

MCD200C

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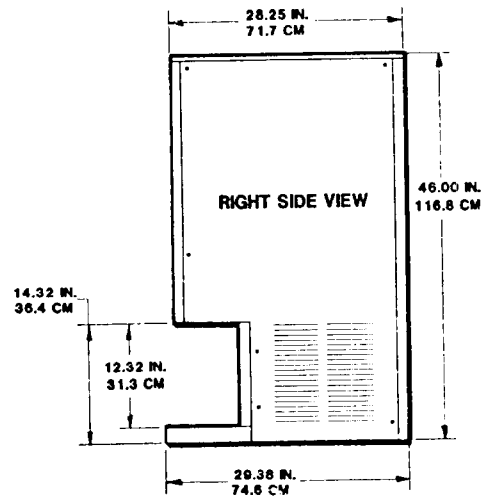
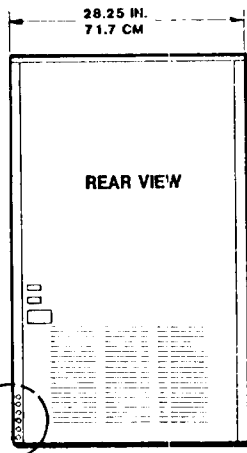
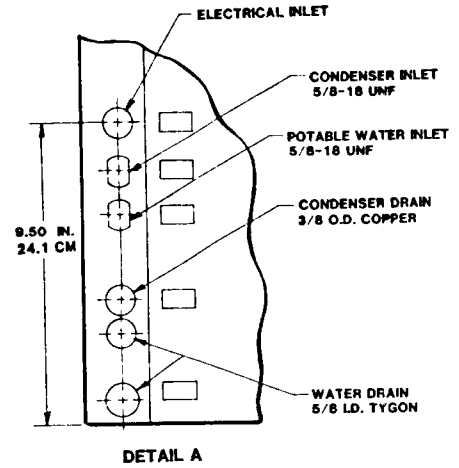
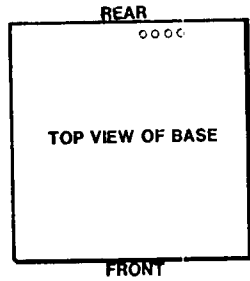
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MCD200 CUBER - DISPENSER



SPECIFICATIONS

Model Number	(Height - w/o Legs)	Bin Cap.	Cube Size	Cond. Unit	Finish **	Basic Electrical	Comp. H.P.	No. of Wires	Min. Circuit Ampacity †	Max. Fuse Size	Ship. Wt. lbs./kg.
	Dimensions H" x W" x D"										
MCD200SAE-1C	46 x 28 1/4 x 29 1/8	90 lbs.	Small	Air	EC	115/60/1	1/2	2	14.8	15	358/162
MCD200SWE-1C	46 x 28 1/4 x 29 1/8	90 lbs.	Small	Water	EC	115/60/1	1/2	2	13.2	15	358/162

Electrical and plumbing connections in lower right side of back panel.

IMPORTANT OPERATING REQUIREMENTS

	MINIMUM	MAXIMUM
Air Temperatures	50° F (10.0° C)	100° F (38° C)
Water Temperatures	40° F (4.4° C)	100° F (38° C)
Water Pressures	20 lbs. gauge	120 lbs. gauge
Fixed Voltage Variation	-10%	+10%

(Voltage rating specified on nameplate)

Extended periods of operation exceeding these limitations constitutes misuse under the terms of Scotsman Manufacturer's Limited Warranty, resulting in a loss of warranty coverage.

STANDARD LEGS: Furnished with Machine Stand. Four metal legs screw into mounting plates on cabinet base. Provide 6" minimum height including adjustable leveling foot. Black enamel finish.

OPTIONAL LEG KIT, KLP2S:

Nickel plated, brushed metal finish with stainless steel foot. Recommended for stainless steel cabinets.

DMS50 MACHINE STAND

Height: 28" (71.1 cm), Width: 28 1/2" (72.4 cm), Depth: 29 1/2" (75.0 cm). Shipping Weight: 110 lbs. (50 kg.)

DMS50E-B: Charcoal brown gloss enamel on leather-grain embossed steel. Includes black enamel legs.

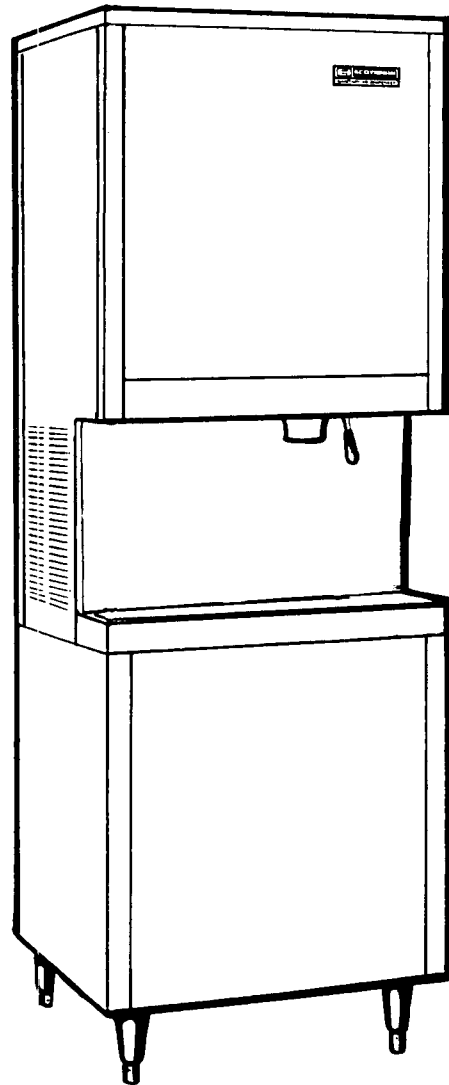
DMS50S-B: Stainless steel cabinet with brushed finish and matching nickel plated legs.

OPTIONAL STAINLESS STEEL PANEL KIT:

SPKPCD1: Contains stainless steel sides, top and front panel. Not factory installed.

MCD200C GENERAL INFORMATION & INSTALLATION

**MCD200
CUBER DISPENSER**



**OPTIONAL
DMS50
MACHINE STAND**

**BLACK ENAMEL LEGS
FURNISHED WITH
MACHINE STAND.
(SHIPPED SEPARATELY)**



This icemaker has been engineered to our own rigid safety and performance standards. The National Sanitation Foundation (NSF) seal, signifies that it is listed with the NSF and that it complies with the materials and construction standards of the NSF. In addition, the Underwriters Laboratories, Inc., (UL) Listing Mark and the Canadian Standards Association (CSA) Monogram, both signify that its construction and design have been inspected and tested by them. NSF, UL and CSA inspectors also periodically examine production icemakers at the factory, to assure continued compliance.

To retain the safety and performance built into this icemaker, it is important that installation and maintenance be conducted in the manner outlined in this manual.

MCD200C

GENERAL INFORMATION & INSTALLATION

INTRODUCTION

This manual provides specifications and the step-by-step procedures for the installation, start-up, operation, and the maintenance and cleaning for the SCOTSMAN Model MCD200 Motel Cuber Dispenser.

The Model MCD200 Motel Cuber Dispensers are quality designed, engineered and constructed, and thoroughly tested icemaking and ice storage systems, providing the utmost in flexibility to fit the needs of a particular user.

With the Splash Panel, Sink Assembly and Rear Panel removed, access can be gained to the refrigeration systems for on-the-spot repair.

DESCRIPTION

This attractive motel ice dispenser has a compact cabinet with a high gloss baked enamel finish. Also, an optional stainless steel cabinet finish is available. Both cabinets have up-to-date styling, and easily removable front panels for easy access to electrical and mechanical components.

SEALED REFRIGERATION SYSTEM

To provide quiet efficient operation of the Ice-maker, the Compressor motor is internally spring-mounted. The Compressor motor is covered by a five year parts warranty.

SELF-CONTAINED STORAGE BIN

These Cube Dispensers store their own ice supply in a stainless steel ice storage bin cylinder inside the insulated cabinet.

OVERALL DIMENSIONS

The overall dimensions of the Dispenser depth, height, etc., allows the Cuber to be installed in harmony with the existing counter equipment.

UNPACKING AND INSPECTION

1. Call your authorized SCOTSMAN Distributor or Dealer, for proper installation. He's listed under ICE MAKING EQUIPMENT and MACHINERY in the yellow pages of the telephone book.
2. Visually inspect the exterior of the shipping container and skid 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.
3. BEFORE removal of any panels or packing, carefully lay the Dispenser on its back and remove the shipping bolts and the shipping base or skid.

4. Remove screws and shipping tape, and the Lower and Front Panels from the cabinet, and inspect for any concealed damage. Notify carrier of any concealed damage claims, as stated in step 2.
5. Remove all internal support packing and tape in machinery compartment.
6. Check that refrigerant lines do not rub or touch lines or other surfaces, and that fan blades, if any, move freely.
7. Check that the Compressor is snug on all mounting pads.
8. Use clean damp cloth or disposable paper wiper to wipe clean the interior surfaces of the ice storage Bin and the exterior surfaces of the cabinet.
9. See NAMEPLATE on the lower left section of the rear service panel of the cabinet and check that the location source voltage corresponds with the voltage specified on the nameplate.

CAUTION

Improper voltage supplied to the Ice-maker will void your parts replacement program.

10. Complete the Manufacturer's Registration Card by filling in all spaces including Model Number and Serial Number taken from the Nameplate. Forward the completed, self addressed, registration card to the SCOTSMAN factory.

LOCATION AND LEVELING

WARNING

This Cuber Dispenser is NOT designed for outdoor installations where air temperatures are below 50-degrees F., or above 100-degrees F., and the water temperature is below 40-degrees F. or above 100-degrees F. Extended periods of operation at temperatures exceeding these limitations will constitute misuse, under the terms of the SCOTSMAN Manufacturer's limited warranty, resulting in LOSS of warranty coverage.

MCD200C

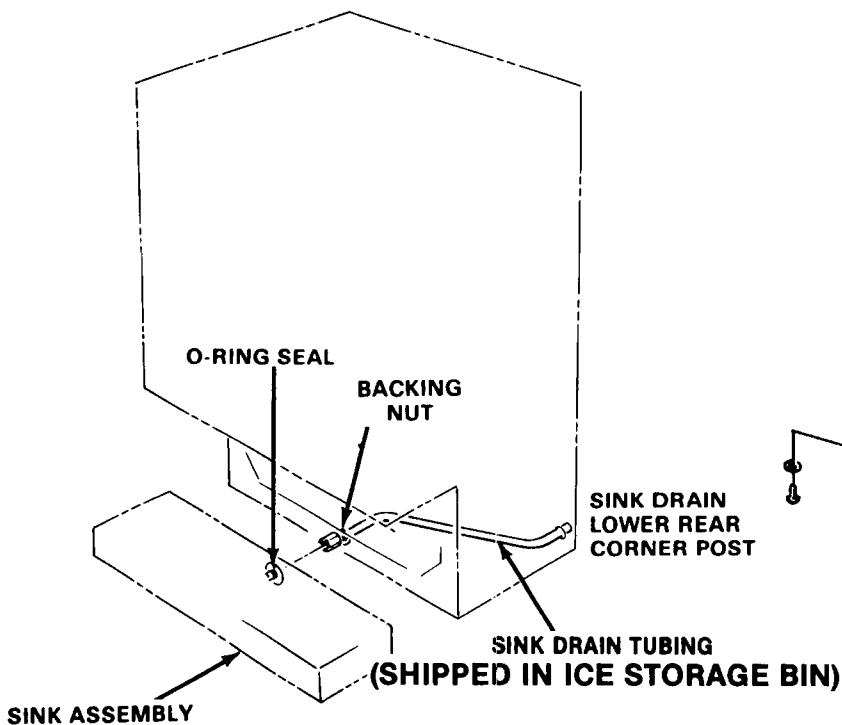
GENERAL INFORMATION & INSTALLATION

1. Install sink drain: Remove sink drain tubing packed in ice storage bin. Insert plain end of sink drain tubing through lowest center hole in front of icemaker base, then tip icemaker back to gain access and slide backing nut over sink drain tube and route plain end out through lower hole in rear corner post. Tighten backing nut against inside front edge of icemaker base.

Observe sink assembly drain connection. O-ring must seat in groove provided in sink drain fitting.

Push sink assembly back to snap in position.

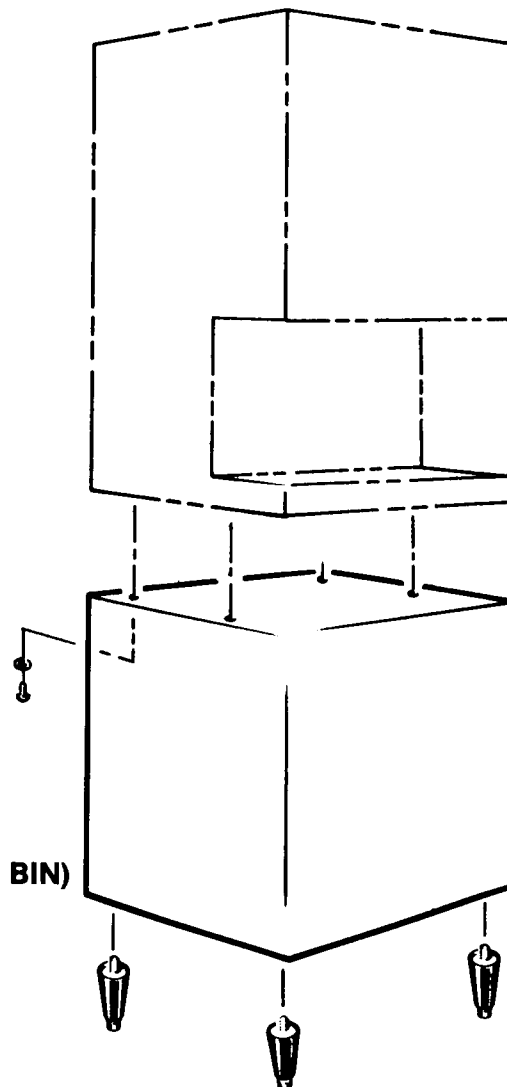
2. Position the Dispenser in the selected permanent location.
3. Level the Dispenser in both the left-to-right and front-to-rear directions. Metal shims may have to be added to corner or side, to achieve the level required.



Sink Drain Tube Installation

INSTALLATION OF MCD200 ON DMS50 MACHINE STAND

1. Lay machine stand on back or side and install leg kit.
2. Position machine stand in selected permanent location and level from front to back and side to side directions with the open section to the back.
3. Attach dispenser to machine stand using screws and lock washers provided.
4. Wipe cabinet clean using damp cloth.



MCD200C

GENERAL INFORMATION & INSTALLATION

NOTE

Prior consideration for location site shall include:

1. *Minimum room temperature 50-degrees F. and maximum room temperature 100-degrees F.*
2. *Water inlet temperatures: Minimum 40-degrees F. and Maximum 100-degrees F.*
3. *Well ventilated location for Air-Cooled model, advising user to frequently clean Condenser, located directly behind the Sink Assembly.*
4. **SERVICE ACCESS:** *Adequate space for all service connections, through the rear of the Cabinet. A six-inch minimum clearance at back and both side louvered panels, for routing cooling air drawn into and exhausted out of the compartment, to maintain proper condensing operation on Air-Cooled Models.*

ELECTRICAL CONNECTIONS

SEE NAMEPLATE for current requirement to determine wire size to be used for electrical hookup. The Dispenser requires a solid earth ground wire. See wiring diagram.

Be certain the Dispenser is connected to its own electrical circuit and individually fused. The maximum allowable voltage variation should not exceed ten percent of the nameplate rating, even under starting conditions. Low voltages can cause erratic operation and may be responsible for serious damage to the overload switch and motor windings.

All external wiring should conform to the National, State and local electrical code requirements. Usually an electrical permit and services of a licensed electrician will be required.

WATER SUPPLY AND DRAIN CONNECTIONS

AIR-COOLED MODELS: The recommended water supply line is a 1/4-inch O.D. copper tubing with a minimum operating pressure of 20 PSIG and a maximum of 120 PSIG.

Connect to cold water supply line with standard plumbing fittings, with a shutoff valve installed in an accessible place between the water supply and the cuber. In some cases a plumbing permit and services of a licensed plumber will be required.

WATER-COOLED MODELS: On water-cooled models, a separate cold water supply inlet is required, to be connected to a second 3/8-inch O.D. male flare fitting at the rear of the cabinet. Additional drain lines are required to drain the water-cooled condenser.

DRAIN CONNECTIONS: All drains are gravity type and must have a minimum of 1/4-inch fall per foot on horizontal runs. The drains to be installed to conform with the local plumbing code. Install separate drain line for discharge water from the

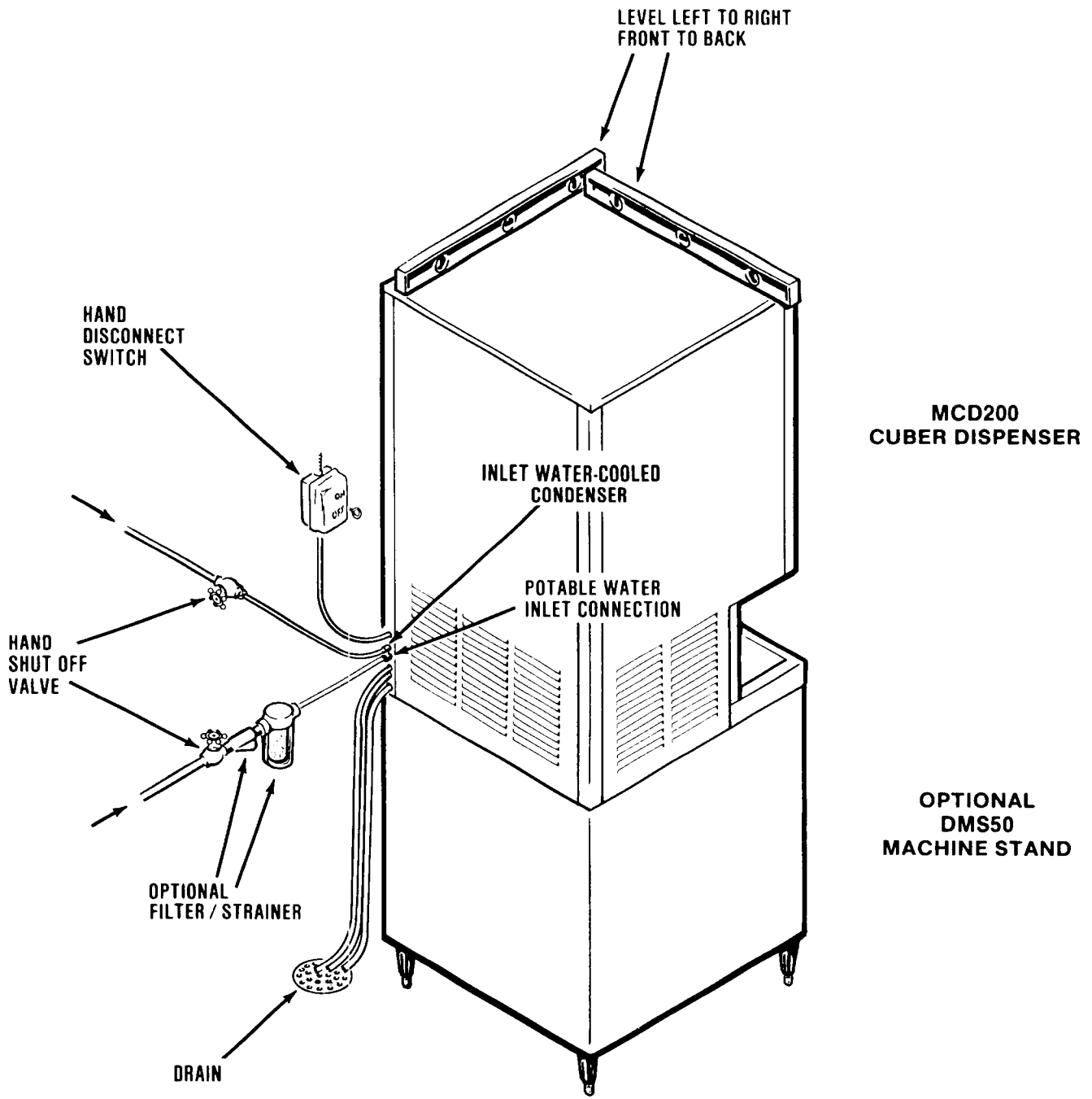
water-cooled condenser. Install a vertical open vent on drain line to ensure good venting. The drain receptacle should be an open, trapped or vented construction.

Recommended bin drain is 5/8-inch O.D. copper tubing and should be vented and run separately.

FINAL CHECK LIST

1. Is the Dispenser level? (IMPORTANT)
2. Have all electrical and piping connections been made?
3. Has the voltage been tested and checked against the nameplate rating?
4. Solid earth Ground properly installed?
5. Is the water supply line shutoff valve installed and electrical wiring properly connected?
6. Have the Bin and Cabinet been wiped clean?
7. Have the Compressor hold down nuts been checked, to be sure the Compressor is snug on the mounting pads?
8. Has the owner/user been given the User Manual and instructed on how to operate the Icemaker/Dispenser.
9. Has the Manufacturer's Registration Card been properly filled out? Check for correct Model and Serial numbers for Serial nameplate then mail the completed card to the SCOTSMAN factory.
10. Check all refrigerant lines and conduit lines, to guard against vibration or rubbing and possible failure.
11. Is there at least six inches clearance behind and around Dispenser for proper air circulation?
12. Is the Dispenser in a room where ambient temperatures are a minimum of 50-degrees F. all year around?
13. Has water supply pressure been checked to insure a minimum of 20 PSI?
14. Has the owner been given name and telephone number of the authorized SCOTSMAN Service Agency serving him?

MCD200C GENERAL INFORMATION & INSTALLATION



Installation Practice

MCD200C OPERATING INSTRUCTIONS

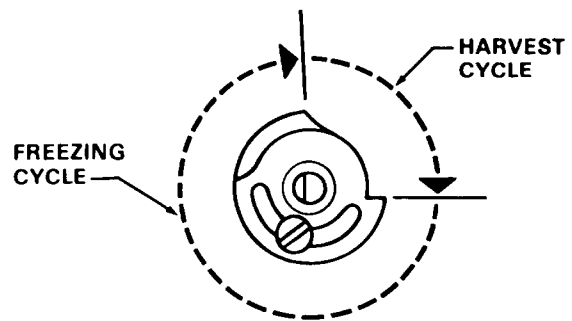
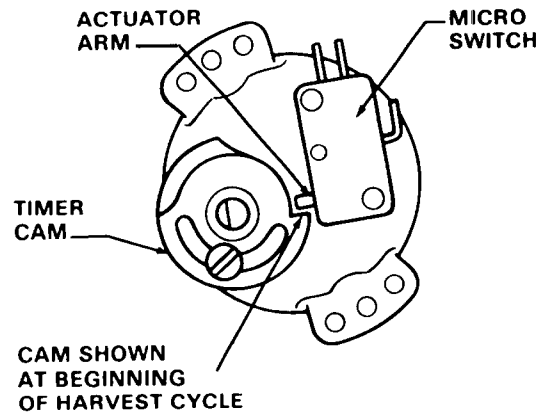
START UP

1. Remove two screws and tilt the top of the front panel out slightly, then lift the panel off two alignment pins. Remove front panel from dispenser.
2. Remove two screws and pull bottom of splash panel out to unsnap catches, sink removal may ease splash panel removal-pull out to remove sink. Remove splash panel from dispenser to locate control box.
3. Check the left end of the control box, see both ON-OFF toggle switches are in OFF position.
4. Just inside the hole in the control box cover is the shaft of the timer and switch assembly. Rotate the shaft of the timer and switch assembly clockwise to start the timer. An audible click can be heard, but in a noisy area, look at the cam and switch to observe the event. The timer starts when the actuator arm on the microswitch drops off outer cam into cam slot. See Timer Cam Positions.
5. Open water supply valve to icemaker and move the master ON-OFF toggle switch, the front toggle switch, to the ON position.
6. Observe water fill cycle: Water inlet solenoid valve OPENS, incoming water flows from valve through tubing to top of freezing chamber. Water flows around inverted ice cube cups and drains through holes into reservoir, reservoir fills. Excess water is overflowed through stand pipe. This cycle will take about three minutes. Timer will close water inlet solenoid valve and water fill cycle is complete.

NOTE

Advancing shaft of timer and switch assembly through remaining cycle into a new harvest cycle restarts the timer and allows a check that: Water inlet solenoid valve OPENS and reservoir overflows through stand pipe. Water inlet valve CLOSES, stopping water overflow.

7. Check that the left cube chute and the right cube chute are properly positioned: with the rear edges resting on the rear shoulder of the freezing chamber; the left cube chute fits snug around the left side part of the freezing chamber; the left edge of the right cube chute aligns with the right edge of the left cube chute, and; both cube chutes are fastened at the bottom of the opening at the front of the freezing chamber.
8. Check that the ends of all the plastic parts of the curtain assembly hang down, contacting the front edges of the two cube chutes.



CAM SHOWN DIVIDED INTO TYPICAL FREEZING & HARVEST CYCLES.

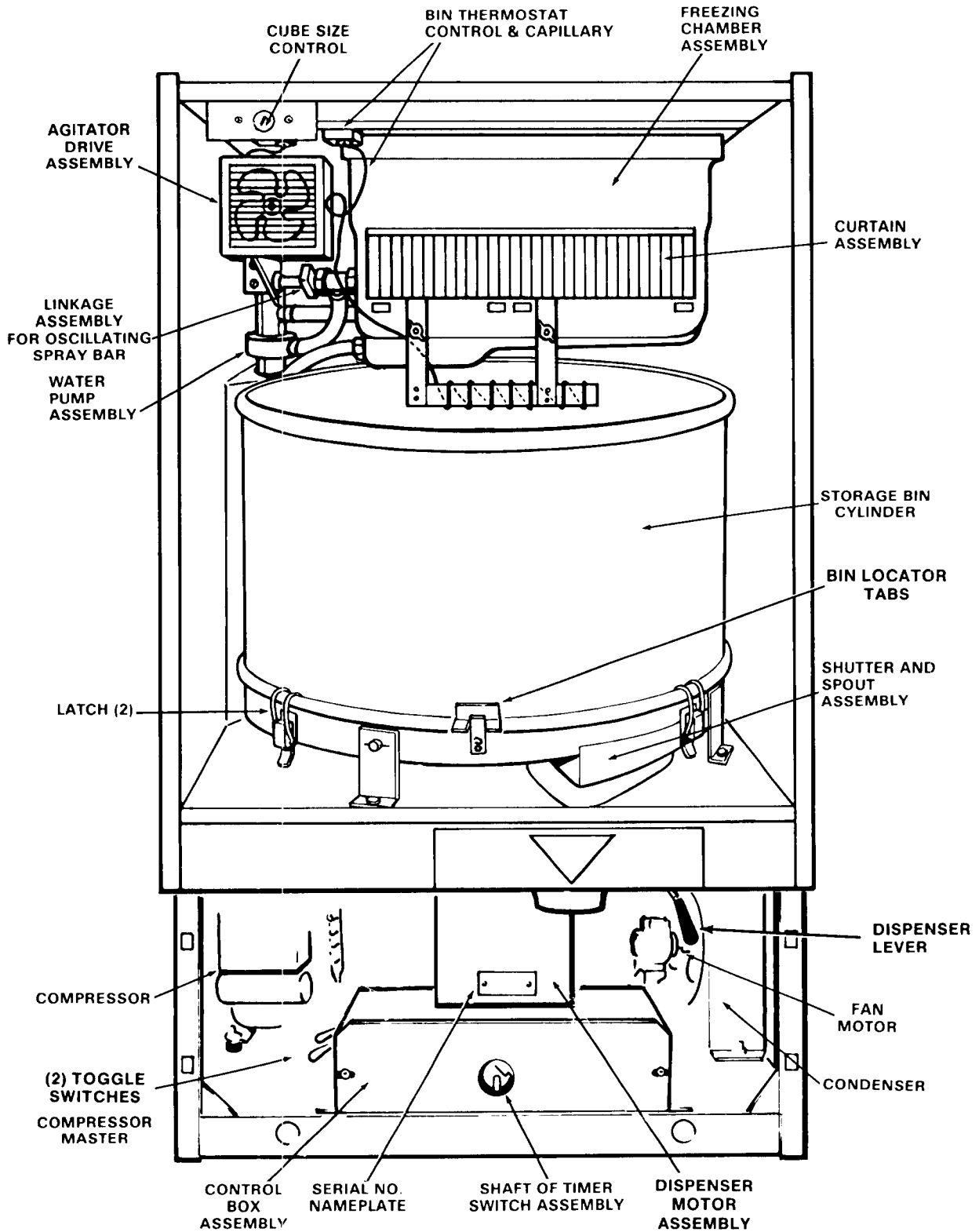
Timer Cam Positions.

9. When the second cycle is completed, move the compressor ON-OFF toggle switch, to the ON position.
10. Check operation of the Freezing cycle:
 - a. Compressor is in operation.
 - b. Agitator Drive Assembly is operating and the Spray Bar oscillates back and forth.
 - c. Water Pump is operating and water is being sprayed through all nozzles on the oscillating Spray Bar, into all inverted ice cube cups.
 - d. Icemaking process begins: feeling inside ice cube cups reveals cold temperatures and very shortly ice begins to form.

NOTE

Freezing time, in a 70-degree F. ambient atmosphere, will range between 14 and 18 minutes. Longer times for temperatures above 70-degrees F. and shorter, when below. Average times for complete cycles, range between 17 to 25 minutes.

MCD200C OPERATING INSTRUCTIONS



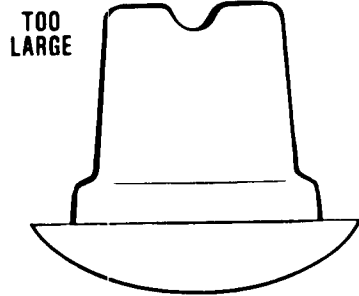
MCD200 Dispenser - Component Location

MCD200C OPERATING INSTRUCTIONS

11. Observe first ice cube harvests:

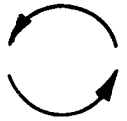
All cubes should drop from the freezing chamber by the end of the timed portion of the harvest cycle. If required, the harvest time should be adjusted.

Check size of ice cubes:

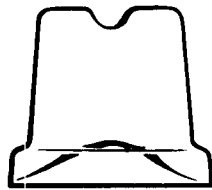


A cube this size and shape is **TOO LARGE** and requires longer freezing cycle which may cause evaporator freeze ups.

Adjust cube size control counter clockwise to produce a smaller cube.



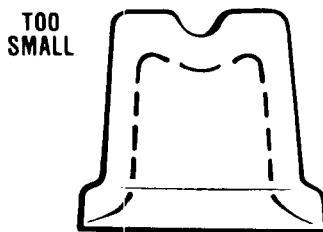
Proper size and shape of a Scotsman Round Cube:



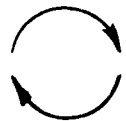
PROPER SIZE AND SHAPE of the round cube. Icemaker operates at peak efficiency when a cube this size and shape is produced.

NOTE

Normal cube size is with a one-quarter inch depression in the crown.



A cube this size and shape is **TOO SMALL**. Adjust cube size control clockwise to produce a larger cube. Cubes this size or shape are too small and cause excessive cycling.



MCD200C OPERATING INSTRUCTIONS

ADJUSTMENT OF CUBE SIZE

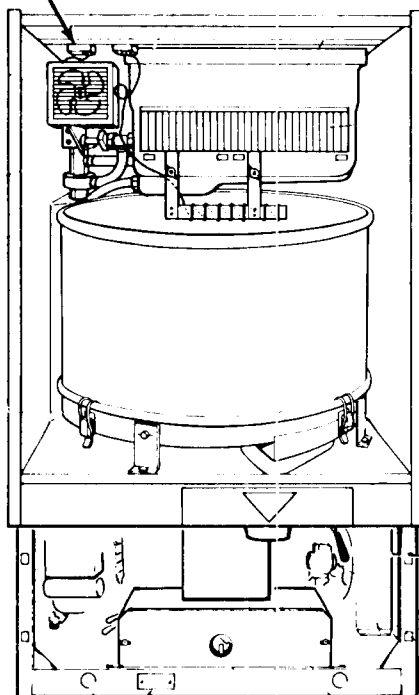
To produce SMALLER sized ice cubes:

- (1) Locate Cube Size Control, in the top left section of the storage bin compartment.
- (2) Rotate the adjusting screw one-eighth of a turn COUNTERCLOCKWISE to WARMER.
- (3) Observe size of ice cubes in next two ice cube harvests and repeat step (2) above, in one eighth turn increments, until desired ice cube size is achieved.

To produce LARGER sized ice cubes:

- (1) Locate Cube Size Control, in the top left section of the storage bin compartment.
- (2) Rotate the adjusting screw one-eighth of a turn CLOCKWISE to COLDER.
- (3) Observe size of ice cubes in next two ice cube harvests and repeat step (2) above, in one-eighth turn increments, until desired ice cube size is achieved.

CUBE SIZE
CONTROL



Check texture of ice cubes: When partially cloudy throughout, suggests unit operating short of water near end of freezing cycle, or possibly an extreme water condition, wherein filtering or purifying equipment is recommended. Contact SCOTSMAN - Queen Products Division, Service Department, Albert Lea, Minnesota, for further details.

12. With the icemaker in the Harvest Cycle, make contact using ice cubes on the Bin Thermostat Control Bulb, to test shutoff. The ice should cause the Icemaker to shut OFF, at the end of the Harvest Cycle.

13. ICE DISPENSE

When bin is adequately filled with ice, place container beneath ice dispense spout. Move and hold ice dispense lever. Observe, ice continuously falls into container. Release ice dispense lever and ice flow stops. Repeat test several times.

14. Thoroughly explain to the owner/user the significant specifications of the Icemaker, the start up and operation, maintenance and cleaning procedures. Answer all questions about the icemaker, and inform the owner of the name and telephone number of the authorized SCOTSMAN Service Agency serving him.

FREEZING CYCLE

Water from the sump in the Reservoir is pumped through the oscillating Spray Bar Assembly, which consists of a spray bar and 12 jets, through which water is sprayed into the inverted cube molds of the Freezer Assembly Evaporator. See Freezing Cycle Illustration. At the beginning of the Freeze Cycle the electrical circuit is completed to the compressor, Water Pump, and the coil of the Finish Relay. The Water Pump operates continuously during the Freeze Cycle through contacts of the Finish Relay. In Water-Cooled models water also flows through the Condenser and out the drain. While in the Condenser, water removes heat from the refrigerant and allows the refrigerant to condense from a gas to a liquid.

Refrigerant is compressed in the Compressor and discharged into the Condenser as a high pressure, high temperature gas. The refrigerant is cooled and condensed by either air or water and condenses to a high pressure, high temperature liquid. This liquid refrigerant then passes through a small capillary tube where the temperature and pressure of the liquid refrigerant are lowered. The low pressure, low temperature liquid refrigerant, then enters the Evaporator. The refrigerant is warmed by water being sprayed against the Evaporator and begins to boil off, to become a gas. The refrigerant next travels through the Accumulator where any remaining liquid refrigerant then returns to the Compressor as a low pressure, low temperature gas and the cycle starts again.

MCD200C OPERATING INSTRUCTIONS

During the Freezing Cycle, both the Water Inlet Solenoid Valve and the Hot Gas Solenoid Valve are CLOSED.

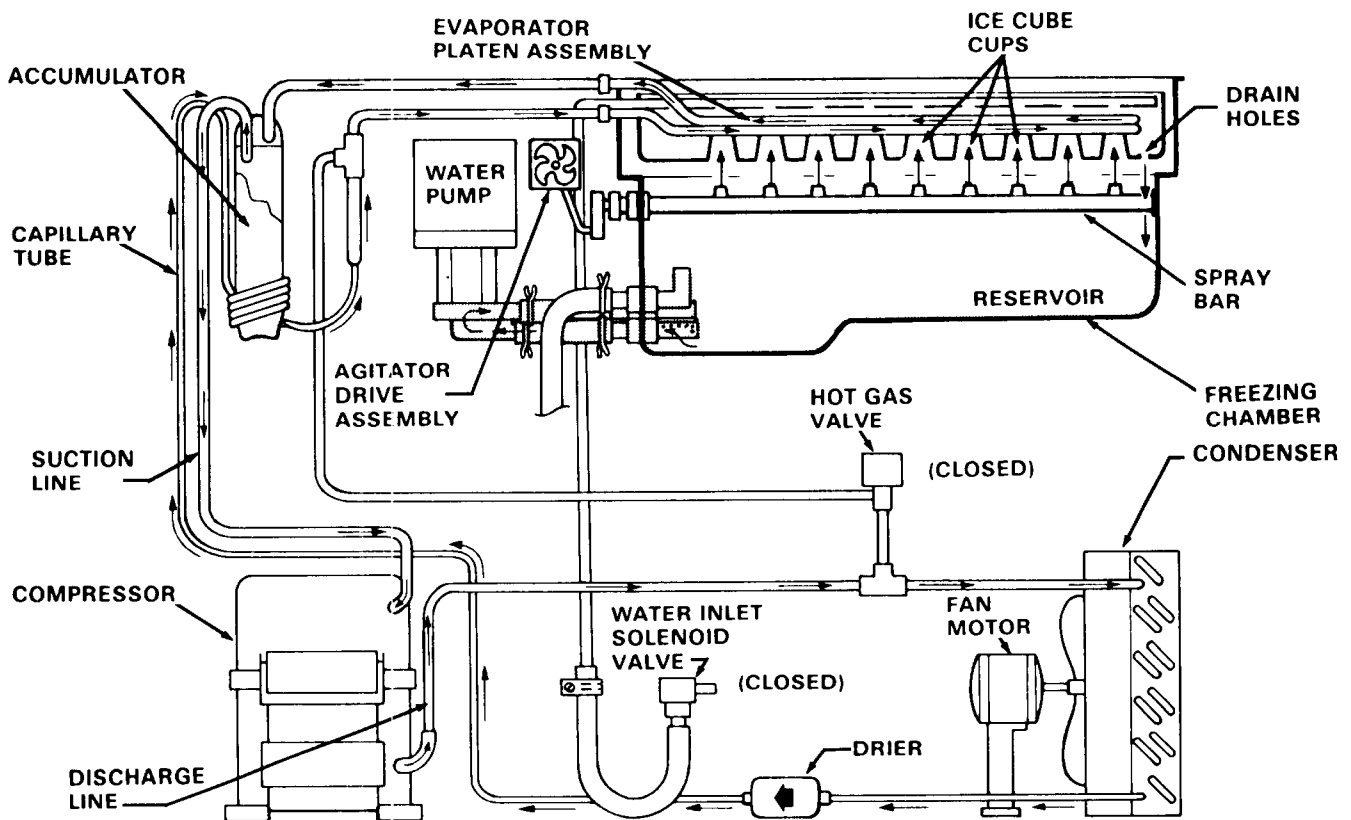
When the ice cubes are about 3/4 formed, the Cube Size Control Bulb located on the suction line will sense the temperature at which it is preset to CLOSE. This will complete the electrical circuit to the Timer. The Timer then controls the remainder of the cycle.

The Timer will keep the icemaker operating in the Freeze Cycle for the next five minutes. This will give the cubes time to fully form. After five minutes, the Timer will switch the icemaker into the Harvest Cycle, through the contacts of the Timer Assembly microswitch.

HARVEST CYCLE

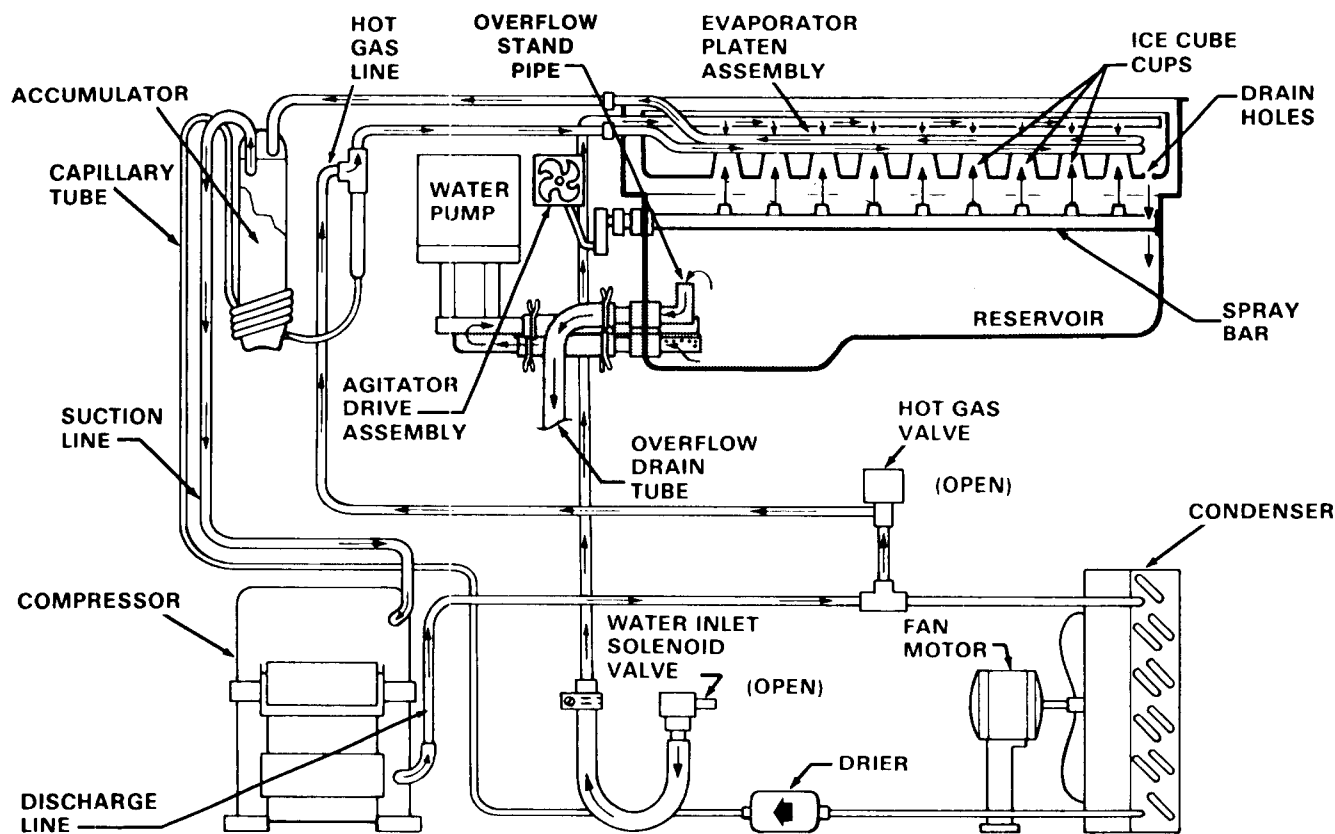
When the Timer switches the Icemaker into the Harvest Cycle, hot gas being discharged from the Compressor is diverted through the Hot Gas Solenoid Valve into the Evaporator.

During this cycle, the hot gas circulates from the Compressor to the Evaporator and back again, bypassing the Condenser and capillary tube. In the electrical circuit, the Compressor is operating and both the Water Inlet Solenoid Valve and the Hot Gas Solenoid Valve are energized. See Harvest Cycle Illustration. Opening the Water Inlet Solenoid Valve allows a fresh water supply to be discharged into the top of the Platen Assembly Evaporator. The finished ice cubes are released from the Evaporator by the warming effect of the hot gas flowing through the Evaporator tubes and the water flow around the ice cube molds. The released ice cubes drop onto the slanted Cube Chute and into the ice storage bin. At the end of the three minute Harvest Cycle, the Timer cam will push the actuator arm of the microswitch IN. If the Bin Thermostat is still CLOSED, a whole new cycle will begin. If the Bin Thermostat is OPEN, the Icemaker will shut OFF at this time.



Freezing Cycle

MCD200C OPERATING INSTRUCTIONS



1. On Air-Cooled Models, the Water Pump Motor and Fan Motor may cycle intermittently during the Harvest Cycle.
On Water-Cooled Models, the Water Pump Motor is OFF during the Harvest Cycle.

Harvest Cycle

ICE DISPENSING CYCLE

Moving the ice dispenser lever completes an electrical circuit to the bin drive motor. The bin drive motor rotates the agitator which pushes cubes through open ice dispense chute and cubes fall into the container. Releasing ice dispense lever opens an electrical circuit, stopping the bin dispense motor and the dispense system returns to stand by mode.

MCD200C OPERATING INSTRUCTIONS

COMPONENT DESCRIPTIONS

BIN THERMOSTAT CONTROL

The Bin Thermostat Control is located to the right of the Cube Size Control on the left section of the Freezer support, above the front of the Freezing Chamber. The sensing capillary tube of the control is routed and wrapped around the Cube Chute Bulb Holder, located below the front opening of the Freezing Chamber and extending down into the ice storage bin. The Control functions to automatically SHUT OFF the Icemaker, when the ice storage bin is filled and ice contacts the capillary tube. It also signals the RESTART of the Icemaker when the capillary tube starts to warm up after ice has been removed from the bin. Factory settings are 35-degrees F. CUT-OUT and 40-degrees F. CUT-IN. ALWAYS CHECK a replacement Bin Thermostat Control BEFORE installing the Control in the Cuber. Prepare a container of ice and water and insert a thermometer. As temperature indications on the thermometer decrease to 35-degrees F., insert the capillary tube of the Bin Thermostat Control and determine temperature of CUT-OUT when an audible click is heard in the Control. Slowly add hot water to container and check audible click in the Control for CUT-IN while observing increase in temperature of water to 40-degrees F. Refer to procedure to adjust Bin Thermostat Control.

NOTE

The Bin Thermostat Control is wired through the holding relay and will not CUT-OUT the Icemaker until the end of the Harvest Cycle. Altitude adjustment should ONLY be performed on Ice-makers installed at 2,000-foot level locations and ABOVE, and adjust only in increments of one-fourth turn of screw at a time.

COMPRESSOR CONTACTOR

A single-pole contactor is used to supply current to the Compressor; and, is wired so any control in the pilot circuit, such as the Bin Thermostat and High Pressure Control, etc., will cause the contactor coil to be de-energized, when the control contact OPENS, thereby breaking the circuit to the Compressor through the contactor points.

CUBE SIZE CONTROL

The temperature sensing Cube Size Control affects the length of the Freezing Cycle prior to initiating the Finishing Timer. The Cube Size Control closes its contacts when the Evaporator reaches a preset temperature, starting the Finishing Timer. A variation in either ambient air or incoming water temperature will affect the efficiency

of the refrigeration system. This will vary the length of time it takes the Evaporator to reach the temperature at which the Cube Size Control is preset to CLOSE; which, in turn, will affect the overall cycle time.

NOTE

Be sure to refer to Adjustment of the Cube Size Control, BEFORE attempting to adjust the control.

FINISHING TIMER - Timer & Switch Assembly

The function of the Finishing Timer begins when activated by the Cube Size Control. The Timer controls an eight minute dual function: five minutes are programmed to finish freezing the ice cubes and the final three minute portion is for the defrost operation and harvest of the ice cubes. All electrical circuitry is connected through the printed circuit board and the Finishing Timer and shunted by the single-pole, double-throw microswitch to either the Freezing Cycle or the Harvest Cycle. The microswitch is actuated by a Cam Assembly directly connected to the Timer Motor. The Timer Cam can be adjusted to vary the defrost time, as required.

HIGH PRESSURE CONTROL - Water-Cooled Model

The High Pressure Control, a safety control, is factory set at 190 PSIG. The Control functions as a precautionary device, to shut OFF electrical power to the Icemaker, should a loss of water occur to the water-cooled Condenser. In addition to being a manual reset Control, there is an adjusting screw for raising or lowering the CUT-IN pressure.

HIGH PRESSURE FAN CONTROL-Air-Cooled Model

The High Pressure Fan Control functions only during the harvest cycle, to maintain head pressure. As an automatic reset device, the Control is mechanically connected to the refrigerant system high side; and, electrically has both the Water Pump and the Condenser Fan Motor wired into control contacts. The control settings CLOSE at 150 PSIG and OPEN at 130 PSIG. During defrost, the Control will usually cycle once, causing the Fan Motor and the Water Pump to briefly operate during this time.

HOT GAS SOLENOID VALVE

The Hot Gas Solenoid Valve functions only during the harvest cycle, to divert the hot

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discharge gas from the Compressor, by-passing the Condenser and capillary tube, for direct flow to the Evaporator Platen Assembly to release ice cubes from the inverted ice cube molds. The Hot Gas Solenoid Valve is comprised of two parts, the Body & Plunger and the Coil & Frame assemblies. Installed in the discharge line of the Compressor, the energized solenoid coil lifts the valve stem within the valve body to cause the hot discharge gas to be diverted when the Finishing Timer has advanced to the start of the harvest cycle.

FINISH RELAY

The multi-function, three-pole, double-throw, plug-in relay is installed directly into a receptacle on the printed circuit board in the Control Box. The relay functions, in part, to by-pass the Bin Thermostat, to prevent the Ice maker from shutting OFF, when a filled-bin condition occurs, during the Freezing Cycle. The by-pass action serves to ensure full-sized ice cubes with each harvest cycle; and, to prevent short cycling on the Bin Thermostat. The relay also redirects the current flow through the High Pressure Fan Control to the Condenser Fan Motor and the Water Pump during the harvest cycle.

SPRAY BAR ASSEMBLY

The Spray Bar Assembly is designed to channel recirculating water to twelve water jets for uniformly spraying the water into the inverted ice cube cup molds.

NOTE

Refer to CLEANING - Ice maker; and, for problems requiring removal of parts refer to details for removing Spray Bar Assembly and associated parts.

WATER INLET SOLENOID VALVE

The Water Inlet Solenoid Valve functions only during the Harvest Cycle, when it is

energized to permit a metered, one-third gallon-per-minute rate of incoming water, to flow through the Defrost Tube onto the top of the plastic Platen Assembly, assisting in the harvest of ice cubes. The water drains through holes in the Platen Assembly into the Reservoir in the lower section of the Freezing Chamber; and there, the water is recirculated through the Water Pump for return to the Spray Bar Assembly.

WATER REGULATOR VALVE - Water-Cooled Models

The Water Regulator Valve functions to maintain a constant head pressure, by regulating the amount of incoming water flow through the Condenser, on water-cooled models. The valve operates through the refrigerant system high side pressure. Rotating the adjusting screw, located on top of the valve, can INCREASE or DECREASE the operating head pressure.

NOTE

When installing a replacement Water Regulator Valve, be sure the replacement valve is installed with the arrow positioned in the direction of the water flow.

REFRIGERANT CHARGE

MODEL	MCD200 Refrig. Chg.
Air-Cooled	26 oz. R-12 (Approx.)
Water-Cooled	25 oz. R-12 (Approx.)

NOTE

Always CHECK NAMEPLATE on individual Ice maker for specific refrigerant charge, BEFORE charging the refrigeration system. The above listed refrigerant charges are approximate charges for the MCD200 Cuber Dispenser, however it is important to CHECK NAMEPLATE for each Ice maker, especially when there are different Compressors.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

The procedures provided in this Section are arranged in alphabetical order, to make specific Adjustment and Removal and Replacement information easy to locate.

Read the instructions thoroughly before performing any Adjustment or Removal and Replacement Procedures.

ADJUSTMENT OF THE BIN THERMOSTAT CONTROL

The control for the Bin Thermostat is the Temperature Control, located to the right of the Cube Size Control on the left Section of the Gasket Support above the front of the Freezing Chamber.

WARNING

The adjusting screws on the Temperature Control device have very sensitive response to adjustment. **DO NOT** attempt to adjust the screw until after thoroughly reading and understanding the following instructions and illustrations. Over-adjusting or erratic guessing, can foul the instrument and cause ultimate delay and part replacement, **WHICH COULD HAVE BEEN PREVENTED.**

Adjustment for **ALTITUDE CORRECTION** should only be performed for installations at **2000-feet and ABOVE.** Carefully adjust only in one-fourth turn of screw at a time. **NO ALTITUDE CORRECTION** adjustments should be performed **BELOW** the 2000-foot level.

See Figure 4-1 for location and direction of rotation, clockwise (CW) or counterclockwise (CCW), of the adjusting screw on the Temperature Control, in the particular Control Box the adjustment is to be performed.

ADJUSTMENT OF THE CUBE SIZE CONTROL

CAUTION

BEFORE performing actual adjustment to the Cube Size Control, check other possible causes for cube size problems, refer to Section VI, **SERVICE DIAGNOSIS** for problem review and analysis.

DO NOT perform adjustment when a new Cube Size Control is installed, until the control bulb has been properly installed in the tube well, on the refrigerant tube of the Platen Assembly and the icemaker has progressed through several complete freezing and harvest cycles, to observe size and quality of ice cubes and whether or not a cube size problem exists.

As a reverse acting temperature control, adjustment on the Cube Size Control is performed to either cause larger sized ice cubes or smaller sized ice cubes to be produced.

IF ICE CUBES ARE SHALLOW SIZE (Indentation is too deep):

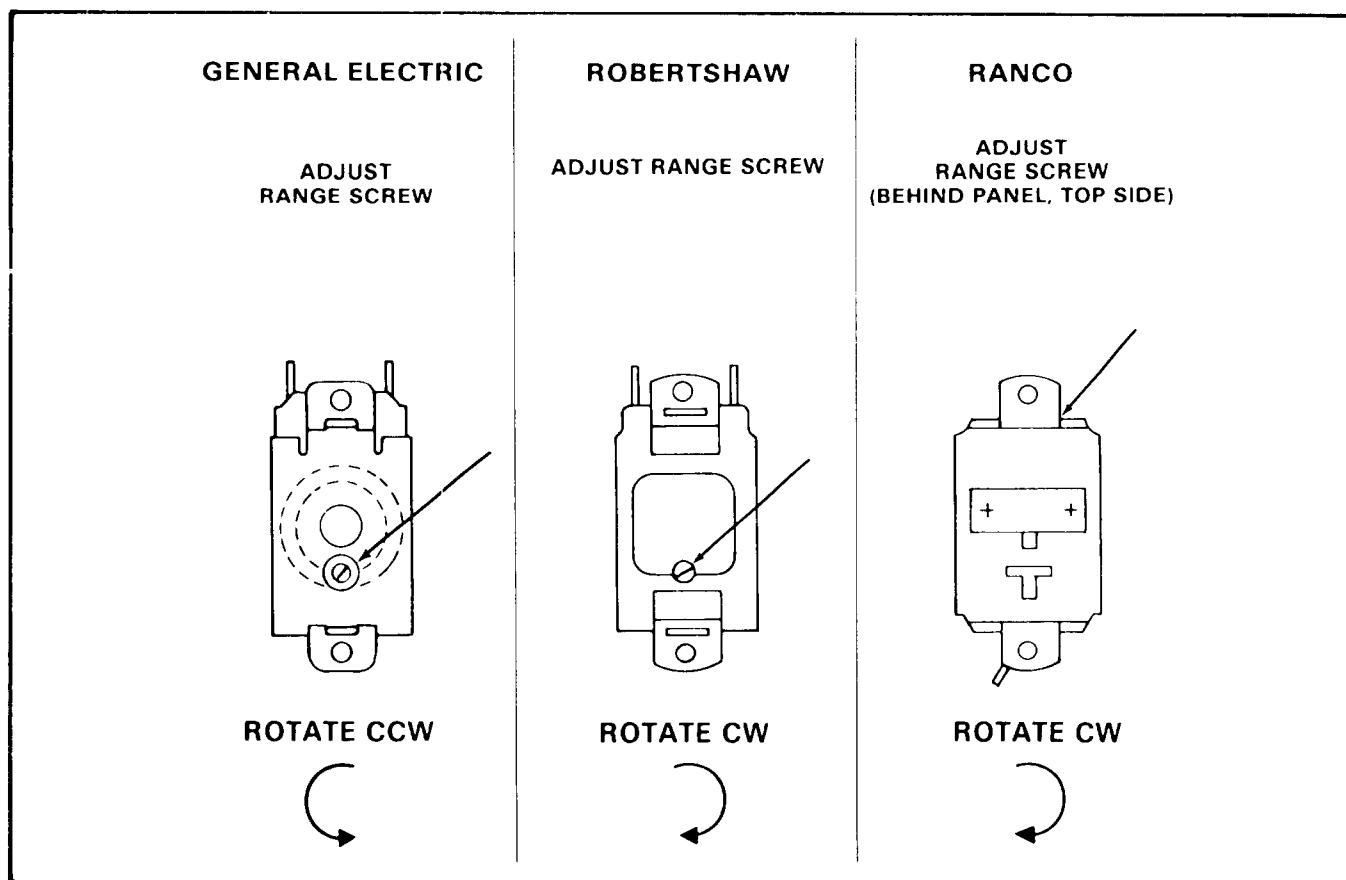
1. Locate the Cube Size Control to the left of the Temperature Control, the left Section of the Gasket Support Bracket above the front opening of the Freezing Chamber.
2. Rotate the adjusting screw one-eighth of a turn **CLOCKWISE** toward **COLDER.**
3. Observe size of ice cubes in next two ice cube harvests and repeat step 2 above, in one-eighth turn increments, until proper ice cube size is achieved.

IF ICE CUBES ARE OVERSIZE (Indentation is too full):

1. Locate the Cube Size Control under the left Section of the Gasket Support bracket above the front opening of the Freezing Chamber.
2. Rotate the adjusting screw one-eighth of a turn **COUNTERCLOCKWISE** toward **WARMER.**
3. Observe size of ice cubes in next two ice cube harvests and repeat step 2 above, in one-eighth turn increments, until proper ice cube size is achieved.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES



Adjustment of the Temperature Control.

ADJUSTMENT OF THE TIMER & SWITCH ASSEMBLY

The Timer & Switch Assembly is factory set, so that one complete revolution of the cam on the Timer represents eight minutes. Six minutes comprise the freezing cycle event during cam rotation, and the final two minutes program the defrost and harvest cycle. Rotating the shaft of the Timer Cam, **CLOCKWISE** will allow positioning the actuator arm of the microswitch on the cam at the selected start position for either the freezing cycle or harvest cycle, as required, during the **START UP** procedures and in the **CLEANING** instructions. Rotating the shaft **COUNTERCLOCKWISE** will unscrew the shaft from the threaded stud on the Timer Cam.

To Adjust the Timer Switch Assembly:

HARVEST CYCLE: Slowly rotate the shaft of the Timer & Switch Assembly, located in the hole in the front of the Control Box Cover, **CLOCKWISE**, until the actuator arm on the microswitch drops off of the outer cam into the cam slot. An audible click can be heard, but in a noisy area, look at the cam and switch to observe the event.

FREEZING CYCLE: Slowly rotate the shaft of the Timer & Switch Assembly, located in the hole in the front of the Control Box Cover, **CLOCKWISE**, until the actuator arm on the microswitch rides up out of the cam slot to the start of the surface of the outer cam.

ADJUSTMENT OF THE WATER REGULATOR ASSEMBLY

The correct head pressure on Water-Cooled models is 135 PSIG. Adjustments can be performed on the Water Regulator Assembly to increase or decrease head pressure.

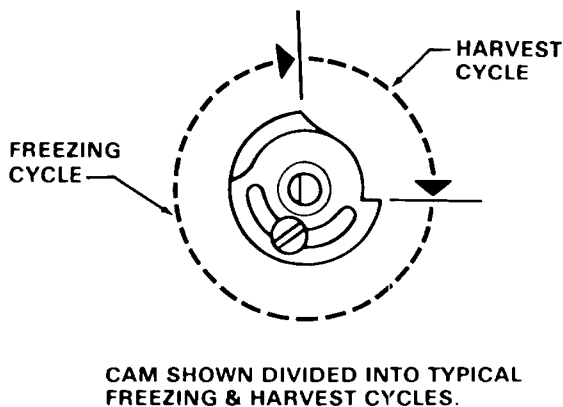
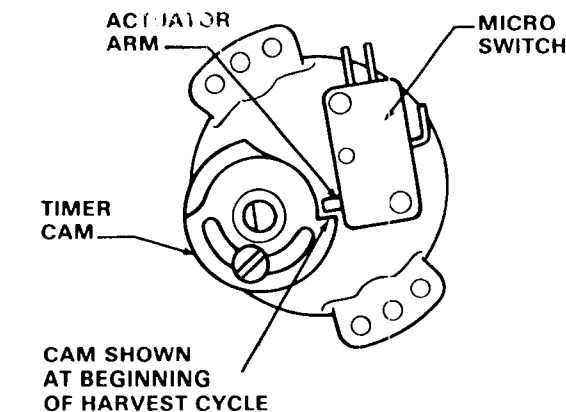
To Adjust Water Regulator Assembly:

To **INCREASE** the Head Pressure: Rotate the adjusting Screw, on the Water Regulator Assembly **COUNTERCLOCKWISE**.

To **DECREASE** the Head Pressure: Rotate the adjusting Screw, on the Water Regulator Assembly **CLOCKWISE**.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES



Adjustment of the Timer & Switch Assembly.

WARNING

Be sure the electrical power supply and the water supply are OFF, BEFORE starting any of the following REMOVAL AND REPLACEMENT procedures as a precaution to prevent possible personal injury or damage to equipment.

REMOVAL AND REPLACEMENT OF THE AGITATOR DRIVE ASSEMBLY

To Remove the Agitator Drive Assembly:

1. Remove screws and the top Lid Assembly.
2. Remove two screws and tilt the top of the Front Panel out slightly, then lift the Panel off of the two alignment pins on the front of the Dispenser.
3. Remove three screws and the Channel Cover from the Channel, to gain access to remove the single screw attaching the Channel to the Agitator Cover. Tag or otherwise identify the electrical leads to the Agitator and disconnect.

4. Remove three screws, lockwashers and washers attaching the Support Bracket to the bottom of the Agitator Box Assembly; then, slide the Support Bracket to the left and off of the shaft of the Spray Bar Journal.
5. Remove the screws from each end of the Gasket Support and the screws attaching the top side and rear flanges of the Freezing Chamber to the sides and rear of the foamed bin wall liner.
6. Unsnap one of the End Linkage connects of the Linkage Assembly; then, carefully lift the Freezing Chamber and attached Platen Assembly and Gasket Support, so the right end lifts clear of the right bin wall just enough to allow the left end of the Gasket Support to be lowered a couple inches or so, which will widen the space at the left end of the Freezing Chamber enough for removal of the Agitator Drive Assembly.
7. Remove two screws attaching the flange of the Agitator Box Assembly and a bonding strap to the left wall of the bin liner; then, carefully remove the Agitator Drive Assembly from the Dispenser.

NOTE

During this removal step, the Bushing inside the Channel will disconnect from the Agitator Cover. Reinsert during reassembly.

- B. To replace the Agitator Drive Assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE COMPRESSOR ASSEMBLY

NOTE

Always install a replacement Drier, any time the sealed refrigeration system is opened. Do not replace the Drier until all other repair or replacement has been completed.

To Remove the Compressor Assembly:

1. Remove screws and the Left Side Panel and the Rear Panel.
2. Disconnect the leads at the Compressor Junction Box, that originate from the Control Box.
3. Bleed off or blow the refrigerant charge through the Schrader valve.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

4. Unsolder and disconnect both the suction line and the discharge line from the Compressor.
5. Unsolder the process header tube from the Compressor and retain for installation on the replacement Compressor.
6. Remove four bolts, washers, mounting sleeves and grommets attaching the Compressor to the Chassis Base.
7. Remove the Compressor from the MCD200.

NOTE

Thoroughly evacuate the system to remove moisture and non-condensables.

To replace the Compressor Assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE CONDENSER - AIR-COOLED MODELS

NOTE

Always install a replacement Drier, anytime the sealed refrigeration system is opened. Do not replace the Drier until all other repair or replacement has been completed.

To Remove The Condenser:

1. Remove screws and the Right Side Panel and the Rear Panel.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder and disconnect both the inlet and outlet tubes at the Condenser.
4. Remove two screws attaching the Condenser to the Chassis Base.
5. Remove the Condenser from the MCD200.

NOTE

Thoroughly evacuate the system to remove moisture and non-condensables.

To replace the Condenser, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE CONDENSER - WATER-COOLED MODELS

NOTE

Always install a replacement Drier, anytime the sealed refrigeration system is opened. Do not replace the Drier until all other repair or replacement has been completed.

To Remove the Condenser:

1. Remove screws and the Right Side Panel and the Rear Panel.
2. Bleed off and disconnect both the inlet and outlet tubes at the Condenser.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder and disconnect both the inlet and outlet tubes at the Condenser.
4. Remove two screws attaching the Condenser to the Chassis Base.
5. Remove the Condenser from the MCD200.

NOTE

Thoroughly evacuate the system to remove moisture and non-condensables.

To replace the Condenser, reverse the procedure.

REMOVAL AND REPLACEMENT OF THE CYLINDRICAL BIN AND INTERNAL PARTS

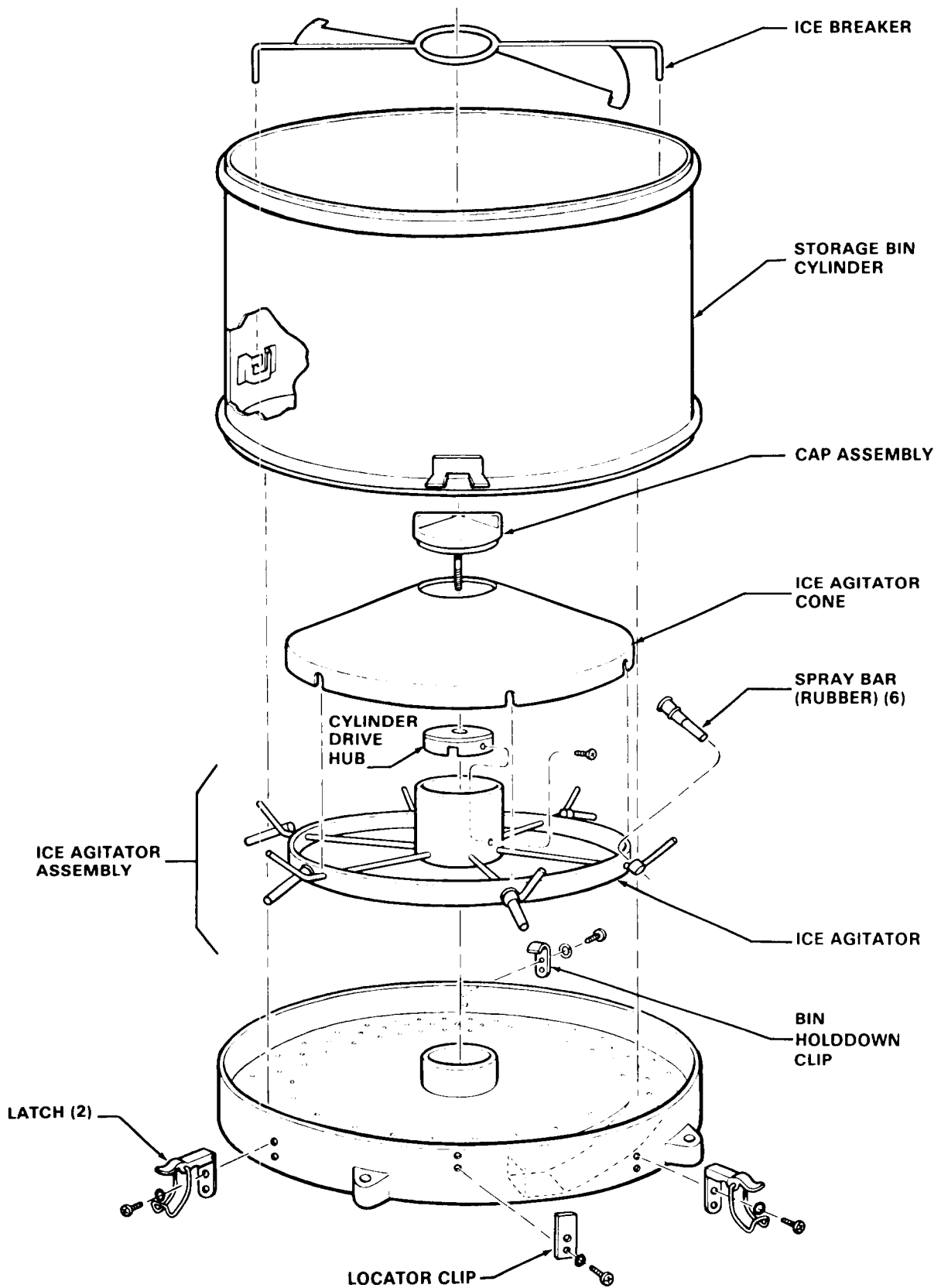
To Remove the Cylindrical Bin:

1. Remove two screws and tilt the top of the Front Panel out slightly, then lift the Panel off of the two alignment pins on the front of the Dispenser.
2. Unlock the Ice Breaker from the two brackets on the inner wall of the cylindrical Bin and remove the Ice Breaker.
3. Unscrew and remove the Cap Assembly; then, lift out the Ice Agitator Cone, Ice Agitator and Ice Agitator Assembly.
4. Unlock the two Latches at the front of the Cylindrical bin and remove the Bin from the Dispenser, using care not to contact or possibly damage the Bin Thermo capillary line and other parts.

To replace the Cylindrical Bin and internal parts, reverse the removal procedure.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES



Ice Breaker, Agitator, Storage Bin - Exploded View.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE DRIER

NOTE

Always install a replacement Drier, anytime the sealed refrigeration system is opened. Do not replace the Drier until all other repair or replacement has been completed.

To Remove the Drier:

1. Remove screws and the Rear Panel.
2. Remove screw and Drier Brace attaching the Drier to the Chassis Base.
3. Bleed off or blow the refrigerant charge through the Schrader valve.
4. Unsolder refrigeration lines at each end of the Drier, remove the Drier and separate the Drier from the Drier Brace.

To replace the Drier:

CAUTION

1. **If the factory seal is broken on the replacement Drier, exposing it to the atmosphere more than a few minutes, the Drier will absorb moisture from the atmosphere and lose substantial ability for moisture removal.**
2. **Be sure the replacement Drier is installed with the arrow positioned in the direction of the refrigerant flow.**

-
1. Remove the factory seals from the replacement Drier and install the Drier in the refrigerant lines, with the arrow positioned in the direction of the refrigerant flow.
 2. Install the Drier Brace on the Drier.
 3. Solder the Drier into the lines, two places.
 4. Purge the system and check for leaks.
 5. Thoroughly evacuate the system to remove moisture and non-condensables.
 6. Charge the system with refrigerant, by weight. SEE NAMEPLATE.
 7. Replace the Rear Panel and attaching screws.

REMOVAL AND REPLACEMENT OF THE DRIVEMOTOR ASSEMBLY

To Remove the Drivemotor Assembly:

1. Remove two screws and tilt top of the Front Panel out slightly, then, lift the Panel off of the two alignment pins on the front of the Dispenser.
2. Pull the Sink and Splash Panel out and remove from the Dispenser.
3. Remove screws and the Rear Panel from the Dispenser.
4. Remove and retain the screw and lockwasher attaching the left end of the Control Box Assembly to the Dispenser Base; then, loosen the screw at the right end of the Control Box Assembly.
5. Use extra care not to damage or pull loose the capillary line and pivot the left end of the Control Box Assembly out, far enough to allow removal of the Gearmotor Mounting Bracket and Drivemotor Assembly in the next steps.
6. Remove and retain two screws attaching the Hot Gas Valve and Bracket to the rear of the Gearmotor Mounting Bracket.
7. Remove and retain three screws and lockwashers from each end of the Gearmotor Mounting Bracket and lower the Bracket and Drivemotor Assembly to disengage the Drivemotor coupling shaft from the Bin Shaft Assembly.
8. Carefully work the Gearmotor Mounting Bracket and Drivemotor Assembly out through the opening provided by pivoting the left end of the Control Box Assembly.

To replace the Drivemotor Assembly, reverse the removal procedure.

ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE
FAN MOTOR ASSEMBLY - AIR-COOLED
MODELS

NOTE

Before beginning this procedure, observe the Fan Blade position on the shaft of the Fan Motor and mark the Fan Blade, so it will be correctly positioned during reassembly. Direction of air flow should be toward the Fan Motor.

To Remove the Fan Motor Assembly:

1. Remove screws and the Rear Panel from the Dispenser.
2. Disconnect the two electrical leads from the Fan Motor from inside the Control Box Assembly.
3. Remove two screws and lockwashers from each leg of the Fan Mounting Bracket and remove the Fan Motor and Bracket out the rear of the Dispenser.
4. Remove the nut from the end of the Fan Motor Shaft and remove the Fan Blade.
5. Remove four screws securing the Fan Motor to the Fan Mounting Bracket and separate the Fan Motor from the Bracket.

To replace the Fan Motor Assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE
FREEZING CHAMBER, PLATEN ASSEMBLY
AND SPRAY BAR ASSEMBLY

NOTE

Always install a replacement Drier, anytime the sealed refrigeration system is opened. Do not replace the Drier until all other repair or replacement has been completed.

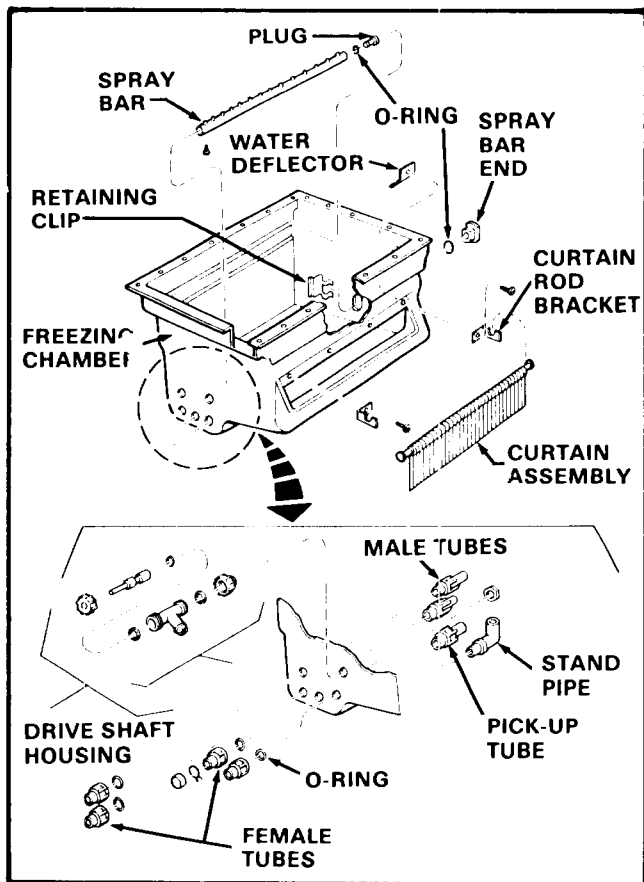
To Remove:

1. Remove two screws and tilt the top of the Front Panel out slightly, then lift the Panel off of the two alignment pins on the front of the Dispenser.
2. Remove screws and the top Lid Assembly, and the Rear Panel from the Dispenser.
3. Remove hose clamp and Tygon tube from the lower end of the Defrost Tube and drain water at rear of the Dispenser.

4. Slide the Styrene Sheet off the top of the Platen Assembly; then, lift the Defrost Tube out the top of the Dispenser.
5. Carefully remove the coiled capillary bulb from the Bulb Holder Clip(s) attached to the inlet line of the Platen Assembly; and position out of the remaining work area.
6. Bleed off or blow the refrigerant charge through the Schrader valve.
7. Unsolder both the inlet and outlet refrigerant lines at the Platen Assembly and lift the Platen Assembly out of the top of the Freezing Chamber.
8. Remove the Curtain Assembly, and the Left and Right Cube Chutes from the Freezing Chamber.
9. Remove two Wingnuts and Retainers and unclip the Bulb Holder Assembly from the lower front opening of the Freezing Chamber, and carefully position the capillary and Bulb Holder Assembly out of the work area.
10. Unsnap the lower end Linkage connected to the Linkage Arm secured to the shaft of the Spray Bar Journal.
11. Remove hose clamps connecting Tygon tubes to four Female Tubes and the Drive Shaft Housing Assembly at the lower left section of the Freezing Chamber; then, work each tube loose allowing any water to drain into the Cylindrical Bin.
12. Remove the Retaining Clip, Spray Bar End, O-Ring, and the Spray Bar from the Freezing Chamber; then, remove the Spray Bar Plug and O-Ring from the end of the Spray Bar.
13. Remove three screws, lockwashers and washers attaching the Support Bracket to the bottom of the Agitator Box Assembly; then, slide the Support Bracket to the left, off of the shaft of the Spray Bar Drive Journal.
14. Remove screws attaching the upper rear and right flanges of the Freezing Chamber to the rear and right side Bin Liner walls and the front flange and the two Tube Clips to the Gasket Support; then, remove the Freezing Chamber.
15. Unscrew four Female Tubes and O-Rings from the left outside of the Freezing Chamber, connected to two Male Tubes, one Pump Pick-up Tube and one Stand Pipe, installed from inside the Freezing Chamber.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES



Freezing Chamber - Exploded View.

REMOVAL AND REPLACEMENT OF THE SINK AND SPLASH PANEL ASSEMBLY

To Remove the Sink and Splash Panel Assembly:

1. Pull the Sink and Splash Panel out and remove them from the Dispenser.
2. Remove and inspect the O-ring on the Sink Drain fitting and inspect and replace if cut, torn or worn. Apply coating of petroleum jelly on O-ring when replaced on Sink Drain Fitting.

To replace the Sink and Splash Panel Assembly, reverse the removal procedure.

16. Unscrew the Hex Nut, inside the Freezing Chamber, and remove the Drive Shaft Housing Assembly.
17. Disassemble the Drive Shaft Housing Assembly for inspection. Replace any cut, torn or badly worn O-Rings or Water Seals.

To replace, reverse the removal procedure.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE WATER PUMP ASSEMBLY

To Remove the Water Pump Assembly:

1. Refer to Removal and Replacement of the ice storage Cylindrical Bin and Internal Parts.
2. Remove screws and the top Lid Assembly.
3. Lift and remove the ends of the Curtain Assembly from the Curtain Rod Brackets, at the front opening of the Freezing Chamber.
4. Remove screws attaching the top rear, right and front flanges of the Freezing Chamber to the bin liner walls and the cross-member Support Gasket; and, two screws at each end of the Support Gasket and one screw attaching Bonding Strap.
5. Remove the Left and Right Cube Chutes from within the Freezing Chamber.
6. Remove the Retaining Clip and Spray Bar End from the right wall of the Freezing Chamber; then, move the Spray Bar to the right and remove the Spray Bar from the Drive Shaft Housing Assembly.
7. Remove single screw and the Channel Cover from the wire Channel housing.
8. Remove the screws that attach the bottom of the Channel to the top of the Water Pump Enclosure and the Agitator Cover.
9. Unsnap the End Linkage, connecting the Linkage Assembly to the Linkage Arm on the Drive Journal, at the left wall of the Freezing Chamber.
10. Remove hose clamps connecting Tygon tubes to four Female Tubes and the Drive Shaft Housing Assembly at the lower left section of the Freezing Chamber; then, work each tube loose allowing any water to drain into the Bin Liner.
11. Remove three screws, lockwashers and washers attaching the Support Bracket to the bottom of the Agitator Box Assembly; then, slide the Support Bracket to the left, off of the Spray Bar Drive Journal.
12. Remove two screws attaching the Bonding Strap and Agitator Box Assembly to the Bin Liner left wall.
13. Remove two screws attaching the Bonding Strap and the flange of the Pump Mounting Bracket to the Bin Liner left wall.
14. Carefully move the Freezing Chamber slightly up and to the right just enough to allow the Water Pump Assembly to be removed; then, remove the Water Pump Assembly.
15. Remove screws and separate the Pump Enclosure, Pump Mounting Bracket and the Pump Box Bracket from the Water Pump.
16. Disassemble the Water Pump for inspection and replacement of worn or defective parts.

To replace the Water Pump Assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE WATER REGULATOR ASSEMBLY - WATER-COOLED MODELS

NOTE

Always install a replacement Drier, anytime the sealed refrigeration system is opened. Do not replace the Drier until all other repair or replacement has been completed.

To Remove the Water Regulator Assembly:

1. Remove screws and the Rear Panel from the Dispenser.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder the capillary tube from the Water Regulator Assembly, where connected at the process header.
4. Disconnect the water inlet line at the rear of the Water Regulator.
5. Disconnect the Condenser water inlet tube at the front of the Water Regulator.
6. Remove two screws and lockwashers which attach the Water Regulator Assembly bracket to the Chassis Base and remove the Water Regulator and bracket from the Dispenser.

NOTE

Thoroughly evacuate the system to remove moisture and non-condensables.

To replace the Water Regulator Assembly, reverse the removal procedures.

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ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

MCD200C SERVICE DIAGNOSIS

The Service Diagnosis Section is for use in aiding the serviceman in diagnosing a particular problem for pin-pointing the area in which the problem lies, thus an ever available reference for proper corrective action.

The following charts list corrective actions for the causes of known symptoms of certain problems that can occur.

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Irregular size cubes and some cloudy.	Some jets plugged. Shortage of water. Unit not level. Water overflowing vent holes on low side, burning cubes. Spray Bar linkage out of adjustment.	Clean jets. See Shortage of water CORRECTION. Level cabinet, as required. Adjust for full ice cube spray coverage.
Cubes too large.	Cube Size Control set too cold.	Rotate Cube Size Control dial toward WARMER.
Cubes too small.	Cube Size Control set too warm. Partially restricted capillary tube. Moisture in system. Shortage of water. Loss of refrigerant.	Rotate Cube Size Control dial toward COLDER. Blow refrigerant charge; replace drier; evacuate system; add refrigerant charge. Same as above CORRECTION. See Shortage of water CORRECTION. Check for refrigerant leaks, correct leaks; recharge system.
Cloudy Cubes.	Shortage of water. Dirty water supply. Accumulated impurities.	See Shortage of water SYMPTOM. Install water filter or softener. Use SCOTSMAN Ice Machine Cleaner.
Shortage of water.	Water spraying out through curtain. Water solenoid not opening. Water leak in sump area.	Hang curtain in proper position. Repair or replace solenoid. Locate leak and repair or correct condition.

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SYMPTOM	POSSIBLE CAUSE	CORRECTION
Decreased ice capacity.	Defective compressor. Leaky water valve. High head pressure, result of dirty condenser or faulty Fan Motor. Non-condensable gas in the system. Poor air circulation or extreme hot location. Overcharge of refrigerant. Hot gas solenoid valve leaking. Partially restricted capillary tube. Restrictor clogged or missing.	Replace compressor. Repair or replace valve. Clean condenser. Repair or replace Fan Motor. Purge the system. Relocate the cabinet; or, provide ventilation by cutting openings. Slowly purge off to correct charge. Replace valve. See Cubes too small CORRECTION. Clean or replace restrictor.
Poor harvests.	Too short defrost time. Restriction in water inlet line. Hot gas solenoid does not open. Plugged air vent holes in upper part of cube cups.	Check and adjust harvest cycle. Check Timer two-minute setting. Check strainer and flow check valve. DO NOT remove flow control washers. Binds or burned out. Replace. Clean out air vent holes.
Icemaker does not harvest.	Water pressure too low.	Check for 20 PSI flowing water.
Compressor cycles intermittently.	Low voltage. Dirty condenser. Air circulation blocked. Defective Fan Motor. Non-condensable gases in system.	Check for circuit overload. Check building supply voltage, if low, contact power company. Clean condenser with vacuum cleaner or brush. NO WIRE BRUSH. Locate cabinet with adequate air space for proper air flow. Replace Fan Motor. Purge the system.
Icemaker will not operate.	Blown fuse in line. Master switch in OFF position. Faulty Master switch. Timer contacts open.	Replace fuse and check for cause. Set switch to ON position. Replace Switch. Replace Timer microswitch.
Ice cubes stuck together in Bin.	Ice Breaker missing in Bin. Infrequent operation of dispenser.	Install Ice Breaker in Bin. Dispense ice more frequently.

**MCD200C
SERVICE DIAGNOSIS**

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Does not dispense ice cubes.	Defective Ice Vend switch. Defective Agitator Motor Agitator Motor is OUT on thermal overload - too hot. Master switch is in OFF position. Ice Vend switch connector contact incomplete.	Replace Ice Vend switch. Replace defective motor. Let motor COOL. Move switch to ON position. Check all plug contacts mate and seat properly.
Shutter does not fully close over ice chute opening.	Ice cube lodged between Shutter and Chute.	None required. Ice will melt and spring linkage will close Shutter.
Ice cubes continuously dispensed.	Vend Switch stuck closed.	Replace Switch.

MCD200C

MAINTENANCE & CLEANING INSTRUCTIONS

GENERAL

The periods and procedures for maintenance and cleaning are given as guides and are not to be construed as absolute or invariable. Cleaning especially will vary, depending upon local water conditions and the ice volume produced; and, each icemaker must be maintained individually, in accordance with its own particular location requirements.

ICEMAKER

THE FOLLOWING MAINTENANCE SHOULD BE SCHEDULED AT LEAST TWO TIMES PER YEAR ON THIS ICE-MAKER. CALL YOUR AUTHORIZED SCOTSMAN SERVICE AGENCY.

1. Check and clean or service any optional water treatment devices, if any installed.
2. Check that the Dispenser is level, in side-to-side and front-to-rear directions.
3. Clean the water system Evaporator, Freezing Chamber Reservoir and Spray Bar, using a solution of SCOTSMAN Ice Machine Cleaner. Refer to CLEANING-Icemaker.

NOTE

Cleaning requirements vary according to local water conditions and individual user operation. Continuous check of the clarity of ice cubes and visual inspection of the water spray bar and jets, before and after cleaning will indicate frequency and procedure to be followed in local areas.

4. Check that the ends of all the plastic parts of the Curtain Assembly hang down, contacting the front edges of the two Cube Chutes.
5. Check and tighten all bolts.
6. Check and tighten all electrical connections.
7. Check Hot Gas Solenoid Valve for correct operation and high pressure controls for cut-in and cut-out pressures.
8. With Icemaker and Fan Motor OFF on Air-Cooled Models, clean Condenser, using vacuum cleaner, whisk broom or brush. Instruct customer to clean frequently.
9. Check that Fan Blades move freely, are not touching any surfaces and are not bent or out of balance. Wipe Fan Blades clean of grease or dirt.
10. Check for refrigerant leaks and tighten line connections.
11. Check for water leaks and tighten drain line connections. Pour water down Bin drain line to be sure that drain line is open and clear.

12. Check size, condition, and texture of ice cubes. Perform adjustments as required.
13. Check Bin Thermostat Control Bulb to test shutoff. With the Icemaker in the harvest cycle, hold ice cubes on the Bulb, which should cause the Icemaker to shut OFF at the end of the harvest cycle.

NOTE

Within minutes after the ice is removed from the sensing bulb, the bulb will warm up and cause the Icemaker to restart. This control is factory set and should not be reset until testing is performed. Normal setting is about 35-degrees F. CUT-OUT and 40-degrees F. CUT-IN.

CLEANING - Icemaker

1. Remove two screws and tilt the top of the front panel out slightly, then lift the panel off two alignment pins. Remove front panel from dispenser.
2. Remove two screws and pull bottom of splash panel out to unsnap catches, sink removal may ease splash panel removal—pull out to remove sink. Remove splash panel from dispenser to locate control box.
3. Check the left end of the Control Box and move both the Master ON-OFF toggle switch and the Compressor ON-OFF toggle switch to the OFF position.
4. Rotate the shaft of the Timer & Switch Assembly, located in the hole in the front of the Control Box Cover, CLOCKWISE, until the actuator arm on the microswitch rides up out of the cam slot, to the outer surface of the cam, then stop. This is the start position for the freezing cycle.

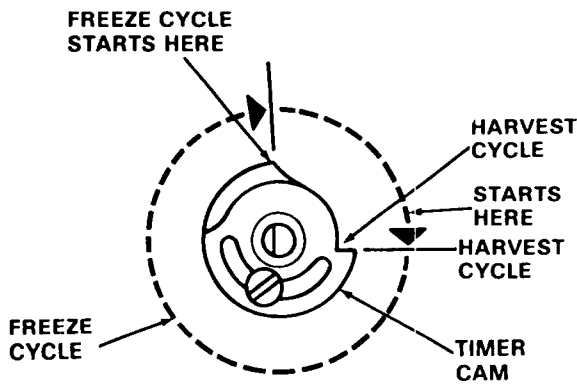
WARNING

SCOTSMAN Ice Machine Cleaner contains Phosphoric and Hydroxyacetic acids. These compounds are corrosive and may cause burns. If swallowed, DO NOT induce vomiting. Give large amounts of water or milk. Call physician immediately. In case of external contact, flush with water. KEEP OUT OF THE REACH OF CHILDREN.

5. Position container under left side of Freezing Chamber, remove Hose Clamp and Rubber Cap from center Female Tube and drain water from Reservoir. Replace Rubber Cap and Hose Clamp.

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Start Positions for the Freeze/Harvest Cycles

6. Prepare cleaning solution: Mix eight ounces of SCOTSMAN Ice Machine Cleaner with six pints of fresh potable water.
7. Carefully pour the cleaning solution into the Freezing Chamber through the front opening.
8. Immediately move the Master ON-OFF toggle switch to the ON position.
9. Allow the system to operate for about twenty minutes.

NOTE

No ice cubes will be made, because the Compressor switch is OFF.

10. At end of twenty minutes, rotate the shaft of Timer & Switch Assembly, **CLOCKWISE**, to start a second harvest cycle. Repeat procedure to effect four complete harvest cycles.

NOTE

During each harvest cycle, fresh inlet water is introduced into the water system and acts to rinse all water-related parts and to wash away most mineral concentration through the Reservoir overflow drain.

11. Move the Compressor ON-OFF toggle switch to the ON position.
12. Check each ice cube harvest, until the ice cubes are clear and the acid taste eliminated.

WARNING

DO NOT use ice cubes produced from the cleaning solution. Be sure none remains in the Bin.

13. Add hot water to the Bin to melt the ice cubes; or, remove and discard all ice cubes.

WARNING

Use same precautions given in WARNING preceding step 5, above.

14. Prepare cleaning solution: Mix six ounces of SCOTSMAN Ice Machine Cleaner with three quarts of hot water.
15. Move both the Master ON-OFF toggle switch and the Compressor ON-OFF toggle switch to the OFF position.
16. Remove the Ice Breaker, Ice Agitator, and all Bin parts, including the Storage Bin cylinder.
17. Immerse all parts removed in the cleaning solution; or, if too large for the container of cleaning solution, thoroughly wash the solution over all surfaces of all parts.
18. Rinse all parts with clear hot water, to flush away all cleaning solution. Drain Parts.
19. Clean and rinse the Shutter mechanism, the Ice Delivery Spout, the Sink and Grill, and the Splash Panel Assembly.
20. Clean and rinse all panels and the Cabinet inner plastic surfaces.
21. Pour remainder of the hot cleaning solution into the Bin drain and the Sink drain, to flush our any deposits or unwanted substance. Rinse with clean hot water.
22. Sanitize all bins, parts and ice contact parts removed for cleaning. Refer to **SANITIZING PROCEDURE**.
23. Reassemble all air-dried Bin parts in the Dispenser.
24. Move both the Master ON-OFF toggle switch and the Compressor toggle switch to the ON position to restart the Icemaker.
25. Fit the two holes, in the bottom of the Front Panel, over the two alignment pins on the front of the Dispenser, and push the Panel into place, securing with two screws and replace splash panel.

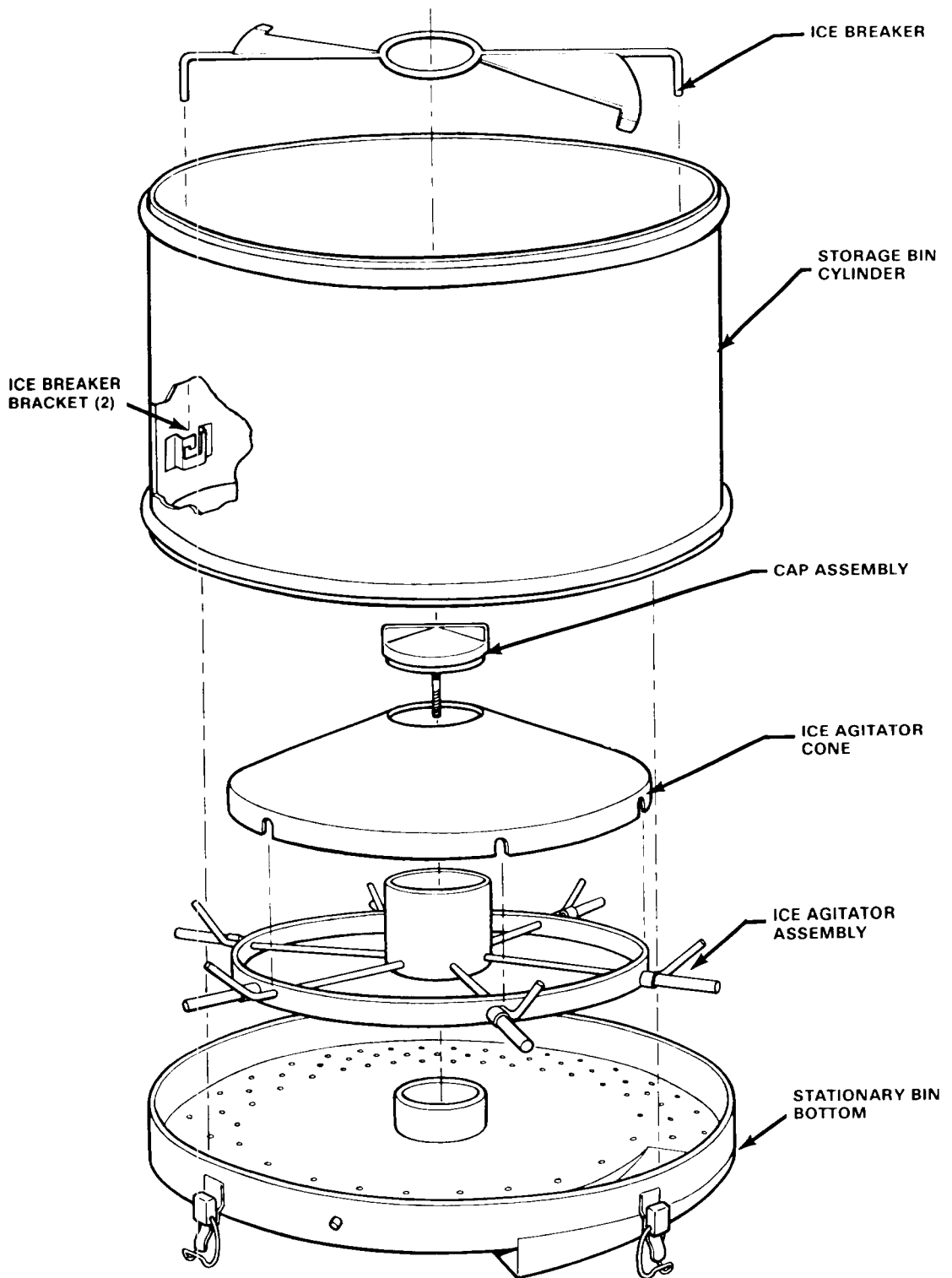
SANITIZING

Sanitizing is an important phase of the icemaking and dispensing operation. the following sanitizing procedure should be performed after every repair or replacement of parts in the Dispenser, in or through which ice is stored or dispensed and water is drained. Additional requirements for performing the sanitizing procedure should be followed in accordance with the requirements of the Local Health Authorities.

NOTE

Contact your Local Health Authorities and obtain their approval of the sanitizer you intend to use when sanitizing the Dispensers.

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Ice Breaker, Agitator, Storage Bin - Exploded View

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WARNING

Read **WARNING** thoroughly **BEFORE** preparing sanitizing solution, in next step.

1. STERILEX 3-Q SANITIZING TABLETS

DANGER: KEEP OUT OF REACH OF CHILDREN. Tablets may be harmful or fatal if swallowed. May cause skin irritation or eye damage. Avoid prolonged skin contact. Do not get in eyes. In case of contact, flush with plenty of water. If irritation persists get medical attention. Avoid contamination of food.

FIRST AID: If tablets are swallowed, drink promptly a large quantity of milk, egg whites or gelatin solution. Avoid alcohol.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed. Rinse empty carton container thoroughly with water and discard. Always follow your health department regulations.

2. MIKRO-QUAT

DANGER: Causes high damage and skin irritation. Do not get in eyes, on skin, or on clothing. Protect eyes when handling concentrated product. Harmful if swallowed. Avoid contamination of food.

FIRST AID: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. For eyes, call a physician. Remove and wash contaminated clothing before reuse. If swallowed, drink promptly a large quantity of milk, egg whites or gelatin solution or if these are not available, drink a large quantity of water. Call a physician immediately.

NOTE

1. Carefully follow directions and observe all precautions on the sanitizing compound container.
2. One *Sterilex 3-Q sanitizing tablet per three quarts of water yields 200 ppm active quaternary; or, one-third ounce of *Mikro-Quat to one gallon of water yields 235 ppm active quaternary.
3. The taste of ice and water will not be affected by the sanitizing of parts using the above mixed sanitizing solutions. Rinsing of parts is not required with this relatively mild solution, but air drying of the parts is suggested before reassembly.
2. Immerse all parts, earlier removed and cleaned, in the sanitizing solution; or, if too large for the container of sanitizing solution, thoroughly wash the solution over all surfaces of all parts.
3. Drain all parts and allow to air dry.
4. Pour some of the sanitizing solution into the Bin drain and the Sink Assembly drain. Observe drains for proper operation.
5. Reassemble all air-dried Bin parts in the Dispenser.
6. Move both ON-OFF toggle switches on the left end of the Control Box, to the ON position. Replace back splash panel.
7. Fit the two holes, in the bottom of the Front Panel, over the two alignment pins on the front of the Dispenser, and push the Panel into place, securing with two screws.
8. Clean and sanitize the interior Bin parts and surfaces each week.
 - * Sterilex 3-Q sanitizing tablets are distributed by Pittsburgh Chemical Laboratory, Inc., Pittsburgh, PA 15222, and may be obtained through most restaurant supply houses.
 - * Mikro-Quat, is manufactured by Economics Laboratory, Inc., Osborn Building, St. Paul, MN 55102, and may be obtained from them through their Magnus Division. The Klenszade Division, or from restaurant supply houses.

1. Prepare a sanitizing solution using a quaternary ammonium sanitizing compound.

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CHLORINATION OF STAINLESS STEEL BIN LINERS

The stainless steel liner of a bin will require periodic cleaning. Chemicals in the water supply, such as chlorine, can cause brown staining to appear on the surface of stainless steel. The brown stains should be removed immediately to avoid deterioration of the metal. Chlorine gas, coming off the ice in the bin will combine with water vapor and condense on the liner walls as a mild HYDROCHLORIC ACID. This is what may pit the stainless steel.

The brown stains will appear at the top of the side or rear walls of the bin liner. Lower portions of the walls stay clean, due to the "washing" action of water from melting ice draining down them.

To prevent the staining from causing pitting of the stainless steel, the bin liner should be cleaned every three to six months. More frequent cleaning may be required depending on water conditions.

1. General Cleaning — when the staining is light, it can usually be removed by washing with ordinary cleaning powder, such as Bon-Ami or Copper-Glo and water. (Do not use cleaners that contain bleaching agents as most of these are compounds of chlorine.) After cleaning, rinse thoroughly with clear water.

It may be necessary to use a stainless steel wool to remove bad stains. DO NOT USE plain steel wool, as the steel particles will get imbedded in the liner and cause more serious staining.

2. Cleaning of Heavy Deposits — If the liner has not been cleaned for a long time, and heavy deposits and pitting have occurred, a chemical cleaner may be necessary. Follow instructions printed on the container of the cleaner.
3. Protection of Stainless Steel against Further Staining — After the stainless steel has been cleaned, the surface should be rejuvenated. This process restores the characteristic to the surface of the stainless steel that best prevents corrosion.

First be sure that the liner is clean and is thoroughly rinsed with water. Then use a nitric acid solution of two parts water to one part nitric acid (by volume). Swab this on the liner and allow to stand for about 30 minutes. Rinse the liner with clean water. This will then provide maximum corrosion resistance.
4. Water treatment — chlorine can be removed from the ice machine's water source. This is accomplished by installing an activated carbon filter on the ice machine's inlet water line. Please consult your local water treatment specialist, other water treatment may be advised due to other possible water problems.