

CSW4

TABLE OF CONTENTS

GENERAL INFORMATION & INSTALLATION	
Introduction	2
Unpacking	4
Select Location	4
Electrical Connections	6
Plumbing Installation	7
Final Checklist	8
OPERATING INSTRUCTIONS	
Start-Up	10
How It Works	10
Freezing Cycle	12
Harvest Cycle	13
Simple Problem Checklist 'BEFORE' Service Call	14
MAINTENANCE & CLEANING INSTRUCTIONS	
General	16
Icemaker	16
Cleaning the Condenser	16
Cleaning & Sanitizing	17
Operating Characteristics	20
SERVICE DIAGNOSIS	21
ADJUSTMENT PROCEDURES	
Storage Bin Thermostat	24
Ice Slab "Thickness"	24
Float Valve Assembly	24
REMOVAL AND REPLACEMENT PROCEDURES	
Cutter Grid	25
Evaporator	27
Ice Thickness Control	27
Water Regulator Valve, Water-Cooled	27
Water Distributor	28
Bin Thermostat Control	28
Float Valve Assembly	28
Expansion Valve	29
Slide-Out Chassis	30
Drier	31
Compressor Assembly	31
Condenser, Air-Cooled	31
Condenser, Water-Cooled	32
Water Pump	32
High Pressure Safety Control (Water-Cooled)	32
Hot Gas Harvest Solenoid Coil	33
Hot Gas Harvest Valve	33
Receiver	33
Fan Motor Assembly Air-Cooled	34

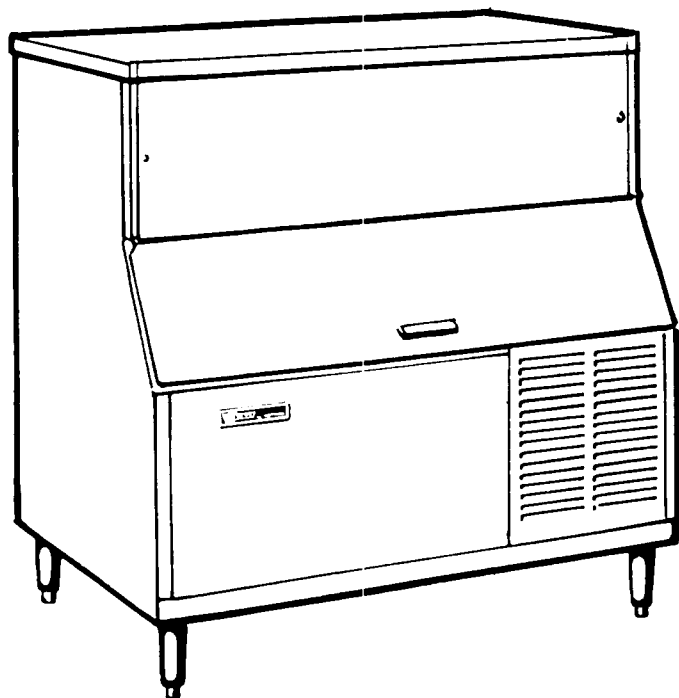
LIST OF ILLUSTRATIONS

Specifications	3
Unpacking Machine	4
Icemaker Location Considerations	4
CSW4 Component Location	5
Installation Electrical	6
Installation Water	7
General Information and Installation	9
Operation Illustration	11
Freezing Cycle	12
Harvest Cycle	13
Water Schematic	15
Cleaning Water System	18
Thickness Adjustment	24
Float Valve Assembly	24
Cutter Grid Wire Replacement Tools	25
Cutter Grid Wiring Schematic 3/4" x 3/4"	25
Cutter Grid Wiring Schematic 1-1/4" x 1-1/2"	26
Cutter Grid	26
PARTS LIST AND WIRING DIAGRAMS (Printed in Blue)	
PARTS LIST:	
Cabinet Assembly	1
Control Box Assembly	3
Ice Cutter Grid Assembly	5
Major Component Assembly	7
Air-Cooled Assembly	9
Water-Cooled Assembly	9
Liner Assembly	11
WIRING DIAGRAMS:	
CSW4 AE-1A (115/60/1)	13
CSW4 WE-1A (115/60/1)	14

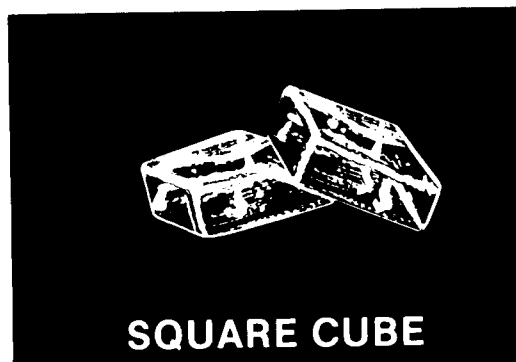
**THIS PAGE
INTENTIONALLY
LEFT BLANK**

CSW4

GENERAL INFORMATION AND INSTALLATION



CSW4
Self-Contained Cuber



SQUARE CUBE

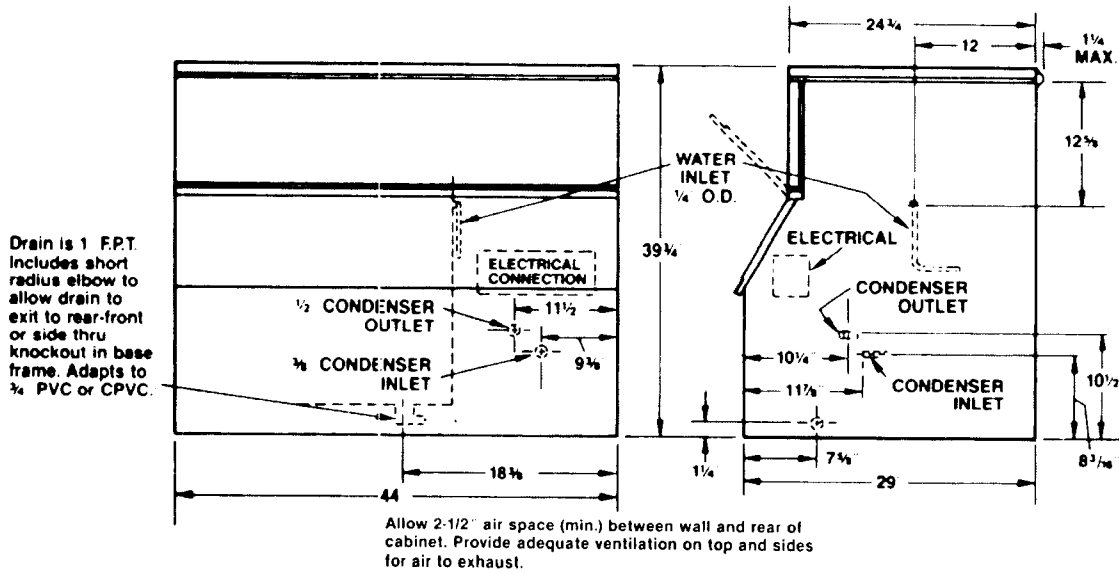
INTRODUCTION

The Model CSW4 Self Contained Cubers are quality designed, engineered and constructed, and are thoroughly tested icemaking systems, providing the utmost in flexibility to fit the needs of a particular user.

These instructions provide the specifications and the step-by-step procedures for the installation, start up and operation for the W-Series Model CSW4 Cuber.

CSW4

GENERAL INFORMATION AND INSTALLATION



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) Dimensions H" x W" x D"	Bin Cap.	Cond. Unit	Finish	Basic Electrical	Comp. H.P.	Time Delay Fuse Size Max.	Amp. (Average)	Water (In.)	Drain (In.)	Ship. Wt. (Approx. Lbs.)
CSW4AE-1A	39 1/4 x 44 x 29	242 lbs	Air	ES	115/60/1	3/4	20	12.5	3/4	3/4	330 lbs
CSW4WE-1A	39 1/4 x 44 x 29	242 lbs	Water	ES	115/60/1	3/4	20	12.5	1/4 - 3/8	3/4 - 1/2	330 lbs

IMPORTANT OPERATING REQUIREMENTS

	MINIMUM	MAXIMUM
* Air Temperatures	55° F (10.3° C)	100° F (38° C)
Water Temperatures	40° F (4.4° C)	100° F (38° C)
Water Pressures	20 lbs. gauge	100 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.

KBC1-Optional bin caster kit, two standard and two locking 3-1/2" dia. wheel casters. Lifts bin 4-7/16" off of floor.

GRIDS FOR LARGE CUBES On Model CSW4 to convert cube size to 1-1/4" x 1-1/2", order grid CCK-151-SG. Note: Order these special grids through the Scotsman Parts Department.

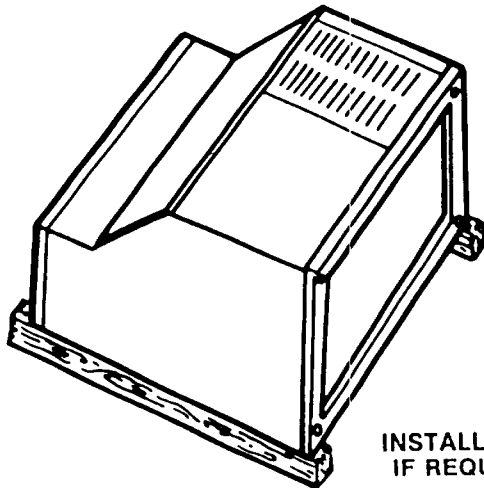
REFRIGERANT R502

CSW4

GENERAL INFORMATION AND INSTALLATION

UNPACK

THIS ITEM IS HEAVY, WHEN HANDLING USE PROPER EQUIPMENT AND CARE TO PROTECT IT, YOURSELF, STAIRS AND FLOORS.



INSTALL LEGS IF REQUIRED

1. Remove staples at bottom of carton. Lift and remove carton.

//////////////////// **CAUTION** //////////////////////

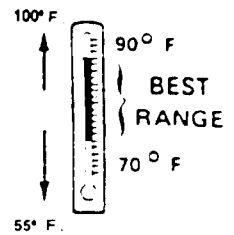
Skid base is not bolted to the bottom of the icemaker.

////////////////////////////////////

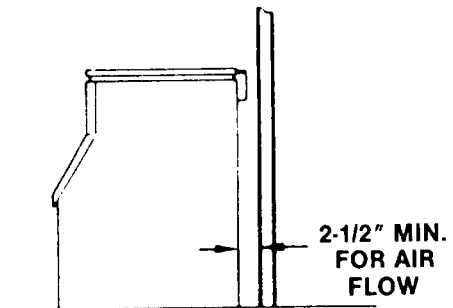
2. Carefully tilt cabinet to remove the skid.
3. **IF LEGS ARE TO BE INSTALLED**
 - A. Carefully lay machine on its back using blocks to prevent damage (As illustrated).
 - B. Screw the legs into the tapped holes in the base. Be sure that the legs are seating tightly against the frame.
4. Carefully set machine in upright position.
5. Remove exterior tape.
6. Raise storage bin door. Remove front panel by removing two screws and lifting panel off. Top may also be removed by pulling forward.
7. Remove all shipping tape and packaging from interior.
8. Check water pump pan for foreign objects or loose parts.
9. Examine carefully for concealed damage. Report immediately to carrier any damage found. Save carton and have carrier examine product and submit written report.

SELECT LOCATION

THIS UNIT MUST BE INSTALLED IN AN AREA PROTECTED FROM THE ELEMENTS, SUCH AS WIND, RAIN, WATER, SPRAY, OR DRIP.



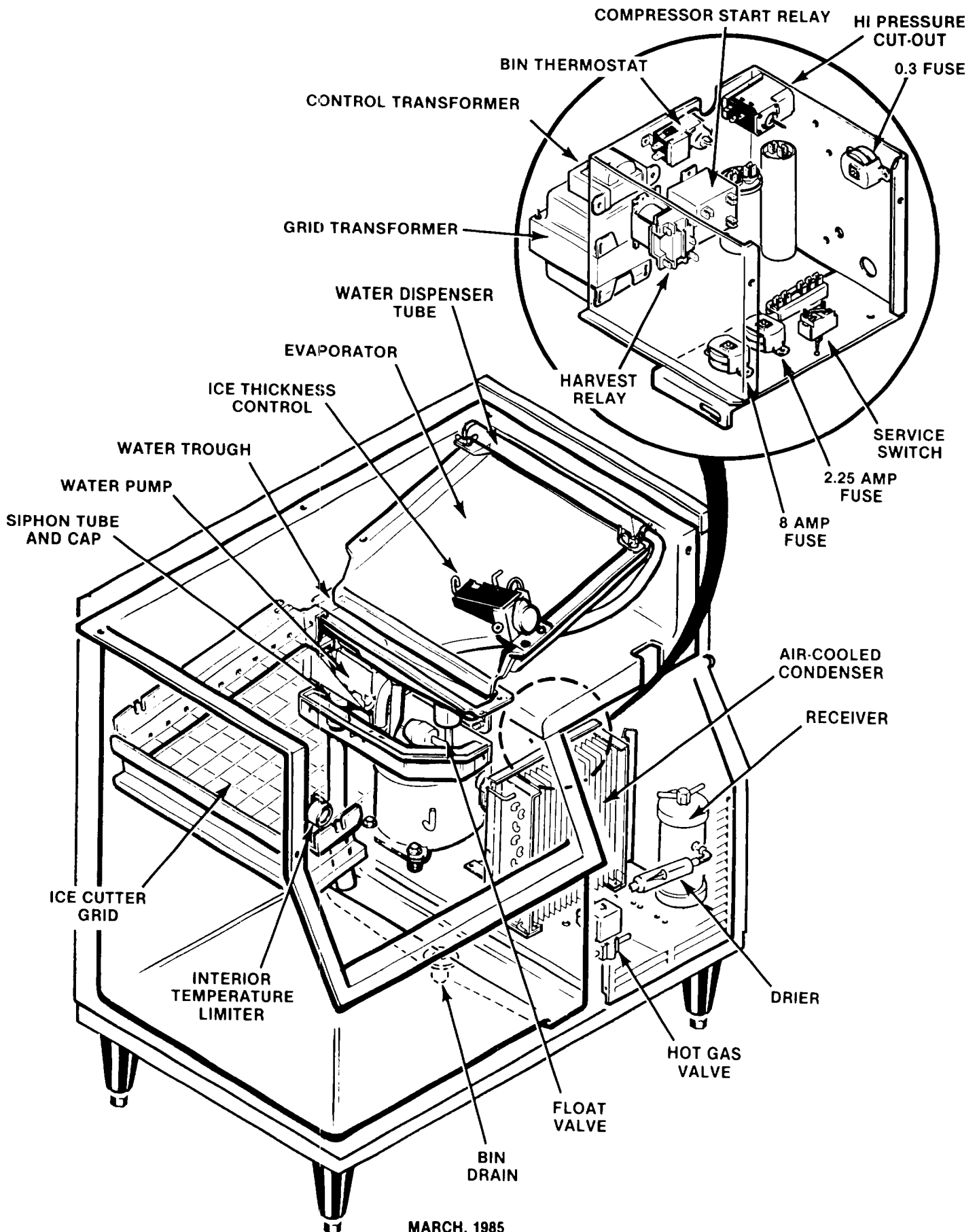
1. Locate in a well-ventilated area above 55° F. Best ice yield is obtained between 70° F. and 90° F.; higher or lower temperatures will reduce ice yield.
2. **CAUTION:** Do not install in areas where freezing temperatures may occur.
3. If air cooled icemaker is installed in a closed room 350° C.F.M. of air must be exchanged through the room to maintain the room air at 10° F. warmer than the available ambient air temperature.
4. For water cooled icemaker, water supply temperatures above 80° F. will result in extreme condenser water usage.
5. Leveling is important to obtain proper drainage of the storage bin; it also assures even water flow over the freezing plate and proper release of the ice slab during the harvest cycle. Level units without leveling legs with plywood or masonite shims.
6. Adjust the leveling legs until the unit is level and all four legs are in solid contact with the floor.
7. When legs are used, floor must support approximately 130 lbs. per leg (130 lbs. per sq. inch.).
8. When installing icemaker without leg kit, installation must conform to local, state and national health and building codes.



9. Allow 2-1/2" air space (min.) between wall and rear of cabinet. Provide adequate ventilation on top and sides for air to exhaust.

CSW4

GENERAL INFORMATION AND INSTALLATION



CSW4

GENERAL INFORMATION AND INSTALLATION

FOR THE ELECTRICIAN CONFORM TO ALL APPLICABLE CODES

It is the personal responsibility and obligation of the customer to contact a qualified installer to assure that the electrical installation is adequate and is in conformance with the National Electrical Code and local codes and ordinances.

Be certain the cuber is connected to its own electrical circuit and individually fused. Voltage variation should not exceed ten percent of the nameplate ratings, even under starting conditions. Low voltages can cause erratic operation and may be responsible for serious damage to the icemaker.

The electrical connection to the ice cube maker must supply 115 volts, 60Hz alternating current. This connection should enter the motor compartment through the back of the unit and should be brought forward to the front of the cabinet.

SEE NAMEPLATE for current requirements to determine wire size to be used for electrical hookup. The cuber requires a solid chassis-to-earth ground wire. See Wiring Diagram.

NOTE: A separate circuit must be used with a 20 ampere time delay fuse.

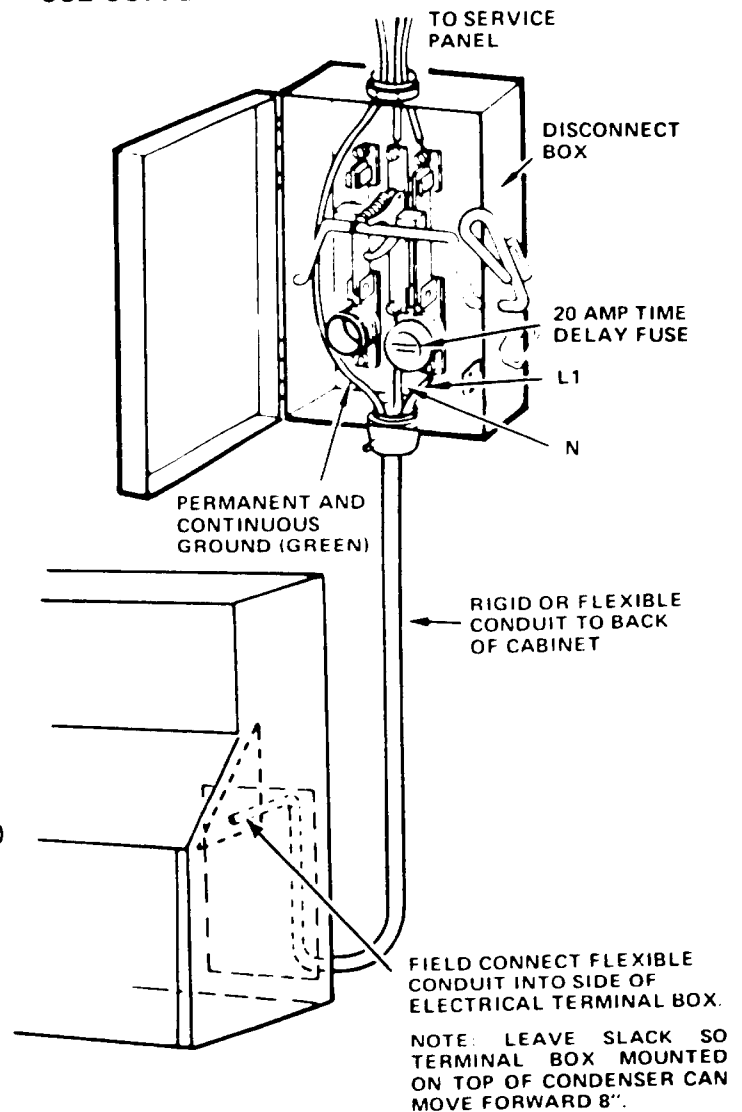
INSTALL ELECTRICAL WIRING USE COPPER WIRE ONLY

**WIRING — 115 V, 60Hz (cycles) 20 Amp,
Phase — Use Delayed Action Fuse**

1. Remove grill by removing screws at top edge.
2. Remove rear grill by removing four screws.
3. Remove electrical box cover and connect ground wire to green screw tagged "Ground" and electrical supply line to terminal board screws.

Refer to Wiring Diagram located on Control Box cover and connect per electrical codes.

INSTALL GROUNDING WIRE USE COPPER WIRE ONLY



ELECTRICAL GROUND IS REQUIRED ON THIS APPLIANCE.

1. Permanently ground this appliance in accordance with the National Electrical Code and local codes and ordinances. Ground must be continuous.
2. Use a conductor of the appropriate size from the appliance green grounding screw to a grounded connection in the service panel or a properly driven and electrically grounded rod.
3. Replace electrical box cover.

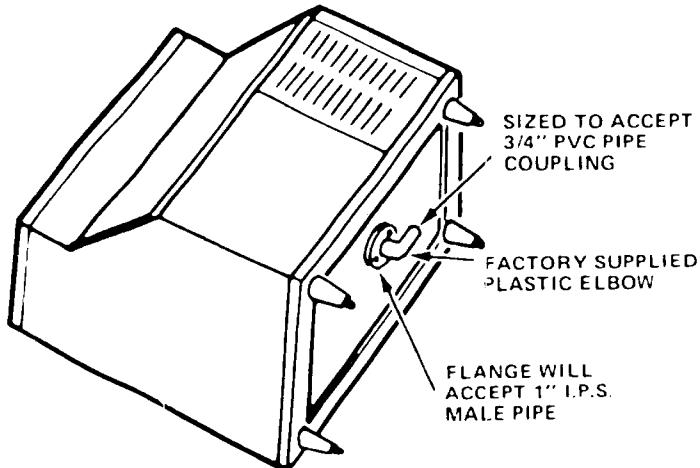
CSW4

GENERAL INFORMATION AND INSTALLATION

FOR THE PLUMBER

OBSERVE LOCAL CODES

INSTALL DRAIN



FOR DRAINAGE USE - 3/4" O.D., or larger, Tubing or Pipe

1. The drain line must maintain a gradual slope to an open drain receptacle. Any rise in the drain line will cause an air lock and prevent the water from draining from the storage bin. Installation of an air vent in the drain line will eliminate the possibility of an air lock forming.

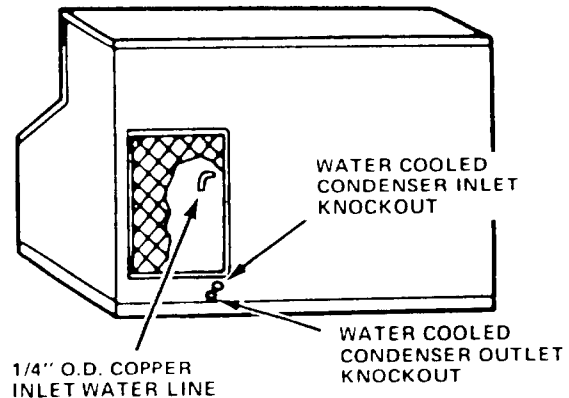
CONDENSER DRAIN

Water-Cooled Models Only

1. 1/2" galvanized pipe or copper tubing must be used to extend the condenser outlet to an open type drain.
2. Adequate flow rate must be maintained through the condenser. Runs over 40 ft. will require using larger pipe size.

INSTALL WATER SUPPLY

NOTE: Water treatment may be advisable because poor quality water can cause marginal operation or malfunction and increase cleaning frequency and maintenance costs. Contact your local commercial ice machine dealer for recommendations.



COLD WATER SUPPLY-1/4" O.D. Soft Copper Tubing With Shut-Off Valve

1. A shut-off valve should be provided in the water supply line at a convenient location near the ice maker. The supply line must be adequately sized to compensate for the length of the run.

Supply runs over 10 ft. should be made with 3/8" o.d. copper tubing. Runs of 10 ft. or less may be made with 1/4" o.d. copper tubing.

NOTE: Always flush out water lines before connecting to prevent foreign matter from entering the float valve.

2. Remove rear grill by removing four screws.
3. Connect supply line to 1/4" o.d. water line at rear of ice maker.
4. Water level is controlled in pump reservoir by the float valve. Make sure float valve opens and closes.
5. Water pressure must be 20 to 100 psi. If the pressure exceeds 100 psi, a regulator will have to be installed. The unit will operate in pressures below 20 psi; however, it may produce cloudy ice.

CONDENSER WATER INLET

Water-Cooled Models Only

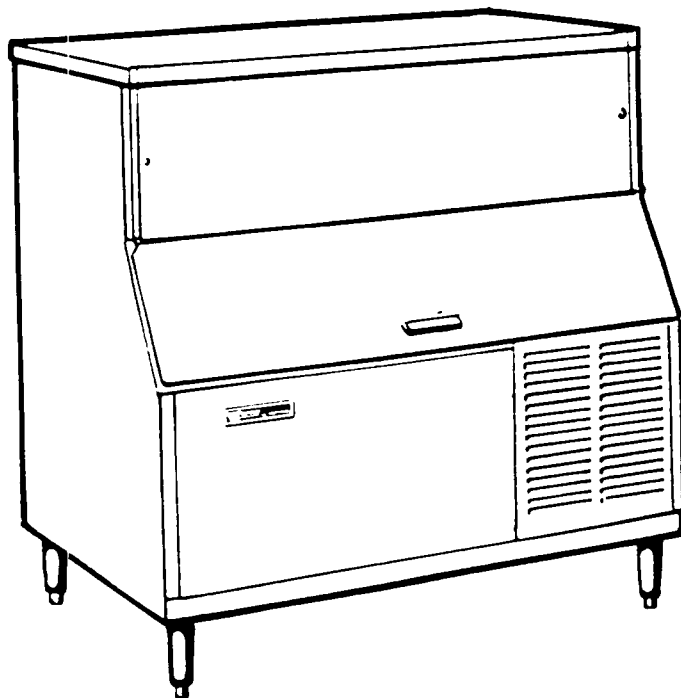
1. Use a 3/8" I.P.S. independent cold water supply to the water cooled condenser inlet for proper condenser operation. Runs over 40 ft. will require using larger pipe size. Install a hand shutoff valve between the water source and the water-cooled condenser connection at the icemaker.

CSW4

GENERAL INFORMATION AND INSTALLATION

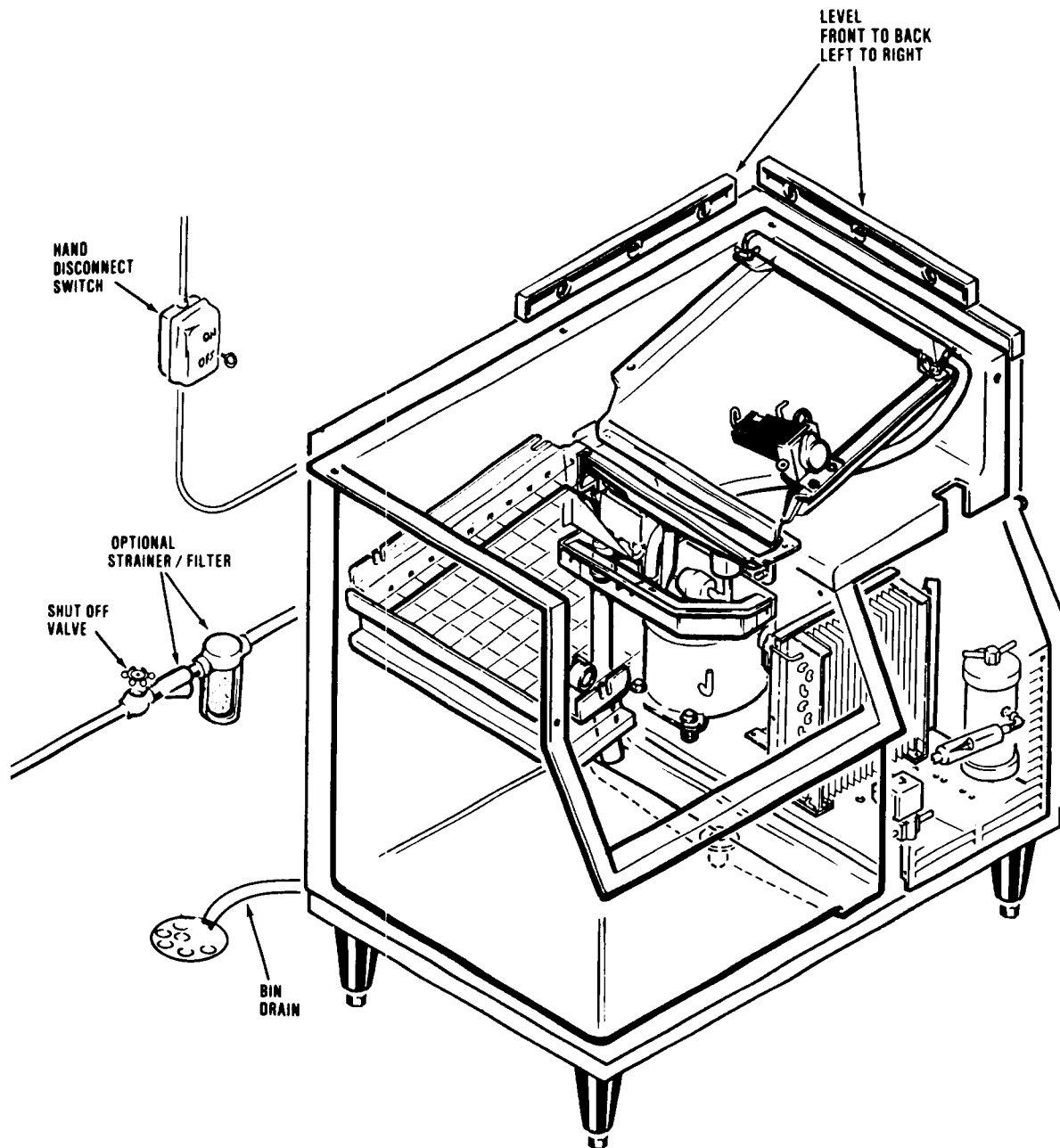
FINAL CHECK LIST

1. Is the cabinet/bin level? (IMPORTANT)
2. Is the cuber in a location where ambient temperatures are a minimum of 55-degrees F. all year around and do not exceed a maximum of 100° F?
3. Is there at least a 2-1/2" clearance behind and around the cabinet for all connections and for proper air circulation?
4. Have all electrical and piping connections been made?
5. Has the electrical power supply wiring been properly connected, and the voltage tested and checked against the nameplate rating? Has proper chassis-to-earth ground been installed?
6. Is the water supply line shutoff valve installed and opened and has the inlet water supply pressure been checked to ensure a minimum of 20 psig?
7. Have the compressor holddown bolts been checked to be sure the compressor is snug on the mounting pads?
8. Check all refrigerant lines and conduit lines to guard against vibration and possible failure.
9. Has the cuber and the bin been wiped clean with clean damp cloths?
10. Has the owner/user been given the User's Instructions and instructed on how to operate the icemaker and the importance of periodic maintenance?
11. Has the owner/user been given the name and telephone number of the Authorized Scotsman Distributor or Service Agency serving him?
12. Has the Manufacturer's Registration Card been properly filled out? Check for correct Model and Serial Numbers from nameplate, then mail the completed card to the SCOTSMAN factory.



CSW4

GENERAL INFORMATION AND INSTALLATION

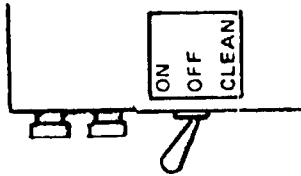


CSW4

OPERATING INSTRUCTIONS

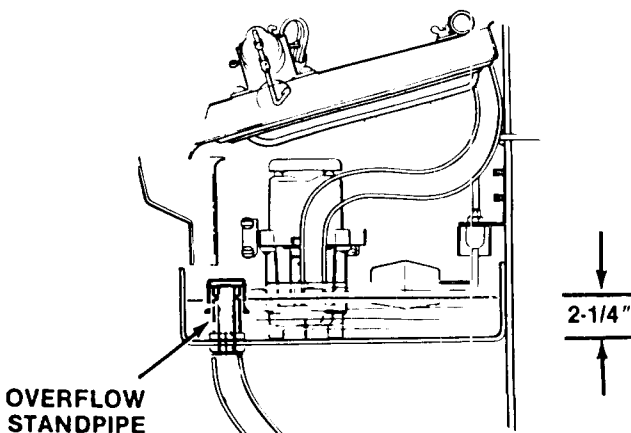
OPERATING INSTRUCTIONS STARTING

After the electricity and water to the ice cube maker have been turned on, move the switch to "on" position. This will start ice cube maker. Additional water will be admitted automatically to the water pan when the evaporator temperature has lowered sufficiently to start freezing water to the evaporator, thus lowering the water level causing the float to open.



CHECK OPERATION

1. Start the unit by opening water valve and turning the service switch to "ON".
2. NOTE: To the right is "CLEAN", middle is "OFF" and to the left is "ON". In "CLEAN" position, only the water pump operates.
3. Check water level in pump pan. When not running, water level should be 2-1/4" deep.



4. Check for even water flow over freezing plate. Unit must be level for proper operation.
5. Check freezing plate to make sure it is getting cold.
6. Check for desired cube thickness and adjust if necessary. Maximum capacity will be obtained with ice thickness 1/2" to 5/8".
7. When slab has been harvested, observe ice cutting action of the grid. The slab should slowly "sink" into the warm wires.
8. Replace all panels.
9. Store ice scoop in a clean place.

HOW IT WORKS

WITH SERVICE SWITCH IN "ON" POSITION

1. Compressor runs.
2. Condenser fan runs.
3. Water pump runs.
4. Thickness control motor runs.
5. Cutter grid warm to touch.

WHEN DESIRED ICE SLAB THICKNESS IS REACHED, HARVEST CYCLE BEGINS WITH FOLLOWING RESULTS:

1. Thickness control arm raises, closing contacts Common to "N.C." which energizes coil of relay.
2. Compressor keeps running.
3. Condenser fan stops. (air cooled). Condenser water valve closes tightly (water cooled).
4. Water pump stops.
5. Water siphons from pan and refills.
6. Thickness control motor stops.
7. Hot gas solenoid valve is energized and opens.
8. Cutter grid warm to touch.

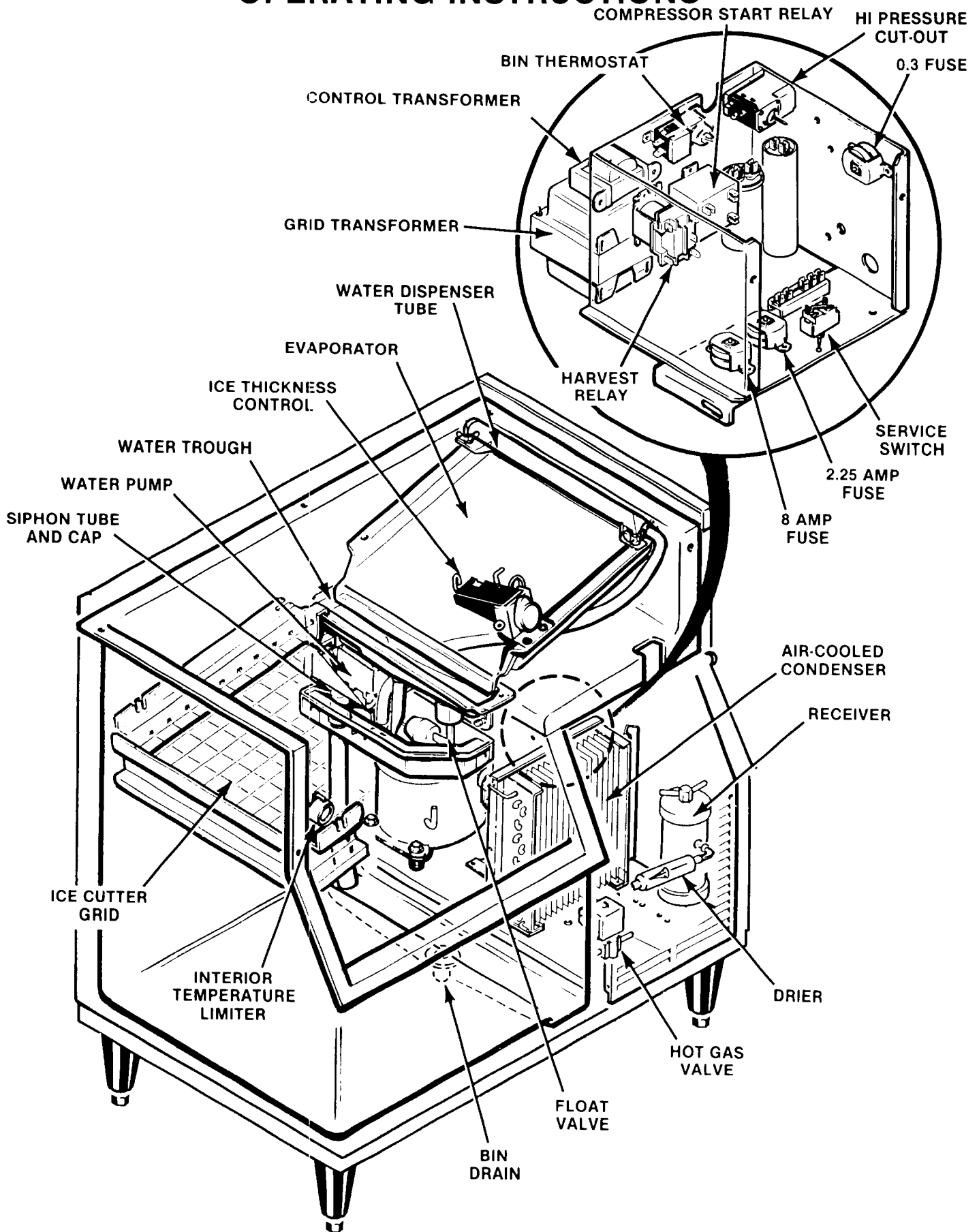
ICE SLAB SLIDES DOWN TO CUTTER GRID. THICKNESS CONTROL ARM FALLS CLOSING CONTACTS COMMON TO "N.O." WHICH DE-ENERGIZES COIL OF RELAY.

MACHINE THEN GOES BACK INTO FREEZE CYCLE WHILE SLAB IS BEING CUT INTO CUBES ON CUTTER GRID

WHEN STORAGE BIN GETS FULL, BIN THERMOSTAT TURNS MACHINE OFF.

1. Thickness control motor on.

CSW4 OPERATING INSTRUCTIONS



CSW4 GENERAL OPERATION

FREEZING CYCLE

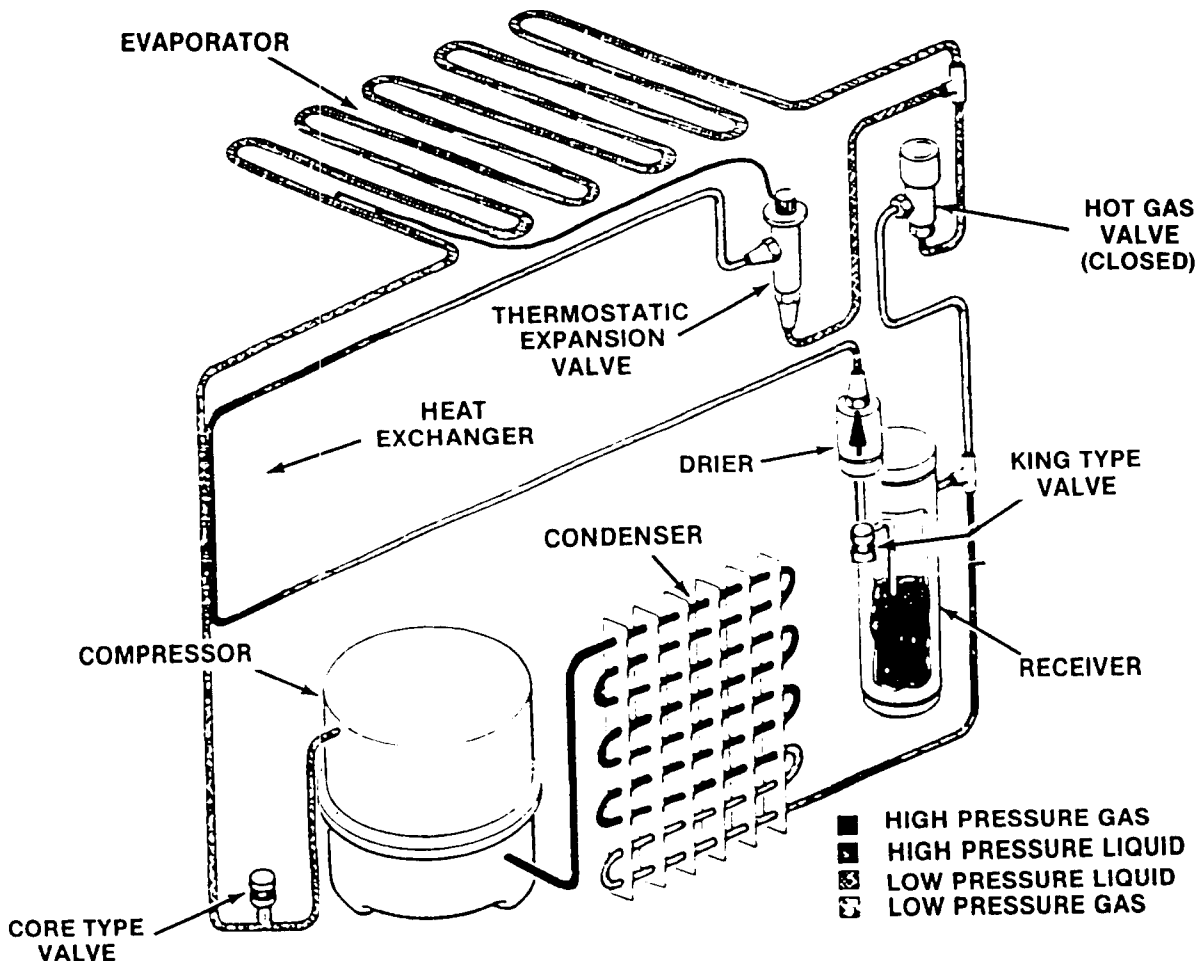
Water from the sump in the reservoir of the sump assembly is pumped to the water distributor system at the top of the evaporator plate. From the water distributor at the top of the evaporator plate, the water cascades by gravity over the plate and to the sump assembly below for recirculation. At the beginning of the freezing cycle, the electrical circuit is completed to the compressor and the water pump.

In the compressor, gaseous refrigerant is compressed and discharged into the condenser, as a high pressure, high temperature gas. The refrigerant is cooled by either air or water, and condenses into a high pressure, medium temperature liquid and into the receiver. This liquid refrigerant is then metered through the thermostatic expansion valve where the temperature and pressure of the liquid refrigerant are lowered and enters the evaporator plates. The refrigerant is warmed by

the water cascading over the Evaporator plate and begins to evaporate off and become gas. The refrigerant next travels through the heat exchange area of the suction line where any remaining liquid refrigerant evaporates off and returns to the compressor as a low pressure, low temperature gas, and the cycle starts again.

During the freezing cycle, the hot gas solenoid valve is CLOSED.

When the ice slab is formed, the ice thickness control will sense the thickness at which it is preset to CLOSE. This will complete the electrical circuit to the relay, ending the freeze cycle.



CSW4

GENERAL OPERATION

HARVEST CYCLE

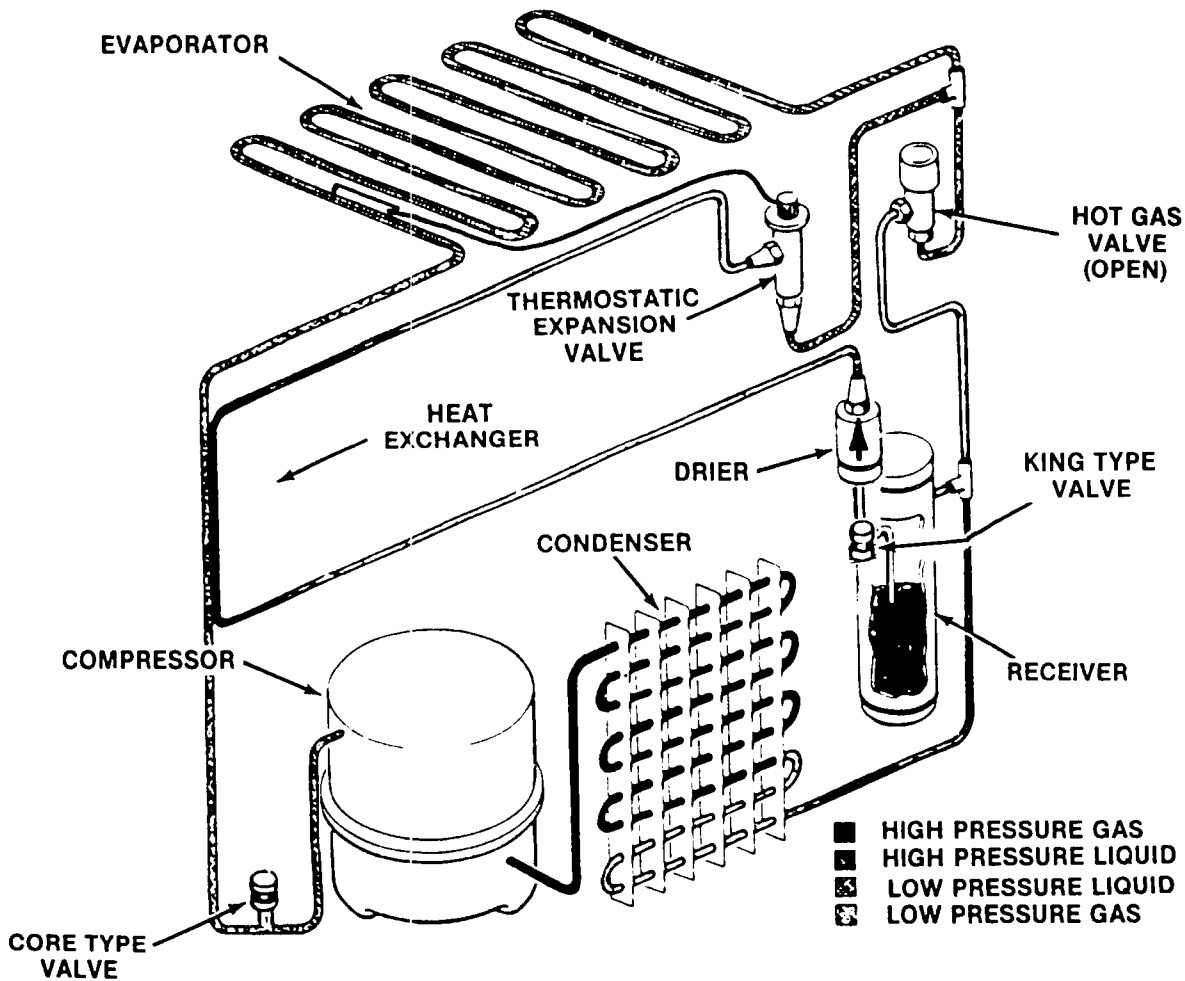
When the thickness control switches the icemaker into the harvest cycle, high pressure, high temperature liquid refrigerant being discharged from the condenser through the hot gas solenoid valve into the evaporator plate. During this cycle, the refrigerant bypasses the expansion valve.

The thickness switch snaps from normally open to closed for slab release. The thickness motor, the pump, and the condenser fan, stop. A circuit is completed to the hot gas solenoid. To insure sufficient hot gas to release the slab, the compressor continues to run even though the fan stopped.

Hot refrigerant from the condenser is fed to the freezing plate and releases the ice slab. The slab of ice slides down onto a cutter grid and the slab is cut into cubes by the warm, low voltage cutter grid wires while the unit automatically goes into another freezing cycle.

The cubes fall down into the collecting bin. It is insulated but not refrigerated. This keeps the ice from freezing in to a lump, controls melting of the accumulating ice and assures a periodic replacement of the old ice with fresh new ice.

When the slab slides off the evaporator, the thickness switch will return to the normally open contact and a new slab begins to form.



CSW4 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. Service 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 water cooled condenser.

C. Unit does not run...

1. Check for blown fuse in electrical supply to machine. NOTE: The fuses in the machine compartment are to protect the low voltage transformers.
2. Service switch must be in "on" position.
3. Room temperature too low. (Must be above 55° F.) Unit may be shut down even though bin is not full.
4. High pressure control is open due to:
Air-cooled - clogged condenser
Water-cooled - no water to condenser

NOTE: This control is an automatic reset, it opens at:

Air-cooled - 400 PSIG
Water-cooled - 320 PSIG

and closes at:

Air-cooled - 335 PSIG
Water-cooled - 265 PSIG

D. Grid not cutting ice sheets...

1. Check grid transformer fusestats on machine compartment electrical control box.

PRIMARY TRANSFORMER GRID ASSEMBLY

If the fuse needs to be replaced, replace it with a 2.25 amp time delay fuse.

SECONDARY TRANSFORMER GRID ASSEMBLY

If the fuse needs to be replaced, the same 8.0 amp time delay fuse must be used.

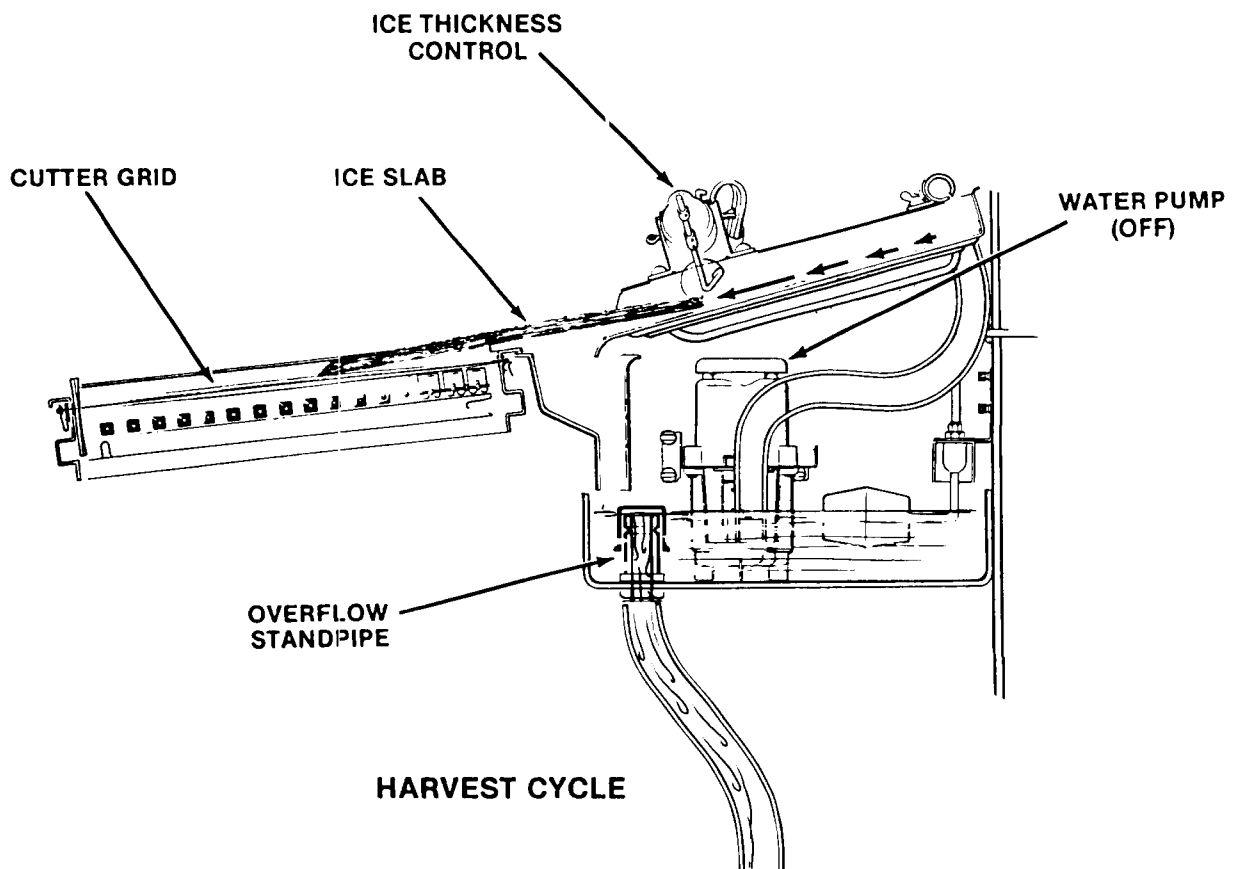
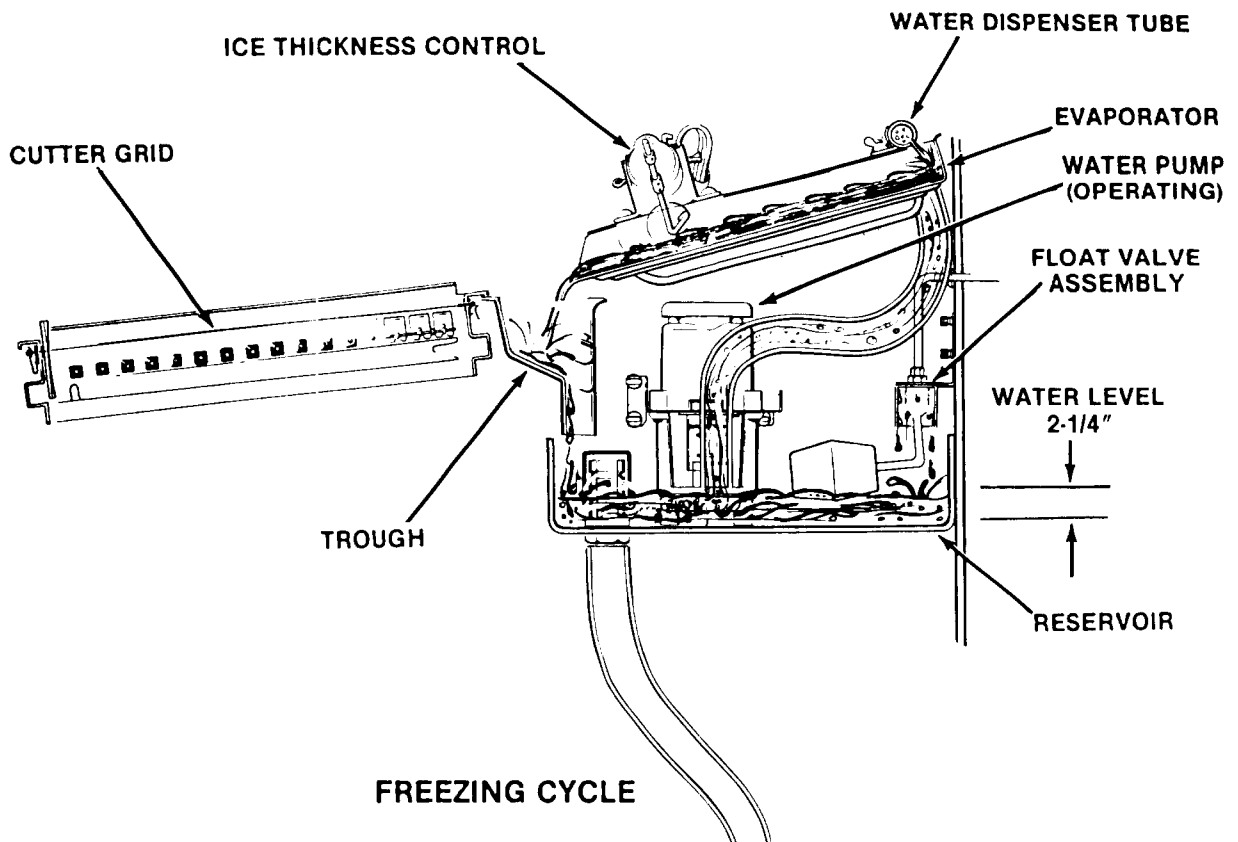
PRIMARY TRANSFORMER CONTROL CIRCUIT

If the fuse needs to be replaced, the same 0.3 amp time delay fuse must be used.

REPLACE FINGER TIGHT ONLY.

2. Check for good electrical connection (grid plug to harness).

CSW4 WATER SCHEMATIC



CSW4

MAINTENANCE AND 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 ICEMAKER. CALL YOUR AUTHORIZED SCOTSMAN SERVICE AGENCY.

1. Check and clean or service any optional water treatment devices, if any installed.
2. Check the CSW4 cabinet is level, in the side-to-side and front-to-back directions.
3. Clean the water system, evaporator plate and sump assembly, using a solution of SCOTSMAN Ice Machine Cleaner. Refer to CLEANING.

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 system parts, evaporator plate and the sump assembly before and after cleaning will indicate frequency and procedure to be followed in local areas.

4. Check that the grid assembly is snug and secure.
5. Check and tighten all bolts and screws.
6. Check and tighten all electrical connections.
7. Check hot gas solenoid valve for correct operation.
8. With ON-OFF toggle switch in the OFF position, clean the condenser using vacuum cleaner, whisk broom or brush. Instruct customer to clean condenser frequently. **DO NOT USE A WIRE BRUSH.**
9. Check for water leaks and make corrections.
10. Check the bin thermostat control bulb to test shut off. Holding ice against bin thermostat control bulb well should cause the icemaker to shut off.

Within minutes after ice is removed from the bin thermostat control bulb well, the icemaker will restart.

CLEANING THE CONDENSER

Water Cooled Models

During normal operation scale deposits form on the inside walls of the water cooled condenser. The scale acts as an insulator which then requires larger amounts of water for the unit to function. This scale must be removed periodically by circulating scale dissolving chemicals. The frequency of cleaning will depend on local water conditions and how rapidly the scale deposits form. Removing scale from the condenser should be performed by your icemaker dealer.

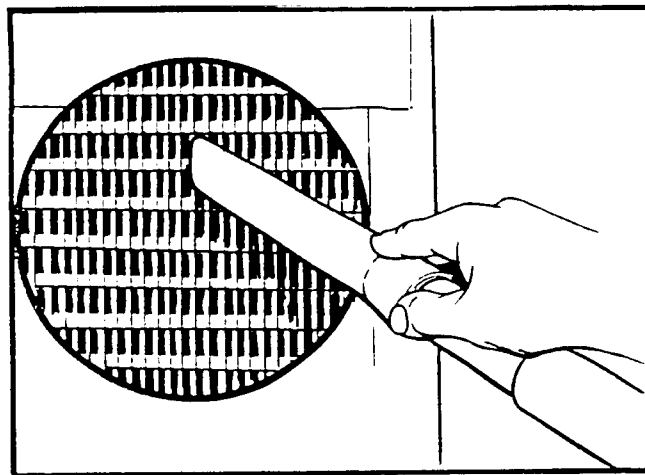
Air Cooled Models

A dirty or clogged condenser prevents proper air flow which reduces ice capacity and subjects components in the unit compartment to higher than normal pressures and temperatures. This can cause machine malfunction and early component failure.

Access to the Condenser

Remove the two screws on the grilled front panel then pull forward and disengage from the base of the machine.

CAUTION: Disconnect electrical supply to machine before removing unit compartment panel to keep condenser fan blades from rotating. Avoid contact with air cooled condenser fins which may be sharp. Avoid contact with refrigerant tubing which can become hot during normal operation.



Use a vacuum cleaner and stiff brush to remove the dirt and accumulated lint from the air cooled condenser fins. Do not use a wire brush. Removing the bolts from the fan motor bracket will allow the fan assembly to be removed for better accessibility to the condenser. Care should be used to prevent damage to the blades of the fan.

CSW4

CLEANING INSTRUCTIONS

CLEANING AND SANITIZING THE ICE MAKING SYSTEM

Most of the impurities are rejected from the circulating water as it freezes into ice. Some of these impurities collect on the freezing mechanism and in the water system, forming a hard, scaly deposit. This scale can prevent the ice slab from rapidly sliding off onto the cutter grid. Because of this, the water and icemaking system needs to be cleaned and sanitized periodically. The frequency of cleaning depends on local water conditions.

You can easily clean and sanitize the icemaker, following the directions given. If you prefer, your Authorized Ice Machine Dealer can do the job for you.

NOTE: During cleaning, you will need to remove and reinstall some interior parts. Be careful to avoid any sharp edges and corners.

Follow this approved procedure to clean the unit:

1. You will need **both** cleaning and sanitizing solutions. Prepare as follows:

Sanitizing Solution —

Mix 1/4 oz. (7 mL) chlorine bleach to one gallon (3.8 L) of water. This makes a sanitizing solution of 100ppm.

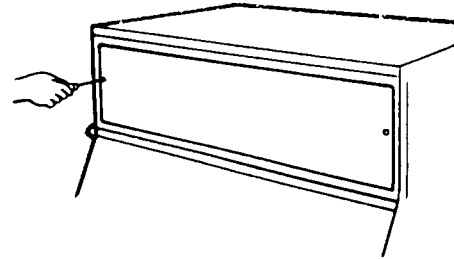
Cleaning Solution —

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

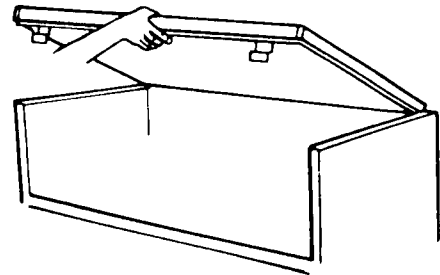
SCOTSMAN Ice Machine Cleaner contains Phosphoric and Hydroxyacetic acids. These compounds are corrosive and may cause burns. If swallowed, DO NOT induce vomiting. Give large amounts of water or milk. Call physician immediately. In case of external contact, flush with water. KEEP OUT OF THE REACH OF CHILDREN.

////////////////////

Prepare cleaning solution: Mix eight ounces of SCOTSMAN Ice Machine Cleaner with six pints of fresh, potable warm water.



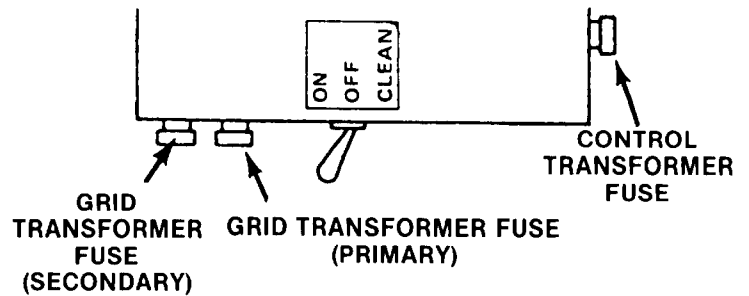
Remove two screws and lift off the top front panel.



Lift up the top panel and pull forward to release the rear retainer brackets.

Raise up the storage bin door and remove two screws in the louvered front panel. Remove the louvered front panel for access to the service switch.

2. If the ice machine is operating:
 - A. Shut off the water supply to the machine.
 - B. Gently raise up on the arm of the ice thickness control to release the ice slab from the freezing plate. Discard the ice.
 - C. Place the service switch in the "off" position.

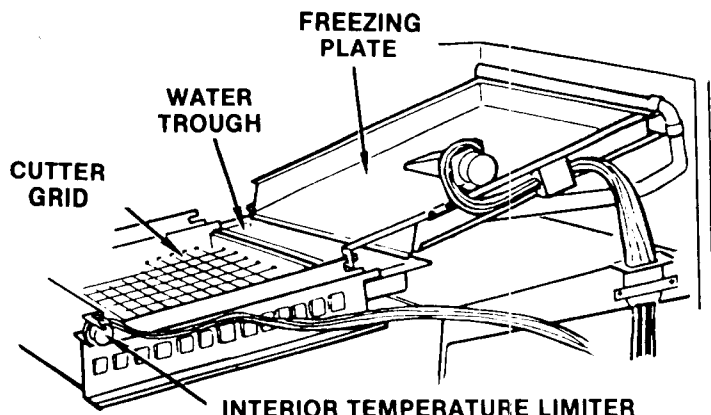


3. If the machine is not operating:
 - A. Set service switch to "clean" position. Let the reservoir pan refill.
 - B. Shut off the water supply to the machine.
 - C. Set service switch to "off" position.

CSW4

CLEANING INSTRUCTIONS

4. Remove all ice from the storage bin and cutter grid. If ice is difficult to remove from the grid, wait until grid is removed from the machine. Then melt the ice with water. Pulling the ice slab off the grid may stretch or break grid wires. A broken wire in the cutter grid will cause the cutter grid to fail.



5. Set service switch to "clean" position. Pour hot water into the water trough until the water level is above the lower pump housing. Let water circulate for several minutes to warm up the system. Set service switch to "off." Water will siphon out of the reservoir pan.

6. Set the service switch to "clean." **Slowly** pour the heated cleaning solution (prepared in Step 1) into the water trough until the level in the reservoir pan is above the lower pump housing. If the solution starts to foam, stop pouring until it subsides. Then pour the rest of the solution. Do not overfill or the cleaning solution will siphon out!

Let the solution circulate until the scale on the freezing plate and water system has dissolved (generally about 20 to 30 minutes).

When the system is clean place the service switch in "off" position. The cleaning solution will siphon out.

NOTE: Repeat cleaning with fresh solution if scale deposits have not dissolved in 20 to 30 minutes.

Use a stainless steel sponge or pad dipped in cleaning solution to scrub any scale deposits that remain on side flanges.

CAUTION: Wear rubber gloves to avoid skin irritation.

7. Turn on the water supply to ice maker. Set service switch to "clean." Let fresh water circulate for 10 minutes.
8. Set service switch to "off." Water will siphon to the drain. When the reservoir has filled with water, place the service switch in the "clean" position. Let water circulate for 10 more minutes.

9. Set service switch to "off." Let water siphon out to drain.

10. Remove the ice cutter grid — note that the water trough rests on the top of the grid frame.

- A. Unplug the electrical connection.
- B. Remove the plastic clip retainer which prevents the grid clip from sliding.
- C. Slide the grid clip to the right off the stud on the front support rod.
- D. Lower the grid and remove from the remaining studs.

If any ice remains on the cutter grid, wash it off with running water. Do not physically pull it off. The grid wires will stretch and fail prematurely.

E. Soak the entire grid in cleaning solution to soften any scale accumulation. Use a toothbrush and gently clean the connecting pins and grid wires.

11. Remove the water distributor, water trough and water reservoir pan. Wash with warm water and detergent. Rinse with fresh water and with sanitizing solution.

IMPORTANT: Do not wash plastic parts in a dish washer. The extremely high temperature will cause the plastic parts to warp.

12. Remove the vinyl hoses and the plastic cover in the right side of the bin bottom. Wash with warm water and mild detergent, rinse with fresh water and with sanitizing solution.

13. Wash the interior of the ice machine and the ice storage bin with mild detergent and warm water. Rinse with fresh water. Rinse the surfaces with sanitizing solution.

CAUTION: Do not use petroleum based solvents to clean interior surfaces. They can cause damage to the surface.

14. Replace all parts, including the cutter grid.

NOTE: The grid frame must be positioned under the lip of the water trough and connected to the electrical plug.

15. Place service switch in the "on" position to resume ice making operation.

16. Replace cover and unit compartment panel.

17. Replace top and front panel.

18. Wash and sanitize the ice scoop. Provide a clean location for storage. It is not a good idea to leave the scoop in the storage bin.

CSW4

MAINTENANCE AND CLEANING INSTRUCTIONS

FILTERING AND TREATING WATER

In most areas it will be beneficial to filter or treat the water supply to the ice machine to:

- Improve the reliability of the machine; reduce water system maintenance.
- Produce the best quality of ice.

The installation of a polyphosphate feeder will generally reduce scale accumulation and the ice machine will require less frequent cleaning.

Municipal water systems are generally treated with chlorine to maintain a safe potable water supply. Activated carbon filters will sufficiently remove the residual chlorine from the water to reduce surface staining of stainless steel materials in the ice machine.

For information on filtering and treating the water, see your Authorized Ice Machine Dealer.

OILING

All components of the ice maker are permanently lubricated at the factory. They should not require any additional oiling throughout the normal life of the machine.

WINTER SHUT DOWN

If the ice cube maker is to be shut off for several months, remove all ice from the bin. Clean the ice maker as outlined under "Cleaning and Sanitizing the Ice Making System."

Water and drain lines, including the water cooled condenser, must be blown out if the unit will be subjected to freezing temperatures during shutdown. Failure to do so may cause the lines to freeze and rupture. Disconnect electricity to the machine and leave the bin door cracked open to allow air to circulate.

CSW4

OPERATING CHARACTERISTICS

A clean normal operating unit will have certain operating characteristics. The following values are representative of values seen at a wide range of air and water temperatures, and are for a slab thickness of 1/2". When comparing the figures to field data, allow a variation from each end of the range given.

FREEZE CYCLE

Average Discharge Pressure	High Ambient	Low Ambient
Air-Cooled	280 PSIG	170 PSIG
Water-Cooled	220 PSIG	220 PSIG
Suction Pressure at the end of the freeze cycle	28 PSIG	15 PSIG
Freeze Cycle Time	37 minutes	20 minutes

AUTOMATIC RESET HIGH PRESSURE CONTROL

Opens at:

Air-Cooled - 400 PSIG
Water-Cooled - 320 PSIG

and closes at:

Air-Cooled - 335 PSIG
Water-Cooled - 265 PSIG

CSW4

SERVICE DIAGNOSIS

The service diagnosis 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 chart lists corrective actions for the causes of known symptoms of certain problems that can occur in the icemaking-refrigeration system.

ICEMAKING - REFRIGERATION SYSTEM

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Compressor won't run; no ice in bin.	Located in cold area.	Move to warmer area (above 55° F.).
	Located in hot area. Power disconnected.	Move to cooler area. Connect power.
	Broken wire or loose connection.	Locate and repair.
	Defective relay.	Replace relay.
	Service switch in "off" position.	Move operating rod to "on" position.
	Low voltage.	Check or restore voltage.
	Bin thermostat contacts open.	Replace bin thermostat.
	Master switch in "clean" position.	Push switch to "on" position.
	Defective compressor overload.	Replace overload.
	Defective compressor motor.	Replace compressor.
Compressor runs; no ice in bin.	Water supply shut off or float valve failure	Restore water supply. Repair or replace float valve.
	Ice thickness control switch stuck closed.	Repair or replace.
	Hot gas solenoid stuck "open".	Repair or replace solenoid.
	Inoperative refrigeration system.	Repair sealed system.
	Excessive use of ice cubes.	Advise customer.
	Cutter grid circuit open.	Check fuse and other parts of circuit.
	Incorrect wiring.	Check against wiring diagram.
Compressor runs continuously; bin full of ice.	Bin thermostat out of calibration.	Recalibrate or replace.
	Bin thermostat contacts stuck shut.	Replace thermostat.
	Incorrect wiring.	Check against wiring diagram.

CSW4

SERVICE DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Low ice yield.	Located in cold area.	Move to warmer area above 55° F. (for best results, 70° to 90°).
	Float set too high.	Lower float.
	Water falling on ice cubes.	Check water system components and see that they are in proper place.
	Bin thermostat out of calibration.	Recalibrate or replace.
	Evaporator ice thickness control set to produce too thin or too thick ice cubes.	Move adjusting screw to setting to produce 1/2" to 5/8" cube.
	Defective Interior Temperature Limiter Control.	Replace control.
	Hot gas solenoid stuck partially open.	Repair or replace solenoid.
	Insufficient refrigeration.	Check and repair sealed system.
Excessive water dripping on ice cubes.	Not enough water being circulated over evaporator plate.	Check for restriction in water lines. Check water pump and motor.
	Located in hot area.	Move to cooler area.
	Sump Water overflowing.	Check overflow tube for restrictions. Overflow hose not inserted in liner drain.
	Water return trough out of position.	Install correctly.
	Water tube from water return trough not in the sump.	Locate tube properly.
	Ice jam on cutter grid causing water to "bridge" and drop in bin.	Check cutter grid circuit. Check for mineral deposit on evaporator plate.
	Water deflector out of position.	Install properly.
	Water line leak at water valve.	Tighten connection to stop leak.
Mineral deposit on evaporator.	High mineral content in water	See cleaning instructions.
Ice cubes too thin.	Evaporator ice thickness control set for thin ice.	Turn thickness adjusting screw clockwise until cube of desired thickness is obtained.
	Not enough water being circulated over evaporator.	Check for restriction in water lines. Check water pump, motor and distributor tube.

CSW4

SERVICE DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Ice cubes too thick.	Evaporator ice thickness control set at or beyond maximum thickness.	Turn thickness adjusting screw counterclockwise until cube of desired thickness is obtained.
Condenser fan won't run during ice-making cycle.	Fan blade binding on shroud.	Adjust shroud to clear fan blade.
	Open circuit in wiring.	Locate and repair (see wiring diagram).
	Fan blade dirty causing it to trip on internal overload.	Clean blade.
	Defective motor.	Replace motor.
Water pump won't run.	Pump binding in housing.	Locate and remove cause of bind.
	Open circuit in wiring.	Locate and repair (see wiring diagram).
	Defective motor.	Replace motor.
Water sump empty.	Complete water line restriction.	Check for closed shut-off valve or water line restrictions.
	Water float valve stuck shut.	Repair or replace valve.
	Water inlet screen plugged.	Remove screen and clean.
Milky ice cubes.	Water hardness in excess of 15 grains.	Advise customer that water softener may be required.
	Insufficient water supply in sump.	Consult local water treatment authorities for advice.
	Foods stored in ice bin.	Advise customer to refrain from storing food, etc. in ice bin.
	Packaging material not all removed.	Remove all packaging material.
Uneven ice slab thickness on evaporator.	Incorrect water flow rate.	Check pump and tubing.
	Incorrect super heat of TXV.	Check expansion valve - see page 29
	Hot gas valve leaks through.	Check hot gas valve.
	Low refrigerant charge.	Check refrigerant charge.

CSW4

ADJUSTMENT PROCEDURES

STORAGE BIN THERMOSTAT

The thermostat sensing bulb is inserted in a tube well for protection. The well extends into the ice storage area. When ice has accumulated and filled the bin, it will touch the well. The cold temperature will be felt by the sensing tube inside the well. This will cause the thermostat to be satisfied and open the circuit to the ice-making components. The thermostat opens or cuts out at 36°F. and recloses at or cuts in at about 42°F. You can test it by holding a handful of ice against the well. In a short time the thermostat should open and shut off the unit.

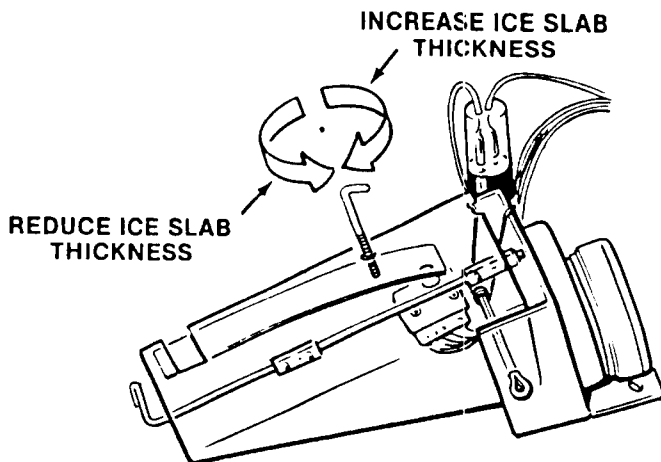
The thermostat is factory calibrated for sea level operation.

Recalibration of this thermostat is unnecessary unless the ice cuber is located in an area above 2000 feet above sea level.

CAUTION: Whenever the control setting is changed to a colder position, be sure that the unit will cycle off by holding some ice against the thermostat well. Failure to do so can cause damage to the unit.

ICE SLAB "THICKNESS" ADJUSTMENT

Increase the thickness of the slab by turning the evaporator thermostat adjusting screw clockwise. The thickness may be reduced by turning the adjusting screw counterclockwise.

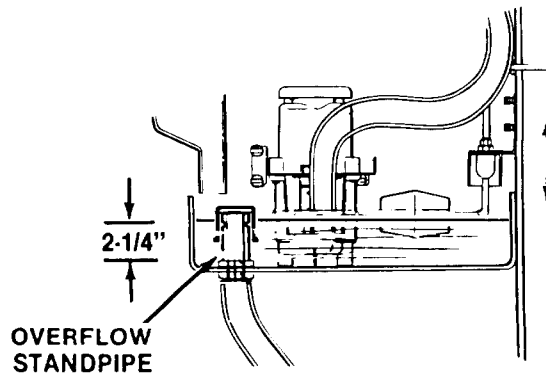


Ice Slab "Thickness" Adjustment

ADJUSTMENT OF THE FLOAT VALVE ASSEMBLY

To adjust the water level in the reservoir.

1. Loosen the wing nuts which attach the float valve bracket and the float valve to the chassis.
2. Move the float valve UP or DOWN to properly position the float valve at the correct water line level. The proper water level is just below the top of the overflow standpipe, 2-1/4" depth water.
3. When proper water level within the reservoir is adjusted, re-tighten screws attaching the float valve bracket to the chassis.



Float Valve Assembly Adjustment

REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE CUTTER GRID

Low line voltage or a poor electrical connection at one of the pins connecting the cutter wires will slow down the cutting process and result in the next ice slab being formed before the first slab is completely cut into cubes. Fustats are in the low voltage circuit to the grid. Check the fuses on any cutting problem.

The heat input of the cutter grid is so designed that the ice slab will cut through in 80% of the time required to produce another slab of the same thickness.

Prolonged usage of improper service techniques may cause a cutter wire to break. In addition, certain types of water may cause the silver plated pins to become coated with lime, scale or corrosion. This results in a poor electrical connection.

The entire set of wires in the cutter grid should be replaced whenever failure occurs. Partial replacement is no more than an invitation to a repeat service call. Always examine insulators for cracks and connecting pins for corrosion and scale. Make sure spring clips exert proper tension on the cutter wire.

WARNING

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

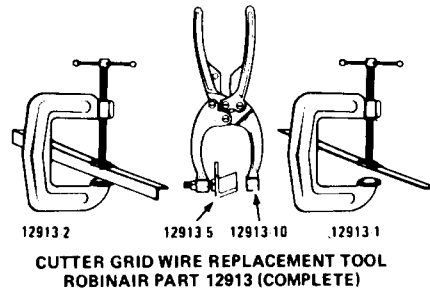
If any ice remains on the cutter grid, wash it off with running water. Do not physically pull it off. The grid wires will stretch and fail prematurely.

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove screws and remove the front & top panels.
Lift up on the top panel and pull forward to release the rear retainer brackets.
Raise up the ice access bin door and remove screws and remove the louvered front panel.
4. Remove the ice cutter grid - note that the water trough rests on the top of the grid frame.
 - A. Unplug the electrical connection.
 - B. Remove the plastic clip retainer which prevents the grid clip from sliding.

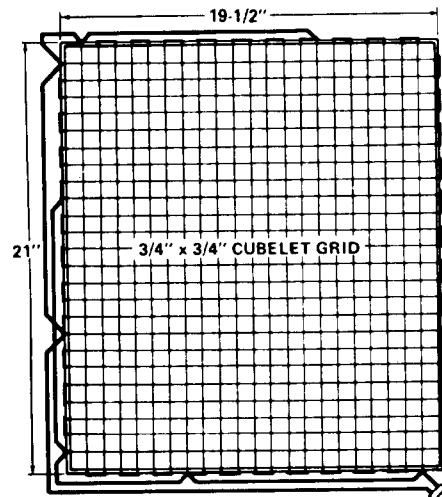
- C. Slide the grid clip to the right off the stud on the front support rod.
- D. Lower the grid and remove from the remaining studs.

CUTTER GRID WIRES

To replace cutter wires use tool No. 12913. Use of this tool allows the spring clips to be compressed without deforming and loss of tension, and reduces the time required to replace all the wires in the grid assembly.

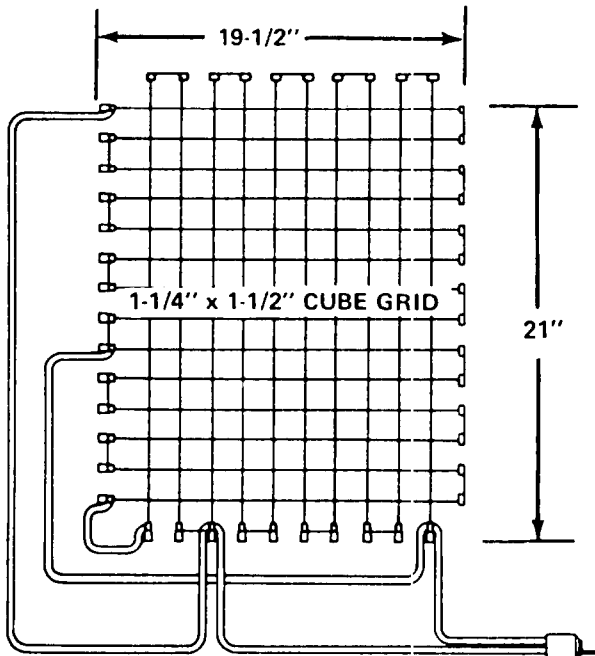


1. Mark the location of the terminals where the grid harness connects. Also mark which set of wires the silver plated pins connect. The fastest way to remove the old wires is to cut each individual wire.
2. Insert the new wires into the side having insulators only and position the silver plated connecting pins. After these are all in position, clamp tool No. 12913-1 over these wires to keep them securely in their proper location.



CSW4

REMOVAL AND REPLACEMENT PROCEDURES

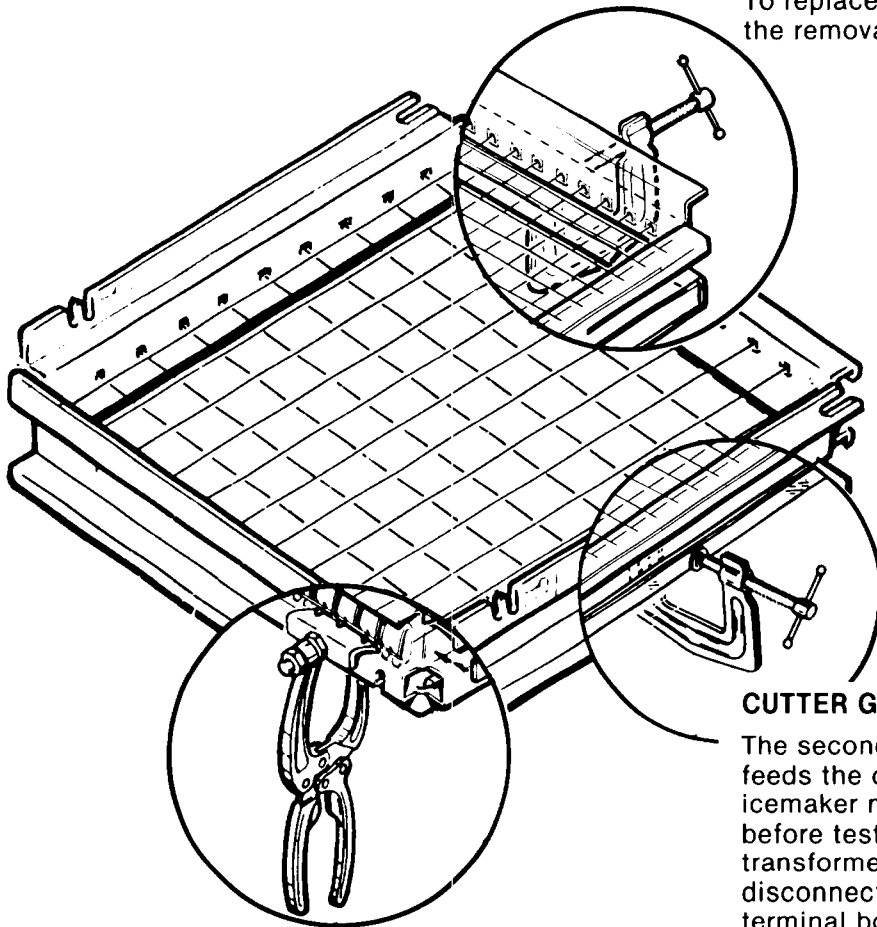


3. Turn the grid assembly over to the opposite side and place all insulators and spring clips in position. Clamp tool No. 12913-2 over the radius end of the spring clip. NOTE: This tool keeps the spring clip and insulator in position while depressing the clip with tool No. 12913-10.

4. Using tool No. 12913-10, depress two spring clips at a time and insert the connecting pins through the loops on the end of the grid wire. NOTE: At the same time reconnect the grid wire harness at the proper terminals. If any doubt exists as to the proper location of the harness connection or pin location, refer to Wiring Diagrams.

5. Be sure all wires have proper tension when the clips are released, as a loose wire will give a poor electrical circuit. When reusing old connecting pins, make sure the silver plating is in good condition and not corroded, as this also causes a poor electrical circuit.

To replace the cutter grid and the wire, reverse the removal procedure.



CUTTER GRID TRANSFORMER

The secondary side of the transformer which feeds the cutter grid is fused with a Fustat. The icemaker must be electrically disconnected before testing. The primary coil of the transformer may be checked for continuity by disconnecting the respective leads from the terminal board.

The secondary transformer voltage varies from model to model. Typical voltages are:

Model CSW4

Volt Output 20.0 VAC

REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE EVAPORATOR

Deep depressions, or a pitted or scaled plate, will cause problems with the release of ice slab during the defrost or release cycle. Scale that has formed due to impurities in the water can be cleaned. (See section on Cleaning the Water System.) However, a pitted plate, or one that has depressions caused by some foreign object striking the surface, may require replacement to alleviate the above condition.

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

////////////////////////////////////

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove screws and remove the top front panel.
Lift up the top panel and pull forward to release the rear retainer brackets.

4. Remove cutter grid. See Cutter Grid removal procedures.
5. Lift up and remove water trough.
6. Remove two wing nuts and remove water distributor by lifting up and unplugging water supply tubing.
7. Bleed off or blow the refrigerant charge through the Process valve.

NOTE: Solder used to connect the tubing to the evaporator is a soft solder and has a low melting point.

8. Loosen the evaporator from the evaporator mount and unsolder the tubing connected to the evaporator.
9. Dismount the expansion valve sensing bulb from the suction line.
10. Carefully unsolder the valve from the connecting tubing. Use a heat shield to avoid overheating the storage bin and the valve.

To replace the evaporator, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE ICE THICKNESS CONTROL

The thickness sensing control affects the length of the freezing cycle. The thickness control closes its contacts when the ice slab reaches a preset thickness. 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 ice slab to reach the thickness at which the thickness control is preset to CLOSE: which, in turn, will affect the overall cycle time.

See thickness control adjustment BEFORE attempting to adjust the control.

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

////////////////////////////////////

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove screws and remove the top front panel.
Lift up the top panel and pull forward to release the rear retainer brackets.
4. Remove hex acorn nuts and lift the Ice Thickness Control.
5. Disconnect electrical leads from the Thickness Control and remove the control.

To replace the Ice Thickness Control, reverse the removal procedure.

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

To remove the water regulator assembly refer to slide out chassis procedure and complete all steps.

1. Close the inlet water valve to the icemaker.
2. Bleed off or blow the refrigerant charge through the Process valve.
3. Unsolder the water regulator valve capillary tube from the discharge line.
4. Disconnect the water inlet and outlet lines from the water regulator valve.
5. Remove the screws from the valve bracket to the machine base and remove the water regulator valve.
6. To replace the water regulator assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT PROCEDURES

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.

NOTE

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

- 7. Refer to name plate specifications and recharge refrigeration system by weight.

REMOVAL AND REPLACEMENT OF THE WATER DISTRIBUTOR

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

//////////

- 1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
- 2. Close the inlet water valve to the icemaker.
- 3. Remove screws and remove the top front panel.

Lift up the top panel and pull forward to release the rear retainer bracket.

- 4. Remove two wing nuts and remove water distributor by lifting up and unplugging water supply tubing.

To replace the water distributor, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE BIN THERMOSTAT CONTROL

To remove the bin thermostat control:

- 1. Remove the screws from the front panel and lift and remove panel.
- 2. Remove screws on the control box cover and remove control box cover.
- 3. Remove the bin thermostat capillary tube from the bin thermostat well.
- 4. Remove screws and the bin thermostat control from the control box.
- 5. Remove electrical leads.

To replace the bin thermostat control, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE FLOAT VALVE ASSEMBLY

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

//////////

- 1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
- 2. Close the inlet water valve to the icemaker.
- 3. Remove screws and remove the top front panel.
Lift up on the top panel and pull forward to release the rear retainer brackets.
- 4. Disconnect water inlet line from float valve assembly.
- 5. Remove two thumbscrews from water valve and remove valve.

To replace the Float Valve Assembly, reverse the removal procedures.

To adjust the water level in the reservoir.

- 1. Loosen the wing nuts which attach the float valve bracket and the float valve to the chassis.
- 2. Move the float valve UP or DOWN to properly position the float valve at the correct water line level. The proper water level is just below the top of the overflow standpipe, 2-1/4" depth water.
- 3. When proper water level within the reservoir is adjusted, re-tighten screws attaching the float valve bracket to the chassis.

REMOVAL AND REPLACEMENT PROCEDURES

EXPANSION VALVE REPLACEMENT

The expansion valve performs one very simple function - it supplies the evaporator the right amount of refrigerant under all load conditions.

The remote bulb senses the temperature of the refrigerant in the coil outlet of the evaporator. It varies the amount of refrigerant fed through the valve. This will maintain a 3 degree F. to 10 degree F. temperature difference between the inlet and outlet of the evaporator. This temperature difference is referred to as "superheat".

Moisture in the system, an incorrect charge of refrigerant or improper position or loose bulb can cause symptoms which may appear as a malfunctioning expansion valve. Eliminate these possibilities before assuming the valve needs replacing.

In evaluating the performance of the valve:

A. It must bleed enough refrigerant to the evaporator plate so that an even slab is formed. A hollow or shallow spot in the center of the ice slab may indicate that not enough refrigerant is getting to the evaporator.

1. Expansion valve with a high superheat setting.
2. Moisture freezing in valve orifice, causing a partial restriction.
3. Partially restricted valve (foreign material).
4. Improper positioned valve sensing bulb.

B. The valve must prevent liquid refrigerant from proceeding past the remote bulb of the valve. It can do this by modulating toward the closed position as its bulb senses the cold refrigerant.

C. The valve will modulate to keep suction pressure fairly steady during the freeze cycle. Fluctuating suction pressure during the cycle indicates the valve is "hunting". Abnormal fluctuation can cause the freeze cycle to be longer than normal. It is often caused by the improper mounting of the sensing bulb. Mount it on the side of the suction line.

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove screws and remove the top front panel.
Lift up on the top panel and pull forward to release the rear retainer brackets.
4. Dismount the expansion valve sensing bulb from the suction line.
5. Blow or bleed off refrigerant charge at the process valve.

NOTE: Solder used to connect the tubing to the valve is a soft solder and has a low melting point.

6. Carefully unsolder the valve from the connecting tubing. Use a heat shield to avoid overheating the assemblies in or next to the valve.

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 replace the Expansion valve, reverse the removal procedures.

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

////////////////////////////////////

CSW4

REMOVAL AND REPLACEMENT PROCEDURES

SLIDE-OUT CHASSIS PROCEDURE

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

//////////

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and remove the ice access door.
4. Remove two screws and lift up and pull out to remove the front louvered panel.
5. Blow or bleed off refrigerant charge at the process valve.
6. Unsolder line connected to the hot gas valve.
7. Unsolder line connected to the drier.
8. Unsolder the suction line at the joint above the process valve.
9. Remove control box cover and disconnect the inline electrical connections.
10. Remove the screw below the control box, which fastens the control box to the retainer wall of the chassis.
11. Carefully pull the bin thermostat capillary tube from the bin thermostat bracket.
12. Remove the screw at the front of the slide-out chassis.
13. Pull forward on the slide-out chassis and remove the slide-out chassis and the control box from the unit.
14. To replace the Slide-Out Chassis, reverse the removal procedure.

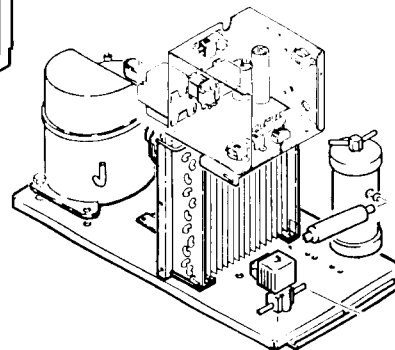
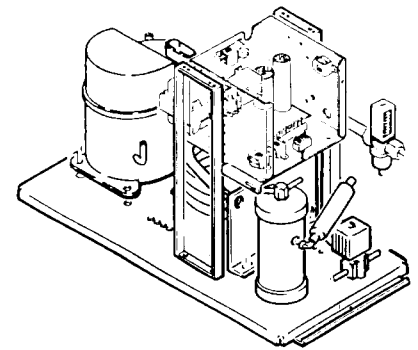
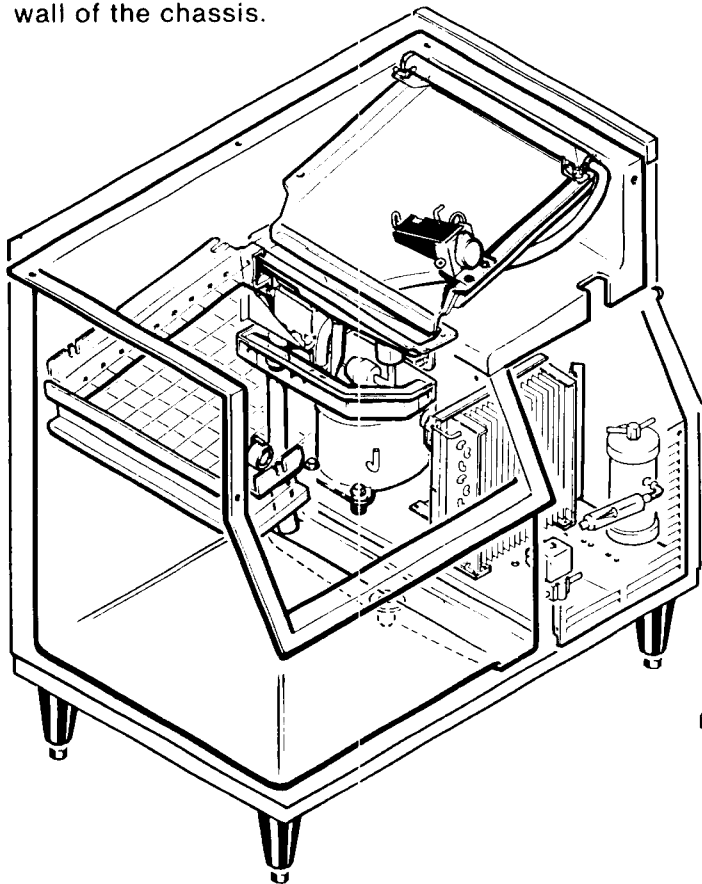
NOTE

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.

NOTE

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

15. Charge the ice machine with the nameplate refrigerant charge.



REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE DRIER

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

////////////////////////////////////

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and front louvered panel assembly.
4. Bleed off or blow the refrigerant charge through the process valve.
5. Cut the refrigerant lines at both ends of the drier, and remove the drier.

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 replace the drier:

CAUTION

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.

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. Solder the drier into the lines, two places, taking precautions to NOT OVERHEAT the drier body, during installation soldering.
3. Purge the system and check for leaks.
4. Thoroughly evacuate the system to remove moisture and non-condensables.

5. Charge the system with refrigerant, by weight. SEE NAMEPLATE.

REMOVAL AND REPLACEMENT OF THE COMPRESSOR ASSEMBLY

COMPRESSOR (CHECKING)

- A. Voltage must be within 10% of rated voltage at compressor terminals during starting phase.
- B. Use an ohm meter to check the windings.
- C. Connect starting cord to compressor. If compressor does not start and an audible "hum" heard, compressor is "stuck" and should be replaced.
- D. If compressor starts, check for loose wiring, defective relay, bin thermostat, pressure control, capacitor, overload.

To remove compressor refer to SLIDE-OUT CHASSIS PROCEDURE and remove chassis from cabinet.

1. Disconnect the electrical leads connected to the compressor.
2. Unsolder the suction line and discharge line from the compressor.
3. Remove four bolts, lockwashers and washers which secure the compressor to the chassis mounting base.
4. Remove the compressor from the chassis.

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.

NOTE

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

6. When recharging the system with refrigerant, always check the nameplate for the specified refrigerant charge.

To replace the compressor assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE CONDENSER — AIR-COOLED MODELS

1. Refer to the Slide-Out Chassis procedure and remove the chassis from the cabinet.
2. Unsolder and disconnect refrigerant lines from the condenser.
3. Cut and remove the drier from the refrigerant lines connecting to the condenser.

CSW4

REMOVAL AND REPLACEMENT PROCEDURES

4. Remove screws, lockwashers and the condenser from the chassis base.

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 replace the air-cooled condenser, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE CONDENSER — WATER-COOLED MODELS

1. Refer to the Slide-Out Chassis procedure and remove the chassis from the cabinet.
2. Unsolder the refrigerant lines at the water-cooled condenser.
3. Unsolder the water lines at the water-cooled condenser.
4. Remove two screws and washers and the water-cooled condenser from the cabinet.

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 replace the water-cooled condenser, reverse the removal procedures.

REMOVAL AND REPLACEMENT OF THE WATER PUMP

1. Disconnect electrical power to the cuber.
2. Close the inlet water valve to the icemaker.
3. Remove screws and remove the top front panel.

Lift up on the top panel and pull forward to release the rear retainer brackets.

4. Remove the cutter grid and water trough.
5. Remove (2) thumb screws and remove sump assembly.
6. Remove (3) hex nuts and the pump and motor assembly from the liner. Removal of the water pump unplugs the pump from the wiring harness.

To replace the water pump, reverse removal procedures.

REMOVAL AND REPLACEMENT OF THE HIGH PRESSURE SAFETY CONTROL (WATER-COOLED MODELS)

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

////////////////////////////////////

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and remove the front louvered panel.
4. Remove screws and remove the control box cover.
5. Bleed off or blow the refrigerant charge at the process valve.
6. Disconnect the electrical leads connected to the High Pressure Safety Control.
7. Remove screws and remove the High Pressure Safety Control from the control box.
8. Unsolder the High Pressure Safety Control tubing and remove the control.

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.

NOTE

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

To replace the High Pressure Safety Control, reverse the removal procedure.

REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE HOT GAS HARVEST SOLENOID COIL

WARNING

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and front lower panel.
4. Remove screws and the control box cover.
5. Unplug electrical leads connected to the coil.
6. Unsnap clamp from the top of the coil and remove the coil from the valve.

To replace the Hot Gas Harvest Solenoid Coil, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE HOT GAS HARVEST VALVE

WARNING

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and right front panel.
4. Remove screws and the control box cover.
5. Unplug electrical leads connected to the coil.
6. Remove screws and remove the valve body from the slide out chassis.
7. Unsnap clamp from the top of the coil and remove the coil from the valve.
8. Bleed off or blow refrigerant charge through the process valve.
9. Unsolder the tubing connections to valve and remove the valve.

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.

NOTE

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

To replace the Hot Gas Harvest, reverse removal procedures.

REMOVAL AND REPLACEMENT OF THE RECEIVER

1. Refer to the Slide-Out Chassis procedure and perform steps to remove the chassis.
2. Unsolder all refrigerant lines connected to the receiver.
3. Unbolt and remove receiver from the chassis.

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.

NOTE

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

To replace the receiver, reverse the removal procedures.

CSW4

REMOVAL AND REPLACEMENT PROCEDURES

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

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

Be sure the electrical power supply to the icemaker is OFF before proceeding with the removal procedures.

////////////////////////////////////

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. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Remove screws and remove the top front panel.

Lift up on the top panel and pull forward to release the rear retainer brackets.

Raise up the ice access bin door and remove screws and remove the louvered front panel.

3. Disconnect the electrical lead from the fan motor.
4. Remove two screws securing the motor bracket to the chassis base and remove the fan motor and motor bracket from the chassis.
5. Remove the nut from the end of the fan motor shaft and remove the fan blade.
6. Remove four screws securing the fan motor to the motor bracket and separate the motor from the bracket.

To replace the fan motor assembly, reverse the removal procedure.

THE PARTS ILLUSTRATIONS AND PARTS LISTS

GENERAL

This section contains the Parts Illustrations and the Parts List for each of the major assemblies in the Model CSW4 Self-Contained Cuber.

A *No Number* designation, when used in the Part Number Column indicates the unit is not available from SCOTSMAN as an assembly. This designation is used only for the convenience and clarity of division in cataloging.

HOW TO ORDER PARTS OR ASSEMBLIES

When ordering parts or assemblies, to avoid costly delays and errors in shipment, give the part number, the complete description shown in the list, and the quantities of each part or assembly required. Also include the Model name, the serial number of the icemaker for which the part is required, and for parts which require color matching, the color of the Cabinet.

All Part Numbers have TEN DIGITS (spaces), required for use in the Computer System. BE SURE to fill in ALL SPACES in the CATALOG NUMBER column, on the Parts Order form.

Enter the QUANTITY of the Parts ordered, in the last digit column under the QUANTITY column heading, the one under the small 55 number, for parts from 1 thru 9. For 10 or more parts use two columns.

To be sure you receive the proper parts in the proper quantities, ALWAYS use the PART NUMBERS and DESCRIPTIONS given in the Parts Manuals.

Write an order for the Part. (Use SCOTSMAN Parts Order Form (DN103). Be sure to include:

- Distributor Name.
- (Use for DROP-SHIP order ONLY.)
- Distributor Purchase Order Number.
- Carrier.
- How shipped (Truck, Rail, UPS, etc.)
- Date ordered.
- Part Catalog Number. (Use full TEN digits (spaces) listed in Parts Manual, including dashes between numbers.)
- Description - as listed in Parts Manual.
- Quantity - number of parts ordered. (Use far right column.)

WIRING DIAGRAMS

This section is provided as an aid in understanding the electrical circuitry of the Self-Contained Cuber.

The wiring diagram in this Section is:

CSW4AE-1A 115/60/1 - Air Cooled
CSW4WE-1A 115/60/1 - Water-Cooled

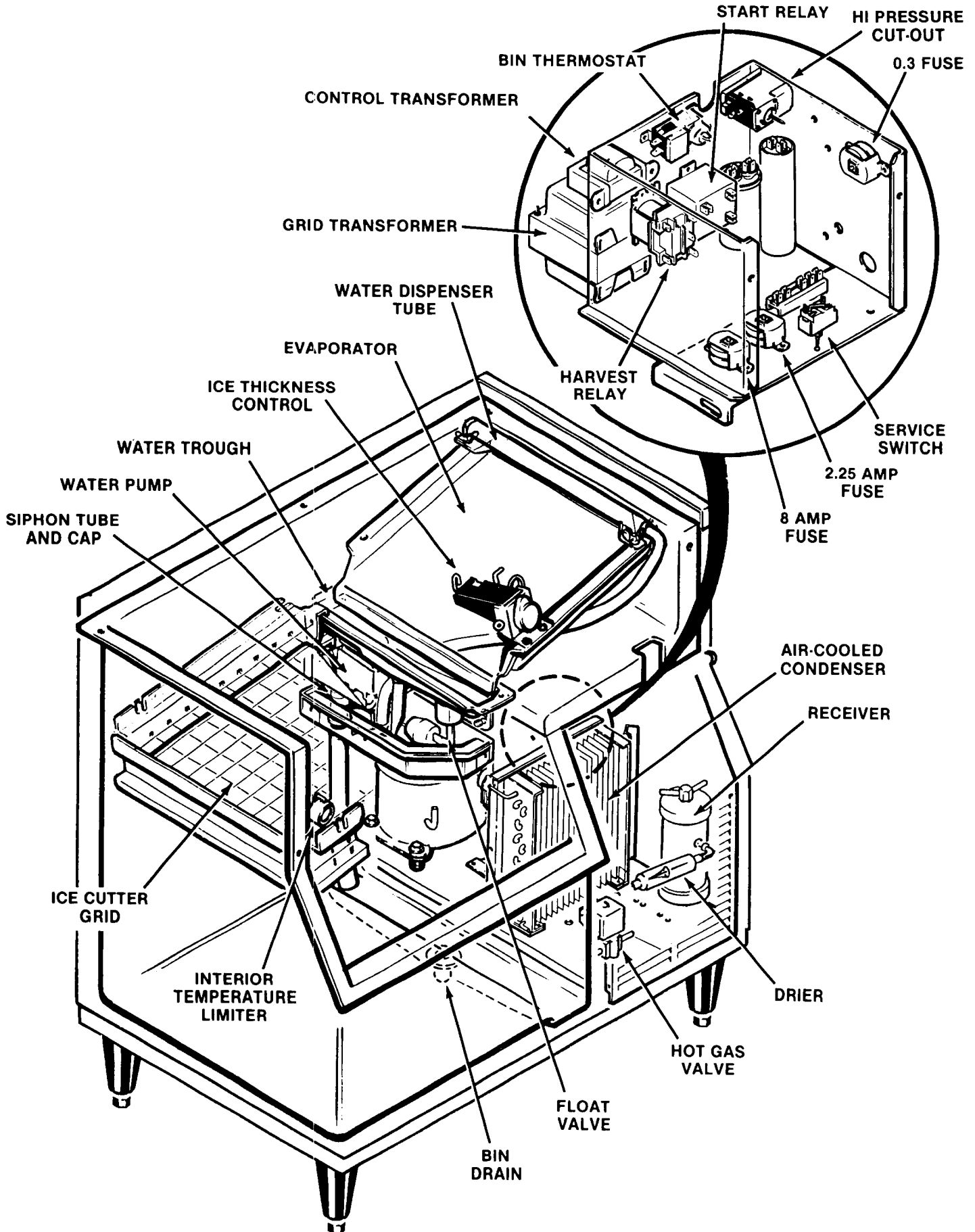
//////////////////// **WARNING** //////////////////////

When conducting a continuity check of the modular cuber:

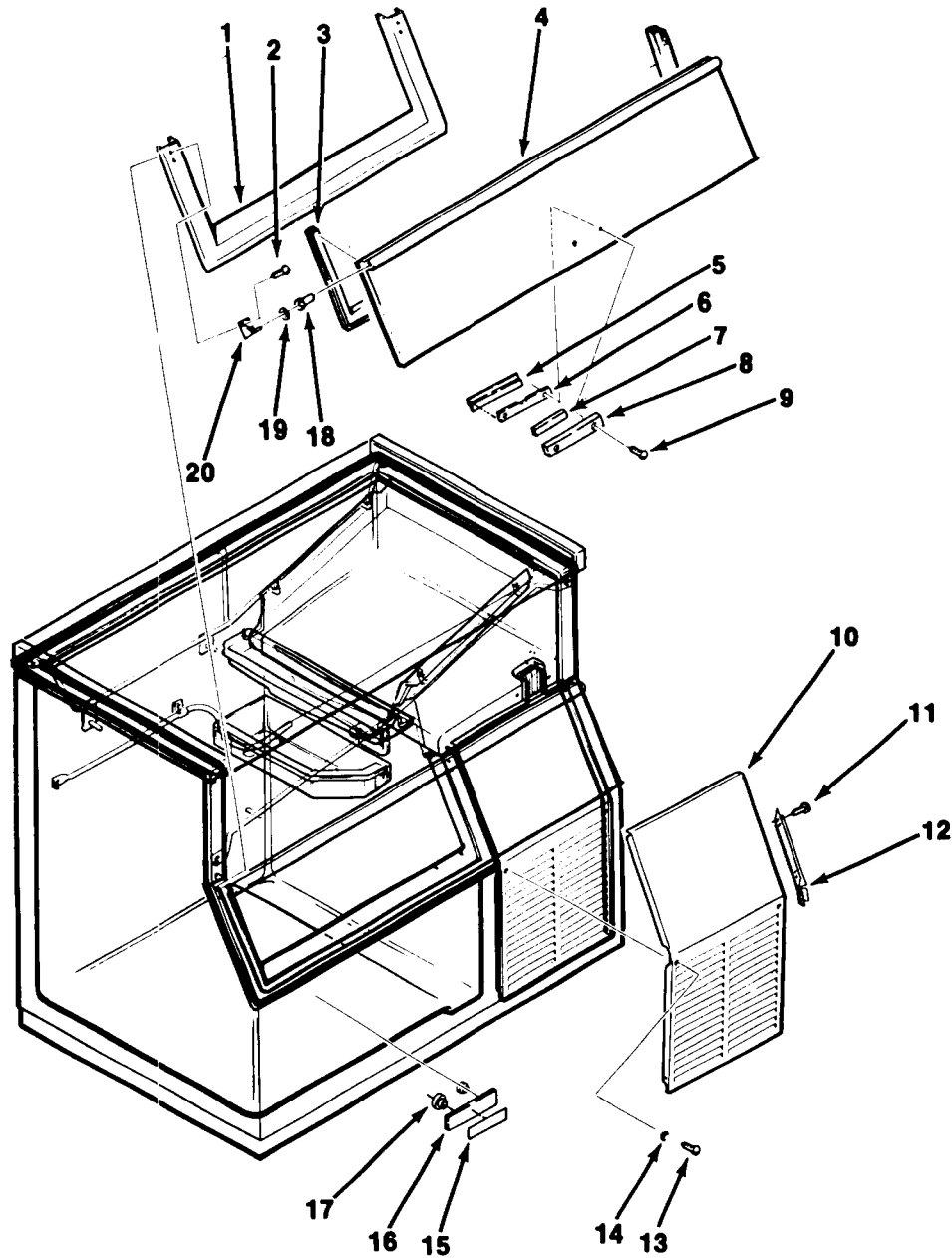
1. Disconnect the main power source.
2. DO NOT use an incandescent lamp or jumper wire, conduct all tests with a volt-ohm-meter.

////////////////////////////////////

CSW4 THE PARTS ILLUSTRATION AND PARTS LISTS



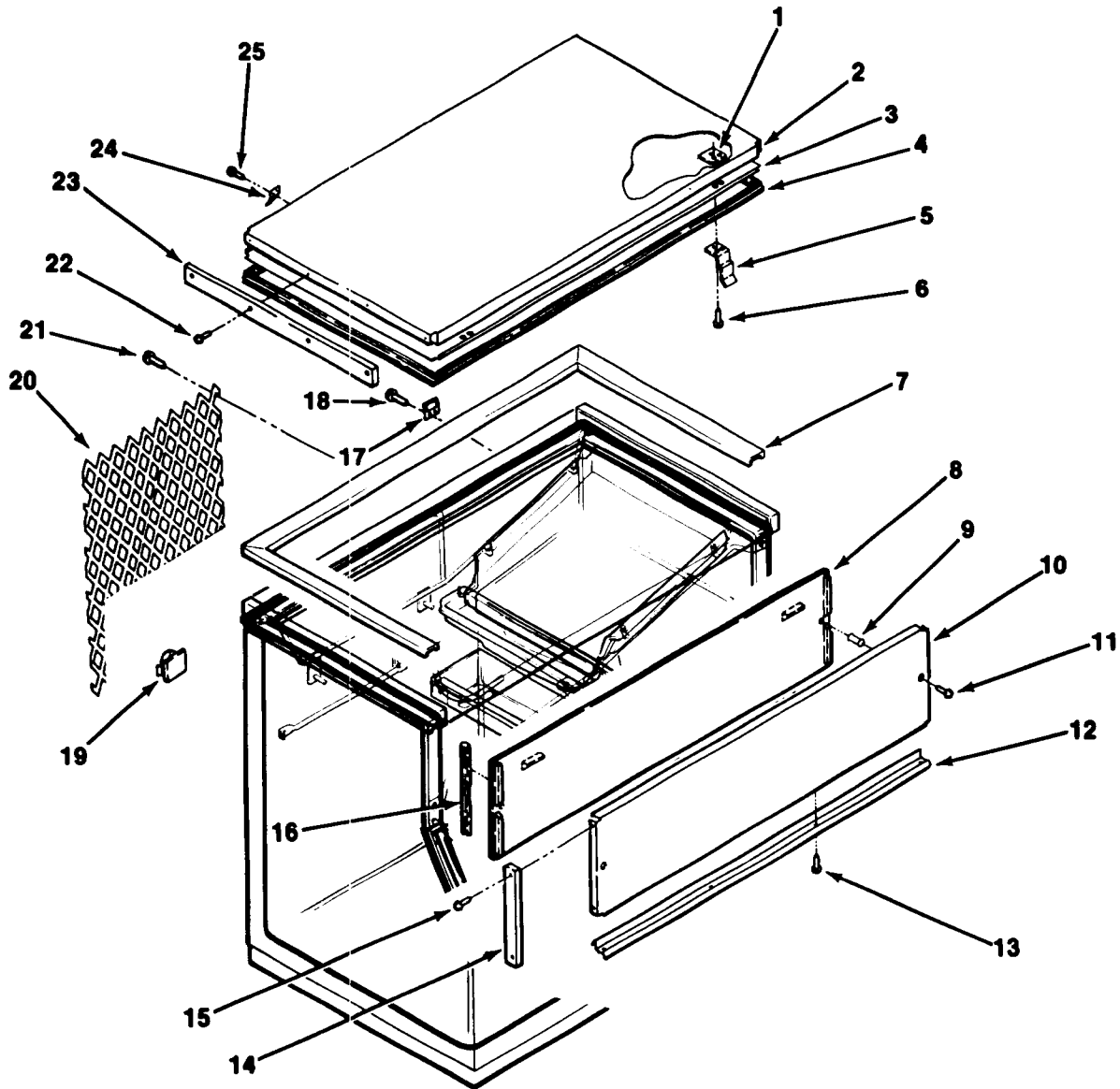
CSW4
THE PARTS ILLUSTRATION AND PARTS LISTS



CABINET ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0756126	Collar Assembly
2	0681612	Screw, No. 8 Truss
3	0756061	Panel Gasket
4	0780027	Ice Access Door Complete, Enamel
5	0587640	Backing Plate
6	0755099	Tap Plate
7	0512312	Magnet
8	0780025	Cover, Magnet Enamel
9	0681567	Screw, No. 6 x 1-2/4
10	0756161	Front Grill, Enamel
11	0595431	Screw, 8-15 x 3/8
12	0757458	Grill Support
13	0681615	Screw, No. 10 Pan
14	0681039	Lockwasher
15	0780003	Escutcheon Insert
16	0837577	Escutcheon Nameplate
17	0654067	Sealing Clip, Large
	0654068	Sealing Clip, Small
18	0756129	Door Bearing
19	0681610	Nylon Washer
20	0756134	Door Hinge (2)

CSW4
THE PARTS ILLUSTRATION AND PARTS LISTS



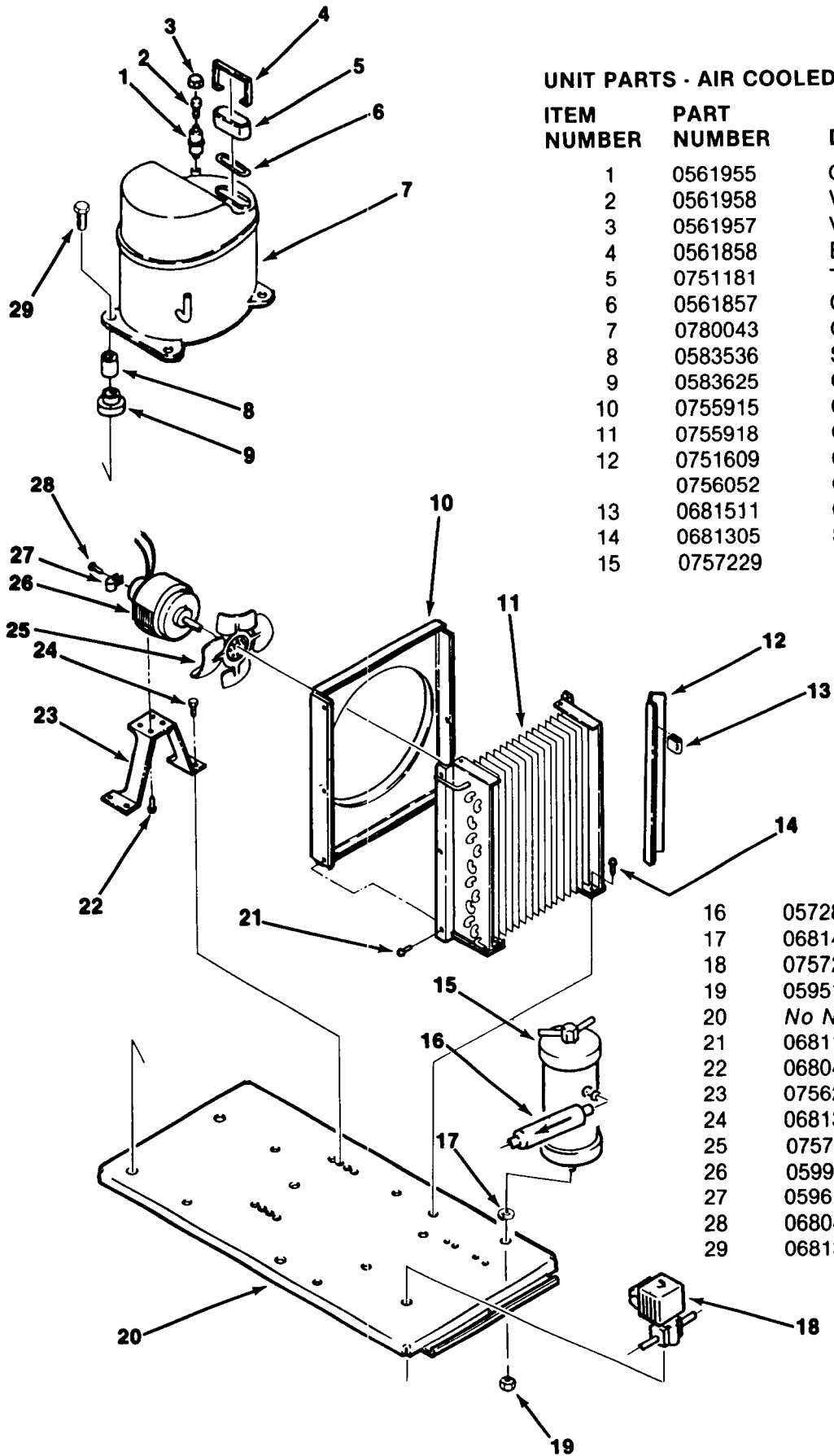
CABINET ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0756089	Top Cover Plate, Magnét
2	0756267	Bin Top, Enamel
3	0751439	Inner Panel
4	0751440	Bin Top Gasket
5	0751523	Bracket, Locking Top
6	0681087	Screw (10)
7	0780013	Collar, Enamel
8	0756777	Interior Panel
9	0755795	Panel Sleeve (2)
10	0755059	Outer Panel, Enamel
11	0681581	Screw
12	0756162	Front Panel Shield, Enamel
13	0681347	Screw
14	0780021	Cap End, Enamel (2)
15	0681148	Screw
16	0756221	Panel, Gasket
17	0585227	Rear Hinge
18	0681528	Screw, 10-32 x 1/2
19	0596744	Wire Retainer
20	0756191	Rear Grill
21	0681410	Screw (18)
22	0681148	Screw (8)
23	0780020	Cap, End, Enamel (2)
24	0585563	Top Hinge
25	0681528	Screw, 10-32 x 1/2

CSW4 THE PARTS ILLUSTRATION AND PARTS LISTS

UNIT PARTS - AIR COOLED

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0561955	Charging Valve
2	0561958	Valve Core
3	0561957	Valve Cap
4	0561858	Bale Strap
5	0751181	Terminal Cover
6	0561857	Cover Gasket
7	0780043	Compressor
8	0583536	Sleeve, Grommet (4)
9	0583625	Grommet (4)
10	0755915	Condenser Shroud
11	0755918	Condenser
12	0751609	Condenser Baffle, Right Side
	0756052	Condenser Baffle, Left Side
13	0681511	Clip
14	0681305	Screw, 1/4-20 x 1/2
15	0757229	Receiver Assembly

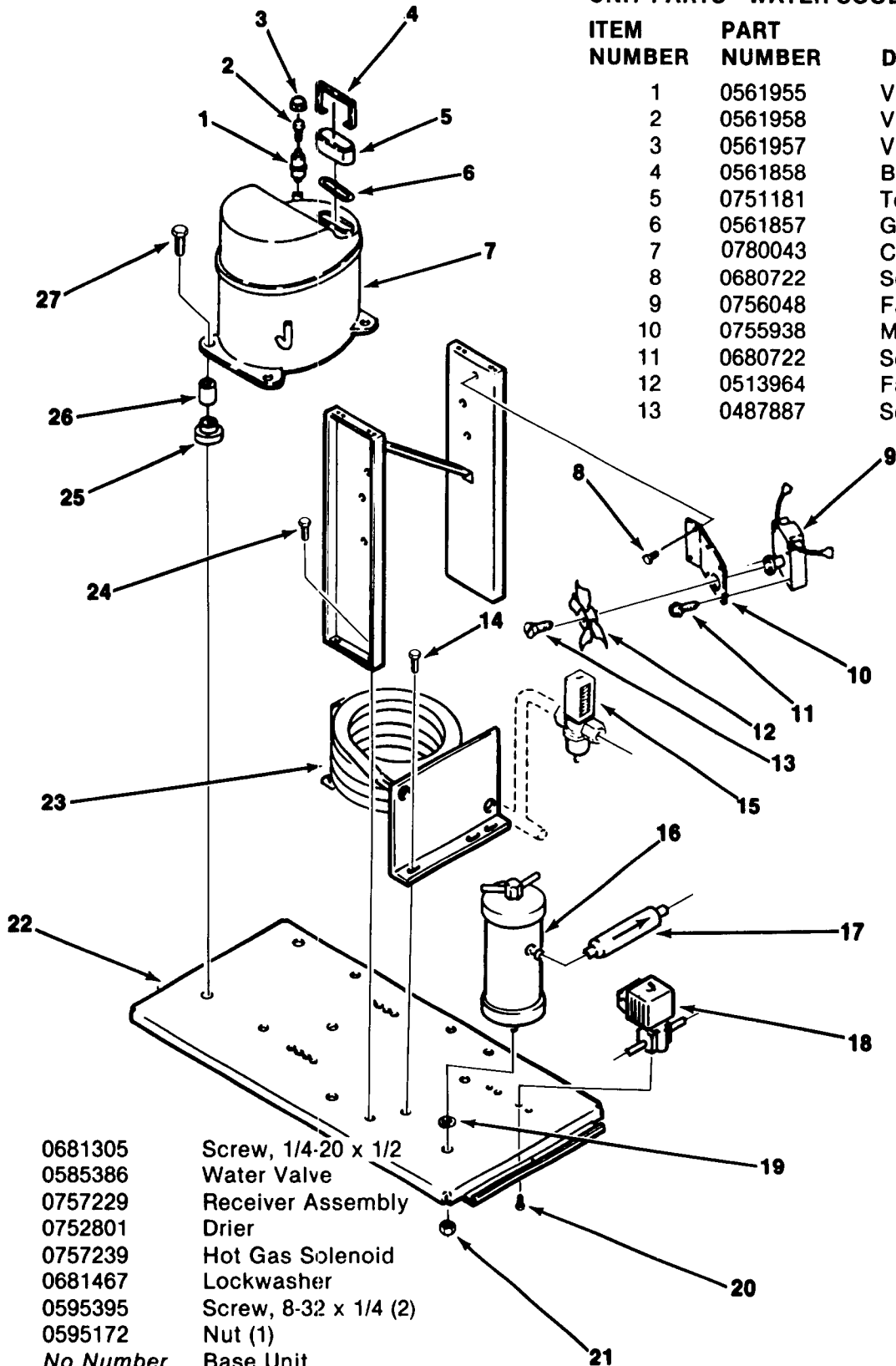


16	0572801	Drier
17	0681467	Washer, Lock
18	0757239	Hot Gas Solenoid
19	0595172	Nut (1)
20	No Number	Unit Base
21	0681167	Screw, 8-32 x 3/8 (6)
22	0680439	Screw, 8-36 x 1/2
23	0756201	Fan Motor Bracket
24	0681305	Screw, 1/4-20 x 1/2
25	0757361	Fan Blade
26	0599607	Fan Motor
27	0596171	Wire Clamp
28	0680439	Screw, 8-32 x 1/2
29	0681342	Screw (4)

CSW4 THE PARTS ILLUSTRATION AND PARTS LISTS

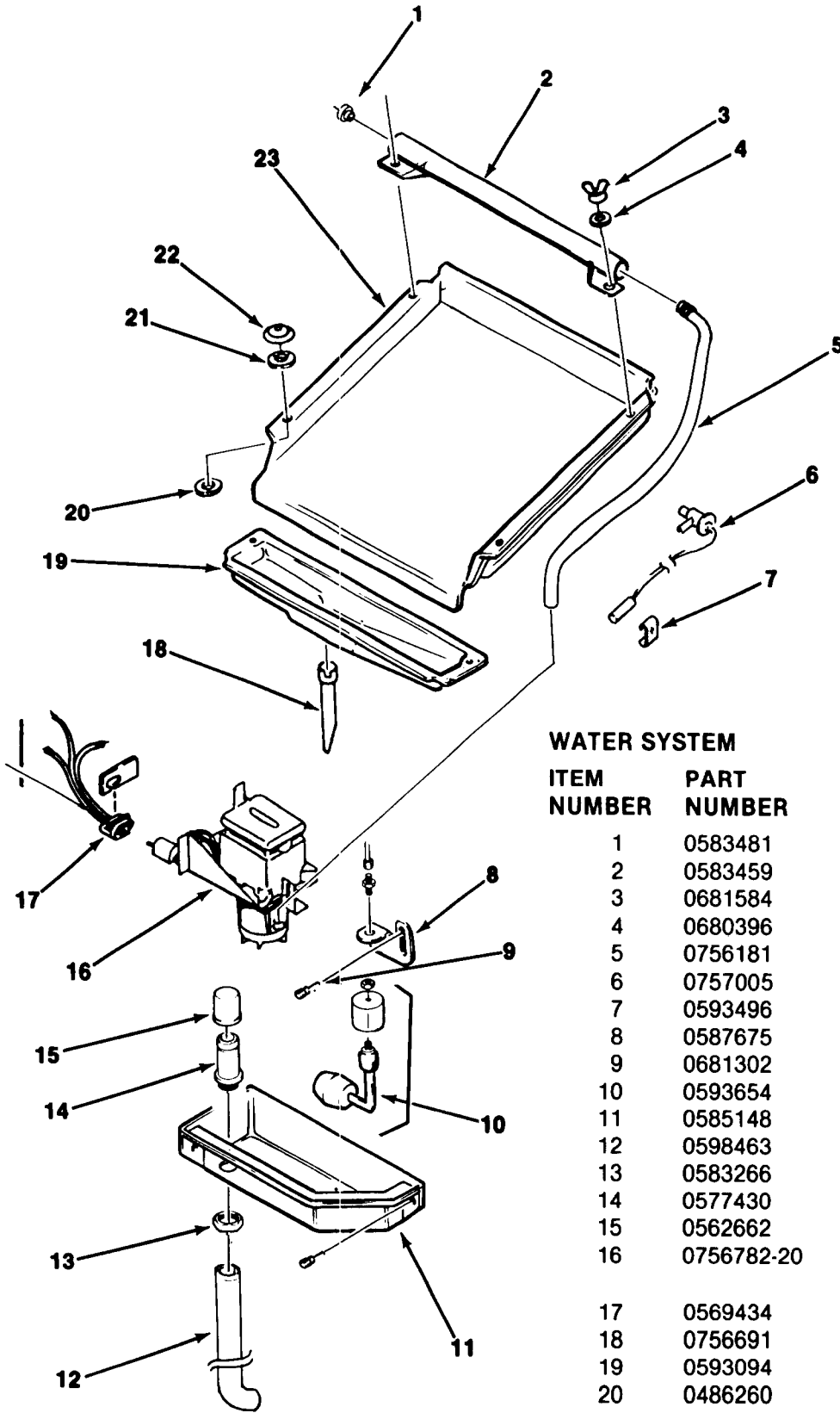
UNIT PARTS - WATER-COOLED

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0561955	Valve Body
2	0561958	Valve Core
3	0561957	Valve Cap
4	0561858	Bale Strap
5	0751181	Terminal Cover
6	0561857	Gasket Cover
7	0780043	Compressor
8	0680722	Screw (4)
9	0756048	Fan Motor
10	0755938	Motor Bracket
11	0680722	Screw (4)
12	0513964	Fan Blade
13	0487887	Screw (4)



14	0681305	Screw, 1/4-20 x 1/2
15	0585386	Water Valve
16	0757229	Receiver Assembly
17	0752801	Drier
18	0757239	Hot Gas Solenoid
19	0681467	Lockwasher
20	0595395	Screw, 8-32 x 1/4 (2)
21	0595172	Nut (1)
22	No Number	Base Unit
23	0757363	Condenser
24	0681305	Screw
25	0583625	Grommet (4)
26	0583536	Sleeve, Grommet (4)
27	0681342	Screw (4)

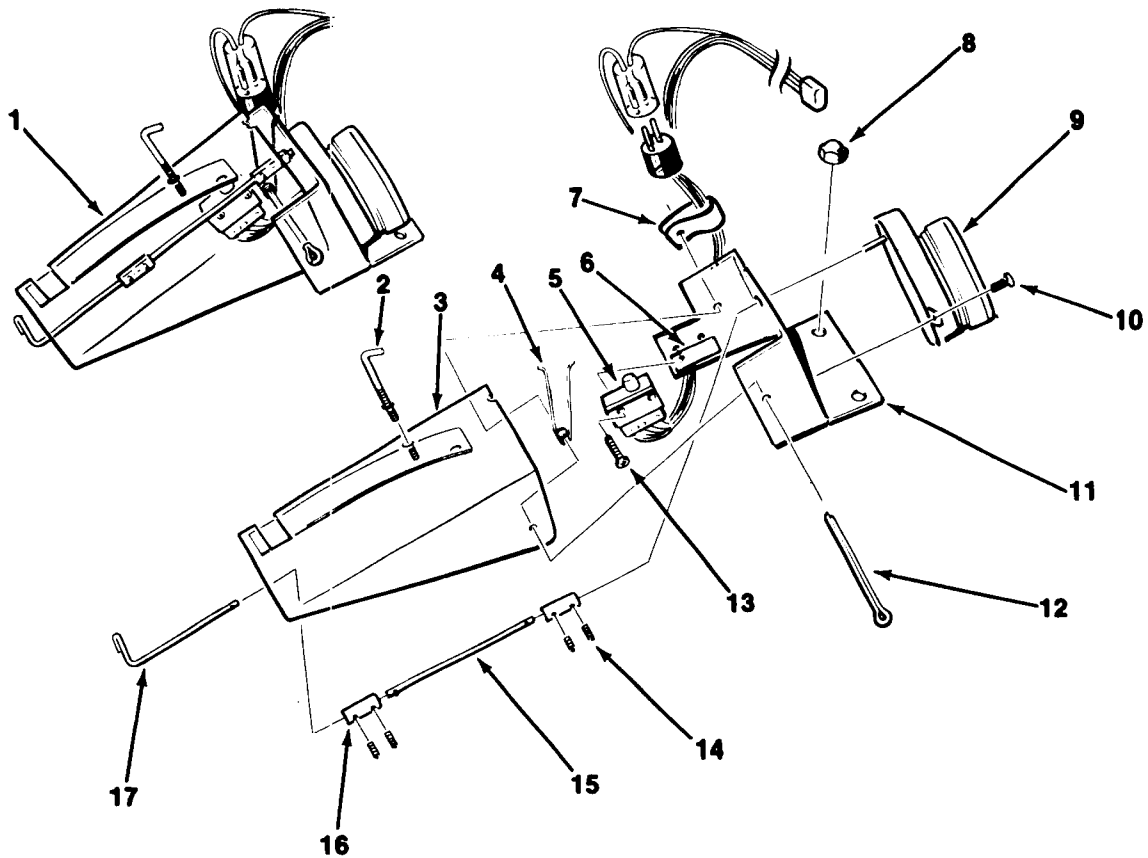
**CSW4
THE PARTS ILLUSTRATION AND PARTS LISTS**



WATER SYSTEM

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0583481	Dispenser Seal
2	0583459	Water Dispenser
3	0681584	Wing Nut, 8-32
4	0680396	Washer, 5/8 x 3/16 x .020
5	0756181	Dispenser Hose
6	0757005	Thermo Expansion Valve
7	0593496	Capillary Clip
8	0587675	Float Valve Bracket
9	0681302	Thumb Screw (2)
10	0593654	Float Valve
11	0585148	Water Pan
12	0598463	Siphon Hose
13	0583266	Siphon Tube Nut
14	0577430	Siphon Tube
15	0562662	Siphon Cap
16	0756782-20	Water Pump Assembly (Complete)
17	0569434	Plug, Water Pump
18	0756691	Stand Pipe
19	0593094	Water Trough
20	0486260	Washer
21	0562336	Cup Washer
22	0595181	Cap Nut (3)
23	0780101	Evaporator

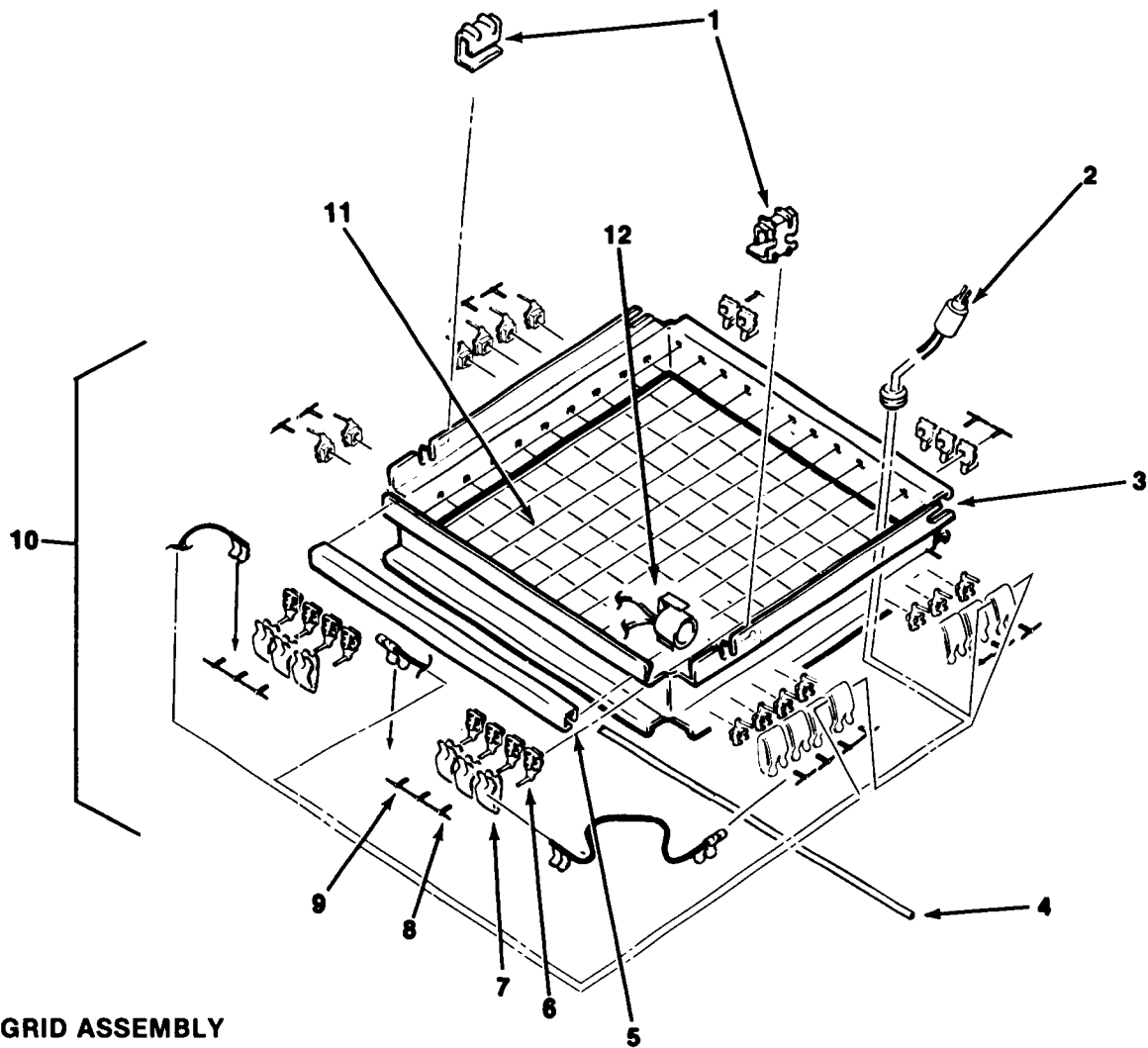
**CSW4
THE PARTS ILLUSTRATION AND PARTS LISTS**



ICE THICKNESS CONTROL ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0598369	Control, Ice Thickness (Complete)
2	0751991	Screw, Adjusting
3	0587293	Bracket, Shaft
4	0560861	Spring, Hold Down
5	0587889	Harness, Switch
6	0587996	Spacer
7	0596338	Clamp, Wire
8	0595181	Nut, Cap (2)
9	0577540	Motor, Control
10	0680854	Screw, 4-40 x 3/8
11	0607811	Bracket, Motor
12	0680668	Cotter, Pin
13	0681433	Screw, 4-40 x 3/4
14	0595330	Setscrew, 6-32 x 3/16 (4)
15	0607816	Shaft, Flexible
16	0585508	Coupling (2)
17	0585507	Shaft, Formed End

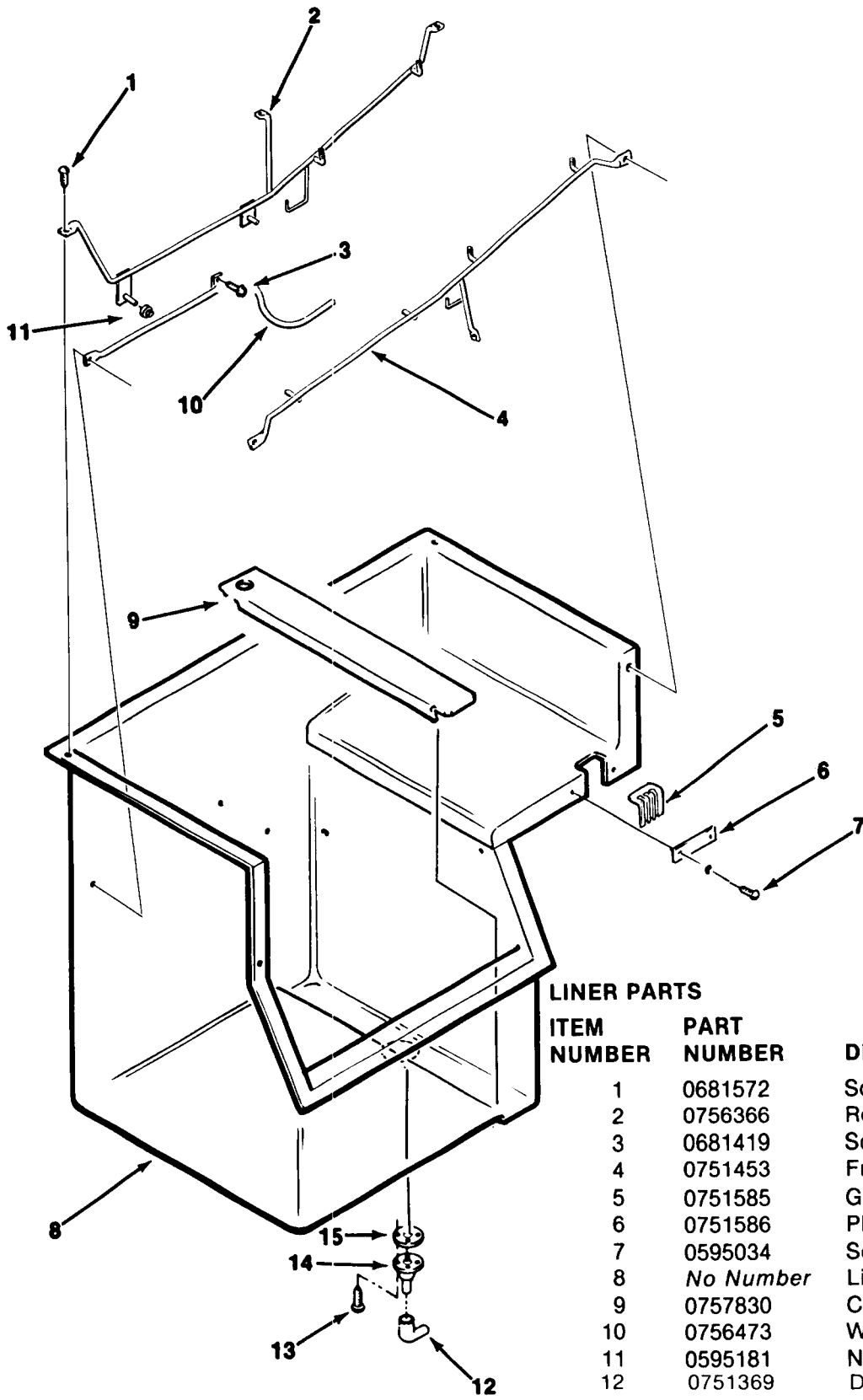
CSW4
THE PARTS ILLUSTRATION AND PARTS LISTS



CUTTER GRID ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0756058	Grid Clip
2	0757044	Grid Connecting Harness 3/4" Grid
	0757045	Grid Connecting Harness 1-1/4" Grid
3	No Number	Cutter Grid Frame
4	No Number	Brace, Grid Frame
5	0751954	Ice Slab Deflector
6	0598277	Grid Insulator 3/4" Grid (90) Grid Insulator 1-1/4" Grid (48)
7	0564072	Tension Clip 3/4" Grid (45) Tension Clip 1-1/4" Grid (24)
8	0587112	Cutter Wire Pin (4)
9	0587111	Cutter Pin Wire, 3/4" Grid (43)
	0587424	Cutter Pin Wire, 1-1/4" Grid (13)
	0587423	Cutter Pin Wire, 1-1/2" Grid (9)
10	CCK152CG	Grid Assembly Complete 3/4" x 3/4"
	CCK151SG	Grid Assembly Complete 1-1/2" x 1-1/4"
11	0569969	Grid Cutter Wire Kit 3/4" Grid
	0569968	Grid Cutter Wire Kit 1-1/4" Grid
12	0757255	Interior Temperature Limiter

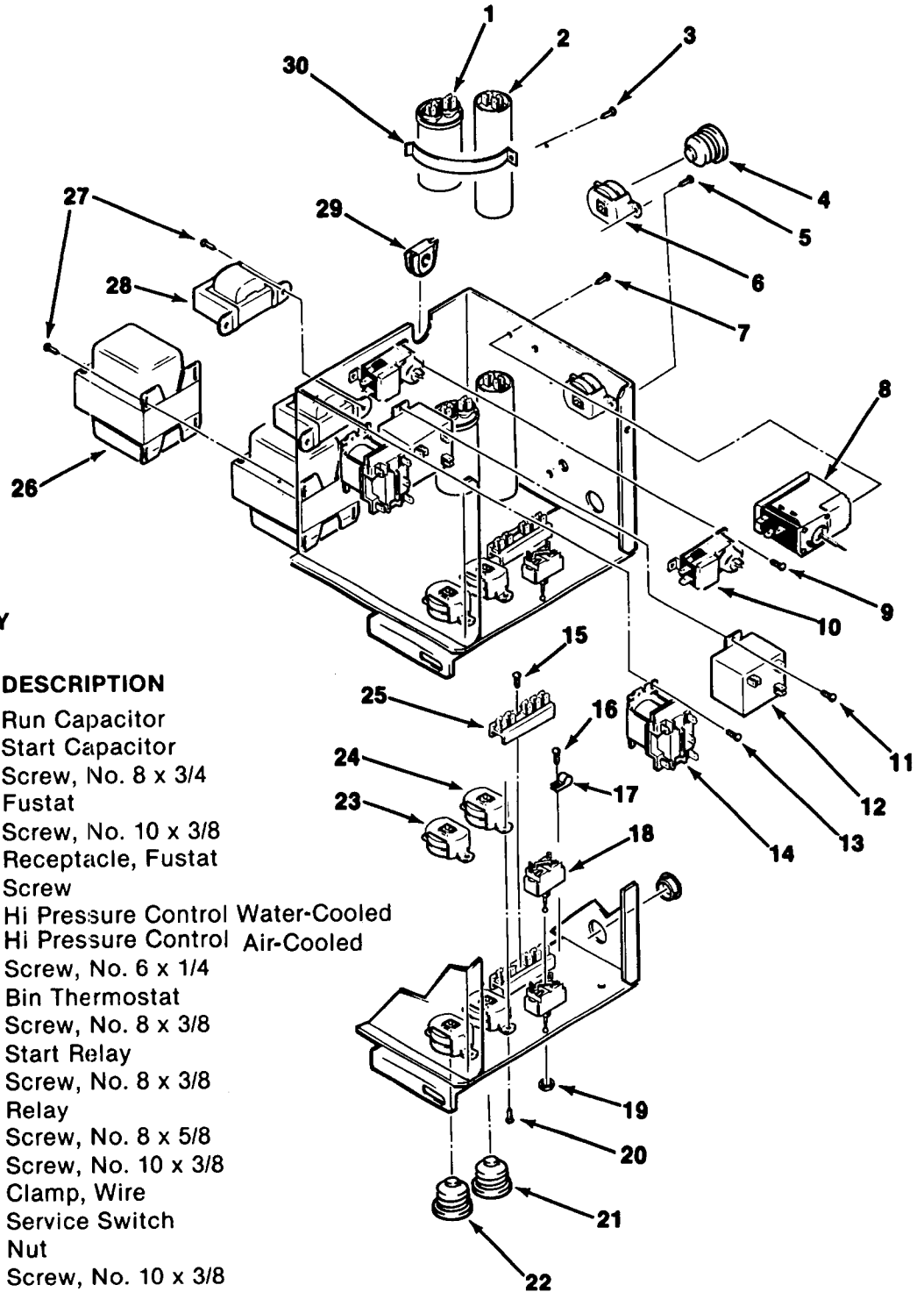
CSW4
THE PARTS ILLUSTRATION AND PARTS LISTS



LINER PARTS

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0681572	Screw, 1/4-20 x 1/2 (6)
2	0756366	Rear Support
3	0681419	Screw, Thumb
4	0751453	Front Support
5	0751585	Grommet, Tubing
6	0751586	Plate Mounting
7	0595034	Screw (2) Support, Mounting
8	No Number	Liner (Not a Serviceable Part)
9	0757830	Cover, Drain
10	0756473	Well, Thermostat
11	0595181	Nut, Mounting
12	0751369	Drain Elbow
13	0681496	Screw, 12-24 x 3/4 (4)
14	0751260	Bin Drain
15	0751258	Drain Gasket

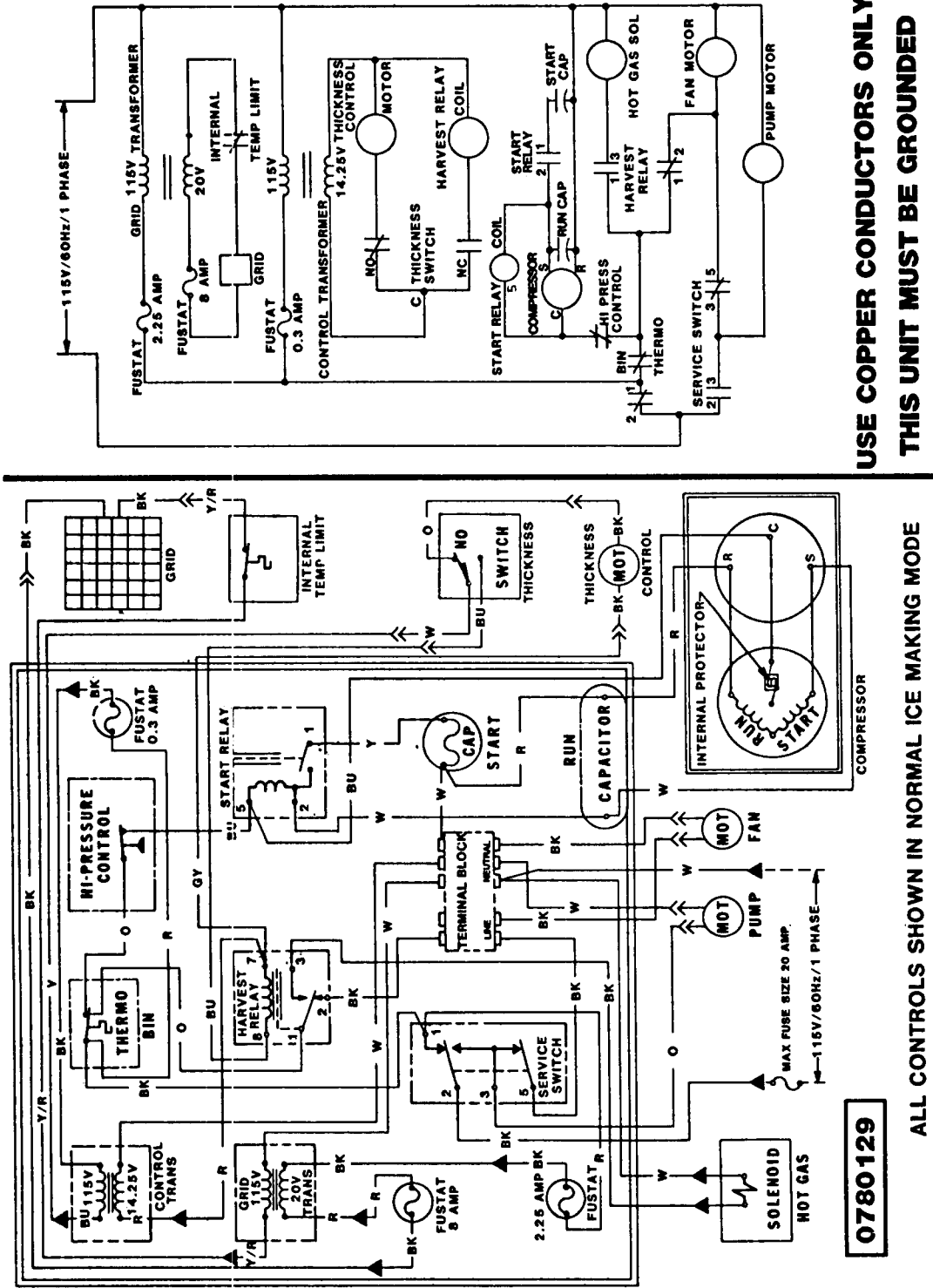
CSW4 THE PARTS ILLUSTRATION AND PARTS LISTS



CONTROL BOX ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	0599224	Run Capacitor
2	0751320	Start Capacitor
3	0680428	Screw, No. 8 x 3/4
4	12-2276-01	Fustat
5	0681187	Screw, No. 10 x 3/8
6	12-2275-01	Receptacle, Fustat
7	03-1403-02	Screw
8	0756013	Hi Pressure Control Water-Cooled
	0756045	Hi Pressure Control Air-Cooled
9	0680722	Screw, No. 6 x 1/4
10	0593328	Bin Thermostat
11	0681167	Screw, No. 8 x 3/8
12	0751318	Start Relay
13	0681167	Screw, No. 8 x 3/8
14	0583095	Relay
15	0680603	Screw, No. 8 x 5/8
16	0681187	Screw, No. 10 x 3/8
17	0596276	Clamp, Wire
18	0560940	Service Switch
19	0596021	Nut
20	0680604	Screw, No. 10 x 3/8
21	12-2276-07	Fustat
22	12-2276-03	Fustat
23	12-2275-02	Receptacle, Fustat
24	12-2275-04	Receptacle, Fustat
25	0751127	Terminal Board
26	0755920	Transformer
27	0681167	Screw, No. 8 x 3/8
28	0587314	Transformer
29	0573333	Grommet
30	0751591	Clamp, Capacitor

CSW4 WIRING DIAGRAMS



**USE COPPER CONDUCTORS ONLY
THIS UNIT MUST BE GROUNDED**

0780129
ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE