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DESCRIPTION

The SCOTSMAN AUTOMATIC DRINK DISPENSER is designed for drugstores, resturants, cafeterias, ball parks, drive-ins, amusement parks, theatres--in fact, any place where crowds gather and seek ice cold, thirst quenching refreshments in a hurry. The continuous flow dispensers, together with the concealed SCOTSMAN crushed ice maker, is designed for the peak periods of traffic.

ATTRACTIVE COMPACT CABINET

Dark grey finish anodized aluminum trim, up-to-date-styling, and removable panels for easy access to mechanical parts. Hood assembly of stainless steel attractively designed for front or back counter installation.

SEALED REFRIGERATION SYSTEM

Provides quiet, efficient operation of the machine. Compressor motor is spring mounted, the worm motor and carbonator pump is rubber mounted for quiet operation.

SELF-CONTAINED STORAGE BIN

Stores its own ice supply in a heavily insulated, stainless steel storage bin with handy access door opening in hood-counter.

STANDARD OVER-ALL DIMENSIONS

Allows automatic drink dispenser to be installed in harmony with existing counter equipment.

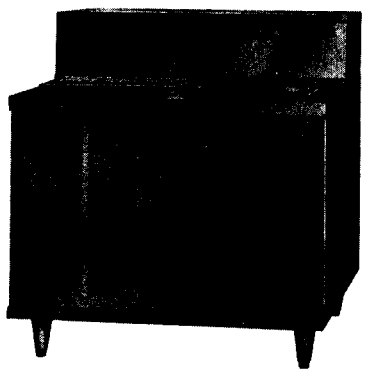
HOW IT WORKS

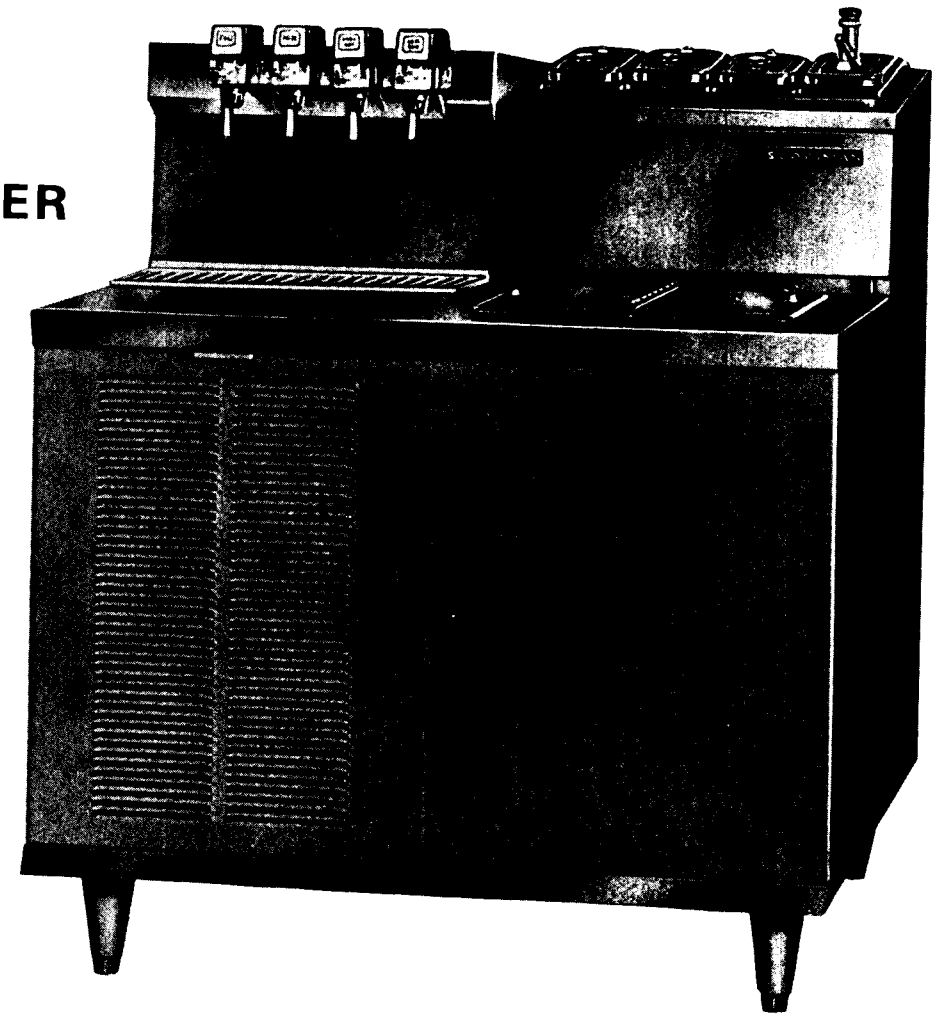
The unit is completely automatic; water is circulated through a self-contained carbonator which guarantees a ready, abundant supply of perfect carbonated water at all times. Maximum cooling of sweet water, carbonated water and syrups is accomplished by the large capacity cold plate which forms the ice storage bin bottom. All modern dispensing heads allow the mixture of a set amount of syrup and carbonated water. A manual switch starts the ice machine and from then on ice is produced automatically in small uniform pieces. When the storage bin fills, a bin thermostat automatically shuts the machine off and causes it to start up again when the ice is removed from the storage bin.

SCOTSMAN®

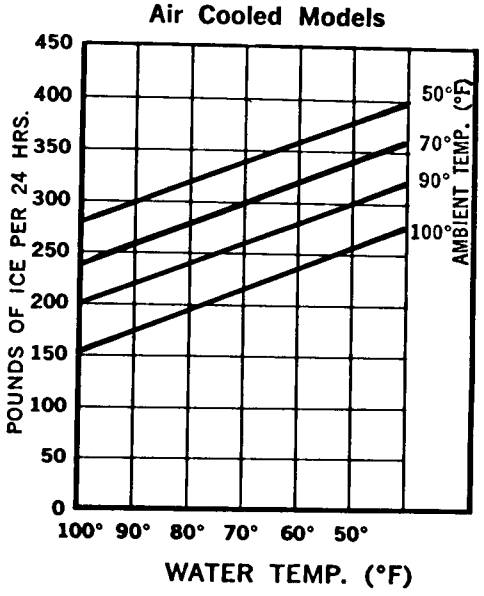
DRINK DISPENSER ICE MACHINE

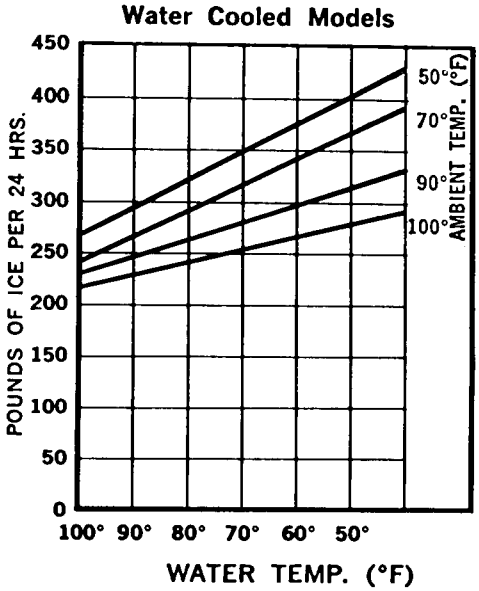
SD-1H series





ice making capacity



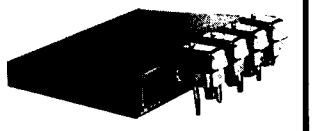


SPECIFICATIONS

COMBINATION ICE MACHINE AND DRINK DISPENSER	MODEL SD-1H	MODEL SD-1WH	MODEL SD-1H-SS	MODEL SD-1WH SS
Daily capacity up to 350 lbs.	X	X	X	X
Self contained storage bin. Stores up to 200 lbs.	X	X	X	X
Heavy duty 1/3 HP. Compressor	X	X	X	X
Air cooled condenser	X		X	
Water cooled condenser		X		X
1/4 HP. evaporator drive motor	X	X	X	X
1/4 HP. carbonator system	X	X	X	X
Standard 115 V. 60 cy. 1 ph. AC	X	X	X	X
1/4" CO2 inlet SAE Flare	X	X	X	X
3/8" water inlet SAE Flare	X	X	X	X
3/8" water inlet SAE Flare		X		X
Condenser outlet 3/8" O.D. Tube		X		X
Sump and drip drain 5/8" O.D. Tube	X	X	X	X
5/8" bin drain O.D.	X	X	X	X
Textured dark grey exterior	X	X		
Stainless steel exterior			X	X
Height with legs 45 1/2" plus "A" below.	X	X	X	X
Height to working surface with legs 35 1/2"	X	X	X	X
Width 40"	X	X	X	X
Depth 31"	X	X	X	X
Approximate shipping weight	526	526	526	526

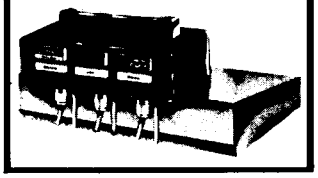
"A" ACCESSORY KITS

K-41E

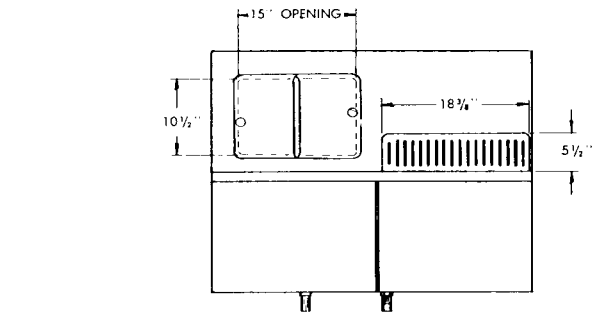


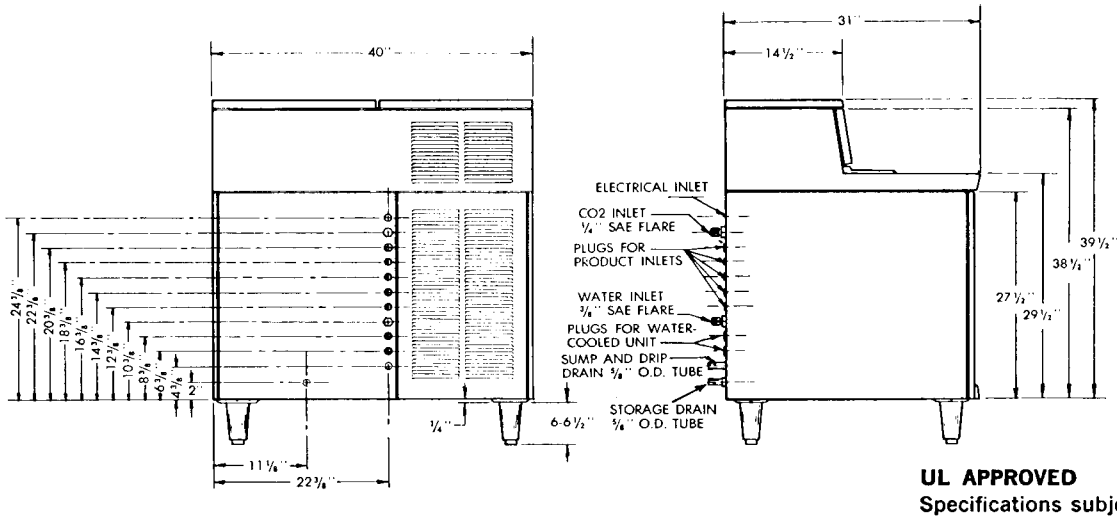
Electric valve unit: dispenses four flavors plus carbonated and plain water. Prefabricated hose assembly speeds internal connections. Easily installed by removing top panel at left of machine, and setting unit over the opening.

K-42S

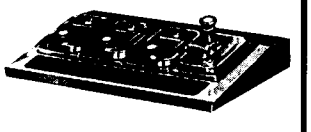


"Satellite" postmix head base: provides mounting surface and prefabricated hose assembly for easy installation of this popular remote postmix dispensing head. Replaces top panel at left of machine. Head not included.





K-43R



Syrup rail kit: holds four jars, replaces top panel at right of machine. Chilled air from ice bin provides refrigeration. Jars not included — openings accept 4 1/16 x 6 3/4" jars with depths of 6 9/16" or 9 1/16". Maximum of two 9 1/16" jars may be used.

UL APPROVED

Specifications subject to change without notice.

INTRODUCTION

SCOTSMAN MODEL SD1-H DRINK DISPENSER IS DESIGNED TO provide the utmost in flexibility to fit a particular users needs.
Hood top panels are seperated and removable to allow use of numerous syrup dispensing heads and accessories as required.

A seven circuit cold plate forms the ice storage bin bottom allowing use of five syrup flavors plus a cold sweet water and carbonated water cicuit.

A complete carbonated water system comes built in, including carbonator pump and tank with connections thru cold plate.

There are no syrup lines (pre-cool) connected from the cabinet fittings to the cold plate nor post cooled lines from plate to fixture. These lines come with the Scotsman kits K-42S Satellite and K-41E Electric valve kit.

All connections for syrup, water and CO_2 gas are located on a common panel at the rear center of the cabinet back. Drains and electrical supply lines are also located at cabinet back.

DRINK DISPENSER
General Specification

ELECTRICAL RATING	SD-1-H
Input Voltage	115 60/1
Amperage - Total	13.6
No. of Motors	3
Largest Motor - Compressor	1/3 H.P.
Amperage - Largest Motor- Compressor	4.9 Amps

PLUMBING AND CO_2	
Water Inlet (all Models)	3/8" Flare
Water Inlet - Condenser (W.C. models)	3/8" Flare
Drain Overflow	5/8" O.D. Copper
Drain - Storage	5/8" O.D. Copper
Drain Condenser (W.C. models)	3/8" O.D. Copper
CO_2 Connections	1/4" Flare
CO_2 Line Size Recommended	1/4" to 10' run

ICE MAKER SECTION	
Compressor	1/3 H.P.
Condenser	Air or Water Cooled
Refrigerant	R - 12
Refrigerant Control	Capillary tube
Standard Voltage Characteristics	115, 60, 1
Drive Motor	1/4 H.P.
Ice Making Capacity	* 350 lbs. per day
Storage Capacity	200 lbs.

CARBONATOR SECTION	
Motor	1/4 H.P.
Pump - Procon	60 gph
Switch - Pump Up	Electrodes in Tank
Voltage Characteristics	115, 60, 1
Cold Plate	18 3/4" x 26 3/8"
Control - Pump Up	Liquid Level - Relay
Carbonator Tank	Bastian Blessing

DISPENSER SECTION

Order and use conversion kits as follows:

K41-E	Electric Valve Kit
K42-S	Satellite Head Kit
K43-R	Syrup Rail Kit

See manual section, Factory Conversion Kits, Accessories for Installations procedures.

INSTALLATION

UNCRATING DRINK DISPENSER

The entire unit, less conversion kits, comes in one crate. Upon delivery a visual inspection of the crate should be made and any severe damage noted should be reported to the delivering carrier and a concealed damage claim filed subject to internal inspection with carrier representative present. Remove crate by pulling nails driven through sides of crate into the bottom skid. A nail puller is best suited here. Next remove (4) four bolts from underside of skid which connect to complete unit base. Unit now free from all crating.

PREPARATION FOR INSTALLATION

Remove all service and access panels from unit cabinetry-leg package is wired to inner machinery compartment, remove and install (4) four legs.
Next remove all packing tapes or wires in machinery compartment. Remove paper packing in float operated reservoir, found under left top hood cover.
Loosen (4) four motor compressor hold down nuts until compressor rides freely on mounting springs.
Next select proper drink dispenser conversion kit or kits and install same per instructions in kit. Also refer to this manual secton " Factory Conversion Kits".

LOCATION

Select the location before delivering the unit to the job. The following points should be considered.

1. Convenience-Place the unit where it is practical to give efficient use. It can be located either in a back bar or in a front bar. It is designed to fit into a standard soda fountain line-up or it can be used as an individual counter unit. Keep in mind that the dispenser can serve a double function of providing crushed ice as well as carbonated beverages.

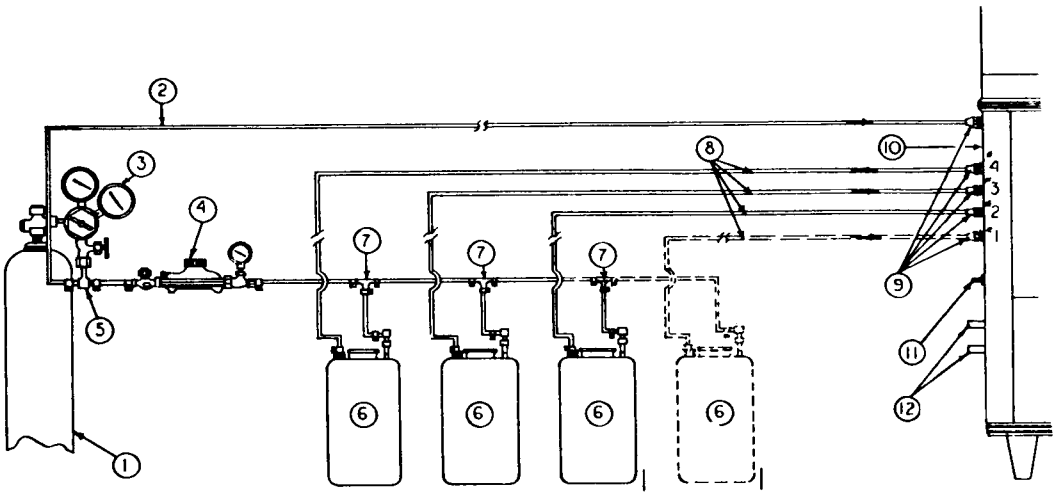
2. Servicing Unit-Bearing in mind that all service connections are made at the back center panel, provisions for adequate access space must be considered here. Also on all air cooled models, cooling air is drawn through louvered front panel and exhausted out rear louvered back and hood panels therefore a minimum 12" air gap must be maintained for proper condensing unit operation.

3. On air cooled models, condenser is directly behind front service door to facilitate regular cleaning schedules, advise user to clean frequently.

4. Avoid installations where temperature extremes can be experienced Scotsman does not recommend installations below 50^{o} Fahrenheit nor above 100^{o} Fahrenheit.

TYPICAL POST MIX CARBONATED BEVERAGE SYSTEM

APPLICABLE TO THE SD-1 H



CODE

1. CO_2 CYLINDER
2. CO_2 LINE (COPPER, STAINLESS STEEL OR PLASTIC)
3. HIGH PRESSURE CO_2 REGULATOR FOR CARBONATOR
4. LOW PRESSURE CO_2 REGULATOR FOR SYRUP TANKS
5. BRANCH TEE
6. SYRUP TANKS
7. TEE
8. PRODUCT LINES (STAINLESS STEEL OR PLASTIC)
9. 1/4 S.A.E. FLARE FITTING
10. ELECTRICAL INLET
11. WATER INLET 3/8 SAE FLARE FITTING
12. DRAINS

NOTE:

Items shown are not sold by Scotsman.

Recommended Source:

Excellall Products Division
The Bastian-Blessing Co.
4201 W. Peterson Avenue,
Chicago, Illinois

INSTALLATION

Be certain the SCOTSMAN DISPENSER is on its own circuit and individually fused. Seperate switches are located in the front of the dispenser allowing the dispensing equipment and the ice machine to operate independently of each other. All internal wiring is completed.

All external wiring should conform to National Underwriters and local electrical code requirements. An electrical permit and the services of a licensed electrician will usually be required. See wiring diagram for proper hook-up.

PLUMBING - AIR COOLED MODELS

The recommended water supply line is 3/8" O.D.tubing for SD-1. A 3/8" flare fitting is provided on the machine for water inlet. Connect to cold water supply line using a shut-off valve installed in an accessible place between supply and machine.
A wire mesh strainer is provided on the pump inlet connections as a protection against large particles of rust, scale, etc., which may be loosened in the water pipe at time of installation. This strainer will not prevent fine particles from damaging the pump, therefore, a good filter is recommended in any installation and is absolutelv essential when the water supply contains solids. Maximum water supply pressure must be at least 20 lbs. below operating CO_2 pressure. If supply pressure exceeds this, carbonator may flood. Install a water pressure regulator in the water supply line and adjust as required.

PLUMBING - WATER COOLED MODELS

On water cooled models a seperate connection to the condensing unit will be required. A 3/8" flare fitting is provided on the machine for water inlet, a 3/8" O.D. Copper drain line is provided. Water supply must be installed to conform with local plumbing codes. In some cases a licensed plumber and/or a plumbing permit will be required.
All drains are gravity types and must be pitched 1/4" fall per foot of horizontal run. All drains to be installed per local and state codes. Drain receptacle should be of open, trapped or vented construction. Storage bin drain is 5/8" O.D. Copper tubing and should be vented and run seperately.

ELECTRICAL

Rating
SD-1-H
115 volts 13.6 Amps.
60 cycle, single phase
20 amp Maximum Fuse
Use No. 12 wire for runs
under 50 feet.

INSTALLATION

START - UP

When the machine is placed and conversion kits added as per instructions and all plumbing and electrical connections are completed and tested, turn on the water supply. Be sure the float cover is removed to check on the float operation and water level in the water reservoir. Be sure water reservoir is filled before starting ice machine. Water level should be 1/2 inch below the reservoir overflow pipe.
Connect CO_2 cylinder, CO_2 Hi-Lo pressure regulator and syrup tanks to proper fitting on cabinet rear panel.
Slowly open CO_2 cylinder and set both CO_2 regulators to 30# gauge reading.
Check all syrup lines, fittings to cold plate, dispensing head connections etc. with bubble soap and correct any leaks found.

Check all internal water connections for leaks. Start carbonator by turning on top switch.

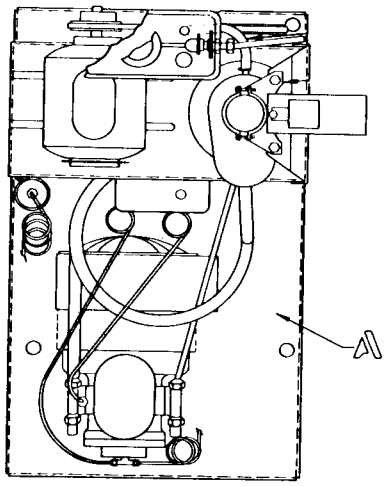
Install gauges and check refrigerant pressures at the time of start-up. Flare connections can work loose during shipment. Add refrigerant as required - see ice machine section. Turn on ice machine switch in front of cabinet and machine is in automatic operation. In two or three minutes ice will start dropping off worm shaft and out the ice chute. Let the machine operate for at least 30 minutes or until ice covers the bottom plate. Check for any excess noise in carbonator or ice machine.

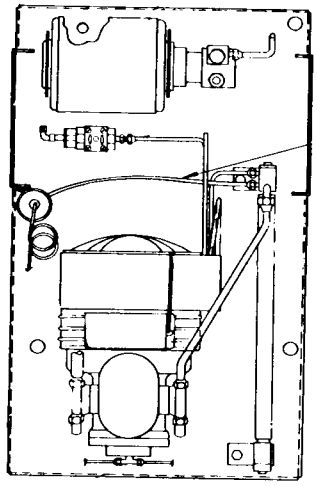
Test the ice storage control bulb by holding a handful of ice around the bulb until the machine shuts off. One minute should be normal for the control to function. Within minutes after the ice is removed, the bulb will warm up and the machine will automatically start up. The control is factory set and should not be reset until this test is made. Normal setting of this control should be approximately 35 degrees cut-out and 45 degrees cut-in to prevent short cycling.

Check hand reset low pressure control setting. This safety device should normally be set 10 p s i below normal suction pressure to prevent cutting off when the compressor first starts up and still provide safety in case of interruption in water supply, shortage of refrigerant, low ambient or any other cause of abnormal low suction pressures.

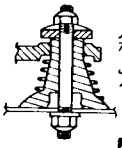
Adjust dispenser heads to give correct proportions of syrup and carbonated water. See instructions provided with dispenser.

Explain the machine to the owner, showing him how the machine works and go over the owner's operating instructions. Answer all the owner's questions about the machine, and do not leave with any doubt in the owner's mind about the machine, how to operate it or where to reach the service man in case of need. Call back the next day to check the machine again and answer any other questions the owner may have.



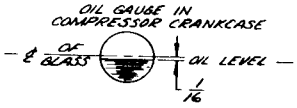


DETAIL A1

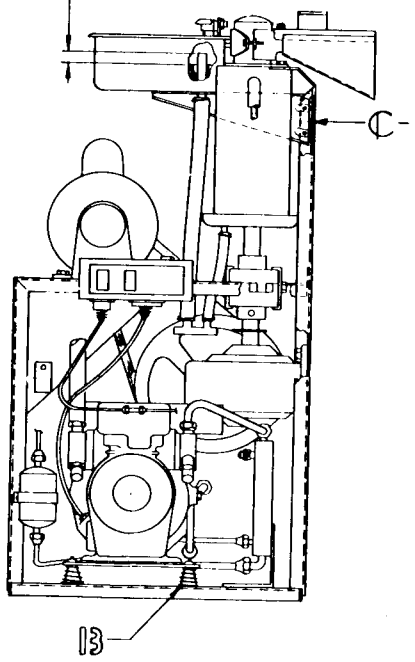


RUNNING POSITION SHOWN
TIGHTEN DOWN FOR SHIPMENT
STD. COMPRESSOR MOUNTING
AS FURNISHED BY COPELAND

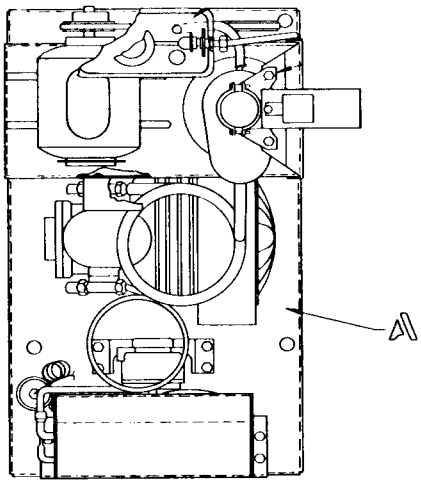
DETAIL B3

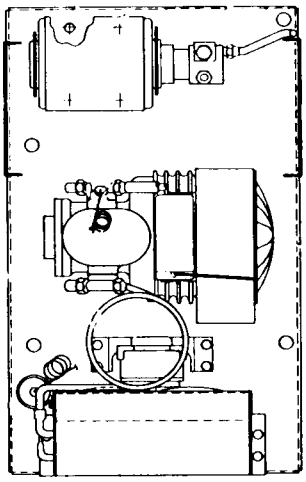


WITH UNIT RUNNING ADJUST
WATER LEVEL TO BE 1 1/16
BELOW OVERFLOW TOP

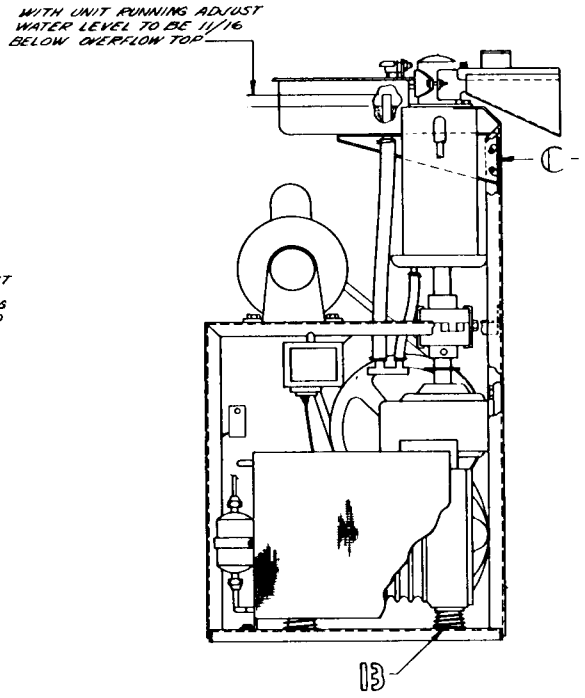


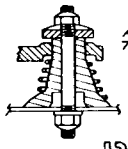
CHASSIS ASSEMBLY
SD-1 Water Cooled





DETAIL A1

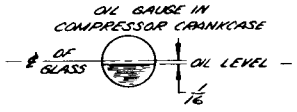




RUNNING POSITION SHOWN TIGHTEN DOWN FOR SHIPMENT

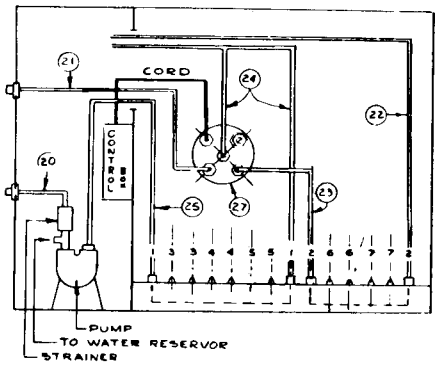
STD. COMPRESSOR MOUNTING AS FURNISHED BY COPELAND

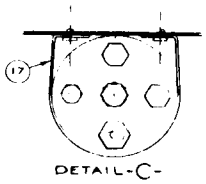
DETAIL 13

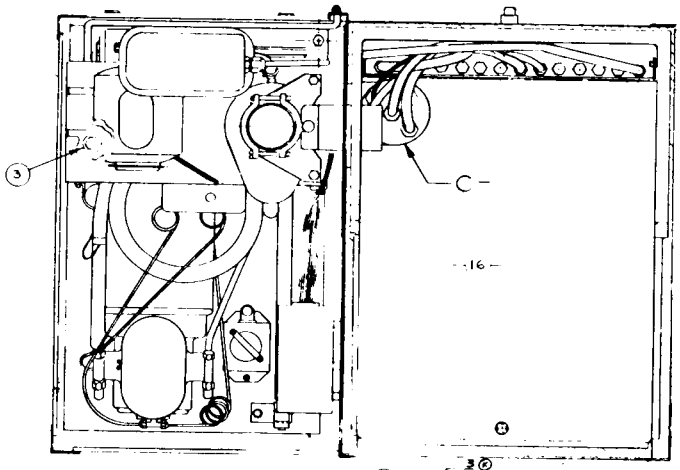


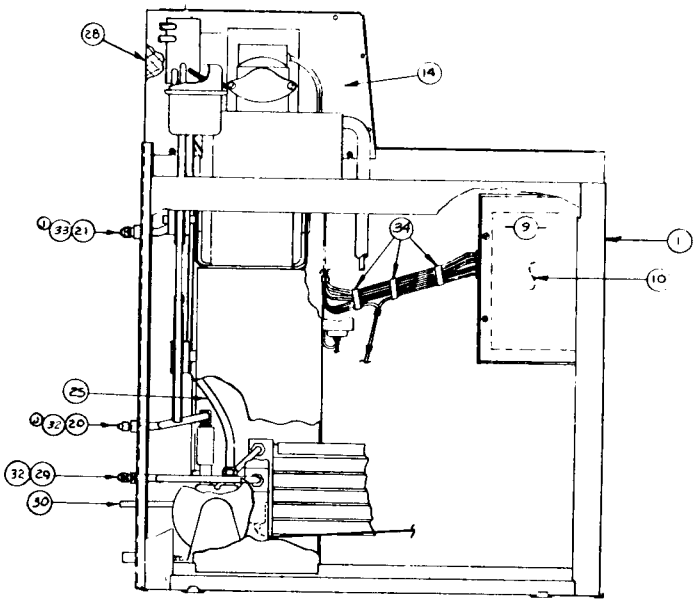
CHASSIS ASSEMBLY
SD-1H Air Cooled

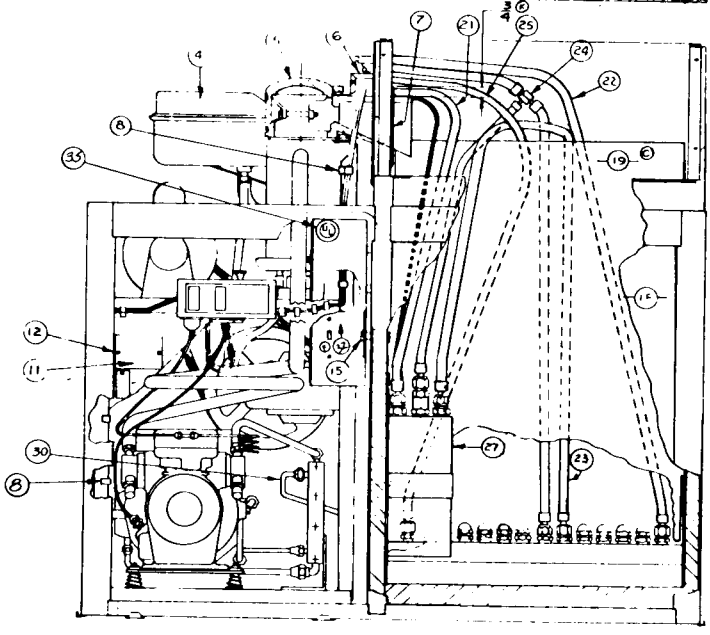
CABINET ASSEMBLY
SD-1WH
Water Cooled





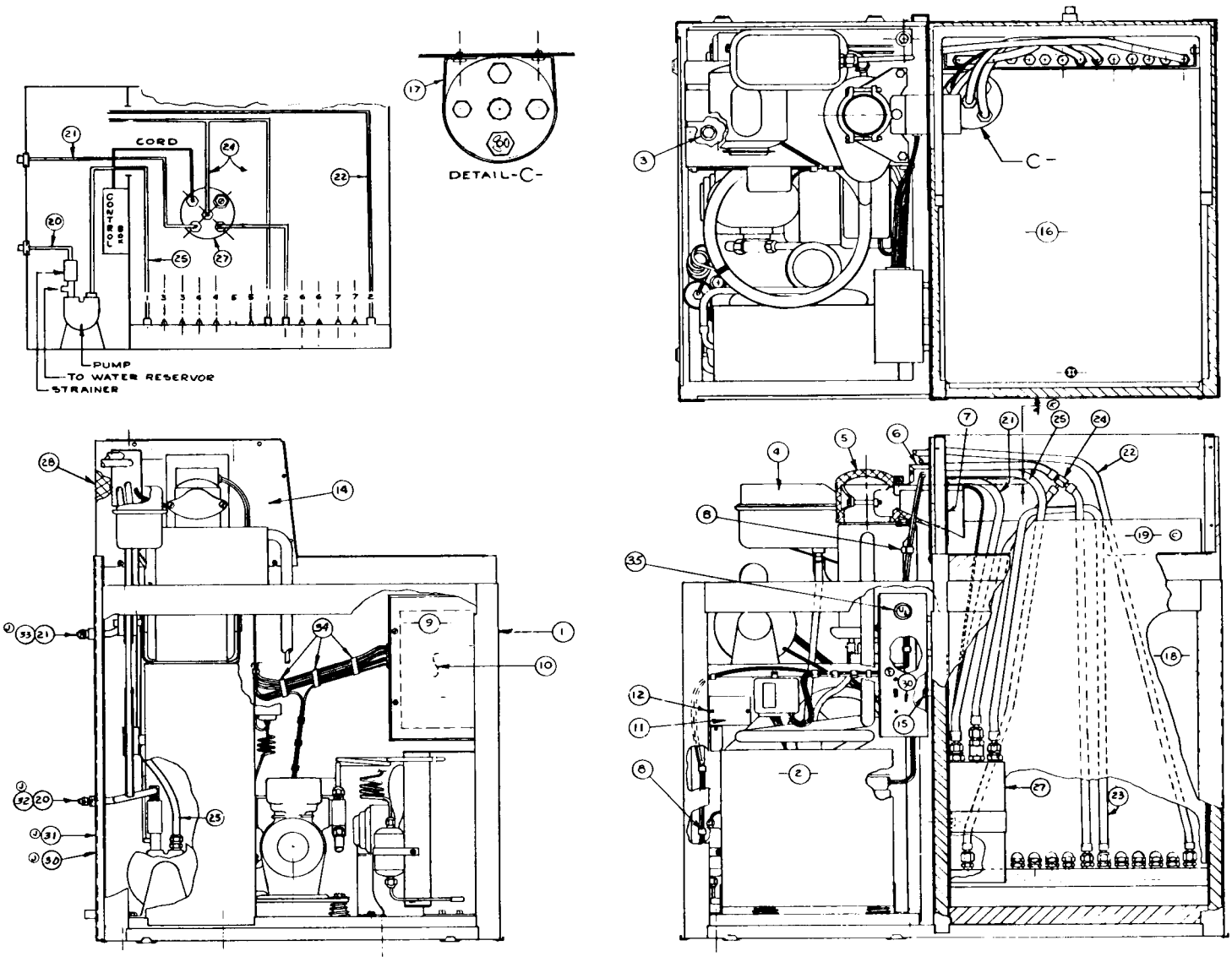






	Part No.	Description
16.	A-17790	Bin-Cold Plate Assembly
21.	A-17732	CO_2 Gas Line
22.	A-17743-1	Soda Line
23.	A-17743	Soda Line
24.	A-17718	Water Line
25.	A-17737	Flexible Line
27.	2-1499	Carbonator Tank

CABINET ASSEMBLY
SD1-H Air Cooled



	Part No.	Description
27.	2-1499	Carbonator Tank
25.	A-17737	Flexible Line
24.	A-17718	Water Line
23.	A-17743	Soda Line
22.	A-17743-1	Soda Line
21.	A-17732	CO_2 Line
16.	A-17790	Bin-Cold Plate Assy

ICE MACHINE SECTION

HOW IT WORKS

Water enters at the cabinet fitting, passes through the strainer at the pump and then goes to the water reservoir. The function of the reservoir is to maintain a constant water level inside the freezer. Water from the reservoir enters the freezer at the bottom and is frozen inside the freezer. A stainless steel auger inside the freezer carries the ice upward where it is extruded passed the Ice-breaker into the storage bin.
The auger is rotated by a gear reducer which is operated by a motor through a belt drive.
A manual switch starts the machine and from then on Ice is produced automatically in small uniform pieces. When the storage bin fills a thermostat shuts off the machine and causes it to start up again when ice is taken from the storage bin. The Ice Machine Section operates independent of the carbonator and dispensing section although it is built into the same cabinet.

ELECTRICAL SECTION

The dispensers are designed to work on a standard voltage 115/60/1. Special voltage requirements are available on special order. Therefore always check nameplate before turning on power supply.

Nameplate voltage must not vary more then plus or minus 10 percent.

A. Compressor: The compressor has a capacity start induction motor. Capacitor and Relay may be mounted on the compressor junction box or seperate-on the machine box. A klixon overload protector is located under the compressor junction box cover.

B. **DRIVE MOTOR** (NEMA frame size 48 freezer)

All models are equipped with standard 1/2 " shaft, 1/4 HP, capacitor start, induction motors. These motors turn counter clockwise and may be replaced with any standard make motor corresponding to the nameplate rating. (Be sure motor runs counter clockwise viewed from the shaft end.)

C. HIGH-LOW PRESSURE CUT-OUT (Used on water cooled models only.)

Ranco control is located on the frame assembly. Factory settings cut-out 5 lbs. on low pressure and 180p s i on high pressure. This control prevents operation at abnormal pressures.

D. LOW PRESSURE CUT-OUT (Hand reset on all air cooled models.)

Ranco control is located on the frame assembly. Factory settings cut-out 5 p s i. Safety device to cut off machine and keep it off in case of water supply failure, loss of refrigerant, low ambient temperature or other causes of low pressure.

E. STORAGE BIN THERMOSTAT

Bin control located on frame assembly. Sensing bulb located at front storage bin wall. Factory settings 35^{o} cut-out, 45^{o} cut-in. This control shuts off complete machine when ice in storage bin builds up to control bulb and automatically re-starts ice-maker when ice is removed from bulb.

ICE MACHINE SECTION

F. MICRO SAFETY SWITCH

The micro switch is located in the top of the stainless steel ice deliver spout. Should storage bin thermostat fail to cut off when ice level in bin reaches spout opening, ice pressure backs up into spout against a spring loaded spout pressure plate that activates micro switch and cuts off the refrigeration unit but allows freezer drive motor to run.
Icemachine should not be run on this safety device. Bin thermostat should be checked for calibration or replacement.

G. ICE MACHINE ON-OFF SWITCH

Located in master control box, this switch when manual activated either stops or starts icemachine operation. Switch also incorporates built in thermal overload protection for freezer drive motor. Whenever excessive overloads occur, the standard 6 amp. overload causes switch to "trip out!" Will not start until manually re-set.

H. MOTOR COMPRESSOR

SD - 1H models use a 1/3 HP Copeland, semi-hermetic compressor. Standard voltage is 115/60/1. Standard electrical components such as relays, starting capacitors and klixon overloads are readily replaced. On compressor proper service valves, valve plates and compressor heads are replaceable.

I. GEAR REDUCER

Winsmith model 3CT reducer is utilized on Drink Dispenser. At least once a year Mobil 600w oil should be changed. All internal parts replaceable.

NORMAL OPERATING PRESSURES

Check refrigerant pressure settings after 30 minutes of initial start up. Attach gauges to proper fitting on compressor service valves.
On water cooled models correct head pressure is 135 p s i. Adjust water regulating valve to maintain this reading.

On air cooled models, head pressure will vary slightly depending upon ambient air, however, normal reading is 130 p s i.
Suction pressure should be 15p s i with proper refrigerant charge, frost line will extend about 8 inches out of accumulator. Suction pressure will vary approximately 2 p s i either way depending upon ambient and incoming water supply temperatures to freezer.

ICE MACHINE SECTION

REFRIGERANT CHARGE

The below refrigerant charge is approximate. When charging, set at 135 p s i head pressure and charge so that the frost line extends out of the accumulator after fifteen minutes of operation. Frost out of accumulator at least 8 inches and preferable 1/2 way to the compressor for best capacity and performance.

MODEL	REFRIGERANT CHARGE	
SD-1 air	26 oz.	R-12
SD-1 water	24 oz.	R-12

OIL LEVEL

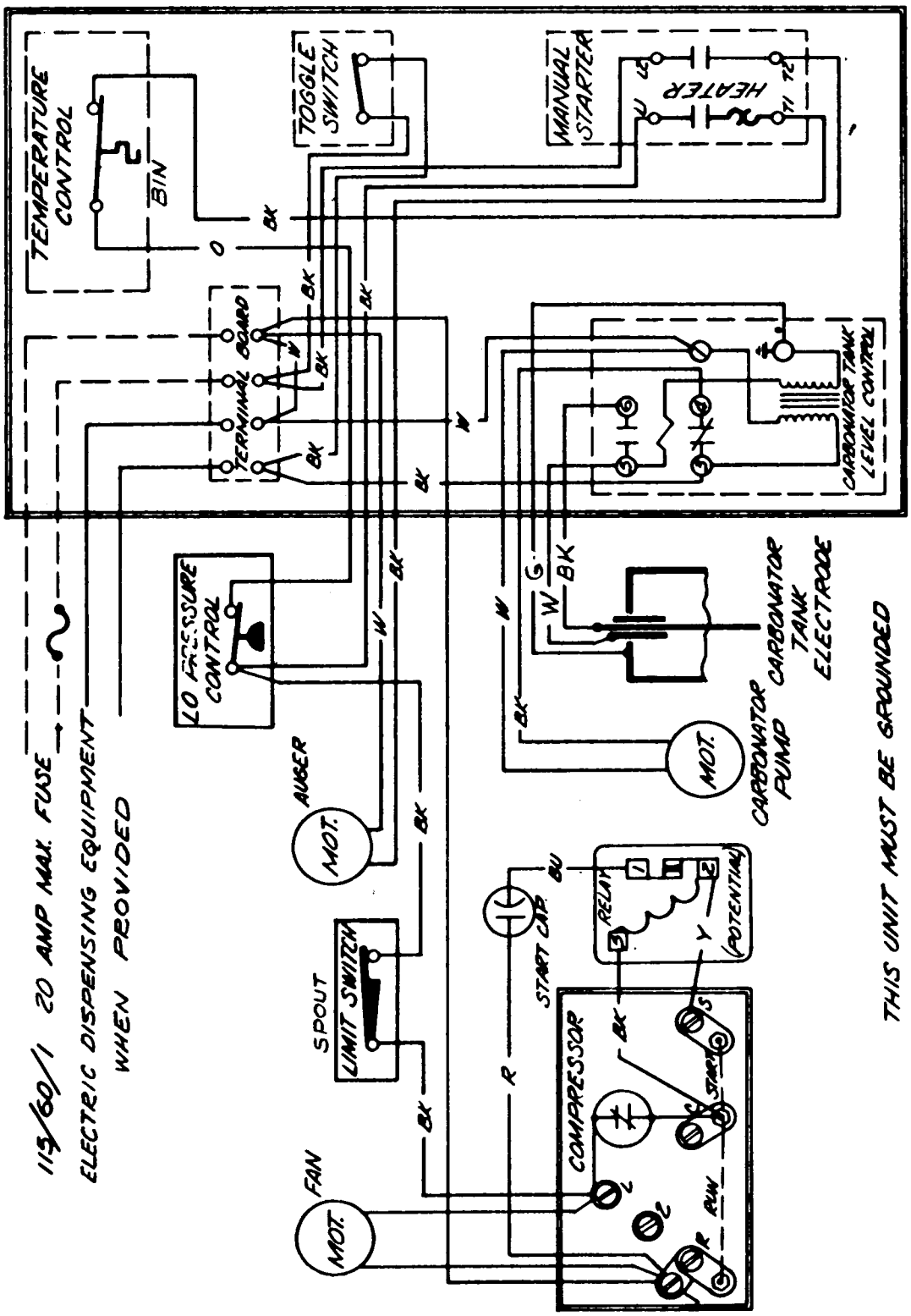
Oil level should be kept at 1/3 way up sight glass, Do not fill over 1/2.

WATER SYSTEM

A water level is maintained in the water reservoir by a float operated valve. Water is piped from the water reservoir to the freezing chamber by a gravity feed line maintaining an equal water level. A removable overflow pipe is installed in the water reservoir for cleaning the reservoir as well as preventing damage should the inlet water valve fail.

The water reservoir is equipped with a 2 inch air gap to prevent back siphoning and meet all health codes.

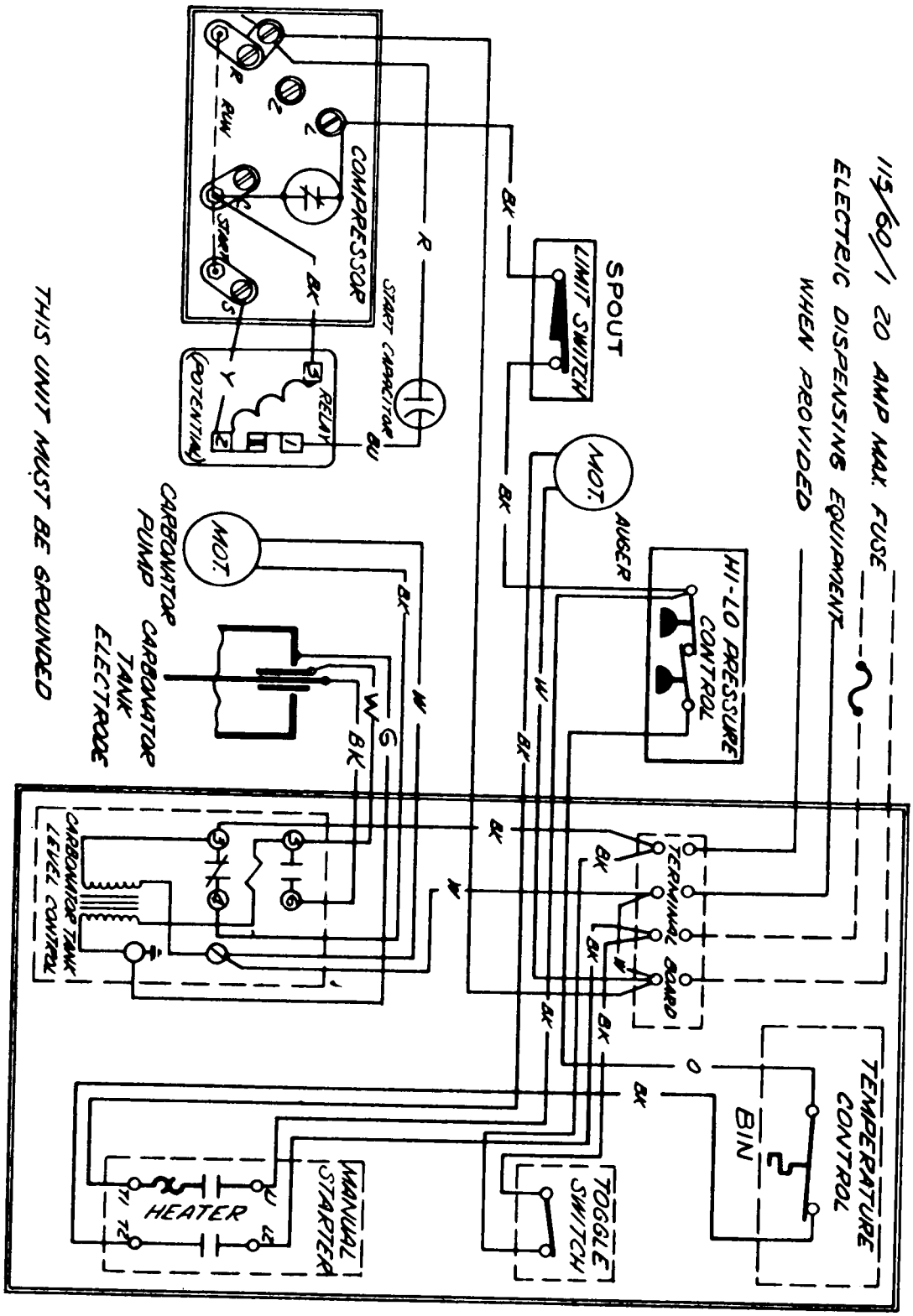
The water level in the water reservoir is adjusted by bending float ball arm. The water level should be set 1/2 inch below the overflow pipe. A condensate drip pan is connected to the drain circuit to automatically dispose of condensate moisture.



WESTINGHOUSE ON-OFF SWITH MSTOZ®

MOTOR MFG.	HEATER ELEMENT	TRIP CURRENT AT 40° C
G.E.	MSH 6.0 A	6.0
WHSE.	MSH 6.0 A	6.0
CENTURY	MSH 5.0 A	5.0

WIRING DIAGRAM
SD-1 Air Cooled



WESTINGHOUSE ON-OFF SWITH MST02Ⓑ

MOTOR MFG.	HEATER ELEMENT	TRIP CURRENT AT 90° C
G.E.	MSH 6.0 A	6.0
WHSE.	MSH 6.0 A	6.0
CENTURY	MSH5.0 A	5.0

WIRING DIAGRAM
SD-1 Water Cooled

ICE MACHINE SECTION

Service Analysis Chart

COMPLAINT	POSSIBLE CAUSE	CORRECTION
Low ice production	Loss of refrigerant Under or over-charge of refrigerant.	Check and recharge with proper amount of refrigerant.
	Drive motor weak.	Replace
	Dirty or plugged condenser	Clean condenser
	Low water level in water reservoir	Adjust to 1/2 inch below overflow standpipe.
	Overcharge of oil in system	Check at oil hole on compressor. Proper level is 1/3 full on crankcase sight glass.
	Partial restriction in capillary tube or drier.	Moisture in system. Overcharge of oil in system. Remove charge by blowing back through cap tube. Replace drier and recharge.
	Inlet water strainer partially plugged.	Remove screen and clean.
	Corroded or stained worm shaft due to water condition.	Remove worm shaft and clean, or use Scotsman Ice Machine Cleaner. See Maintenance Section.
	Slipping drive belt	Adjust belt tension or replace worn belt.
	Defective gear reducer.	Check reducer driven shaft to freezer shaft. Should rotate at 12 R P M. Replace if worn.
Machine runs but makes no ice.	Loss or undercharge of refrigerant.	Check for leaks and recharge.
	Drive motor, belts, gear reducer on drive coupling inoperative.	Gear reducer and worm turn at 12 RPM. Check. Repair or replace.
	Pulleys loose on shafts.	Tighten, repair or replace.

ICE MACHINE SECTION

Service Analysis Chart

COMPLAINT	POSSIBLE CAUSE	CORRECTION
Machine runs but makes no ice. (Cont.)	Water not entering freezing chamber.	Plugged strainer or supply line. Check and clean. Air lock in gravity feed line. Check and remove air lock.
	Moisture in system.	Check and remove charge and drier. Replace and recharge.
	Water seal leaking.	Replace seal. See section on maintenance.
	Defective manual overload switch.	Replace switch.
Water leaks.	Defective water seal.	Replace. See section on maintenance.
	Gravity feed line leaking.	Check hose clamps.
	'O' ring in spout casting leaking.	Remove spout casting and install new 'O' ring.
	Storage bin drain and connecting fittings.	Check and repair. Tighten fitting-replace 'O' ring.
	Water level in reservoir too high.	Adjust to 1/2 inch below overflow pipe.
Excessive noise or chattering.	Scale or mineral build-up on inside of freezer.	Clean with Scotsman Ice Machine Cleaner. See section on maintenance.
	Mineral deposit or scale on auger and cylinder walls.	Ice sticking and jamming inside. Clean with Scotsman Ice Machine Cleaner or remove auger and polish.
	Intermittent water supply.	Check and clean water strainer. Check gravity feed line for air lock. Remove air lock.
	Water level in reservoir too low.	Adjust to 1/2 inch below overflow pipe, or raise reservoir.
	Mis-aligned coupling or worn insert.	Repair or replace.

ICE MACHINE SECTION

Service Analysis Chart

COMPLAINT	POSSIBLE CAUSE	CORRECTION
Excessive noise or chattering. (Cont.)	Low ambient temperature.	Move to heated space 50°F. is minimum.
	Gear reducer low on oil.	Check oil level and refill to oil level plug.
	Gear reducer loose on frame.	Tighten.
	Pulleys worn or loose on shaft.	Repair or replace.
	Belt cracked or worn.	Replace belt.
	Drive motor end-play or worn bearings.	Repair or replace.
	Motor compressor not floating on springs.	Loosen hold-down bolts
Machine continues to run with full storage bin.	Storage bin thermostat not properly set or is defective.	Reset or replace. Reset to 35° cut-out 45° cut-in.

Ice Machine Section

COMPLAINT	POSSIBLE CAUSE	CORRECTION
Unit will not run.	Blown fuse in line.	Replace fuse and check for cause of blown fuse.
	Bin thermostat set too high.	Adjust thermostat. Set at 35° cut-out, 45° cut-in.
	Loose electrical connection Switch in 'OFF' position.	Check wiring. Turn switch on.
	Inoperative master switch.	Replace switch or thermal overload.
	Off on manual reset low pressure control.	Reset.
Compressor cycles intermittently.	Low voltage.	Check for overloading.
	Dirty condenser.	Clean.
	Aircirculation blocked.	Move unit to correct.
	Inoperative condenser motor.	Replace.
	Non-condensable gases in system.	Purge off.
	Bin thermostat differential too small causing short cycling.	Widen differential 35°cut-out, 45°cut-in.
	Cycling on ice chute micro switch.	Set or replace bin thermostat.
Making wet ice.	Surrounding air temperature too high.	Correct or move unit.
	Under or over-charge of refrigerant.	Recharge with proper amount. Should frost out of accumulator at least 8".
	High water level in water reservoir.	Lower to 1/2" below overflow pipe.
	Back pressure too high.	Overcharge of refrigerant, faulty compressor or high head pressure. Lower as indicated.
	Faulty compressor or valve plate.	Repair or replace.

CLEANING INSTRUCTIONS

1. Set ice machine and dispensing switch to OFF.
2. Remove all ice from storage bin.
3. Turn OFF water supply or block float. Drain reservoir by removing overflow tube (gray plastic tube) in reservoir, replace overflow tube.
4. Set ice machine switch to ON and pour cleaning solution into reservoir. DO NOT fill above overflow tube; use 6 oz. of Scotsman Cleaner and $1\frac{1}{2}$ qt. hot water.
5. Continue to make ice on solution until the solution is used up and reservoir has only about 1 inch solution remaining. DO NOT allow unit to operate with empty reservoir.
6. Set ice machine switch to OFF, remove overflow tube, wash and rinse reservoir, replace overflow tube, turn water on or remove float block.
7. Set ice machine switch to ON. Let unit run for at least 15 minutes to flush out any cleaning solution. Check ice for acid taste - run until ice tastes sweet.
8. Set ice machine switch to OFF, add hot water to ice bin, using this melt water, thoroughly wash and rinse all surfaces within the storage bin.
9. Parts removed from storage bin, splash grill etc. clean in accordance with local health department regulations.
10. Pour hot water into drip pan each day to keep drains open.
11. Clean dispensing equipment in accordance with manufacturers recommendations. This should be explained in owners manual or installation instructions provided with dispensing equipment. If cleaning instructions are not available then follow procedure below.
12. Check faucet nozzle parts, these usually snap or screw off. These parts should be cleaned and sanitized each day.
13. Dispensers having ice compartments should be cleaned and sanitized each week.
14. Syrup lines and tank should be drained and then sanitized twice each month.

MAINTENANCE INSTRUCTIONS

THE FOLLOWING MAINTENACE SHOULD BE ACCOMPLISHED TWO TIMES PER YEAR ON ALL SCOTSMAN DRINK DISPENSERS.

1. Check and clean water strainers and float valve. Depress float valve to insure full stream of water.

2. Check water level and machine level. Keep water level below overflow, but as high as possible and still not run out of spout opening with machine off. Water should come out of spout with ice at all times. Adjust as required.

3. Clean reservoir and interior of freezer assembly using SCOTSMAN Ice Machine Cleaner in accordance to instructions provided, see page 25.

NOTE: Cleaning requirements vary according to local water conditions. Visual inspection of the auger and reservoir before and after cleaning will indicate how often the machine must be cleaned in local areas.

4. Check high and low side pressures. On water cooled models, set pressure at 135 p s i . Suction pressure should be above 12 p s i and will range up to 16 p s i depending upon water and ambient temperatures.

5. Set hand reset low pressure control to cut off in event of water supply interruption or low ambient temperature at approximately 5 p s i.

6. Change oil in gear reducer. Use Mobil 600W or equivalent good grade of gear oil with a viscosity of 125 to 190. For unit with grease fittings use Mobilgrease BRB No. 1 or any good grade ball bearing grease. Particularly important when there is eveidence that water has gotten into gear housing. Remove gear reducer to facilitate.

7. Oil drive motor and pump motor , use SAE 10 oil.

8. Check top bearing of freezing tube. If moisture is around bearing, wipe up and remove grease. Add new grease. Use Beacon No. 325. or equivalent waterproof grease.

9. Check and adjust belt tension.

10. Clean air cooled condenser. Inform customer to clean frequently. Always shut off machine when cleaning.

11. Oil condenser fan motor when possible.

12. Check for refrigerant leaks and proper frost line. Should frost out of accumulator approximately one-half way to compressor.

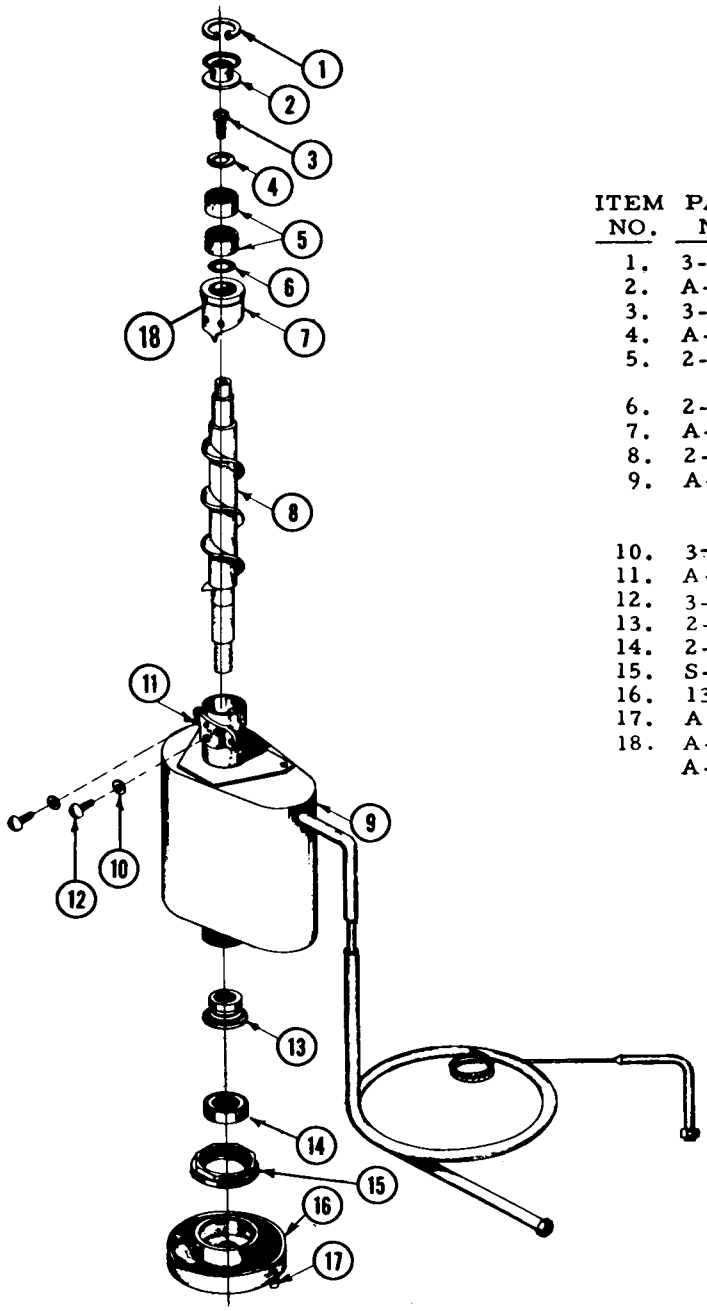
13. Check for water leaks. Tighten drain line connections. Run water down bin drain line to make sure it is open.

14. Check quality of ice. Ice should be wet when formed, but will cure rapidly to normal hardness in the bin.

15. Check thermostat and pressure plate cut off. Micro switch cuts off only compressor. Bin thermostat should be set at 10° differential and should keep entire machine off at least twenty minutes in high ambients (longer in low) during normal operation.

SD-1H FREEZER

Part No. A-14886-1

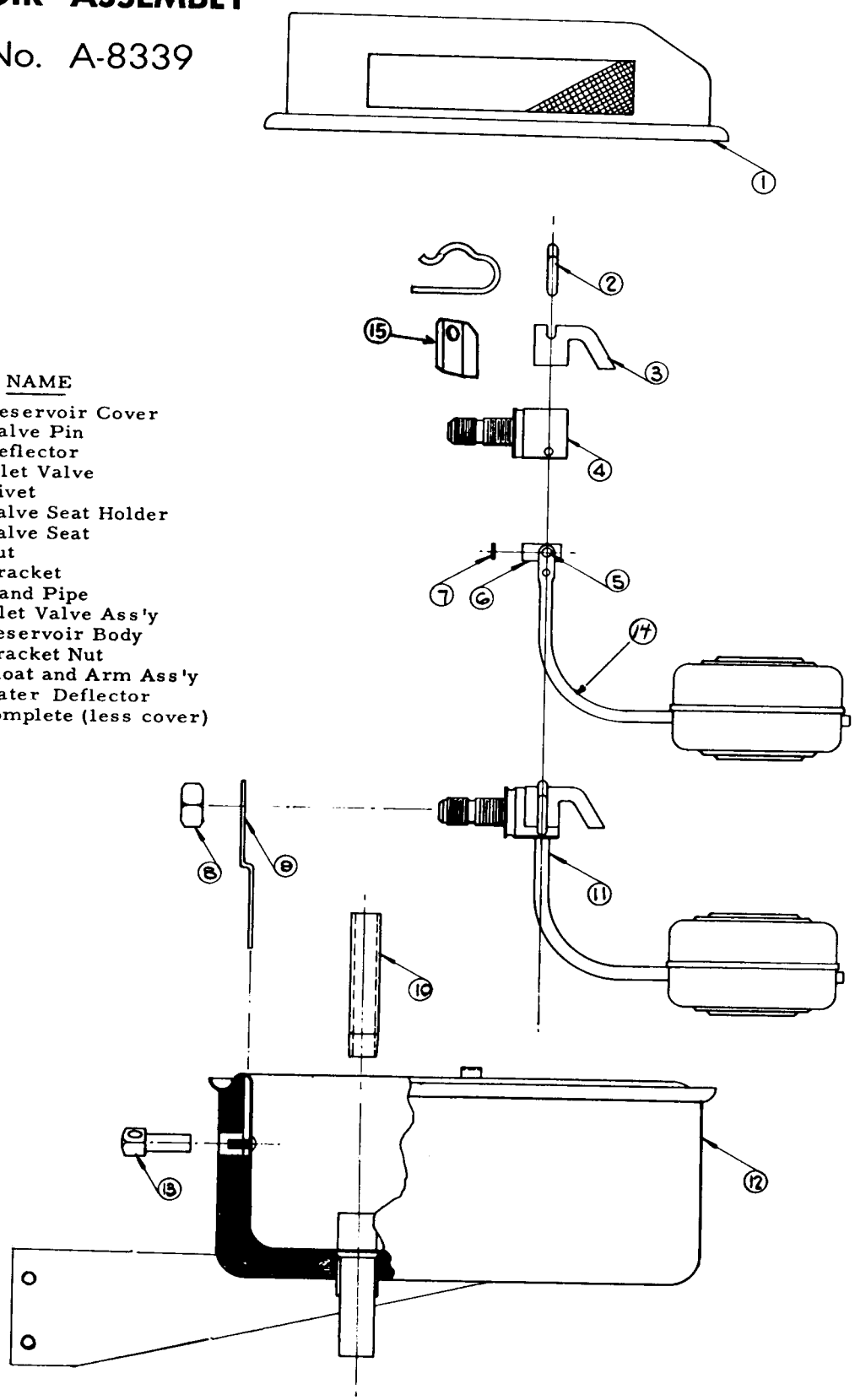


ITEM NO.	PART NO.	NAME
1.	3-553	Snap Ring
2.	A-7701	Worm Shaft Cap
3.	3-758	Cap Screw
4.	A-7699	Worm Tube Washer
5.	2-1412	Bearing (matched set two)
6.	2-386	'O' Ring
7.	A-14591	Ice Breaker
8.	2-1413	Worm Shaft
9.	A-7826	Worm Tube, Accumulator, Suction, & Cap Tube Assembly
10.	3-679	Washer (2 reqd.)
11.	A-18430	Casting (spout)
12.	3-732	Bolt (2 reqd.)
13.	2-1300	Water Seal
14.	2-417	Lower Bearing
15.	S-8817	Worm Tube Nut
16.	13-213	Rubber Drip Pan
17.	A-8002	Drain Tube (copper)
18.	A-14678	Breaker & Bearing Ass
	A-14886-1	Freezer Complete

SD-1H
RESERVOIR ASSEMBLY

Part No. A-8339

ITEM NO.	PART NO.	NAME
1.	A-16012	Reservoir Cover
2.	2-1259	Valve Pin
3.	2-1320	Deflector
4.	S-8770	Inlet Valve
5.	3-1001	Rivet
6.	A-5777	Valve Seat Holder
7.	S-6947	Valve Seat
8.	S-7044	Nut
9.	A-12869	Bracket
10.	S-6715	Stand Pipe
11.	S-8138	Inlet Valve Ass'y
12.	A-13409	Reservoir Body
13.	A-8055	Bracket Nut
14.	A-12067	Float and Arm Ass'y
15.	A-18418	Water Deflector
	A-8339	Complete (less cover)

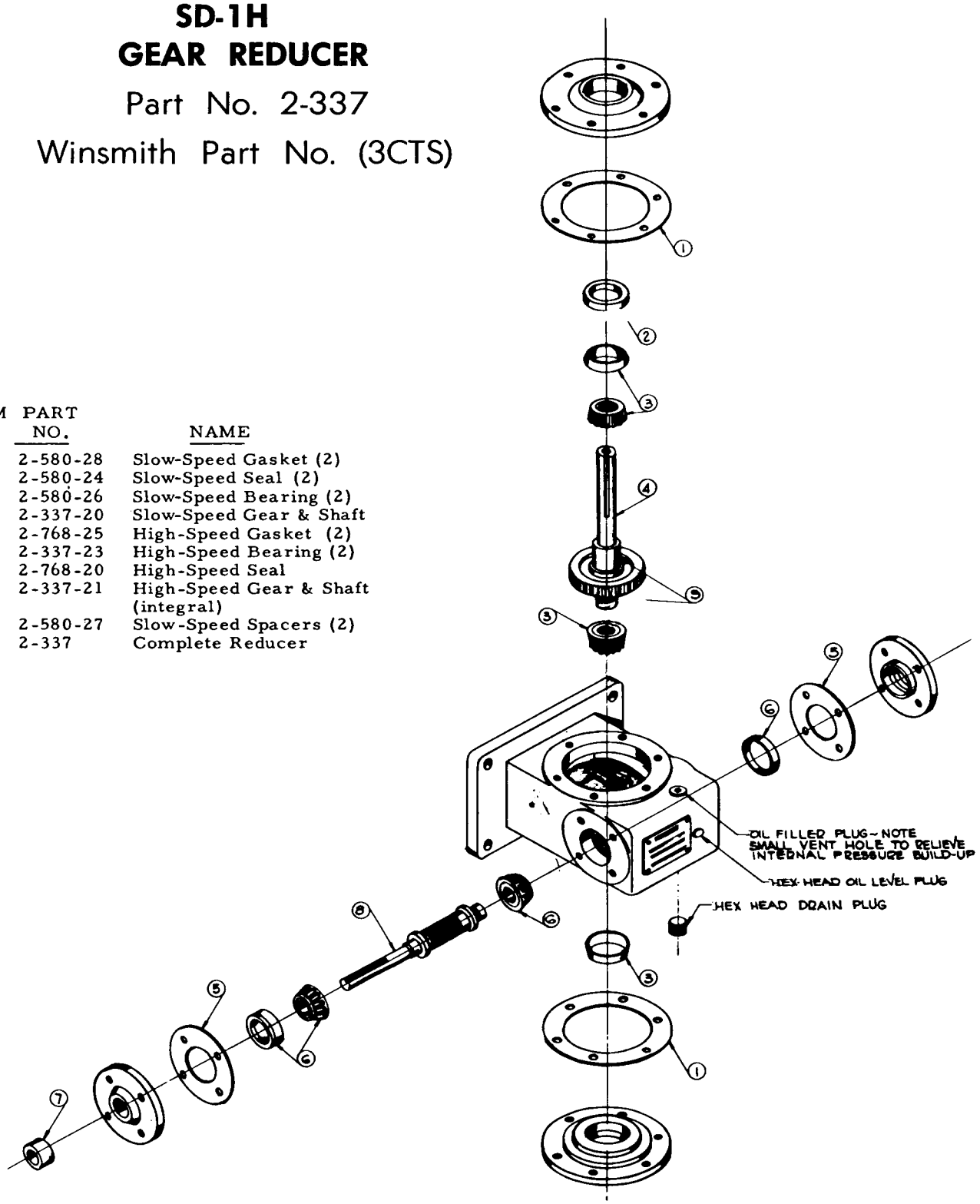


SD-1H
GEAR REDUCER

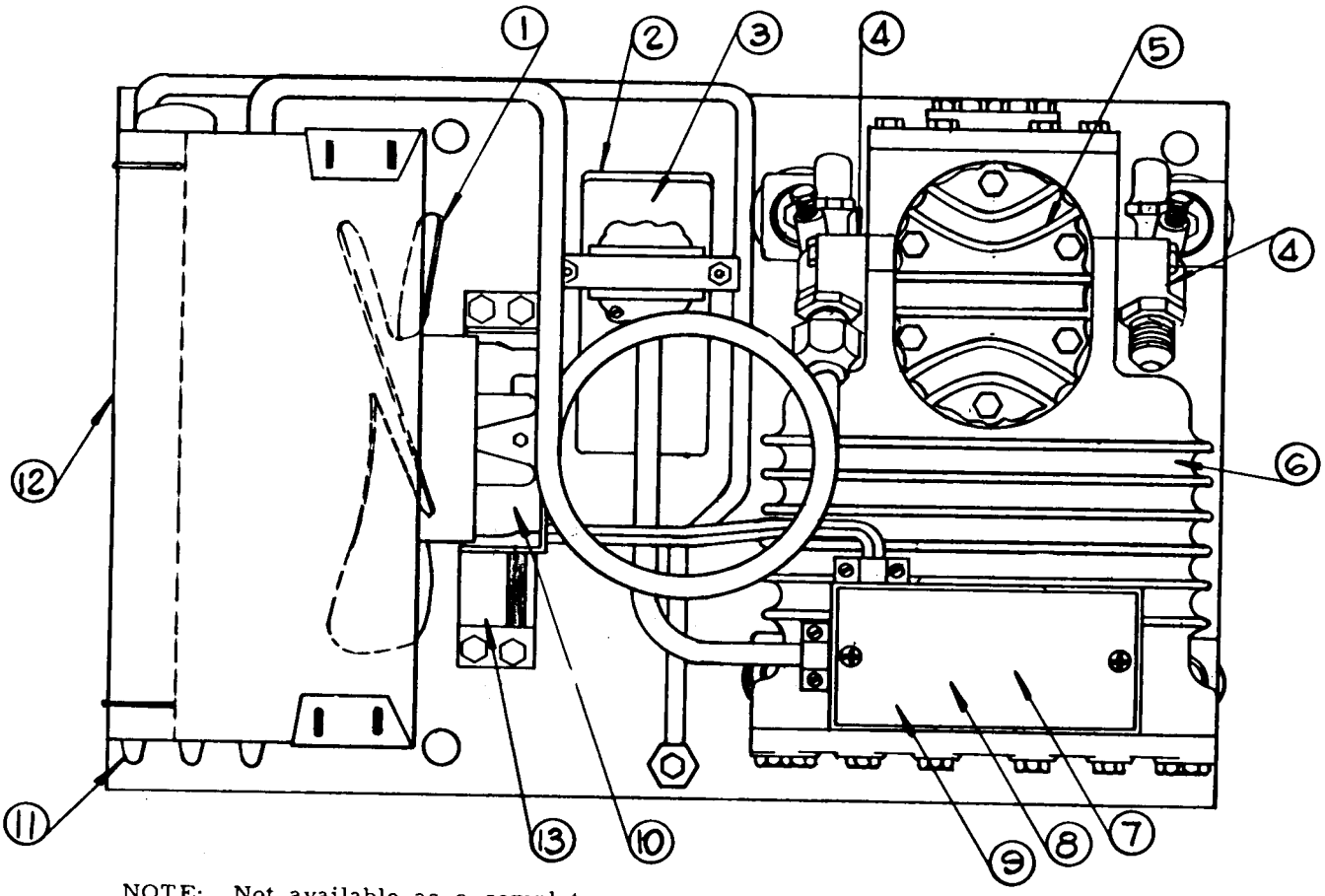
Part No. 2-337

Winsmith Part No. (3CTS)

ITEM NO.	PART NO.	NAME
1.	2-580-28	Slow-Speed Gasket (2)
2.	2-580-24	Slow-Speed Seal (2)
3.	2-580-26	Slow-Speed Bearing (2)
4.	2-337-20	Slow-Speed Gear & Shaft
5.	2-768-25	High-Speed Gasket (2)
6.	2-337-23	High-Speed Bearing (2)
7.	2-768-20	High-Speed Seal
8.	2-337-21	High-Speed Gear & Shaft (integral)
9.	2-580-27	Slow-Speed Spacers (2)
	2-337	Complete Reducer



SD-1 H
CONDENSING UNIT
⅓ HP Air Cooled, Copeland



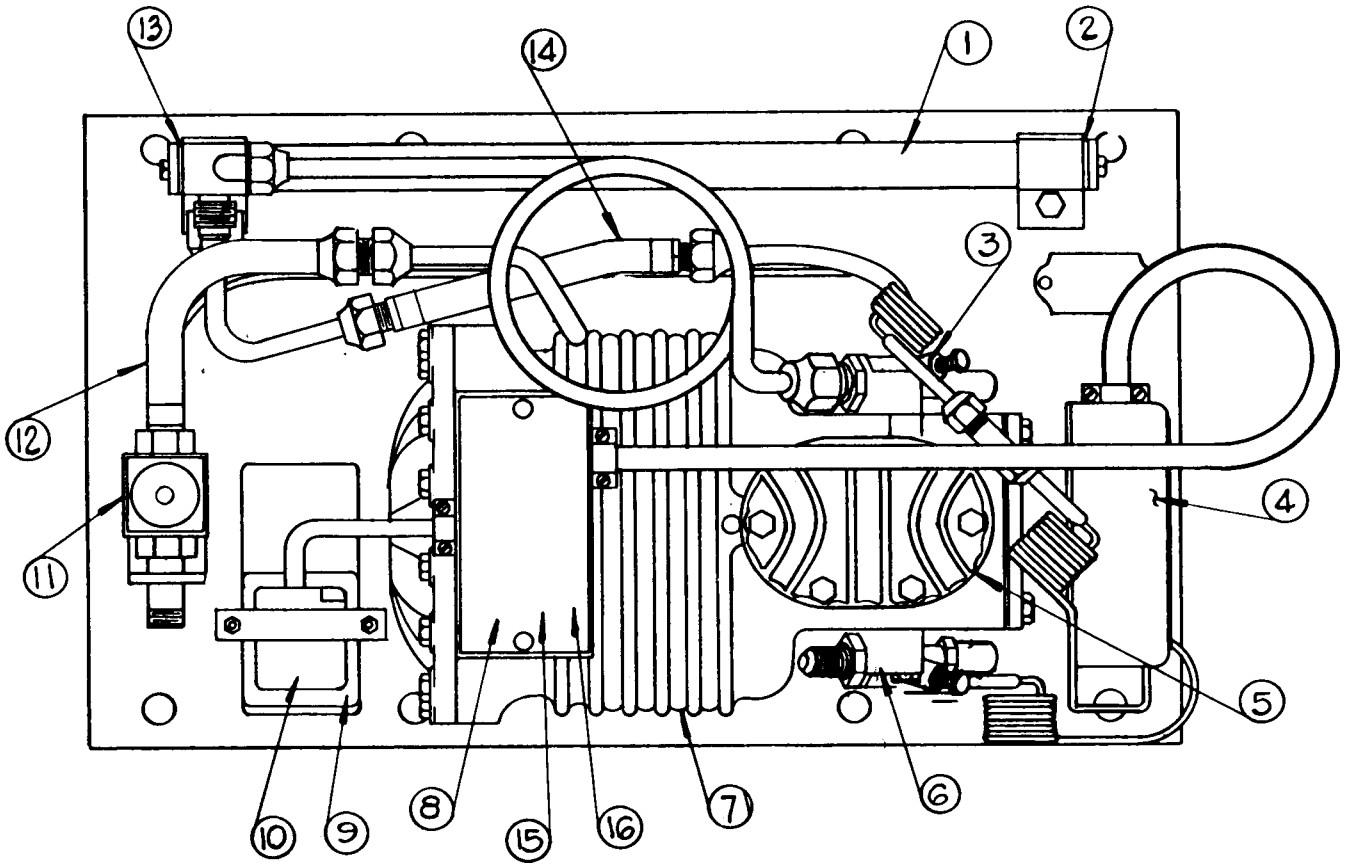
NOTE: Not available as a complete mounted assembly.

ITEM NO.	PART NO.	NAME
1.	18-231	Fan Blade
2.	18-1901-4	Starting Capacitor
3.	18-1903-4	Relay
4.	18-237	Suction & Discharge Service Valves
5.	18-222	Valve Plate & Gasket Kt Kit Assembly (*)
6.	18-221	Motor Compressor 115/60/1 AC
7.	18-240	Overload Klixon
8.	18-241	Terminal Ass'y) (*)
9.	18-270	Terminal Board (*)
10.	18-150-1	Fan Motor
11.	18-234	Condenser
12.	A-12109	Shroud
13.	18-422	Fan Motor Bracket

(*) Not Shown

NOTE: Old Style
18-228 Starting Capacitor
18-227 Relay

SD-1 H
CONDENSING UNIT
⅓ HP Water Cooled, Copeland



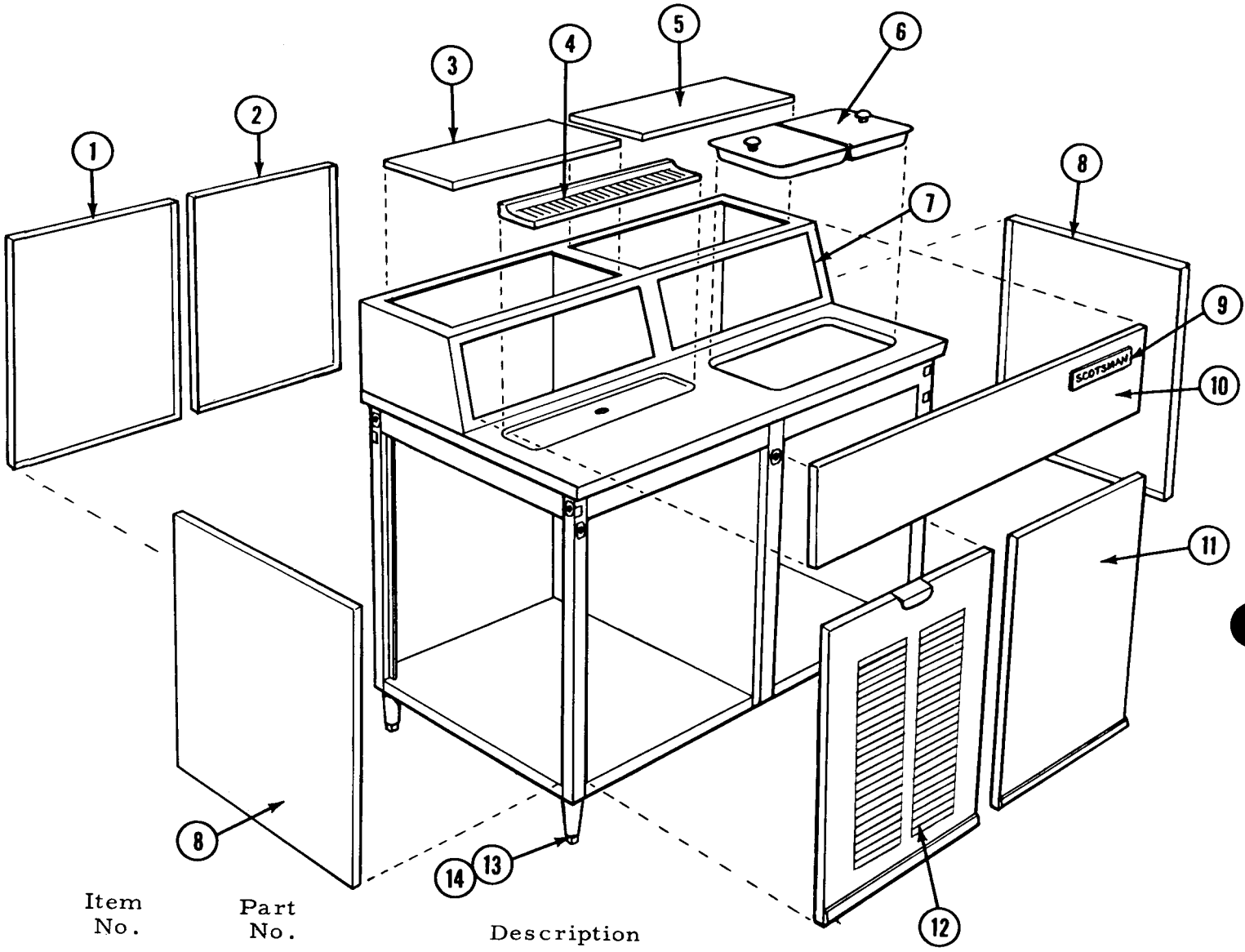
NOTE: Not available as a complete mounted assembly.

ITEM NO.	PART NO.	NAME
1.	18-259	Condenser
2.	18-262	Plain Gasket
3.	18-237	Discharge Service Valve
4.	11-286-1	High-Pressure Control
5.	18-222	Valve Plate & Gasket Kit Assembly (*)
6.	18-237	Suction Service Valve
7.	18-257	Motor Compressor 115/60/1 WC
8.	18-240	Klixon (overload) (*)
9.	18-1901-4	Starting Capacitor
10.	18-1903-4	Relay
11.	11-198	Water Valve
12.	18-260	Compressor to Valve Water Hose
13.	18-263	Manifold Gasket
14.	18-261	Compressor to Condenser Water Hose
15.	18-270	Terminal Board (*)
16.	18-241	Terminal Ass'y

(*) Not Shown

NOTE: Old Style
18-228 Starting Capacitor
18-227 Relay

CABINET PANELS
SD-1H MODELS



Item No.	Part No.	Description
1.	A-17754	Rear Service Door
2.	A-17753	Rear Panel - Case Panel
3.	A-17829	Left Top Panel- Hood
4.	2-1553	Drip Grille
5.	A-17812	Right Top Panel -Hood
6.	2-1550	Ice Bin Door
7.	A-17616	Hood Assembly
8.	A-17749	Right Left-Panel-Case
9.	15-156-1	Scotsman Emblem
10.	A-17608	Front Panel - Hood
11.	A-17766	Front Panel - Case
12.	A-17615	Front Service Door
13.	A-15803-1	Leg
14.	8-522-1	Leg Leveler for A-15803-1

Stainless Steel Models

To order items, 1-2-8-11-12 in stainless steel, add a dash (-1) one to above part numbers.

CARBONATION

"THE LIFE OF THE DRINK"

No other single element in the Bottling Industry occupies the unique position of Carbonic gas. It is the foundation on which the industry has been built. The Sparkle of lively bubbles which attract the eye and enhance the taste is called "carbonation."

This important element is too often taken for granted. It deserves greater attention--proper and uniform carbonation is as important a taste element in bottled beverages as the flavors themselves.

The information and suggestions on the next few pages are offered to encourage more exact control for obtaining greater uniformity in carbonation.

SOME FACTS ABOUT CO_2

Carbonic Anhydride, Carbonic Gas, or Carbon Dioxide, as it is variously termed, has the chemical symbol CO_2. It is under normal conditions a colorless, odorless gas, one and one-half times heavier than air. Chemically it is the combustion product of the element Carbon. It occurs in nature as the result of all types of combustion.

Carbonated Water has been found in natural springs in many parts of the world. Such springs have been known for centuries and have been highly regarded for beverage purposes.

Many of the desirable characteristics of carbonated beverages are due to the carbonic gas contained in them. It is therefore most important to determine the proper amount of carbonation such beverages should contain and having done that to provide the necessary control to insure uniformity of the product in this respect at all times.

–PROPERTIES–

Color	None
Odor	Pungent
Latent Heat	120 BTU/lb. at 0°F.
Critical Pressure	1,055 LBS. sq. in.
Critical Temperature	87.8°F.
Pressure in drums at 70°	839 lbs. sq. in.
1 lb. CO_2	8.50 Cu. ft. at atmospheric pressure and 50°F.
Solid CO_2 (Dry Ice)	110°F.

THE HISTORY OF CARBON DIOXIDE

Carbon dioxide has the distinction of being the first gas discovered. In the early part of the seventeenth century, Von Helmont, a Belgian, prepared it by burning wood and by treating mineral carbonates with acid. Black later discovered that carbon dioxide can combine with caustic alkalis and suggested the name "Fixed Air." It was not until 1781 that its real nature was demonstrated by Lavoisier--"Father of modern Chemistry."

The gas was first obtained in a liquid form by Faraday in 1834. But, of course, these were only laboratory scale experiments. It is claimed that a Prof. Venee of Montpelier, France, made the first soda water in 1750 by mixing a little soda and acid in a bottle of water. This is the orgin, no doubt, of the name "soda water."

The History of Carbon Dioxide

Joseph Priestly, another famous chemist, also made several artificially carbonated waters and in 1772 published a pamphlet entitled "Directions for Impregnating water with Fixed Air in Order to Communicate to it the Peculiar Spirit and Virtues of Pyrmont Water.

This was the beginning of great interest in the manufacture of artificial mineral waters. In England, after Priestly had shown the way, ginger beer came into popularity and later carbonated beverages made with sweet syrups as we know them today.

In America, Philadelphia claims the honor of having the first "soda water" manufacturer. Be that as it may, we find that by the middle of the 19th century, as the demand for CO_2 increased, many investigators were busy devising better and cheaper methods of preparing the gas for beverage purposes. While some of the gas then used was obtained from breweries, much was also obtained from the action of sulphuric acid (vitriol) on marble chips, or carbonate of soda.

Nearly every soft drink manufacturer had his own gas generating outfit and incorporated CO_2 into his beverages by agitation within closed vessels. Needless to say, aside from the cost involved, these operations were not only inefficient, but dangerous to a high degree.

In 1888 Jacob Baur, the founder of the liquid Corporation, conceived the idea of producing carbonic gas for coke gas, compressing it to a liquid state and marketing it in steel cylinders.

In May of 1889, the first cylinder of Red Diamond Gas was shipped from Liquid's first plant at 437 Illinois Street, Chicago. The company was then known as "The Liquid Carbonic Acid Manufacturing Company."

The convenience and economy of Carbonic Gas in cylinders was recognized by the industry and soon replaced the use of generator gas entirely.

CARBONATION AND THE FACTORS WHICH GOVERN IT

Carbonated water is largely a mechanical mixture of CO_2 and water and the term "carbonated water" is usually understood to mean water that contains gas to its capacity.

This capacity varies with pressure and temperature. The amount of gas water will absorb increases directly with the pressure. The amount of gas water will absorb also increases as the temperature decreases.

Therefore, any measure of the actual gas content of carbonated water will depend on the two factors--pressure and temperature.

The unit of measure that has been adopted as standard is "the volume."

One volume is the amount of gas that water will absorb at atmospheric pressure and at 60° Fahrenheit.

A volume of gas occupies the same space as does the water by which it is absorbed.

The pressure gauge on the carbonator or on the regulator or on the volume testing apparatus, does not show atmospheric pressure. This means that zero on the gauge is atmospheric pressure which is approximately fifteen pounds per square inch at sea level.

EFFECT OF TEMPERATURE 1

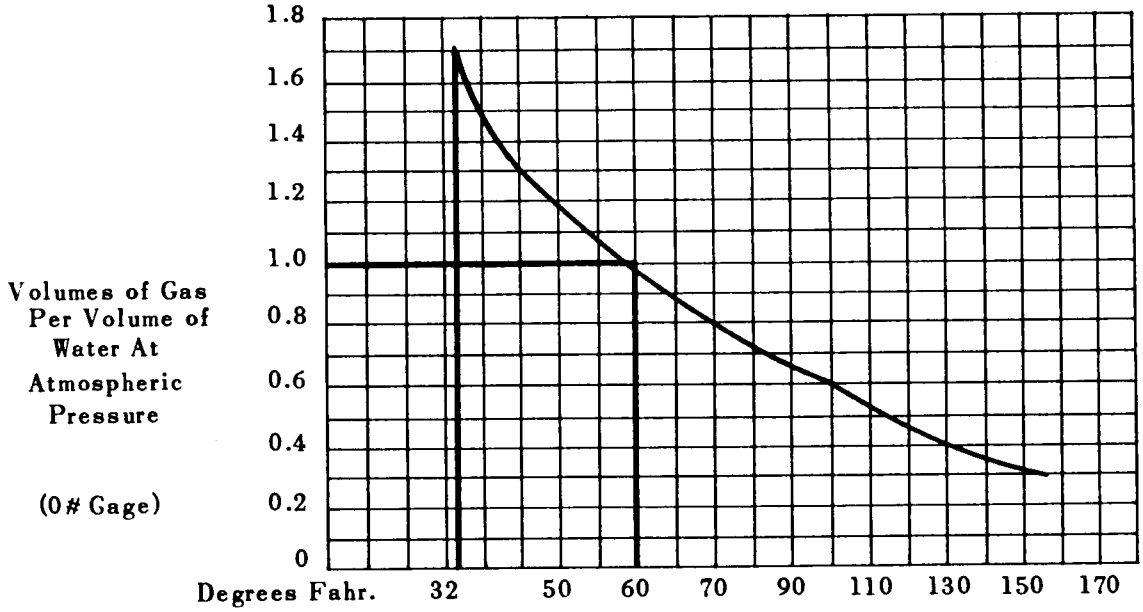
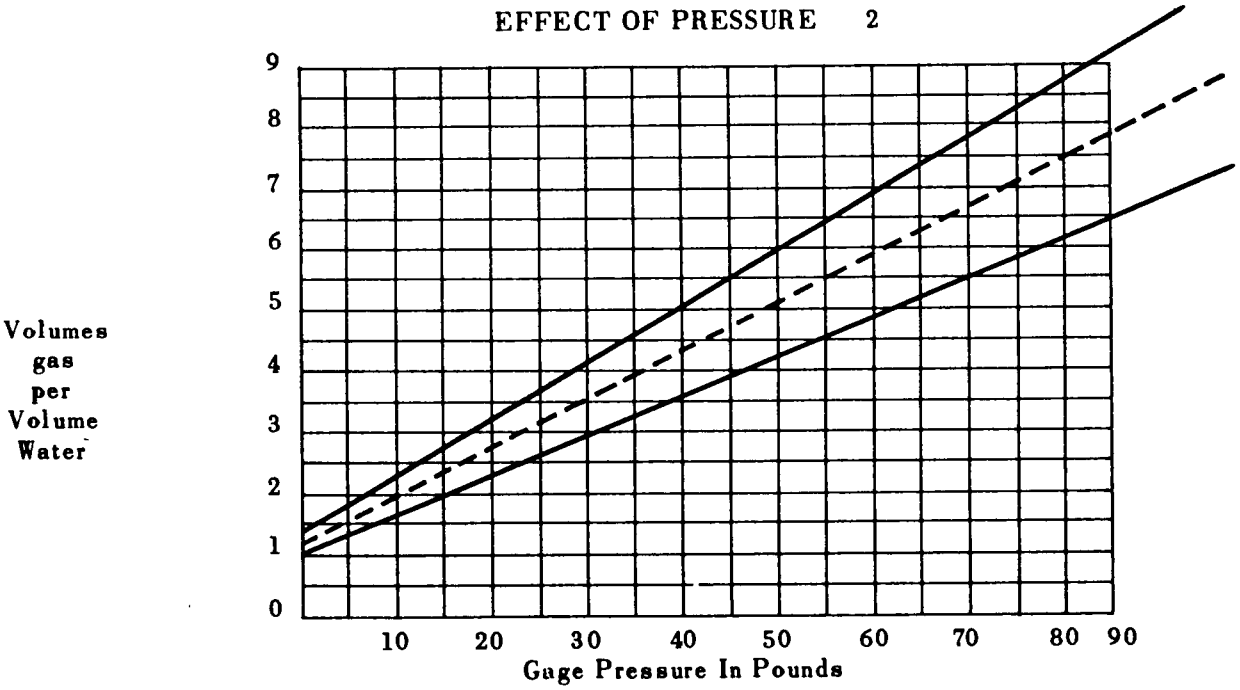


Chart No. 1 shows the effect of temperature change on the amount of gas water will absorb.

The pressure you will note, is constant--namely, atmospheric or 0 lbs. gauge. As the temperature of the water is lowered, the amount of gas it will absorb increases, until at 60°F. it is one volume. Note that from 60° to 150° the slope of the curve changes gradually, from 60° to 32° F., however, the curve changes more abruptly, and for each 10° difference in temperature, a decided increase in gas absorption is apparent, until at 32°, or slightly above the freezing point, we find that 1.7 volumes of gas is absorbed by the water at atmospheric pressure. From this curve it will be apparent that the cooler the water is, the more gas it will absorb.

EFFECT OF PRESSURE 2



EFFECT OF PRESSURE

Chart No. 2 shows the effect of increasing pressures, temperature being constant, on the amount of gas water will absorb. You will note that the chart is a straight line, of the same slope throughout, indicating that as the pressure is increased, the gas volumes increase. Furthermore, the "gas volume" increase is directly proportional to the pressure. To illustrate--at 0 lbs. gauge and 60°F. we find that the water will absorb one volume of gas, at 15 lbs. increase in pressure, water at 60° will absorb one additional volume of gas. If the temperature of the water is 45°, then, for every 15 lbs. increase in pressure, the water will absorb 1.3 volumes of gas.

FOR A UNIFORM BEVERAGE
Control Carbonation

Carbonation is an important taste ingredient of your beverage. One of the vital attributes of any beverage is uniform taste--bottle after bottle. There are four elements that influence the taste of a beverage.--

1. FLAVOR 2. SWEETNESS 3. CARBONATION 4. TEMPERATURE

All but the final temperature of your drink are susceptible to direct control at your plant. Flavor and sweetness standards should be and probably are definitely established by means of exact formulas.

Carbonation standards should also be established for each flavor in your line--Sparkling water, ginger ales, and other "mixers" should be in the "high carbonation" bracket--the highest carbonation practically obtainable is the ideal to be sought for.

Cola drinks, root beer and other low acid drinks are in the next bracket usually carbonated to 3 or 3½ volumes--

Some bottlers prefer fruit drinks, especially Orange--at a lower carbonation. Determine a standard of carbonation for each flavor that you consider best for your market.

Set up definite instructions for maintaining these standards, just as you maintain standard formulas for the sugar flavor, acid and other ingredients.

FLAVOR	CARBONATION STANDARD
Root Beer	3½ Volumes

Having determined the carbonation standards, it is important that all concerned know how to control the factors that will enable you to maintain them.

HOW TO PRODUCE UNIFORM BEVERAGES

Bottlers know the importance of developing the proper formula for a beverage. They fully realize that for any bottled beverage to achieve popular favor, it must be right--in flavor, in taste, and in gas content.

How To Produce Uniform Beverages

The development of the proper formula for a beverage is, of course, an essential step in establishing that beverage in popular favor. To keep its popularity, the beverage must be the same from day to day and month to month. The formula must be followed exactly and the beverage produced in just the same manner. This means that perfect control of variable factors is necessary to assure uniformity.

The number of volumes of gas in a finished beverage has a definite relationship to the taste of the beverage. Correct carbonation means a sparkling, pungent, thirst-quenching beverage that completely satisfies the consumer. Low carbonation leaves the beverage with a flat, insipid taste which is unsatisfactory. Finished beverages should be checked at frequent intervals to assure proper carbonation in the bottle.

The amount of sugar in a beverage determines, with a given acid content, its sweetness. The sugar also has another important function in the beverage. Sugar makes the "body" of the beverage and "body" is a necessary background for any flavor. A change in the body changes the taste of the beverage even though the same flavor is used. High quality extracts are, of course, a necessity.

Control of sugar content of the beverage is very important. It depends on the beaume of syrup used and the throw used. Variation in syrup density changes the finished beverage if the throw remains the same. Variation in the throw will also change the beverage if the syrup density is unchanged. By checking the beaume of the finished beverage a control is established where it does the most good.

Uniform finished beveraged can be made only by positive control over such variable factors in beverage production.

Check the density of your syrup with a beaume scale.

Check the actual throw in the bottle by measuring individual sample bottles.

Check the final result by using the finished drink tester on the completed beverage.

Check the carbonation in the finished beverage.

KNOW YOUR WATER

Water that is satisfactory for drinking purposes is generally satisfactory for carbonating. There are very few exceptions to this rule.

The water used for carbonating must be clean. That means free from suspended matter of all kinds including water organisms which may be too small to see except under a microscope.

All water should be properly filtered and it is advisable to use an activated carbon unit after the filter. The ideal set up is to follow the activated carbon unit with a paper filter. This will prevent particles of the carbon coming through with the water.

Chemical composition of the water does not affect carbonation within the limits of potable water. If enough material were in solution to interfere with carbonation, it would not be possible to use the water for drinking purposes.

Organic matter in solution can cause trouble if present in excessive quantities but this trouble is removed by activated carbon.

Know Your Water

It may be necessary to treat water chemically in some cases. Hardness can be removed by chemical treatment and that is sometimes advisable to prevent scale formation on machinery, particularly on soaker parts. Alkalinity can be reduced by chemical treatment and that is advisable if the alkalinity is high enough to affect the taste of the water or if it is sufficient to neutralize too much of the acid in the beverage. If objectionable material is present in the raw water, that may require chemical treatment.

Such treatment, properly handled, does not affect carbonation and it does not change the necessity for proper filtration. Chemical treatment should be followed by filtration.

FOES OF CARBONATION AND HOW TO COMBAT THEM

AIR

Too much air in the water interferes with proper carbonation and also causes the CO_2 gas to leave the water more quickly when the bottle of finished beverage is opened. It is therefore important to to reduce the amount of air present to the minimum.

Some air is present in the raw water supply. More may be added in the mechanical handling of the water. When such water reaches the carbonator, the CO_2 gas tends to drive it out of the water. If steps are not taken to remove it, this air will accumulate in the carbonator and much of it will be carried through in the water and into the finished beverage. That is why all liquid carbonators have an automatic air snift.

CARBONATOR SECTION

HOW IT WORKS

Most of the cold drinks served at a soda fountain are carbonated. Therefore, nothing is more important to the successful operation of a fountain than cold, properly carbonated water to make drinks sparkling, full flavored and fully satisfying in quality.

Water is carbonated by combining it with carbonic acid gas (CO_2) . This is done in a sealed chamber by forcing gas from a drum through a pressure regulating valve into the water in this chamber. As the carbonated water is used from this chamber, it is replaced by a high pressure water pump. The operation of this pump is controlled by an automatic switch device which senses the water level.

Two conditions must be maintained in order to induce and hold carbonic gas in water, They are:

1. Pressure
2. Adequate refrigeration or cooling.

In the SCOTSMAN DISPENSER, pressure is supplied by the gas drum and is present throughout the system to the carbonator tank and keeps the water carbonated. Without adequate cooling, however, carbonation escapes rapidly after the water leaves the tank. Soft drinks should be dispensed at 40°F. or below. The colder the water the greater the carbonation. Cooling with ice a temperature of 32°F. can be reached and held without danger of freezing as is true with mechanical refrigeration systems. Thus, less CO_2 is used to achieve the same degree of carbonation in a drink.

THE GAS DRUM-Source of carbonation

Drums for carbonic acid gas are made of drawn steel tubing and are built to withstand great pressure. As delivered, they contain liquid gas reduced to liquid form by tremendous compression.

Each one is equipped with a safety valve set to blow out before internal pressure can explode the drum itself. Once this valve "pops off", the contents of a drum will escape. Drums, therefore, should always be stored in a cool place to keep the liquid from expanding and increasing pressure inside the gas drum.

Drums are classified by weight. They come, as a rule, in two sizes: 20-lb. drums and 50-lb drums. These weights refer to the compressed liquid contents and are in addition to the tare weight usually indicated on the head of each drum.

CARBONATOR SECTION

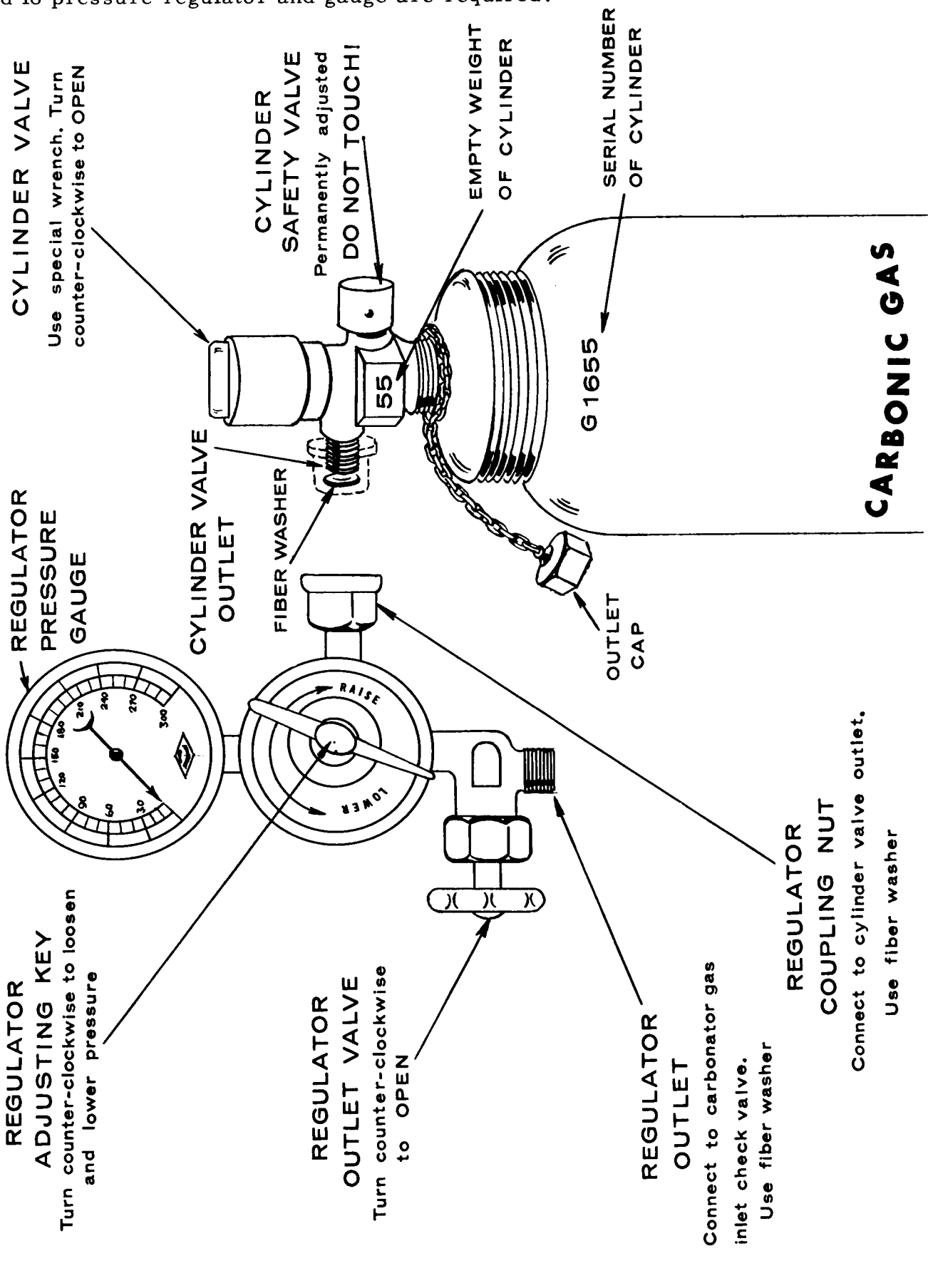
HOW TO CHANGE A GAS DRUM - NEXT PAGE - SINGLE REGULATOR IS SHOWN

1. Close drum head valve (A) (clockwise).
2. Close regulator outlet valve (B) (clockwise).
3. Disconnect regulator from drum by removing regulator coupling nut (C). Gauge should drop to "0".
4. If gauge does not drop to "0", turn regulator key (D) clockwise to allow all gas to escape from the body of the regulator through the main connection.
5. Turn regulator key (D) counter-clockwise until it is free and loose and regulator is closed.
6. Put full drum in place of one being replaced. Couple regulator coupling nut (C) to new gas drum, first making certain that there is a good fiber washer at the connection.
7. Open drum head valve (A) all the way, turning it as far as it will go to bring packing up tight against the shoulder of the valve stem.
8. Turn regulator key (D) clockwise slowly until standard operating pressure, as indicated on the gauge, is reached. Unless you have a low pressure carbonator the standard operating pressure is 100 lbs., depending on the manufacturer's recommendation.
9. Open regulator outlet valve (B) slowly and release gas to carbonator. As pressure equalizes, open this valve all the way.

WASHERS: In gas connections and lines under high pressure, use fiber washers only. In lines carrying liquids or subject to relatively low pressures, rubber or leather washers should be used.

Keep gas turned on at all times to insure uniform well-carbonated water.

Shown is single stage regulator with gauge as used on gravity type drink dispenser heads. For pressure type dispensing heads a two stage or hi and lo pressure regulator and gauge are required.



CARBONATOR SECTION

Make sure that the regulator coupling nut and regulator valve coupling are tight and that both contain a good fiber washer.

Make sure that the water back-pressure check valve is functioning properly.

Sometimes it is difficult to detect a leak in the regulator gauge. In checking here apply the lather generously, and watch closely.

If a leak occurs near either end of a hose, cut off the defective end and refasten hose with clamps. Otherwise, replace hose.

OPERATION-Gravity type dispensing heads.

Turn on CO_2 gas and adjust regulator to 100 lbs. pressure, open soda water faucet for one-half minute to blow all air out of carbonator. Close faucet, turn on water supply and turn on power supply to pump motor. When pump stops, open faucet again until full stream of water is obtained. Draw several glasses of water and note pump operation. Pump will operate after approximately 14 ounces of carbonated water have been drawn.

The carbonator will operate satisfactorily on CO_2 pressures from 80 to 120 pounds. set regulator at 80 lbs. for maximum gas economy or adjust to suit requirements of the faucet used.

OPERATION-Pressure type dispensing heads, kits.

Pressure types dispensing systems require both hi and lo pressure gauges as well as syrup tanks etc.
Hi pressure CO_2 gauge feeds carbonator, lo pressure gauge feeds pressure to syrup tanks, forcing syrup thru lines to dispensing heads. Normal pressure setting is 30# gauge.
See accompanying sketch for details.
The system is completely automatic in operation, and requires no attention except maintaining CO_2 supply, and periodic servicing of water supply line filter.

IMPORTANT: Insufficient water supply will cause noisy operation and eventual damage to pump. If strainer and filter are clear and line valves open, noisy pump operation indicates insufficient water supply.

WARNING: If the installation is idle and exposed to freezing temperatures, disconnect water supply line and blow all water out of carbonation system.

CARBONATOR SECTION

THE REGULATOR GAUGE--ACCESSORY ITEM, NOT INCLUDED WITH DISPENSER

The regulator in the carbonating system is mounted at the outlet of the gas drum. The regulator reduces and controls the pressure of carbonic acid gas before it enters the carbonator . The regulator gauge indicates gas pressure at the regulator outlet valve.

TESTING REGULAR GAUGE - SEE ILLUSTRATION ON FOLLOWING PAGES

The regulator gauge should be tested every time a gas drum is changed and at least once every 60 to 90 days. Follow this procedure:

1. Close the drum head valve (clockwise).
2. Close the regulator outlet valve (clockwise).
3. Loosen the regulator coupling nut.
4. Turn regulator adjusting key clockwise until gas pressure in regulator is released and the needle on the regulator gauge drops to "0". Turn this adjusting key counter-clockwise until it is loose and free.
5. Tighten regulator coupling nut and open drum head valve slowly. (The regulator outlet valve remains closed.)
6. Check the reading of the needle on the gauge. If it remains at "0", the regulator is in good condition. If the needle rises but does not register more than 15 pounds pressure, the regulator is working satisfactorily within acceptable limits. If the needle creeps to 30 pounds pressure or more, the regulator needs immediate repair.

HOW TO FIND AND STOP GAS LEAKS

Whenever a fresh drum of CO_2 gas is connected to the carbonating system, open the drum valve until the regulator gauge reaches maximum pressure (approximately 120 to 125 lbs.) and then close drum valve.

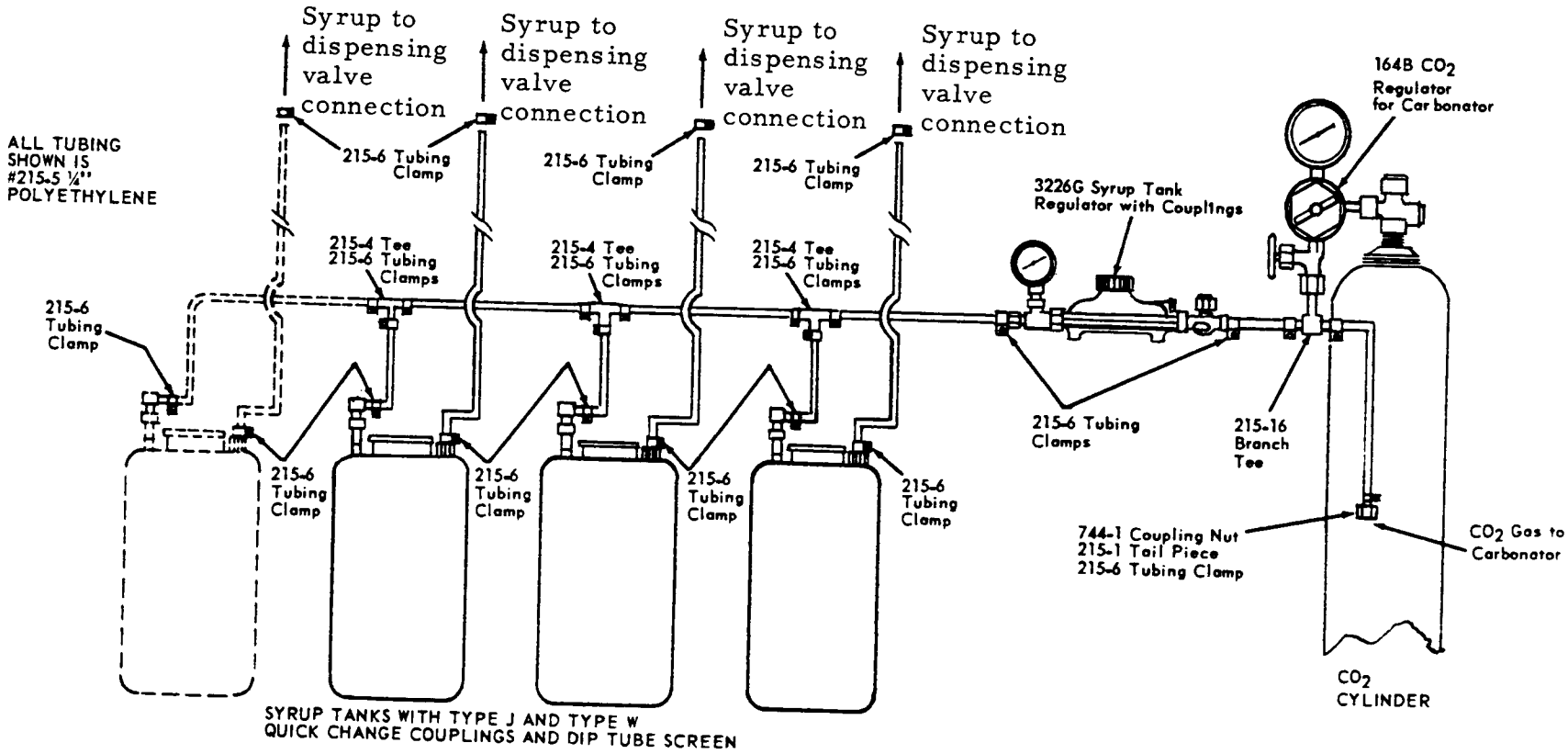
If the needle of the gauge on the regulator continues to drop, there is a leak in the system. Due to some absorption of gas in the water in the carbonator, the needle may drop a few pounds, but it should then come to a stop if there is no leak.

If a leak is found by this method, proceed to locate it as follows:

You can test the carbonation system for gas leaks by applying shaving soap lather with a shaving brush to all joints, connections, and valves. If there is a leak, bubbles will appear.

If gas is escaping at the stem of the drum head valve, open valve all the way. Usually this closes a leak through the packing around valve stem. Also tighten packing nut to keep gas from escaping through packing.

DIAGRAM OF PARTS AND ACCESSORIES FOR INSTALLING SYRUP TANKS ON MODEL SD-1 H COMBINATION ICE MAKER AND DISPENSER



Typical layout for use on pressure type dispensing heads - kits -

Source: Excellall Products Div.
Bastian Blessing Co.
4201 W. Peterson Ave.,
Chicago, Illinois

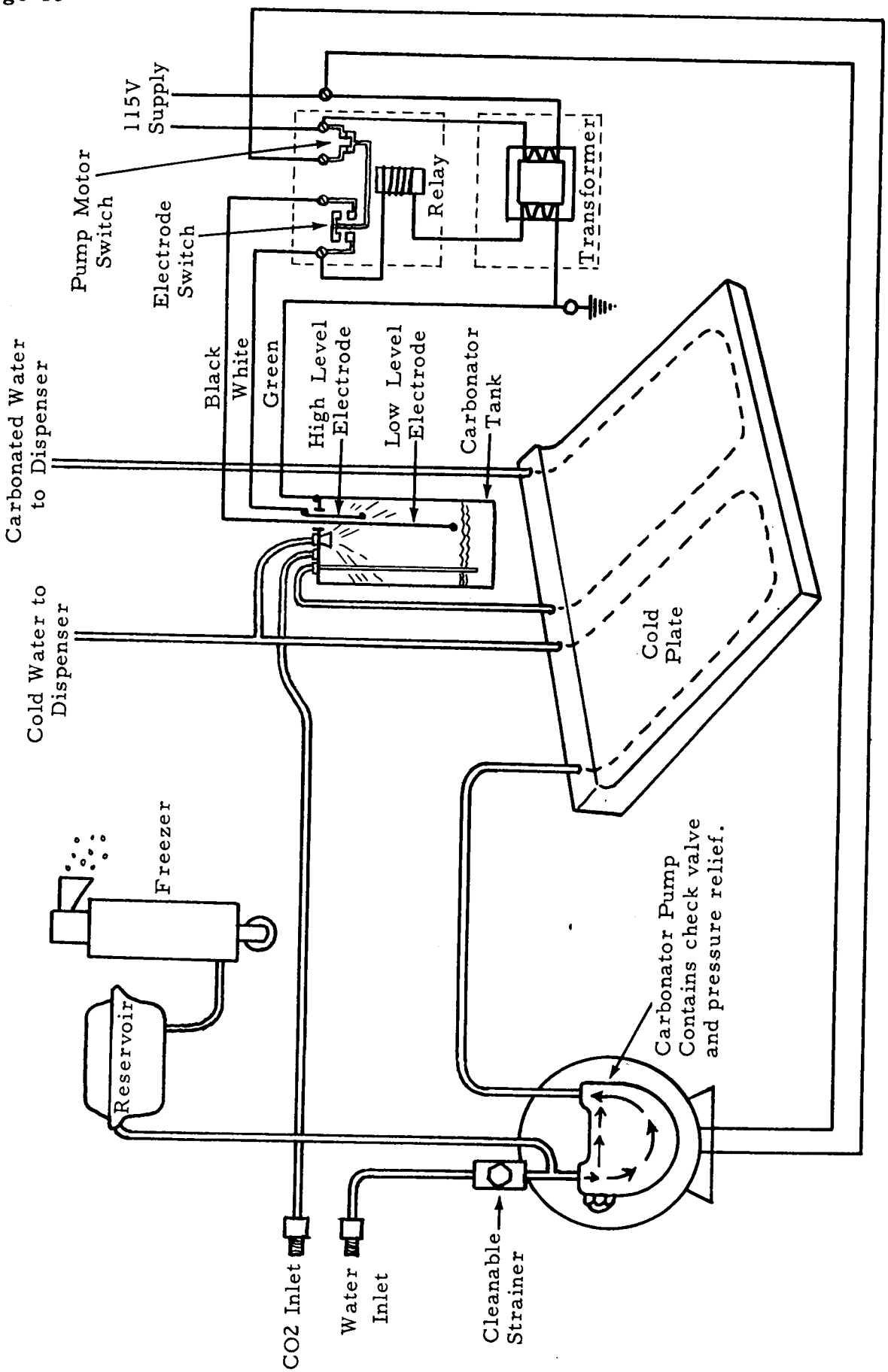
CARBONATION SYSTEM

HOW IT WORKS (See Sketch page 46)

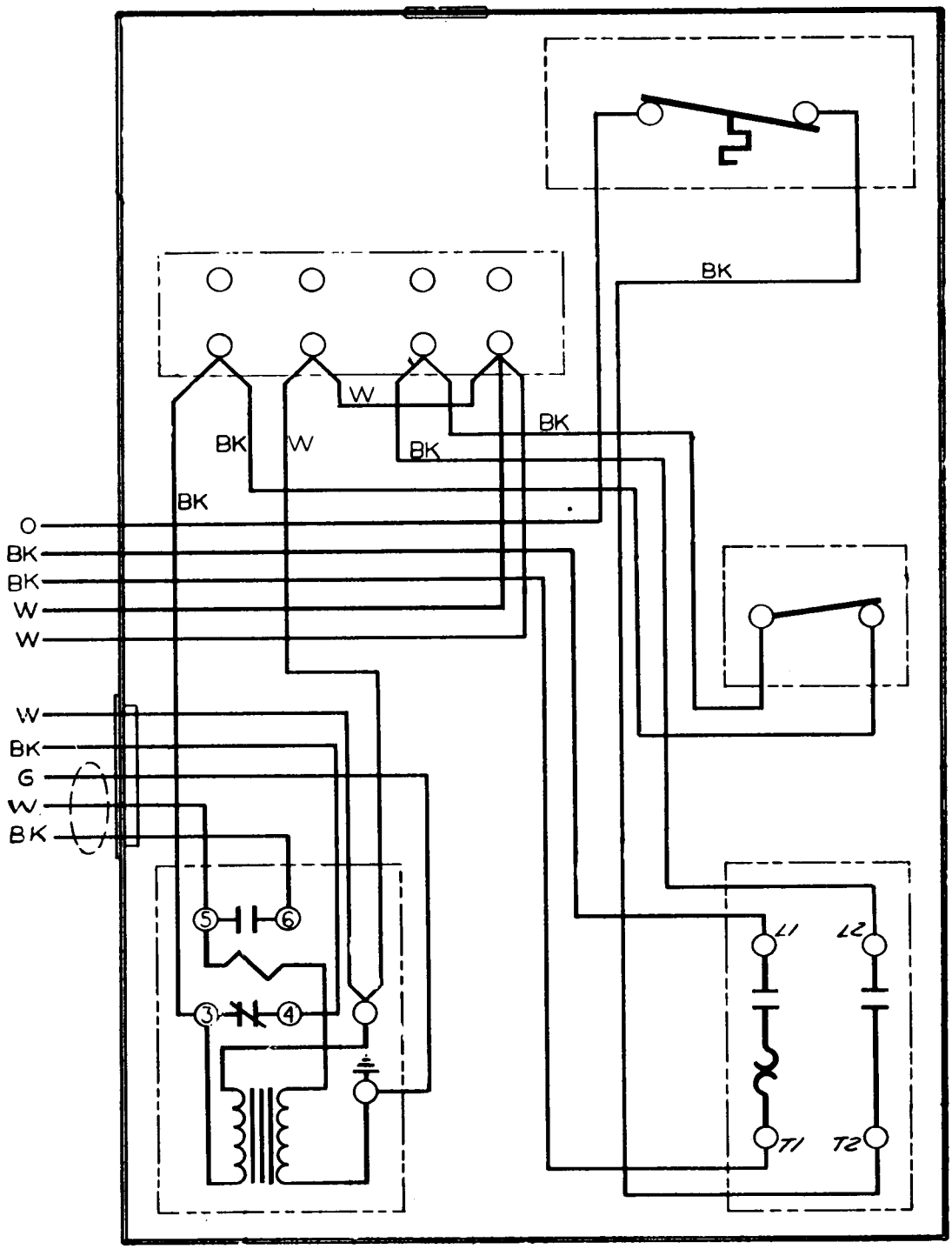
Water enters the cabinet and goes directly to the strainer mounted on the carbonator pump. After passing through the strainer, part of the water goes to the reservoir of the ice machine. The remainder of the water goes through the pump to the cold plate. Water may go through the check valve in the pump when the pump is not operating. The water passes through the cold plate and is cooled, leaving the cold plate the water enters a tee. At this point the water may go to the dispensing equipment to provide cold drinking water or cold water for non-carbonated drinks. The rest of the water coming from the tee goes to the carnator tank. The water inlet to the carbonator tank has a check valve, therefore the water enters the tank only when the pump is running and the water pressure is above the CO_2 pressure in the tank. A water jet breaks up the water into a fine spray, the CO_2 atmosphere inside the tank mixes with the water to produce the carbonated water. The CO_2 gas enters the tank through check valves directly from the cabinet fitting. The carbonated water leaves the tank, makes a pass through the cold plate and goes to the dispensing equipment for use as carbonated water or carbonated drinks.

The water level in the tank and switching of the pump is controlled by electrodes in the carbonator tank and the liquid level control. Here's how it works.

At start up the pump motor contacts on the relay are closed and the relay is de-energized. Note that the secondary of the transformer which supplies power to the relay is a open circuit. As the water rises in the tank it comes in contact with the low level electrode. Nothing happens since the wire from the electrode goes to a open switch or contact on the relay. As the water continues to rise it then makes contact with the high level electrode. At this instant a electrical circuit is completed through relay and water. This circuit energizes the relay which opens the pump switch and closes the electrode switch. Now as carbonated water is used and the water breaks contact with the high level control the pump will stay off since there is still a electrical circuit through the relay, electrode contacts and water by way of the low level electrode. As the carbonated water level continues to drop it breaks contact with the low level electrode, this de-energizes the relay and the pump starts filling the tank. This cycle continues over and over again always maintaining a carbonated water level between the tips of the two electrodes.



WATER SYSTEM SCHEMATIC



WIRING DIAGRAM
Carbonator Liquid Level Control
All SD-1H Models

CARBONATION SECTION
Service Analysis Chart

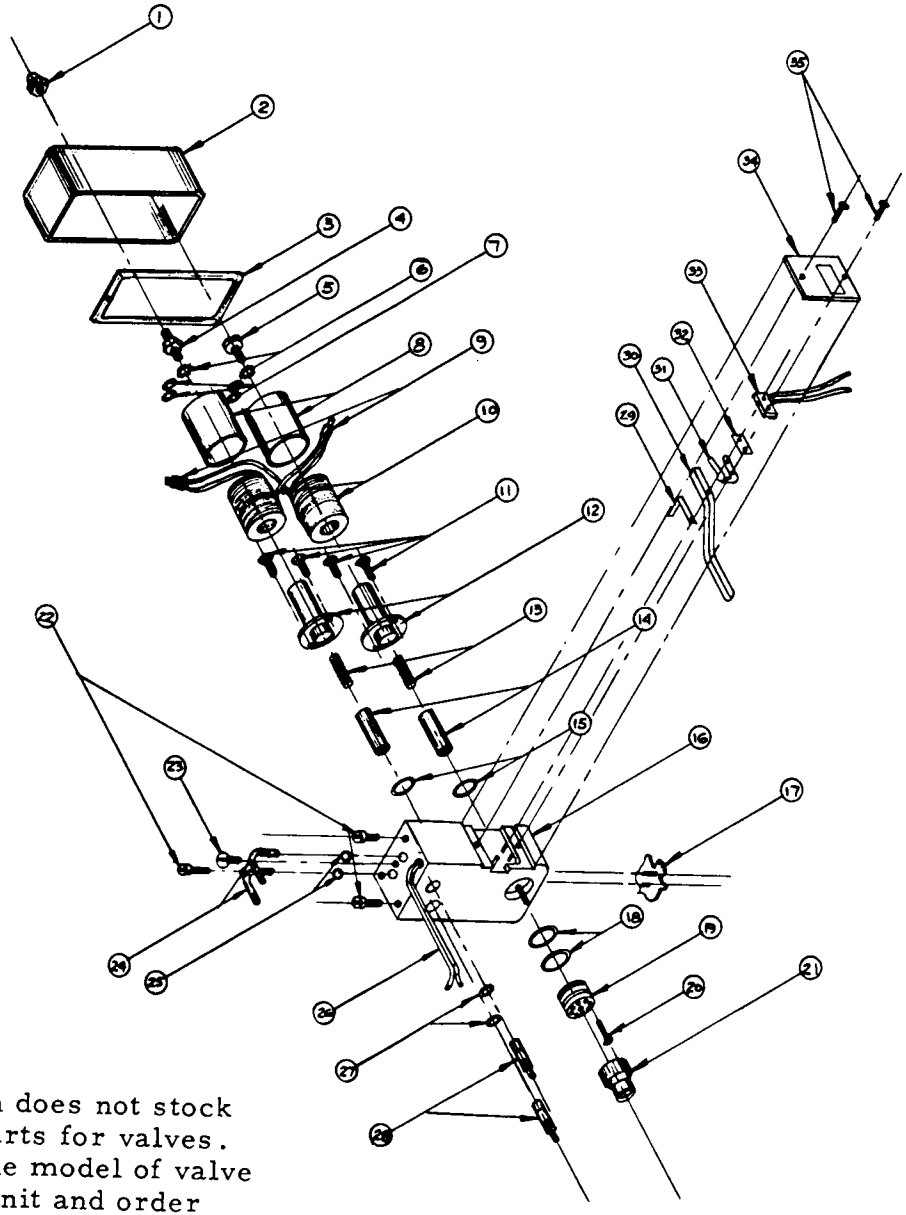
COMPLAINT	POSSIBLE CAUSE	CORRECTION
Milky carbonated water	Air in carbonator	Vent carbonator
	Pump sucking air	Check for loose fittings Replace pump
Gas only flows from dispenser valve	Water turned off	Turn on
	Electric motor not cutting on.	Check liquid level control Check carbonator tank electrode
Carbonator fills with water	Water pressure too high	Adjust if possible, or install pressure reducer
	Gas pressure too low	Set regulator key to deliver proper gas pressure
	Gas drum empty	Replace
Carbonated water backs up into city water line.	Dirty or worn back-pressure check valve	Clean or replace valve seats
Excessive pumping	Closed water supply valve	Open valve
	Water supply (building or city) shut off	Re-establish source
	Automatic switch out of order	Check switch, replace if necessary
	Water inlet screen clogged	Remove and clean screen
	Pump inlet or check valve out of order	Repair or replace
	Swollen washers in hose couplings obstruct flow of water	Replace washers
Carbonator pump pounds water running in spurts	Air in pump	Vent pump
	Water off	Turn water on
	Filter or strainer plugged	Clean or replace
	Inlet line too small	Must be 3/8" copper or larger

CARBONATION SECTION

Service Analysis Chart

COMPLAINT	POSSIBLE CAUSE	CORRECTION
No carbonated water (pump does not run)	Motor burnt out	Replace
	Liquid level control	Check relay wiring, contacts Repair or replace relay
	Carbonator Switch	Replace
	Tank electrode shorted	Repair or replace
No carbonated water (pump runs)	Pump running backwards	Reverse wiring inside motor
	Worn pump	Replace
	Pump check valve leaks	Clean or replace
	Pump relay valve opens too soon	Clean; valve is adjustable, set higher; or replace
	Clogged filter or inlet screen	Clean or replace
	Water line blocked	Check for smashed washer at fittings or plugged check valve on tank
Flat carbonated water	Gas drum empty or low	Replace drum
	Gas turned off	Turn on gas
	Regulator set too low	Increase pressure
	Gas line plugged by swollen washer	Replace washer
	Water pressure too high	Adjust if possible or install water pressure regulator
Metallic taste	Carbonated water backing up into city water line	Clean water back-pressure check valve, replace washer
	Carbonated water line connected by mistake to brass or copper lines. Use proper beverage tubings.	Make proper connection using approved tubing.
Carbonated water off taste	Oil, dirt or grease inside carbonator	Clean carbonator
	Tainted gas.	Sniff gas at drum head to determine if drum should be replaced.

DISPENSER SECTION



NOTES:
1. - MC-29 THRU MC-35
2. - MC-20 THRU MC-22
3. - MC-41, MC42 & MC43.

	NO.	PART NO.	DESCRIPTION
	35	MC-12	SCREW, SWITCH COVER
	34	MC-11	PLATE, SWITCH COVER
	33	MC-9	MICRO-SWITCH
	32	MC-8	INSULATOR, MICRO-SWITCH
	31	MC-7	ACTUATOR, MICRO-SWITCH
	30	MC-10	LEVER, ACTUATING
	29	MC-46	GROUNDING STRAP
	28	MC-2	STEM, METERING
	27	MC-3	"O" RING, METERING STEM
	26	MC-13	SERVICE CORD
	25	MC-39	"O" RING, INLET FITTING
3	24	MC-43	INLET FITTING
	23	MC-38	SCREW, RETAINER
	22	MC-37	SCREW, MOUNTING
	21	MC-40	SPOUT
	20	MC-6	SCREW, DIFFUSER
	19	MC-4	DIFFUSER
	18	MC-5	"O" RING, DIFFUSER
	17	MC-47	McCANN CREST
	16	MC-1	BASE, FAUCET
	15	MC-14	"O" RING, PLUNGER HOUSING
	14	MC-15	PLUNGER, SOLENOID
	13	MC-16	SPRING, SOLENOID PLUNGER
	12	MC-17	HOUSING, PLUNGER
	11	MC-19	SCREW, PLUNGER HOUSING
2	10	MC-20	COIL, SOLENOID
	9	MC-44	NUTS, STA-KON WIRE
	8	MC-23	HOUSING, COIL
	7	MC-24	GROMMET, COIL HOUSING
	6	MC-26	LOCKWASHER, SOLENOID VALVE STEM
	5	MC-27	SCREW, SOLENOID VALVE STEM
	4	MC-25	STUD, SOLENOID VALVE STEM
	3	MC-28	GASKET, COVER
1	2	MC-29	COVER, TOUCH-O-MATIC
	1	MC-36	ACORN NUT, COVER

TOUCH-O-MATIC FAUCET
MODEL NO. TMC-10

McCANN'S
ENGINEERING AND MFG. CO.
430 W. CYPRESS ST., GLENDALE, CALIF.

NOTE: Scotsman does not stock repair parts for valves. Determine model of valve on your unit and order parts from:

McCann's Engineering & Mfg. Co.
430 W. Cypress Street
Glendale, California

I. PRINCIPLE OF OPERATION

When the operator presses a glass against the main actuating lever (30) of the faucet, this lever in turn depresses the actuating button on the electric Micro-switch (33). The switch then completes the circuit, allowing electricity to flow immediately to both solenoid valve coils (10). With the coils energized, they immediately act as electro magnets by creating a magnetic force that raises the plungers (14) located in the center of the coils. When these two plungers are in a raised position, syrup and water are then permitted to flow through an orofice, into the spout (21) (mixing chamber) and finally end up in the operators glass blended perfectly.

II. METHOD OF SANITIZING OR CLEANING FAUCET

The faucet need not be dismantled in order to be cleansed. All that is required is simply fill a spare syrup tank with your cleaning agent, connect it to the syrup line to the desired faucet and flush it through faucet and syrup system with CO_2 pressure. A clean water rinse may be accomplished in the same manner.

The faucet spout should be removed and cleaned weekly.

III. POWER SOURCE

Our standard Touch-O-Matic Faucet is supplied with 115 Volt A.C. - 60 Cycle coils. However, they can be supplied with various voltages. Naturally each faucet is clearly marked regarding its required voltage, the coil housing (8) is also marked accordingly. The coil itself is color coded to identify its voltage as follows:

RED	LEADS indicate	-	115 VAC	- 60 Cycle
BLACK	LEADS indicate	-	12 VAC	- 60 Cycle
YELLOW	LEADS indicate	-	12 VDC	-
BLUE	LEADS indicate	-	6 VDC	

IV. METHOD OF DISMANTLING SOLENOID VALVE

1. Remove screw (5) and lock washer from plunger housing.
2. Remove coil housing (8).
3. Remove coil (10) by lifting only, do not cut wires.
4. Remove the 2 screws (11) from plunger housing base.
5. Remove plunger housing (12), lift straight up.
6. Remove plunger spring (13).
7. Remove plunger (14).

TO REASSEMBLE - REVERSE PROCEDURE.

NOTE!! Before removing a faucet from a dispenser or fountain, or before dismantling a solenoid valve that is mounted on a fountain, be sure to turn off the CO_2 pressure to the syrup tank and carbonator. Also, bleed off the CO_2 pressure on the syrup tank and carbonator, if there are no shut-off valves on the fountain.

V. SERVICE TIPS

1. When the 2 screws (11) that fasten the plunger housing (12) to the plastic valve base (16) are replaced, they should be screwed down all the way. In other words, be sure that the large stainless washer on the plunger housing (12) is pressed firmly against the plastic. If one screw was all the way in and the other was only half way in (for example), the plunger in the housing might "cock" and cause dripping - Caution - these screws do not have to be extra tight, just snug down.

2. When reassembling solenoid, with plunger spring (13), place in plunger (14), allow the plunger housing (12) to be placed over the plunger and spring and held together, thus preventing the plunger spring from falling out while assembling.

3. There is a difference between the Touch-O-Matic Non-Carbonated (NC) and the Carbonated faucet. The Non-Carbonated faucets are marked NC on the underside of the faucet. The NC faucet is designed for plain water. Since this pressure could vary from 10 to 100 psi at various locations throughout the same city, we arrived at a medium flow of water. On this faucet, we use a 3/16" orifice which will pass a sufficient amount of water at 10 psi. This faucet can work on pressure up to 50 psi, but no higher or the plunger will fail to open occasionally.

   The Carbonated faucet will operate on pressures up to 125 psi, by using a smaller 1/8" orifice.

4. RECOMMENDED OPERATING PRESSURES

   10 to 20 psi on syrup - average 15 psi.
   80 to 120 psi on carbonated water - average 100 psi.

5. RATE OF FLOW AND PROPER BLENDING

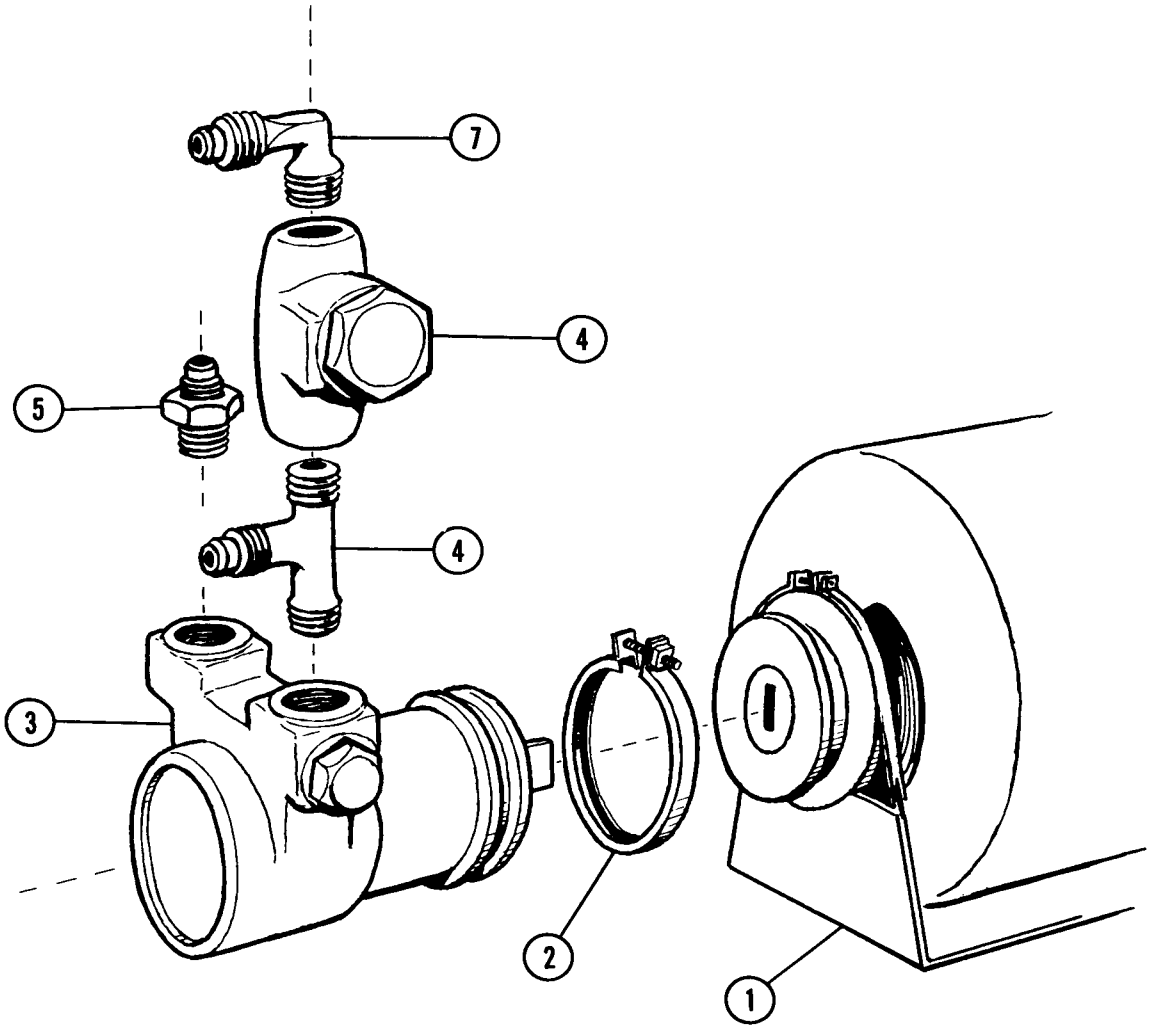
   The fastest rate of flow recommended for the Touch-O-Matic Faucet is 2 ounces per second of finished drink. In other words, a 6 ounce finished drink should take at least 3 seconds to pour. If a faster pour is used, the carbonation in the drink would be reduced.

   The typical blend used, is 1 ounce of syrup and 5 ounces of water for a finished 6 ounce drink. However, this may vary with the brand of syrup used, therefore check with your syrup supplier.

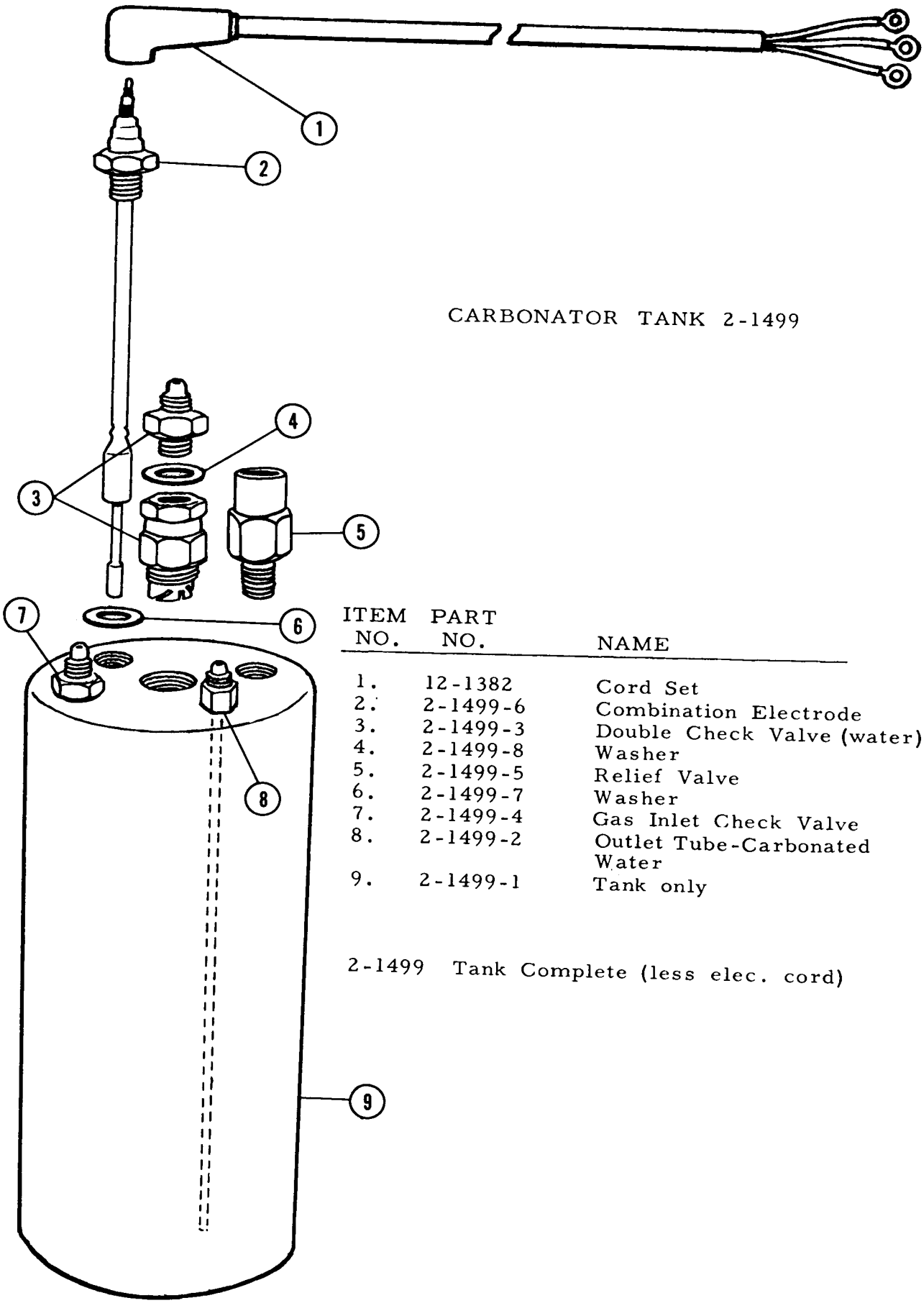
   To increase flow of syrup or water, turn metering screw out (counter-clockwise) and inward (clockwise) to decrease flow. These adjustments are sensitive and should be treated as such, by not turning more than an eighth of a turn at a time.

6. When replacing Spring Actuator (31) on micro-switch, pull switch straight out evenly. If switch is raised unevenly, it will bind and make it difficult to remove. When replacing switch, be sure to have actuating button of switch at top position not at the bottom. This will insure longer life of the actuating spring.

CARBONATOR PUMP ASSEMBLY



ITEM NO.	PART NO.	NAME
1.	12-1339-1	Motor 115/60/1
2.	2-1527	Coupling Clamp
3.	2-1526	Pump
4.	16-468	Tee 3/8" x 3/8" NPT x 1/4" Flare
5.	16-355	Union 3/8 NPT x 3/8 Flare
6.	16-162-1	Strainer
7.	16-401	Half Union Elbow



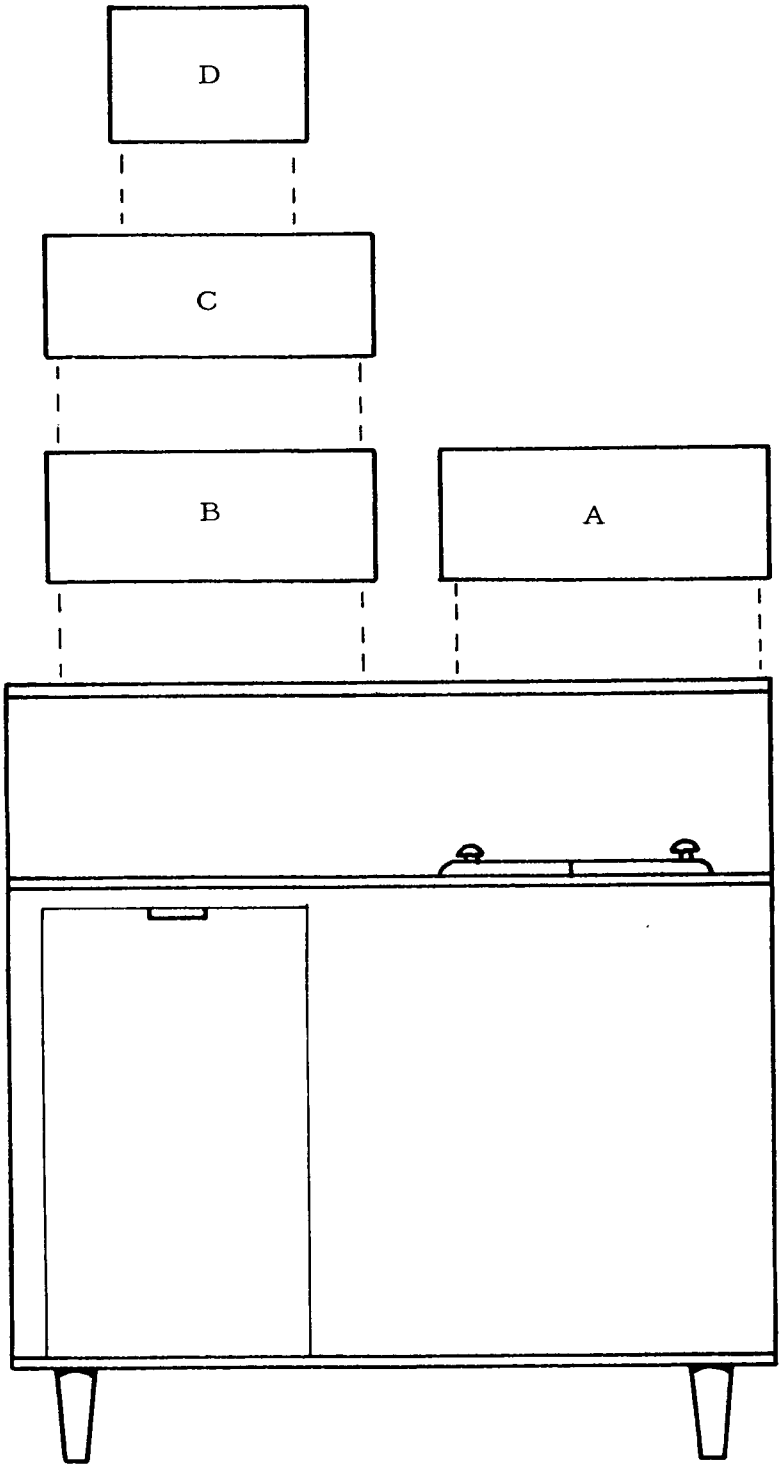
CARBONATOR TANK 2-1499

ITEM NO.	PART NO.	NAME
1.	12-1382	Cord Set
2.	2-1499-6	Combination Electrode
3.	2-1499-3	Double Check Valve (water)
4.	2-1499-8	Washer
5.	2-1499-5	Relief Valve
6.	2-1499-7	Washer
7.	2-1499-4	Gas Inlet Check Valve
8.	2-1499-2	Outlet Tube-Carbonated Water
9.	2-1499-1	Tank only

2-1499 Tank Complete (less elec. cord)

CONVERSION KIT

LOCATION - USAGE



A. Syrup Rail Kit
part #K-43R

B. Satellite Kit
part #K-42S

C. Electric Valve Kit
Part #K-41E

D. Gravity Type Syrup Dispensing Heads Not Sold by SCOTSMAN. Purchase from supplier.

NOTE:

CO2 gas cylinders, syrup tanks and regulators are not part of the complete unit or the accessory kits.

Contact your SCOTSMAN Salesman for these items.

Suggested source:

EXCELALL PRODUCTS DIV.
Bastian-Blessing Co.
4201 W. Peterson Ave.
Chicago, Illinois

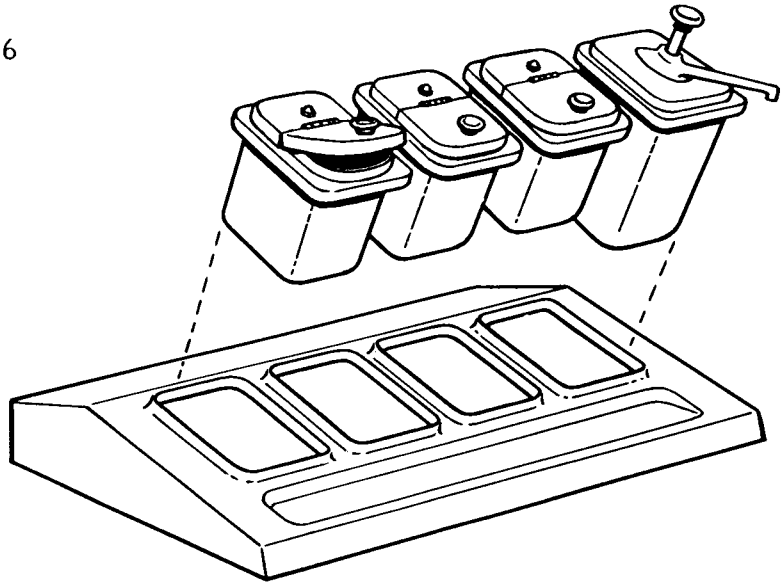


ILLUSTRATION A

K-43R Syrup Rail Kit

Kit does not include syrup or fruit jars

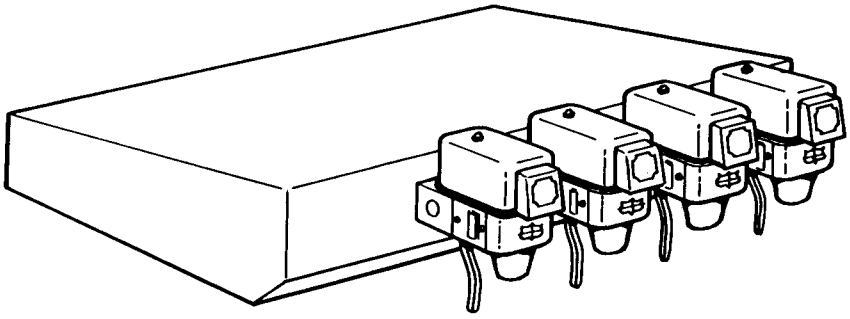


ILLUSTRATION B

K-41E Electric Valve Kit

Kit comes complete with valves installed.

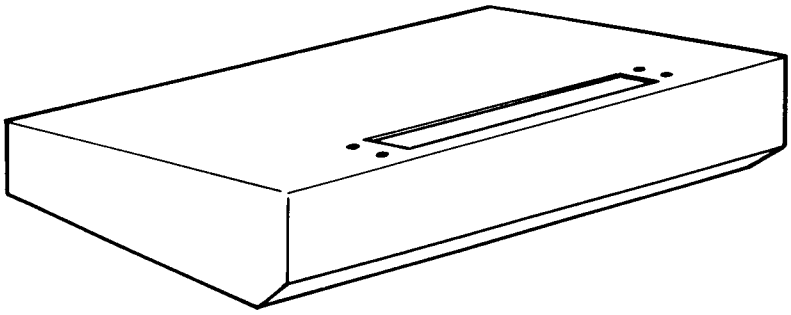
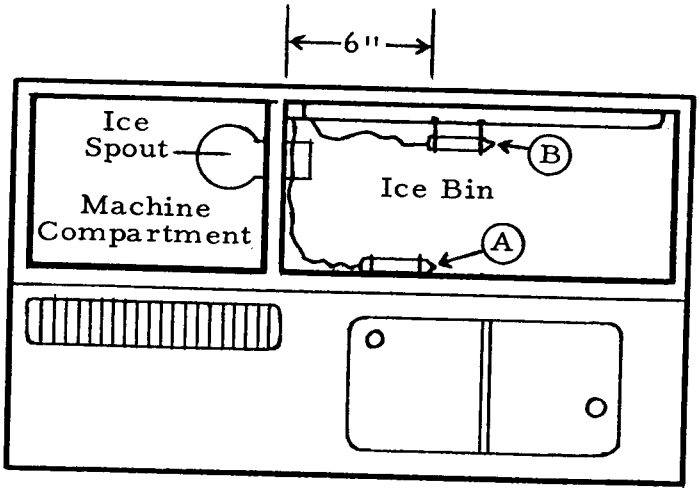


ILLUSTRATION C

K-42S Satellite Kit

Kit does not include Satellite head.



TOP VIEW SD1H or SD2H

When installing topping tanks and K-43R syrup rail, move thermostat from location Ⓐ to location Ⓑ. At location Ⓑ bulb thermostat holder is clipped on to the tube cover panel. If thermostat is not moved the ice filling the bin will push the topping tank up before the bin thermostat stops ice machine.

CONVERSION KIT CONTENTS
Usage

A. Syrup Rail Kit — Mounts Right Hood Top
Part #K 43R — Illustration "A"

This kit contains a tapered stainless steel framework that replaces right hood top panel. Frame rail will hold four standard size syrup or crushed fruit jars. The jars are not included in this kit and must be purchased seperately. Because of the location of the ice spout, the first two jars on the left as you face the unit must not exceed a depth of 6 1/2" from rail top.

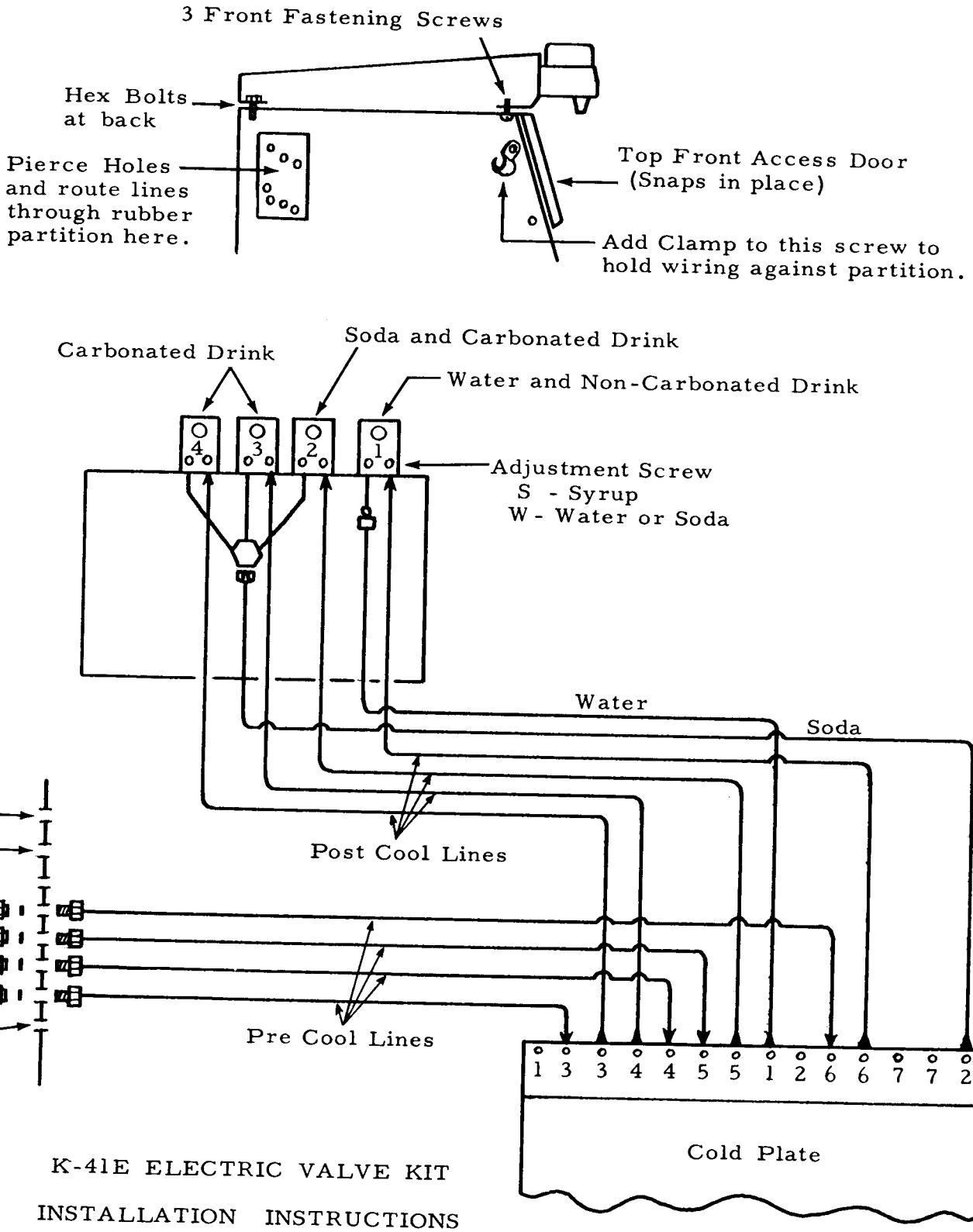
B. Satellite Kit — Mounts Left Hood Top
Part # K 42S — Illustration "B"

This kit contains a stainless steel mounting station for use with Satellite head that replaces present left hood top panel. Kit also contains adaptor hardware and product lines. Kit does not include Satellite head, must be purchased seperately.

C. Electric Valve Kit — Mounts Left Hood Top
Part # K 41E — Illustration "C"

This kit contains a stainless steel mounting station that replaces present left hood top panel. Mounting station is pre-drilled to accept four(4) McCann electrically operated syrup dispensing valves. Supplied in kit are (2) two single lever carbonated valves, one (1), two lever carbonated valve and one(1) two lever sweet water valve.
All necessary product lines, fittings, etc. are also supplied in this kit.

D. Represents anyone of numerous manufacturer's gravity type, post-mix syrup dispensing heads that can be adopted to this unit.
Because of the large variety of dispensing heads available, Scotsman does not attempt to make a conversion bracket for each one. However, the left side stainless steel top panel, utilizing the stiffness channels packed in bin, can be used to support the particular dispensing head being used. Drill mounting, drain holes through this panel and secure to the underside using stiffness channels. Scotsman does not sell dispensing heads, order from supplier. Suggest when ordering gravity type dispensing heads that you specify one valve to have a split lever whereby cold water can be drained through head. There is no water station provided on complete unit although there is a flexible sweet water line provived.



K-41E ELECTRIC VALVE KIT

INSTALLATION INSTRUCTIONS

INSTALLATION INSTRUCTIONS
K41E ELECTRIC VALVE KIT

1. Unpack carton and check material list.to insure all parts of list are included.
2. Remove icemaker top front access panel.
3. Remove both top panels by removing the 3 sheet metal screws from underside of front hood brace. Loosen 2 hex bolts at back lip and slide panel back and off.
4. Remove stainless steel syrup line protector panel from storage bin back wall. Held in place by open slots. Pull straight up and out.

5. Now take the four syrup pre-cool lines, Part A-17730 from kit, also needed will be four each fibre washers 3-579, and S-7044 nuts to secure male end of lines to rear cabinet bulk head. Remove rear service door and connect four lines putting male end through from inside cabinet bulkhead and securing to outside with first a fibre washer then the S-7044 back nut. See installation sketch, attach to proper circuit numbers on cold plate, run lines through sponge rubber opening next to ice delivery spout. Attach female ends of lines to plate using small plastic washer on each connection.
6. Now set valve kit assembly on top of unit to facilitate connections of lines to kit and through sponge rubber opening between machine compartment and line.
    a. Connect flexible soda water line to 3 way manifold on underside of valve kit. Soda line is capped off on end lying in machine compartment--other end is already attached to cold plate #2. See sketch.
    b. Flexible cold sweet water line is also capped off on end lying in machine compartment. Fasten to single sweet water valve connection on underside of valve kit per sketch. Other end is already connected to cold plate on center connection #1.

7. Run four syrup post-cool lines from valve kit through sponge rubber opening next to spout and attach to proper circuit on cold plate per sketch. Use plastic washers supplied on cold plate connections.

8. Run electric valve kit wiring through plastic clamp as shown, into control box and fasten to upper terminal strip per wiring diagram on control box cover.

9. Connect CO_2 pressure (30#) to all connections made, check for leaks with bubble soap.

10. Replace stainless steel syrup line protector panel on rear bin wall.

11. Install right side hood top panel and secure, also secure valve kit assembly to hood brackets.

12. Check operation of complete unit, replace all service doors, panels.

ELECTRONIC OR SATELLITE KITS

Install the conversion kit package or packages user requires per instruction given in this manual and packed in kit. After all connections are made within unit cabnitery, install the remote syrup tanks, lines and the CO_2 gas cylinder, hi and lo pressure gauges with lines leading to cabinet connections.

Make sure CO_2 regulators are in a normally closed or zero reading position before opening CO_2 cylinder valve.

Slowly open CO_2 cylinder valve and adjust high pressure guage feeding carbonator tank to a value of 85 - 100# gauge. Next adjust lo pressure regulator feeding remote syrup tanks to a value of 20 - 25# gauge reading. NOTE: Lo pressure system is used to force syrups from remote tanks through product lines, cold plate and up to dispensing valve. Most syrup tank manufacturers do not recommend CO_2 pressures in excess of 30# gauge therefore be sure and follow that particular manufacturers instructions on proper application.

Check for leaks at connections made from regulators up to back of dispensing valves with bubble soap. Repair any leaks found.

Shut off hand valve at CO_2 tank and bleed all pressure out of system.

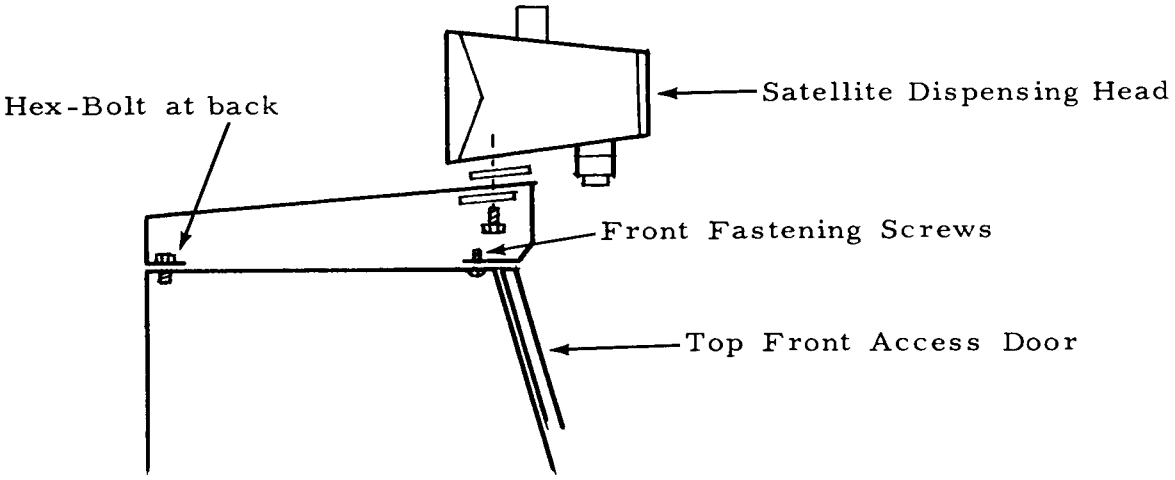
Fill syrup tanks half full of clean water, replace tank covers and open CO_2 valve. Open water supply valve feeding complete unit, then turn on the carbonator switch in unit control box.

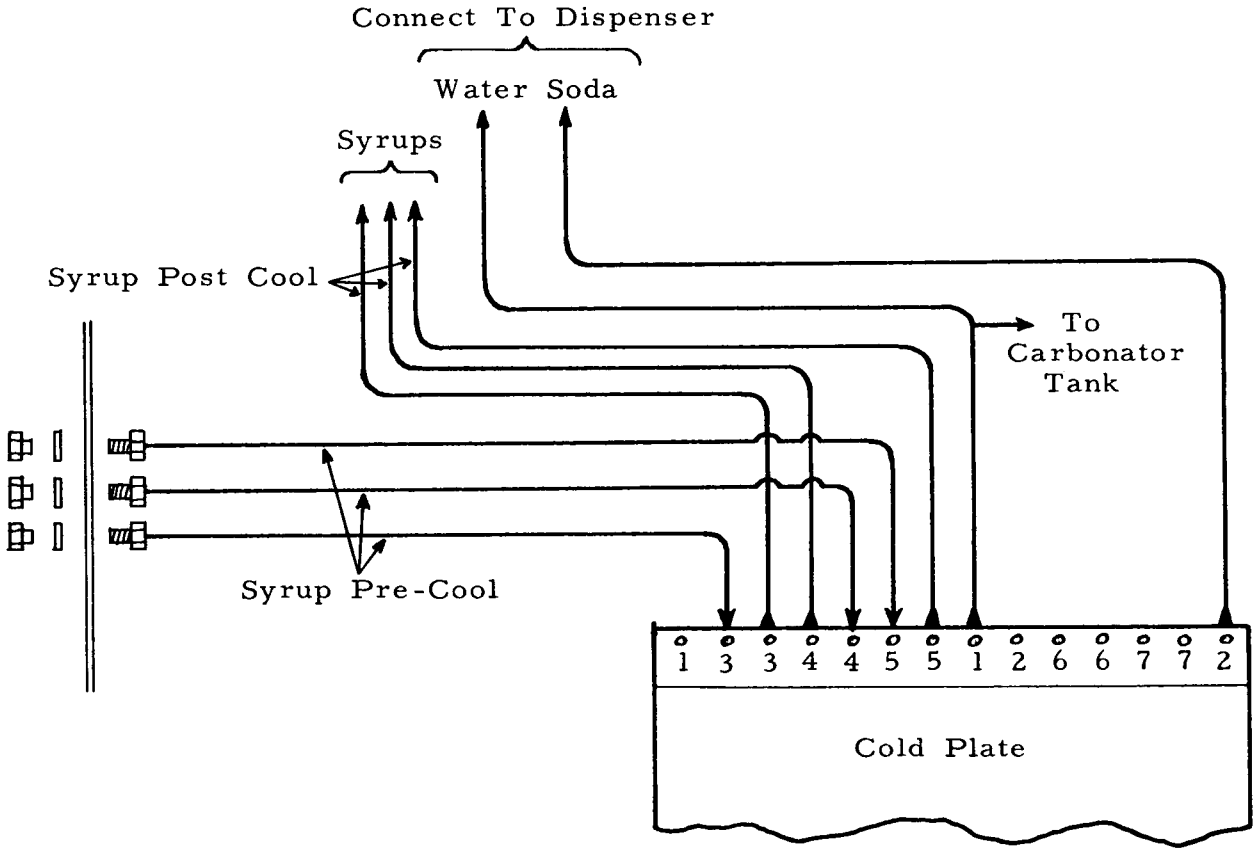
Now actuate dispensing valves and draw the clean water from syrup tanks through valves. Hold in carbonated water lever. Check to make sure the carbonator pump cycles correctly.

After flushing system, shut off CO_2 cylinder, carbonator switch and bleed off pressure. Dump any water left in syrup tanks.

Fill tanks with syrups of user's choice, replace covers, and open CO_2 cylinder valve.

Turn on both carbonator and ice maker switches. Actuate each dispensing valve until a full flow of syrup comes thru valves. Donot attempt to adjust dispensing valves until cold plate is completely covered with ice, then make adjustments as required.





K-42S SATELLITE KIT

INSTALLATION INSTRUCTIONS

ADAPTING GRAVITY TYPE POST MIX DISPENSING HEADS

After choosing the particular head of your choice, same can be mounted directly on top of the stainless steel hood on the left as your face unit.

Holes have to be cut through this panel for drain and supply lines also for mounting holes. Channel support brackets are packed in storage bin, they should be attached to underside of left hood top panel to support weight of the dispensing head.

Drains from dispensing head can be teed into the clear plastic tubing attached to unit drip tray drain.

Carbonated water supply line from cold plate should be attached to appropriate fitting on dispensing head and checked for leaks.

Hook up CO_2 cylinder, hi pressure regulators to connection at unit back panel and set carbonator pressure at 85# gauge.

Turn on water and electrical supplies to complete unit, then turn on unit carbonator and ice maker switches. Open dispenser valves and draw water through valves, checking carbonator pump cycle. Pour syrup into head and draw off until clear flow comes through.

Do not attempt adjustments to valves until sufficient ice has been made to fill dispensing head and cover bin cold plate. Then make necessary adjustments.

SYRUP RAIL KIT

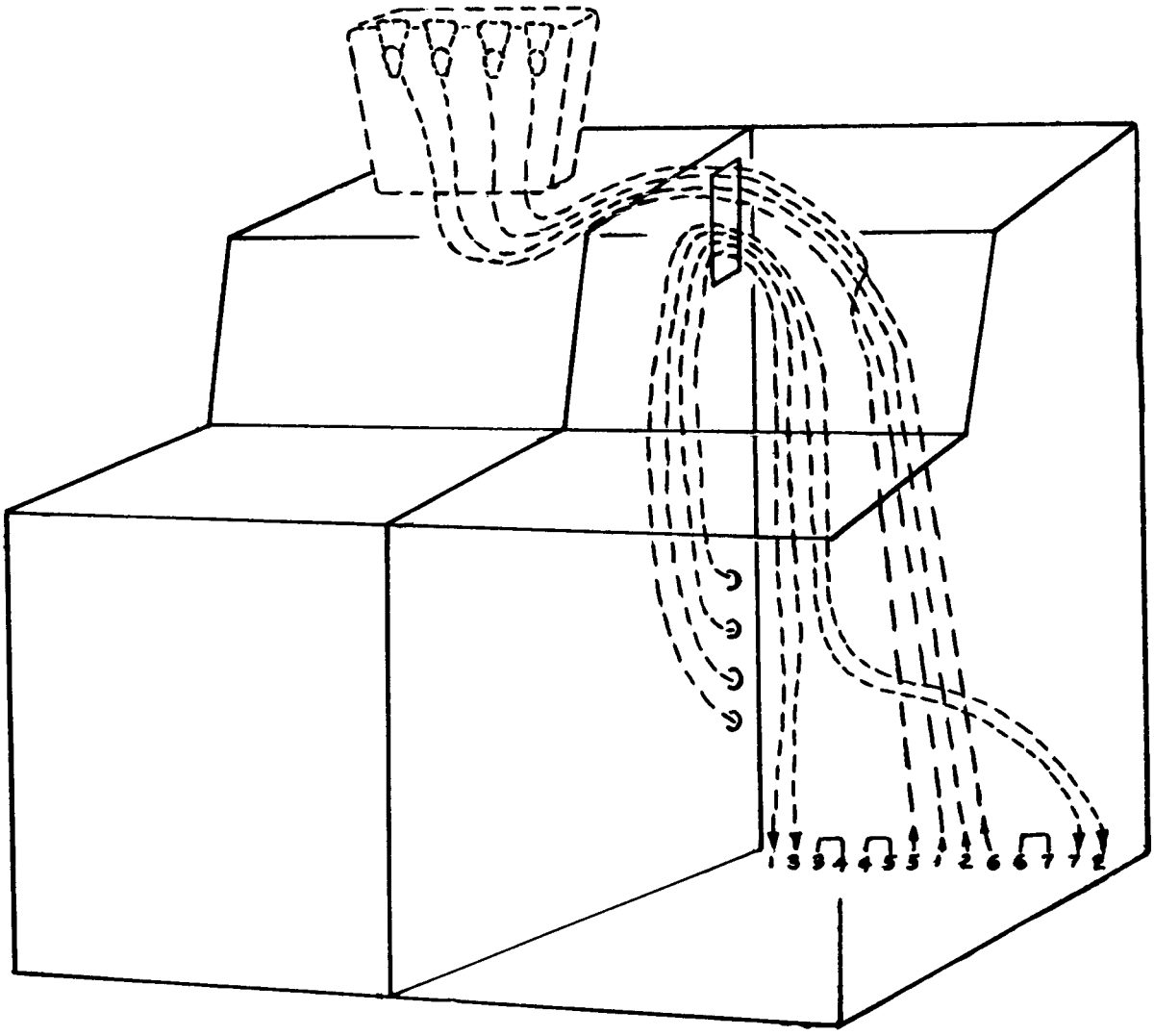
Since this is merely a stainless steel framework to hold standard size crushed fruit and syrup jars, you need only remove stainless steel right hood top panel and replace with this framework. Use same mounting holes and screws taken from hood top panel.

Care should be taken in selecting the first two fruit or syrup jars on the left as you face unit. Their length must not exceed 6 1/2" in depth as their relative location is in front of the ice discharge spout.

INSTALLATION INSTRUCTION SYRUP RAIL

1. Remove top front access door--held by friction catches.
2. Remove right-hand top by removing three screws along front, loosen Hex-Bolts at back and slide top back and off.
3. Reverse above operations to mount the syrup rail.
4. Note: The first two syrup jars used in the right-hand holes must not extend below top of ice spout.

CONVERSION OF MODELS SD-1H AND SD-2H POST-MIX TO PREMIX



1. Remove all hose ass'y in storage bin.
2. Remove carbonator tank.
3. Cap outlet of carbonator pump.
4. Remove wire to carbonator - Dispensing switch.
5. Make pre-mix connections and route.
6. # 1 circuit 1W cold plate to be used for primary flavor.
7. Modify left top as required to fit premix dispensing head.
8. Insulate hoses between storage bin and dispensing head.
9. Insert jumpers between cold plate posts 3-4; 4-5 and 6-7.

PARTS LIST SD-1H

CABINET PARTS

Description	Part No.
Rear Service Door	A-17754
Rear Panel-Case	A-17753
Rear Panel- Hood	A-17829
Drip Grill	2-1553
Right top Panel-Hood	A-17812
Ice Bin Door	2-1550
Hood Assy-less Panels	A-17616
RightLeft Panel-Case	A-17749
Scotsman Emblem	15-156-1
Front Panel-Hood	A-17608
Front Panel-Case	A-17766
Front Service Door	A-17615
Leg	A-15803-1
Leg Leveler	8-522-1

CO_2 AND WATER CIRCUIT

Description	Part No.
Flexible Line	A-17737
Water Line	A-17718
Soda Line	A-17743
Soda Line	A-17743-1
CO2 Line	A-17732
Bin and Cold Plate Assy	A-17790
Carbonator Tank	2-1499-
Electrode	2-1499-6
Water Check Valve	2-1499-3
Washer (check valve-water)	2-1499-8
Relief Valve	2-1499-5
Washer (Electrode)	2-1499-7
Gas Inlet Check Valve	2-1499-4
Outlet Tube-Carbonated Water	2-1499-2
Tank only	2-1499-1

CARBONATOR PUMP ASSY

Motor 115/60/1	12-634-5
Coupling Clamp	2-1527
Carbonator Pump	2-1526
Tee 3/8 X 3/8 NPT X 1/4" Flare	16-162-1
Half Union Elbow	16-401

CARBONATOR PUMP CONTROL

Control (less case & cord)	12-634-5
Relay Coil	12-634-1
Primary Coil	12-634-2
Secondary Coil	12-634-3
Contact Points	12-792

FREEZER ASSY

Freezer Complete	A-14886-1
Snap Ring	3-553
Worm Shaft Cap	A-7701
Cap Screw	3-758
Worm Tube Washer	A-7699
Bearing (Matched Set)	2-1412
"O" Ring	2-386
Ice Breaker	A-14591
Worm Shaft	2-1413
Worm Tube, Acc., Suction Line	A-7826
Washer	3-679
Spout Casting, Rear	A-18430
Spout Casting, Front	A-14254
Bolts	3-732
Water Seal	2-1300
Lower Bearing	2-417
Worm Tube Nut	S-8817
Rubber Drip Pan	13-213
Drain Tube	A-8002
Breaker & Bearing Assy	A-14678

RESERVOIR ASSY

Reservoir Cover	
Valve Pin	A-16012
Deflector	2-1259
Inlet Valve	2-1320
Rivet	S-8770
Valve Seat Holder	3-1001
Valve Seat	A-5777
Nut	S-6947
Bracket	S-7044
Stand Pipe	A-12869
Inlet Valve Assy	S-6715
Reservoir Body	S-8138
Bracket Nut	A-13409
Float & Arm Assy	A-8055
Water Deflector	A-12067
Reservoir (less cover)	A-18418
	A-8339

CONDENSING UNIT

Condensor W.C.		18-259
Plain Gasket		18-262
Discharge Service Valve		18-237
Hi-Pressure Control		11-286-1
Valve Plate Kit		18-222
Compressor 115/60/1	W.C.	18-257
Compressor 115/60/1	A.C.	18-221
Klixon		18-240
Starting Capacitor		18-1901-4
Relay		18-1903-4

Water Valve	11-198
Water Hose, Comp. to Cond.	18-261
Manifold Cond. Gasket	18-263
Terminal Board	18-270
Terminal Assy	18-241
Fan Blade	18-321
Fan Motor	18-150-1
Condensor A.C.	18-234
Condensor Shroud	A-12109
Fan Motor Bracket	18-422