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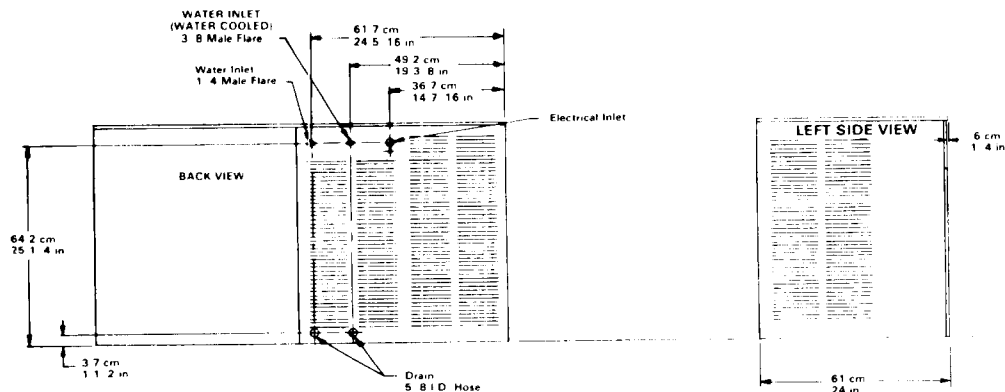
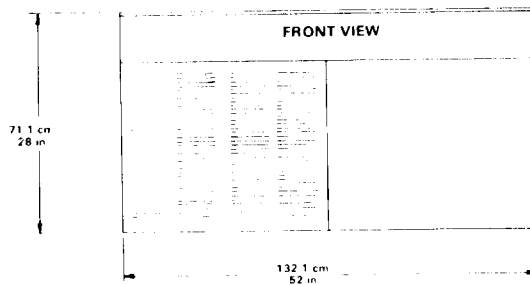
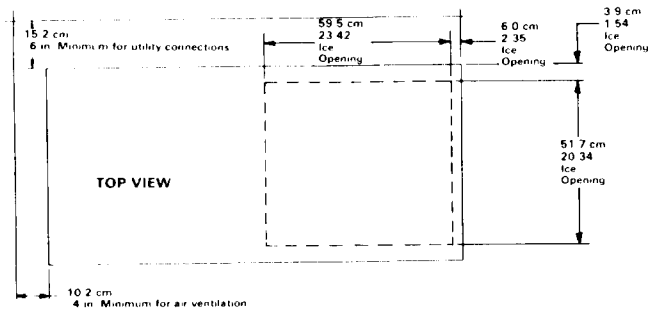
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# CM1200

## SPECIFICATIONS

### MODEL CM1200



Height: 28 in./71.1 cm.  
Width: 52 in./132.1 cm.  
Depth: 24 in./61 cm.  
Est. Ship. Wt.: 375 lbs.

CM1200  
**SPECIFICATIONS (CONT'D.)**

**MODEL CM1200**

Air-Cooled: Model CM1200SAE

Water-Cooled: Model CM 1200SWE

Electrical: 115/208-220/60/3  
115/208-230/60/1

Est. Ship Wt.: 375 lbs.

**FRONT SERVICE ACCESS PANELS**

**OPTIONALS:**

SPKCM1200 Stainless Steel Cabinet Panels

BH750 BIN: 750 lbs. Storage Capacity

KWICMB: Sump Siphon Kit, rinses impurities from sump each time machine shuts off.

<b>MODEL NUMBER</b>			
<b>SERIAL NUMBER</b>			
<b>A.C. SUPPLY VOLTAGE</b>			
<b>MINIMUM CIRCUIT AMPACITY</b>		<b>WIRES</b>	
<b>MAXIMUM FUSE SIZE</b>		<b>HERTZ</b>	
<b>HEATER WATTS</b>		<b>PHASE</b>	
<b>REFRIGERANT 12 OZ.</b>			
<b>MOTORS</b>	<b>VOLTS</b>	<b>F.L.A.</b>	<b>L.R.A</b>
<b>COMPRESSOR</b>			
<b>FAN</b>			
<b>DRIVE</b>			
<b>OTHER</b>			
<b>TEST PRESSURE 140 LOW-235 HIGH</b>			

KING SEELEY **KST** THERMOS CO.  
FAIRFAX OPERATION  
FAIRFAX, SOUTH CAROLINA U.S.A.

SEE NAMEPLATE, shown at left, for electrical and refrigeration specifications. NAMEPLATE located on rear service panel.

Remove Left Bottom Front Panel to locate the Model Serial Number plate, shown below, on the Chassis Front left vertical upright.

<b>MODEL NUMBER</b>
<b>SERIAL NUMBER</b>
<b>KING SEELEY <b>KST</b> THERMOS CO.</b>
<b>FAIRFAX OPERATION</b>
<b>FAIRFAX, SOUTH CAROLINA U.S.A.</b>

<b>MODEL NUMBER</b>	<b>A.C. SUPPLY VOLTAGE</b>
<input type="text"/>	<input type="text"/>
<b>SERIAL NUMBER</b>	<b>TOTAL LOAD AMPS</b>
<input type="text"/>	<input type="text"/>
<b>TEST PRESSURES</b>	<b>REFRIGERANT 12</b>
<input type="text"/> 140-LO <input type="text"/> 230-HI	<input type="text"/> OZ.
<b>KING SEELEY <b>KST</b> THERMOS</b>	
<b>FAIRFAX OPERATION</b>	
<b>FAIRFAX, SOUTH CAROLINA U.S.A.</b>	

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



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

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

# SECTION I

## GENERAL INFORMATION & INSTALLATION

### I. INTRODUCTION

These instructions provide the specifications and the step-by-step procedures for the installation, start up and operation for the Scotsman Model CM1200 Modular Cuber.

The Model CM1200 Modular Cubers are quality designed, engineered and constructed, and thoroughly tested icemaking systems, providing the utmost in flexibility to fit the needs of a particular user. Separate sections detail more specifically: General Information & Installation; Start Up Operation; Principles of Operation; Adjustment and Removal and Replacement Procedures; Maintenance and Cleaning Instructions; Service Diagnosis; Wiring Diagrams and The Illustrated Assemblies and Parts List.

#### DESCRIPTION

An attractive horizontal cabinet of leathergrain embossed steel with high gloss, almond baked enamel finish on all panels, with a contrasting charcoal brown upper front panel. Also, an optional stainless steel panel kit is available. These removable panels allow easy access to electrical and mechanical components for cleaning and maintenance.

#### SEALED REFRIGERATION SYSTEM

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

#### STORAGE BIN

Since the Model CM1200, like other modular cubers in the SCOTSMAN line, does not have an attached ice storage bin, it is necessary to use an auxiliary bin. The Model BH750 Bin, a horizontal ice storage bin, has been designed to be used with the CM1200 Modular Cuber.

### II. UNPACKING AND INSPECTION

1. Call your authorized SCOTSMAN Distributor or Dealer, for proper installation. He's listed under ICE MAKING EQUIPMENT AND MACHINERY in the Yellow Pages of the telephone book.
2. Visually inspect the exterior of the shipping container and skid and any severe damage noted should be reported to the delivering carrier; and a concealed damage claim filed subject to internal inspection, with the carrier representative present.
3. Remove screws and shipping tape, the left Side Panel, Top and three Front Panels, from the cabinet, and inspect for any concealed

damage. Notify carrier of any concealed damage claims, as stated in step 2, above.

4. Remove all internal support packing, tape and wire, if any, in machinery compartment. Remove wood blocks, foam packing, from below Evaporator Plates; then, remove screws and Front Brace Supports from both Front Braces. Remove bolts and hold down straps from the skid and base of Cuber. **RETAIN BOLTS AND SUPPORTS.** See Figure 1-1.
5. Check that refrigerant lines do not rub or touch lines or other surfaces, and that fan blades, if any, move freely.
6. Check that compressor is snug on all mounting pads.
7. Use clean damp cloth or disposable paper wiper to wipe clean the exterior surfaces of the cabinet.
8. See NAMEPLATE on the top of the rear panel and check that the location source voltage corresponds with the voltage specified on the nameplate. Make certain that a Chassis-to-earth GROUND is installed.

#### CAUTION

**Improper voltage supplied to the icemaker will void your parts replacement program. Improper grounding can cause electrical shocks and component failures.**

9. Remove the Manufacturer's Registration Card from the literature pack and fill in all spaces including: Model Number and Serial Number taken from the Model-Serial Nameplate. Forward the completed, self-addressed registration card to the SCOTSMAN factory.

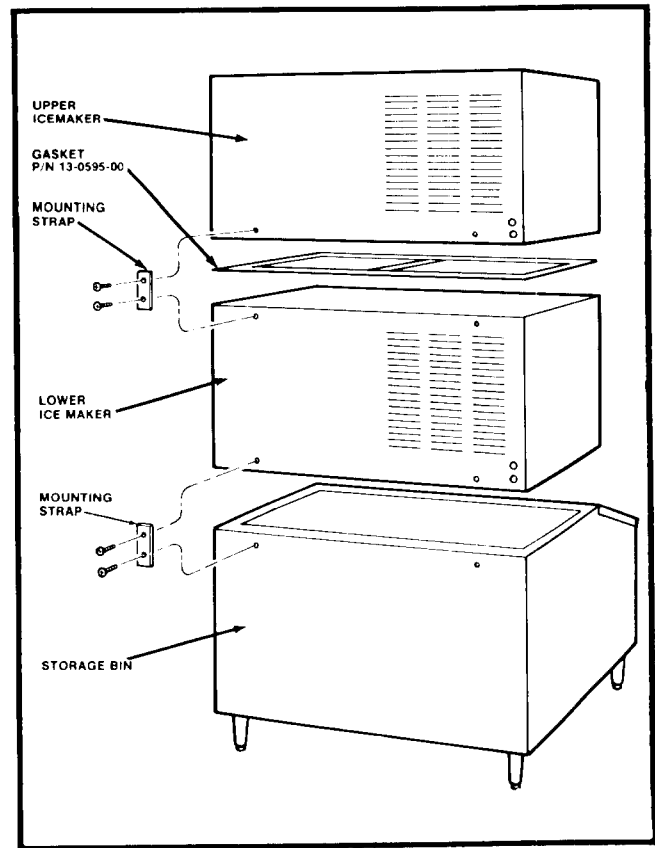
### III. LOCATION & LEVELING

#### WARNING

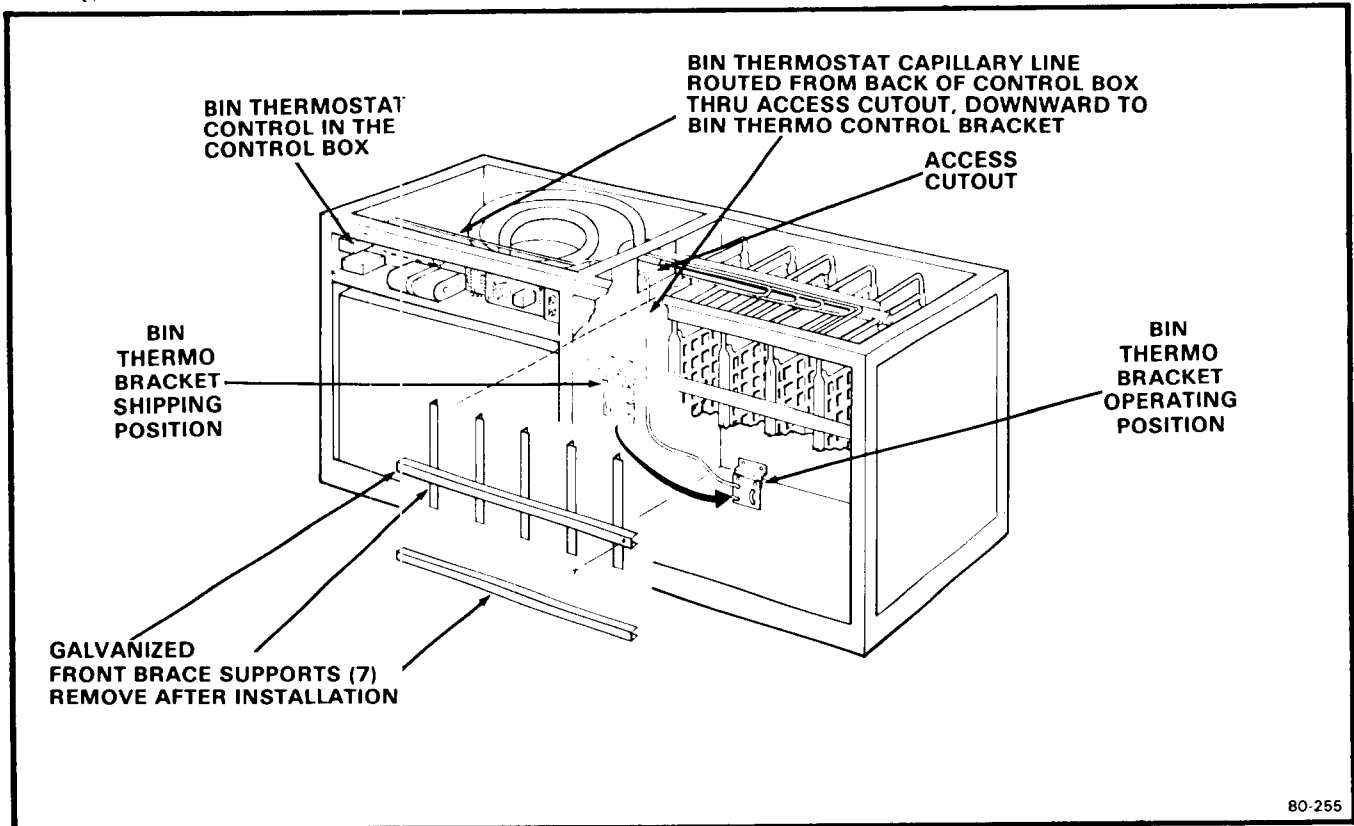
**This Modular Cuber is NOT designed for outdoor installations, or where air temperatures are below 50-degrees F., or above 100-degrees F., and water temperature is below 40-degrees F., or above 100-degrees F. Extended periods of operation at temperatures exceeding these limitations will constitute misuse,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

**CM1200**  
**SECTION I GENERAL INFORMATION & INSTALLATION**

1. Position the Model BH750 Bin in the selected location, which should have a minimum room temperature of 50-degrees F., and maximum room temperature of 100-degrees F. Level the bin, adjusting the leg levelers in both the front-to-rear and side-to-side directions. Select a well ventilated location for the air-cooled condenser.
2. Inspect the bin top mounting gasket, which should be flat, with no wrinkles, to provide a good water seal when the CM1200 Cuber is installed on top of the bin.
3. Install the CM1200 Modular Cuber on top of the BH750 Bin, using care to be sure a good seal is made between the two cabinets. Align the holes in the bottom rear of the CM1200 cabinet to mate with the two mounting straps on the top rear of the BH750 Bin.
4. Use two bolts retained from the removal of the hold down straps during unpacking, to secure the mounting straps to the CM1200 in the two holes used for the holddown straps. When alignment and leveling are completed, tighten the bolts to secure the mounting straps.
5. When stacking System Two contour cubers a length of gasket material (P/N 19-0503-04) is required between icemakers at the cabinet perimeter and also between freezing compartment and refrigeration compartment. CM1200 ice makers require 14'-5" of gasket material.

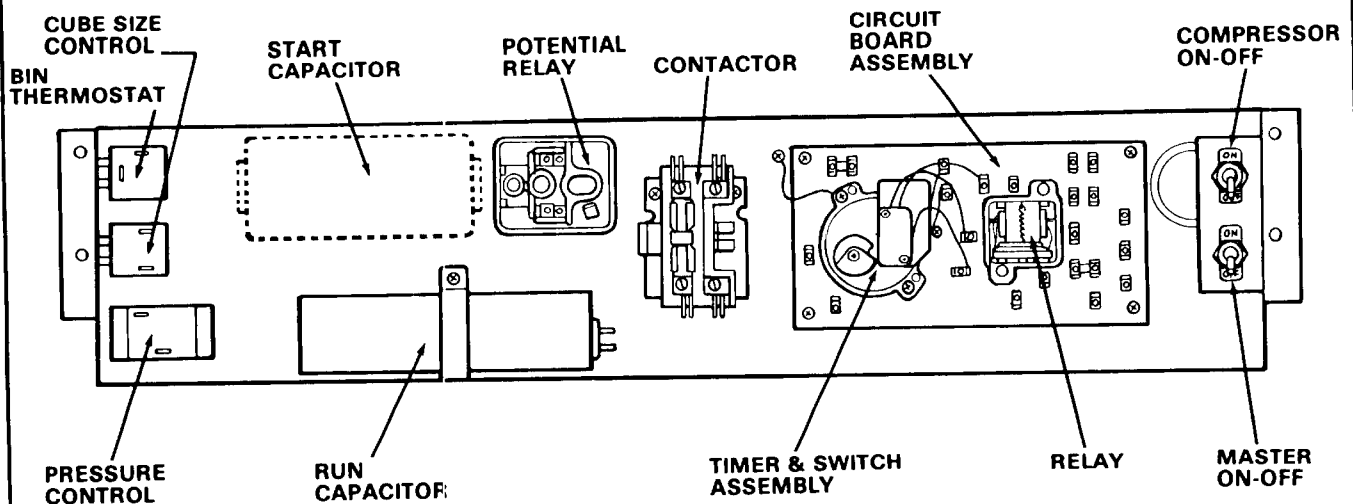
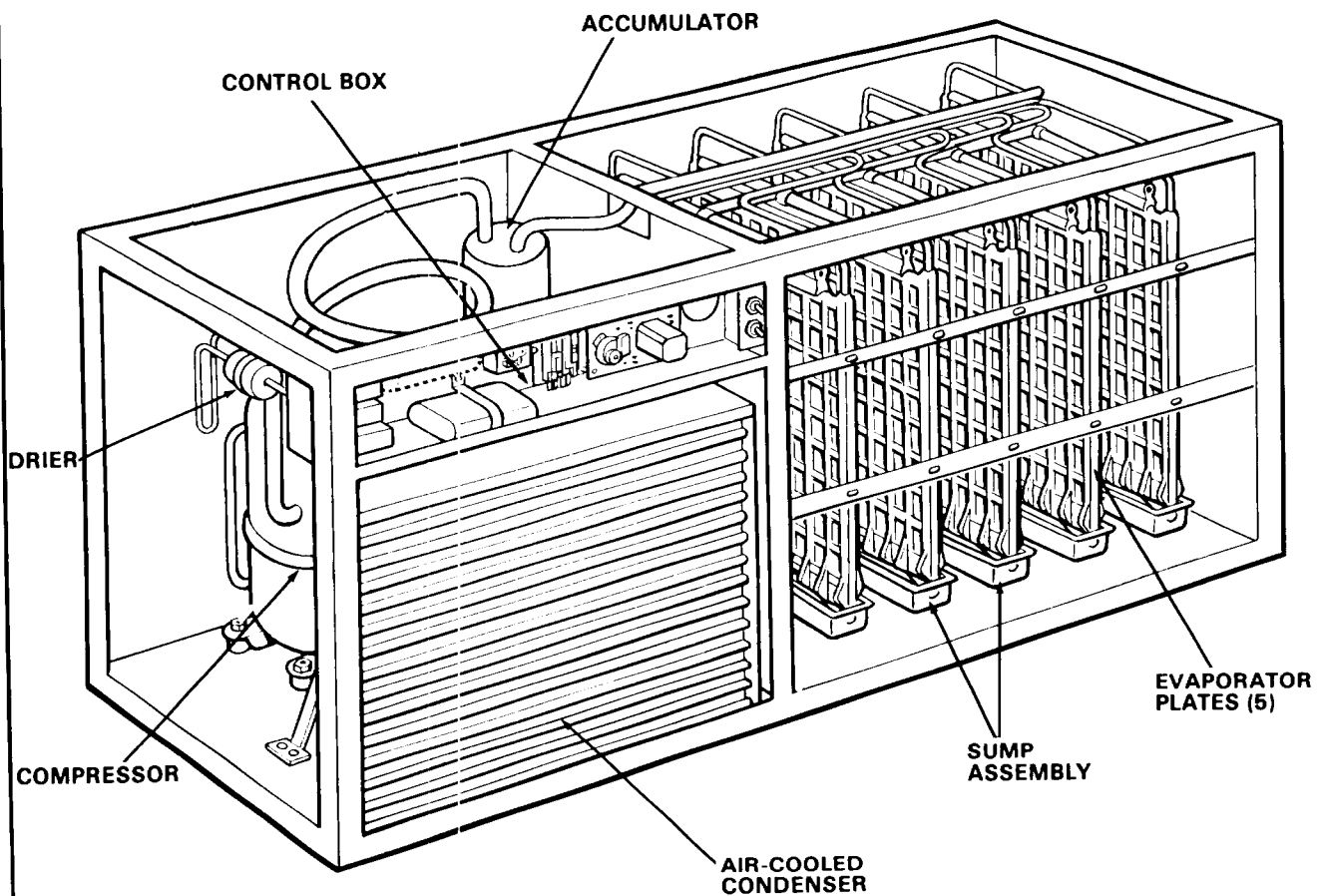


*Figure 1-1. Stacking Contour Cuber Equipment.*



*Figure 1-2. Installing the Bin Thermo Bracket and Bin Thermostat Capillary Line.*

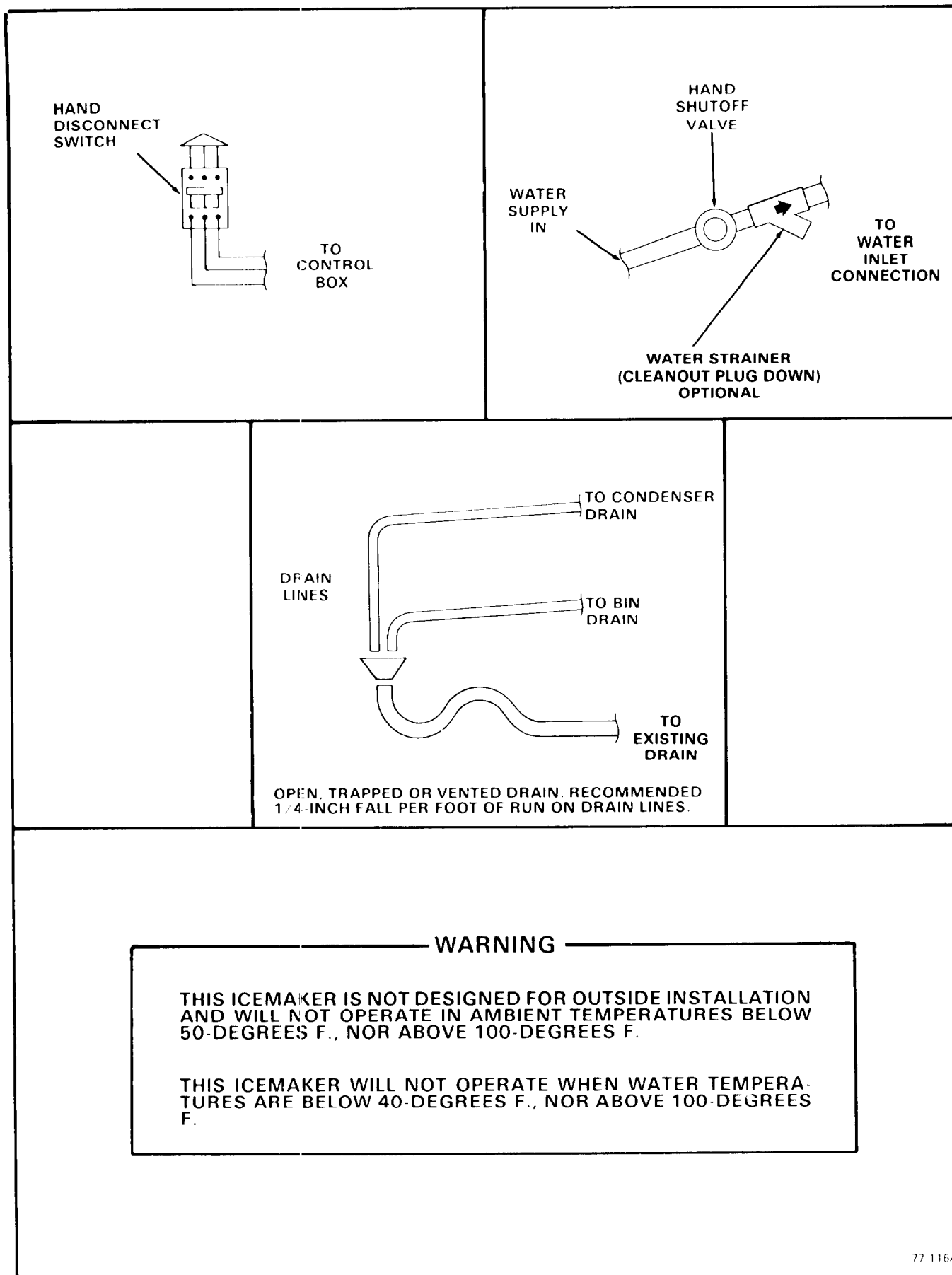
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SECTION I GENERAL INFORMATION & INSTALLATION



79-225A

Figure 1-3. CM1200 — Locational.

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SECTION I GENERAL INFORMATION & INSTALLATION



77 116A

Figure 1-4. Installation Practice.



### WARNING

Upper ice maker must be attached to lower ice maker and mounting straps and threaded holes are provided to attach ice makers to bins and upper stacked icemaker to lower icemaker.

5. Remove two tie wraps securing the bin thermo bracket in shipping position. Carefully uncoil the capillary tube and reposition the bin thermo bracket on the back liner wall, attach using existing screws and holes. When bin thermo bracket is in operating position it must be below icemaker base and extend into storage bin. Routing of capillary tube must not touch refrigerant tubing. Installation on other brand storage bins may require experimentation of bin thermo bracket location.

## IV. ELECTRICAL CONNECTIONS

### WARNING

DO NOT operate this Modular Cuber when the water supply is shut OFF, or is BELOW the recommended 20 PSIG water pressure. If this does occur, move the Master ON-OFF toggle switch on the Control Box to OFF immediately.

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.

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

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

## V. WATER SUPPLY AND DRAIN CONNECTIONS

**A. AIR-COOLED MODELS:** The recommended water supply line is a 1/2-inch O.D. copper tubing. Connect to cold water supply line with standard plumbing fittings, with a

shutoff valve installed in an accessible place between the water supply and the Cuber. Install the optional strainer with clean out plug down, between the shutoff valve and the Cuber. In some cases a plumbing permit and services of a licensed plumber will be required.

**B. WATER-COOLED MODELS:** On water-cooled models, a separate cold water supply inlet is required, to be connected to a separate 1/2-inch O.D. male flare fitting at the rear of the cabinet. Additional drain lines are required to drain the water-cooled condenser.

**C. DRAIN CONNECTIONS:** All drains are gravity type and must have a minimum of 1/4-inch fall per foot on horizontal runs. The drains to be installed to conform with the local plumbing code. Install separate drain line for discharge water from the water-cooled condenser. Install a vertical open vent on drain line to ensure good venting. The drain receptacle should be an open, trapped or vented construction. See Figure 1-4.

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

## VI. INSTALLATION — OPTIONALS

Install optionals ordered with the CM1200:

1. SPKCM1200 — Stainless Steel Cabinet Panels.
2. BH750 Bin — 734 lbs. storage capacity.
3. KWICMB—Sump Siphon Kit

### DESCRIPTION

This feature rinses impurities from the sump each time the machine shuts off. Water pump stops circulating water and distribution water returns to sump. Sump water level rises above overflow tube creating a siphon. Siphon rinses impurities from sump, drawing water level down to bottom of rubber cap and siphon effect is terminated.

## VII. FINAL CHECK LIST

1. Is the Cabinet/Bin level? (IMPORTANT)
2. Is the Cuber in a room where ambient temperatures are a minimum of 50-degrees F. all year around?
3. Is there at least a six-inch clearance behind and around the cabinet for all connections and for proper air circulation?
4. All shipping tape removed from panels, doors, styrofoam blocks, etc.
5. Have mounting straps been installed between storage bin and icemaker? If stacking icemakers, have mounting straps and gasket been installed between upper and lower icemakers?

CM1200  
SECTION I GENERAL INFORMATION & INSTALLATION

6. Have all electrical and piping connections been made?
7. 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?
8. 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? And the valve closed?
9. Check the wood blocks, foam packing and Front Brace Supports have been removed from the Evaporator Plates.
10. Have the Compressor hold down bolts been checked to be sure the compressor is snug on the mounting pads?
11. Check all refrigerant lines and conduit lines to guard against vibration and possible failure.
12. Check the Bin Thermostat Control bulb and Bracket. Have each been properly installed? See that capillary tube is not touching refrigerant tubing.
13. Has the owner/user been given the User Manual and instructed on how to operate the icemaker and the importance of periodic maintenance?
14. Has the owner/user been given the name and telephone number of the Authorized SCOTSMAN Distributor or Service Agency serving him?
15. 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.

## SECTION II

# OPERATING INSTRUCTIONS

### I. START UP

1. Remove screws and pull the bottom of both the Left and Right Bottom Front Panels out slightly, and slide the top of each panel down, to clear the top from behind the upper Front Panel.
2. Remove screws and remove both the upper Front Panel and the Left Side Panel.
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.

#### NOTE

Observe that the inlet water can be seen flowing into the Sump Assembly. Allow water to fill the Sump, about three minutes, until the water is at a level of about one third of the diameter of the uppermost tube, in the left end of the Sump, when the Float should cause the water flow to STOP. See Figure 2-1.

5. Remove two screws at the top of the Control Box and OPEN the hinged Cover downward.
6. Rotate the shaft of the Timer and Switch Assembly CLOCKWISE to start the Timer.

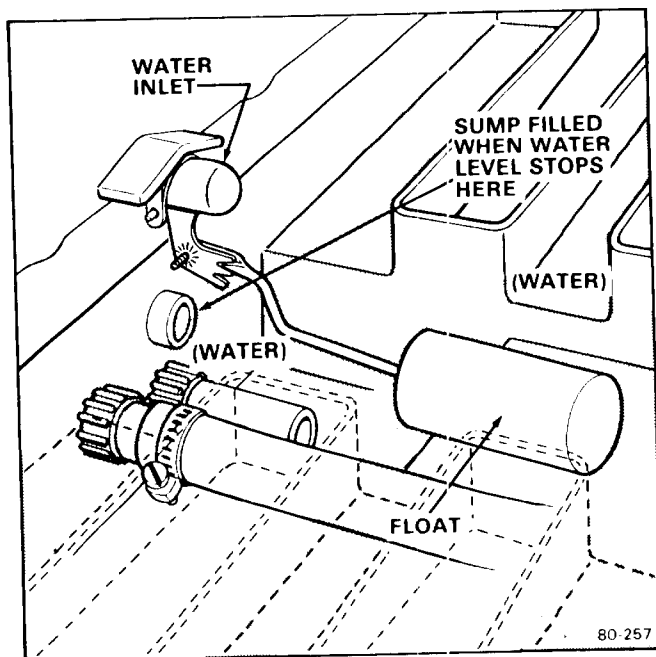


Figure 2-1. Sump Filled - Showing Water Level Line.

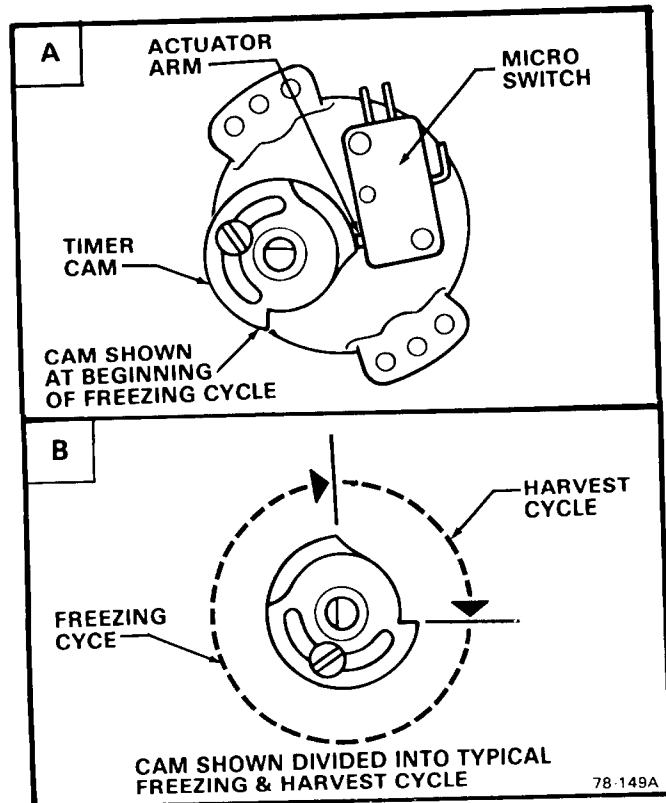


Figure 2-2. Timer Cam Positions.

#### NOTE

1. See Figure 2-2 and rotate the shaft of the Timer and Switch Assembly CLOCKWISE, past the drop off and slot of the Harvest Cycle, and continue until the actuator arm of the microswitch rides up out of the slot, stop rotating the shaft with the actuator arm at the beginning of the outer cam. This is the start point of the Freezing Cycle.
2. When the Float has risen from water filling the Sump Assembly, the water has forced all trapped air out of the Water Pump and pump tube, thus preventing the pumping of water filled with air bubbles. DO NOT start Water Pump when the Sump Assembly is FILLING with water. WAIT until the Sump is FILLED.
7. Move the MASTER ON-OFF toggle switch and the COMPRESSOR ON-OFF toggle switch to the ON position.
8. Check operation of the Freezing Cycle:
  - a. Compressor is operating.
  - b. Water Pump is operating, as seen by water moving through the two Tygon tubes between Evaporator Plates, up to the Water Manifold at the top of Evaporator Plates, where water is uniformly

CM1200  
SECTION II OPERATING INSTRUCTIONS

dispensed and cascades down both sides of each Evaporator Plate and drains back into the Sump Assembly for recirculation.

- c. Icemaking process begins: feeling metal parts of Evaporator Plates reveals cold temperature, very shortly ice begins to form. Tubing will become frosted at the top of the Evaporator Plates.

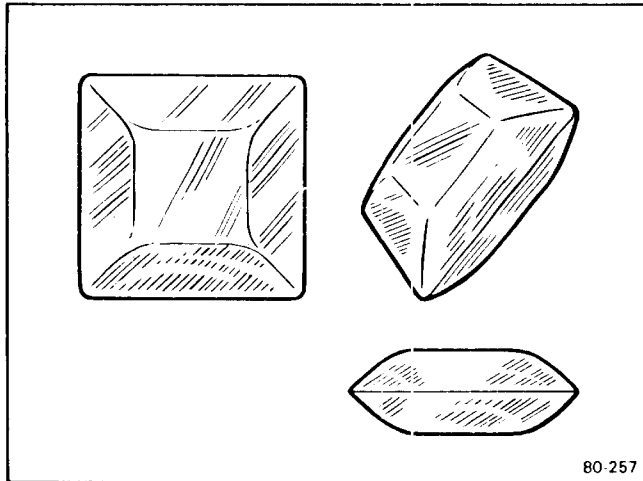


Figure 2-3. Ice Cube Size & Shape.

**NOTE**

Freezing time will range between 14 and 15 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 17 to 21 minutes.

**WARNING**

**DO NOT** operate this icemaker when the water supply is shut OFF, or is BELOW the recommended 20 PSIG water pressure. Move the MASTER ON-OFF toggle switch to OFF immediately.

9. Observe first ice cube harvest:

- A. Check size of ice cubes: when too small, after a second harvest, refer to procedure IV-I for adjustment to the Cube Size Control to increase size of ice cube.

**NOTE**

See Figure 2-3, for representative size and shape of ice cubes made by these SCOTSMAN Evaporator Plates. Maximum capacities of ice cubes harvested, from this five-plate Evaporator Assembly, are achieved when a total BATCH OF ICE weighs 12 pounds, when harvested.

- B. Check texture of ice cubes: when partially cloudy throughout, suggests icemaker is operating short of water; or, possibly an extreme problem water condition exists,

wherein filtering or purifying equipment is recommended. Contact SCOTSMAN—Queen Products Division, Service Department, Albert Lea, Minnesota 56007 for further details. See SERVICE DIAGNOSIS chart, for Shortage of Water symptoms and corrections.

10. With the icemaker in the Harvest Cycle, hold ice against the Bin Thermostat Control bulb to test shutoff, which should cause the icemaker to shut OFF at the END OF THE HARVEST CYCLE.

**NOTE**

Within minutes after the ice is removed from the sensing bulb, the bulb will warm up and cause the icemaker to restart. This control is factory set and should not be reset until testing is performed. Normal setting is about 35-degrees F. CUT-OUT and 39-degrees F. CUT-IN.

11. Install refrigerant service gauges on the high and low side Schrader valve fittings and check the Compressor head pressure and back pressure. RETAIN Schrader valve caps.

**NOTE**

1. Air-Cooled Models:

- a. Head pressure after 12 minutes of Freezing Cycle at 70-degrees F. ambient temperature will be about 95 to 100 PSIG.
- b. Head pressure after 15 minutes of Freezing Cycle at 90-degrees F. ambient temperature will be about 135 PSIG.
- c. The back pressure gradually pulls down to about 10 PSIG, just before the Harvest Cycle. During the Harvest Cycle the back pressure increases to about 40 PSIG.
- d. Higher ambient temperatures or a dirty Condenser will cause increased pressures.

2. Water-Cooled Models: The Water Regulator Valve is factory set at 135 PSIG. Check the gauge indication and adjust, if necessary. Back pressure will operate the same as air-cooled models.

12. Remove refrigerant service gauges, and BE SURE to REPLACE the Schrader valve caps on Schrader valves, to prevent leaks.
13. Replace Control Box cover and all service panels.
14. Thoroughly explain to the owner/user the significant specifications of the icemaker, the start up and operation, going through the procedures in the operating instructions. Answer all questions about the icemaker by the owner; and inform the owner of the name and telephone number of the authorized SCOTSMAN Distributor, or service agency serving him.

## II. OPERATION — How It Works

### A. FREEZING CYCLE

Water from the sump in the reservoir of the Sump Assembly is pumped to a Water Distributor System, at the top of the Evaporator Plates. From the Water Distributors at the top of each Evaporator Plate, the water cascades by gravity over all cells of the Plates and to the Sump Assembly below, for recirculation. See Figure 2-4. At the beginning of the Freezing Cycle, the electrical circuit is completed to the Compressor and the Water Pump. The Water Pump operates continuously, through both the Freezing Cycle and the Harvest Cycle.

In Water-Cooled models, water also flows through the Condenser and out the drain. While in the Condenser, water removes heat from the refrigerant and allows the refrigerant to condense from a gas to a liquid.

In the Compressor, gaseous refrigerant is compressed and discharged into the Condenser, as a high pressure, high temperature gas. The refrigerant is cooled and condensed, by either air or water, and condenses into a high pressure, medium temperature liquid. This liquid refrigerant, then passes through a small capillary tube,

where the temperature and pressure of the liquid refrigerant are lowered and it next enters the Evaporator Plates. The refrigerant is warmed by the water cascading over the Evaporator Plates and begins to boil off and become a gas. The refrigerant next travels through the Accumulator, where any remaining liquid refrigerant boils 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 cubes are partially formed, the Cube Size Control bulb located on the suction line out of the Evaporator Plates Assembly, will sense the temperature at which it is preset to CLOSE. This will complete the electrical circuit to the Timer. The Timer then controls the remainder of the Freezing Cycle.

The Timer will keep the Icemaker operating in the Freezing Cycle for a selected length of time. This will give the ice cubes time to fully form. After that selected length of time, the Timer will switch the Icemaker into the Harvest cycle, through the contacts of the Timer Assembly microswitch.

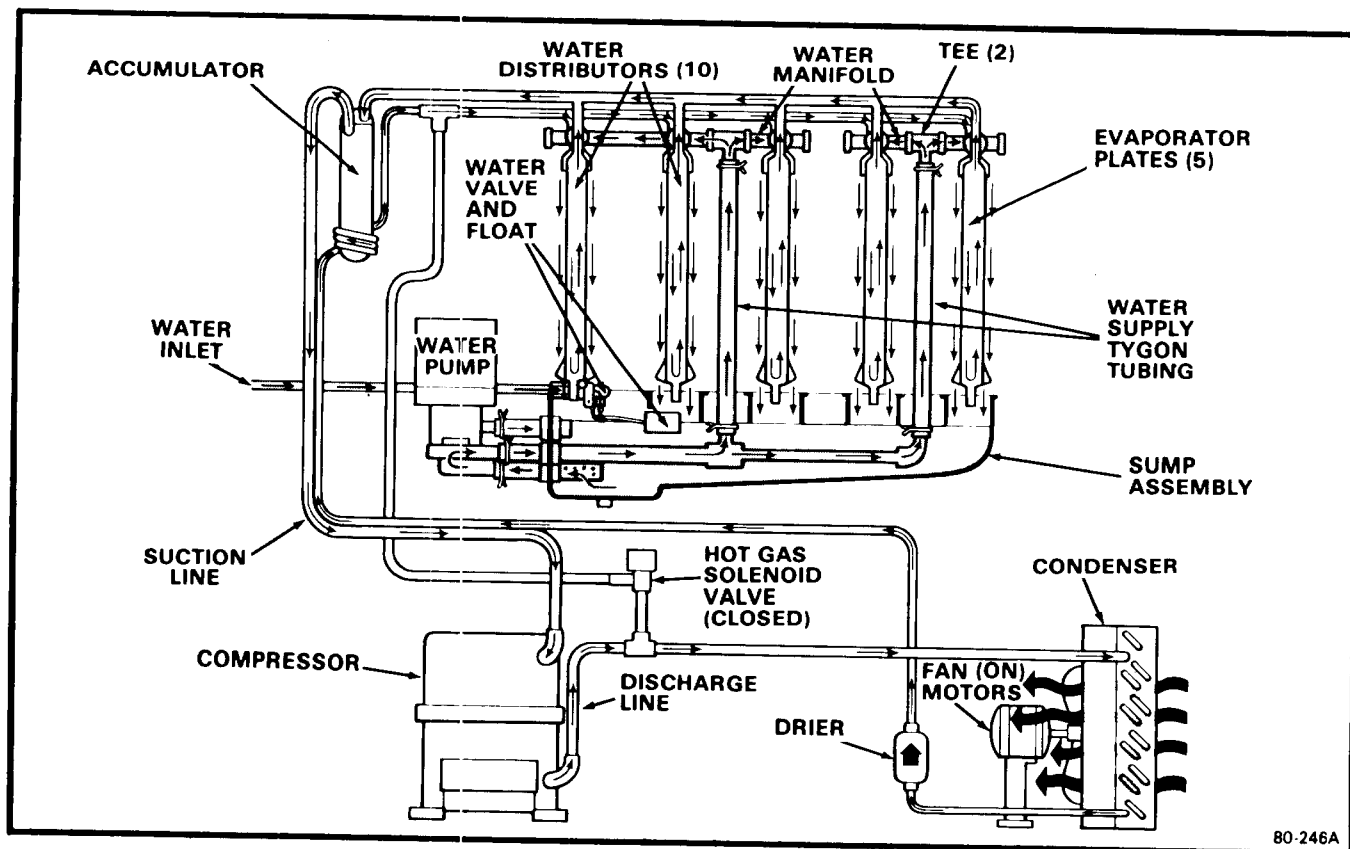


Figure 2-4. Freezing Cycle.

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SECTION II OPERATING INSTRUCTIONS

B. HARVEST CYCLE

When the Timer switches the Icemaker into the Harvest Cycle, high pressure, high temperature gas refrigerant being discharged from the Compressor is diverted from the Condenser through the Hot Gas Solenoid Valve into the Evaporator Plates Assembly. During this cycle, the gaseous high pressure, high temperature refrigerant circulates from the Compressor through the Evaporator Plates assembly and back again, bypassing the Condenser and the capillary tube. In the electrical circuit, both the Compressor and the Water Pump are operating and the Hot Gas Solenoid Valve is energized and OPEN. See Figure 2-5.

The finished ice cubes are released from the sides of the Evaporator Plates, by the warming effect of the hot gas flowing through the Evaporator Plate tubes and the water cascading over the ice cubes loosening from the warmed cells of the Plates. The released ice cubes drop into the ice storage bin below.

At the end of the Harvest Cycle, the Timer cam will push the actuator arm of the microswitch IN. If the Bin Thermostat is still CLOSED, a whole new cycle will begin. If the Bin Thermostat is OPEN, the icemaker will shut OFF, at this time.

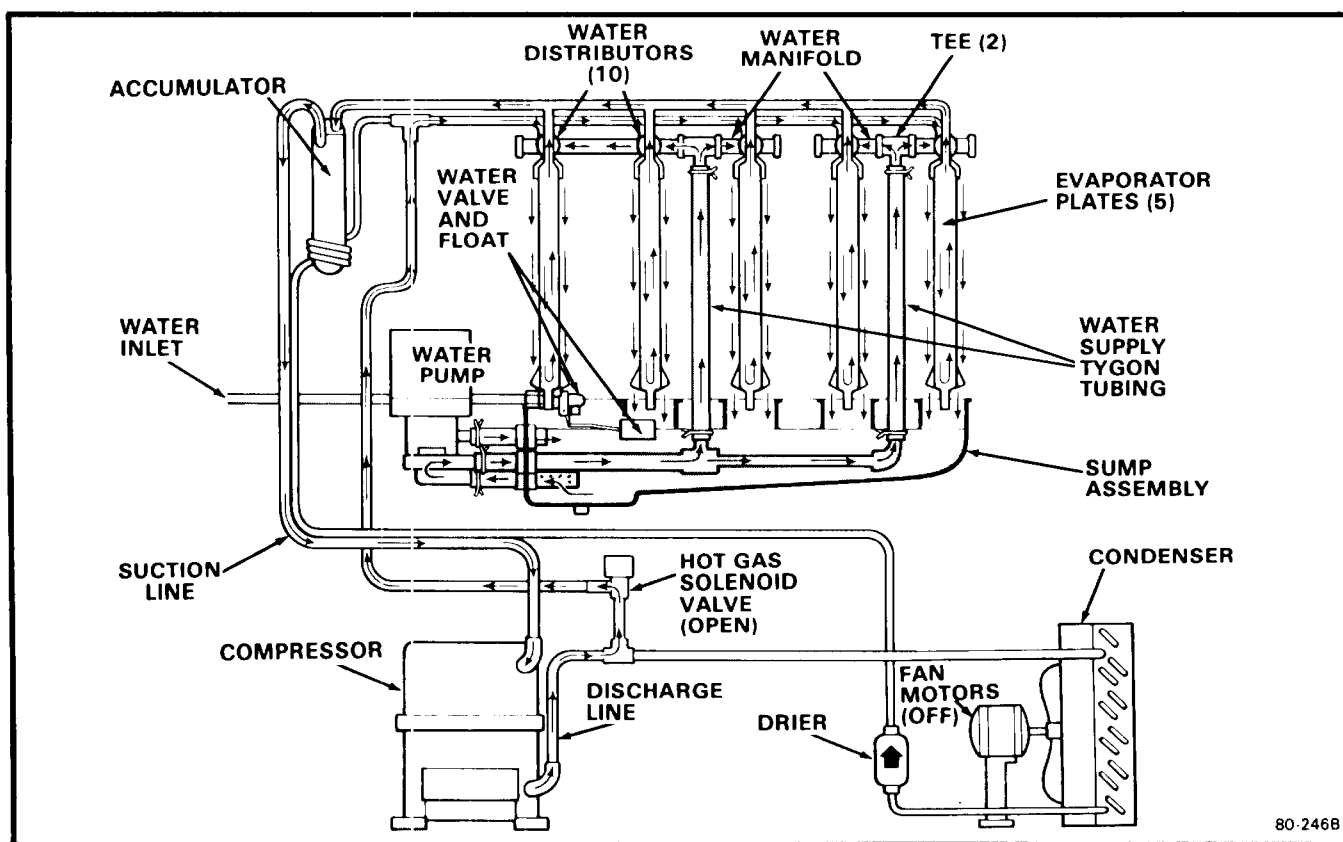


Figure 2-5. Harvest Cycle.

## SECTION III

# PRINCIPLES OF OPERATION—How It Works

### I. FREEZING CYCLE

Water from the sump in the reservoir of the Sump Assembly is pumped to a Water Distributor System, at the top of the Evaporator Plates. From the Water Distributors, atop each Evaporator Plate, the water cascades by gravity over all cells of the Plates and to the Sump Assembly below, for recirculation. See Figure 3-1. At the beginning of the Freezing Cycle, the electrical circuit is completed to the Compressor and the Water Pump. The Water Pump operates continuously, through both the Freezing Cycle and the Harvest Cycle.

In Water-Cooled models, water also flows through the Condenser and out the drain. While in the Condenser, water removes heat from the refrigerant and allows the refrigerant to condense from a gas to a liquid.

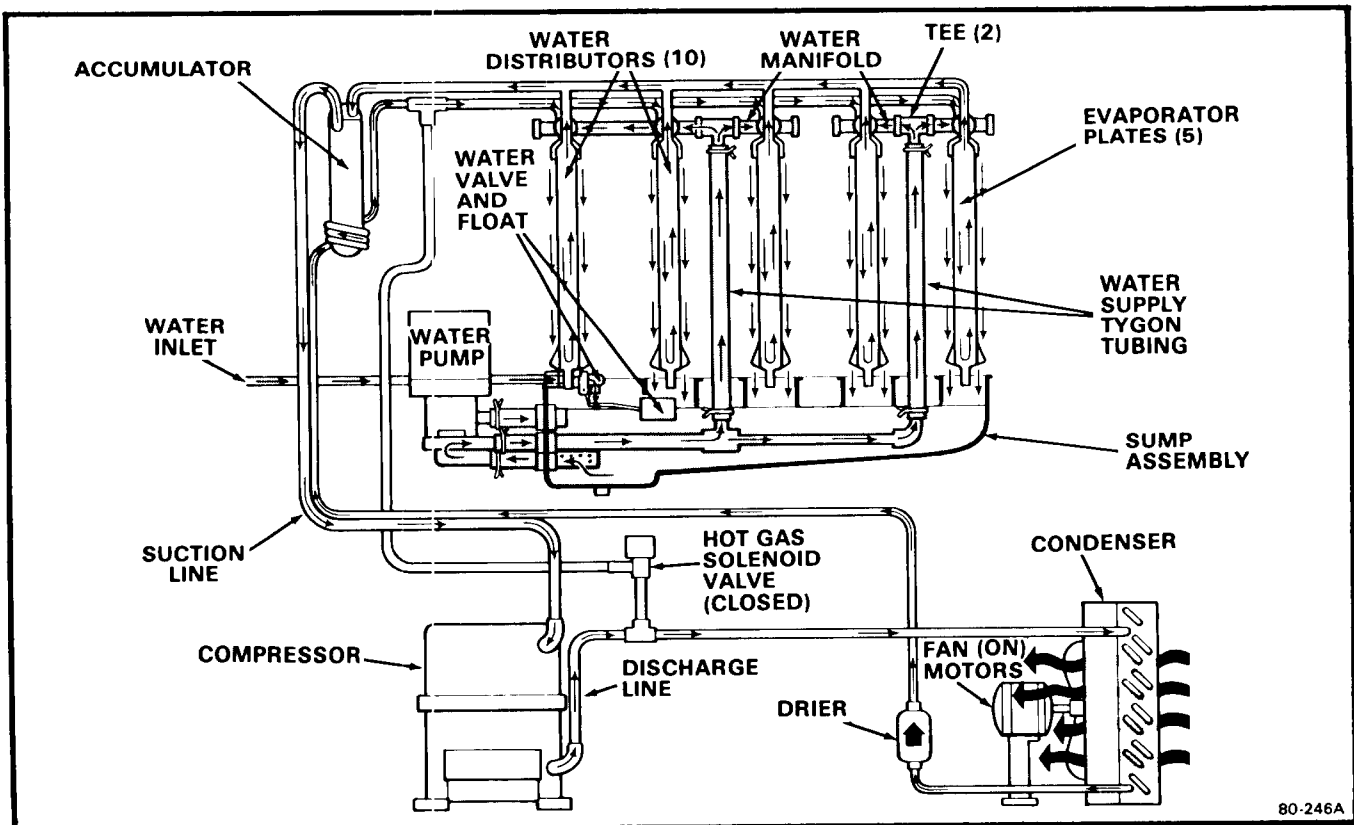
In the Compressor, gaseous refrigerant is compressed and discharged into the Condenser, as a high pressure, high temperature gas. The refrigerant is cooled and condensed, by either air or water, and condenses into a high pressure, medium temperature liquid. This liquid refrigerant, then passes through a small

capillary tube, where the temperature and pressure of the liquid refrigerant are lowered and it next enters the Evaporator Plates. The refrigerant is warmed by the water cascading over the Evaporator Plates and begins to boil off and become a gas. The refrigerant next travels through the Accumulator, where any remaining liquid refrigerant boils 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 cubes are partially formed, the Cube Size Control bulb located on the suction line out of the Evaporator Plates Assembly, will sense the temperature at which it is preset to CLOSE. This will complete the electrical circuit to the Timer. The Timer then controls the remainder of the Freezing Cycle.

The Timer will keep the Icemaker operating in the Freezing Cycle for a selected length of time. This will give the ice cubes time to fully form. After that selected length of time, the Timer will switch the Icemaker into the Harvest Cycle, through the contacts of the Timer Assembly microswitch.



80-246A

Figure 3-1. Freezing Cycle.

## II. HARVEST CYCLE

When the Timer switches the Icemaker into the Harvest Cycle, high pressure, high temperature gas refrigerant being discharged from the Compressor is diverted from the Condenser through the Hot Gas Solenoid Valve into the Evaporator Plates Assembly. During this cycle, the gaseous high pressure, high temperature refrigerant circulates from the Compressor through the Evaporator Plates Assembly and back again, bypassing the Condenser and the capillary tube. In the electrical circuit, both the Compressor and the Water Pump are operating and the Hot Gas Solenoid Valve is energized and OPEN. See Figure 3-2.

The finished ice cubes are released from the sides of the Evaporator Plates, by the warming effect of the hot gas flowing through the Evaporator Plate tubes and the water cascading over the ice cubes loosening from the warmed cells of the Plates. The released ice cubes drop into the ice storage bin below.

At the end of the Harvest Cycle, the Timer cam will push the actuator arm of the microswitch IN. If the Bin Thermostat is still CLOSED, a whole new cycle will begin. If the Bin Thermostat is OPEN, the icemaker will shut OFF, at this time.

## III. COMPONENT DESCRIPTION

### A. BIN THERMOSTAT CONTROL

The Bin Thermostat Control is located in the left end of the Control Box. The sensing capillary tube of the control is routed from the rear of the Control Box through an access cutout in the inner left wall in the Evaporator section, downward to the Bin Thermo Control Bracket hanging in the ice storage Bin. The Bin Thermostat Control functions to automatically shut OFF the icemaker, when the ice storage Bin is filled and ice contacts the capillary tube. It also signals the RESTART of the icemaker, when the capillary tube starts to warm up, after ice has been removed from the Bin.

#### NOTE

*Bin thermostat control adjustment should ONLY be performed on icemakers installed in extreme warm or cold locations and adjust only in increments of one eighth turn of screw at a time.*

### B. COMPRESSOR START RELAY

The Compressor Start Relay functions to carry the Compressor line current. The relay is wired so any control in the pilot circuit, such as the Bin Thermostat, Low Pressure - and High Pressure Controls, etc., will cause the relay holding coil to be de-energized,

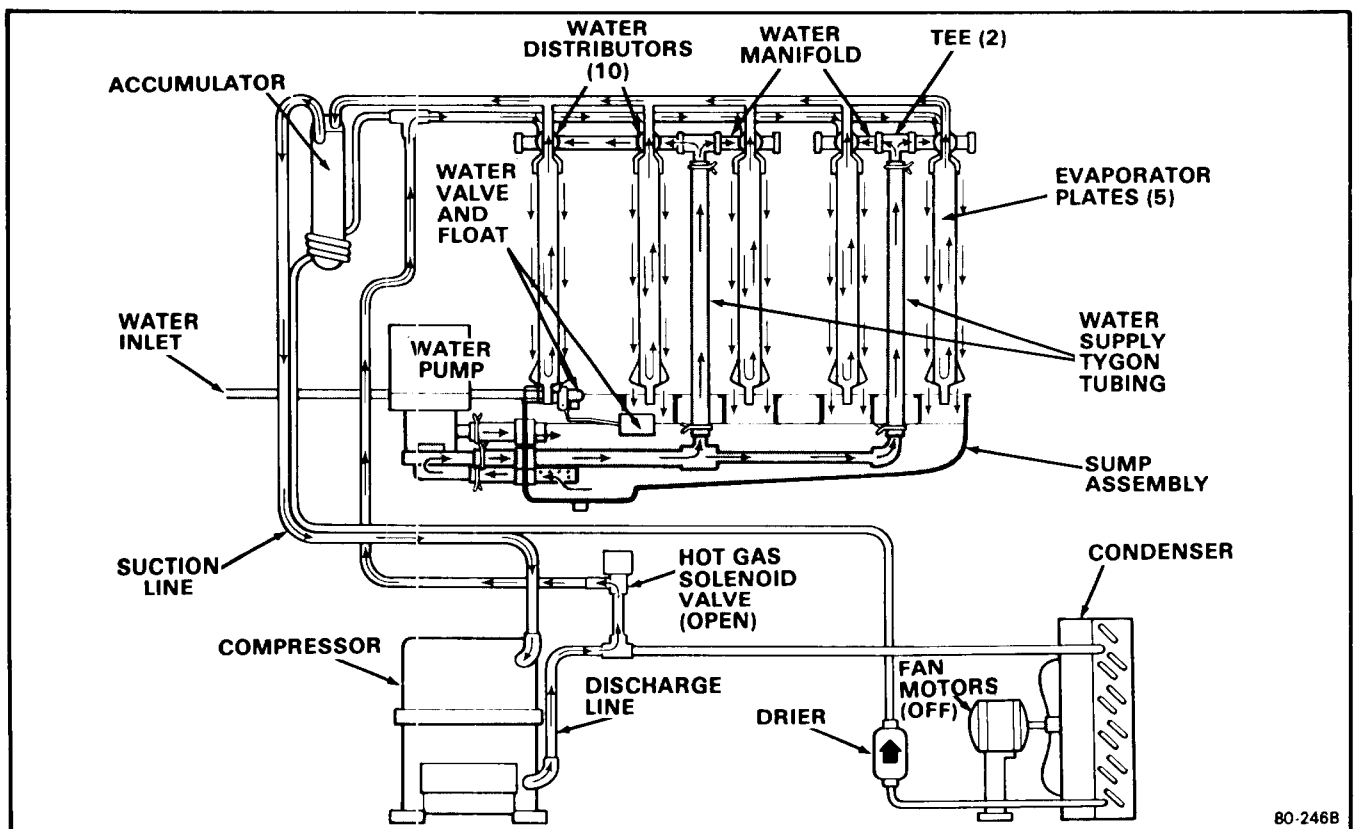


Figure 3-2. Harvest Cycle.



when the control contact OPENS, thereby breaking the circuit to the Compressor through the relay points.

### C. CUBE SIZE CONTROL

The temperature sensing Cube Size Control affects the length of the Freezing Cycle prior to initiating the Finishing Timer. The Cube Size Control closes its contacts when the Evaporator reaches a preset temperature, starting the Finishing Timer. A variation in either ambient air or incoming water temperature will affect the efficiency of the refrigeration system. This will vary the length of time it takes the Evaporator to reach the temperature at which the Cube Size Control is preset to CLOSE; which, in turn, will affect the overall cycle time.

#### NOTE

*Be sure to refer to procedure IV-I, Adjustment of the Cube Size Control, BEFORE attempting to adjust the control.*

### D. FINISH RELAY

The multi-function, three pole, double-throw, plug-in relay is installed directly into a receptacle on the printed circuit board in the Control Box. The relay functions, in part, to by-pass the Bin Thermostat Control to prevent the Icemaker from shutting OFF, when a filled-bin condition occurs, during the Freezing Cycle. The by-pass action serves to ensure full-sized ice cubes with each Harvest Cycle; and, to prevent short cycling on the Bin Thermostat Control.

### E. FINISHING TIMER - Timer & Switch Assembly

The function of the Finishing Timer begins when activated by the Cube Size Control. The outer surface, or large diameter lobe of the Timer cam, determines the Time Cycle for finish freezing of the ice cubes, while the inner surface, or small diameter lobe, determines the Time Cycle for the Harvest sequence. All electrical circuitry is connected through the printed circuit board and the Finishing Timer and shunted by the single-pole, double-throw microswitch to either the Freezing Cycle or the Harvest Cycle. The microswitch is actuated by a Cam Assembly directly connected to the Timer Motor. The Timer Cam can be adjusted to vary the defrost time, as required.

### F. HIGH PRESSURE CONTROL - Water-Cooled Model

The High Pressure Control, a safety control, is factory set at 250 PSIG. The control functions as a precautionary device, to shut OFF electrical power to the Icemaker, should a loss of water occur to the water-cooled Condenser. In addition to being a

manual reset Control, there is an adjusting screw for raising or lowering the CUT-IN pressure.

### G. HOT GAS SOLENOID VALVE

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

### H. WATER INLET FLOAT VALVE

The Water Inlet Float Valve functions to maintain the proper operating level of water in the Sump Assembly reservoir. As water pumped from the sump cascades over the Evaporator Plates and partially freezes to the Evaporator Plates, the Water Inlet OPENS to allow replacement water to enter the Sump Assembly reservoir. When the icemaker shuts OFF, the water level rises causing the Float to shut OFF the inlet makeup water.

### I. WATER DISTRIBUTION SYSTEM

The Water Distribution System functions to evenly supply water to all cells of the Evaporator Plates. The Water Pump pumps water from the Sump up two vertical Tygon tubes to two Tees, from there water is channeled through Water Manifolds to ten Water Distributors, two atop each Evaporator Plate, and from six holes within each Distributor, water is uniformly pressed against sheeting surfaces and to the cells of each side of the Evaporator Plates. Gravity flow returns the unfrozen excess portion of water to the Sump reservoir for recirculation.

### J. WATER REGULATOR VALVE - Water-Cooled Model

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

**NOTE**

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

**NOTE**

*Always CHECK NAMEPLATE on individual Icemaker for specific refrigerant charge, BEFORE charging the refrigeration system. CHECK NAMEPLATE for each Icemaker, especially when there are different Compressors.*

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## SECTION IV

### ADJUSTMENT, REMOVAL AND REPLACEMENT PROCEDURES

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

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

#### I. ADJUSTMENT OF THE CUBE SIZE CONTROL

**CAUTION**

**BEFORE** performing actual adjustment to the Cube Size Control, check other possible causes for cube size problems, refer to Section VI, **SERVICE DIAGNOSIS** for problem review and analysis. **DO NOT** perform adjustment when a new Cube Size Control is installed, until the control bulb has been properly installed in the tube well, on the refrigerant tube of the Platen Assembly and the Icemaker has progressed through several complete freezing and harvest cycles, to observe size and quality of ice cubes and whether or not a cube size problem exists.

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

##### A. To Produce LARGER Sized Ice Cubes:

1. Locate the Cube Size Control, in the left end of the 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 desired ice cube size is achieved.

##### B. To Produce SMALLER Sized Ice Cubes:

1. Locate the Cube Size Control, in the left end of the 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 desired ice cube size is achieved.

#### II. ADJUSTMENT OF THE TIMER & SWITCH ASSEMBLY

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

To Adjust the Timer Switch Assembly:

**A. HARVEST CYCLE:** To start, slowly rotate the shaft of the Timer & Switch Assembly, located in the Control Box, **CLOCKWISE**, until the actuator arm on the microswitch drops off of the outer cam into the cam slot. An audible click can be heard, but in a noisy area, look at the cam and switch to observe the event. See Figure 4-1.

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

## SECTION IV ADJUSTMENT, REMOVAL AND REPLACEMENT PROCEDURES

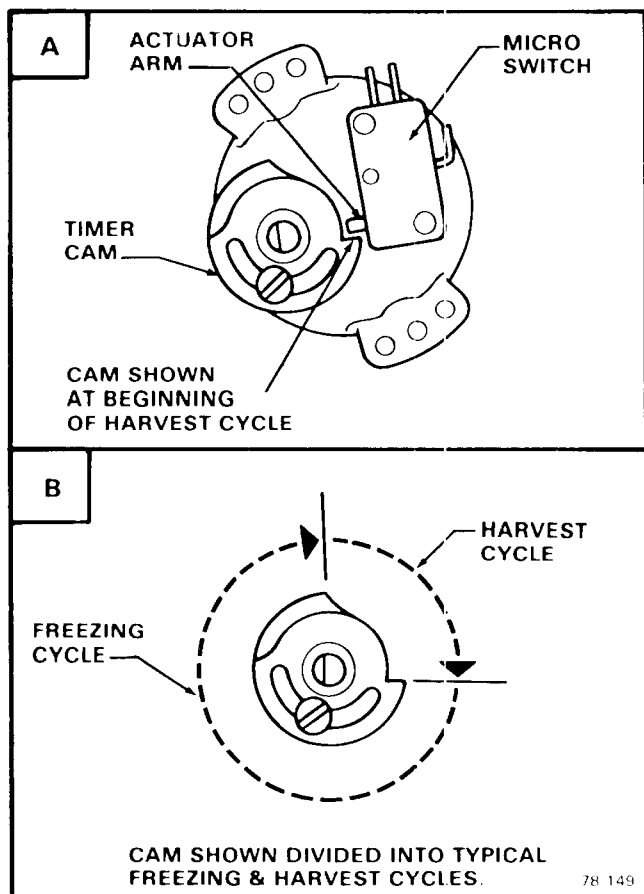


Figure 4-1. Adjustment of the Timer & Switch Assembly.

### III. ADJUSTMENT OF THE WATER REGULATOR ASSEMBLY — WATER-COOLED MODELS

The correct Compressor head pressure on Water-Cooled Models is 135 PSIG. Adjusting the Water Regulator Valve increases or decreases the rate of flow of water, through the Water-Cooled Condenser; which increases or decreases the affected temperature/pressure of the Compressor head pressure. INCREASED water flow, results in DECREASED or LOWER head pressure; while, DECREASED water flow, results in INCREASED or HIGHER head pressure.

To adjust the Water Regulator Assembly:

- A. To INCREASE the head pressure: Rotate the adjusting screw COUNTER-CLOCKWISE.
- B. To DECREASE the head pressure: Rotate the adjusting screw CLOCKWISE.
- C. Check change in Compressor head pressure, and repeat step A or B as necessary, to achieve desired operating head pressure.

### WARNING

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

### NOTE

For installations having stacked CM1200 Cubers mounted on a Bin, disregard steps to remove the Top Panel. Access to all areas and parts can still be gained through removal of the necessary Front, Side or Rear Panels.

### IV. REMOVAL AND REPLACEMENT OF THE BIN THERMOSTAT CONTROL

A. To remove the Bin Thermostat Control:

1. Remove screws and all Front Panels.
2. Remove two screws at the top of the Control Box and OPEN the hinged Cover downward.
3. Unthread the capillary tube and remove from the Bin Thermo Control Bracket at the bottom left side of the Evaporator section.
4. Remove two screws attaching the Bin Thermostat Control to the left end of the Control Box; then, carefully pull the capillary tube out of the Evaporator section through the cutout at the top center part of the left wall of the Evaporator section, and carefully remove the Bin Thermostat Control and capillary tube from the Control Box and refrigeration section of the Cabinet.

B. To replace the Bin Thermostat Control, reverse the removal procedure.

### V. REMOVAL AND REPLACEMENT OF THE COMPRESSOR ASSEMBLY

### NOTE

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

A. To remove the Compressor Assembly:

1. Remove screws and the top and left side panels.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Remove the cover from the terminal box on the Compressor; then, remove three screws and electrical leads from the Compressor.

## SECTION IV ADJUSTMENT, REMOVAL AND REPLACEMENT PROCEDURES

4. Remove four bolts and washers which secure the Compressor to the Chassis mounting base.
5. Remove the Compressor from the Cabinet.
- B. To replace the Compressor Assembly, reverse the removal procedure.

## VI. REMOVAL AND REPLACEMENT OF THE CONDENSER — AIR-COOLED MODELS

## NOTE

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

## A. To remove the Condenser:

1. Remove screws and the Left Side Panel and three Front Panels.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder and disconnect refrigerant lines from the Condenser.
4. Unsolder and remove the Drier from the refrigerant lines connecting to the Condenser.
5. Remove screws, lockwashers and the Condenser from the Chassis base.

- B. To replace the Air-Cooled Condenser, reverse the removal procedure.

## VII. REMOVAL AND REPLACEMENT OF THE CONDENSER—WATER-COOLED MODELS

## NOTE

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

## A. To remove the Condenser:

1. Remove screws and the three Front Panels.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Check to be sure building source water inlet supply shutoff valve to rear of Chassis is OFF.
4. Disconnect Water-Cooled Condenser inlet water line at the Water Regulator Assembly outlet fitting.
5. Unsolder the refrigerant capillary tube distributor line at the outlet end of the Drier, the refrigerant outlet line from the bottom of the Condenser, and remove the Drier from the lines.

6. Unsolder the Compressor discharge line, at the top of the Water-Cooled Condenser.
7. Unsolder the Condenser water outlet line, at the top of the Water-Cooled Condenser.
8. Remove two screws and washers and the Water-Cooled Condenser from the Cabinet.

- B. To replace the Water-Cooled Condenser, reverse the removal procedures.

## VIII. REMOVAL AND REPLACEMENT OF THE CUBE SIZE CONTROL

## A. To remove the Cube Size Control:

1. Remove screws and the three Front Panels and the Top Panel to gain access to the Cube Size Control.
2. Trace Capillary Tube, from the Cube Size Control, to the refrigerant suction line on the Evaporator Platen Assembly; then peel back the insulation.
3. Remove the coiled capillary tube bulb from the tube well on the suction line.
4. Remove electrical leads from the Cube Size Control.
5. Remove screws and the Cube Size Control.

- B. To replace the Cube Size Control, reverse the removal procedure.

## IX. REMOVAL AND REPLACEMENT OF THE DRIER

## NOTE

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

## A. To remove the Drier:

1. Remove screws and the Left Side Panel.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder refrigeration lines at both ends of the Drier, and remove the Drier.

## B. To replace the Drier:

## CAUTION

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

## SECTION IV ADJUSTMENT, REMOVAL AND REPLACEMENT PROCEDURES

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.
6. Replace and attach the Left Side Panel.

## X. REMOVAL AND REPLACEMENT OF THE EVAPORATOR PLATE ASSEMBLY — (FIVE)

## 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.*

## A. To Remove the Evaporator Plate:

1. Remove screws and the three Front Panels.
2. Bleed off or blow the refrigerant charge through the Schrader valve.

3. Remove hose clamp and rubber cap from bottom of Sump Assembly and drain all water. Replace rubber cap and hose clamp.
4. Slide three hose clamps off and unclamp Tygon tubes at left end of the Sump Assembly.
5. Remove Sump Covers.
6. Disconnect Tygon water inlet tube(s), at the Water Manifold Tee(s), above the Evaporator Plates.
7. Unsnap the Sump Assembly from the lower front and rear attachment points on each Evaporator Plate; then, CAREFULLY lower the RIGHT END of the Sump Assembly, to clear the bottom of the Plates, and work the connecting Tygon tubes OFF the LEFT end, and carefully remove the Sump Assembly so as not to split or break the plastic.
8. Slide the Water Distributor Tubes forward, about 1/8-inch along the top of the Evaporator Plate to be removed, until the rear Water Distributor Tube can be lifted upward. See Figure 4-2.
9. Lift the end of the rear Water Distributor Tube and slide the Distributors toward the rear along the top of the Evaporator Plate, until the flexible front notch is cleared.

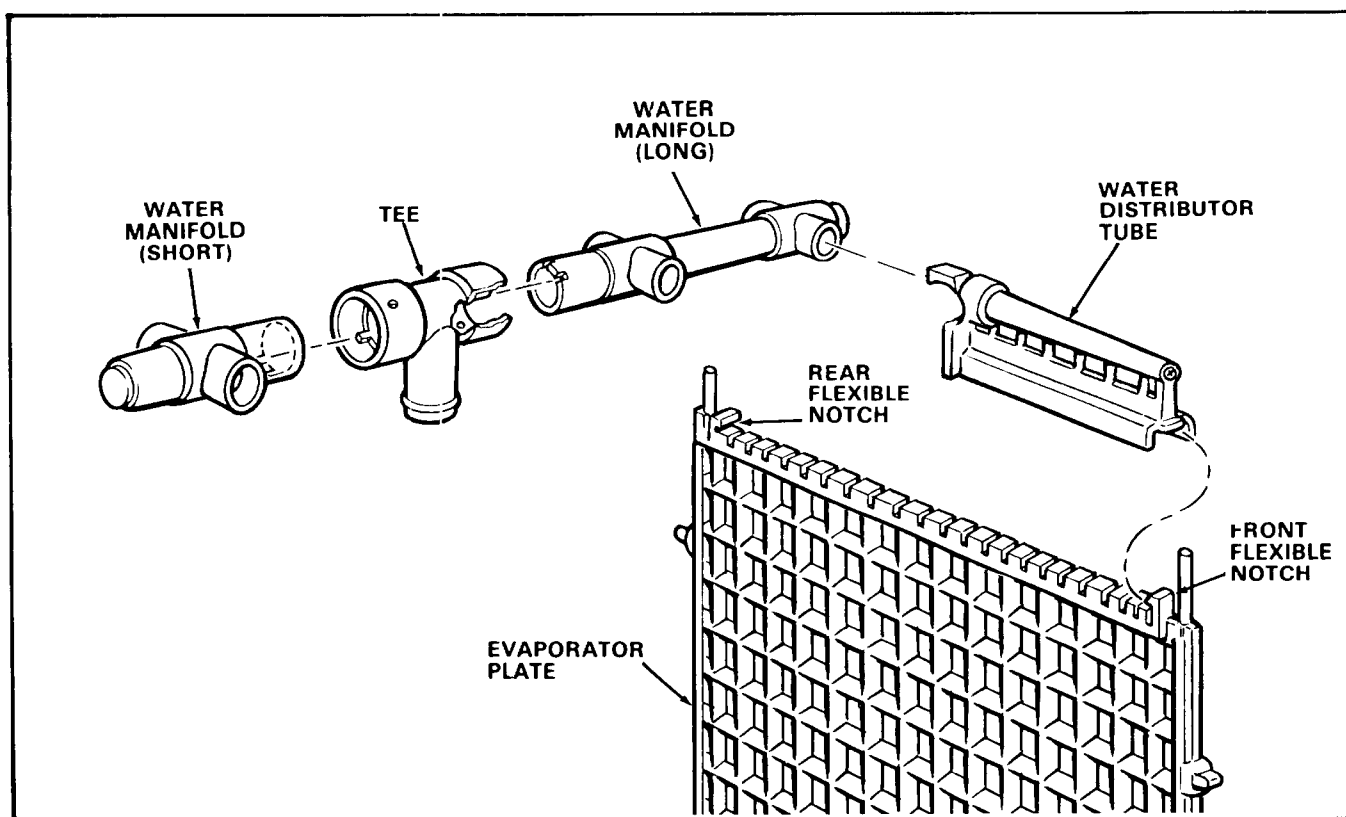


Figure 4-2. Removal of the Water Distributors, Manifold, Tees.

CM1200  
**SECTION IV ADJUSTMENT, REMOVAL AND REPLACEMENT PROCEDURES**

10. Unsnap and disconnect each front and rear Water Distributor Tube from the Water Manifold section.

**NOTE**

*If all ten Water Distributor Tubes are being removed, disconnect the Water Manifold Tubes at the Tee(s) and remove the connected Water Distributors and Water Manifold Tubes as larger assemblies, from the tops of the Evaporator Plates; then, disassemble the individual parts at the workbench.*

**CAUTION**

Use **EXTRA PRECAUTION** to protect the plastic parts during the next step to unsolder the refrigerant lines, two places, at the top of the Evaporator Plate. Position wet cloths over top of Plates, as well as over the plastic liner at the rear, or sides, to prevent accidental heat damage, or possible fire from torch flame.

11. Unsolder and remove the refrigerant lines at top front and rear of the Evaporator Plate to be replaced.
12. Carefully peel back gasket and remove screws at one end of the Front Braces, then, loosen the Braces just enough to remove the Evaporator Plate. Temporarily replace the Braces, to support the remaining Evaporator Plates.

- B. To replace the Evaporator Plate, reverse the removal procedure.

**XI. REMOVAL AND REPLACEMENT OF THE FAN MOTOR ASSEMBLY—AIR-COOLED MODELS - (TWO)**

- A. To remove the Fan Motor Assembly:

1. Remove screws and the Left Side Panel.
2. Disconnect the two electrical leads, from the Fan Motors, at the Control Box Assembly.

**NOTE**

*BEFORE next step, measure or make accurate mental note of the distance the Fan Blades extend beyond the Fan Shroud, so during replacement the correct distance is maintained.*

3. Remove screws and each Fan Motor and Bracket Assembly; and remove the Fan Motors and Brackets from the Chassis base.
4. Loosen set screws on the Fan Blade and remove the Fan Blade from the Fan Motor. Mark or note position of Blade on the shaft of the Fan Motor, for replacement.
5. Remove screws and lockwashers and separate the Fan Motor from the Fan Motor Bracket.

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

**NOTE**

*Be sure to replace the Fan Blade with the hub of the Fan Blade facing the Fan Motor, to ensure air flow is toward the Fan Motor; and, is set at marked location on shaft and setscrews tightened on the FLAT part of the shaft of the Fan Motor.*

**XII. REMOVAL AND REPLACEMENT OF THE INLET WATER VALVE ASSEMBLY**

- A. To remove the Inlet Water Valve Assembly:

1. Remove Sump Assembly as in paragraph IV-XIII.
2. Loosen and remove inlet water line fitting from the inlet Water Valve Assembly, at the bottom left of the LEFT END Evaporator Plate; and slide the fitting away from the connection, to gain access to the hex nut.
3. Remove the hex nut, above, to detach the inlet Water Valve Assembly from the Evaporator Plate.
4. Slide the Valve body and attached Float to the RIGHT, out of the double-D hole in the Evaporator Plate and remove the inlet Water Valve Assembly from the Plate.

- B. To replace the inlet Water Valve Assembly, reverse the removal procedure. Be sure the Valve body is properly positioned in the double-D hole and stays seated until the hex nut is tightened.

**XIII. REMOVAL AND REPLACEMENT OF THE SUMP ASSEMBLY**

- A. To remove the Sump Assembly:

1. Remove screws and the right Front Panel.
2. Remove hose clamp and rubber cap from bottom of Sump Assembly and drain all water. Retain rubber cap and hose clamp.
3. Slide three hose clamps off and unclamp Tygon tubes at left end of Sump Assembly.
4. Remove screws and all Sump Covers.
5. Disconnect the two Tygon tubes at the Water Manifold Tees above the Evaporator Plates.
6. Unsnap the Sump Assembly from the lower front and rear attachment points on each Evaporator Plate; then, CAREFULLY lower the RIGHT END of the Sump Assembly, to clear the bottom of the Plates, and work the connecting Tygon tubes OFF the LEFT end, and carefully remove the Sump Assembly so as not to split or break the plastic.

## SECTION IV ADJUSTMENT, REMOVAL AND REPLACEMENT PROCEDURES

7. Unscrew to disassemble three Female Tubes and O-Rings, from the outside of the Sump Assembly, connected to one Pump Pick-up Tube and two Male Tubes, installed from inside the Sump Assembly.

B. To replace the Sump Assembly, reverse the removal procedure. BE SURE the Pump Pickup Tube, lowest of three tubes, is installed with the slotted opening facing DOWN, toward bottom of Sump.

#### XIV. REMOVAL AND REPLACEMENT OF THE WATER DISTRIBUTOR TUBES AND MANIFOLD TUBES

A. To remove the Water Distributor Tubes and Manifold Tubes:

1. Remove screws and the lower Right Front Panel.
2. Slide the Water Distributor Tube to be removed, forward about 1/8-inch along the top of the Evaporator Plate, until the rear Water Distributor Tube can be lifted upward.
3. Lift the end of the rear Water Distributor Tube and slide the Distributors toward the rear along the top of the Evaporator Plate until the flexible front notch is cleared.
4. Unsnap and disconnect each front and rear Water Distributor Tube from the Water Manifold section.

##### NOTE

*If all ten Water Distributor Tubes are being removed, disconnect the Water Manifold Tubes at the Tee(s) and remove the connected Water Distributors and Water Manifold Tubes as larger assemblies, from the tops of the Evaporator Plates; then, disassemble the individual parts at the workbench.*

B. To replace the Water Distributor Tubes and Manifold Tubes, reverse the removal procedure. BE SURE the notches in the Water Manifold Tubes properly engage the alignment keys in the Tee(s). BE SURE each front Water Distributor Tube is securely fastened at the notch at the top front of the Evaporator Plate; and, check identical attachment for each rear Water Distributor Tube and notch; also, that the Distributor/Manifold connections at the top center of each Evaporator Plate is snug against the top of the Plate.

#### XV. REMOVAL AND REPLACEMENT OF THE WATER PUMP ASSEMBLY

##### NOTE

*This procedure is written to assist the serviceman in removing and replacing the Water Pump Assembly, in an air-cooled model, when an installation is built-in; or, has limited overhead space for working from the top. In an open area, removal of the Top Panel, or Left Side Panel, will provide easier access to the Water Pump Assembly.*

A. To remove the Water Pump Assembly:

1. Remove screws and three Front Panels.
2. Remove screws at each end of the Control Box and carefully pull the Control Box and attached wires out, and lay the Control Box on top of the Cabinet; or, let hang down in front of the Cabinet.
3. Remove three hose clamps connecting three Tygon Tubes to the left end of the Sump Assembly.
4. Disconnect electrical leads and ground wire from the Water Pump Assembly.
5. Remove two screws and washers, attaching the Water Pump Assembly to the Water Pump Bracket; then, work the Tygon Tubes loose from the Sump Assembly and remove the Water Pump Assembly.

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

#### XVI. REMOVAL AND REPLACEMENT OF THE WATER REGULATOR ASSEMBLY—WATER-COOLED MODELS

##### NOTE

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

A. To Remove the Water Regulator Assembly:

1. Remove screws and the Left Bottom Front Panel.
2. Check to be sure building source water inlet supply shutoff valve to rear of Chassis is OFF.
3. Bleed off or blow the refrigerant charge through the Schrader valve.
4. Disconnect water inlet supply line at the left bottom rear of the Chassis.
5. Disconnect water line at the inlet and outlet fittings on the Water Regulator Assembly.
6. Unsolder the Water Regulator Valve capillary tube from the Compressor refrigerant discharge line.
7. Remove two screws and the Water Regulator Assembly from the Chassis Base.

B. To replace the Water Regulator Assembly reverse the removal procedure.

## SECTION V

# MAINTENANCE & CLEANING INSTRUCTIONS

### I. GENERAL

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

### II. 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 that the CM1200 Cabinet is level, in the side-to-side and front-to-rear directions.
3. Clean the water system, Evaporator Plates and Sump Assembly, using a solution of SCOTSMAN Ice Machine Cleaner. Refer to Procedure V-III, CLEANING - Icemaker.

#### NOTE

*Cleaning requirements vary according to local water conditions and individual user operation. Continuous check of the clarity of ice cubes and visual inspection of the water system parts, Evaporator Plates and the Sump Assembly before and after cleaning will indicate frequency and procedure to be followed in local areas.*

4. Check that each Evaporator Plate Assembly is snug and secure on each wall support on the bin rear wall, in the holes of the Front Brace, and in each indent recessed in each arm of the Sump Assembly, below the bottom corners of the Evaporator Plates.
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 MASTER ON-OFF toggle switch and COMPRESSOR 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 should cause the icemaker to shut OFF at the end of the Harvest Cycle.

#### NOTE

*Soon after ice is removed from the Bin Thermostat Control bulb, the icemaker will restart.*

### III. CLEANING - Icemaker

#### NOTE

*During the cleaning procedures contaminated ice will be produced therefore all ice should be removed from the storage bin.*

1. Disconnect electrical supply to icemaker.
2. Remove lower left and right front panels then one piece liner covering freezing compartment and top panel.

#### NOTE

*Top panel is held by (6) screws, 2 on each end and middle.*

3. Turn both master and compressor toggle switches to the "Off" position.
4. Close water supply line shut off valve to icemaker.

#### NOTE

*On water-cooled models DO NOT shut off water supply to the condenser; only to the icemaker inlet float.*

5. Using plastic pail and hose clamp pliers remove hose clamp and rubber plug from underside of plastic sump. Catch all water and dispose.
6. Replace rubber plug and hose clamp.
7. Prepare cleaning solution in plastic pail. Mix 3 pints Scotsman cleaner with 9 pints fresh hot water.

### 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.**

8. Insert plastic funnel into corner of sump



## SECTION V MAINTENANCE AND CLEANING INSTRUCTIONS

assembly and pour all the cleaning solution into sump.

9. Restore electrical power to icemaker and move the master on-off switch toggle to the "On" position.
10. Allow the icemaker to operate in this mode for 30 minutes.
11. Move master on-off switch to "Off" stopping circulation.
12. Use hose clamp pliers to remove clamp and drain plug. Allow solution to drain into the empty storage bin. This helps to clean the drain lines.
13. Replace rubber drain plug only. Fill pail full of clean cold water and pour into sump assembly until sump is full.
14. Move master on-off switch to "ON" for 5 minutes then switch to "OFF". Remove sump drain plug and drain water into bin.
15. Repeat steps 13 and 14 once more to complete flushing operation. Replace clamp and drain plug.
16. Open water supply line shut off valve and allow 3 minutes for sump to fill and the float valve to shut off.
17. Move both the master and compressor toggle switches to the "ON" position. This will restore the normal icemaking cycle. Observe that evaporator plates receive full water flow.
18. Using a sponge and clean cold water, wipe down the storage bin interior.
19. Replace all panels removed in step #2.
20. Wipe bin door and surfaces with clean, cold water.
21. Using pail and clean warm water, melt all ice in the storage bin.

---

**CAUTION**

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**DO NOT use ice produced from the cleaning solution. Be sure none remains in the bin.**

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CM1200  
**SECTION VI**  
**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 chart lists corrective actions for the causes of known symptoms of certain problems that can occur in the Icemaking-Refrigeration System.

**I. ICEMAKING - REFRIGERATION SYSTEM**

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Irregular size cubes some cloudy.	Some distributor holes plugged.  Shortage of water.  Unit not level.	Clean distributor holes.  Clean water sump.  See Shortage of water CORRECTION.  Level cabinet, as required.
Cubes too large.	Dirty air-cooled condenser  Cube Size Control set too cold.  Loss of refrigerant.	Clean condenser.  Rotate Cube Size Control dial toward WARMER.  Check for refrigerant leaks, correct leaks; recharge system.
Cubes too small.	Cube Size Control set too warm.  Partially restricted capillary tube.  Moisture in refrigeration system.  Shortage of water.	Rotate Cube Size Control dial toward COLDER.  Blow refrigerant charge; replace drier; evacuate system; add proper refrigerant charge.  Same as above CORRECTION.  See Shortage of water CORRECTION
Cloudy Cubes.	Shortage of water.  Dirty water supply.  Accumulated impurities.	See Shortage of water SYMPTOM.  Install water filter or softener.  Use SCOTSMAN Ice Machine Cleaner. Procedure V-III.
Shortage of water.	Water leak in sump area.  Partial restrictions in water strainer.	Locate leak and correct condition.  Clean or replace strainer.

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SECTION VI SERVICE DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Decreased ice capacity.	<p>Restricted water flow to condenser.</p> <p>High head pressure, result of dirty Condenser or faulty Fan Motor.</p> <p>Non-condensable gas in the system.</p> <p>Poor circulation or extreme hot location.</p> <p>Overcharge of refrigerant.</p> <p>Hot gas solenoid valve leaking.</p> <p>Partially restricted capillary tube.</p> <p>Defective Compressor.</p>	<p>Restore proper water flow rate.</p> <p>Clean Condenser.</p> <p>Repair or replace Fan Motor.</p> <p>Purge the system and recharge per nameplate requirements.</p> <p>Relocate the cabinet; or provide ventilation by cutting openings.</p> <p>Slowly purge off to correct charge.</p> <p>Replace valve.</p> <p>See Cubes Too Small CORRECTION.</p> <p>Replace Compressor.</p>
Poor harvests. Icemaker does not harvest.	<p>Too short defrost time.</p> <p>Restriction in water inlet line.</p> <p>Hot gas solenoid does not open. Binds or burned out.</p> <p>Undercharge of refrigerant.</p> <p>Water pressure too low.</p>	<p>Check and adjust harvest cycle.</p> <p>Check strainer and flow check valve.</p> <p>Replace solenoid.</p> <p>Charge to nameplate requirements.</p> <p>Check for 20 PSI flowing water.</p>
Compressor cycles intermittently.	<p>Low voltage.</p> <p>Dirty Condenser.</p> <p>Air circulation blocked.</p> <p>Defective Fan Motor.</p> <p>Non-condensable gases in system.</p>	<p>Check for circuit overload.</p> <p>Check building supply voltage, if low, contact power company.</p> <p>Clean Condenser with vacuum cleaner or brush. DO NOT USE A. WIRE BURSH.</p> <p>Locate cabinet with adequate air space for proper air flow.</p> <p>Replace Fan Motor.</p> <p>Purge the system and recharge per nameplate requirements.</p>
Icemaker will not operate.	<p>Blown fuse in line.</p> <p>Master switch in OFF position.</p> <p>Low or loose at water pressure.</p> <p>Faulty Master switch.</p> <p>Timer contacts open.</p>	<p>Replace fuse and check for cause.</p> <p>Set switch to ON position.</p> <p>Restore water pressure—reset high pressure control.</p> <p>Replace switch.</p> <p>Replace Timer microswitch.</p>

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## SECTION VII

### WIRING DIAGRAMS

This Section is provided as an aid in understanding the electrical circuitry of the Modular Cuber:

#### **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.

The Wiring Diagrams in this Section are:

Figure 7-1. Wiring Diagram CM1200  
115/208-220/60/3-Air-Cooled.

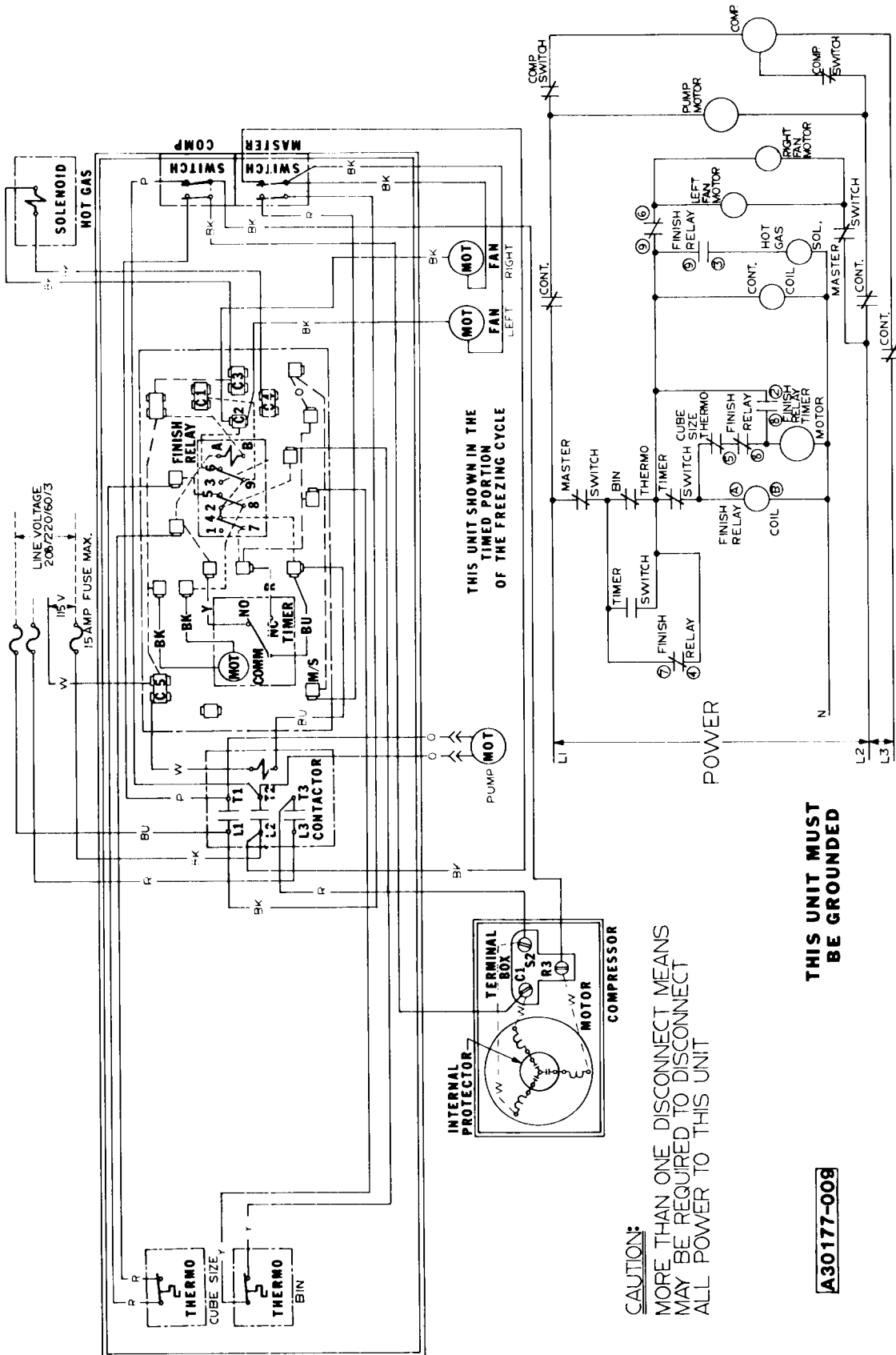
Figure 7-2. Wiring Diagram CM1200  
115/208-220/60/3 - Water-Cooled.

Figure 7-3. Wiring Diagram CM1200  
115/208-230/60/1 - Air-Cooled.

Figure 7-4. Wiring Diagram CM1200  
115/208-230/60/1 - Water-Cooled.

## CM1200

### SECTION VII WIRING DIAGRAMS



**Figure 7.1. Wiring Diagram CM1200 — Air-Cooled (115/208-220/60/3).**

## SECTION VII WIRING DIAGRAMS



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SECTION VII WIRING DIAGRAMS

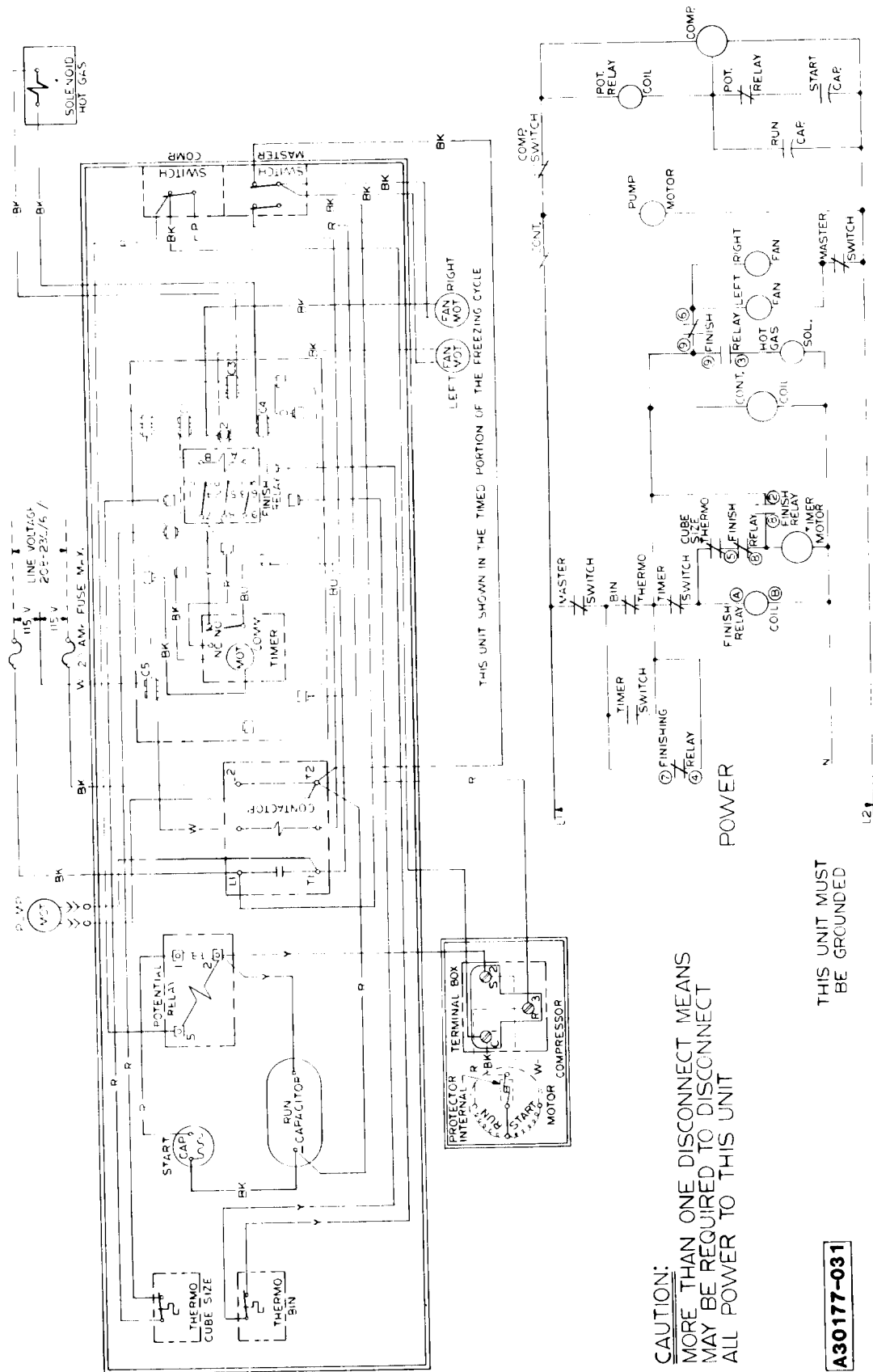


Figure 7-3. Wiring Diagram CM1200—Air-Cooled (115-208-230/60/1).

## SECTION VII WIRING DIAGRAMS



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## SECTION VIII

# THE PARTS ILLUSTRATIONS AND PARTS LISTS

### I. GENERAL

This section contains the Parts Illustrations and the Parts List for each of the major assemblies in the CM1200 Modular Cuber.

Each Parts Illustration shows an assembly as an exploded view, with an Index Number for each part or sub-assembly, given in disassembly order. These Index Numbers key with the Parts List for the assembly and are found in the Parts List Column headed Index Number. The Description Column gives the identifying nomenclature for the item indexed. The Part Number Required Column gives the number of items required per assembly, but not necessarily the total number of parts required per Cuber.

All assemblies are cross-referenced both from the major assembly listing where they first appear in the Parts Listing to their break-down listing, and from the break-down listing, back to the major assembly (next higher assembly) listing.

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.

When an Index Number is followed by a letter (e.g. 1a, 1b), the letter indicates the part listed is part of the assembly indexed by the basic Index Number. The number required of the part indexed by the number and letter combination is for only one of the assemblies indexed by the basic Index Number and not necessarily the

total number or parts used in the Cuber. Where the notation *Ref* occurs in the Number Required Column the number of the assemblies or parts required for use in the Cuber will be found under a previous Index Number or in the next higher assembly Parts Listing. The next higher listing Figure/Index number is shown in the Description Column immediately following the items description.

### II. HOW TO USE THE ILLUSTRATIONS AND PARTS LISTS

To find the part number of a required part or assembly, turn to the List of Illustrations and find the page number of the Parts Illustration of the major or sub-assembly containing the part. Turn to the indicated page and locate the part and its Index Number on the specific illustration. Find the Index Number on the required part in the Parts List to determine the complete description of the part.

### III. 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 Cuber for which the part is required, and for parts which require color matching, the color of the Cabinet.

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SECTION VIII THE ILLUSTRATED PARTS LISTING

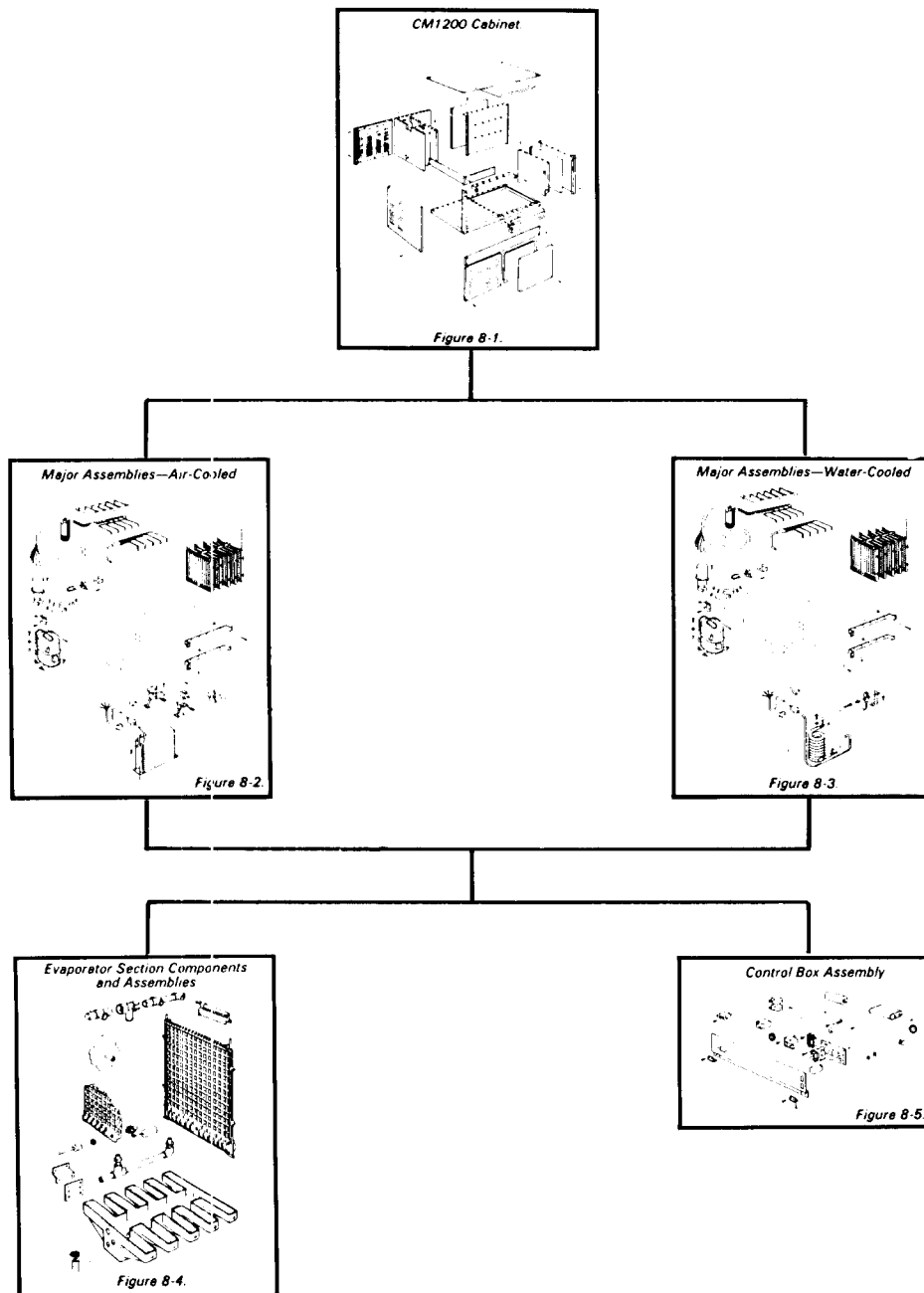


Figure 8-A. CM1200 Modular Cuber Flow Chart.

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SECTION VIII THE ILLUSTRATED PARTS LISTING

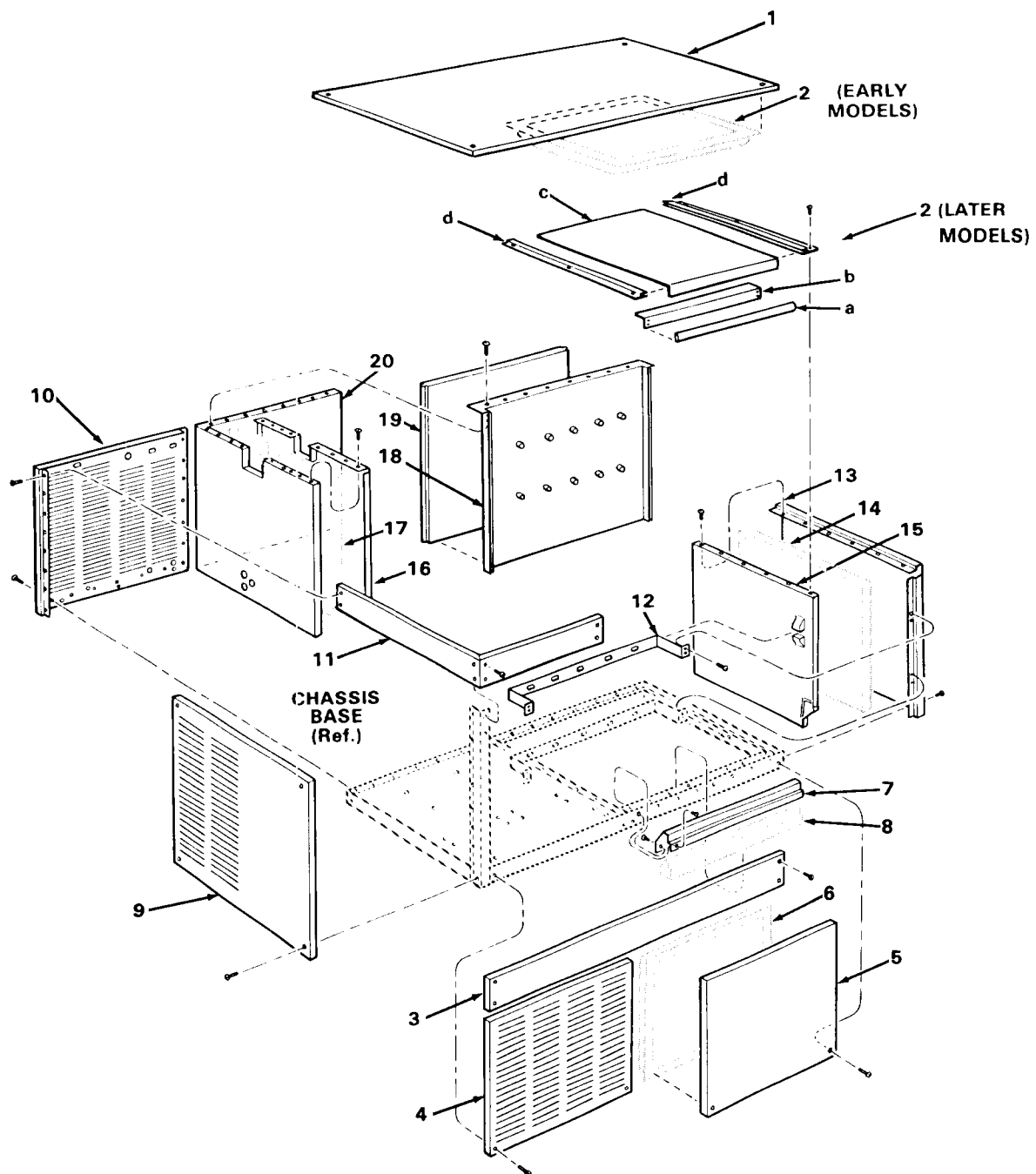


Figure 8-1. CM1200 Cabinet.

CM1200  
SECTION VIII THE ILLUSTRATED PARTS LISTING  
*Figure 8-1. CM1200 Cabinet.*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
	CM1200 Cabinet * * *	No Number	1
1	Panel, Top (C.R.S. Painted)	A29167-001	1
	Panel, Top (Stainless Steel)	A29167-002	1
	attaching parts, Index 1		
	Lockwasher, No. 8 External Tooth	03-1417-03	2
	Screw, No. 8 x 1 T/F Tap	03-1404-19	6
	* * *		
2	Liner, Top Panel Foam (EARLY MODELS) (Use bead of Silastic, SCOTSMAN P/N 19-0521-01) * * *	A29183-001	1
2	(LATER MODELS)		
a	Gasket	13-0595-00	A/R
b	Brace, Upper Front	A30330-001	1
	attaching parts, Index 2b		
	Screw, No. 8 x 1/2 stainless steel	03-1404-10	4
c	Top, Liner	A30329-001	1
d	Guide, Liner	02-2759-01	2
	attaching parts, Index 2d		
	Screw, No. 8 x 1/2 stainless steel	03-1404-10	6
3	Panel Assembly -- (Top Front) (C.R.S. Painted)	A29700-001	1
	Panel Assembly -- (Top Front) (Stainless Steel)	A29700-002	1
	attaching parts, Index 3		
	Lockwasher, No. 8 External Tooth	03-1417-03	2
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	3
	* * *		
4	Panel, Left Bottom Front (C.R.S. Painted)	A29173-001	1
	Panel, Left Bottom Front (Stainless Steel)	A29173-002	1
5	Panel, Right Bottom Front (C.R.S. Painted)	A29174-001	1
	Panel, Right Bottom Front (Stainless Steel)	A29174-002	1
	attaching parts, Index 4 & 5		
	Lockwasher, No. 8 External Tooth	03-1417-03	2 (4)
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	2 (4)
	* * *		
6	Liner, Lower Front Foam (Use bead of Silastic, SCOTSMAN P/N 19-0521-01) * * *	A29184-001	1

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**SECTION VIII THE ILLUSTRATED PARTS LISTING**

*Figure 8-1. CM1200 Cabinet (Cont'd)*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
7	Liner, Cap	02-2532-01	1
8	Insulation, Cap Liner	02-2552-01	1
	attaching parts, Index 8 & 9		
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	14
	* * *		
9	Panel, Left Side (C.R.S. Painted)	A29168-001	1
	Panel, Left Side (Stainless Steel)	A29168-002	1
	attaching parts, Index 9		
	Lockwasher, No. 8 External Tooth	03-1417-03	2
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	6
	* * *		
10	Panel, Back - Left (Galvanized)	A29318-001	1
	attaching part, Index 10		
	Screw, No. 8 x 1 T/F Tap	03-1404-19	12
	* * *		
11	Brace, Front Corner	A29170-001	1
	attaching part, Index 11		
	Screw, No. 8 x 1/2 T/F Tap	03-1404-09	8
	* * *		
12	Brace, Front	A29204-001	2
	attaching part, Index 12		
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	4 (8)
	* * *		
13	Panel, Right Side (C.R.S. Painted)	A29317-001	1
	Panel, Right Side (Stainless Steel)	A29317-002	1
	attaching parts, Index 13		
	Lockwasher, No. 8 External Tooth	03-1417-03	2
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	6
	* * *		
14	Insulation, Right Side	03-2536-01	1
	* * *		
15	Liner, Right Side	02-2534-01	1
	(Use bead of Silastic, SCOTSMAN P/N 19-0521-01)		
	attaching part, Index 15		
	Screw, No. 8 x 1/2 T/F Tap (Stainless Steel)	03-1404-10	18
	* * *		

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SECTION VIII THE ILLUSTRATED PARTS LISTING

*Figure 8-1. CM1200 Cabinet (Cont'd)*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
16	Liner, Left Side (Use bead of Silastic, SCOTSMAN P/N 19-0521-01) attaching part, Index 16 Screw, No. 8 x 1/2 T/F Tap (Stainless Steel) * * *	02-2533-01   03-1404-10	1   19
17	Insulation, Left Side * * *	02-2538-01	1
18	Liner, Back (Use bead of Silastic, SCOTSMAN P/N 19-0521-01) Screw, No. 8 x 1/2 T/F Tap (Stainless Steel) * * *	02-2531-01  03-1404-10	1  14
19	Insulation, Back * * *	02-2537-01	1
20	Retainer attaching parts, Index 20 Screw, No. 8 x 1/2 T/F Tap * * *	A29157-001  03-1404-09	1  15

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SECTION VIII THE ILLUSTRATED PARTS LISTING

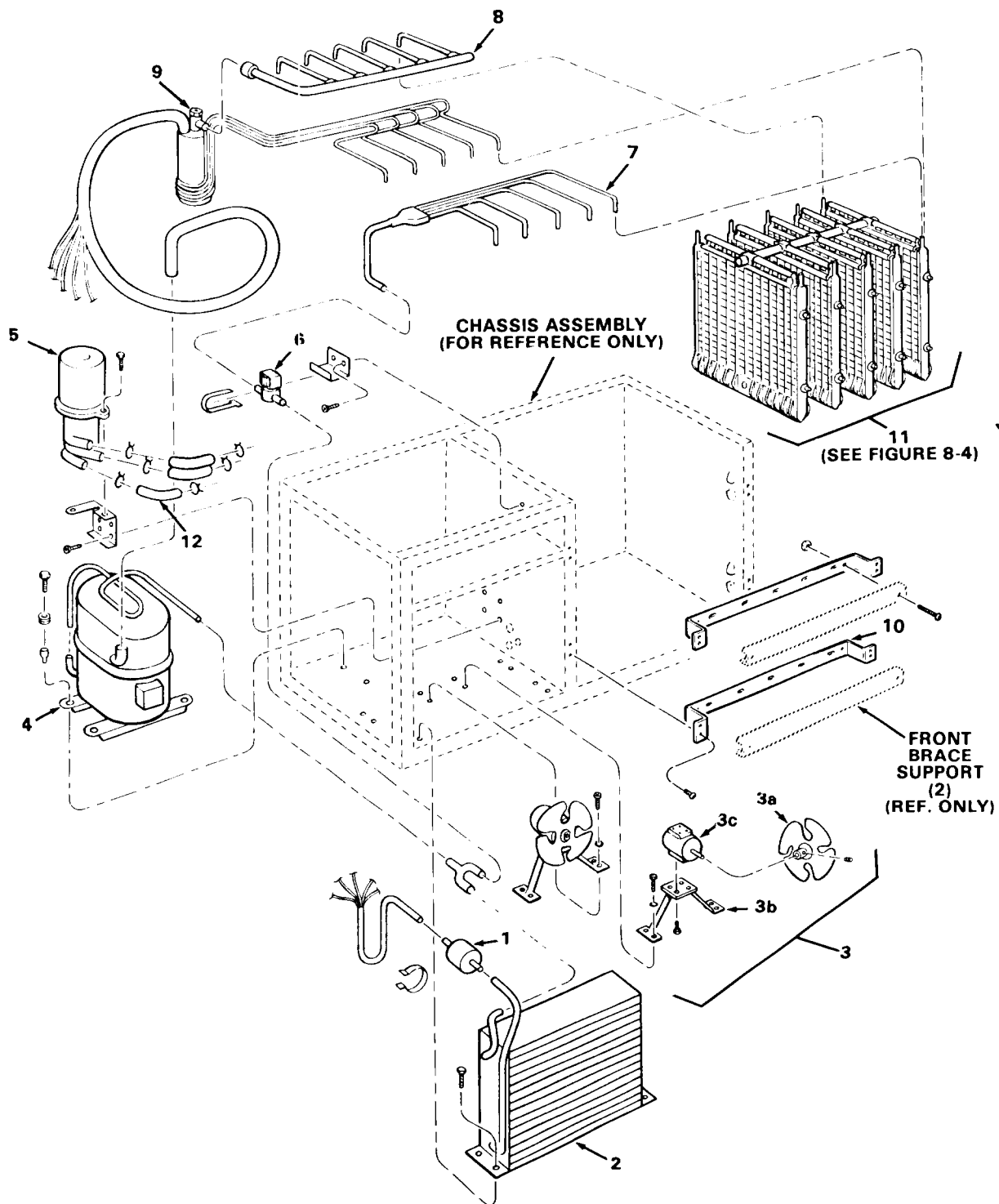


Figure 8-2. Major Assemblies — Air-Cooled

CM1200  
SECTION VIII THE ILLUSTRATED PARTS LISTING  
Figure 8-2. Major Assemblies — Air Cooled

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
	Major Assemblies — Air-Cooled * * *	No Number	Ref.
1	Drier attaching parts, Index 1 Bracket, Drier Screw, No. 8 x 1/2 T/F Tap * * *	02-2426-02 A09388-001 03-1404-09	1 1 1
2	Condenser — Air-Cooled attaching parts, Index 2 Screw, No. 1/4-20 x 1/2 T/C Hex Hd * * *	A29795-001 03-0571-00	1 4
3	Fan Motor & Mounting Bracket Assembly	No Number	1
3a	Blade, Fan w/setscrew	18-3732-01	1
3b	Bracket, Fan Motor Mounting	18-0597-00	1
3c	Motor, Fan attaching parts, Index 3 Screw, No. 1/4-20 x 1/2 T/C Hex Hd * * *	18-5105-01 03-0571-00	2 2 (4)
4	Compressor, COPELAND (115/208-230/60/1) Compressor, COPELAND (115/208-220/60/3) attaching parts, Index 4 Grommet Sleeve, Mounting Screw, No. 5/16-18 x 1-1/2 Hex Cap * * *	18-4300-02 18-4300-03 18-2300-27 18-2300-26 03-1405-20	1 1 4 4 4
4	Compressor, TECUMSEH (115/208-230/60/1) Compressor, TECUMSEH (115/208-220/60/3) attaching parts, Index 4 Grommet Sleeve, Mounting Screw, No. 5/16-18 x 1-1/2 Hex Cap * * *	18-3850-02 18-3850-03 18-2300-27 18-2300-26 03-1405-20	1 1 4 4 4
5	Pump Assembly, Water attaching parts, Index 5 Screw, No. 1/4-20 x 3/4 T/C Hex Hd * * *	A29829-001 03-0571-01	1 2



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SECTION VIII THE ILLUSTRATED PARTS LISTING  
*Figure 8-2. Major Assemblies — Air-Cooled (Cont'd)*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
6	Valve, Solenoid — Hot Gas	12-2146-01	1
	attaching parts		
	Bracket	No Number	1
	Screw, No. 8 x 1/2 T/F Tap	03-1404-09	2
	* * *		
7	Tube Assembly, Hot Gas	A29260-001	1
	* * *		
8	Manifold Assembly	A29272-001	1
	* * *		
9	Exchanger Assembly, Heat (Accumulator) For use with Copeland and Tecumseh compressors.	A30325-020	1
	* * *		
10	Brace, Front	A29204-001	2
	attaching parts, Index 10		
	Screw, No. 8 x 1/2 T/F Tap (Stainless)	03-1404-10	4 (8)
	* * *		
11	Evaporator Section Components & Assemblies (See Figure 8-4)	No Number	Ref.
	* * *		
12	Performed Hose	05-0521-01	3
	* * *		

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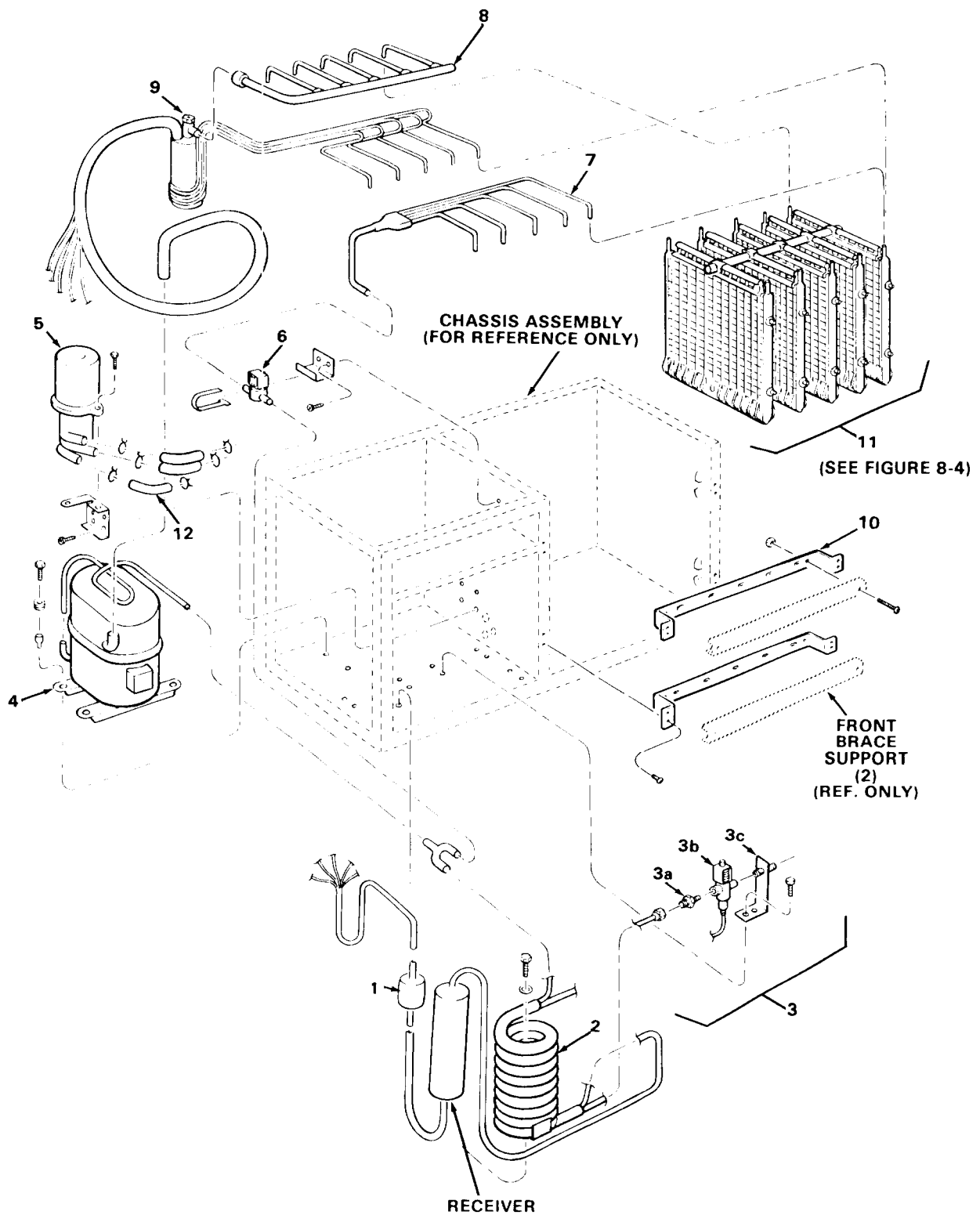


Figure 8-3. Major Assemblies — Water Cooled.

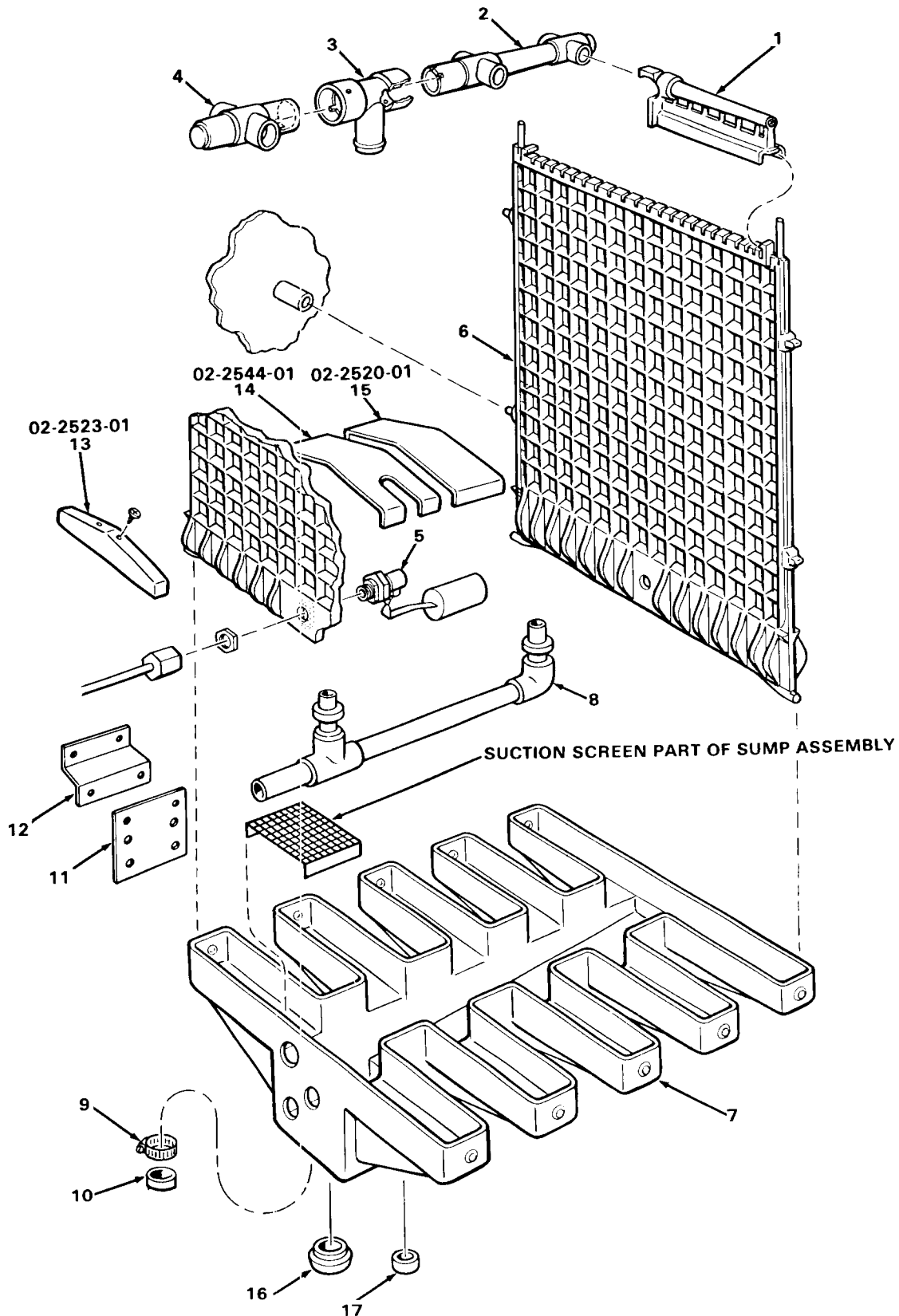
CM1200  
SECTION VIII THE ILLUSTRATED PARTS LISTING  
*Figure 8-3. Major Assemblies — Water Cooled*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
	Major Assemblies — Water-Cooled * * *	No Number	Ref.
1	Drier attaching parts, Index 1 Bracket, Drier Screw, No. 8 x 1/2 T/F Tap * * *	02-2426-02 A09388-001 03-1404-09	1 1 1
2	Condenser — Water-Cooled attaching parts, Index 2 Screw, No. 1/4-20 x 1/2 T/C Hex Hd * * *	18-3306-03 03-0571-00	1 2
3	Regulator Assembly, Water-Cooled attaching part, Index 3 Screw, No. 1/4-20 x 1/4 T/C Hex Hd	No Number 03-0571-00	1 2
3a	Coupling — 3/8 NPT x 3/8 Flare, Brass	16-0355-00	1
3b	Valve, Water Regulator	11-0198-02	1
3c	Bracket, Mounting — w/nipple * * *	A15924-000	1
4	Compressor, COPELAND (115/208-230/60/1) Compressor, COPELAND (115/208-220/60/3) attaching parts, Index 4 Grommet Sleeve, Mounting Screw, No. 5/16-18 x 1-1/2 Hex Cap * * *	18-4300-02 18-4300-03 18-2300-27 18-2300-26 03-1405-20	1 1 4 4 4
4	Compressor, TECUMSEH (115/208-230/60/1) Compressor, TECUMSEH (115/208-220/60/3) attaching parts, Index 4 Grommet Sleeve, Mounting Screw, No. 5/16-18 x 1-1/2 Hex Cap * * *	18-3850-02 18-3850-03 18-2300-27 18-2300-26 03-1405-20	1 1 4 4 4
5	Pump Assembly, Water attaching parts, Index 5 Screw, No. 1/4-20 x 3/4 T/C Hex Hd * * *	A29829-001 03-0571-01	1 2

CM1200  
SECTION VIII THE ILLUSTRATED PARTS LISTING  
*Figure 8-3. Major Assemblies — Water Cooled (Cont'd)*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
6	Valve, Solenoid — Hot Gas attaching parts Bracket Screw, No. 8 x 1/2 T/F Tap * * *	12-2146-01 No Number 03-1404-09	1 1 2
7	Tube Assembly, Hot Gas * * *	A29260-001	1
8	Manifold Assembly * * *	A29272-001	1
9	Exchanger Assembly, Heat (Accumulator) For use with Copeland and Tecumseh compressors. * * *	A30325-020	1
10	Brace, Front attaching parts, Index 10 Screw, No. 8 x 1/2 T/F Tap (Stainless) * * *	A29204-001 03-1404-10	2 4 (8)
11	Evaporator Section Components & Assemblies (See Figure 8-4) * * *	No Number	Ref.
12	Performed Hose * * *	05-0521-01	3

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SECTION VIII THE ILLUSTRATED PARTS LISTING



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Figure 8-4. Evaporator Section Components & Assemblies.

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*Figure 8-4. Evaporator Section Components & Assemblies.*

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
	Evaporator Section Components & Assemblies (See Figure 8-2 & 8-3 for next higher Assembly) * * *	No Number	Ref.
1	Tube, Water Distributor * * *	02-2527-01	10
2	Manifold, Water --- (Long) * * *	02-2521-01	1
3	Tee * * *	02-2519-01	2
4	Manifold, Water --- (Short) * * *	A29703-001	3
5	Valve Assembly, Water — (includes Float) attaching part, Index 5 Nut, Hex — (p/o Valve Assembly) * * *	02-2542-01	1
6	Plate, Evaporator (Holes drilled on both sides for attaching Sump Covers) * * *	A29428-020	5
7	Sump Assembly (includes suction screen) * * *	A29547-020	1
8	Water Tube, Sump * * *	A29730-001	1
9	Clamp * * *	02-1530-01	1
10	Cap, Sump * * *	13-0796-01	1
11	Bracket, Bin Thermo * * *	A30204-001	1
12	Bulb Holder * * *	A29762-001	1
13	Cover, End Sump * * *	02-2523-01	2
14	Cover, Sump * * *	02-2544-01	2
15	Cover, Sump * * *	02-2520-01	2
16	Plug-Rubber, Sump	13-0847-01	1
17	Plug, Drain		1

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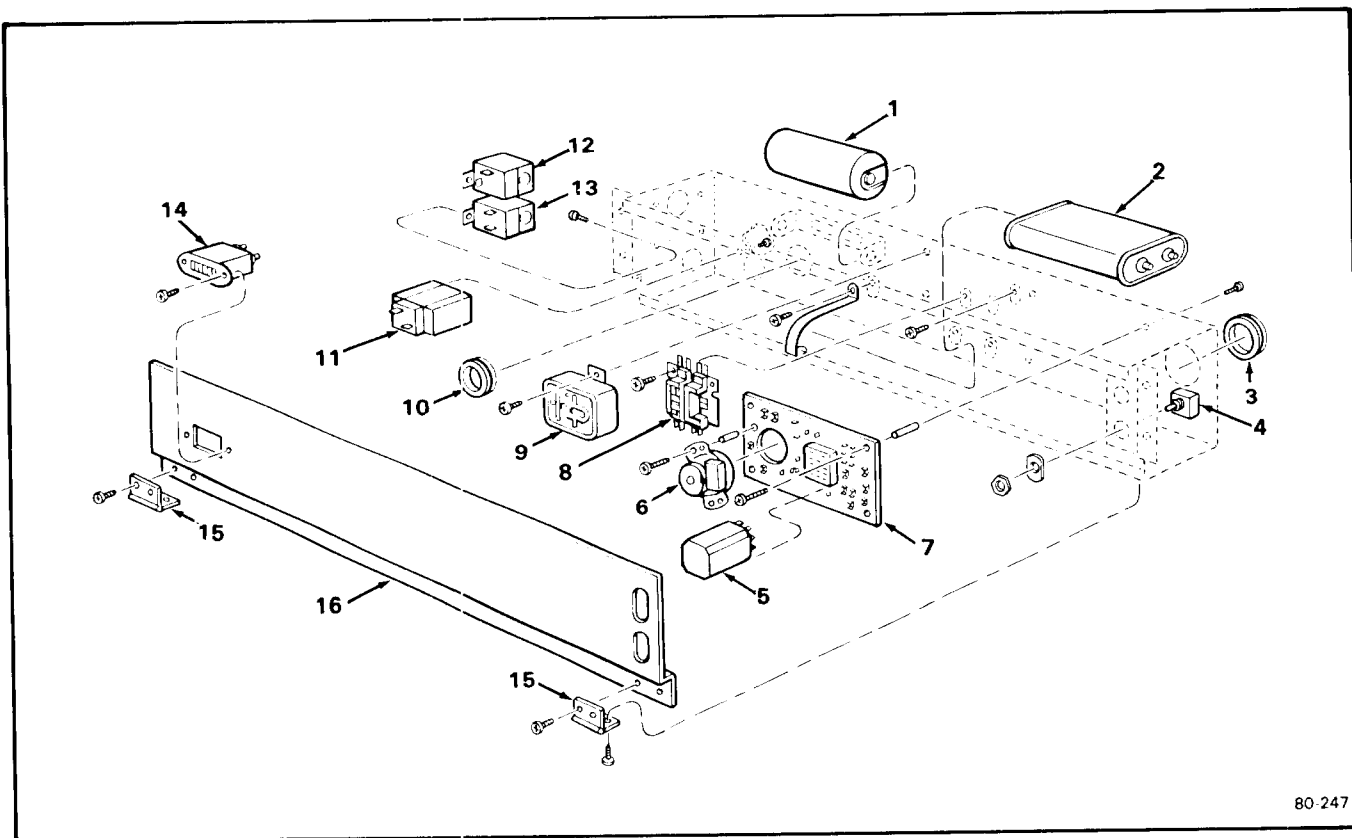


Figure 8-5. Control Box Assembly

INDEX NO.	DESCRIPTION	Air-Cooled: A/C Water-Cooled: W/C	A/C	W/C	PART NUMBER	PHASE	
						1 208 230 60	3 208 220 60
	Control Box Assembly (See Figure 8-2 & 8-3 for next higher Assembly) * * *		X	X	No Number	Ref.	Ref.
1	Capacitor, Start (COPELAND Compressor Models)		X	X	18-1901-23	1	—
1	Capacitor, Start (TECUMSEH Compressor Models) * * *		X	X	18-1901-40	1	—
2	Capacitor, Run (COPELAND Compressor Models)		X	X	18-1902-45	1	—
2	Capacitor, Run (TECUMSEH Compressor Models) attaching part, Index 2 Screw, No. 8-32 x 3/4 Phil Recess Pan Hd * * *		X	X	18-1902-50 03-1403-21	1 1	— —
3	Bushing, Snap * * *		X	X	12-1213-13	1	1
4	Switch, Toggle Switch, Toggle — (Top switch/Compressor) * * *		X X	X X	12-0426-01 12-2174-01	2 —	1 1

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SECTION VIII THE ILLUSTRATED PARTS LISTING  
Figure 8-5. Control Box Assembly (Cont'd)

INDEX NO	DESCRIPTION	Air-Cooled: A/C Water-Cooled: W/C	A/C	W/C	PART NUMBER	PHASE	
						1 208 230 60	3 208 220 60
5	Relay * * *		X	X	12-1879-02	1	1
6	Timer & Switch Assembly attaching parts, Index 6 Stand-Off — 7/8-inch lg. Screw, No. 6-32 x 1/4 Phil Recess Pan Hd * * *		X	X	12-1979-01 02-2242-01 03-1403-02	1 2 4	1 2 4
7	Board Assembly, Circuit attaching parts, Index 7 Stand-Off — 7/8-inch lg. Screw, No. 6-32 x 1/4 Phil Recess Pan Hd * * *		X	X	12-1912-01 02-2242-01 03-1403-02	1 5 5	1 5 5
8	Contactor Contactor attaching part, Index 8 Screw, No. 8-32 x 3/8 Phil Recess Pan Hd * * *		X	X	12-2037-01 12-0820-29 03-1403-17	1 — 2	— 1 2
9	Relay, Potential attaching part, Index 9 Screw, No. 6-32 x 3/8 Phil Recess Pan Hd Nut, Speed — J-Type * * *		X	X	18-1903-34 03-1403-04 03-1423-01	1 1 1	— — —
10	Bushing, Snap * * *		X	X	12-1213-17	1	1
11	Control Pressure attaching part, Index 10 Screw, No. 6-32 x 3/8 Phil Recess Pan Hd * * *		—	X	11-0388-02 03-1403-04	1 2	1 2
12	Thermostat, Bin		X	X	11-0419-01	1	1
13	Control, Cube Size attaching parts, Index 12 & 13 Screw, No. 8-32 x 3/16 Phil Recess Pan Hd * * *		X	X	11-0351-02 03-1403-14	1 4	1 4
14	Meter, Hour attaching part, Index 14 Lockwasher No. 4 (p/o Meter)		X	X	12-2058-C1 No Number	1 2	1 2



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SECTION VIII THE ILLUSTRATED PARTS LISTING  
Figure 8-5. Control Box Assembly (Cont'd)

INDEX NO.	DESCRIPTION	Air-Cooled: A/C Water-Cooled: W/C	A/C	W/C	PART NUMBER	PHASE	
						1 208 330 60	3 208 220 60
15	Screw, No. 4-40 x 3/8 (p/o Meter)		X	X	No Number	2	2
	Nut, No. 4-40 Hex (p/o Meter)		X	X	No Number	2	2
	* * *						
15	Hinge		X	X	03-2607-01	1	2
	* * *						
16	Cover, Control Box		X	X	A29307-001	1	1
	attaching parts, Index 15 & 16						
	Screw, No. 4 x 3/8 T/F Tap		X	X	03-1404-01	8	8
	* * *						