

AC125 Service Manual

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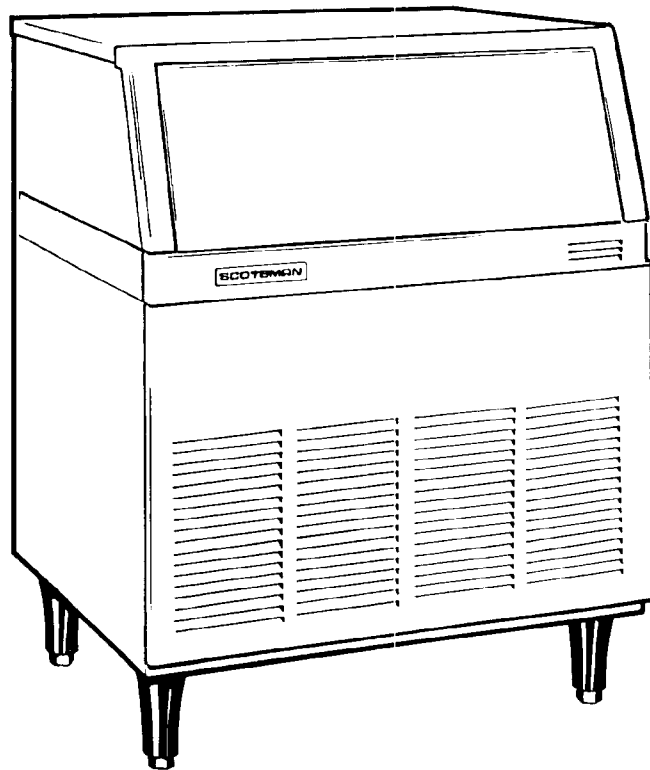
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AC125 GENERAL INFORMATION & INSTALLATION



INTRODUCTION

This manual provides the specifications and step-by-step procedures for the installation, start-up and operation, maintenance and cleaning of the Scotsman AC125 icemaker.

The AC125 icemakers are quality-designed and built ice-making systems. Thoroughly tested and proven, they provide the utmost flexibility to satisfy the needs of each individual user.

Separate sections detail more specifically: general information and installation; start-up and operation; operating principles; removal and replacement procedures; wiring diagrams; maintenance and cleaning instructions; illustrations and list of component parts.

Access to all working parts is easily gained by removing the front, top and back panels. This facilitates servicing and maintenance operations.

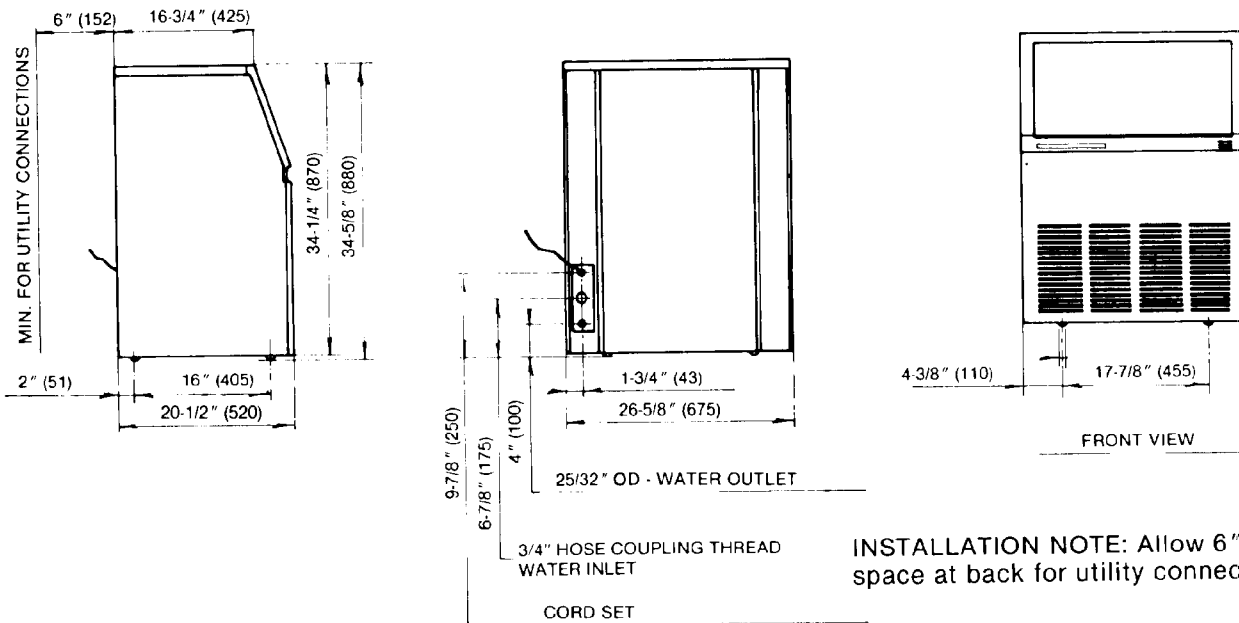
DESCRIPTION:

The AC125 Cubers can easily be adapted as a built-in unit, and will function perfectly as such provided adequate air space is left at the front. Thanks to its compact size, the AC125 fits easily under a bar or counter. Sandalwood enamel finish. Panels can be easily removed to give access to mechanical and electrical parts.

Slide-in bin door has large opening for convenient ice removal.

AC125

GENERAL INFORMATION & INSTALLATION



INSTALLATION NOTE: Allow 6" minimum space at back for utility connections.

This product qualifies for the following listings:



We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.

SPECIFICATIONS

Model Number	(Height - w/o Legs)		Bin Cap.	Cube Size	Cond. Unit	Finish **	Basic Electrical	Comp. H.P.	Max. Fuse Size	Ship. Wt. lbs./kg.
	Dimensions H" x W" x D"									
AC125AE-1A	34-5/8 x 26-5/8 x 20-1/2		66 lbs.	Sm	Air	ES	115/60/1	1/2	15	165/75

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
Single Voltage Units	-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.

REFRIGERANT CHARGE:

Always Charge Per Nameplate Rate

Refrigerant metering device: capillary tube

Operating head pressures:
(119-133 PSIG)

Unit furnished with 6" legs.

AC125

GENERAL INFORMATION & INSTALLATION

UNPACKING AND INSPECTION

1. Call your authorized Scotsman Distributor or Dealer for proper installation.
2. Visually inspect the exterior of the packing and skid. Any severe damage noted should be reported to the delivering Carrier, and a latent damage claim form filled in, subject to inspection of the contents with carrier's representative present.
3. a) Cut and remove the plastic strip securing the carton to the skid.
b) Cut open the top of the carton and remove the wooden frame and polystyrene protection sheet.
c) Pull out the polystyrene packing from around the sides and then remove the carton.
4. Remove the front and rear panels of the unit and inspect for any concealed damage. Notify Carrier of your claim for latent damage, as stated above.
5. Remove top panel, inspect freezer assembly to be certain that
 - a) curtain
 - b) spray platform
 - c) spray shield above platen
 - d) curtain hangers
 - e) cube chute filler
 are all in place.
6. Remove all internal support packing and masking tape. (Leg package is located in the condensing unit compartment.)
7. Check that refrigerant lines do not rub against or touch other lines or surfaces, and that the fan blade moves freely.
8. Check that the compressor fits snugly onto all mounting pads.
9. Use clean damp cloth to wipe the surfaces inside the ice storage bin and the outside of the cabinet.

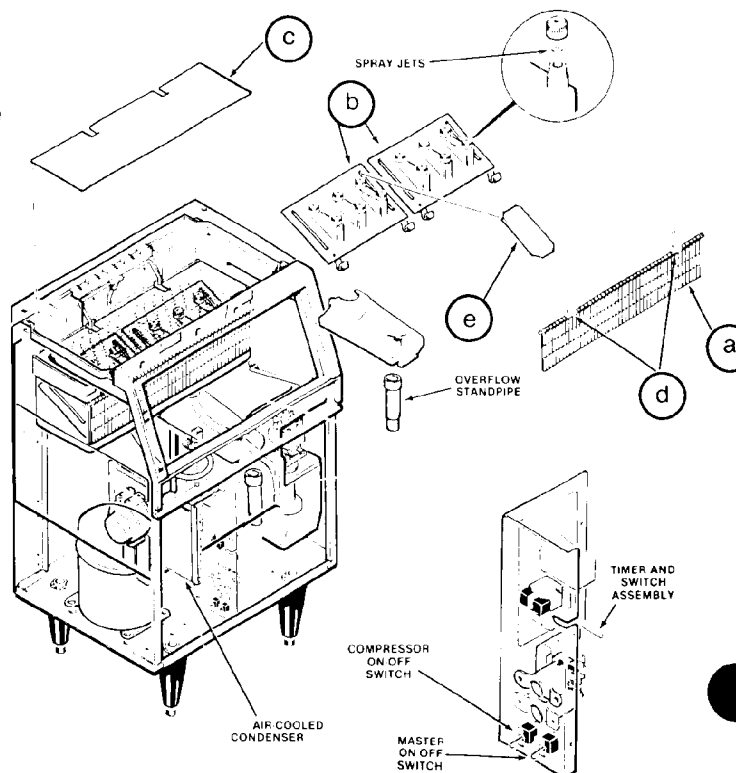
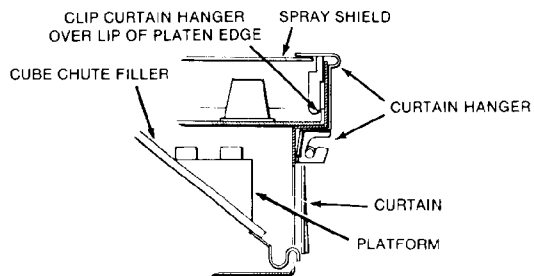
10. See data plate on the chassis back. Check that local mains voltage corresponds with the voltage specified on the data plate.

CAUTION: Incorrect voltage supplied to the icemaker will void your parts replacement.

11. Remove the manufacturer's registration card from the inside and fill in all parts including: Model and Serial number taken from the data plate.

Forward the completed self-addressed registration card to the SCOTSMAN factory.

12. If necessary, fit the four legs into their seats on the machine base and adjust them to the desired level.



AC125 GENERAL INFORMATION & INSTALLATION

LOCATION AND LEVELING

//////////////////// **WARNING** //////////////////////

This Ice Cube Machine is NOT designed for outdoor installations where air temperatures are below 50°F (10°C) or above 100°F (40°C) and the water temperature is below 40°F (5°C) or above 100°F (40°C). Extended periods of operation at temperatures exceeding these limits will constitute misuse, under the terms of the SCOTSMAN Manufacturer's limited guarantee, resulting in LOSS of guarantee coverage.

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1. Position the unit in the selected permanent location.

Criteria for selection of location include:

- a) Minimum room temperature 50°F (10°C)
Maximum room temperature 100°F (40°C)
- b) Water inlet temperatures:
Minimum 40°F (5°C)
Maximum 100°F (40°C)
- c) Well-ventilated location for air-cooled model. The user is advised to clean the condenser located lengthwise (front to rear of the unit base) at frequent intervals.

d) Service access: adequate space must be left for all service connections through the rear of the icemaker. A minimum clearance of 6" (15 cm.) must be left at the front of the unit for routing cooling air drawn in through the front right-hand side louvers and expelled through the louvers on the left side of the front panel, to ensure proper performance.

2. Level the unit in both the left-to-right and front-to-back directions.

All SCOTSMAN Ice Cubers incorporate a hot gas defrost system, so it is visually important that the operating head pressures are in the 119 to 133 PSIG range.

Air-cooled models require a minimum room temperature of 50°F (10°C) otherwise the hot gas defrost system will not defrost the ice cubes. The consequent freeze-up would damage the freezer section and necessitate costly repairs.

AC125 GENERAL INFORMATION & INSTALLATION

ELECTRICAL CONNECTIONS

See data plate for current requirements to determine wire size to be used for electrical connection. All Scotsman icemakers require a solid earth wire.

The AC125 icemaker is shipped from the factory completely pre-wired.

Make sure that the AC125 Ice Cube Machine is connected to its own circuit and individually fused (max. 15 amp. fuse).

The maximum allowable voltage variation should not exceed 10% of the data plate rating even under starting conditions. Low voltage can cause faulty functioning and may be responsible for serious damage to the overload switch and motor windings.

All external wiring should conform to national, state and local standards and regulations.

Check voltage on the line and the icemaker's data plate before connecting the unit.

WATER SUPPLY AND DRAIN CONNECTIONS

GENERAL:

When choosing the water supply for the AC125 Cuber, consideration should be given to:

- A. Length of run
- B. Water clarity and purity
- C. Adequate water supply pressures

Since water is the most important single ingredient in producing ice you cannot emphasize too much the three items listed above. Low water pressure, below 20 PSIG may cause malfunction of the icemaker unit. Water containing excessive minerals will tend to produce cloudy colored ice cubes, plus scale build-up on parts of the water system.

Heavily chlorinated water can be controlled using charcoal or carbon filters.

WATER SUPPLY

Connect the 3/4" male fitting of the solenoid water inlet valve, using a 3/8" O.D. copper pipe, to the cold water supply line with regular plumbing fitting and a shut-off valve installed in an accessible position between the water supply line and the unit.

If the water contains a high level of impurities, it is advisable to insert a special filter. The arrow on the filter should correspond to the direction of the water flow.

//////////////////// WARNING //////////////////////

The AC125 Cuber requires a minimum water pressure of 20 PSIG in order to function satisfactorily. Water pressure lower than 20 PSIG, or interruption in the water supply can cause serious damage to this unit.

The icemaker will not operate satisfactorily when the temperature of the water supplied below 5°C (40°F) or above 40°C (100°F).

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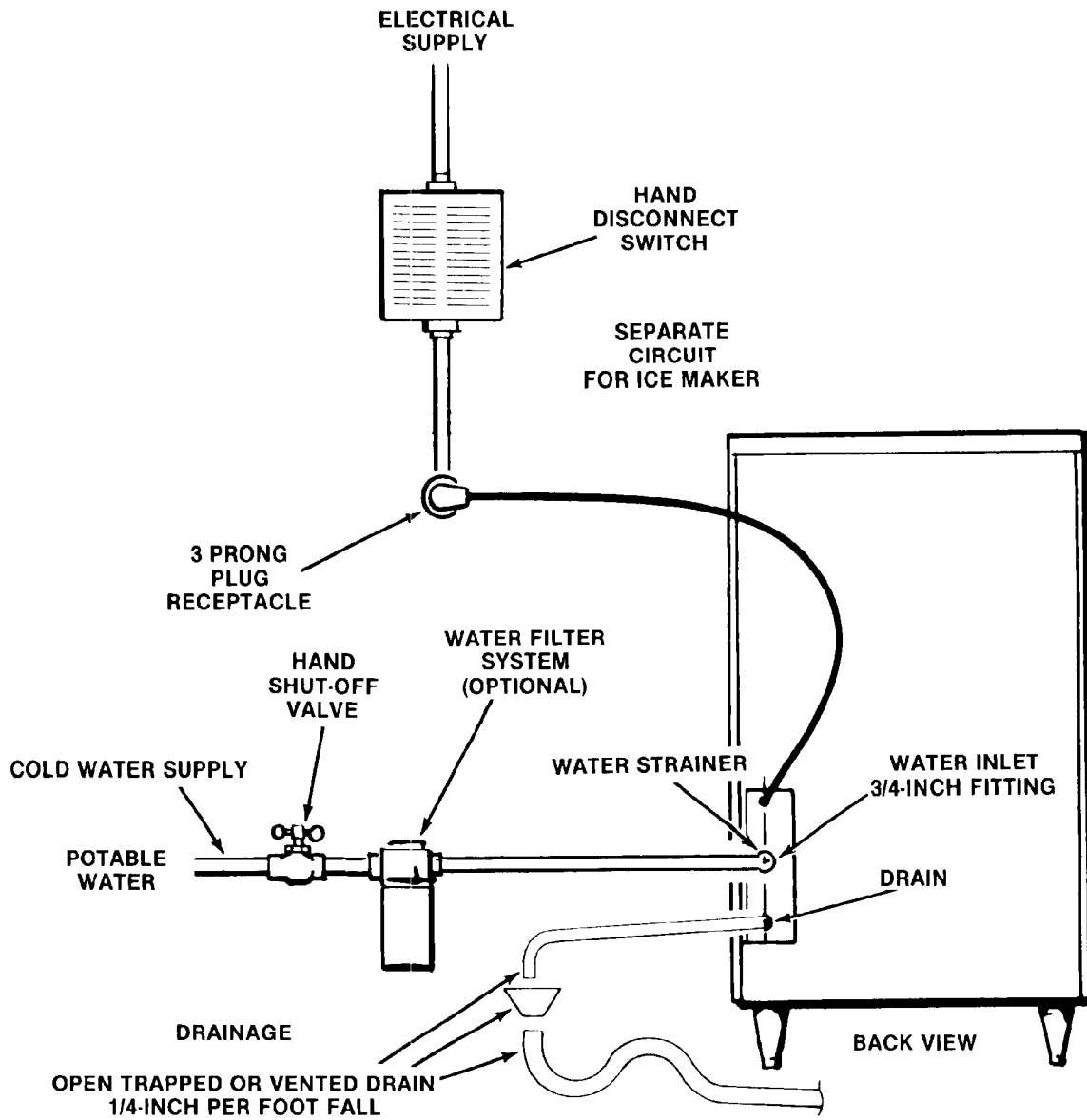
BIN DRAIN

The recommended drainage tube is made of plastic or other flexible material, with an internal diameter of 18 mm, and leads to an open trapped and vented drain. When the drain pipe has a long run, allow a 3 cm. pitch per meter (1/4" per foot).

The water supply pipe and drainage system must be installed in conformity with local standards and regulations.

In some cases a licensed plumber and/or a plumbing permit are required.

AC125 GENERAL INFORMATION & INSTALLATION



Installation, Electrical, Water Supply and Drain Connection

AC125

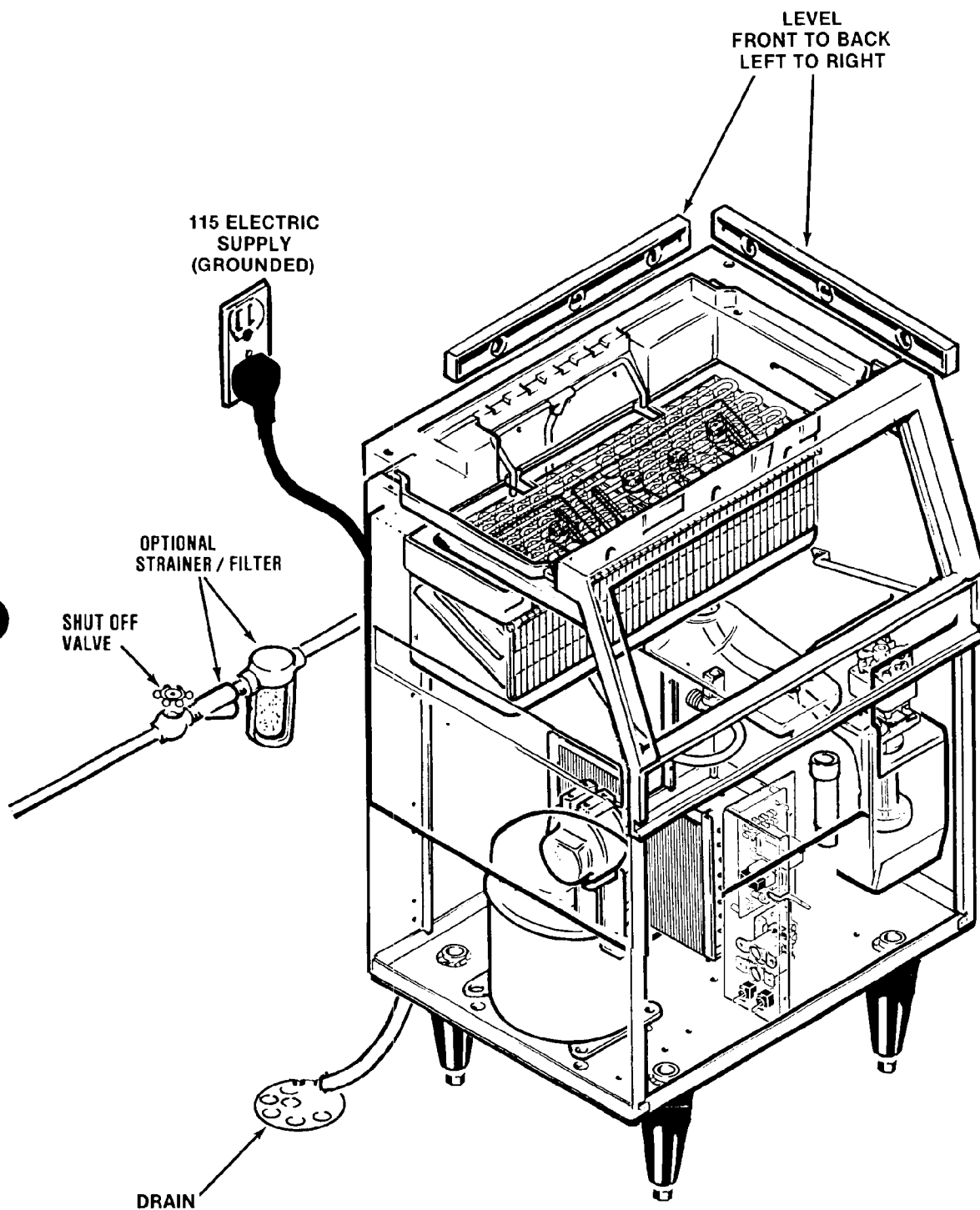
GENERAL INFORMATION & INSTALLATION

FINAL CHECK LIST

1. Is the unit level? (IMPORTANT)
2. Have all electrical and plumbing connections been made, and is the water supply shut-off valve open?
3. Has the voltage been tested and checked against the data plate rating?
4. Have the bin and cabinet been wiped clean?
5. Have the bolts holding the compressor down been checked to ensure that the compressor is snugly fitted onto the mounting pads?
6. Has the owner/user been given the instruction manual and been instructed on the importance of periodic maintenance checks?
7. Has the Manufacturer's registration card been filled in properly? Check for correct model and serial numbers against the serial plate and mail the registration card to the factory.
8. Check all refrigerant lines and conduit lines to guard against vibrations and possible failure.
9. Is the unit in a room where ambient temperatures are a minimum of 10°C (50°F) even in winter months?
10. Is there at least a 15 cm. (6") clearance at the front of the unit for proper air circulation?
11. Has the water supply pressure been checked to ensure a water pressure of at least 20 PSIG.
12. Has the owner been given the name and phone number of the authorized Scotsman Service Agency serving him?

AC125

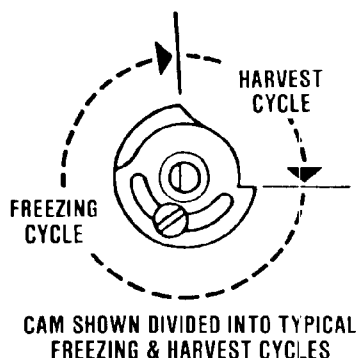
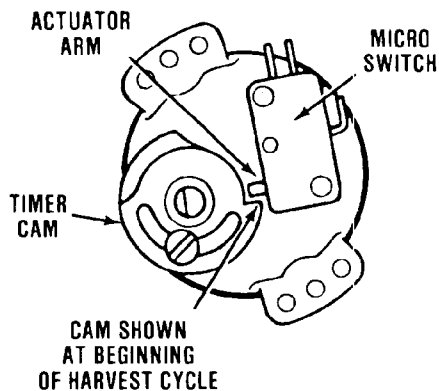
GENERAL INFORMATION AND INSTALLATION



AC125 OPERATING INSTRUCTIONS

START-UP

1. Remove screws and remove front panel.
2. Remove screws and remove the control box cover.
3. Check that the two toggle switches, the MASTER ON-OFF toggle switch and the COMPRESSOR ON-OFF toggle switch are in the OFF position, on the control box.
4. OPEN the water supply line shutoff valve.
5. Located in the control box is the shaft of the timer and the switch assembly. Rotate the shaft of the timer and switch assembly clockwise until the actuator arm on the microswitch drops off outer cam into cam slot, the start of the harvest cycle. See Timer Cam Positions. An audible click can be heard, but in a noisy area, look at the cam and switch to observe the event.
6. Move the master ON-OFF toggle switch, the bottom toggle switch, to the ON position.



Timer Cam Positions

7. Observe that the water inlet solenoid valve OPENS and inlet water flows from the valve through tubing and can be seen flowing to the defrost water tube, at the top rear of the freezing chamber, where the water then flows around the inverted ice cube cups and drains into the freezing chamber sump. Excess water is overflowed through the stand pipe and drain tube. This cycle will take about three minutes, when the Timer will CLOSE the water inlet solenoid valve.

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

8. When the second harvest cycle is completed, move the compressor ON-OFF toggle switch, to the ON position.

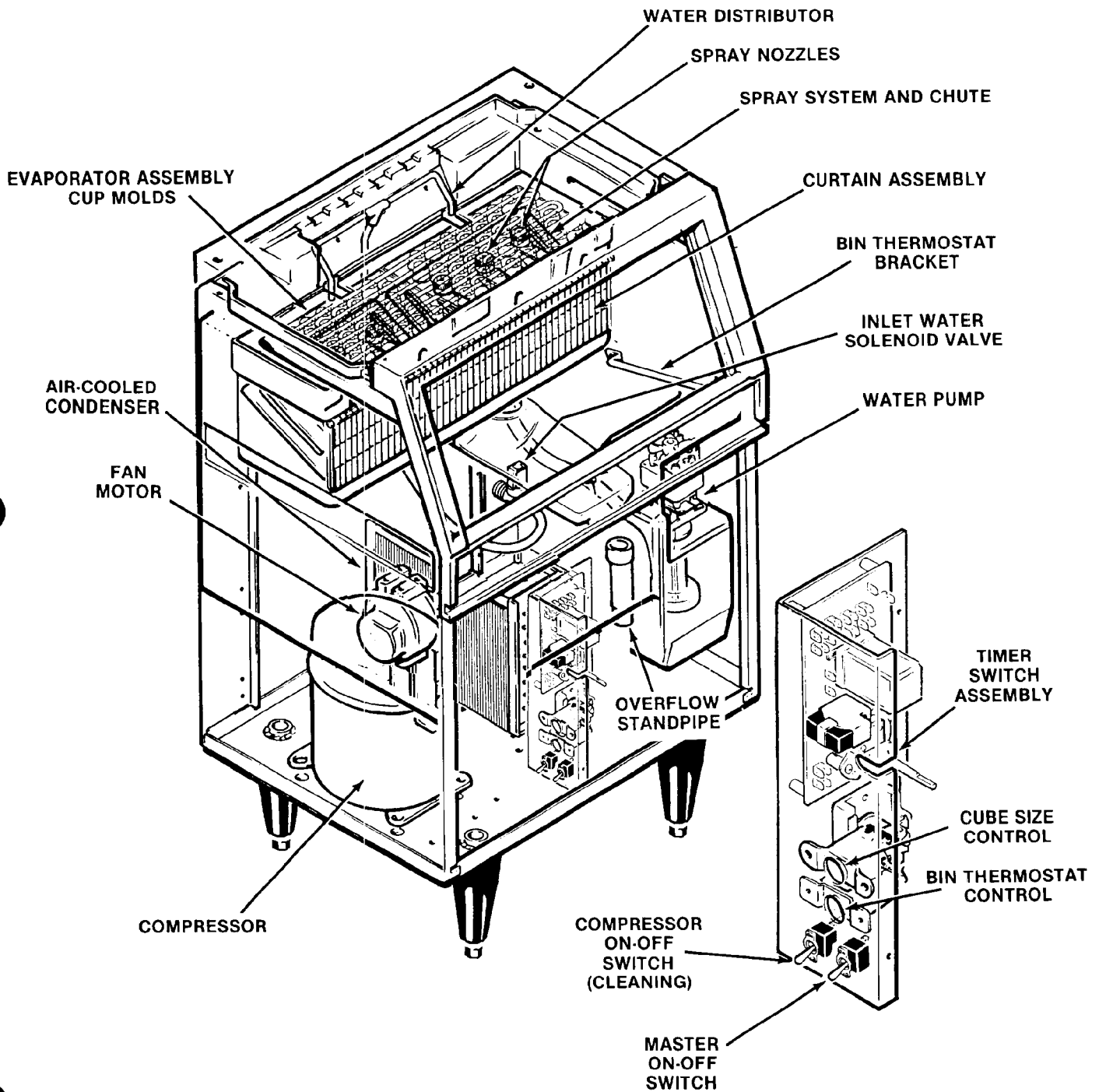
9. Check operation of freezing cycle:

Water pump is operating, as seen by looking at water being sprayed into inverted ice cube cups, from spray nozzle, seen inside freezing chamber.

The icemaking process begins; feeling the metal parts of the evaporator reveals cold temperature, very shortly ice begins to form. Tubing will become frosted at the top of the evaporator inlet located on the top front portion at the freezing chamber.

Freezing time will range between 15 and 25 minutes in a 70-degree F. ambient temperature. Longer time for temperatures above 70-degrees F., and shorter time required when temperatures are below 70-degrees F. Average complete cycle range is about 18 to 28 minutes.

AC125 OPERATING INSTRUCTIONS



AC125 OPERATING INSTRUCTIONS

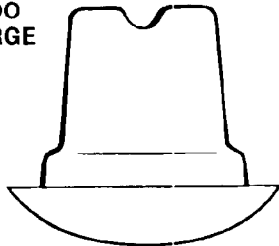
10. Observe first ice cube harvests:

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:

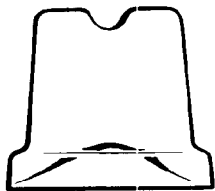
TOO
LARGE



Too LARGE requires longer freezing cycle — may cause evaporator freeze ups. Adjust cube size control.



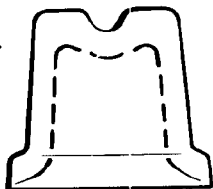
Proper size and shape of a Scotsman Round Cube:



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 depression in the crown.

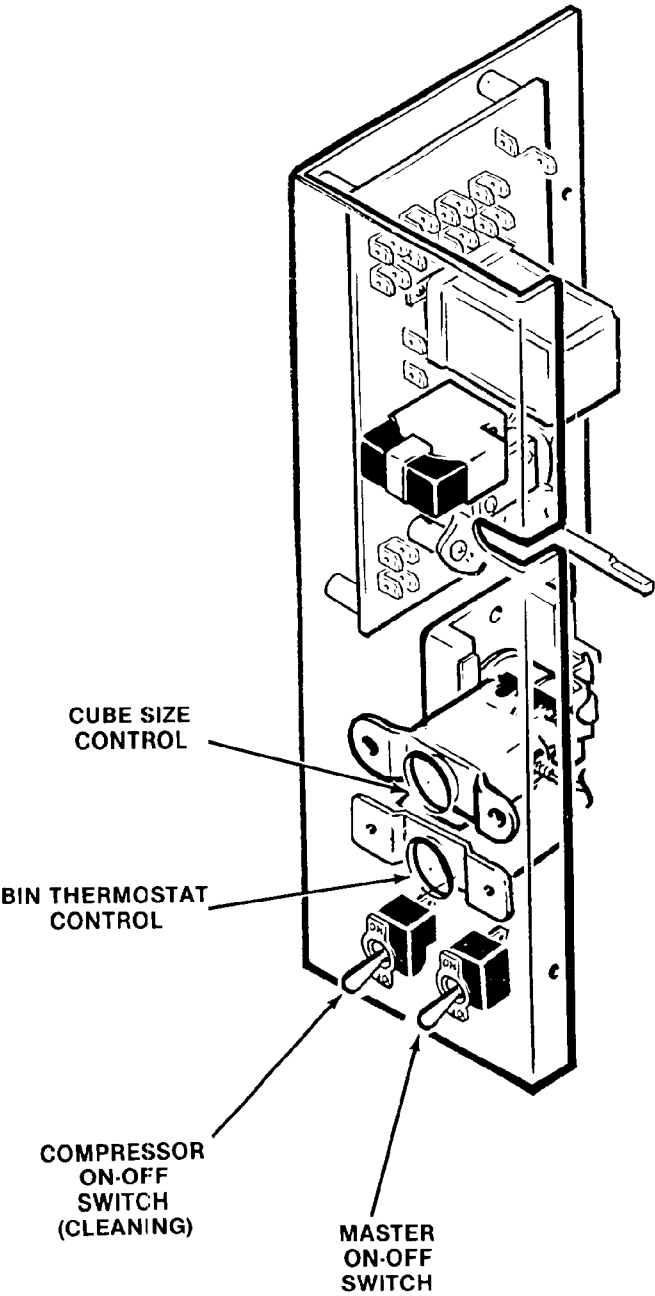
TOO
SMALL



TOO SMALL. Adjust cube size control. Any cubes this size or shape are too small and cause excessive cycling to produce an equal quality of production. Can also lead to freeze up problems due to poor harvest.



AC125 OPERATING INSTRUCTIONS



AC125 OPERATING INSTRUCTIONS

FREEZING CYCLE

As the freezing cycle starts, electrically the components operating are the compressor, fan motor and recirculating water pump.

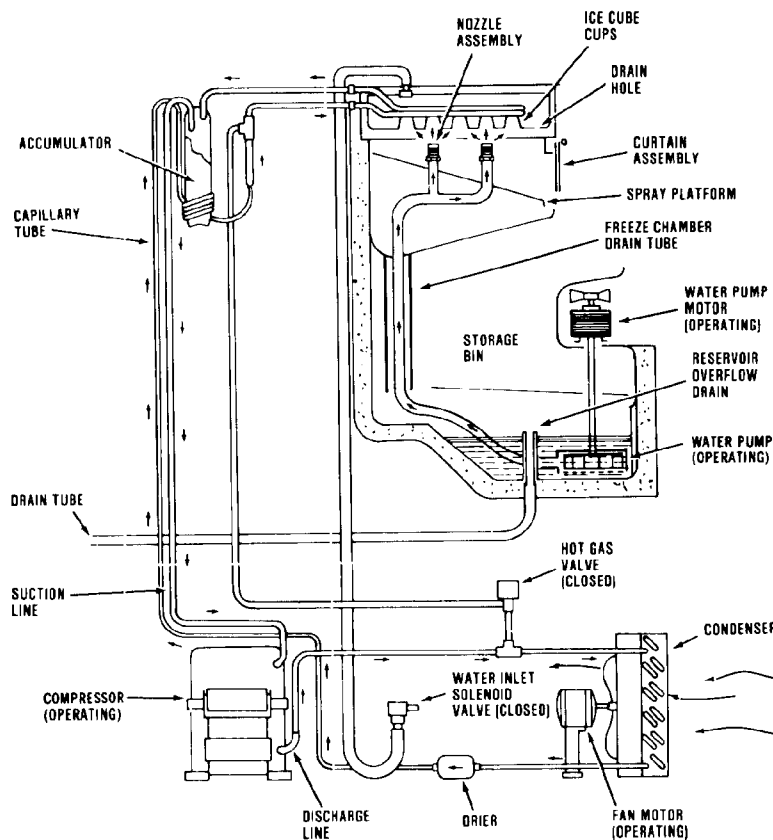
The refrigerant circuit now seeks a 119-133 PSIG head pressure. The suction or low side pressure pulls down fairly quickly to about 28 PSIG at which point the ice cubes are starting to form a thin shell in cube cups. Continuing from 28 PSIG slowly on down towards the finished cube pressure of about 3 PSIG takes an average of 15 to 25 minutes.

During this portion of the freezing cycle the electrical brain in the reverse-acting, cube-size thermostat. This thermostat electrically is holding the freezing cycle components live. When the ice cubes are about three quarters formed, the decreasing suction pressure and temperature activate the temperature sensing bulb of the reverse-action, cube-size control, closing its contacts. This does not interrupt the freezing cycle. The closing of the cube-size

thermostat contacts electrically transfers the finishing of the freezing cycle to the finishing clock motor, or timer, as it is sometimes called.

One full revolution of the timer dial is fifteen minutes. However, of the total fifteen minutes on the timer dial, three minutes are used for the defrost or harvest cycle.

This means then that after the cube size contacts close they activate the timer motor. This control takes over and continues freezing cycle for another twelve minutes with timer dial now turning. When the twelve minutes are completed, an off set in the timer dial allows a micro switch with activating arm riding on that cam to drop into the slot, electrically stopping the freezing cycle and starting the three minutes harvest cycle. The clock motor continues through harvest cycle. A notch on the timer dial lifts the micro switch arm up on dial, electrically stopping harvest cycle and starts back into a new freezing cycle.



Freezing Cycle

AC125 OPERATING INSTRUCTIONS

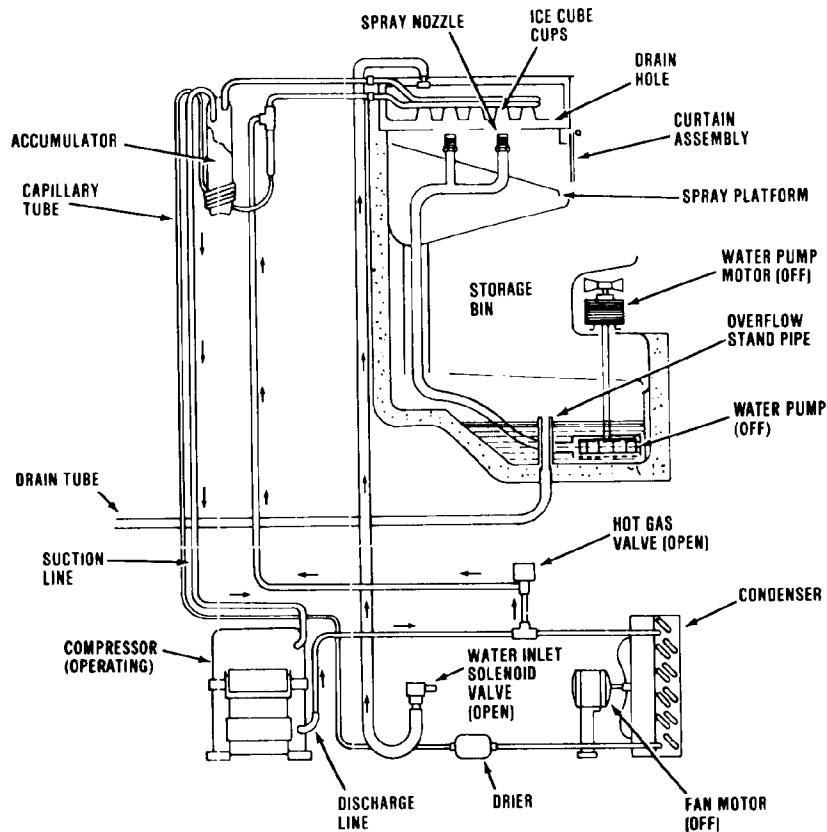
HARVEST CYCLE

When the finishing timer reaches the last three minutes of its cycle, the icemaker defrosts with hot gas from the compressor. Electrically, the components in the circuit are the compressor, fan motor, water pump and both the water solenoid and the hot gas solenoid.

The water flows from the solenoid valve, through the top of the evaporator freezing chamber, into the reservoir. The water level in the reservoir is controlled by a standpipe which directs the excess water to the drain.

This overflow washes the mineral concentration out of the reservoir area.

The refrigerant is now following the path of least resistance. The capillary tube restricts the normal route enough to force hot, uncondensed gas from the compressor to flow through the cube size control and a new freezing cycle begins.



Harvest Cycle

AC125 OPERATING INSTRUCTIONS

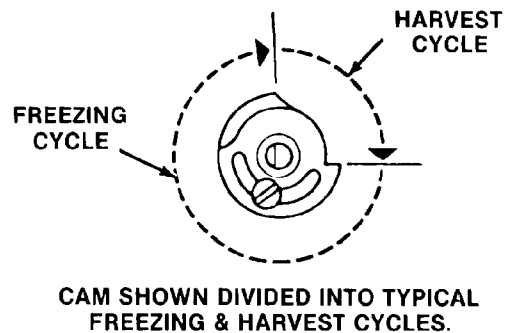
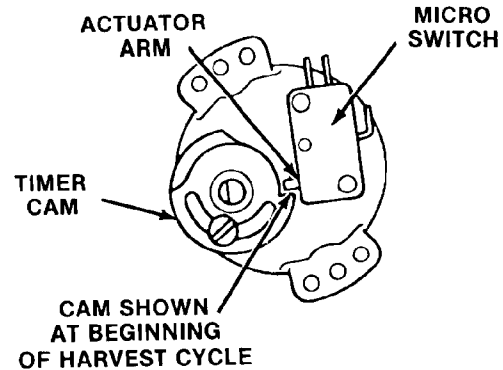
CONTROL SEQUENCE

At the start of the freezing cycle, the cube size control is open, which causes the ice cuber to freeze, but the timer cam will not be turning. Then, as the cube size control cut-in point is reached, electrically the control is passed to the finishing timer, whose cam begins to turn. This continues the freezing cycle for another 12 minutes until the turning cam reaches the indent point.

At this point in the cycle, the microswitch will initiate a harvest, or hot gas defrost for an additional three minutes.

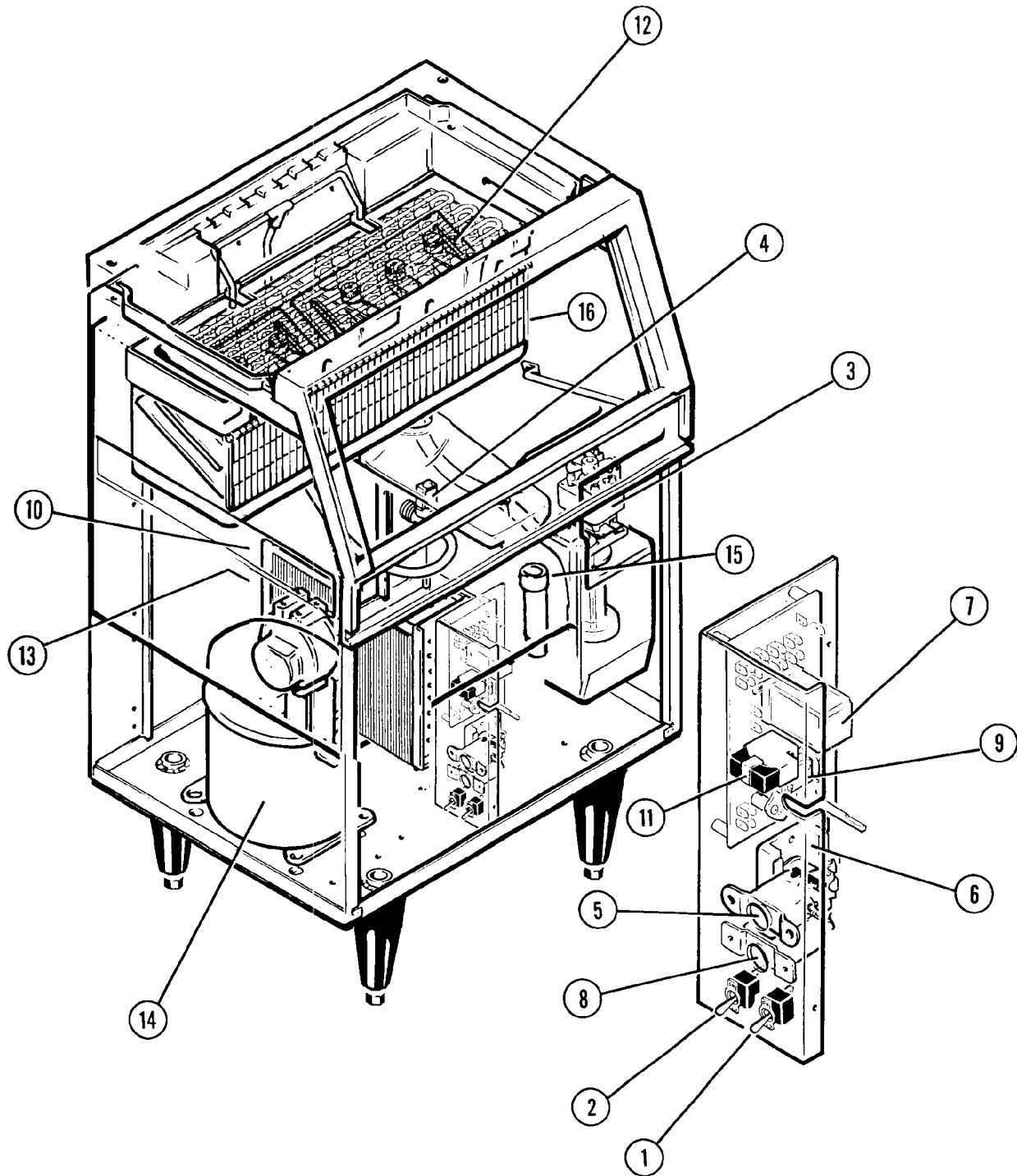
In the defrost portion of the freezing cycle, the microswitch N.C. contacts, have deenergized the finishing relay coil. Now the three contact arms of the finishing relay assume the opposite contact portion supplying power to the timer motor for the three minutes of defrost and to both hot gas and water inlet solenoids. The cam, continues to turn, until the microswitch plunger is once again depressed, electrically initiating the start of a new cycle.

The double throw microswitch has an "N.O." contact and a "N.C." contact, which represents either the freezing cycle mode, or the harvest cycle mode.



**AC125
OPERATING INSTRUCTIONS**

AC125 COMPONENT DESCRIPTION



AC125

COMPONENT DESCRIPTION

- 1 Master toggle switch**
Manual ON-OFF switch for entire unit. Located on the lower left-hand side of the control box.
- 2 Compressor toggle switch**
Control compressor ON-OFF only. Located on the lower left-hand side of the control box close to the master toggle switch.
- 3 Water pump**
The water pump, located behind the lower front panel on the right hand side, operates continually only during the freezing cycle. It pumps water to the spray system which provides a constant spray of water through twelve jets into the inverted cube molds. By so doing it aerates the water to produce a clear, solid ice cube.
- 4 Water inlet solenoid valve · 3/4" male fitting**
The water solenoid valve is energized only during the harvest cycle. When energized, it allows a metered rate of water to flow into the top of the freezer platen, assisting in the harvest of the cubes. This water flows by gravity through the drain holes in the platen assembly to the reservoir located on the lower right-hand side of the storage bin where it is picked up by the pump and directed to the spray system.
- 5 Bin thermostat control**
The thermostat control body is located on the lower lefthand side of the control box just over the switches. The thermostat sensing tube (capillary tube) is located in the ice storage bin on the right-hand side wall, where it automatically shuts the icemaker off when the ice bin is full and starts it again when ice is removed. The cut-out and cut-in factory settings are 1 °C (35 °F) and 4 °C (39 °F) respectively. When replacing the control, check operation by placing ice on capillary tube before installation. An audible "click" will be heard on cut-on.
- 6 Compressor control relay**
Located on the back wall of the control box just above the timer, the electrical relay is used to carry the compressor line current. It is wired in such a way that any of the controls in the pilot circuit such as the bin thermostat, high pressure controls etc. will cause the relay finishing coil to be de-energized. The control contact opens, thereby breaking the circuit to the compressor through the relay points.
- 7 Finishing relay (3 pole double throw)**
The finishing relay located on the left-hand side wall of the control box is a three-pole double throw relay that operates in both the energized and de-energized positions. During the freezing cycle the relay coil is energized, closing the contacts 7-4, 8-5 and 9-6 (see wiring diagram). Contacts 7-4 of the finishing relay provide a by-pass to the bin thermostat so that ice falling on the sensing bulb during a freezing cycle would not interrupt that cycle. This will assure full cubes at every harvest. Contacts 9-6 are an open circuit and not used. During the defrost cycle the finishing relay coil is de-energized, closing contacts 7-1, 8-2 and 9-3. The contacts 7-1 are an open circuit and not used. Contacts 8-2 operate both hot gas and water inlet solenoids to an open condition. The contacts 9-3 supply power to the timer motor through the contacts 3-2 of the cube size control (evaporator thermostat), for the remaining three minutes of defrost.

NOTE: Bin thermostat is wired through finishing relay and will not turn off the machine until the end of the harvest cycle.

AC125 COMPONENT DESCRIPTION

8 Cube size control

The cube size control is located on the left-hand side wall just above the bin thermostat. It is a reverse-acting temperature control with double throw contact points which closes its contacts 1-2 on temperature decrease and its contacts 3-2 on temperature rise. This control determines the length of the freezing cycle and, correspondingly, the size of the cube. A lower setting will produce a larger cube while a higher setting produces a smaller cube. When the contacts 1-2 of this control close, a circuit is completed to the finishing timer which takes over the balance of the freezing cycle and also activates the defrost cycle.

NOTE: When installing a new control do not make any adjustments until control bulb is installed properly into tube-well on refrigerant line, and insulation replaced over capillary tube bulb.

9 Finishing timer

Upon activation by the cube size control, the finishing timer takes over the final portion of the freezer cycle. The timer has a 15-minute cycle of which 12 minutes comprise the final portion of freeze time and the remaining 3 minutes, the harvest portion. All electrical components are connected to the time clock board and shunted by means of a double pole single throw microswitch to either the freeze cycle or harvest cycle. The microswitch is actuated by a plastic cam that is directly connected to the time clock motor. The cam assembly consists of two plastic discs which can be adjusted to lengthen or shorten the defrost cycle as desired.

10 Hot gas solenoid valve assembly

The hot gas solenoid assembly consists of two parts, the valve body and solenoid coil. These components are located on the discharge line of the compressor and activated by the finishing timer through contacts 8-2 of the finishing relay during the harvest cycle. As the finishing timer advances into harvest, the solenoid coil, located on top of the valve body. This allows the hot discharge gas from the compressor to by-pass the capillary tube and flow directly into the evaporator, releasing the cubes from the cube mold.

11 High pressure fan control

A reverse-acting, automatic reset, high pressure control fitted on the left hand side of the control box is electrically connected to the condenser fan motor and by a capillary tube to the discharge line. Its function is to maintain the head pressure during the freezing cycle between the pre-set values, and during the harvest cycle - ensuring that there is sufficient heat to release the cubes from the molds. The control contacts are set to open at 119 PSIG, cutting out the electrical power to the fan motor, and to close at 133 PSIG.

12 Spray platforms and chutes

The spray system used on this unit is a stationary one, and consists of two separate spray platforms and chutes. The water is forced by the sump pump towards a "T" pipe where the water flow is diverted through two rubber hoses into both platforms. From each platform chamber, the water is sprayed into the inverted cup molds through a set of six spray nozzles.

13 Fan motor

The fan motor is electrically connected to the head pressure control and maintains proper head pressure by circulating air across the air cooled condenser.

14 Hermetic Motor Compressor

The hermetic motor compressor circulates and retrieves refrigerant throughout entire system. It compresses the low pressure refrigerant vapor, causing its temperature to rise. It thus becomes high pressure hot vapor which is then released through the discharge valve.

Average Amps:

Freeze Cycle	8.1 - 8.6
Harvest Cycle	10.5 - 12.5

15 Overflow Standpipe

The overflow standpipe maintains a constant water level and discharges excess water during the harvest cycle.

16 Curtain Assembly

The curtain assembly holds water spray within the freezer section during freezing cycle. Cubes drop by gravity and push curtain assembly open.

OPERATING INSTRUCTIONS

IF THE MACHINE DOES NOT PRODUCE ICE

Check the following before calling a service technician:

A. Unit runs but produces no ice...

1. Check water supply valve to make sure it is open.
2. Compressor switch must be in "On" position.

B. Unit runs but produces very little ice...

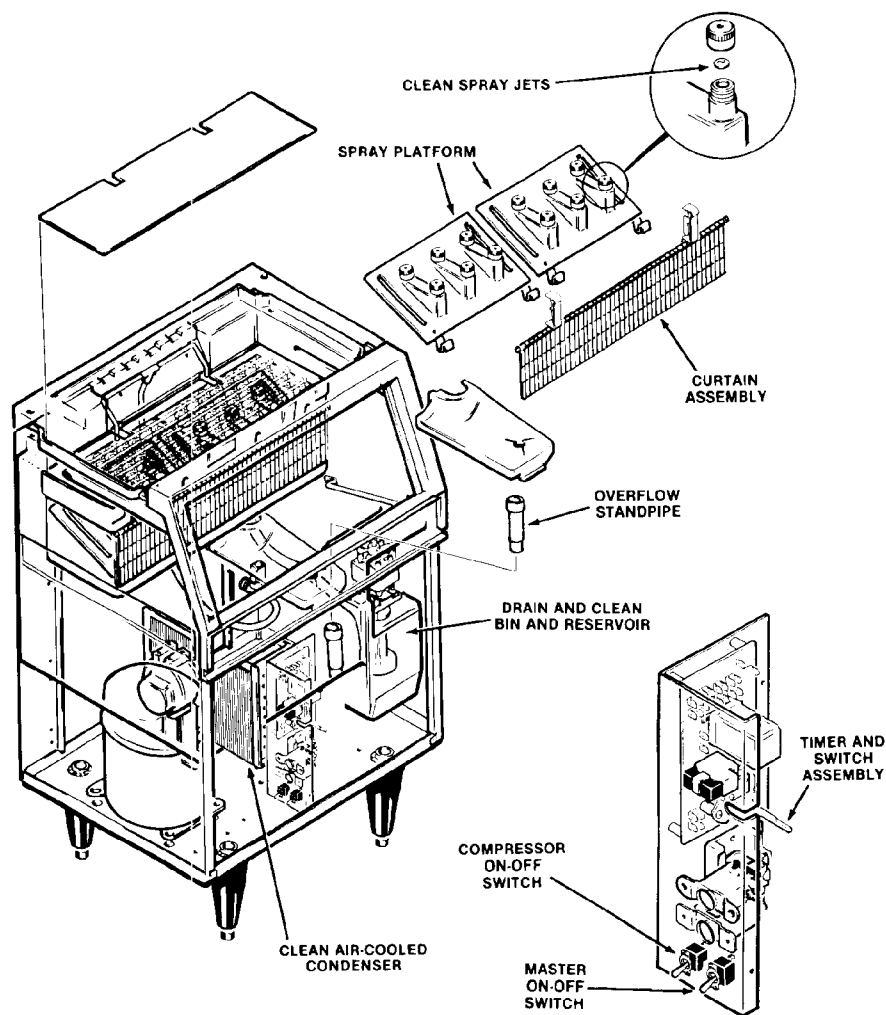
1. Operating in extremely high room temperatures (normal for ice production to be low).
2. Lint blocking air flow through finned condenser. (Clean.) Check for objects around unit which would obstruct normal air flow. (Remove.)
3. Low water pressure to unit.

C. Unit does not run...

1. Check for blown fuse in electrical supply to machine.
2. Master switch must be in "On" position.
3. Room temperature too low. (Must be above 50°F.) Unit may be shut down even though bin is not full.
4. Unit must be plugged in.

D. Unit makes irregularly shaped cubes...

1. Spray nozzles partially clogged. Clean unit.



AC125 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 lists corrective actions for the causes of known symptoms of certain problems that can occur in the Dispensing System and the Icemaking - Refrigeration System.

SYMPTOM	POSSIBLE CAUSE	SUGGESTED CORRECTION
Unit will not run	Blown fuse	Replace fuse & check for cause of blown fuse.
	Bin thermostat set improperly	Replace.
	Switch in Off position	Turn switch to On Position.
	Inoperative master switch	Replace switch.
	Timer contacts open	Replace timer micro-switch.
Compressor cycles intermittently	High pressure control open	Check fan motor operation.
	Low voltage	Check circuit for overloading. Check voltage at the supply to the building. If low, contact the power company.
	Dirty condenser	Clean with vacuum cleaner, air or stiff brush. (DO NOT use wire brush).
	Air circulation blocked	Allow sufficient air space all around unit.
Cubes too small	Non-condensable gas in system	Purge the system.
	Cube size control set too high	Lower the setting. Turn towards colder.
	Partially restricted capillary tube	Blow charge, add new gas & drier, after evacuating system with suction pump.
	Moisture in system	Same as above.
	Shortage of water	See remedies for shortage of water.
Cloudy cubes	Shortage of refrigerant	Check for leaks and recharge.
	Inoperative cube size control	Replace cube size control.
	Shortage of water	See remedies for shortage of water.
Shortage of water	Dirty water supply	Use water or water filter.
	Accumulated impurities	Use SCOTSMAN Ice Machine Cleaner.
	Water spraying cut through curtain	Replace curtain if torn.
	Water solenoid not opening	Repair or replace.
Shortage of water	Water leak in sump area	Locate and Repair.
	Water flow control plugged	Remove and clean.

AC125 SERVICE DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	SUGGESTED CORRECTION
Irregular size cubes and some cloudy	Some jets plugged	Clean jets.
	Shortage of water Unit not level	See Shortage of Water. Water overflowing air vent holes on low side burning cubes. Level as required.
Cubes too large	Cube size control turned too cold	Turn setting on cube size control dial towards warmer.
Decreased ice capacity	Inefficient compressor	Replace.
	Leaky water valve	Replace or repair.
	High head pressure	Dirty condenser. Clean. Bad fan motor, Replace.
	Non-condensable gas in the system.	Purge the system.
	Poor air circulation or excessively hot location	Relocate the unit, or provide for ventilation by cutting openings.
Overcharge of refrigerant		Correct the charge. Purge off slowly.
	Partially restricted cap tube	Purge & replace charge and drier.
Poor harvests	Too short defrost time	Check and adjust harvest cycle. Timer should be set at number 3.
	Restriction in incoming water line	Check water feed line strainer and flow reducing valve. Do not remove flow control washers.
	Solenoid valve not opening the water valve	Solenoid binding or burned out. Replace.
	Air vent holes in upper cube cups plugged	Clean out holes.
	Ambient and water temp. too low	Change unit location.
Unit won't Harvest	Inoperative cube size control	Replace cube size control.
	Hot gas solenoid not opening	Solenoid binding or burned out replace.
	Timer switch not closing Holding relay with contact stuck	Replace. Clean or replace.
Excessive Water in Unit base	Water tubing leaking (Check during freeze & harvest cycle)	Check. Tighten or replace.

AC125 ADJUSTMENT PROCEDURES

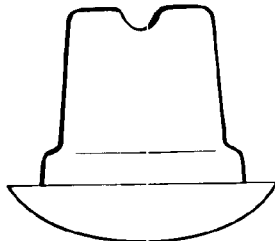
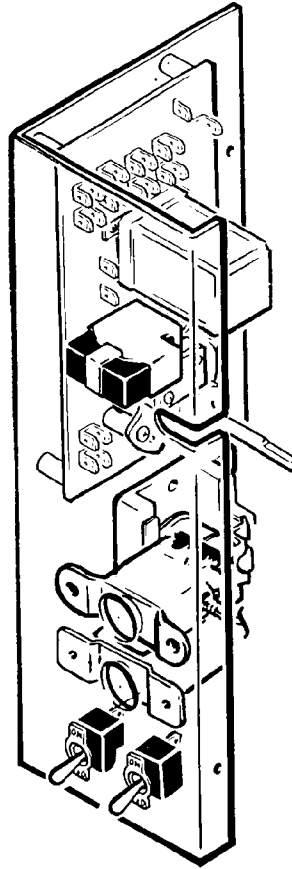
ADJUSTMENT OF THE CUBE SIZE CONTROL

CAUTION: Before performing actual adjustment to the cube size control, check other possible causes for cube size problems, refer to service diagnosis for problem review and analysis.

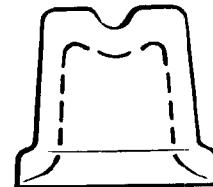
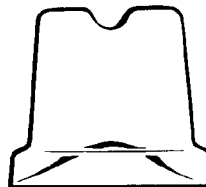
Do not perform adjustment when a new cube size control is installed, until the control bulb has been properly installed in the tube well, on the refrigerant tube of the platen assembly and the icemaking system has progressed through several complete freezing and harvest cycles, to observe size and quality of ice cubes and whether or not a cube size problem exists.

ADJUSTMENT OF THE CUBE SIZE CONTROL IS PERFORMED:

- A. If ice cubes are shallow size (Indentation is too deep):
 1. Locate the cube size control on the left side of control box.
 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.
- B. If ice cubes are oversize (Indentation is too full):
 1. Locate the cube size control on the left side of control box.
 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.



TOO
LARGE



TOO
SMALL

AC125 ADJUSTMENT PROCEDURES

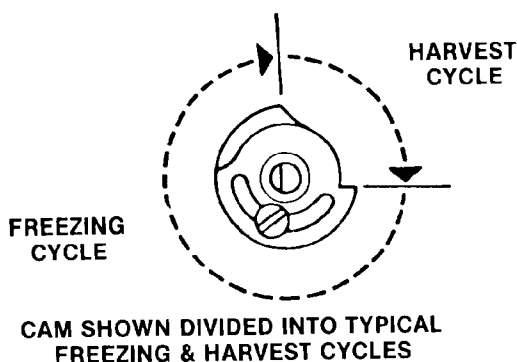
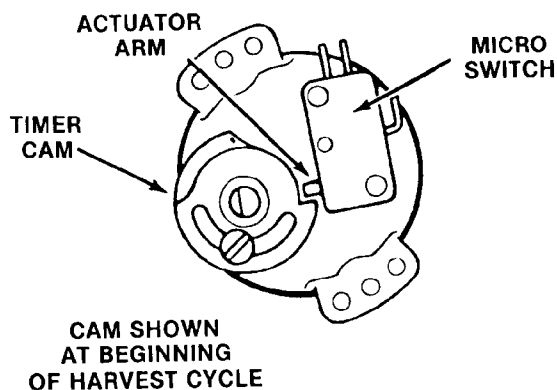
ADJUSTMENT OF THE TIMER AND SWITCH ASSEMBLY

The timer and switch assembly is factory-set, so one complete revolution of the cam on the timer represents fifteen minutes. Twelve minutes comprise the freezing cycle event during cam rotation, and the final three minutes program the defrost and harvest cycle.

To adjust the timer and switch assembly.

- A. Harvest cycle: slowly rotate the shaft of the timer located in the control box, clockwise until the actuator arm on the microswitch initiates the harvest cycle. An audible 'click' can be heard, but in a noisy area, look at the cam and switch to observe the event.
- B. Freezing cycle: slowly rotate the shaft of the timer, located in the control box, clockwise, until the actuator arm on the microswitch initiates the freezing cycle.
- C. The length of the harvest cycle can be changed by loosening the adjustment screw on the cam.

The minimum harvest setting is two minutes; the maximum is three and a-half minutes, as set at the factory. It is important that the length of the harvest cycle allows enough time for all ice cubes to be ejected from the evaporator. Too short of a time will cause the evaporator to freeze up and stop ejecting ice into the bin. Too much time, wastes icemaking capacity, energy and water. Adjustment of the harvest cycle may require a corresponding adjustment of the cubes size control.



Adjustment of the Timer & Switch Assembly.

ADJUSTMENT OF THE BIN LEVEL CONTROL

Adjustment of the bin level control is normally performed, to cause more ice to be produced to result in a higher ice level in the bin; or, to cause less ice to be produced, to result in a response to a too cold or too much ice condition, adjust only a maximum of one-eighth turn of control knob rotation at a time.

Clockwise rotation corresponds to a colder setting. Counterclockwise rotation corresponds to a warmer setting.

AC125 REMOVAL & REPLACEMENT PROCEDURES

////////// WARNING //////////

Make sure that the electrical power supply and the inlet 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.

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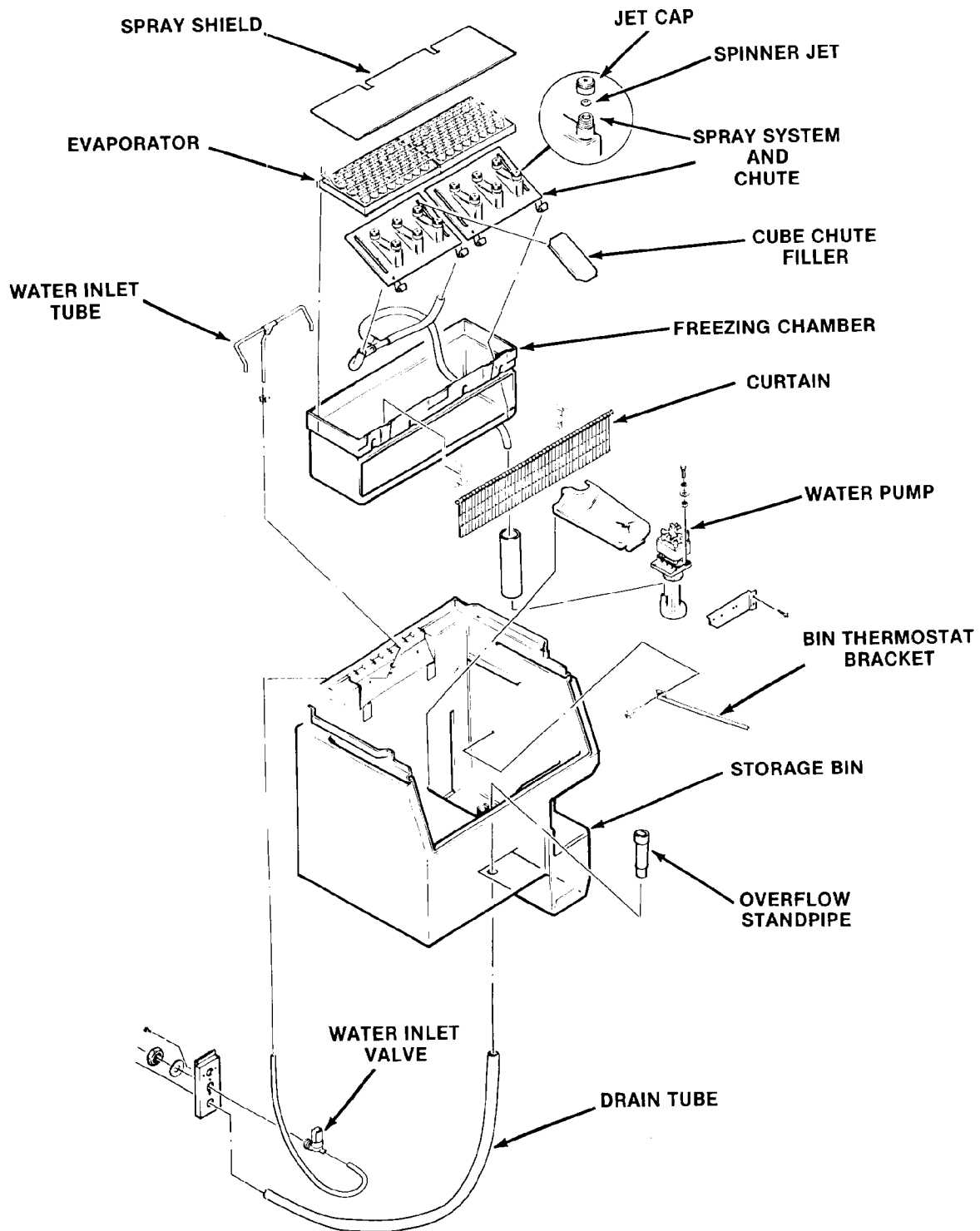
WATER PUMP REPLACEMENT

1. Remove lower front panel by loosening its two screws.
2. Open the storage bin door, locate the water reservoir cover at the bottom of the bin on the right-hand side and lift it out.
3. Locate the rubber hose on the discharge port of the pump and disconnect it from the water pump body.
4. Loosen the screw and the yellow-green ground wire. Trace the pump leads and disconnect them.
5. Loosen the screw securing the pump plate to the water reservoir and lift out the water pump assembly.
6. Loosen the screw and lock washers and lift the water pump off the bracket.
7. To install the replacement pump, follow the above steps in reverse.

REPLACEMENT OF WATER INLET SOLENOID VALVE

1. Remove the rear panel.
2. Disconnect the electrical leads from the solenoid valve.
3. Disconnect water supply line at rear of cuber.
4. Unscrew the two screws securing the inlet solenoid valve to the cabinet.
5. Remove corbin clamps and rubber hose; the valve is now free.
6. Follow the steps to remove the flow control and keep it for use in the replacement valve.
7. To install the replacement water inlet solenoid valve follow the above steps in reverse.

AC125 REMOVAL & REPLACEMENT PROCEDURES



AC125

REMOVAL & REPLACEMENT PROCEDURES

REPLACEMENT OF PLASTIC CURTAIN

1. Open the storage bin door to gain access to curtain.
2. Remove the plastic curtain from the clips holding it, and take out.
3. To install the replacement plastic curtain, follow the above steps in reverse.

REPLACEMENT OF SPRAY PLATFORM AND CHUTE

1. Follow the steps to remove the plastic curtain.
2. Lift the plastic spray system from the evaporator housing and remove the corbin clamps fastening the rubber hose to the bottom of the platform.
3. Disconnect the rubber hose from the spray platform and remove the platform.
4. To install the replacement spray platform, follow above steps in reverse.

SPRAY JET REPLACEMENT

1. Follow the steps to remove the plastic curtain.
2. Unscrew the spray cup with its spinner jet and remove it.
3. To install the replacement spray jet, follow the above steps in reverse.

COMPRESSOR REPLACEMENT

1. Remove back and front panels.
2. Remove the cover and disconnect the electrical leads from the compressor junction box.
3. Bleed off or blow the refrigerant charge through the schrader-type valve.
4. Unsolder and disconnect both the suction line and the discharge line from the compressor.
5. Remove the four compressor mounting bolts and the compressor from the unit base.
NOTE: Always install a replacement dryer whenever the sealed refrigeration system is open. Do not replace the dryer until all other repairs or replacements have been completed.
6. To install the replacement compressor, follow the above steps in reverse. NOTE: Thoroughly evacuate the system to remove moisture and noncondensables after compressor replacement.

FAN MOTOR REPLACEMENT

1. Remove front and back panels.
2. Remove screw and yellow-green ground wire. Trace the electrical leads of fan motor and disconnect same.
3. Remove the bolts securing the fan motor assembly to the cabinet base and then remove the assembly.
4. To install the replacement fan motor, follow the above steps in reverse. NOTE: When installing a new fan motor, check that the fan blades do not touch any surfaces and move freely.

AIR COOLED CONDENSER REPLACEMENT

1. Remove back and front panels.
2. Remove the two bolts attaching the condenser to the base.
3. Bleed off or blow the refrigerant from the system.
4. Unsolder the refrigerant lines from the condenser and remove it from the unit.
NOTE: Always install a replacement dryer whenever the sealed refrigeration system is open. Do not replace the dryer until all other repairs or replacements have been completed.
5. To install the replacement condenser follow the above steps in reverse. NOTE: Thoroughly evacuate the system to remove moisture and non-condensables after condenser replacement.

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REMOVAL & REPLACEMENT PROCEDURES

TO REMOVE FLOW CONTROL

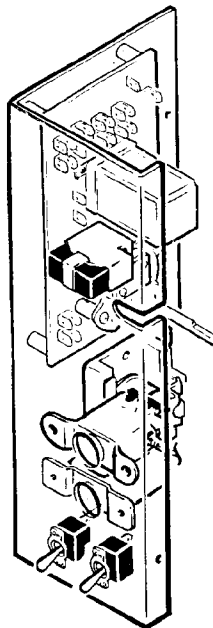
1. Disconnect the water inlet rubber hose from the solenoid valve.
2. Remove the filter from inside the water inlet solenoid valve.
3. Withdraw the flow control body from its seat inside the valve by means of a 10 Ma. screw.
4. To replace it, follow the above steps in reverse.

BIN CONTROL REPLACEMENT

1. Remove the front panel and the bin door with its frame.
2. Remove the control box cover and disconnect the electrical leads from the bin control located on the left-hand side of the control box.
3. Remove screws holding the bin control to the control box case.
4. Trace the capillary tube from bin control to bulb holder, withdraw it from bulb holder and carefully work it out of the cabinet.
5. Take out the bin control and attached capillary tube.
6. To install the replacement bin control, follow the above steps in reverse.

REPLACEMENT OF CUBE SIZE CONTROL

1. Remove front, rear and top panels.
2. Remove the control box cover and disconnect the electrical leads from the cube size control located on the left side of the control box.
3. Trace the capillary tube bulb at the bulb holder in the evaporator section and remove it.
4. Remove screws attaching the cube size control to the control box case and lift it out.
5. To install the replacement cube size control, follow the above steps in reverse.



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REMOVAL & REPLACEMENT PROCEDURES

DRIER REPLACEMENT

1. Remove the front and back panels.
Bleed off or blow the refrigeration charge through the Schrader-type valve.
2. Unsolder the capillary tube from one end of the dryer and the refrigerant line from the other end. Leave the service line on the dryer and remove it from the base.
3. After removing the dryer from the unit, unsolder and remove the service line and retain it for use in the new replacement dryer.
4. To install a replacement dryer, remove factory seals and install and solder the service line in the same position as the previous one.
5. Install and solder the refrigerant line and the capillary tube into the replacement dryer.
6. Thoroughly evacuate the system to remove moisture and non-condensables after dryer replacement.
7. Charge the system with refrigerant by weight (see data plate) and check for leaks.
8. Replace front and rear panels.

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REMOVAL & REPLACEMENT PROCEDURES

HOT GAS VALVE COIL REPLACEMENT

1. Remove rear panel.
2. Remove the spring clip securing the hot gas valve coil to its body.
3. Trace the electric wires belonging to the hot gas valve coil and disconnect them; then lift the valve coil from the valve body.
4. To install the replacement hot gas valve coil, follow the above steps in reverse.

HOT GAS VALVE BODY REPLACEMENT

1. Follow the steps to remove the hot gas valve coil.
2. Bleed off or blow the refrigerant from the system.
3. Unsolder the refrigerant lines from the hot gas valve body and remove it from the unit.
NOTE: Always install a replacement dryer any time the sealed refrigeration system is open. Do not replace the dryer until all other repairs or replacements have been completed.
4. To install the replacement hot gas valve body follow the previous steps in reverse.
NOTE: Thoroughly evacuate the system to remove moisture and non-condensables after condenser replacement.

REPLACEMENT OF HIGH PRESSURE FAN CONTROL

1. Remove front and rear panels.
2. Locate the high pressure fan control which is on the left hand side wall of the control box and disconnect its leads.
3. Bleed off or blow the refrigerant charge through the Schrader-type valve.
4. Trace the high pressure fan control capillary tube and unsolder it from the discharge line.
5. Remove screws and high pressure fan control.
6. To install replacement fan control, follow the above steps in reverse.

REPLACEMENT OF EVAPORATOR PLATEN

1. Remove top rear and front panels.
2. Bleed off or blow the refrigerant charge through the Schrader-type valve.
3. Withdraw the cube size control bulb (pig tail) from its holder on the evaporator discharge line.
4. Remove the water inlet copper tube from the evaporator chamber after undoing the appropriate screw.
5. Unsolder and disconnect capillary tube, suction and discharge lines from the evaporator platen assembly.
6. Lift the evaporator platen assembly out of its seat. NOTE: Always install a replacement dryer whenever the sealed refrigeration system is open. Do not replace the dryer until all other repairs or replacements have been completed.
7. To install the replacement evaporator platen assembly, follow the above steps in reverse. NOTE: Thoroughly evacuate the system to remove moisture and non-condensables after replacement of evaporator platen assembly.

AC125 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 and ambient conditions and the ice volume produced; and, each icemaker must be maintained individually, in accordance with its own particular location requirements.

ICEMAKER MAINTENANCE

The following maintenance should be scheduled at least two times per year on this icemaker.

1. Check and clean water line strainers.
2. Check that the icemaker is levelled, in side-to-side and front-to-back directions.
3. Clean the water system, evaporator, bin and spray nozzles, using a solution of Scotsman Ice Machine Cleaner. Refer to cleaning instructions and after cleaning will indicate frequency and procedure to be followed in local areas.

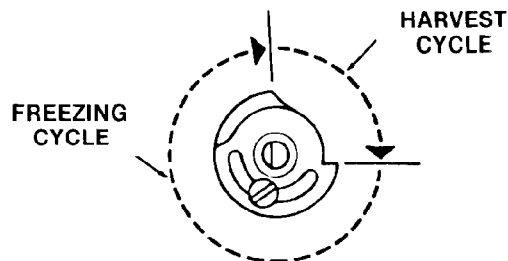
NOTE: Cleaning requirements vary according to local water conditions and individual user operation. Continuous check of the clarity of ice cubes and visual inspection of the water spraying parts before and after cleaning will indicate frequency and procedure to be followed in local areas.

4. With Ice Machine and fan motor off on Air-Cooled Models, clean condenser, using vacuum cleaner, whisk broom or brush.
5. 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.
6. Check size, condition and texture of ice cubes. Perform adjustment as required.
7. Check bin level control bulb to test shut-off. During the harvest cycle hold a handful of ice cubes on the bulb holder tube, which should cause the icemaker to shut off at the end of harvest cycle.

NOTE: Within minutes after the ice is removed from the bulb holder tube, the sensing bulb inside the tube will warm up and cause the icemaker to restart. This control is factory set and should not be reset until testing is performed.

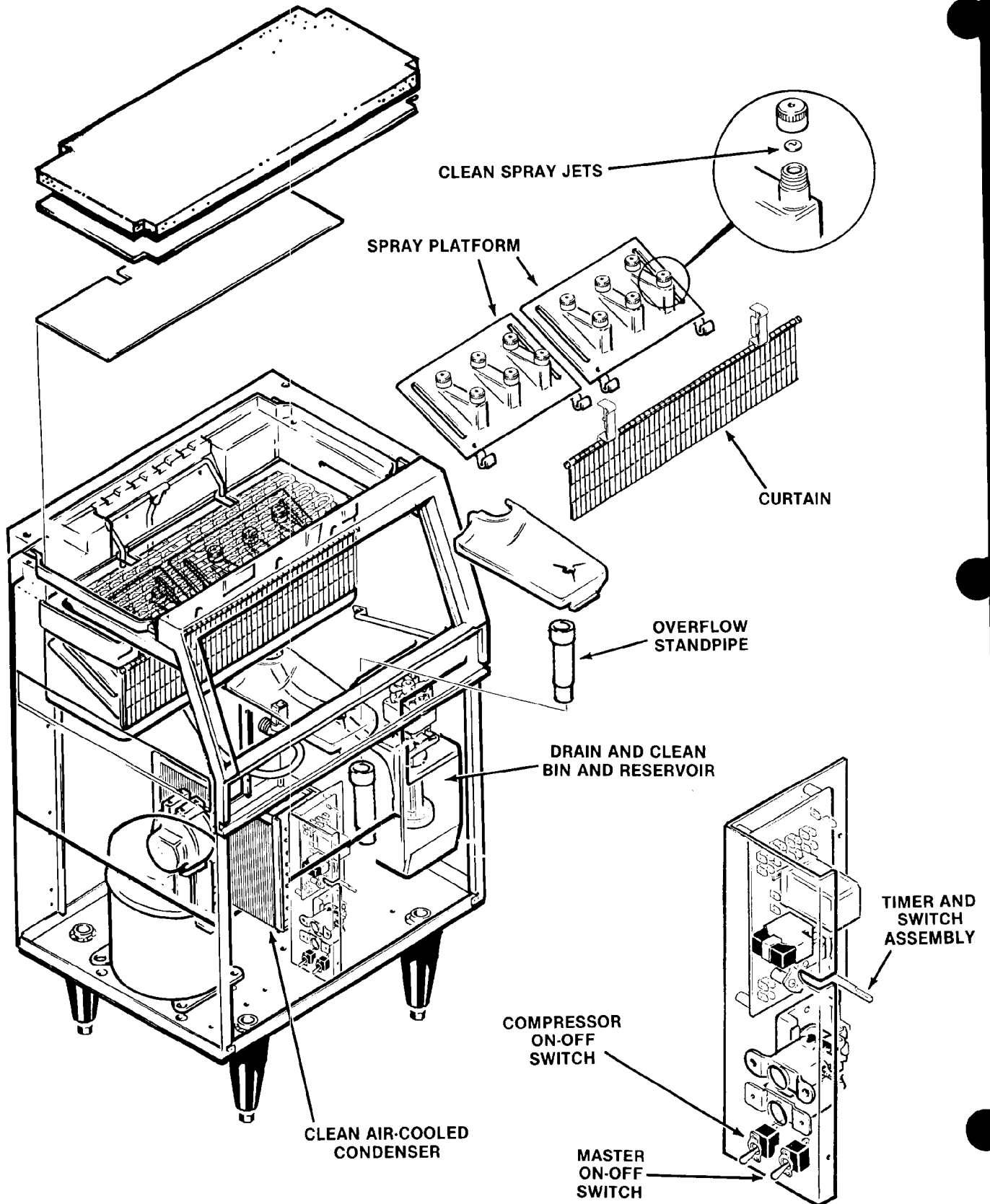
WATER SYSTEM CLEANING INSTRUCTIONS

1. Remove the lower front panel to gain access to the control box assembly.
2. Make sure that all ice cubes have been released from their cups, then set the master toggle switch and the compressor toggle switch located on the lower side of the control box to the OFF position.
3. Slowly rotate the timer shaft clockwise until the microswitch actuator arm is at the start position of the freezing cycle.



CAM SHOWN DIVIDED INTO TYPICAL
FREEZING & HARVEST CYCLES

AC125 MAINTENANCE & CLEANING INSTRUCTIONS



AC125 MAINTENANCE & CLEANING INSTRUCTIONS

4. Remove the water reservoir cover located inside the storage bin and remove the overflow drain tube from its seat to drain off all the water; replace the overflow in its housing.
5. Mix approx. 1/5 litres (6 oz.) of Scotsman cleaner with 2.5 litres (2.5 quarts) of water. Remove top panel and pour the cleaner solution on both the evaporator platens.

//////////////////// **WARNING** //////////////////////

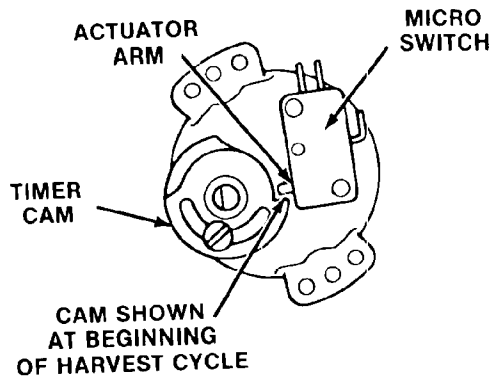
SCOTSMAN Ice Machine Cleaner contains Phosphoric and Hydroxyacetic acids. These compounds are corrosive and may cause burns. If swallowed DO NOT induce vomiting. Give large amounts of water or milk. Call physician immediately. In case of external contact, flush with water. KEEP OUT OF REACH OF CHILDREN.



6. Immediately set the master toggle switch to the ON position. Leave the compressor toggle switch in the OFF position.
7. Allow the system to operate for about 20 minutes into the freezing cycle. No ice will be produced because the compressor is not in operation.

NOTE: The amount of Scotsman cleaner and time needed to clean the water system satisfactorily depends on local water conditions.

8. At the end of this period set the master toggle switch to the OFF position to shut off the icemaker. Remove the overflow drain tube from the bottom of the reservoir to drain out all the cleaning solution and most of the mineral concentration through the drain. Turn the overflow tube into the proper location in the bottom of the reservoir.
9. Slowly rotate the timer shaft clockwise until the microswitch actuator arm is in the START position of the harvest cycle and then



set the master toggle switch to the ON position. Let the unit run normally through this part of the cycle. When the defrost has been completed rotate the time clock knob manually until the defrost cycle starts again. Do this three times.

Once the water reservoir is properly rinsed and filled up, set the compressor toggle switch to the ON position and replace the water reservoir cover.

The unit is now ready to resume the normal ice-making process.

10. Check each ice cube harvest until the ice cubes are clean and acid taste has been eliminated.

CAUTION: Do not use acid tasting ice cubes produced after cleaning of the water system. To avoid this, add warm water (30°C) to the bin to melt the ice cubes.

11. Wash and wipe all interior surfaces of the bin with a clean cloth.
12. Replace the front panel.

