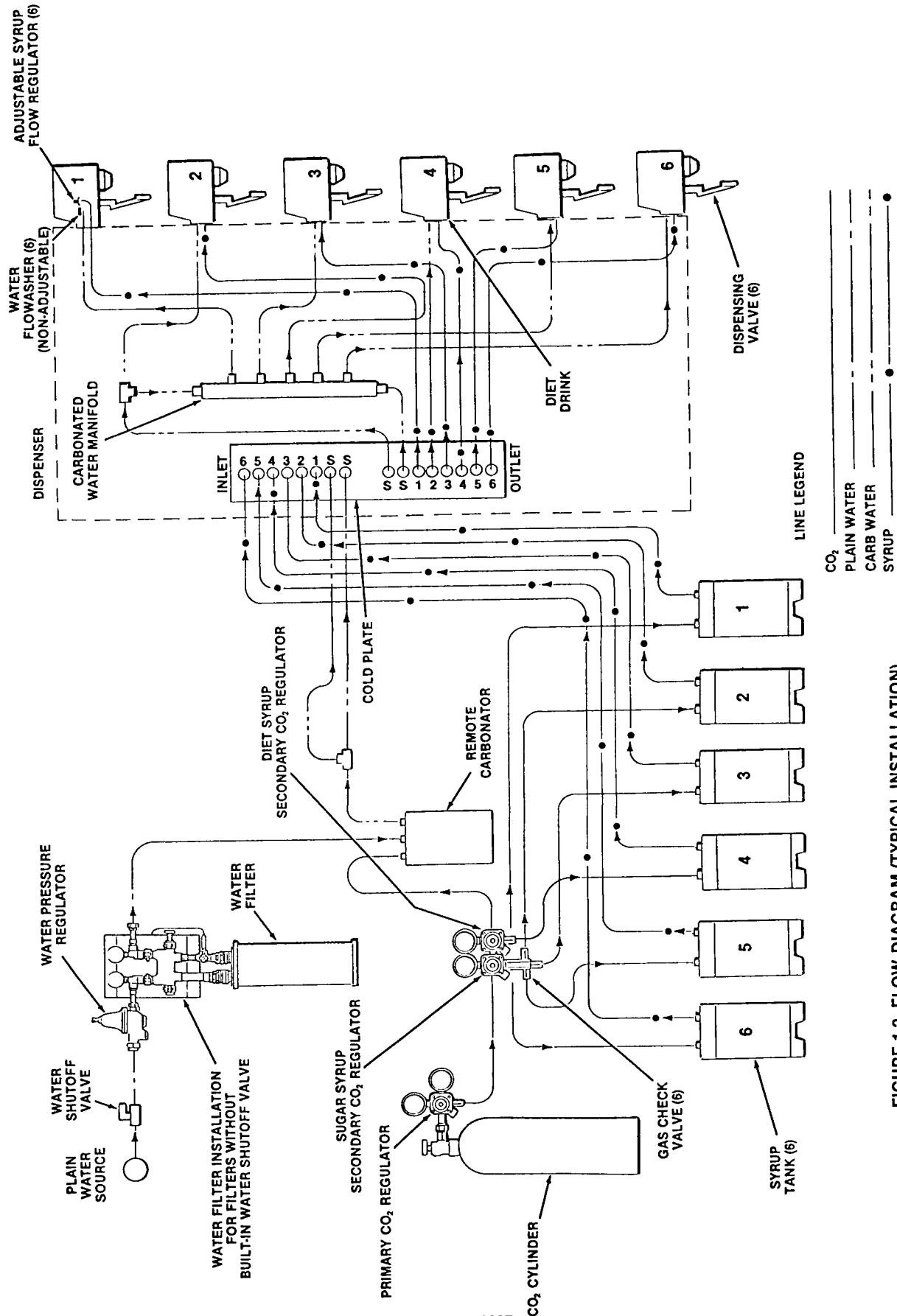


FIGURE 1-2. FLOW DIAGRAM (TYPICAL INSTALLATION)

1-2

SD60 FLOW DIAGRAM — FOR THE INSTALLER

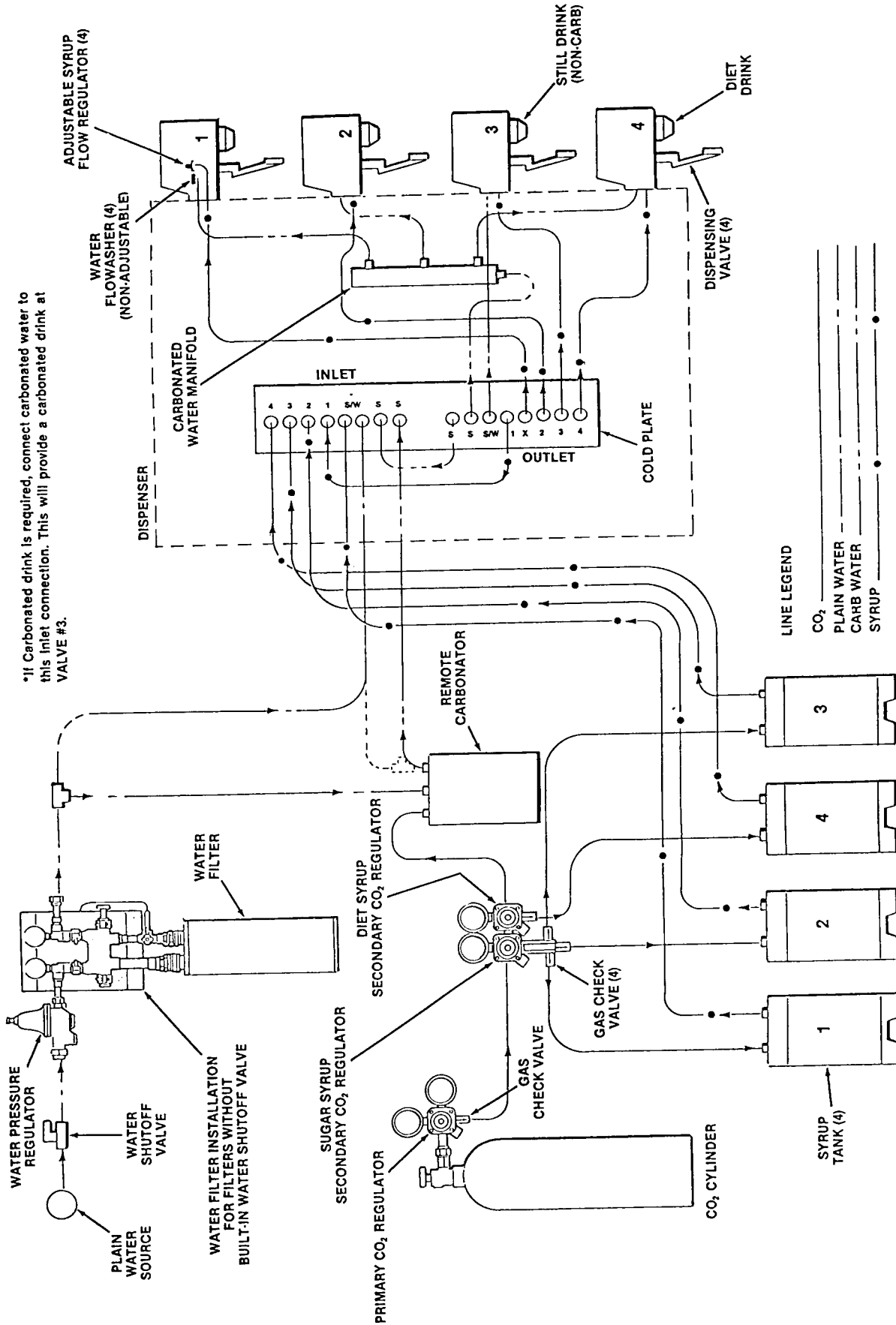


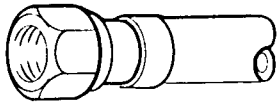
FIGURE 1-2. FLOW DIAGRAM (TYPICAL INSTALLATION)

1-2

FOR THE INSTALLER

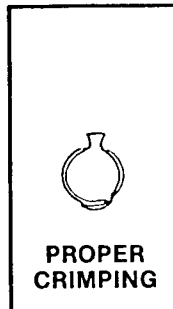
INSTRUCTIONS FOR CRIMPING TUBE CLAMPS

SLIDE CLAMPS ON
TUBING BEFORE INSTALLING
TUBING ON FITTING

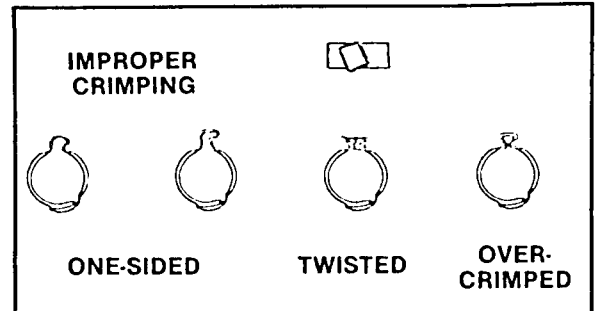


POSITION CLAMP BEHIND
FIRST BARB FITTING
FOR CRIMPING

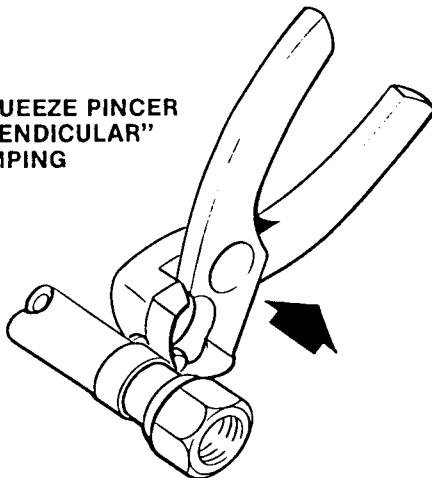
DO



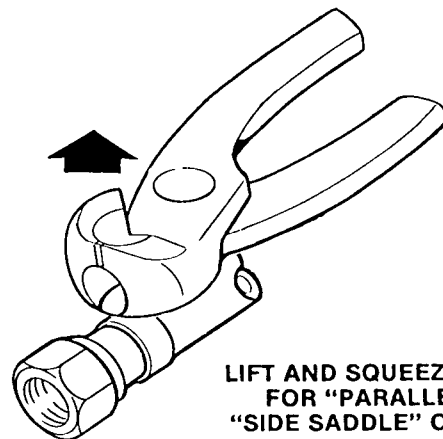
DON'T



PULL AND SQUEEZE Pincer
FOR "PERPENDICULAR"
CRIMPING



LIFT AND SQUEEZE Pincer
FOR "PARALLEL" OR
"SIDE SADDLE" CRIMPING



FOR THE INSTALLER

3. Connect syrup source lines, labeled No. 2 through 6, to cold plate syrup inlet fittings by repeating preceding step 2). Secure connections with TUBING CLAMPS (item 3).
4. Route, and label on both ends for identification, carbonated water source lines (.265 I.D. minimum), from remote carbonator to inside of unit.
5. Connect carbonated water source lines to cold plate carbonated water inlet fittings. Secure connections with TUBING CLAMPS (item 3).
6. To comply with National Sanitation Foundation (NSF) requirements the carbonated water source must be equipped with back flow prevention device.

CONNECTING AND ROUTING DRIP TRAY DRAIN HOSES

NOTE: Drip tray drain hoses may be connected to ice bin drain hose using TEE FITTINGS, DRAIN HOSES (Item 2). Consult local health codes before doing so.

1. Place drip tray up close to front of unit.
2. Connect DRAIN HOSES, DRIP TRAY (item 1) to barbed fittings on bottom of drip tray.
3. Route other end of drip tray hoses to and connect to permanent drain.
4. *Very carefully*, install drip tray in unit. **MAKE SURE THERE ARE NO KINKS PRESENT IN ICE BIN AND DRIP TRAY DRAIN HOSES.**

PREPARING UNIT FOR OPERATION

1. Plug unit power cord into electrical outlet.
2. Turn keyed lock-out switch on side of unit (see Figure 4-1) to "ON" position.
3. Push ICE DISPENSE LEVER on front of unit (see Figure 4-1) to check for proper operation of rotator inside ice bin, then release lever.
4. Momentarily push each dispensing valve lever and note if electric solenoid valve on each dispensing valve is operating.

5. Adjust primary CO₂ regulator for carbonator and secondary CO₂ regulators for syrup tanks (see Figure 1-2) to specified pressures as instructed.

IMPORTANT: All syrup systems *must* be sanitized and unit ice bin *must* be thoroughly cleaned before unit is put into operation.

6. Sanitize all syrup systems and thoroughly clean ice bin interior as instructed.
7. Fill unit ice bin with ice as instructed, then install ice bin cover.
8. Activate carbonated water source to unit.
9. Dispense from each dispensing valve until all air is purged from carbonated water system and carbonated water is dispensed.
10. Connect full syrup tanks into syrup systems.
11. Dispense from each dispensing valve until all air is purged from syrup systems and syrup is dispensed.
12. Check cold plate line connections for leaks and repair if evident.
13. Lift drip tray up and out of unit.
14. Install front panel and secure with two screws.
15. *Very carefully*, install drip tray in unit. **MAKE SURE THERE ARE NO KINKS PRESENT IN ICE BIN AND DRIP TRAY DRAIN HOSES.**
16. Adjust each dispensing valve for Water-to-Syrup ("Ratio") of dispensed product as instructed.

OPERATION

1. Press cup or glass against ICE DISPENSE LEVER long enough to dispense desired amount of ice in cup or glass, then release lever.
2. Place cup or glass against dispensing valve lever and dispense until cup or glass is full of product, then release lever.

FOR THE OPERATOR

This section covers operating controls, daily pre-operation check, unit operation, adjustments, replenishing CO₂ and syrup supplies, cleaning and sanitizing, and inspecting and servicing gas check valves in system.

OPERATING CONTROLS (See Figure 4-1)

DISPENSING VALVES KEYS LOCK-OUT SWITCH

Dispensing valves keyed lock-out switch, located on side of unit, must be in "ON" position to operate electric dispensing valves. Switch in "OFF" position turns off electrical power to dispensing valves preventing dispensing.

DISPENSING VALVE LEVER

Dispensing valves levers, located below dispensing valves, need only to be pressed with cup or glass to dispense product.

DISPENSING VALVE CARBONATED WATER ONLY LEVER

Dispensing valve carbonated water only lever, located on side of dispensing valve cover, will dispense only carbonated water when actuated.

ICE DISPENSE LEVER

Pressing cup or glass against ice dispense lever will dispense ice into cup or glass.

UNIT OPERATION

1. Press cup or glass against ice dispense lever and dispense until desired amount of ice has been dispensed, then release lever.
2. Press cup or glass against dispensing valve lever and dispense product until cup or glass is full, then release lever.

If carbonated water only is desired, place cup or glass under dispensing valve with lever on its side. Actuate lever and dispense until cup or glass is full of carbonated water, then release lever.

DAILY PRE-OPERATION CHECK

1. Make sure CO₂ cylinder primary CO₂ regulator assembly 1800-psi gauge indicator is not shaded ("change CO₂ cylinder") portion of dial. If so, CO₂ cylinder is almost empty and must be replaced as instructed.
2. Sufficient syrup supply in all syrup tanks. If not, replenish syrup supply as instructed.
3. Make sure ice supply in ice bin is adequate. If not, replenish ice supply as instructed.
4. Make sure drip tray is clean and clean cup rest is in place in drip tray.

REPLENISHING CO₂ SUPPLY

NOTE: When indicator on CO₂ cylinder regulator assembly 1800-psi gauge is in shaded ("change CO₂ cylinder") portion of dial, CO₂ cylinder is almost empty and should be changed.

1. Fully close (clockwise) CO₂ cylinder valve.
2. Slowly loosen CO₂ regulator assembly coupling nut allowing CO₂ pressure to escape, then remove regulator assembly from empty CO₂ cylinder.
3. Unfasten safety chain and remove empty CO₂ cylinder.



WARNING: To avoid personal injury and/or property damage, always secure CO₂ cylinder with safety chain to prevent it from falling over. Should the valve become accidentally damaged or broken off, CO₂ cylinder can cause serious personal injury.

4. Position CO₂ cylinder and secure with safety chain.
5. Make sure gasket is in place inside CO₂ regulator coupling nut, then install regulator on CO₂ cylinder.
6. Open (counterclockwise) CO₂ cylinder valve slightly to allow lines to slowly fill with gas, then open valve fully to back-seat valve. (Back-seating valve prevents leakage around valve shaft.)
7. Check CO₂ connections for leaks. Tighten loose connections.

REPLENISHING SYRUP SUPPLY

1. Remove CO₂ disconnect (grey) and syrup disconnect (black) from empty syrup tank, then remove tank.
2. Place full syrup tank in position, then connect CO₂ disconnect (grey) and syrup disconnect (black) to full syrup tank.

SYRUP FLAVOR CHANGE

Sanitize applicable syrup system as instructed, then install full tank of new flavor syrup.

FOR THE OPERATOR

FILLING ICE BIN WITH ICE

WARNING: Ice bin contains hazardous moving parts. **DO NOT** operate ice dispensing system while ice bin cover is removed.

IMPORTANT: Do not use hard-frozen ice. After ice is removed from freezer, allow ice to sit at room temperature for approximately 1/2 hour before placing in ice bin.

1. Remove ice bin cover.

NOTE: Ice to be used to fill ice bin *must* be in the form of small cubes, chunklets, or cracked ice (**DO NOT USE FLAKE OR CRUSHED ICE**).

2. Observe preceding IMPORTANT note, fill ice bin with small cubes, chunklets, or cracked ice.
3. Install ice bin cover.

CLEANING AND SANITIZING

DAILY CLEANING OF UNIT EXTERIOR

1. Remove cup rest from drip tray.
2. Wash out drip tray, then rinse tray with warm water allowing water to run down drain hose.
3. Wash cup rest, then rinse cup rest with clean water. Install cup rest in drip tray.
4. Clean all external surfaces of unit with sponge. Rinse out sponge with clean water, then wring excess water out of sponge and wipe off external surfaces of unit. Wipe unit dry with clean soft cloth. **DO NOT USE ABRASIVE TYPE CLEANERS.**

WEEKLY CLEANING OF DISPENSING VALVES

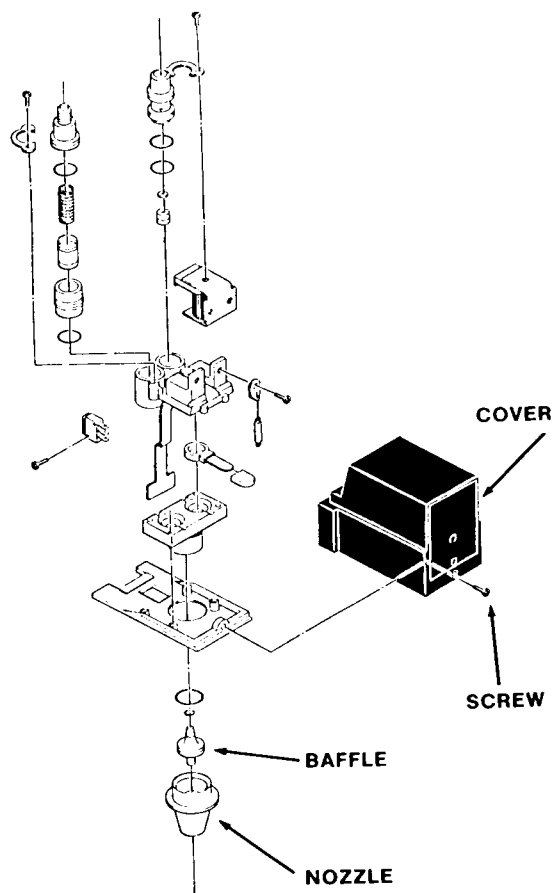
1. Loosen dispensing valve cover screw until screw disengages from valve, then remove cover.
2. Remove nozzle and baffle from dispensing valve. Wash nozzle, baffle, and cover in warm potable water.

IMPORTANT: When washing dispensing valve, care must be taken not to get water on electrical solenoid coil.

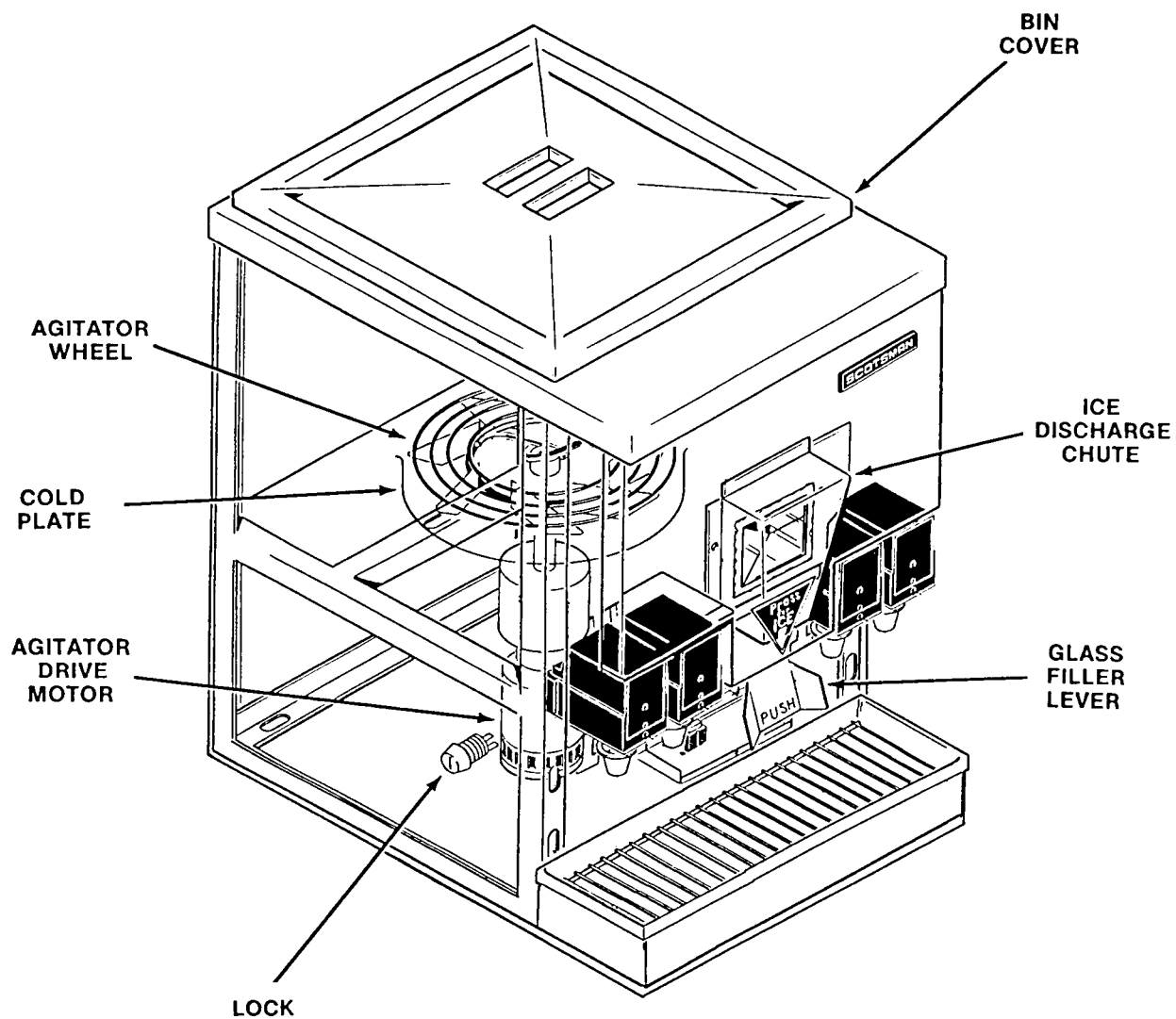
3. Hold appropriate container under dispensing valve. Being careful not to get water on electrical solenoid coil, slowly pour warm potable water over portion of dispensing valve ahead of solenoid coil.
4. Install nozzle and baffle on dispensing valve.
5. Install dispensing valve cover and secure with screw.

OPERATION

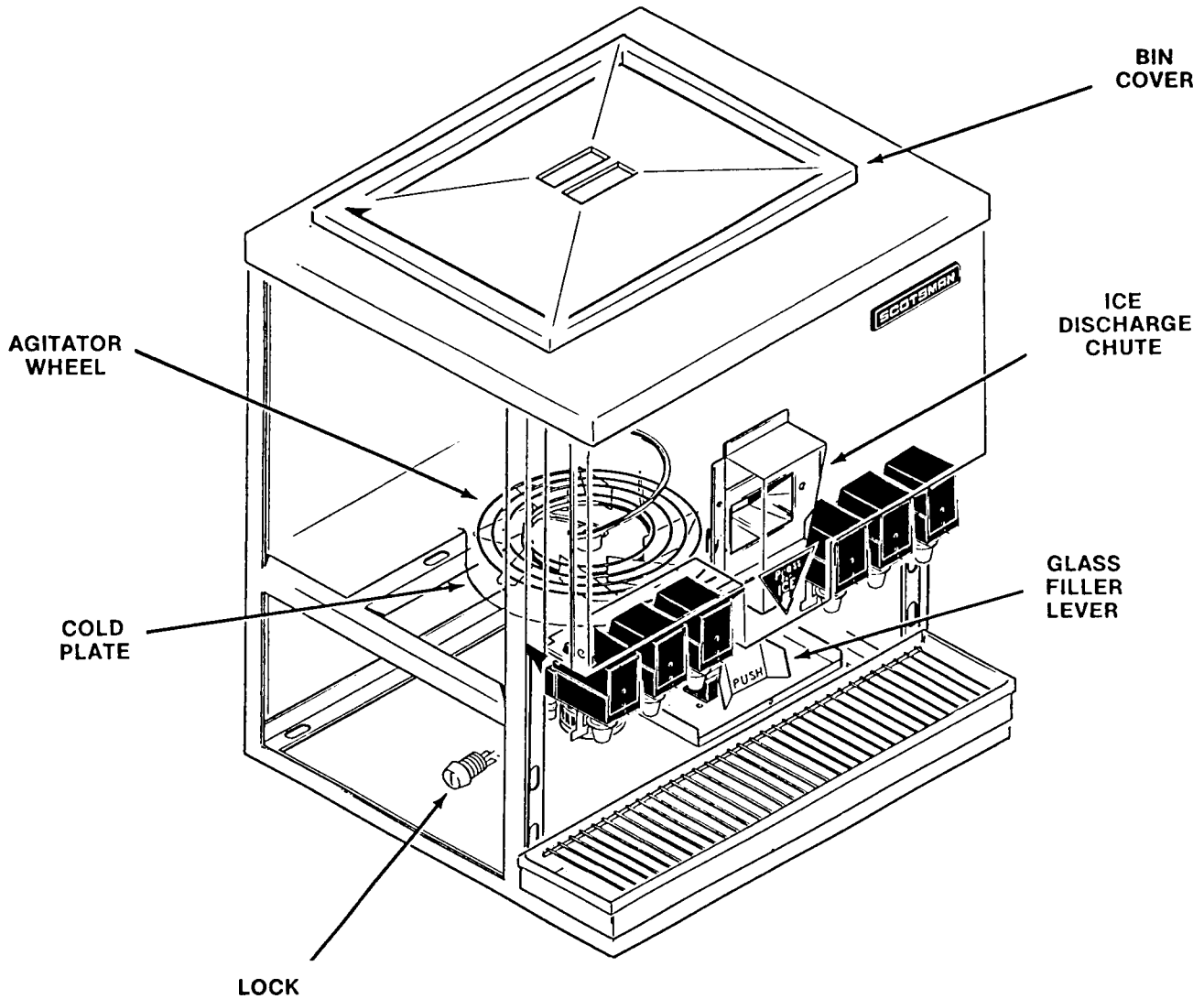
A CO₂ cylinder delivers carbon dioxide (CO₂) gas through adjustable CO₂ regulators to syrup tanks and remote carbonator. Plain water enters carbonator tank and is carbonated by regulated CO₂ gas also entering tank. When dispensing valves are opened, CO₂ pressure exerted upon syrup tanks pushes syrup from tanks, through unit cold plate coils, and on to dispensing valves. Carbonated water is pushed from carbonator tank by CO₂ head pressure and is pushed through unit cold plate cooling coils to dispensing valves. Syrup and carbonated water meet at dispensing valves resulting in carbonated drinks being dispensed. Pressing cup or glass against ice dispense lever starts rotator motor which turns rotator in bottom of ice bin. Rotator pushes ice out through opening in bottom front of ice bin and drops down through chute into cup or glass. Ice dispensing will stop with lever is released.



SD60 COMPONENT LOCATION



SD100 COMPONENT LOCATION



FOR MAINTENANCE

SERVICE AND MAINTENANCE

This section describes service and maintenance procedures to be performed on the unit and system.

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.

PREPARING UNIT FOR SHIPPING, RELOCATING OR STORING

CAUTION: Before shipping, relocating, or storing unit, syrup coils must be flushed with potable water, all water purged from syrup and carbonated water coils, and ice in ice bin melted and all water drained from ice bin. A freezing ambient environment will cause residual water remaining inside syrup and water coils to freeze resulting in damage to unit.

ICE BIN COVER, FRONT PANEL, AND DRIP TRAY REMOVAL

ICE BIN COVER

Lift ice bin cover straight up off unit to remove.

DRIP TRAY

Lift drip tray up out of unit to remove.

FRONT PANEL

1. Remove drip tray from unit.
2. Remove two screws securing front panel, then remove panel.

PERIODIC INSPECTION

Check dispensing valves for dripping that indicates valve is leaking and repair is necessary.

ADJUSTMENTS

ADJUSTING CO₂ REGULATORS (see Figure 1-2)

NOTE: To readjust CO₂ regulator to a lower setting, loosen adjusting screw lock nut, then turn screw to the left (counterclockwise) until pressure gauge reads 5-psi lower than new setting will be. Turn adjusting screw to the right (clockwise) until gauge registers new setting, then tighten lock nut.

Carbonator Primary CO₂ Regulator.

Refer to manual provided with carbonator and adjust primary CO₂ regulator for carbonator operating pressure.

Sugar Syrup Tanks Secondary CO₂ Regulator.

Adjust sugar syrup tanks secondary CO₂ regulator at 40-psig for syrup lines up to 10-feet in length plus one pound for each additional length of 10-feet, plus one pound for each 2-feet of vertical lift. For example: if syrup line total length is 30-feet and total vertical lift is 6-feet, then 40-psig + 2-psig (1-pound for every 2-feet of vertical lift which is 6-feet); total equals 40 + 2 + 3 = 45-psig CO₂ regulator setting. Loosen lock nut on CO₂ regulator adjusting screw, turn adjusting screw to the right (clockwise) until gauge registers desired pressure, then tighten lock nut.

Low-Calorie (diet) Syrup Tank Secondary CO₂ Regulator.

Adjust low-calorie (diet) soft drink tank secondary CO₂ regulator at 10-psig for syrup lines up to 30-feet in length. Syrup lines longer than 30-feet in length may require a slightly higher CO₂ regulator setting to 12-psig maximum. Excessive CO₂ pressure may cause low-calorie carbonation resulting in foam.

ADJUSTING WATER-TO-SYRUP "RATIO" OF DISPENSED PRODUCT

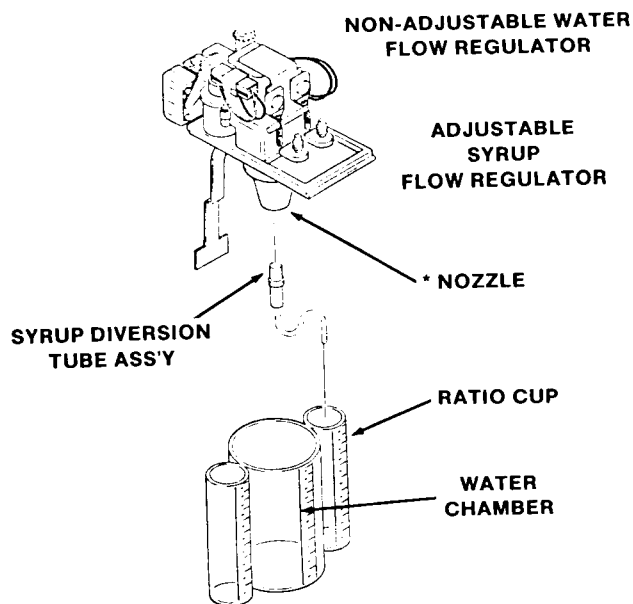
Adjusting Water-to-Syrup "Ratio" of dispensed product by using Ratio Cup and Syrup Diversion Tube Assembly as follows (see Figure 4-2).

1. Loosen dispensing valve cover screw until screw disengages from valve, then remove cover.
2. Install syrup diversion tube assembly on dispensing valve by pushing rubber end of syrup diversion tube up on baffle inside nozzle.

NOTE: Refer to syrup manufacturer's recommendations on syrup package for Water-to-Syrup "Ratio".

3. Hold container under dispensing valve. Open dispensing valve and dispense just enough to fill syrup diversion tube with syrup.
4. Hold large chamber of ratio cup under dispensing valve nozzle. Place free end of syrup diversion tube into syrup chamber marked for proper ratio. Open dispensing valve and dispense approximately five ounces of water into ratio cup. Water and syrup levels should be even in ratio cup.
5. If water and syrup levels are not even in ratio cup, turn dispensing valve syrup flow regulator labeled "SYRUP" adjusting screw to the left (counterclockwise) no more than 1/4-turn at a time for less syrup or to the right (clockwise) no more than 1/4-turn at a time for more syrup.

FOR MAINTENANCE



* Baffle (syrup distributor) may be removed by first removing nozzle, then pull baffle down and off valve.

RATIO CUP AND SYRUP DIVERSION TUBE ASSEMBLY

6. Repeat Water-to-Syrup "Ratio" test and adjust syrup flow regulator as many times as necessary until proper ratio of dispensed drink is achieved.
7. Remove syrup diversion tube assembly from dispensing valve.

CLEANING AND SANITIZING, ICE BIN

IMPORTANT: Only qualified personnel should perform cleaning and sanitizing procedure.

The ice bin interior should be cleaned and sanitized every 90-days following Sanitizer Manufacturer's recommendations. Use Chlor-Tergent (Oakite Products Inc.) or equivalent sanitizer.

Follow Sanitizer Manufacturer's application instructions, and warning labels.



WARNING: Ice bin contains hazardous moving part. Ice rotator is automatically timed to start and move a short distance every 128 minutes (2 hours and 8 minutes) to break up ice in ice bin. Do not remove ice bin cover without first unplugging unit power cord from electrical outlet.

1. Unplug unit power cord from electrical outlet.
2. Remove ice bin cover.
3. Using warm water, melt ice inside ice bin.
4. Remove front panel.
5. Remove ice chute assembly by removing thumb screws.
6. Remove 3 thumb screws securing stainless steel shelf inside ice bin, then remove shelf.
7. Remove rotator assembly from inside ice bin by lifting straight up on lower rotator ring.
8. Remove bottom washer by lifting straight up.
9. Remove ring and hub assembly by lifting straight up on the shaft.
10. Remove cold plate drain grille by lifting grille straight up.

CAUTION: DO NOT USE CHLORINE CLEANSING POWDERS FOR CLEANING. Use of chlorine cleaning powders will cause corrosive action on ice bin walls and metal components inside ice bin.

NOTE: Lime and scale deposits may be removed from ice bin walls and metal components inside bin by using a cleaner such as Scotsman Ice Machine Cleaner.

10. Using a nylon brush (DO NOT USE WIRE BRUSH) and detergent soap solution, scrub the interior surfaces of the ice bin, cold plate, sides and top of cold plate sink, ice discharge chute and top rim of ice bin.
11. Rinse ice bin interior with plain water.
12. Disassemble ice chute and cutoff assembly.
13. Using a nylon brush (DO NOT USE WIRE BRUSH) and detergent soap solution scrub all the parts of ice chute and cut off assembly as well as the ice bin cover, (6) thumb screws, shelf, rotator assembly, bottom washer, ring and hub assembly and cold plate drain grille.
14. Rinse all the loose parts cleaned in step 13 with plain water.
15. Reassemble the ice chute and cut off assembly.

FOR MAINTENANCE

16. In a five gallon bucket, mix a sanitizing solution of 4 ounces Chlor-tergent (Oakite Products Inc.) and 4 gallons of warm (90-120° F) water. Place all small loose parts into the sanitizer and allow them to soak for 10 to 15 minutes. (Thumb screws, shelf, drain grille, ice chute and cut off assembly.)
17. In a second five gallon bucket mix a sanitizing solution of 4 ounces Chlor-Tergent (Oakite Products Inc.) and 4 gallons of warm (90-120° F) water. Using a nylon brush and the sanitizing solution sanitize the interior surfaces of the ice bin, ice discharge chute, top rim of ice bin, bin cover, rotator assembly, bottom washer, and ring and hug assembly. Allow to air dry.
18. Using the end of a wash cloth, plug up the drain opening and position the remaining cloth into the slot cut into the cold plate.
19. Reassemble the ring and hub assembly and bottom washer.
20. Pour both buckets of sanitizer solution into the ice bin until the sanitizer spills out the end of the ice chute (6 to 7 gallons). Allow to soak for 15 minutes.
21. Remove wash cloth from drain and allow sanitizer to drain away.
22. Install drain grille.
23. Install rotator assembly.
24. Install shelf and 4 thumb screws.
25. Install ice chute and cut off assembly and 2 thumb screws.
26. Using a mechanical spray bottle and the remaining sanitizer spray all surfaces handled during reassembly of items 22 through 25. Allow to air dry.
27. Fill bin with ice as instructed.
28. Replace bin cover.
29. Plug power cord into electrical outlet.

SANITIZING SYRUP SYSTEM

IMPORTANT: If necessary to disassemble and clean dispensing valves syrup flow regulators, do not intermix their pistons and cylinders as they are precision matched sets.

1. Remove all ice from ice bin.
2. Remove quick disconnect from syrup tank.

3. Using a nylon brush (DO NOT use wire brush) and detergent soap solution scrub both halves of the disconnect, rinse with clean water.
4. Using a mechanical spray bottle and a sanitizing solution (1 oz. per gallon of Chlor-Tergent (Oakite Products Inc.) to water at a temperature of 90 to 120° F spray both halves of the quick disconnect, allow to air dry.
5. Connect hose half of disconnect to a clean syrup tank filled with the sanitizing solution described in step 3.
6. Place waste container under applicable dispensing valve. Open dispensing valve to permit sanitizing solution to purge syrup out of syrup system and dispensing valve. Continue to draw from dispensing valve until only sanitizing solution is dispensed from system, then close valve.
7. Remove dispensing valve spouts (twist and pull down) and pull out center mixing baffle.
8. Using nylon brush and detergent soap solution scrub the spout, mixing baffle, bottom of dispensing valve, and cup lever. Rinse with clean water.
9. Reassemble mixing baffle and spout.
10. Open dispensing valve and allow 1/2 gallon of sanitizer to be dispensed.
11. Remove tank containing sanitizing solution from syrup system and connect tank containing syrup into syrup system.



WARNING: Flush sanitizing solution from syrup systems as instructed. Residual sanitizing solution left in systems could create a health hazard.

Place waste container under dispensing valve. Open dispensing valve to permit syrup to purge sanitizing solution from syrup system and dispensing valve. Continue to draw from dispensing valve until only syrup is dispensed from system, then close valve.

12. Repeat steps 2 through 11 for each syrup circuit.
13. Clean exterior of unit as instructed in DAILY CLEANING OF UNIT EXTERIOR.

FOR MAINTENANCE

- Using spray bottle of sanitizer from step 4 spray the underside of all the dispensing valves, valve spouts, and cup levers. Allow to air dry.

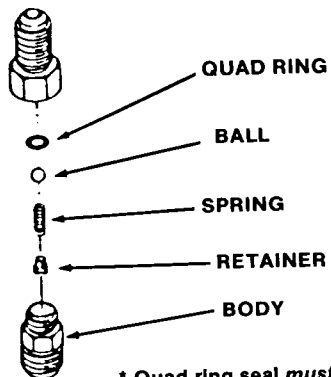


WARNING: Ice bin contains hazardous moving part. Ice rotator is automatically timed to start and move a short distance every 128 minutes (2 hours and 8 minutes) to break up ice in ice bin. *Do not* remove ice bin cover without first unplugging unit power cord from electrical outlet.

- Unplug unit power cord from electrical outlet.
- Fill ice bin with ice as instructed.
- Install ice bin cover on unit, then plug unit power cord into electrical outlet.

CLEANING SYSTEM GAS CHECK VALVES (Field Supplied)

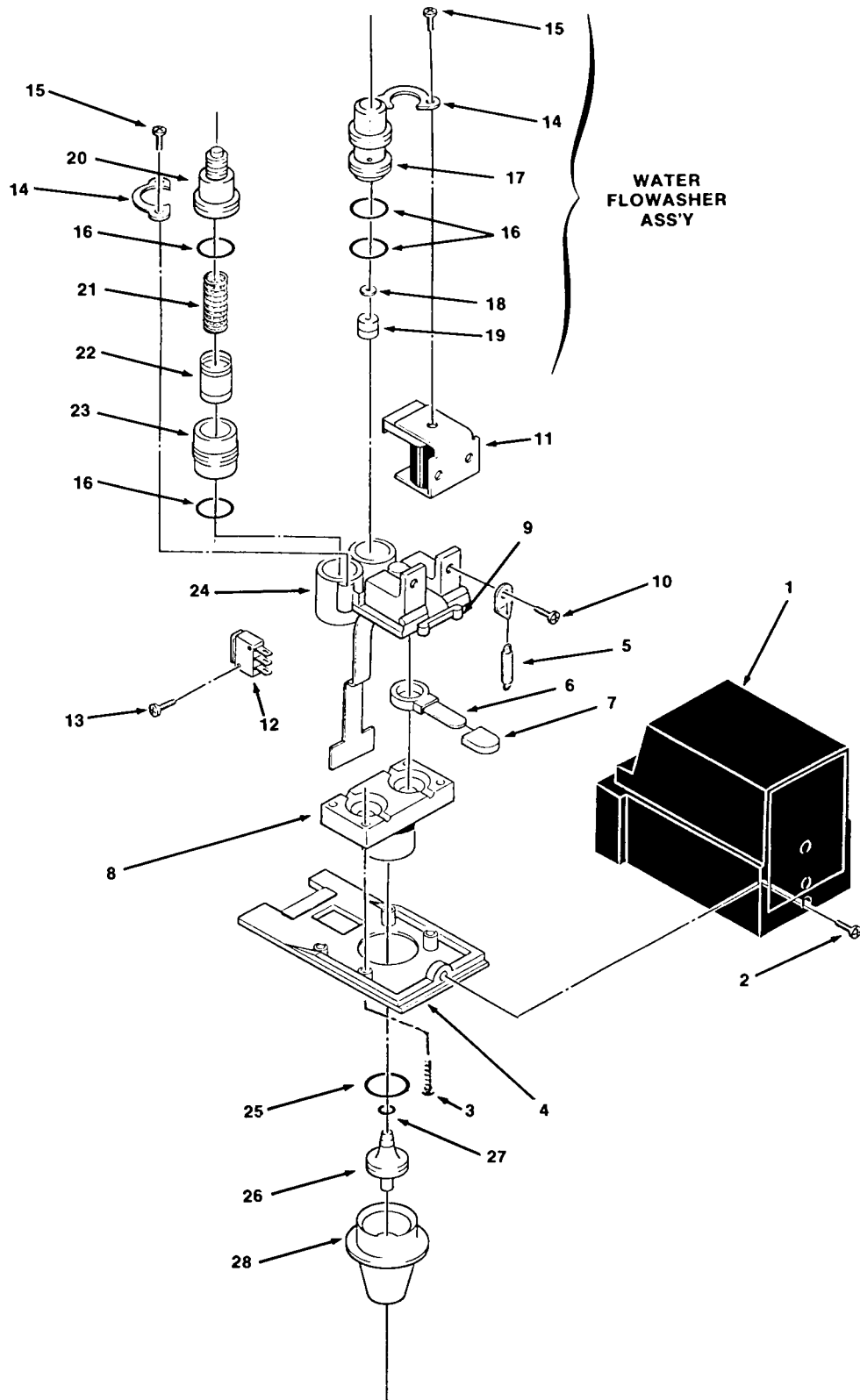
The CO₂ system gas check valves must be inspected and serviced at least once a year under normal conditions and after any servicing or disruption of the CO₂ system. **ALWAYS REPLACE QUAD RING SEAL EACH TIME GAS CHECK VALVES ARE SERVICED.**



* Quad ring seal *must* be replaced each time check valve is serviced.

FOR MAINTENANCE

Item No.	Description
1	Cover Ass'y
2	Machine Screw
3	Screw, Thread Cutting
4	Bottom Cover
5	Spring
6	Inlet Valve
7	Nib, Short, Syrup Nib, Long, Water
8	Valve Block
9	Setscrew, Hex Socket
10	Machine Screw
11	Solenoid Coil
12	Micro Switch
13	Machine Screw
14	Plate
15	Screw, Thread Cutting
16	O-Ring
17	Housing
18	Flowwasher
19	Retainer
20	Top Flow Control
21	Spring
22	Piston
23	Cylinder
24	Body
25	O-Ring
26	Baffle
27	O-Ring
28	Nozzle



DISPENSING VALVE (CORNELIUS)

FOR SERVICE

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.

WARNING: Disconnect electrical power to unit before attempting any electrical repairs to internal components. If repairs are to be made to CO₂, syrup, carbonated water, or plain water systems, shut off plain water and CO₂ supplies, disconnect carbonator power cord, disconnect syrup tanks, and bleed systems pressures before proceeding.

Trouble	Probable Cause	Remedy
TROUBLESHOOTING PRODUCT DISPENSING SYSTEM		
<p>WATER-TO-SYRUP "RATIO" TOO LOW OR TOO HIGH.</p>	<ol style="list-style-type: none"> 1. Dispensing valve syrup flow regulator not properly adjusted. 2. CO₂ gas pressure to syrup tanks insufficient to push syrup out of tank. 	<ol style="list-style-type: none"> 1. Adjust Water-to-Syrup "Ratio" as instructed. 2. Adjust syrup tanks secondary CO₂ regulator as instructed.
<p>ADJUSTMENT OF DISPENSING VALVE SYRUP FLOW REGULATOR DOES NOT INCREASE TO DESIRED WATER-TO-SYRUP "RATIO".</p>	<ol style="list-style-type: none"> 1. No syrup supply. 2. Syrup tank quick disconnects not secure. 3. Syrup tanks secondary CO₂ regulator out of adjustment. 4. Dispensing valve syrup flow regulator, syrup tank quick disconnect, or syrup line restricted. 5. Improper syrup Baume. 6. Dirty or inoperative piston or spring in dispensing valve syrup flow regulator. 7. Tapered nylon washer inside tube swivel nut connector (if applicable) distorted from being overtightened. <p>IMPORTANT: If necessary to disassemble and clean dispensing valves syrup flow regulators, do not intermix their pistons and cylinders as they are precision matched sets.</p>	<ol style="list-style-type: none"> 1. Replenish syrup supply as instructed. 2. Secure quick disconnects. 3. Adjust syrup tanks secondary CO₂ regulator as instructed. 4. Sanitize syrup system as instructed. 5. Replace syrup supply as instructed. 6. Disassemble and clean dispensing valve syrup flow regulator (see IMPORTANT, note). 7. Replace nylon washer and make sure it seats properly.

FOR SERVICE

Trouble	Probable Cause	Remedy
ADJUSTMENT OF DISPENSING VALVE SYRUP FLOW REGULATOR DOES NOT DECREASE TO DESIRED WATER-TO-SYRUP "RATIO".	1. Dirty or inoperative piston or spring in dispensing valve syrup flow regulator. IMPORTANT: If necessary to disassemble and clean dispensing valves syrup flow regulators, do not intermix their pistons and cylinders as they are precision matched sets.	1. Disassemble and clean dispensing valve syrup flow regulator (see IMPORTANT, note).
DISPENSED PRODUCT CARBONATION TOO LOW.	1. Carbonator primary CO ₂ regulator out of adjustment for existing water conditions or temperature. 2. Air in carbonator tank. 3. Water, oil, or dirt, in CO ₂ supply.	1. Adjust carbonator primary CO ₂ regulator (Reference manual provided with carbonator). 2. Vent air out of carbonator tank through relief valve. Actuate dispensing valve carbonated water lever to make carbonator pump cycle on. 3. Remove contaminated CO ₂ . Clean CO ₂ system (lines, regulators, etc.) using a mild detergent. Install a clean CO ₂ supply.
DISPENSED PRODUCT COMES OUT OF DISPENSING VALVE CLEAR BUT FOAMS IN CUP OR GLASS.	1. Oil film or soap scum in cup or glass. 2. Ice used for finished drink is sub-cooled.	1. Use clean cups and glasses. 2. Do not use ice directly from freezer. Allow ice to become "wet" before using.
DISPENSED PRODUCT PRODUCES FOAM AS IT LEAVES DISPENSING VALVE.	1. Insufficient ice supply in ice bin. 2. Carbonator CO ₂ regulator pressure too high for existing water conditions or temperature. 3. Syrup over-carbonated with CO ₂ as indicated by bubbles in inlet syrup lines leading to unit. 4. Dispensing valve restricted or dirty. 5. Tapered nylon washer inside carbonated water line swivel nut connector distorted restricting carbonated water flow. 6. Dirty water supply.	1. Replenish ice supply as instructed. 2. Reduce carbonator CO ₂ regulator pressure setting. Reference manual provided with carbonator. 3. Remove syrup tanks quick disconnects. Relieve tank CO ₂ pressure, shake tank vigorously, then relieve tank CO ₂ pressure as many times as necessary to remove over-carbonation. 4. Sanitize syrup system as instructed. 5. Replace nylon washer. Make sure it is properly seated. 6. Check water filter. Replace cartridge. (See NOTE)

NOTE: If water supply is dirty, be sure to flush lines and carbonator completely. It may be necessary to remove lines to carbonator tank, invert tanks, and flush tank and all inlet lines to remove any foreign particles or dirt.

FOR SERVICE

Trouble	Probable Cause	Remedy
NO PRODUCT DISPENSING FROM ALL DISPENSING VALVES.	<ol style="list-style-type: none"> 1. Dispensing valves keyed lock-out switch in "OFF" position. 2. No electrical power to unit. 3. Disconnected or broken wiring to dispensing valves. 4. Inoperative transformer. 	<ol style="list-style-type: none"> 1. Turn switch to "ON" position. 2. Plug in unit power cord. 3. Connect or replace wiring. 4. Replace transformer.
NO PRODUCT DISPENSED FROM ONE DISPENSING VALVE.	<ol style="list-style-type: none"> 1. Broken or disconnected wiring. 2. Inoperative dispensing valve solenoid coil. 3. Inoperative dispensing valve micro switch. 	<ol style="list-style-type: none"> 1. Repair or connect wiring. 2. Replace solenoid coil. 3. Replace micro switch.
ONLY CARBONATED WATER DISPENSED.	<ol style="list-style-type: none"> 1. Quick disconnects not secure on syrup tanks. 2. Out of syrup. 3. Syrup tanks secondary CO₂ regulator not properly adjusted. 4. Inoperable dispensing valve. 5. Dispensing valve syrup flow regulator not properly adjusted. 6. Dispensing valve syrup flow regulator, syrup tank quick disconnect, or syrup lines restricted. <p>IMPORTANT: If necessary to disassemble and clean dispensing valves syrup flow regulators, do not intermix their pistons and cylinders as they are precision matched sets.</p>	<ol style="list-style-type: none"> 1. Secure quick disconnects on syrup tanks. 2. Replenish syrup supply as instructed. 3. Adjust syrup tanks secondary CO₂ regulator as instructed. 4. Repair dispensing valve. 5. Adjust dispensing valve syrup flow regulator (Water-to-Syrup "Ratio") as instructed. 6. Sanitize syrup system as instructed. (See IMPORTANT, note).
ONLY SYRUP DISPENSED.	<ol style="list-style-type: none"> 1. Plain water inlet supply line shutoff valve closed. 2. Carbonator power cord unplugged from electrical outlet. 3. Carbonator primary CO₂ regulator not properly adjusted. 	<ol style="list-style-type: none"> 1. Open plain water inlet supply line shutoff valve. 2. Plug carbonator power cord into electrical outlet. 3. Adjust carbonator primary CO₂ regulator (Reference manual provided with carbonator).
TROUBLESHOOTING ICE DISPENSING SYSTEM		
NO ICE DISPENSED	<ol style="list-style-type: none"> 1. Insufficient ice supply in ice bin. 2. Ice bridged over cold plate. 3. No electrical power to unit. 4. Ice dispensing micro switch operative. 5. Inoperative ice rotator motor. 6. Inoperative relay. 	<ol style="list-style-type: none"> 1. Replenish ice supply as instructed. 2. Gently tap on ice to break it loose. 3. Plug in unit power cord. 4. Replace micro switch. 5. Replace motor. 6. Replace relay.

REMOVAL AND REPLACEMENT

DISPENSING VALVE

1. Shut off CO₂ and water supply and press working valve lever to discharge pressure.
2. Unplug unit from electrical supply.
3. Remove cover from valve in question.
4. Remove upper front panel.
5. Remove panel covering valves.
6. Push upon lever at the rear of the valve, and pull valve out of machine.
7. Reverse steps to reassemble.

