

Figure 2-2. Timer Cam Positions.

**NOTE**

During START UP, advancing two harvest cycles, with the Compressor OFF, allows a check that: the Water Inlet Solenoid Valve operates properly; the incoming water flows; the Reservoir is filled in preparation for the freezing cycle, and; checks the function of the overflow and drain.

7. When the second cycle is completed, move the Compressor ON-OFF toggle switch to the ON position.
8. Check that the Front Cube Chute is properly positioned: with the rear edge resting on the two Cube Chute Supports; is inclined downward to the front, and; is fastened at the bottom of the opening at the front of the Freezing Chamber.
9. Check that the plastic Curtain hangs down evenly outside the opening at the front of the Freezing Chamber.
10. Check operation of Freezing Cycle:
  - a. Compressor is in operation.
  - b. Water Pump is operating and water is being sprayed from Spray Tubes into inverted ice cups.

- c. Icemaking process begins: feeling inside ice cube cups reveals cold temperatures and very shortly ice begins to form.

**NOTE**

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

**WARNING**

**DO NOT** operate this Icemaker when the water supply is shut OFF, or is BELOW the recommended 20 PSI water pressure. Move the Master ON-OFF toggle switch underside of the Control Box to the OFF position immediately.

11. Observe first ice cube harvests:

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

**NOTE**

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

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

12. With the Icemaker in the Harvest Cycle, hold a handful of ice cubes on the Bin Thermostat Control Bulb to test shutoff. The ice should cause the Icemaker to shut OFF at the end of Harvest Cycle.

**NOTE**

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

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

## SECTION III

### PRINCIPLES OF OPERATIONS

#### How It Works

#### I. FREEZING CYCLE

Water from the sump in the Reservoir is pumped through the Water Manifold, which consists of a manifold Tube and four spray Bars attached to it. See Figure 3-1. Each stationary Spray Bar has three jets, Jet Spinners, through which water is sprayed into the inverted cube molds of the Freezer Assembly Evaporator. At the beginning of the Freeze Cycle the electrical circuit is completed to the Compressor, Water Pump, and the coil of the Finish Relay. The Water Pump operates continuously during the Freeze Cycle through contacts of the Finish Relay. In Water-Cooled models water also flows through the Condenser and out the drain. While in the Condenser water removes heat from the refrigerant and allows the refrigerant to condense from a gas to a liquid.

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

liquid refrigerant are lowered. The low pressure, low temperature liquid refrigerant, then enters the Evaporator. The refrigerant is warmed by water being sprayed against the Evaporator and begins to boil off, to become a gas. The refrigerant next travels through the Accumulator where any remaining liquid refrigerant then returns to the Compressor as a low pressure, low temperature gas and the cycle starts again.

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

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

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

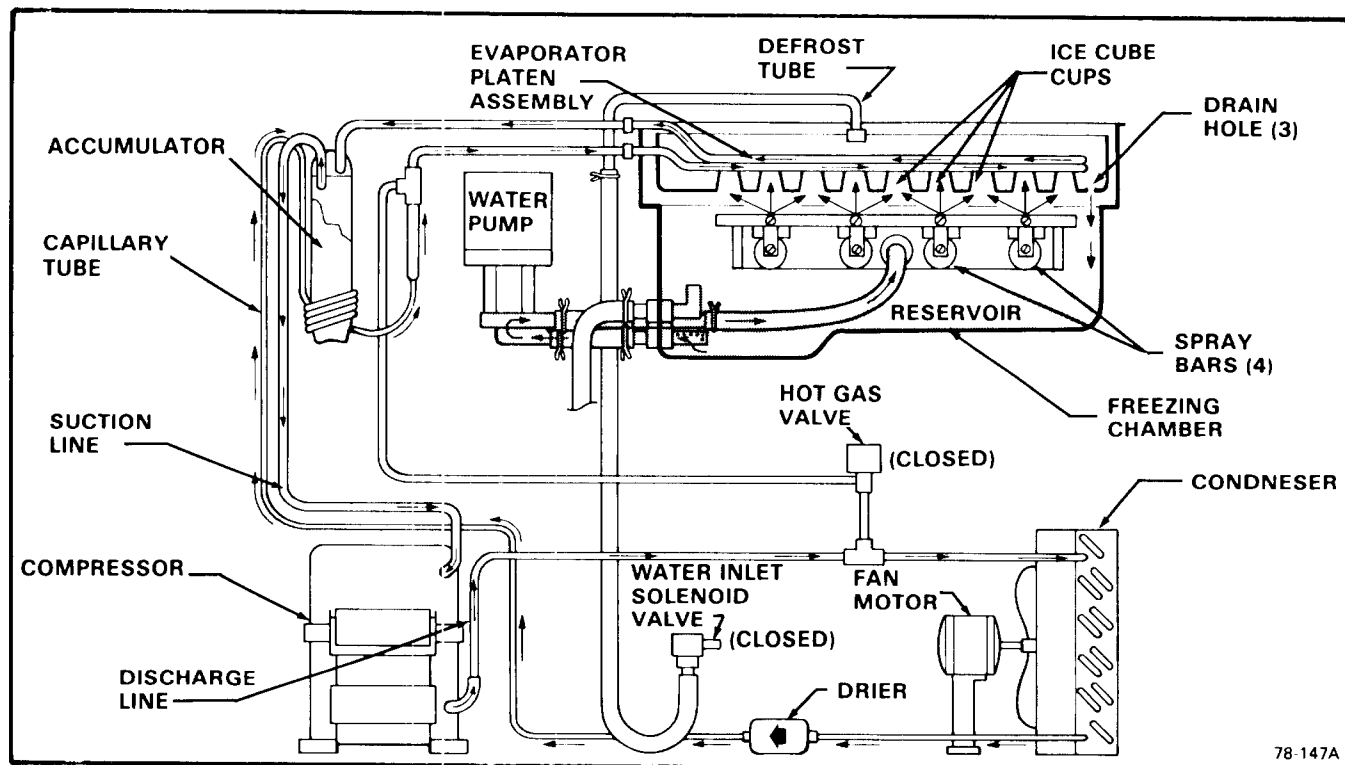


Figure 3-1. Freezing Cycle

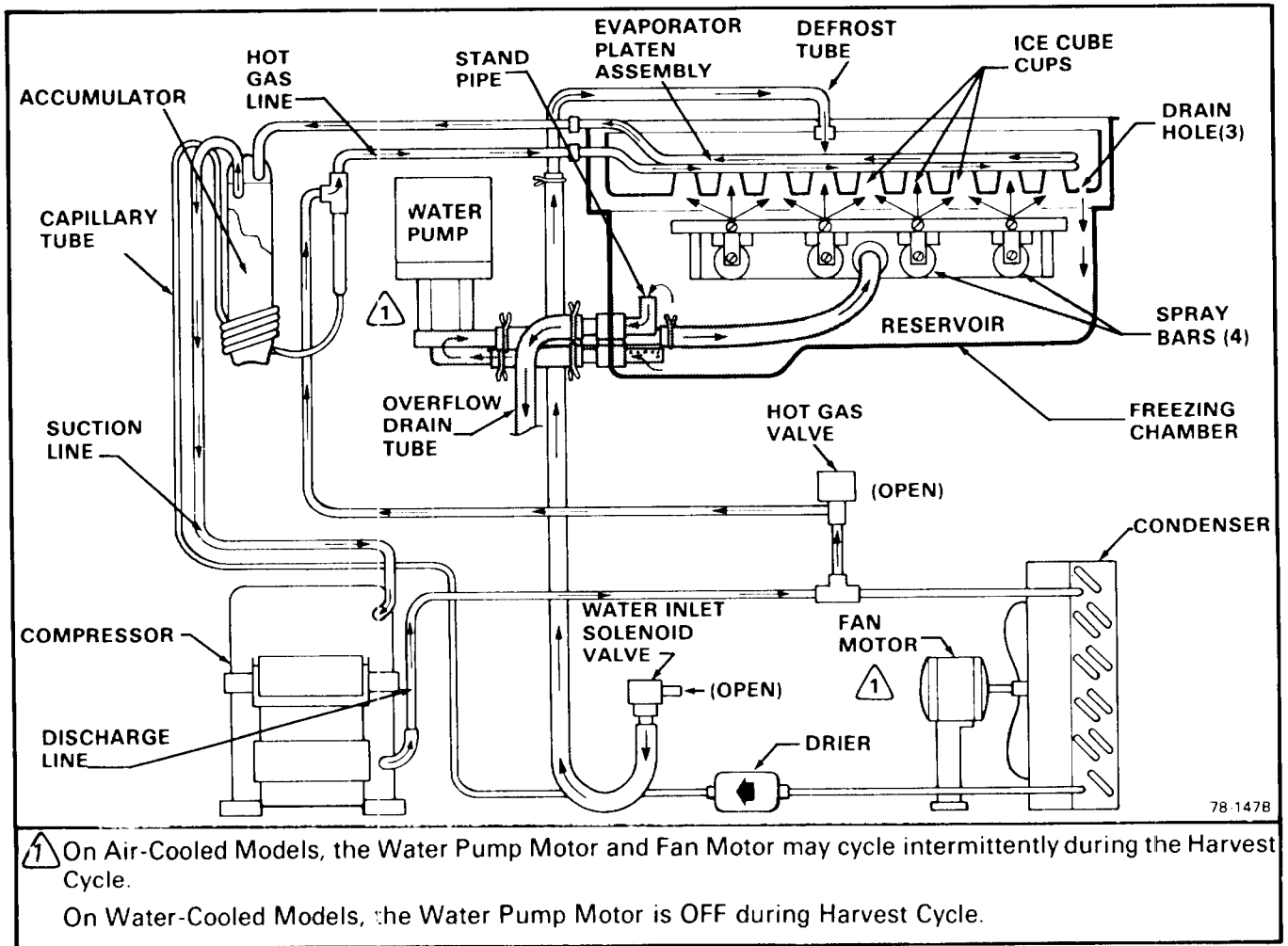


Figure 3-2. Harvest Cycle.

## II. HARVEST CYCLE

When the Timer switches the Icemaker into the Harvest Cycle, hot gas being discharged from the Compressor is diverted through the Hot Gas Solenoid Valve into the Evaporator. During this cycle, the hot gas circulates from the Compressor to the Evaporator and back again, bypassing the Condenser and capillary tube. In the electrical circuit, the Compressor is operating and both the Water Inlet Solenoid Valve and the Hot Gas Solenoid Valve are energized. See Figure 3-2. Opening the Water Inlet Solenoid Valve allows a fresh water supply to be discharged into the top of the Platen

Assembly Evaporator. The finished ice cubes are released from the Evaporator by the warming effect of the hot gas flowing through the Evaporator tubes and the water flow around the ice cube molds. The released ice cubes drop onto the slanted Front Cube Chute and into the ice storage bin. At the end of the two minute Harvest Cycle, the Timer cam will push the actuator arm of the microswitch IN. If the Bin Thermostat is still CLOSED, a whole new cycle will begin. If the Bin Thermostat is OPEN, the Icemaker will shut OFF at this time.

### III. FUNCTIONAL SEQUENCE - Air-Cooled Models

The AC-20 Automatic Cubers are designed to operate on 115 volts, 60 Hertz, single phase. Other voltage requirements are available on special order. Therefore, always CHECK NAMEPLATE for electrical information BEFORE proceeding with electrical wiring connections to the Icemaker.

The following text and associated wiring diagrams describe the sequential series of events as they occur in Air-Cooled Model AC-20 Cubers, during the modes of initial STARTUP, the Freezing Cycle, the Harvest Cycle, and the significant changes in switch positions and contact points during those cycles.

#### A. FREEZING CYCLE - START MODE

(See Figure 3-3)

The Bin Thermostat is CLOSED, signalling the call for ice. The Finish Relay Coil is energized through the N/O contacts of the Timer Switch and the Bin Thermostat; contacts 7-4, 8-5, and 9-6 of the Finish Relay CLOSE. A circuit is made through the CLOSED 9-6 contacts of the Finish Relay, to the Pump Motor and Fan Motor. The Bin Thermostat circuit energizes the Compressor Relay. The CLOSED 7-4 contacts of the Finish Relay provide a lockout, parallel circuit, so, once the cycle has begun, if the Bin Thermostat were to OPEN, the Freezing Cycle would continue to function through the 7-4 contacts of the Finish Relay. See Figure 3-4.

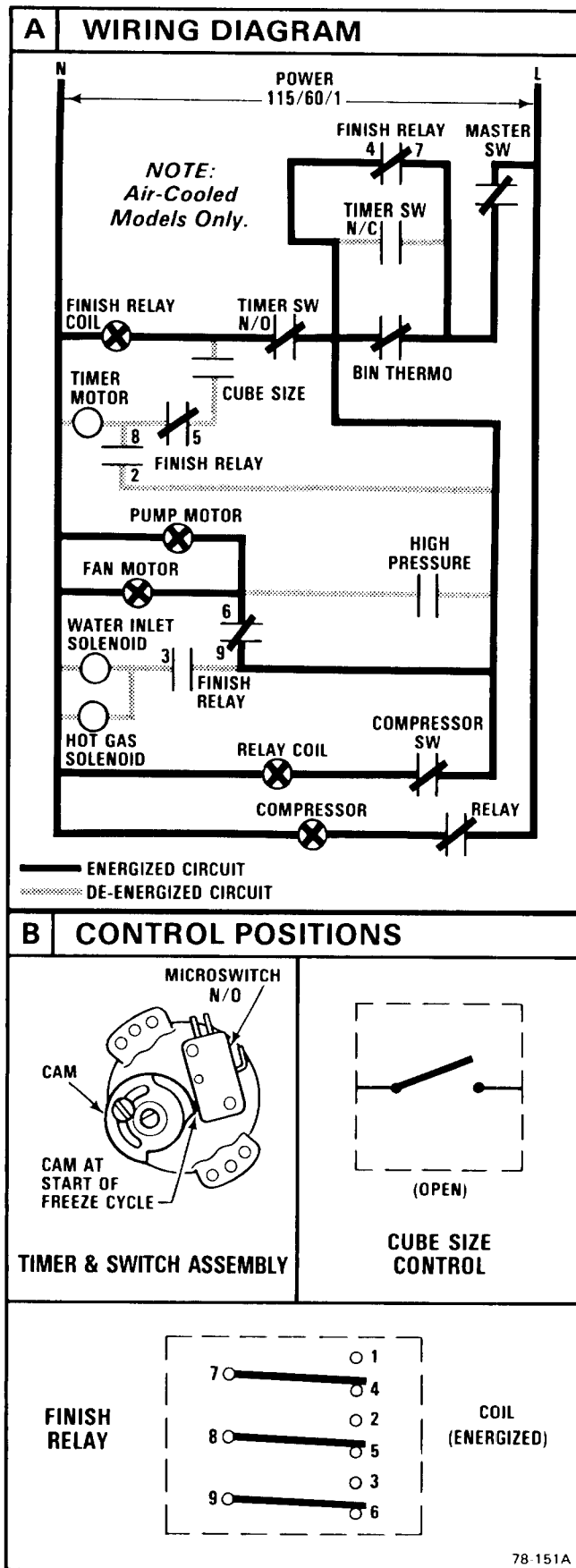
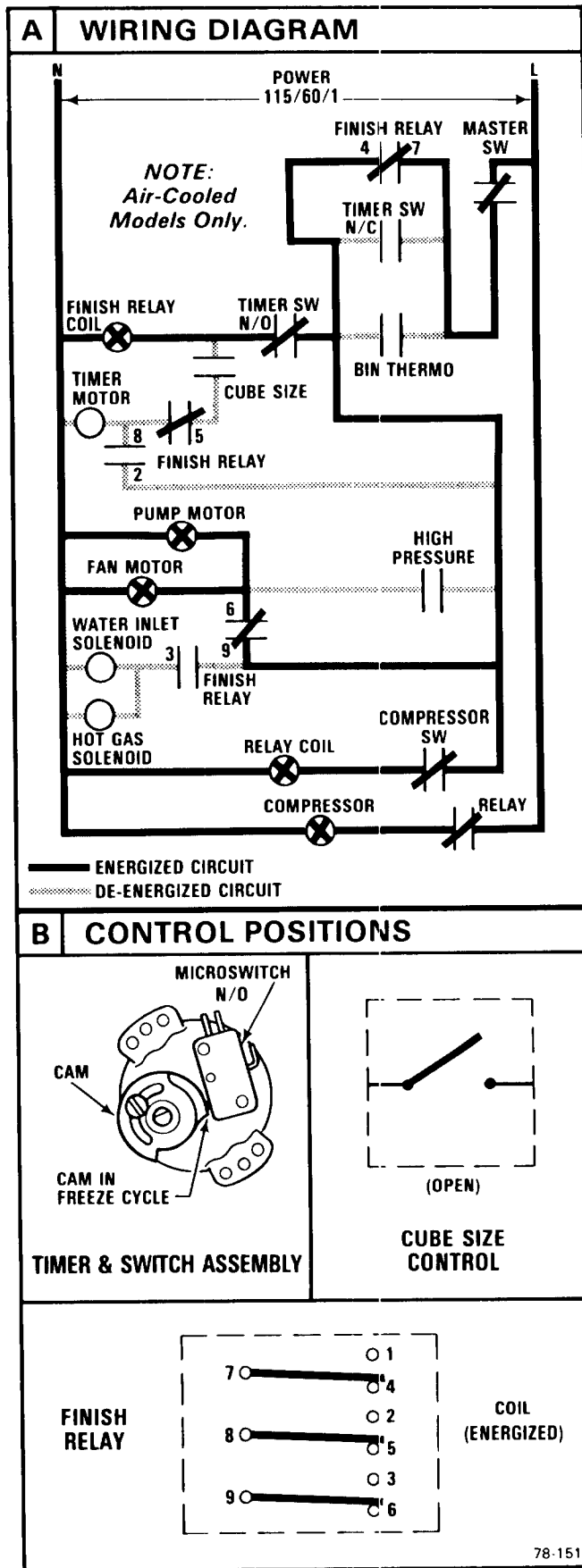


Figure 3-3. Freeze Cycle - START Mode



**B. FREEZING CYCLE - TIMED MODE**

(See Figure 3-5)

As the Freezing Cycle progresses, the Evaporator temperature decreases. When the Capillary bulb of the Cube Size Control, installed on the outlet line of the Evaporator, senses a preset temperature, the contacts of the Cube Size Control CLOSES. A circuit to the Timer Motor is made through the 8-5 contacts of the Finish Relay, the Cube Size Control, the CLOSED N/O contacts of the Timer Switch and the Bin Thermostat. If the Bin Thermostat were to OPEN, the Timer Motor would continue to operate through the lockout, parallel circuit provided by the 7-4 contacts of the Finish Relay. See Figure 3-6. The Water Pump, Condenser Fan Motor and the Compressor remain ON.

Figure 3-4. Freeze Cycle - START Mode, with Bin Thermo OPEN.

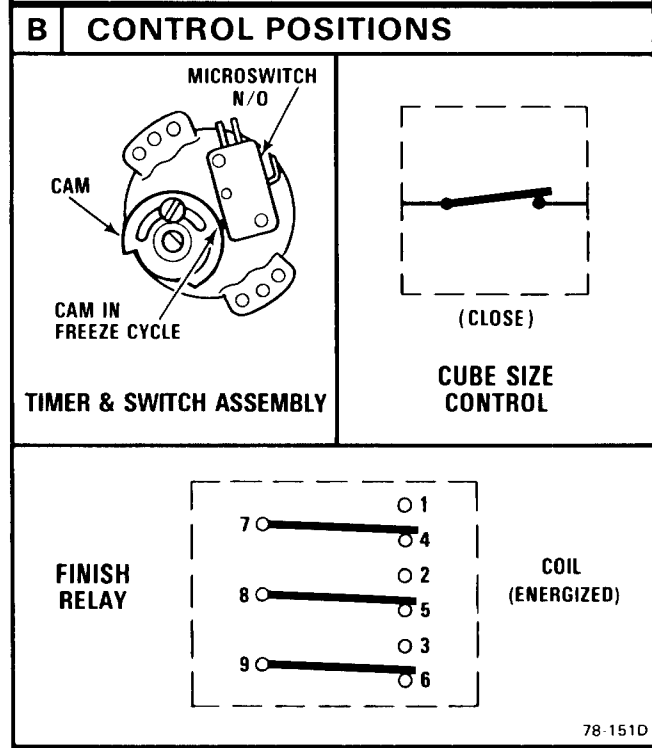
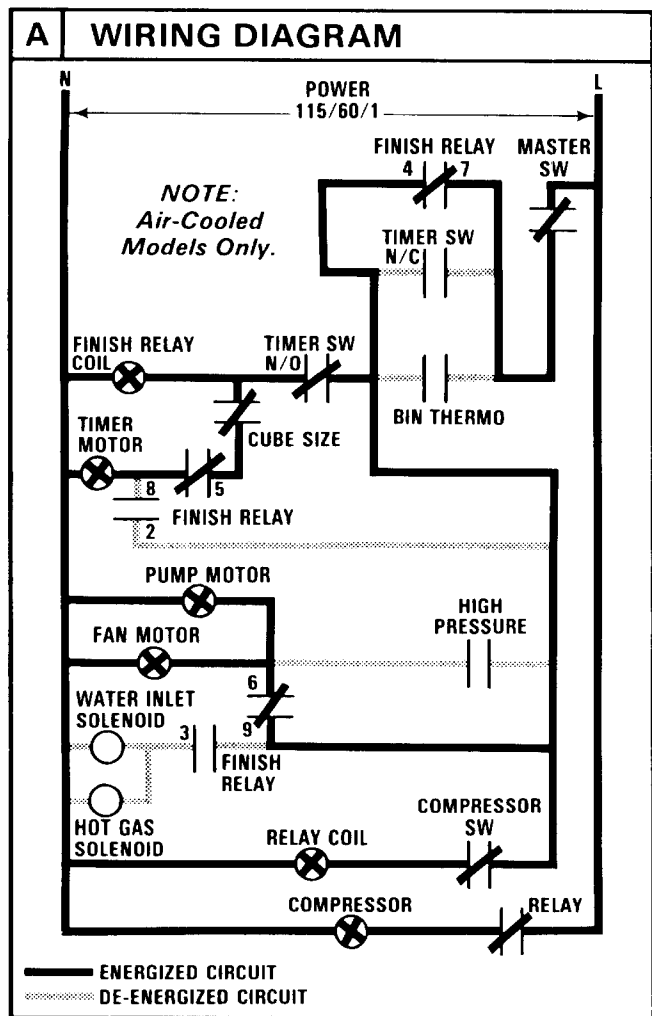
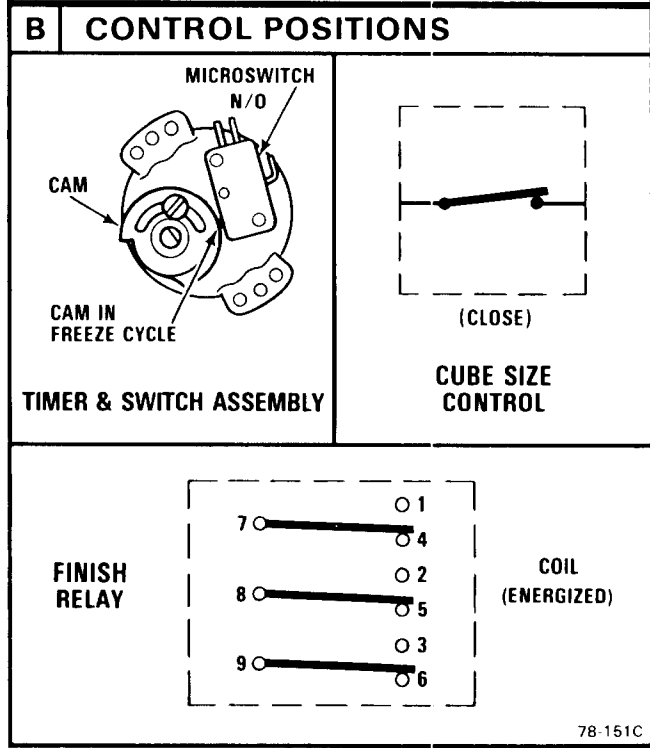
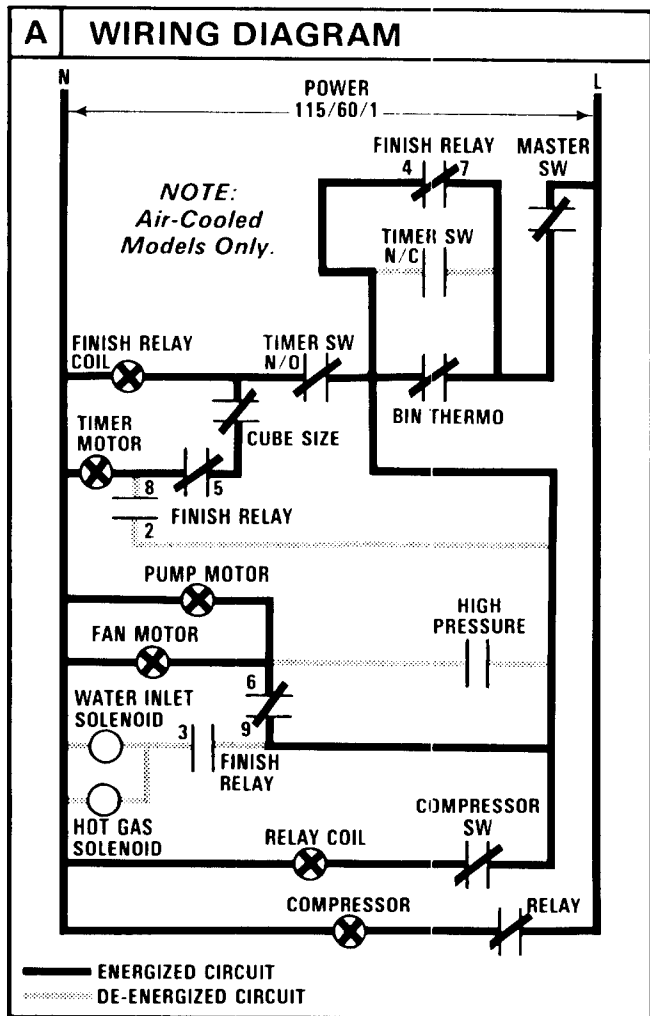


Figure 3-5. Freeze Cycle - Timed Mode

Figure 3-6. Freeze Cycle - Timed Mode, with Bin Thermo OPEN.

### C. HARVEST CYCLE MODE

(See Figure 3-7)

The Timer cam has advanced to the point when the actuator arm of the Timer Micro-switch drops into the Cam slot, which OPENS the N/O contacts and CLOSES the N/C contacts of the microswitch; this OPENS the 7-4, 8-5 and 9-6 contacts of the Finish Relay, while CLOSING the 8-2 and 9-3 contacts. The Timer Motor will continue to operate through the 8-2 contacts of the Finish Relay and the CLOSED N/C contacts of the Timer Switch. The Water Inlet Solenoid Valve and the Hot Gas Solenoid Valve are energized through the CLOSED 9-3 contacts of the Finish Relay and the CLOSED N/C contacts of Timer Switch. The Water Pump motor and the Fan Motor may cycle intermittently during the Harvest Cycle, through contacts of the High Pressure Fan Control. The Compressor continues to operate through the Bin Thermostat circuit. The N/C contacts of the Timer Switch provide a lockout, parallel circuit to prevent the icemaking system from shutting OFF, should the Bin Thermostat OPEN before the Harvest Cycle is completed. See Figure 3-8. The Timer cam continues to advance to the position to push the actuator arm of the Timer microswitch IN.

THEN:

1. If the Bin Thermostat contacts are CLOSED, the Freezing Cycle will START again. See Figure 3-3.
2. If, the Bin Thermostat is SATISFIED and the contacts are OPEN, the Finish Relay CANNOT re-energize and the system shuts OFF. See Figure 3-9.

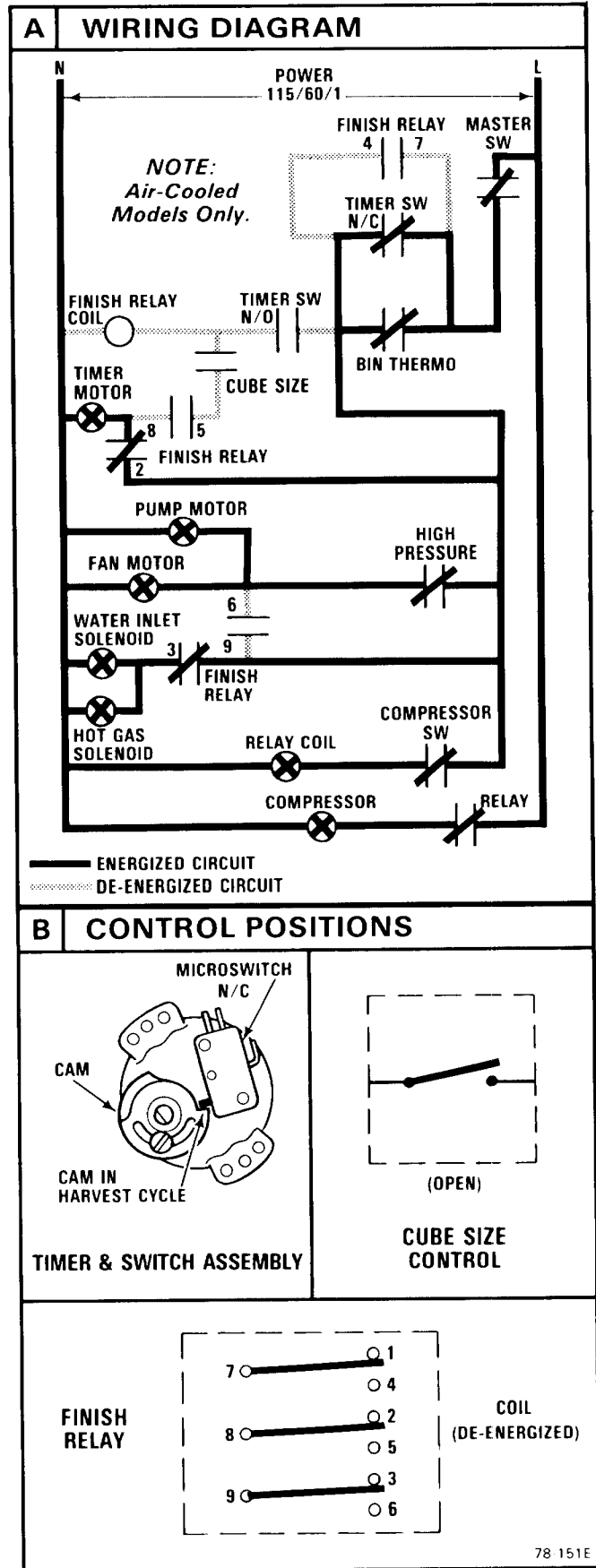


Figure 3-7. Harvest Cycle Mode

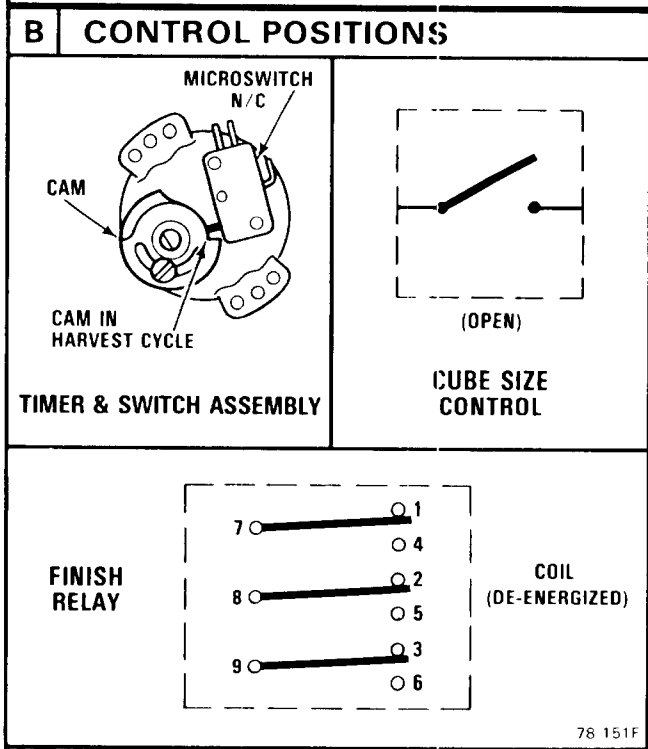
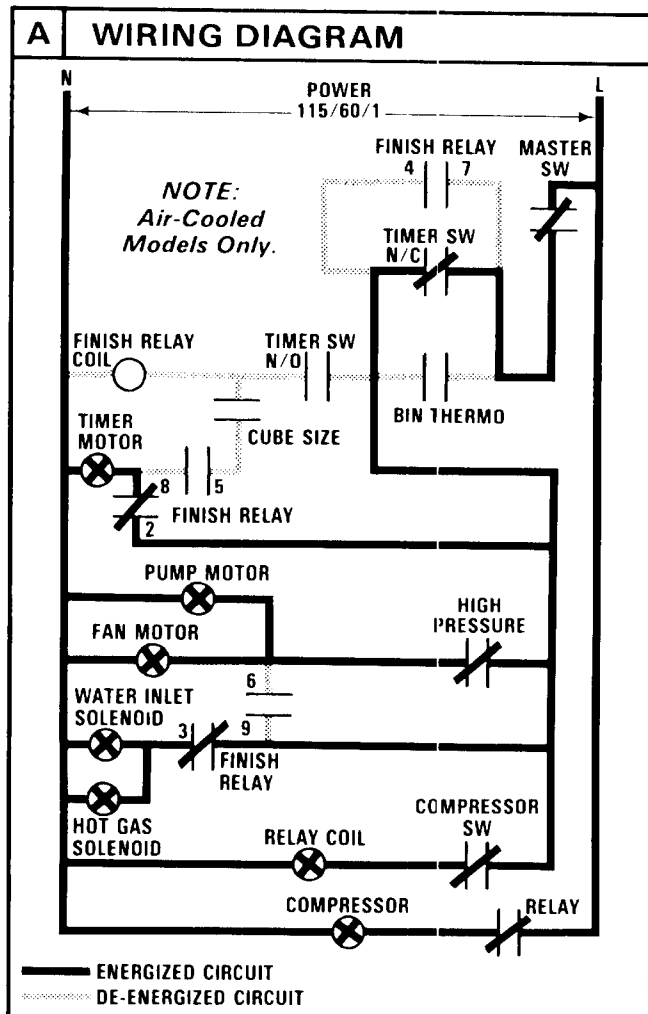


Figure 3-8. Harvest Cycle Mode - with Bin Thermo OPEN

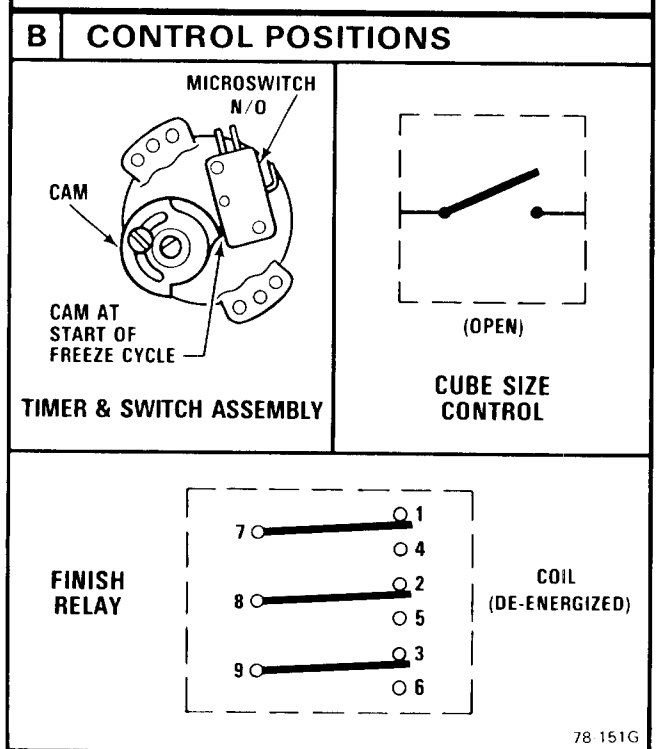
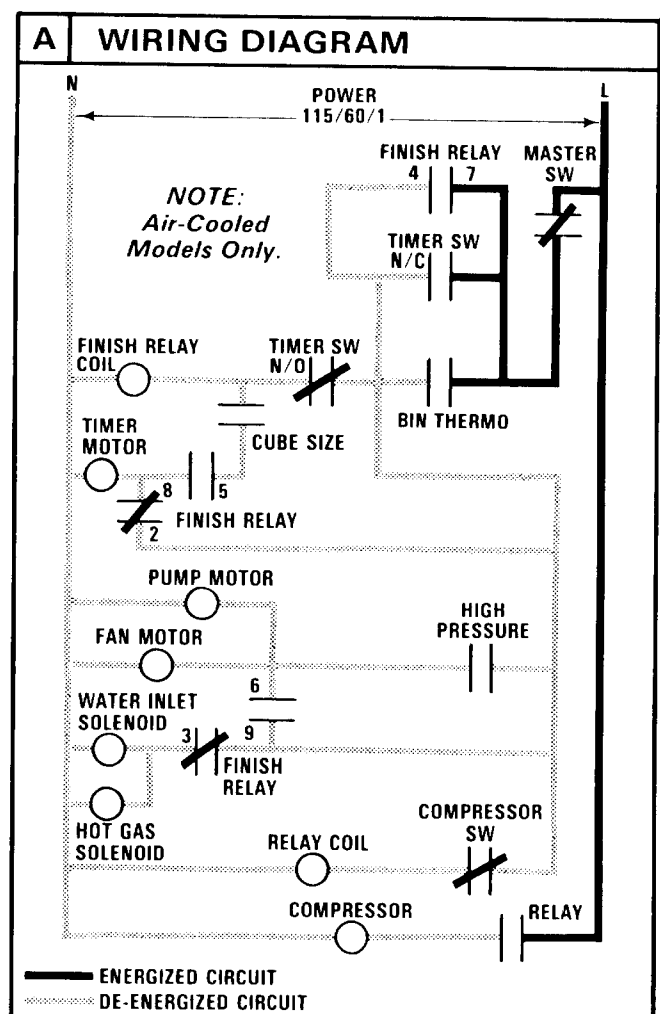


Figure 3-9. Cuber OFF - Bin Thermo OPEN, with Bin Filled with Ice



**IV. FUNCTIONAL SEQUENCE - Water-Cooled Models**

The AC20 Automatic Cubers are designed to operate on the 115 volt, 60 Hertz, single phase. Other voltage requirements are available on special order. Therefore, always check NAME-PLATE for electrical information before proceeding with electrical wiring connections to the Ice maker.

The following text and associated wiring diagrams describe the sequential series of events as they occur in Water-Cooled Model AC-20 Cubers, during the modes of initial START UP, Freezing Cycle, Harvest Cycle, and the significant changes in switch positions and contact points during those cycles.

**A. FREEZING CYCLE - START MODE**

(See Figure 3-10)

The High Pressure Control is CLOSED and the Bin Thermostat CLOSES calling for ice to be made. The Finish Relay Coil is energized through the N/O contacts of the Timer Switch and the Bin Thermostat; contacts 7-4, 8-5, and 9-6 of the Finish Relay CLOSE. A circuit is made through the CLOSED 9-6 contacts of the Finish Relay, to the Pump Motor. The Bin Thermostat circuit energizes the Compressor Relay. The CLOSED 7-4 contacts of the Finish Relay provide a lockout, parallel circuit, so, once the cycle has begun, if the Bin Thermostat were to OPEN, the Freezing Cycle would continue to function through the 7-4 contacts of the Finish Relay. See Figure 3-11.

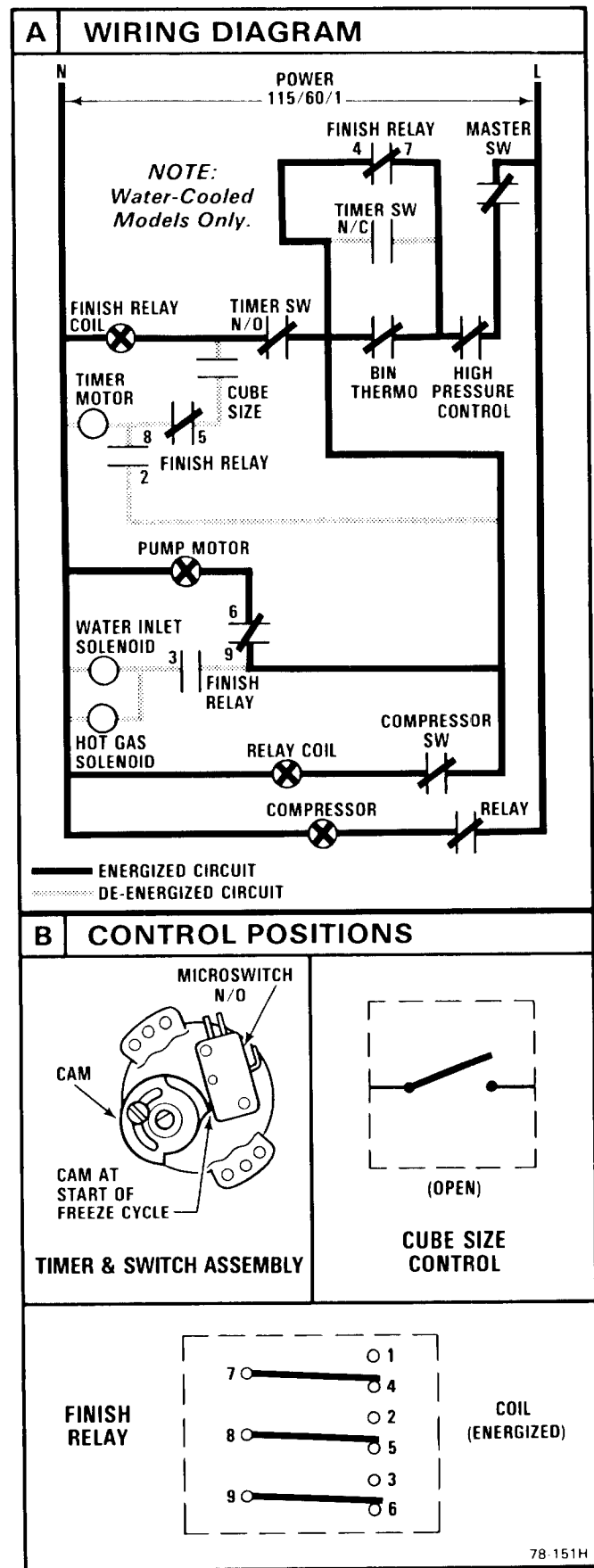


Figure 3-10. Freeze Cycle - START Mode

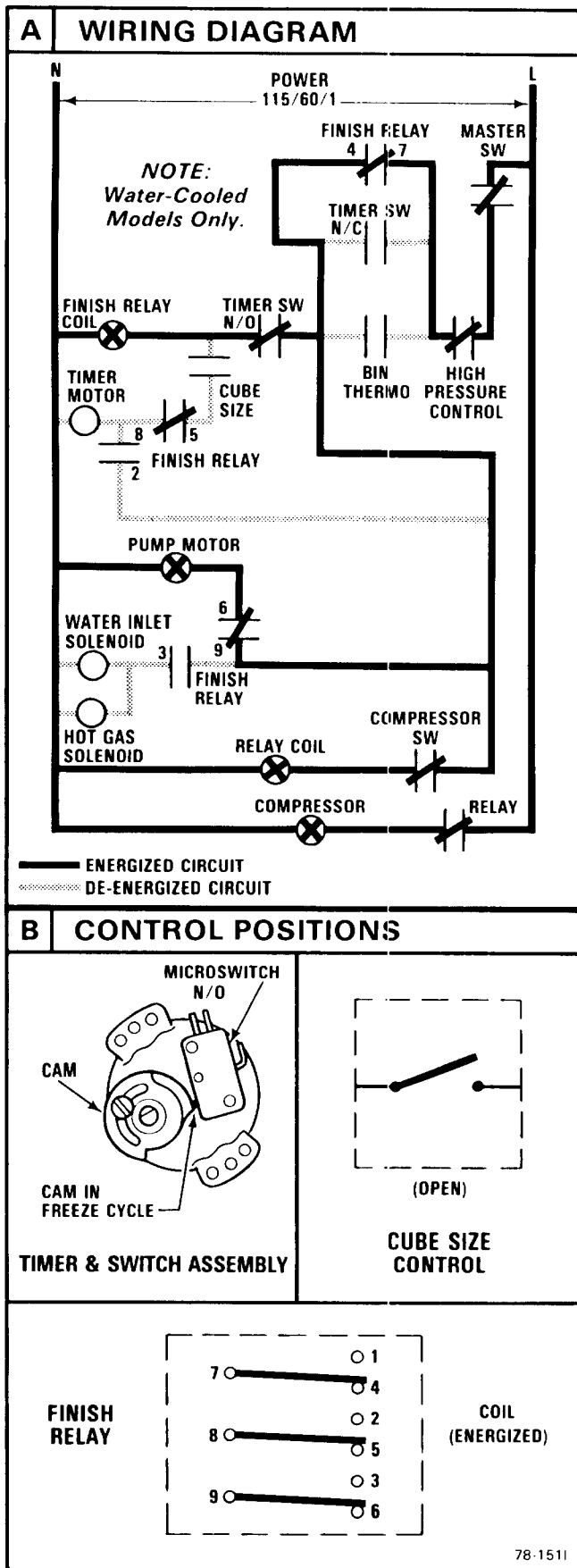


Figure 3-11. Freeze Cycle - START Mode, with Bin Thermo OPEN

### B. FREEZING CYCLE - TIMED MODE

(See Figure 3-12)

As the Freezing Cycle progresses, the Evaporator temperature decreases. When the capillary bulb of the Cube Size Control, installed on the outlet line of the Evaporator, senses a preset temperature, the contacts of the Cube Size Control CLOSES. A circuit to the Timer Motor is made through the 8-5 contacts of the Finish Relay, the Cube Size Control, the CLOSED N/O contacts of the Timer Switch and the Bin Thermostat. If the Bin Thermostat were to OPEN, the Timer Motor would continue to operate through the lockout, parallel circuit provided by the 7-4 contacts of the Finish Relay. The Water Pump and the Compressor remain ON. See Figure 3-13.

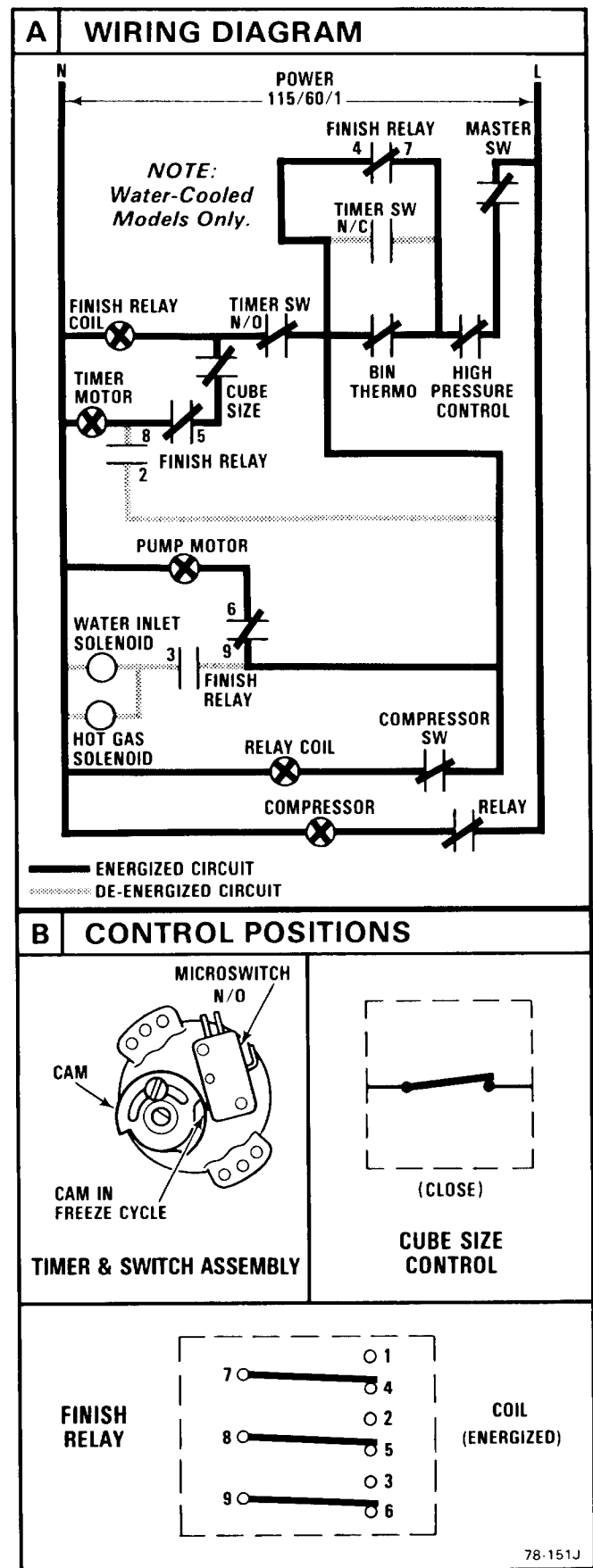


Figure 3-12. Freeze Cycle - Timed Mode

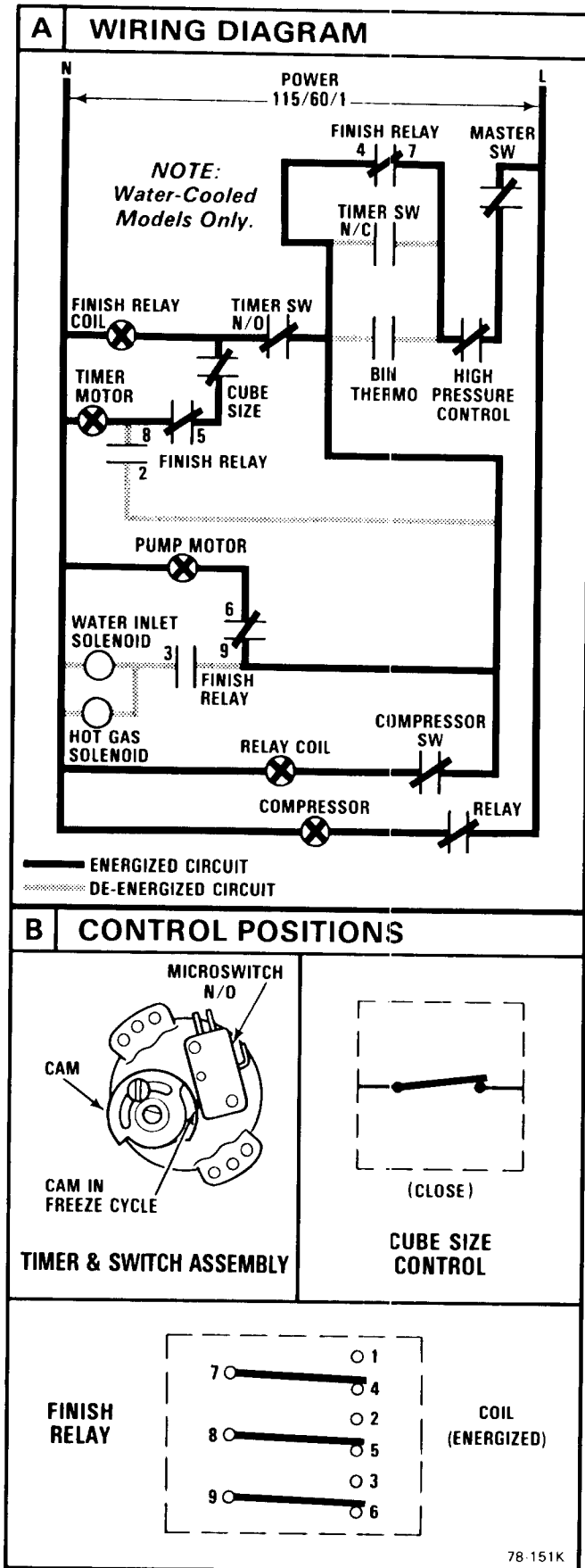


Figure 3-13. Freeze Cycle - Timed Mode, with Bin Thermo OPEN

### C. HARVEST CYCLE MODE

(See Figure 3-14)

The Timer cam has advanced to the point when the actuator arm of the Timer micro-switch drops into the Cam slot, which opens the N/O contacts and CLOSES the N/C contacts of the microswitch; the electrical circuit to the Finish Relay Coil is now incomplete and the coil de-energizes. This OPENS the 7-4, 8-5 and 9-6 contacts of the Finish Relay, while CLOSING the 8-2 and 9-3 contacts. The Timer Motor will continue to operate through the 8-2 contacts of the Timer Switch. The Water Inlet Solenoid Valve and the Hot Gas Solenoid Valve are energized through the CLOSED 9-3 contacts of the Finish Relay and the CLOSED N/C contacts of the Timer Switch. The Water Pump Motor is NOT ON during the Harvest Cycle on the Water-Cooled models. The Compressor continues to operate through the Bin Thermostat circuit. The N/C contacts of the Timer Switch provide a lockout, parallel circuit to prevent the ice-making system from shutting OFF, should the Bin Thermostat OPEN before the Harvest Cycle is completed. See Figure 3-15. The Timer cam continues to advance to the position where it will push the actuator arm of the Timer microswitch.

THEN:

1. If the Bin Thermostat contacts are CLOSED, the Freezing Cycle will START again. See Figure 3-10.
2. If the Bin Thermostat is SATISFIED and the contacts are OPEN, the Finish Relay CANNOT re-energize and the system shuts OFF. See Figure 3-16.

**NOTE**

*The High Pressure Control will shut the entire Cuber down, any time the discharge pressure gets above the setting of the High Pressure Control. This control must be manually reset for the Cuber to begin operating again.*

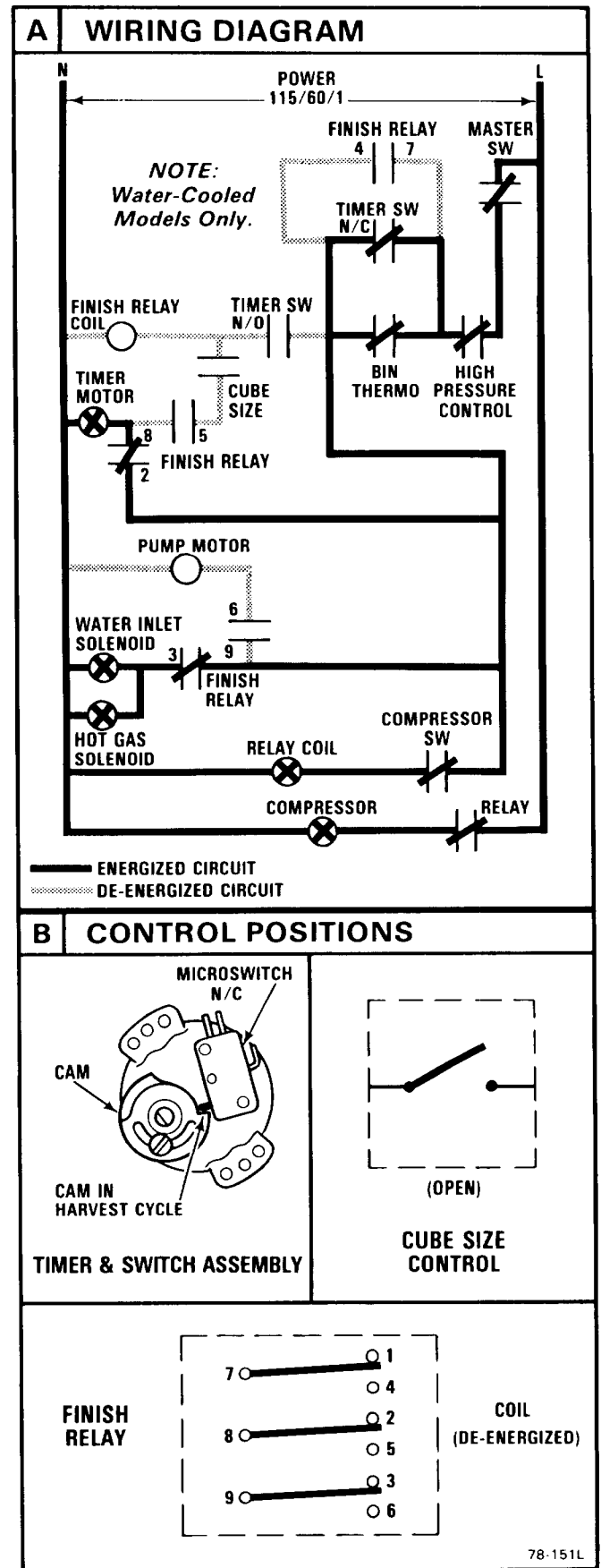


Figure 3-14. Harvest Cycle Mode

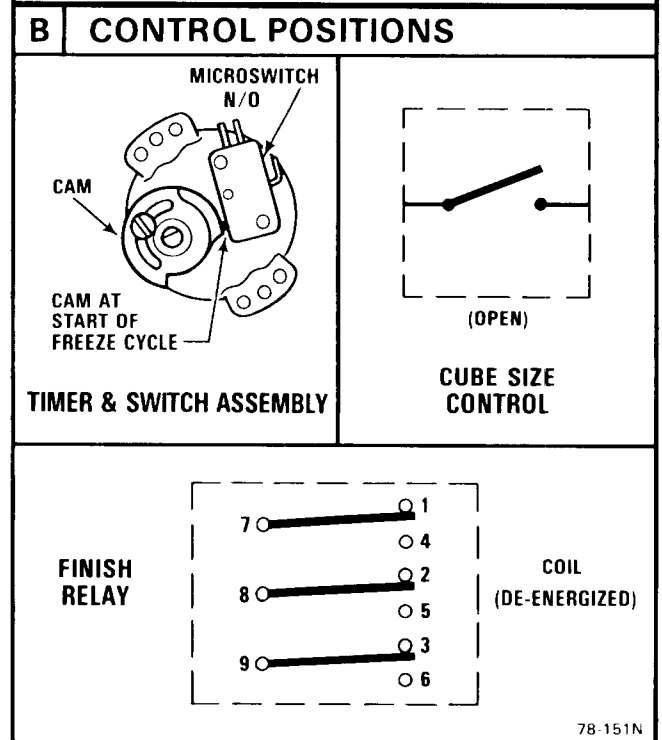
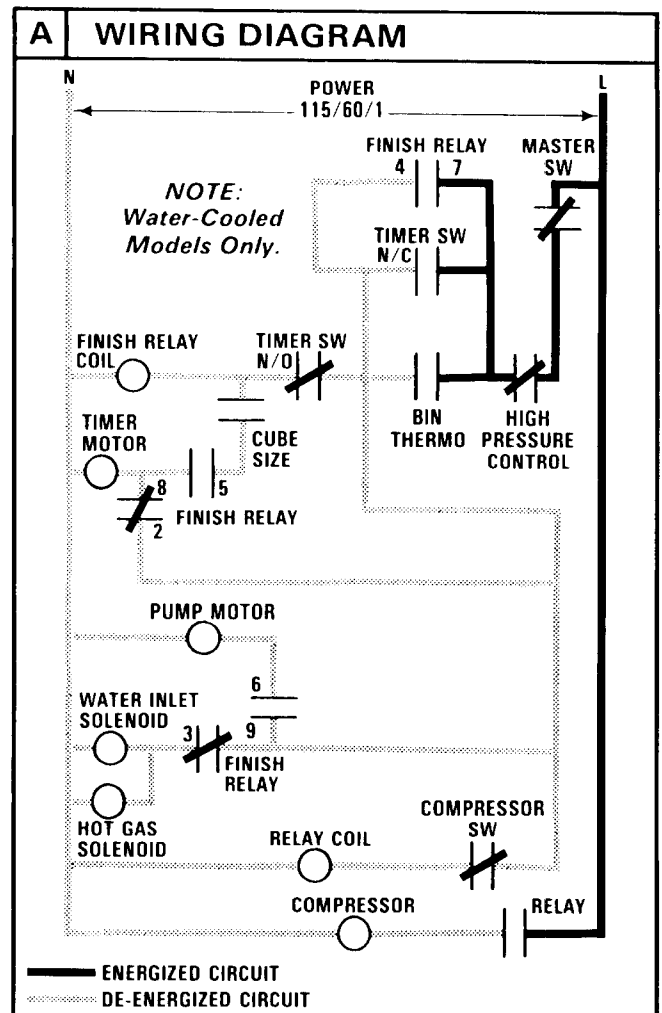
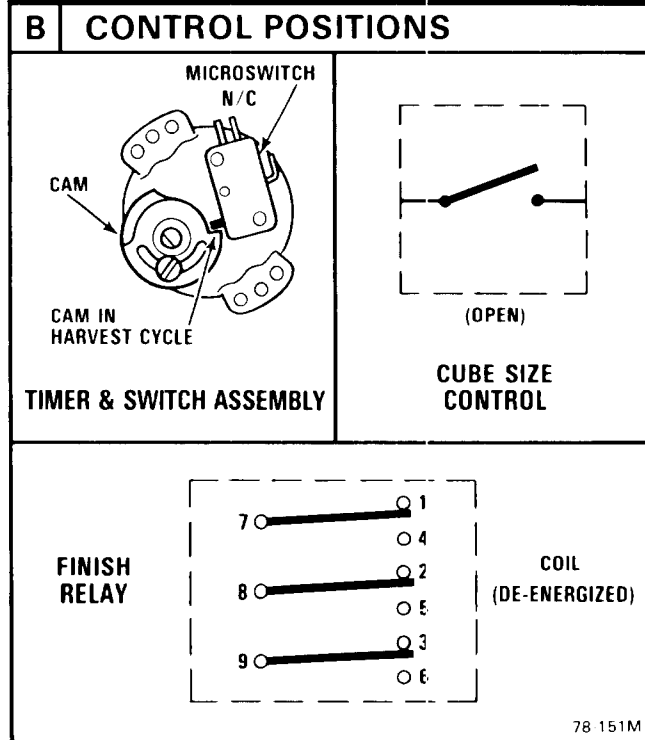
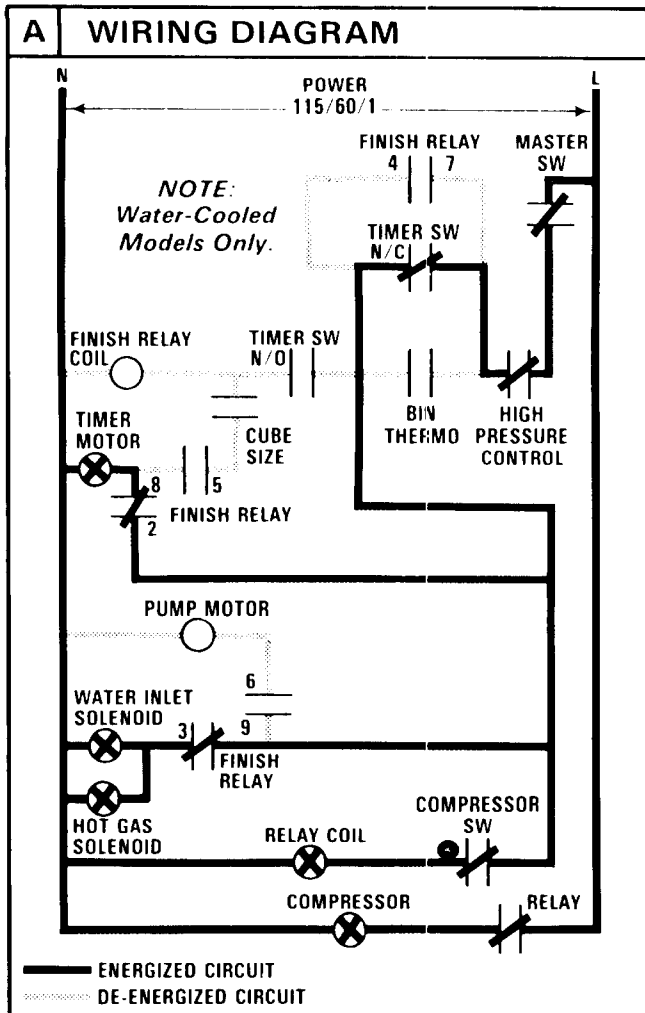


Figure 3-15. Harvest Cycle Mode - with Bin Thermo OPEN

Figure 3-16. Cuber OFF - Bin Thermo OPEN, with Bin Filled with Ice

## V. COMPONENT DESCRIPTIONS

### A. BIN THERMOSTAT CONTROL

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

#### NOTE

*The Bin Thermostat Control is wired through the holding relay and will not CUT-OUT the Icemaker until the end of the Harvest Cycle. Altitude adjustment should ONLY be performed on Icemakers installed at 2000-foot level locations and ABOVE, and adjust only in increments of one-fourth turn of screw at a time.*

### B. COMPRESSOR START RELAY

The current relay located on the Compressor, 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, 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 temper-

ature, 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-II, Adjustment of the Cube Size Control, BEFORE attempting to adjust the control.*

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

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

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

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

### F. HIGH PRESSURE FAN CONTROL - Air-Cooled Model

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

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

### H. FINISH RELAY

The multi-function, three-pole, double-throw, plug-in relay is installed directly into a receptacle on the printed circuit board in the Control Box. The relay functions, in part, to by-pass the Bin Thermostat, to prevent the 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. The relay also redirects the current flow through the High Pressure Fan Control to the Condenser Fan Motor and the Water Pump during the harvest cycle.

### I. SPRAY BAR MANIFOLD

The Spray Bar Manifold is designed to channel recirculating water to twelve Jet Spinners, for uniformly spraying the water into the inverted ice cube cups. The Celcon material, used in fabricating the Spray Bar parts, is not subject to chemical attack by either acidic or alkaline materials at low temperatures or at high temperatures. Because of the smooth, non-porous surface of the Celcon material Spray Bar, foreign materials have difficulty trying to adhere to these surfaces, thereby, reducing the usual frequency of cleaning procedures.

#### NOTE

Refer to procedure V-III, *CLEANING - Icemaker*; and, for problems requiring removal of parts refer to procedure IV-XII-A for details for removing Spray Bars and Jet Spinners.

### J. WATER INLET SOLENOID VALVE

The Water Inlet Solenoid Valve functions only during the Harvest Cycle, when it is energized to permit a metered, one-fourth gallon-per-minute rate of incoming water, to flow through the Defrost Tube onto the top of the plastic Platen Assembly, assisting in the harvest of ice cubes. The water drains through holes in the Platen Assembly into the Reservoir in the lower section of the Freezing Chamber; and there, the water is recirculated through the Water Pump for return to the Spray Bars.

### K. WATER REGULATOR VALVE - Water-Cooled Models

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

#### NOTE

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

### REFRIGERANT CHARGE

| MODEL        | AC-20 Refrig. Chg.    |
|--------------|-----------------------|
| Air-Cooled   | 11-1/2 R-12 (Approx.) |
| Water-Cooled | 13 oz. R-12 (Approx.) |

#### NOTE

*Always CHECK NAMEPLATE on individual Icemaker for specific refrigerant charge, BEFORE charging the refrigeration system. The above listed refrigerant charges are approximate charges for the AC-20 Cubers, however it is important to CHECK NAMEPLATE for each Icemaker, especially when there are different Compressors.*



## SECTION IV

### ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES

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

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

#### I. ADJUSTMENT OF THE BIN THERMOSTAT CONTROL

The control for the Bin Thermostat is the Temperature Control, located in the right end of the Control Box Assembly

#### WARNING

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

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

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

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

#### CAUTION

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

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

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

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

1. Locate the Cube Size Control inside the opening in the underside of the right hand portion of the Control Box Assembly.
2. Rotate the adjusting screw one-eighth of a turn **CLOCKWISE** to **COLDER.**
3. Observe size of ice cubes in next two ice cube harvests and repeat step 2 above, in one-eighth turn increments, until desired ice cube size is achieved.

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

1. Locate the Cube Size Control inside the opening in the underside of the right hand portion of the Control Box Assembly.

2. Rotate the adjusting screw one-eighth of a turn COUNTERCLOCKWISE to WARMER.
3. Observe size of ice cubes in next two ice cube harvests and repeat step 2 above, in one-eighth turn increments, until desired ice cube size is achieved.

### III. ADJUSTMENT OF THE LEG LEVELERS

When the AC-20 Cuber is ordered with the optional Leg Levelers, the Cabinet must be leveled in the front-to-rear and side-to-side directions. This adjustment should be performed during initial installation of the Cabinet and anytime the Cabinet is moved from the original location to another site.

- A. Using an open-end wrench and a carpenter's bubble level, rotate the threaded Leveler in each Leg to RAISE or LOWER the Cabinet until the Cabinet is level in the front-to-rear direction.
- B. Repeat Step A, for leveling in the side-to-side direction.
- C. Recheck both the front-to-rear and the side-to-side leveling the repeat adjustments, as necessary.

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

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

To Adjust the Timer Switch Assembly:

- A. HARVEST CYCLE: Slowly rotate the shaft of the Timer & Switch Assembly, located in the hole in the front of the Control Box Cover, CLOCKWISE, until the actuator arm on the microswitch drops off of the outer cam into the cam slot. An audible click can be heard, but in a noisy area, look at the cam and switch to observe the event. See Figure 4-2.

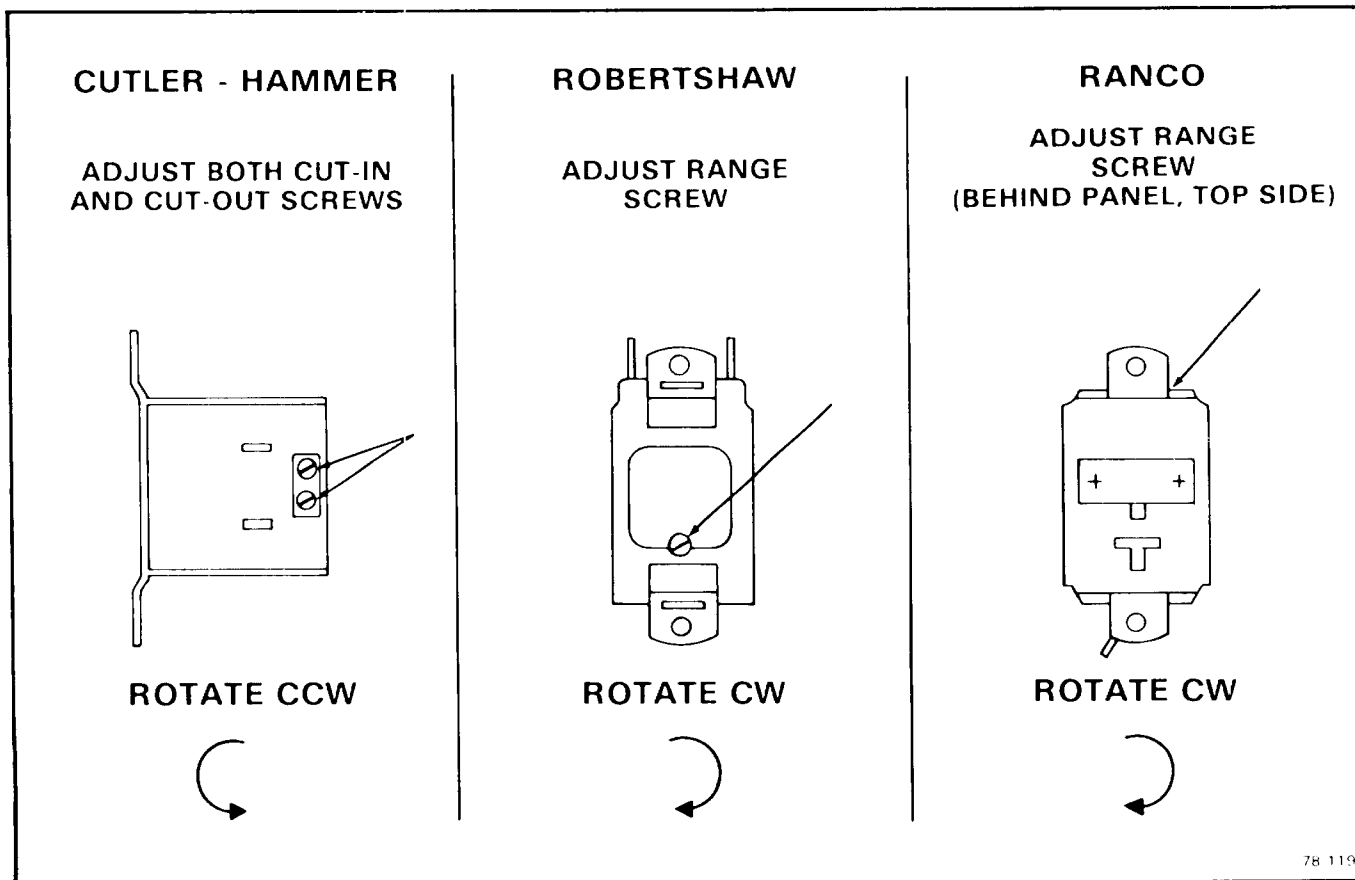


Figure 4-1. Adjustment of the Temperature Control.

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

#### V. ADJUSTMENT OF THE WATER REGULATOR ASSEMBLY

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

To Adjust the Water Regulator Assembly:

- A. To **INCREASE** the Head Pressure: Rotate the adjusting Screw, on the Water Regulator Assembly **COUNTERCLOCKWISE**.
- B. To **DECREASE** the Head Pressure: Rotate the adjusting Screw, on the Water Regulator Assembly **CLOCKWISE**.

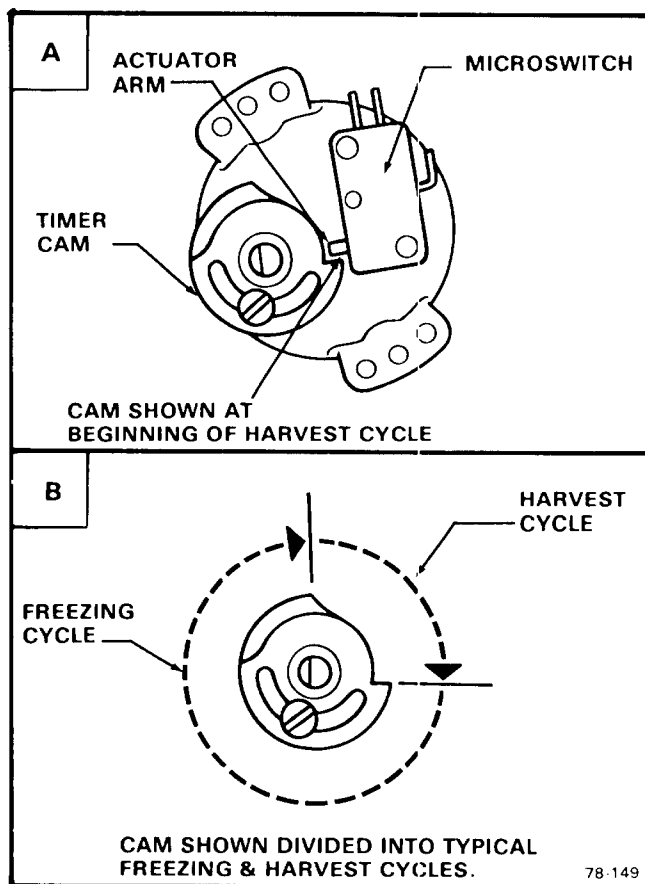


Figure 4-2. Adjustment of the Timer & Switch Assembly

#### WARNING

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

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

##### NOTE

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

- A. To Remove the Compressor Assembly:

1. Remove screws and Kick Plate from bottom front of the Cabinet.
2. Remove two screws and partially slide the Lower Front Door Bin Assembly out of the Cabinet.

##### NOTE

*The Door Bin can be pulled out, only as far as permitted by the connected plastic Drain Tube, which is attached to the copper Drain Tube on the Chassis Base.*

3. Remove the Hose Clamp which attaches the lower end of the bin Drain Tube to the copper Drain Tube and lift away the Lower Front Door Bin Assembly.
4. Remove the snap clip and the Junction Box Cover from the Compressor.
5. Disconnect the electrical leads at the Compressor Junction Box, that originate from the Control Box.
6. Bleed off or blow the refrigerant charge through the Schrader valve.
7. Unsolder and disconnect both the suction line and the discharge line from the Compressor.
8. Unsolder the process header tube from the Compressor and retain for installation on the replacement Compressor.
9. Remove four bolts, washers, mounting sleeves and grommets attaching the Compressor to the Chassis Base.
10. Remove the Compressor from the Cabinet.

**NOTE**

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

- B. To replace the Compressor Assembly, reverse the removal procedure.

**CAUTION**

**Be sure the bin Drain Tube is properly installed on the copper Drain Tube, BEFORE aligning the slots in the left and right Base Hinges, to slide into place around studs in the Chassis Base and final attachment; thus, preventing bin draining onto Chassis Base and the floor, plus a second removal and replacement of Lower Front Door Bin Assembly.**

**VII. 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 Kick Plate, the Lower Front Door Bin Assembly and lower Hose Clamp on Bin Drain Tube and remove from bottom front of Cabinet.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder and disconnect both the inlet and outlet tubes at the Condenser.
4. Remove two screws attaching the Condenser to the Chassis Base.
5. Remove the Condenser from the Cabinet.

**NOTE**

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

- B. To Replace the Condenser, reverse the removal procedure.

**VIII. 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 Kick Plate, the Lower Front Door Bin Assembly and lower Hose Clamp on Bin Drain Tube and remove from bottom front of Cabinet.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder and disconnect both the inlet and outlet tubes at the Condenser.

4. Remove two screws attaching the Condenser to the Chassis Base.
5. Remove the Condenser from the Cabinet.

**NOTE**

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

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

**IX. REMOVAL AND REPLACEMENT OF THE CURTAIN ASSEMBLY**

- A. To remove the Curtain Assembly:

1. Pull the Lower Front Door Bin Assembly out, to the OPEN position.
2. Remove two screws and the Upper Front Door Assembly, to gain access to the Curtain Assembly.
3. Remove four screws attaching the Curtain Assembly to the top of the front opening of the Freezing Chamber, and remove the Curtain Assembly.

**NOTE**

*The four screws removed also secure the four Spray Tubes to the Freezing Chamber, held by a metal Spray Tube Support at the front end of each Tube.*

*At this time, it is recommended the Spray Bars be temporarily removed, for removal and inspection of all Jet Spinners for possible cleaning or replacement, as required.*

- B. To replace the Curtain Assembly, reverse the removal procedure.

**NOTE**

*Be sure Jet Spinners and Spray Bars have been properly assembled and in place, if removed; and, that each screw attaching the Curtain Assembly also is aligned and attaching the associated Spray Bar to the Freezing Chamber. Check that Curtain hangs evenly.*

**X. 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 Kick Plate, the Lower Front Door Bin Assembly and lower Hose Clamp on Bin Drain Tube and remove from bottom front of Cabinet.

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

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.

- 
1. Remove the factory seals from the replacement Drier and install the Drier in the refrigerant lines, with the arrow positioned in the direction of the refrigerant flow.
  2. Install the Drier Brace on the Drier.
  3. Solder the Drier into the lines, two places.
  4. Purge the system and check for leaks.
  5. Thoroughly evacuate the system to remove moisture and non-condensables.
  6. Charge the system with refrigerant, by weight. SEE NAMEPLATE.
  7. Reconnect the Drain Tube and replace and secure the Lower Front Door Bin Assembly and Kick Plate on the Cabinet.

#### XI. REMOVAL AND REPLACEMENT OF FAN MOTOR ASSEMBLY-AIR-COOLED MODELS

##### NOTE

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

A. To Remove the Fan Motor Assembly:

1. Remove screws and the Kick Plate, the Lower Front Door Bin Assembly and lower Hose Clamp on Bin Drain Tube and remove from bottom front of Cabinet.
2. Disconnect the electrical lead from the Fan Motor.
3. Remove two screws and one toothed lockwasher securing the Motor Bracket to the Chassis Base and remove the Fan Motor and Bracket Assembly out of the Cabinet.

4. Remove the nut from the end of the Fan Motor shaft and remove the Fan Blade.
5. Remove four screws securing the Fan Motor to the Motor Bracket and separate the Motor from the Bracket.

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

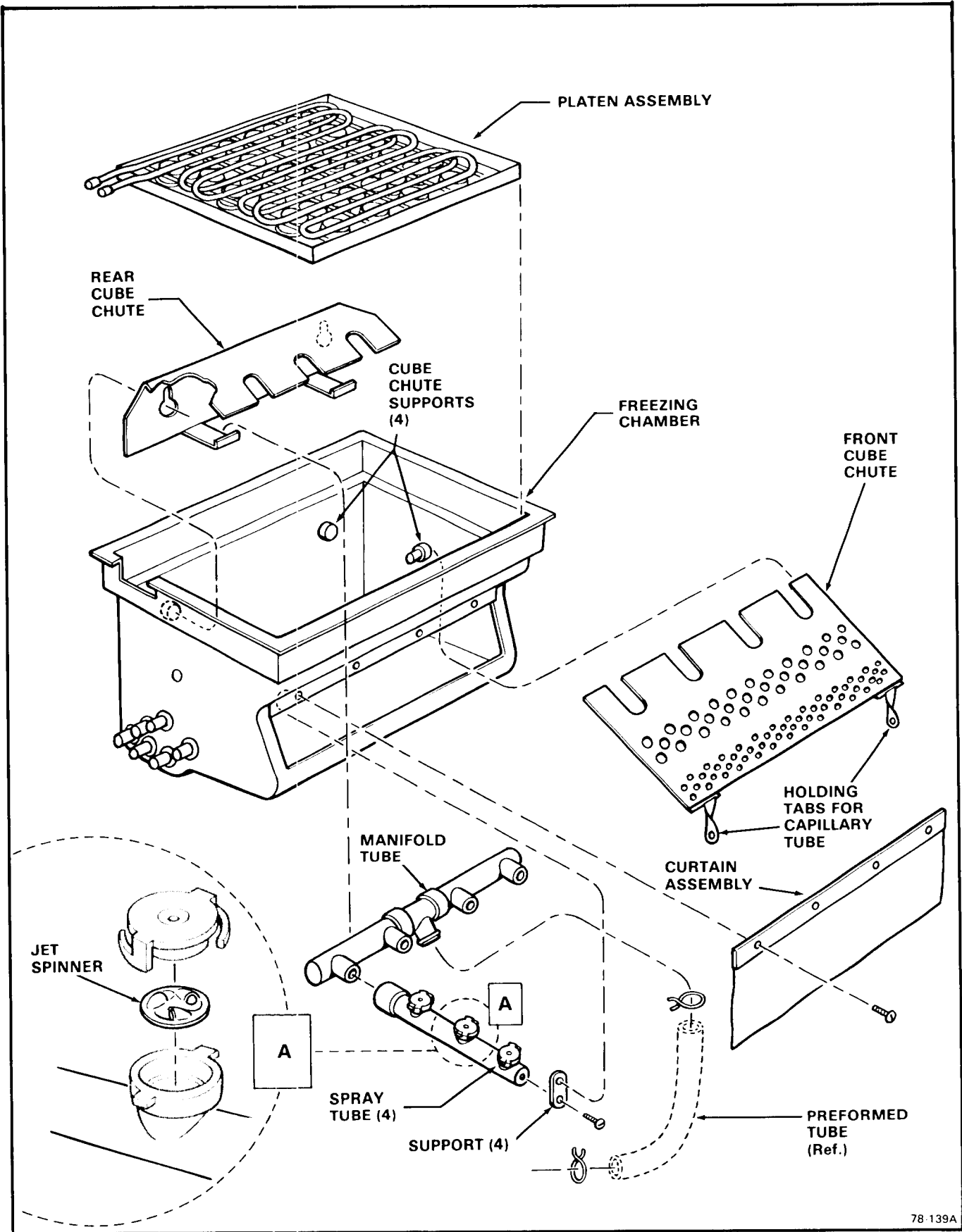
#### XII. REMOVAL AND REPLACEMENT OF THE FREEZING CHAMBER, PLATEN ASSEMBLY AND WATER MANIFOLD SPRAY ASSEMBLY

##### 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:

1. Remove screws and the Kick Plate, the Lower Front Door Bin Assembly, the lower Hose Clamp on the bin Drain Tube and remove from bottom front of Cabinet.
2. Remove two screws and the Upper Front Door Assembly
3. Remove four screws and the Top Panel.
4. Remove six screws and the stainless steel Air Baffle from the top left section of the Cabinet.
5. Remove single screw attaching the Defrost Tube to the top of the Freezing Chamber; then, remove the hose clamp from the tubing connected to the other end of the Defrost Tube and remove the Defrost Tube.
6. Carefully remove the coiled capillary bulb from the tube well on top of the Platen Assembly and position out of the remaining work area; then, remove the plastic Platen Cover.
7. Unsolder and disconnect both the inlet and outlet refrigerant lines at the Platen Assembly and lift the Platen Assembly out of the top of the Freezing Chamber. See Figure 4-3.
8. Lift to disengage the Front Cube Chute from the lower front opening of the Freezing Chamber and remove the chute from the Chamber, while carefully pulling the Bin Thermo capillary tube from the holding tabs on the Chute. Position the capillary tube out of work area.



78-139A

Figure 4-3. Removal of the Freezing Chamber, Platen Assembly, Water Manifold

9. Position container under left side of Freezing Chamber, remove Hose Clamp and Rubber Cap from center Female Tube and drain water from Reservoir. Any remaining sump water, soak up with cloths.
10. Remove five remaining screws securing the top of the Freezing Chamber to the top of the Cabinet and Control Box Assembly.
11. Remove four Hose Clamps connecting Tygon Tubes to four Female Tubes at bottom left of Freezing Chamber; then, work each tube loose and lift the Freezing Chamber out the top of the Cabinet.
12. Remove four screws and the Curtain Assembly.
13. Rotate each Spray Bar one-quarter turn to the left and remove from the Manifold Tube. See Figure 4-3.
14. Rotate the top of each individual spray, COUNTERCLOCKWISE to UNLOCK and lift off of Spray Tube. Three each Spray Tube.
15. Remove each Jet Spinner and inspect to determine requirement for cleaning or replacement. See Figure 4-3.
16. Remove Hose Clamp attaching preformed tube to TEE connection of Manifold Tube and remove Manifold Tube from Rear Cube Chute.
17. Push Rear Cube Chute up to disengage from two supports in rear wall of Freezing Chamber and remove Chute from Chamber. See Figure 4-3.
18. Unscrew to disassemble five Female Tubes and O-Rings, from the outside of the Freezing Chamber, connected to three Male Tubes, one Pump Pick-up Tube and one Stand Pipe installed from inside the Freezing Chamber.

**NOTE**

*Inspect all parts to determine requirements for cleaning or replacement. If there is any doubt about an O-Ring, REPLACE THEM. Any worn, cut, torn or deformed O-Ring will quickly cause a leak, THAT COULD HAVE BEEN PREVENTED.*

- B. To replace, reverse the removal procedure.

**XIII. REMOVAL AND REPLACEMENT OF THE LOWER FRONT DOOR BIN ASSEMBLY**

- A. To Remove the Lower Front Door Bin Assembly:
1. Remove two screws and the Kick Plate from bottom front of the Cabinet.
  2. Remove two screws and partially slide the Lower Front Door Bin Assembly out of the Cabinet. See Figure 4-4.

**NOTE**

*The Door Bin can be pulled out, only as far as permitted by the connected plastic Drain Tube, which is attached to the copper Drain tube on the Chassis Base.*

3. Remove the Hose Clamp which attaches the lower end of the bin Drain tube to the copper Drain Tube and lift away the Lower Front Door Bin Assembly.
- B. To replace the Lower Front Door Bin Assembly, reverse the removal procedure.

**XIV. REMOVAL AND REPLACEMENT OF THE WATER PUMP ASSEMBLY**

- A. To Remove the Water Pump Assembly:
1. Remove screws and the Kick Plate, the Lower Front Door Bin Assembly and lower Hose Clamp on bin Drain Tube and remove from bottom front of Cabinet.
  2. Remove two screws and the Upper Front Door Assembly, to gain access to the Water Pump Assembly.
  3. Position container under Water Pump hose connections to catch water drained during disassembly.
  4. Remove front Thumb Screw and loosen the rear Thumb Screw that attach the Water Pump Bracket to the left wall of the Cabinet Liner Assembly. See Figure 4-5.
  5. Remove Hose Clamps and work loose tubing connected to Pump Intake Housing, three places.
  6. Slide Water Pump Assembly and slotted Bracket off of rear Thumb Screw; then, tag or otherwise identify electrical leads connected to Water Pump Motor.

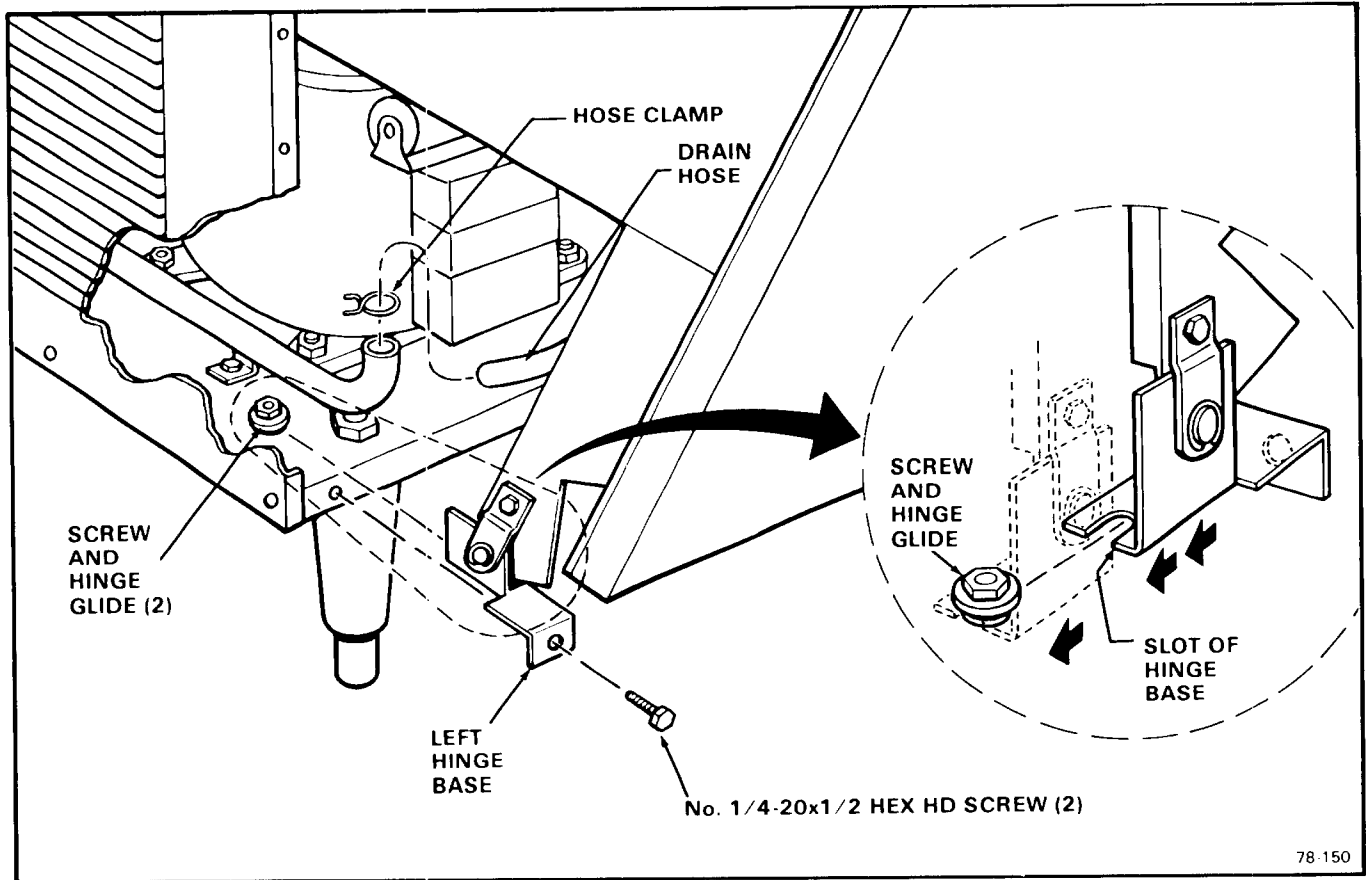


Figure 4-4. Removal of the Lower Front Door Bin Assembly

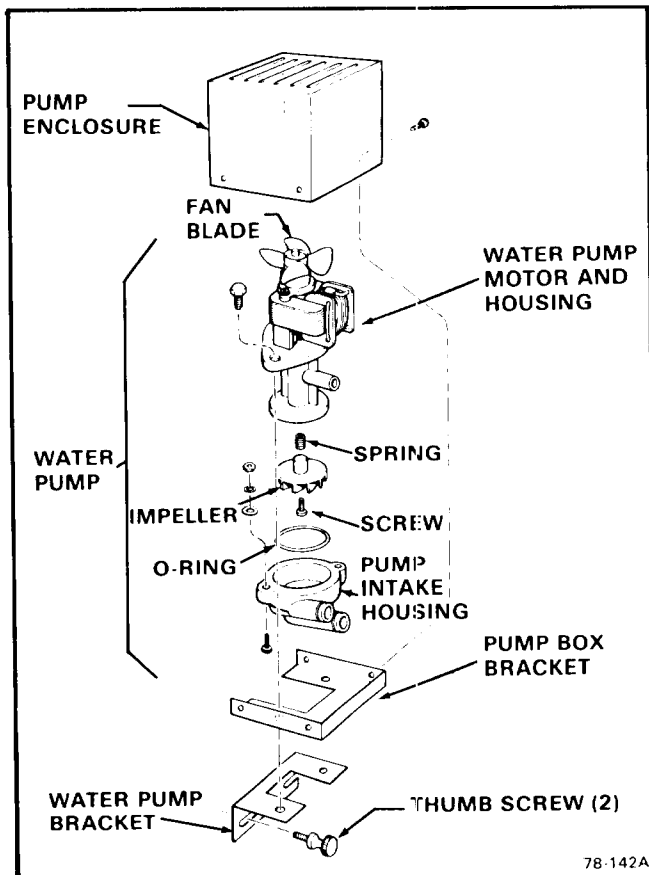


Figure 4-5. Removal of the Water Pump Assembly

7. Disconnect tagged leads from Motor and remove Water Pump Assembly from Cabinet.
  8. Remove four screws and the Pump Enclosure from the Pump Box Bracket.
  9. Remove two screws and separate the Water Pump Bracket and the Pump Box Bracket from the Flange of the Water Pump housing.
  10. Remove two screws, washers, lockwashers and nuts and the Pump Intake Housing and O-Ring from the main body of the Water Pump. Inspect O-Ring for possible replacement.
  11. Remove screw and the Impeller and Spring attached to the internal part of the main body of the Water Pump.
  12. Check condition of the Fan Blade and Water Pump Motor and Housing.
- B. To replace the Water Pump Assembly, reverse the removal procedure.

**XV. REMOVAL AND REPLACEMENT OF THE WATER REGULATOR ASSEMBLY - WATER-COOLED MODELS**

- A. To Remove the Water Regulator 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.*

1. Remove screws and the Kick Plate, the Lower Front Door Bin Assembly and lower Hose Clamp on bin Drain Tube and remove from bottom front of Cabinet.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder the capillary line from the Water Regulator Assembly, where connected at the process header.

4. Disconnect the water inlet line at the rear of the Water Regulator.
5. Disconnect the Condenser water inlet tube at the front of the Water Regulator.
6. Remove two screws and lockwashers which attach the Water Regulator Assembly bracket to the Chassis Base and remove the Water Regulator and bracket.

**NOTE**

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

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

## 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 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.

### 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 water line Strainers.
2. Check that the Icemaker cabinet is level, in side-to-side and front-to-rear directions.
3. Clean the water system Evaporator, Freezing Chamber Reservoir and Spray Bars, 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 manifold parts and jet spinners, before and after clearing will indicate frequency and procedure to be followed in local areas.*

4. Check that plastic curtain hangs down evenly outside the opening at the front of the Freezing Chamber.
5. Check and tighten all bolts.
6. Check and tighten all electrical connections.
7. Check Hot Gas Solenoid Valve for correct operation and high pressure controls for cut-in and cut-out pressures.

8. With Icemaker and Fan Motor OFF on Air-Cooled Models, clean Condenser, using vacuum cleaner, whisk broom or brush. Instruct customer to clean frequently.
9. Check that Fan Blades move freely, are not touching any surfaces and are not bent or out of balance.
10. Check for refrigerant leaks and tighten line connections.
11. Check for water leaks and tighten drain line connections. Pour water down Bin drain line to be sure that drain line is open and clear.
12. Check size, condition and texture of ice cubes. Perform adjustments as required. Refer to procedure IV-II.
13. Check Bin Thermostat Control Bulb to test shutoff. With the Icemaker in the harvest cycle, hold a handful of ice cubes on the Bulb, which should cause the Icemaker to shut OFF at the end of the harvest cycle.

#### NOTE

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

### III. CLEANING - Icemaker

1. Remove two screws and the Upper Front Door Assembly.
2. Check underside of the Control Box and move both the Master ON-OFF toggle switch and the Compressor ON-OFF toggle switch to the OFF position.
3. Rotate the shaft of the Timer & Switch Assembly, located in the hole in the front of the Control Box Cover, CLOCKWISE, until the actuator arm on the microswitch rides up out of the cam slot, to the outer surface of the cam, then stop. This is the start position for the freezing cycle. See Figure 5-1.

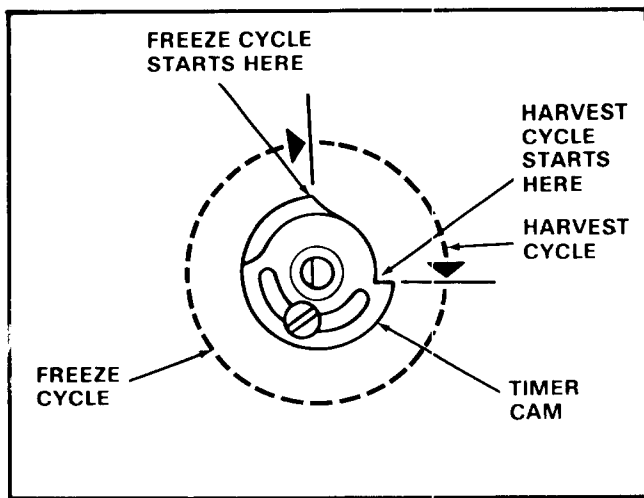


Figure 5-1. START positions for the Freeze/Harvest Cycles.

**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.

4. Position container under left side of Freezing Chamber, remove Hose Clamp and Rubber cap from center Female Tube and drain water from Reservoir. Replace Rubber Cap and Hose Clamp.
5. Prepare cleaning solution: Mix eight ounces of SCOTSMAN Ice Machine Cleaner with six pints of fresh, potable water.
6. Carefully pour the cleaning solution into the Freezing Chamber through the front opening.
7. Immediately move the Master ON-OFF toggle switch to the ON position.
8. Allow the system to operate for about twenty minutes.

**NOTE**

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

9. At end of twenty minutes, rotate the shaft of the Timer & Switch Assembly, CLOCKWISE, to start a second harvest cycle, Repeat procedure to effect four complete harvest cycles. See Figure 5-1.

**NOTE**

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

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

**CAUTION**

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

12. Add hot water to the Bin to melt the ice cubes and thoroughly wash and rinse all surfaces within the Bin.
13. Temporarily remove the Lower Front Door Bin Assembly, refer to procedure IV-III for removal and replacement instructions.
14. Wash and wipe down all interior surfaces of the Cabinet Liner, exterior of Freezing Chamber, Pump Housing, etc., with a clean cloth or disposable paper wiper soaked in the cleaning solution.
15. Wipe all washed surfaces dry, including Bin, with clean cloths or clean dry disposable paper wipers.
16. Replace the Lower Front Door Bin Assembly.
17. Clean and sanitize the interior Bin surfaces each week.

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

ICEMAKING - REFRIGERATION SYSTEM (Cont'd)

| SYMPTOM                           | POSSIBLE CAUSE   | CORRECTION  |
|-----------------------------------|--|---|
| Decreased ice capacity.           | <p>Defective compressor.</p> <p>Leaky water valve.</p> <p>High head pressure, result of dirty condenser or faulty Fan Motor.</p> <p>Non-condensable gas in the system.</p> <p>Poor air 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>Replace compressor.</p> <p>Repair or replace valve.</p> <p>Clean condenser.</p> <p>Repair or replace Fan Motor.</p> <p>Purge the system.</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> |
| Poor harvests.                    | <p>Too short defrost time.</p> <p>Restriction in water inlet line.</p> <p>Hot gas solenoid does not open.</p> <p>Plugged air vent holes in upper part of cube cups.</p>  | <p>Check and adjust harvest cycle.</p> <p>Check Timer two-minute setting.</p> <p>Check strainer and flow check valve. DO NOT remove flow control washers.</p> <p>Binds or burned out. Replace.</p> <p>Clean out air vent holes.</p>   |
| Icemaker does not harvest         | Water pressure too low.  | Check for 20 PSI flowing water.   |
| 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. NO WIRE BRUSH.</p> <p>Locate cabinet with adequate air space for proper air flow.</p> <p>Replace Fan Motor.</p> <p>Purge the system.</p>                                 |
| Icemaker will not operate.        | <p>Blown fuse in line.</p> <p>Master switch in OFF position.</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>Replace switch.</p> <p>Replace Timer microswitch.</p>   |

## SECTION VII WIRING DIAGRAMS

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

### **WARNING**

**When conducting a continuity check of the Automatic 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 AC-20A - Air-Cooled.

Figure 7-2. Wiring Diagram AC-20A - Water Cooled.

Figure 7-3. Wiring Diagram AC-20B - Air-Cooled.

Figure 7-4. Wiring Diagram AC-20B - Water Cooled.

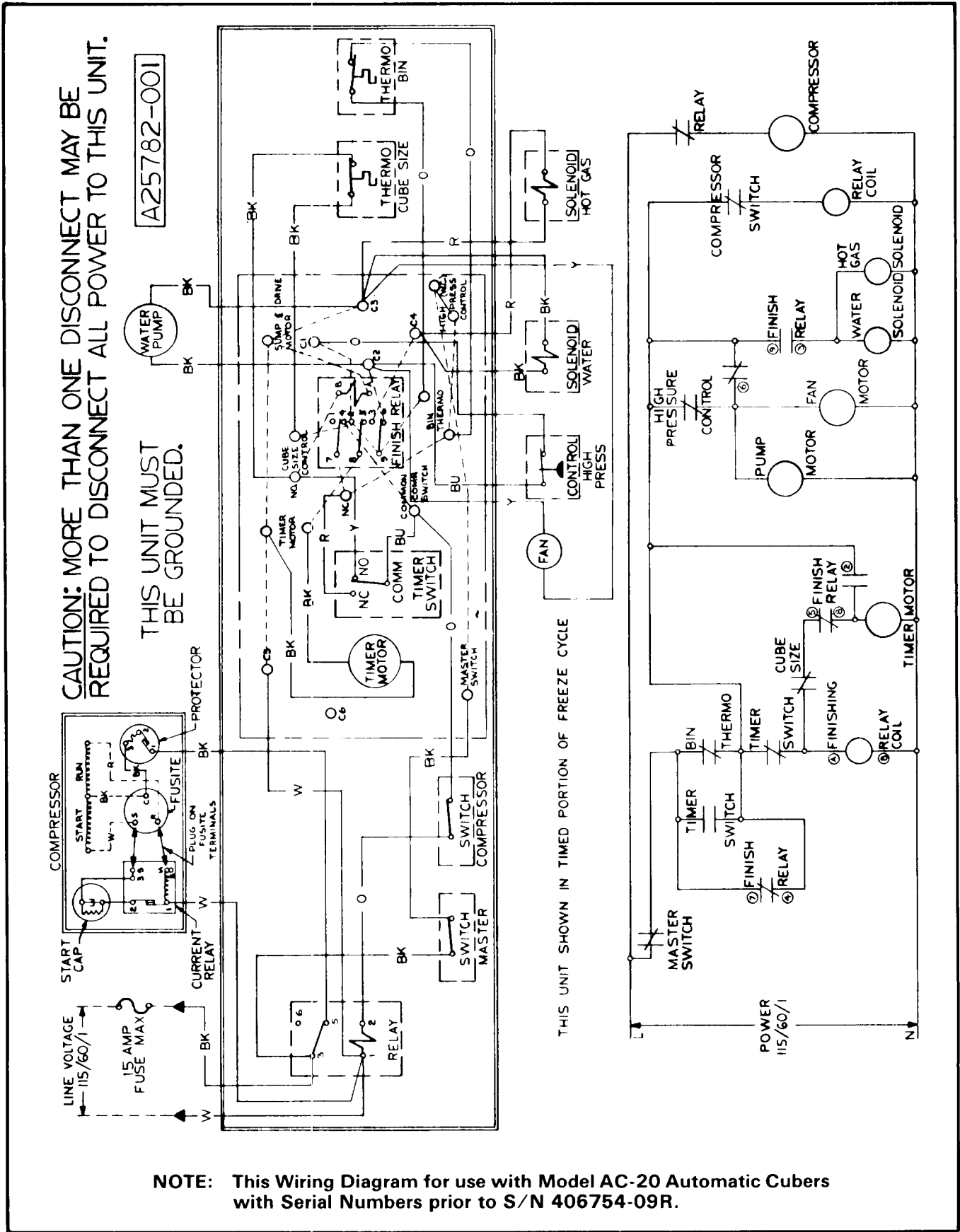
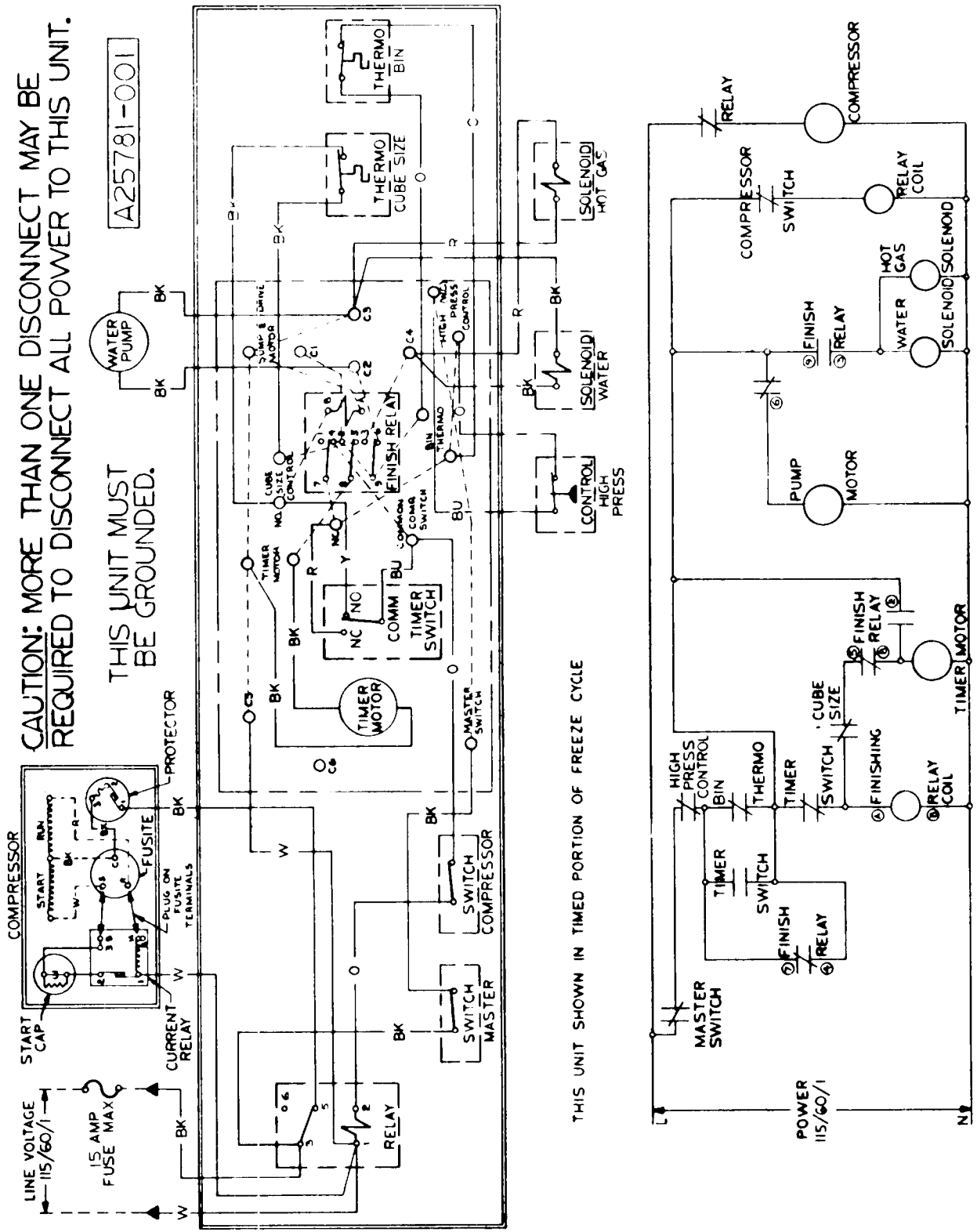


Figure 7-1. Wiring Diagram AC-20A - Air-Cooled.

CAUTION: MORE THAN ONE DISCONNECT MAY BE REQUIRED TO DISCONNECT ALL POWER TO THIS UNIT.

THIS UNIT MUST BE GROUNDED.

A25781-001



NOTE: This Wiring Diagram for use with Model AC-20 Automatic Cubers with Serial Numbers prior to S/N 406754-09R.

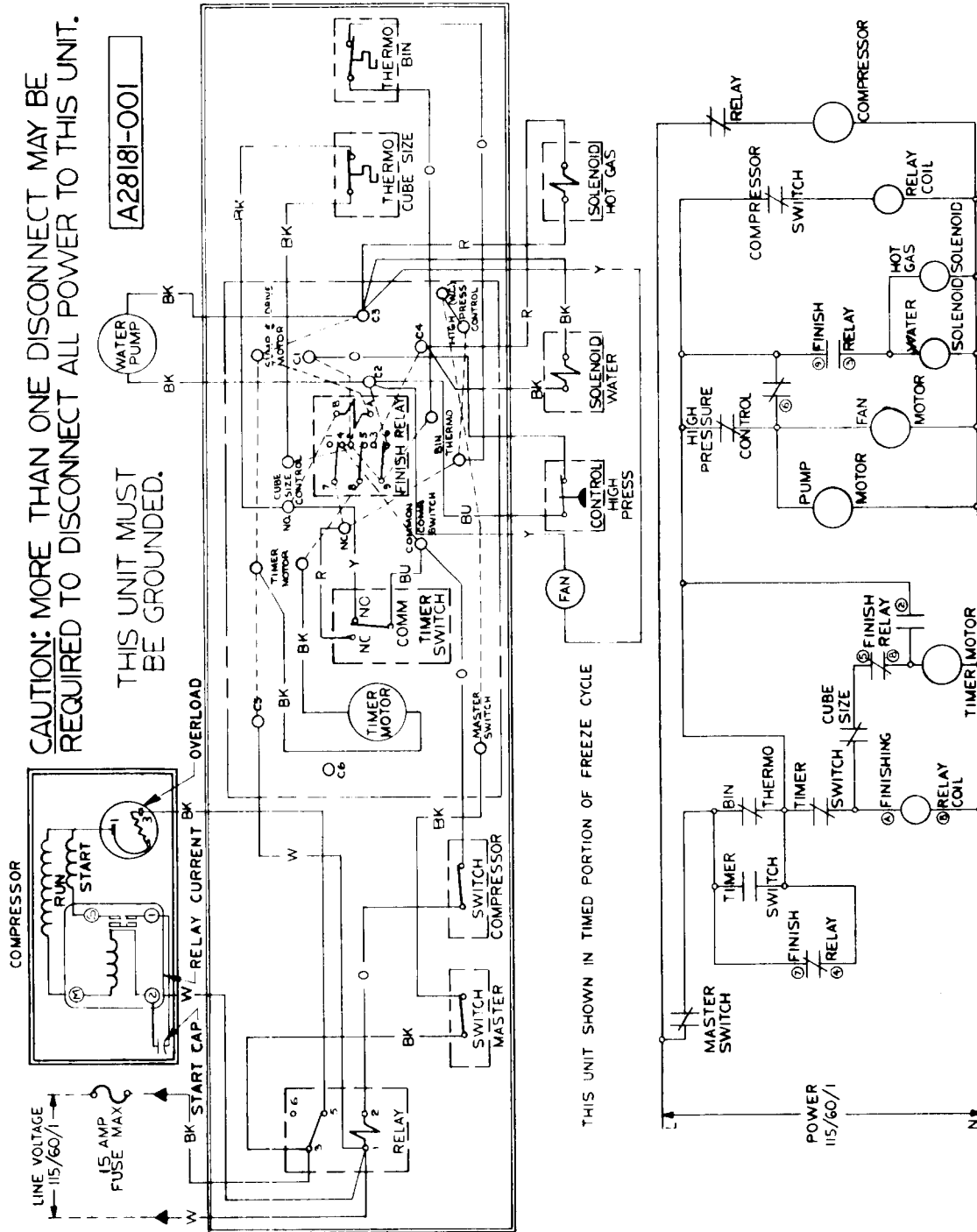
Figure 7-2. Wiring Diagram AC-20A - Water-Cooled.



CAUTION: MORE THAN ONE DISCONNECT MAY BE REQUIRED TO DISCONNECT ALL POWER TO THIS UNIT.

A28181-001

THIS UNIT MUST BE GROUNDED.



THIS UNIT SHOWN IN TIMED PORTION OF FREEZE CYCLE

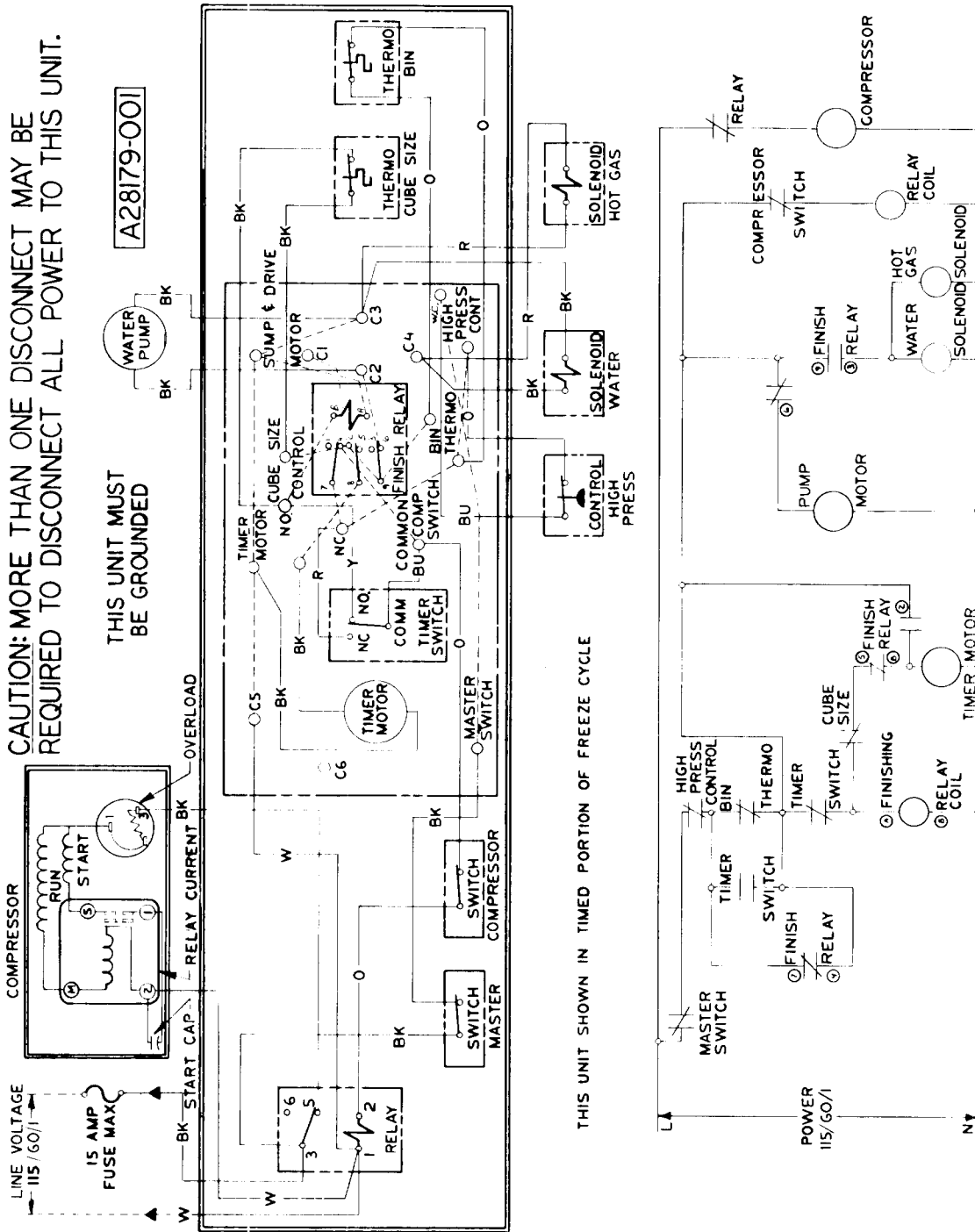
NOTE: This Wiring Diagram for use with Model AC-20 Automatic Cubers with Serial Numbers 406754-09R and up.

Figure 7-3. Wiring Diagram AC-20B - Air-Cooled.

CAUTION: MORE THAN ONE DISCONNECT MAY BE REQUIRED TO DISCONNECT ALL POWER TO THIS UNIT.

THIS UNIT MUST BE GROUNDED

A28179-001



NOTE: This Wiring Diagram for use with Model AC-20 Automatic Cubers with Serial Numbers 406754-09R and up.

Figure 7-4. Wiring Diagram AC-20B - Water-Cooled.

## SECTION VIII

### THE PARTS ILLUSTRATIONS AND PARTS LIST

#### I. GENERAL

This section contains the Parts Illustrations and the Parts List for each of the major assemblies in the AC-20 Automatic 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 Column gives the number of item. The 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 of 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 LIST

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.

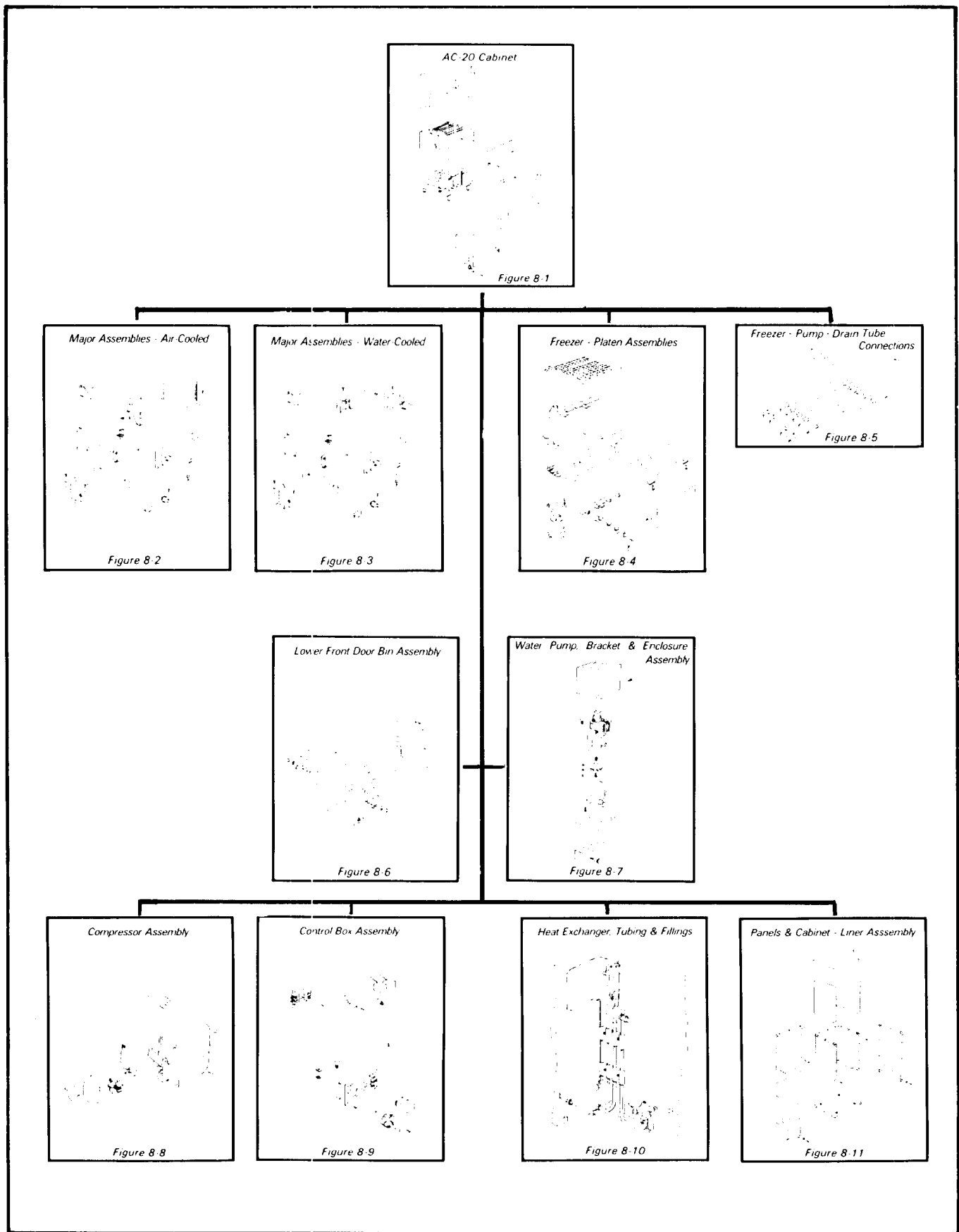
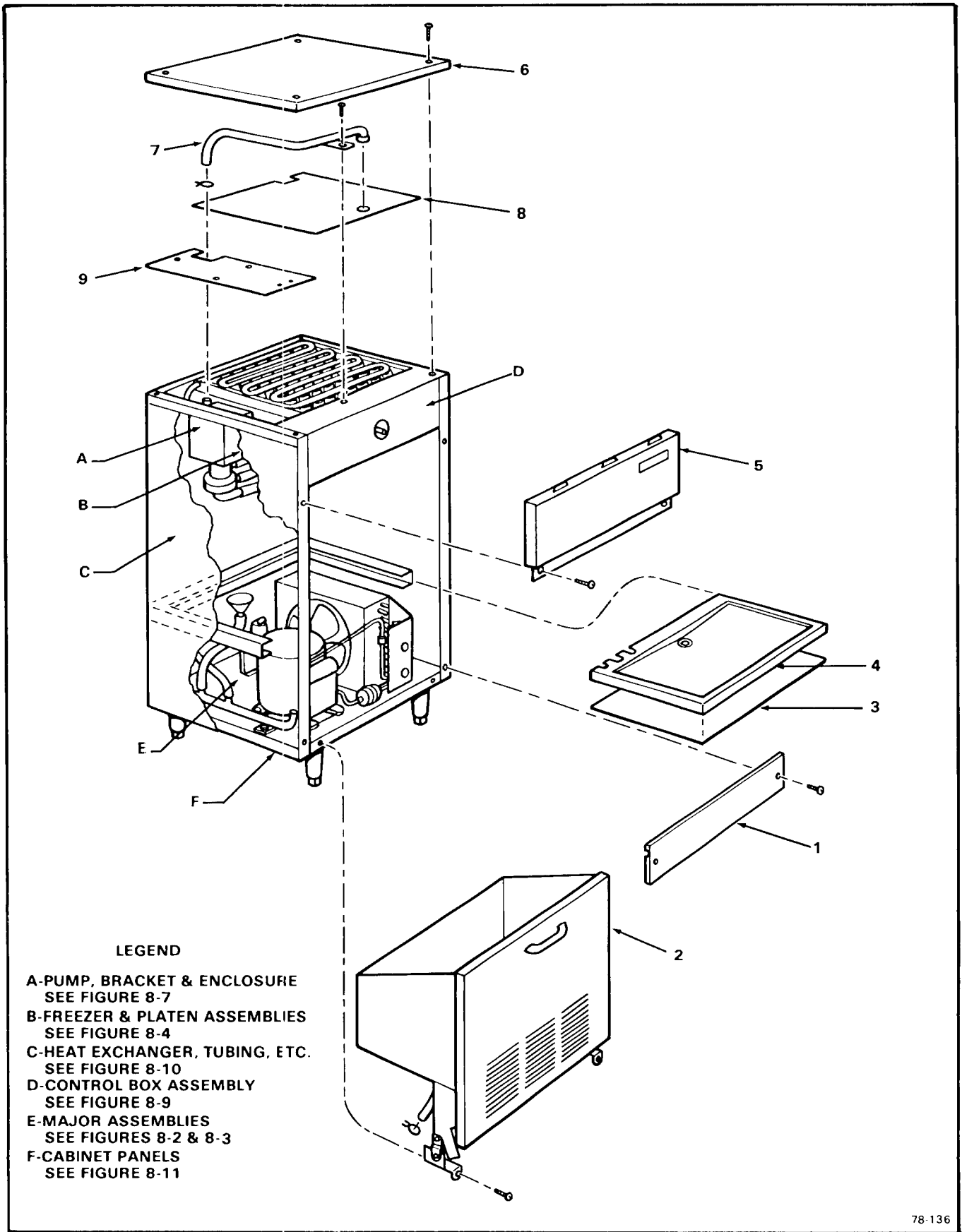


Figure 8-A. AC-20 Automatic Cuber Flow Chart.



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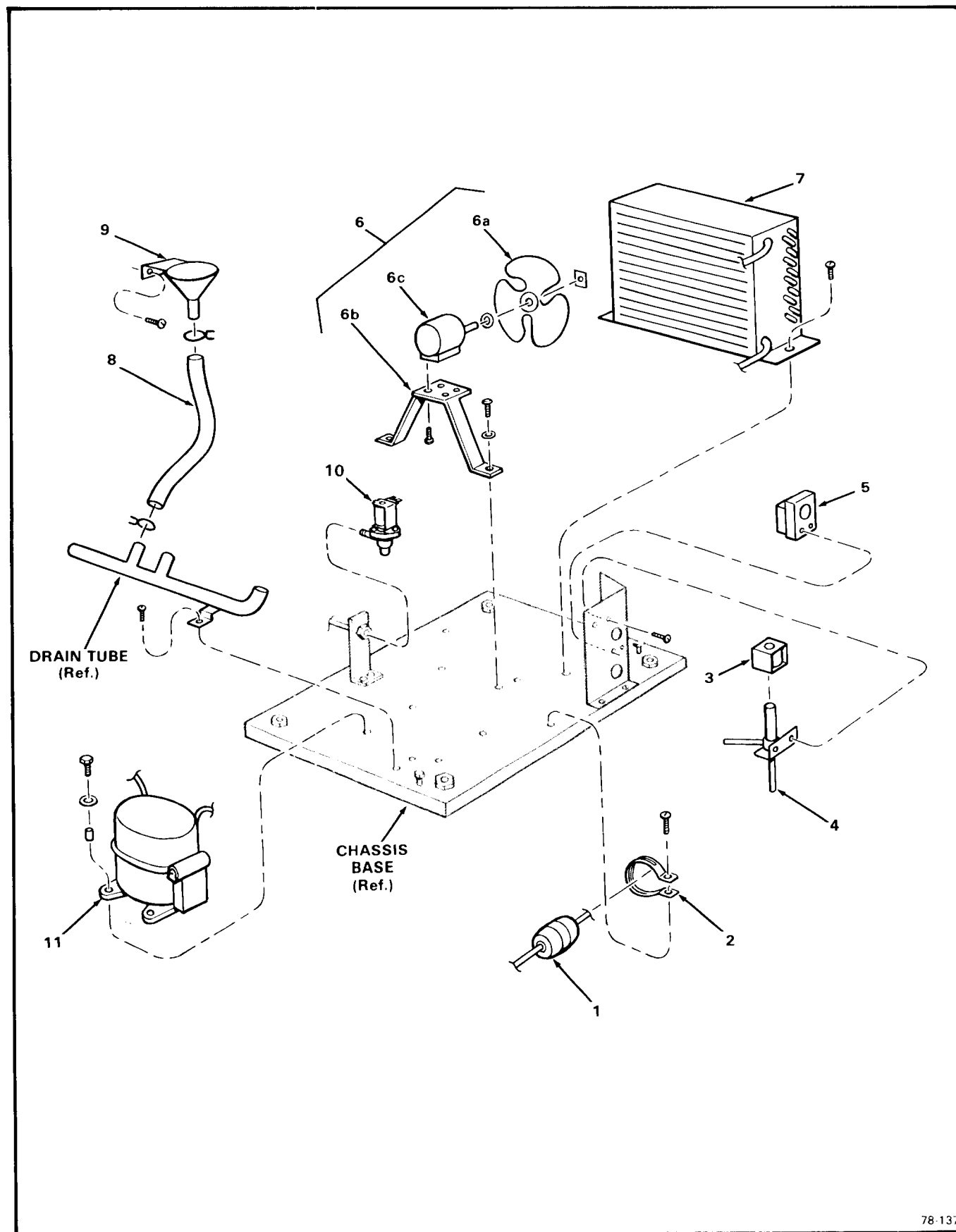
Figure 8-1. AC-20 Cabinet.

Figure 8-1. AC-20 Cabinet.

| INDEX NO. | DESCRIPTION                                      | PART NUMBER | REQ'D NUMBER |
|-----------|--|-------------|--------------|
|           | AC-20 Cabinet<br>* * *                           | No Number   | 1            |
| 1         | Plate, Kick (C.R.S. Painted)                     | A25708-001  | 1            |
|           | Plate, Kick (Stainless Steel)                    | A25708-002  | 1            |
|           | attaching parts, Index 1                         |             |              |
|           | Screw, No. 8 x 1/2 T/F Tap                       | 03-1404-10  | 2            |
|           | * * *  |             |              |
| 2         | Door/Bin Assembly, Lower Front (C.R.S. Painted)  | A25717-001  | 1            |
|           | Door/Bin Assembly, Lower Front (Stainless Steel) | A25717-002  | 1            |
|           | Attaching parts, Index 2                         |             |              |
|           | Clamp, Hose 13/16-inch O.D.                      | 02-1338-00  | 1            |
|           | Screw, No. 1/4-20 x 1/2 T/C Hex Hd               | 03-0571-00  | 2            |
|           | * * *  |             |              |
| 3         | Retainer, Heat - Bottom<br>* * *                 | A25804-001  | 1            |
| 4         | Retainer, Heat - Foamed<br>* * *                 | 02-2237-01  | 1            |
| 5         | Door Assembly, Upper Front (C.R.S. Painted)      | A25709-001  | 1            |
|           | Door Assembly, Upper Front (Stainless Steel)     | A25709-002  | 1            |
|           | attaching parts, Index 5                         |             |              |
|           | Screw, No. 8 x 1/2 T/F Tap                       | 03-1404-10  | 2            |
|           | * * *  |             |              |
| 6         | Panel, Top (C.R.S. Painted)                      | A25704-001  | 1            |
|           | Panel, Top (Stainless Steel)                     | A25704-002  | 1            |
|           | attaching parts, Index 6                         |             |              |
|           | Screw, No. 8 x 1-1/4 S/T Flat Hd                 | 03-1419-09  | 4            |
|           | * * *  |             |              |

Figure 8-1. AC-20 Cabinet. (Cont'd.)

| INDEX NO. | DESCRIPTION  | PART NUMBER                            | REQ'D NUMBER |
|-----------|--|--|--------------|
| 7         | Tube, Defrost<br>attaching part, Index 7<br>Clamp, Hose<br>Screw, No. 8 x 1/2 T/F Tap<br>* * * | A25796-001<br>02-0535-00<br>03-1404-10 | 1<br>1<br>1  |
| 8         | Cover, Platen<br>* * *   | A25799-001                             | 1            |
| 9         | Baffle, Air<br>attaching part, Index 9<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *                  | A25789-001<br>03-1404-10               | 1<br>3       |



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Figure 8-2. Major Assemblies - Air-Cooled.

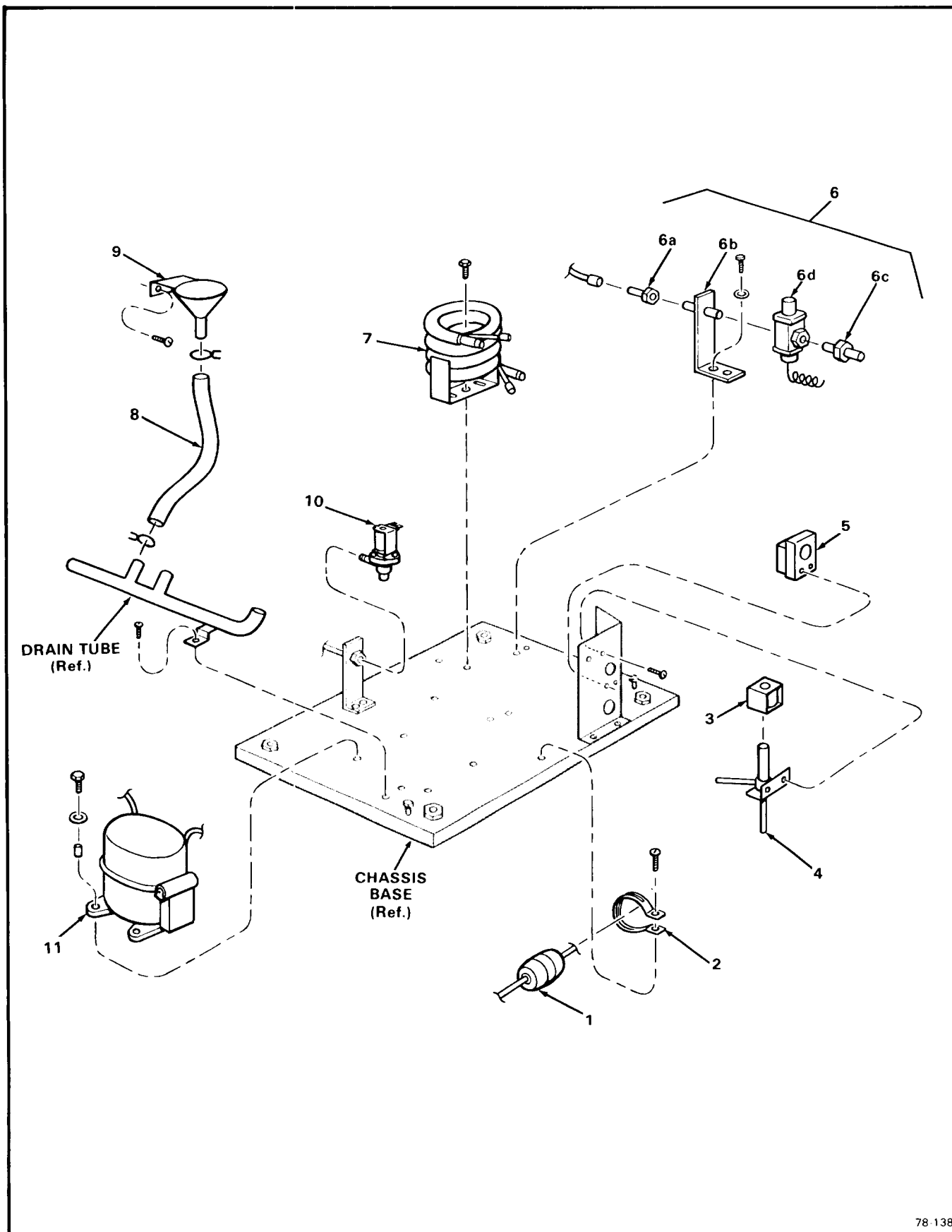


Figure 8-2. Major Assemblies - Air-Cooled.

| INDEX NO. | DESCRIPTION   | PART NUMBER   | REQ'D NUMBER     |
|-----------|---|---|------------------|
|           | Major Assemblies - Air-Cooled<br>* * *  | No Number   | Ref.             |
| 1         | Drier   | 02-0831-00  | 1                |
| 2         | Brace, Drier<br>attaching parts, Index 1 & 2<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *   | A09386-000<br>03-1404-09                            | 1<br>1           |
| 3         | Coil & Frame Assembly, Hot Gas Valve  | 12-2008-01  | 1                |
| 4         | Body & Plunger Assembly, Hot Gas Valve<br>attaching parts, Index 3 & 4<br>Screw, No. 8-32 x 3/8 Pan Hd<br>* * *   | 12-2007-01<br>03-1403-17                            | 1<br>2           |
| 5         | Control, Hi Pressure<br>attaching part, Index 5<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *  | 11-0394-01<br>03-1404-09                            | 1<br>2           |
| 6         | Bracket Assembly, Fan Motor & Mounting  | No Number   | 1                |
| 6a        | Blade, Fan<br>Pad, Vibration (p/o Fan Motor)<br>Nut, Fan Mounting (p/o Fan Blade)   | 18-0420-00<br>No Number<br>No Number                | 1<br>1<br>1      |
| 6b        | Bracket, Fan Mounting   | 18-3705-01  | 1                |
| 6c        | Motor, Fan<br>attaching parts, Index 6c to 6b<br>Screw (p/o Fan Motor)<br>attaching parts, Index 6b to Chassis Base<br>Lockwasher, No. 1/4 Internal Tooth - Carbon Steel Zinc Plated<br>Screw, No. 1/4-20 x 1/2 T/C Hex Hd<br>* * * | 12-1575-01<br>No Number<br>03-1417-08<br>03-0571-00 | 1<br>4<br>2<br>2 |

Figure 8-2. Major Assemblies - Air-Cooled (Con't)

| INDEX NO. | DESCRIPTION   | PART NUMBER | REQ'D NUMBER |
|-----------|---|-------------|--------------|
| 7         | Condenser - Air Cooled<br>attaching parts, Index 7          | 18-3706-01  | 1            |
|           | Screw, No. 1/4-20 x 1/2 T/C Hex Hd<br>* * *                 | 03-0571-00  | 2            |
| 8         | Tube - 1/2-inch I.D. x 12-1/4 (order per foot)              | 13-0674-04  | 1            |
| 9         | Cup Drain<br>attaching parts, Index 8 & 9                   | 02-2248-01  | 1            |
|           | Screw, No. 6 x 3/8 T/F Tap                                  | 03-1404-23  | 2            |
|           | Clamp, Hose<br>* * *  | 02-0535-00  | 2            |
| 10        | Valve, Water Inlet<br>* * *                                 | 12-1900-05  | 1            |
| 11        | Compressor<br>(See Figure 8-8)<br>attaching parts, Index 11 | No Number   | 1            |
|           | Grommet   | 18-2200-28  | 4            |
|           | Sleeve, Mounting  | 18-2200-27  | 4            |
|           | Washer, No. 5/16 Plain                                      | 03-1407-07  | 4            |
|           | Screw, No. 5/16-18 x 1-1/2 Hex Cap<br>* * *                 | 03-1405-20  | 4            |



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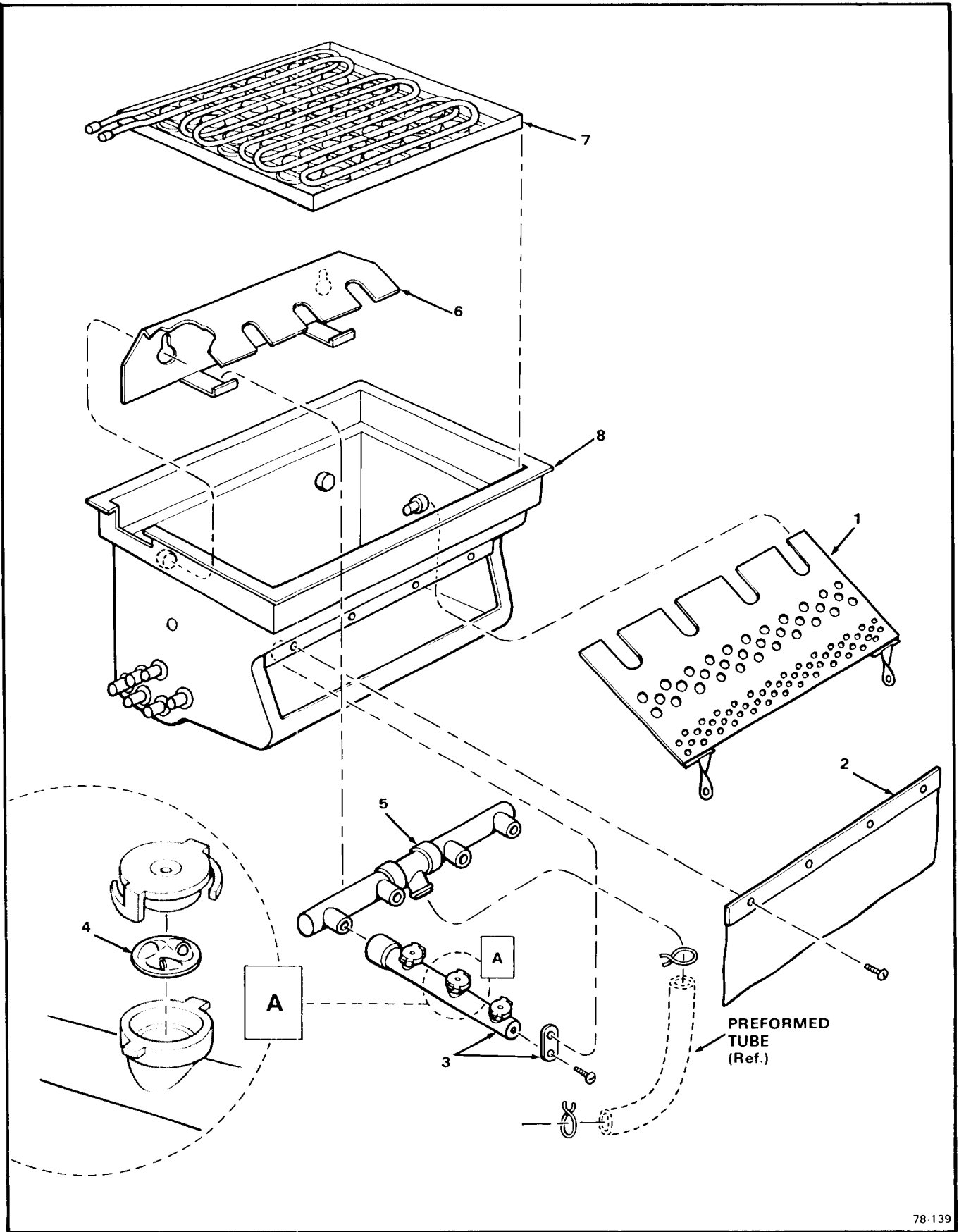
Figure 8-3. Major Assemblies - Water-Cooled.

Figure 8-3. Major Assemblies - Water-Cooled.

| INDEX NO. | DESCRIPTION  | PART NUMBER                                | REQ'D NUMBER    |
|-----------|--|--|-----------------|
|           | Major Assemblies - Water-Cooled<br>* * *   | No Number                                  | Ref             |
| 1         | Drier  | 02-0831-00                                 | 1               |
| 2         | Brace, Drier<br>attaching parts, Index 1 & 2<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *  | A09386-000<br><br>03-1404-09               | 1<br><br>1      |
| 3         | Coil & Frame Assembly, Hot Gas Valve   | 12-2008-01                                 | 1               |
| 4         | Body & Plunger Assembly, Hot Gas Valve<br>attaching parts, Index 3 & 4<br>Screw, No. 8-32 x 3/8 Pan Hd<br>* * *  | 12-2007-01<br><br>03-1403-17               | 1<br><br>2      |
| 5         | Control, Hi Pressure (Flare Nut Connector)<br>Control, Hi Pressure (Solder Connector)<br>attaching part, Index 5<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *      | 11-0388-01<br>11-0388-02<br><br>03-1404-09 | 1<br>1<br><br>2 |
| 6         | Regulator Assembly, Water<br>attaching parts, Index 6<br>Lockwasher, No. 1/4 External Tooth - Carbon Steel Zinc Plated<br>Screw, No. 1/4-20 x 1/2 T/C Hex Hd | No Number<br><br>03-1417-09<br>03-0571-00  | 1<br><br>2<br>2 |
| 6a        | Union, Half - No. 5/8-18 x 3/8 Flare   | 16-0677-01                                 | 1               |
| 6b        | Nipple Assembly, Pipe (w/Bracket)  | A15924-000                                 | 1               |
| 6c        | Coupling - 3/8 NPT x 3/8 Flare Brass   | 16-0355-00                                 | 1               |
| 6d        | Valve, Water Regulator<br>* * *  | 11-0198-02                                 | 1               |
| 7         | Condenser - Water-cooled<br>attaching parts, Index 7<br>Screw, No. 1/4-20 x 1/2 T/C Hex Hd<br>* * *  | 18-3707-01<br><br>03-0571-00               | 1<br><br>2      |
| 8         | Tube - 1/2-inch I.D. x 12-1/4 (Order per foot)   | 13-0674-04                                 | 1               |

Figure 8-3. Major Assemblies - Water-Cooled. (Cont'd.)

| INDEX NO. | DESCRIPTION   | PART NUMBER   | REQ'D NUMBER              |
|-----------|---|---|---------------------------|
| 9         | Cup, Drain<br>attaching parts, Index 8 & 9<br>Screw, No. 6 x 3/8 T/F Tap<br>Clamp, Hose<br>* * *  | 02-2248-01<br><br>03-1404-23<br>02-0535-00                            | 1<br><br>2<br>2           |
| 10        | Valve, Water Inlet<br>* * *   | 12-1900-05  | 1                         |
| 11        | Compressor<br>(See Figure 8-8)<br>attaching parts, Index 11<br>Grommet<br>Sleeve, Mounting<br>Washer, No. 5/16 Plain<br>Screw, No. 5/16-18 x 1-1/2 Hex Cap<br>* * * | No Number<br><br>18-2200-28<br>18-2200-27<br>03-1407-07<br>03-1405-20 | 1<br><br>4<br>4<br>4<br>4 |



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Figure 8-4. Freezer - Platen Assemblies.

Figure 8-4. Freezer - Platen Assemblies.

| INDEX NO. | DESCRIPTION   | PART NUMBER                  | REQ'D NUMBER  |
|-----------|---|------------------------------|---------------|
|           | Freezer - Platen Assemblies<br>(See Figure 8-1 for next higher Assembly)<br>* * *                   | No Number                    | Ref.          |
| 1         | Chute, Cube - Front<br>* * *  | A26800-001                   | 1             |
| 2         | Curtain Assembly<br>attaching parts, Index 2<br>Screw, No. 8 x 1/2 T/F Tap S/S<br>* * *             | 02-2241-01<br><br>03-1404-10 | 1<br><br>4    |
| 3         | Tube, Spray<br>attaching parts, Index 3<br>Screw, No. 8 x 1/2 T/F Tap S/S (Curtain screws)<br>* * * | A25801-020<br><br>03-1404-10 | 4<br><br>Ref. |
| 4         | Spinner, Jet (3 per spray tube)<br>* * *  | A09543-000                   | 3 (12)        |
| 5         | Tube, Manifold<br>* * *   | 02-2193-01                   | 1             |
| 6         | Chute, Cube - Rear<br>* * *   | A25747-001                   | 1             |
| 7         | Platen Assembly (medium size ice cubes)<br>Platen Assembly (small size ice cubes)<br>* * *          | A25748-020<br>A25753-020     | 1<br>1        |
| 8         | Chamber, Freezing<br>* * *  | 02-2226-01                   | 1             |

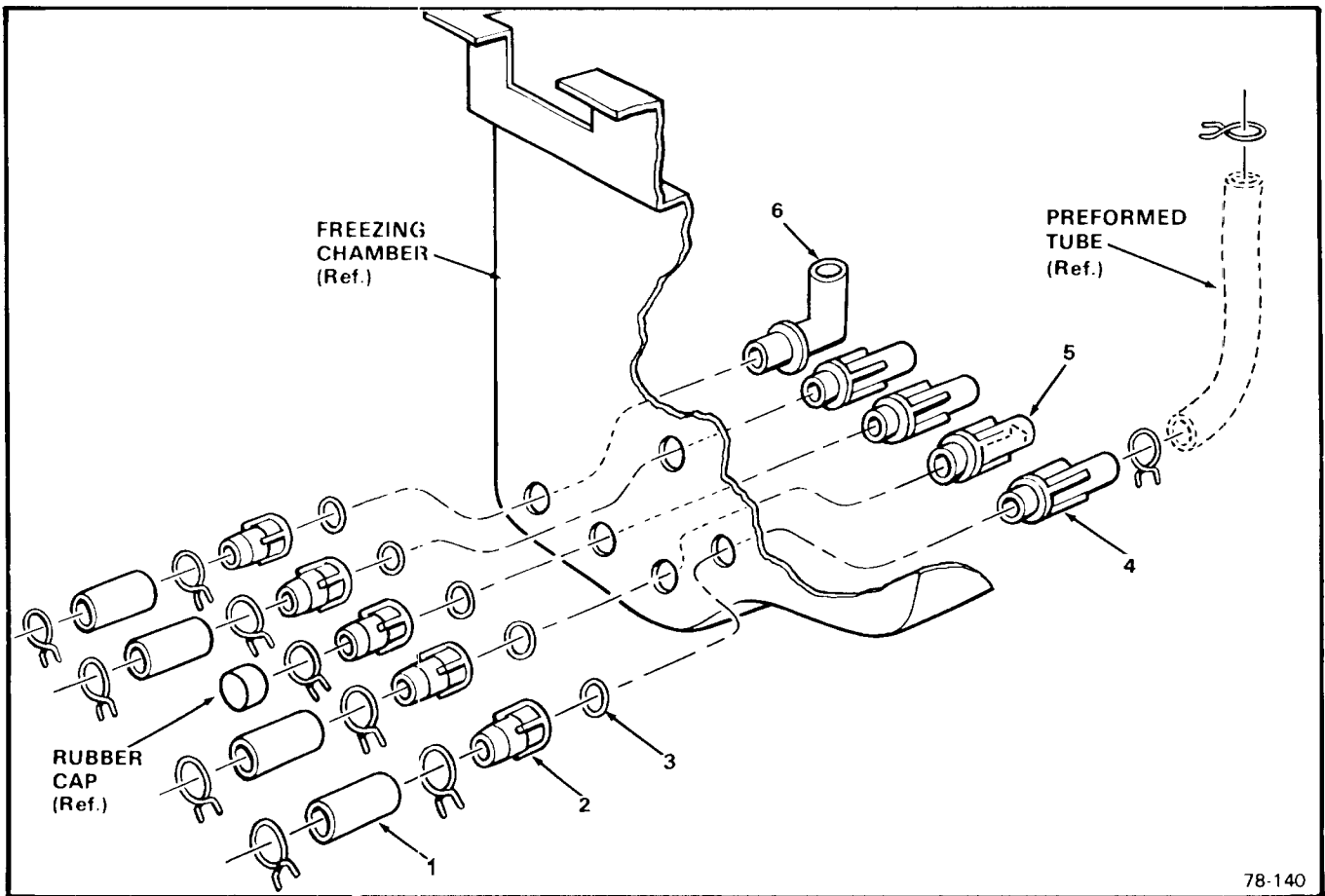


Figure 8-5. Freezer-Pump-Drain Tube Connections.

| INDEX NO. | DESCRIPTION   | PART NUMBER                                | REQ'D NUMBER    |
|-----------|---|--|-----------------|
|           | Freezer-Pump-Drain Tube Connections<br>(See Figure 8-4 for next higher Assembly)                  | No Number                                  | Ref.            |
| 1         | ***<br>Tube - 3/4-inch I.D. x 2 (Order per foot)  | 13-0674-07                                 | 4               |
| 2         | Tube, Female<br>attaching parts, Index 1 & 2<br>Clamp, Hose<br>Clamp, Hose (Fits over Rubber Cap) | A24379-001<br><br>02-1358-01<br>02-1530-01 | 5<br><br>8<br>1 |
| 3         | ***<br>O-Ring   | 13-0617-02                                 | 5               |
| 4         | ***<br>Tube, Male   | 02-2080-01                                 | 3               |
| 5         | ***<br>Tube, Pump Pick Up   | 02-2082-01                                 | 1               |
| 6         | ***<br>Pipe, Stand<br>***   | 02-2125-01                                 | 1               |



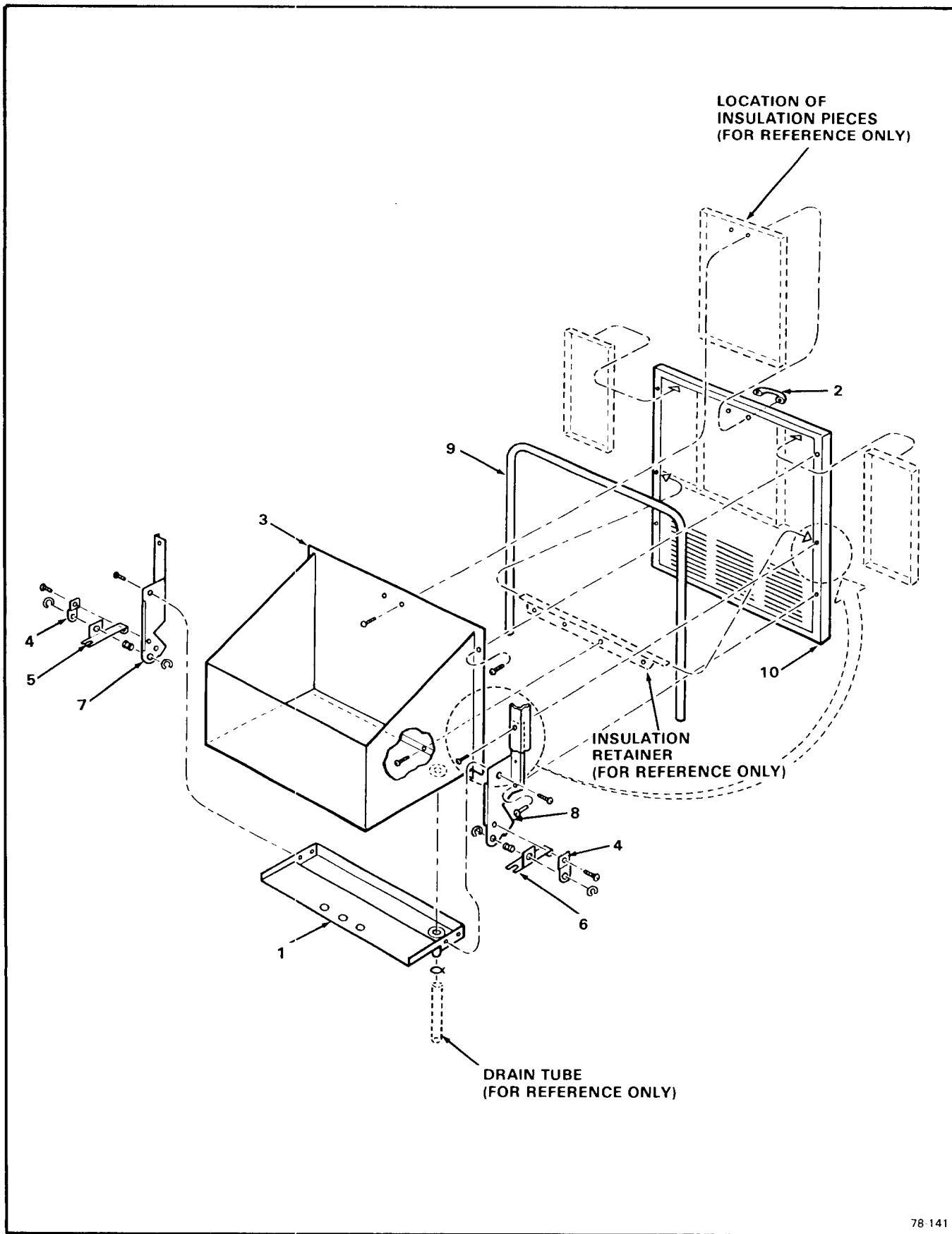


Figure 8-6. Lower Front Door Bin Assembly.

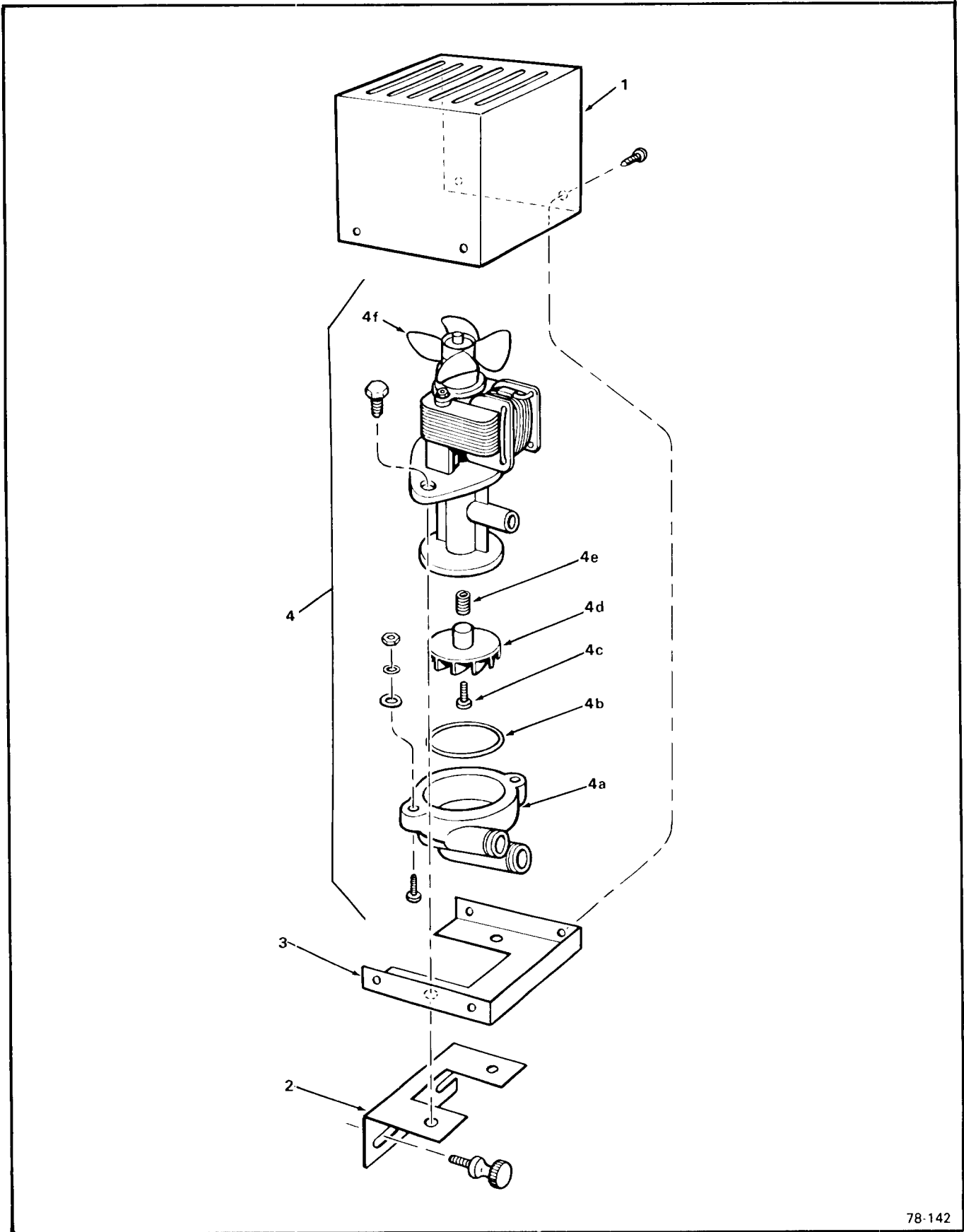
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Figure 8-6. Lower Front Door Bin Assembly.

| INDEX NO. | DESCRIPTION  | PART NUMBER | REQ'D NUMBER |
|-----------|--|-------------|--------------|
|           | Lower Front Door Bin Assembly (C.R.S Painted)                          | A25717-001  | Ref.         |
|           | (See Figure/Index 8-1/2 (Stainless Steel)<br>for next higher Assembly) | A25717-002  | Ref.         |
|           | * * *  |             |              |
| 1         | Pan Assembly, Drip<br>attaching part, Index 2                          | A25725-001  | 1            |
|           | Screw, No. 8 x 1/2 T/F Tap   | 03-1404-10  | 4            |
|           | * * *  |             |              |
| 2         | Handle, Door<br>attaching part, Index 2                                | 15-0596-01  | 1            |
|           | Screw, No. 10-24 x 1-1/4 Phil Recess Pan Hd                            | 03-1403-73  | 2            |
|           | * * *  |             |              |
| 3         | Bin Assembly<br>attaching part, Index 3 (sides of Bin)                 | A25729-001  | 1            |
|           | Screw, No. 8 x 1/2 T/F Tap   | 03-1404-10  | 16           |
|           | attaching part, (bottom Bin to Insulation Retainer)                    |             |              |
|           | Screw, No. 8 x 1/4 T/F Tap   | 03-1404-29  | 4            |
|           | * * *  |             |              |
| 4         | Bracket, hinge<br>attaching part, Index 4 to 7 & 8                     | A25720-001  | 2            |
|           | Screw, No. 1/4-20 x 1/2 T/C Hex Hd                                     | 03-0571-00  | 2            |
|           | * * *  |             |              |
| 5         | Hinge, Base - Right  | A25719-002  | 1            |
| 6         | Hinge, Base - Left   | A25719-001  | 1            |
| 7         | Hinge, Right Side  | A25724-002  | 2            |
| 8         | Hinge, Left Side   | A25724-001  |              |
|           | Attaching parts, Index 4, 5, 6 to 7 & 8                                |             |              |
|           | Pin Hinge  | A25722-001  | 2            |
|           | Ring, Retaining  | 03-1539-08  | 4            |
|           | attaching parts, Index 7 & 8 to 1 & 10                                 |             |              |

Figure 8-6. Lower Front Door Bin Assembly (Cont'd).

| INDEX NO. | DESCRIPTION                                  | PART NUMBER | REQ'D NUMBER |
|-----------|--|-------------|--------------|
|           | Screw, No. 8 x 1/2 T/F Tap<br>* * *          | 03-1404-10  | 4 (ref.)     |
| 9         | Gasket (67-inch) (Order per foot)<br>* * *   | 13-0595-00  | 1            |
| 10        | Door, Lower Front (C.R.S. Painted)           | A25718-001  | 1            |
|           | Door, Lower Front (Stainless Steel)<br>* * * | A25718-002  | 1            |

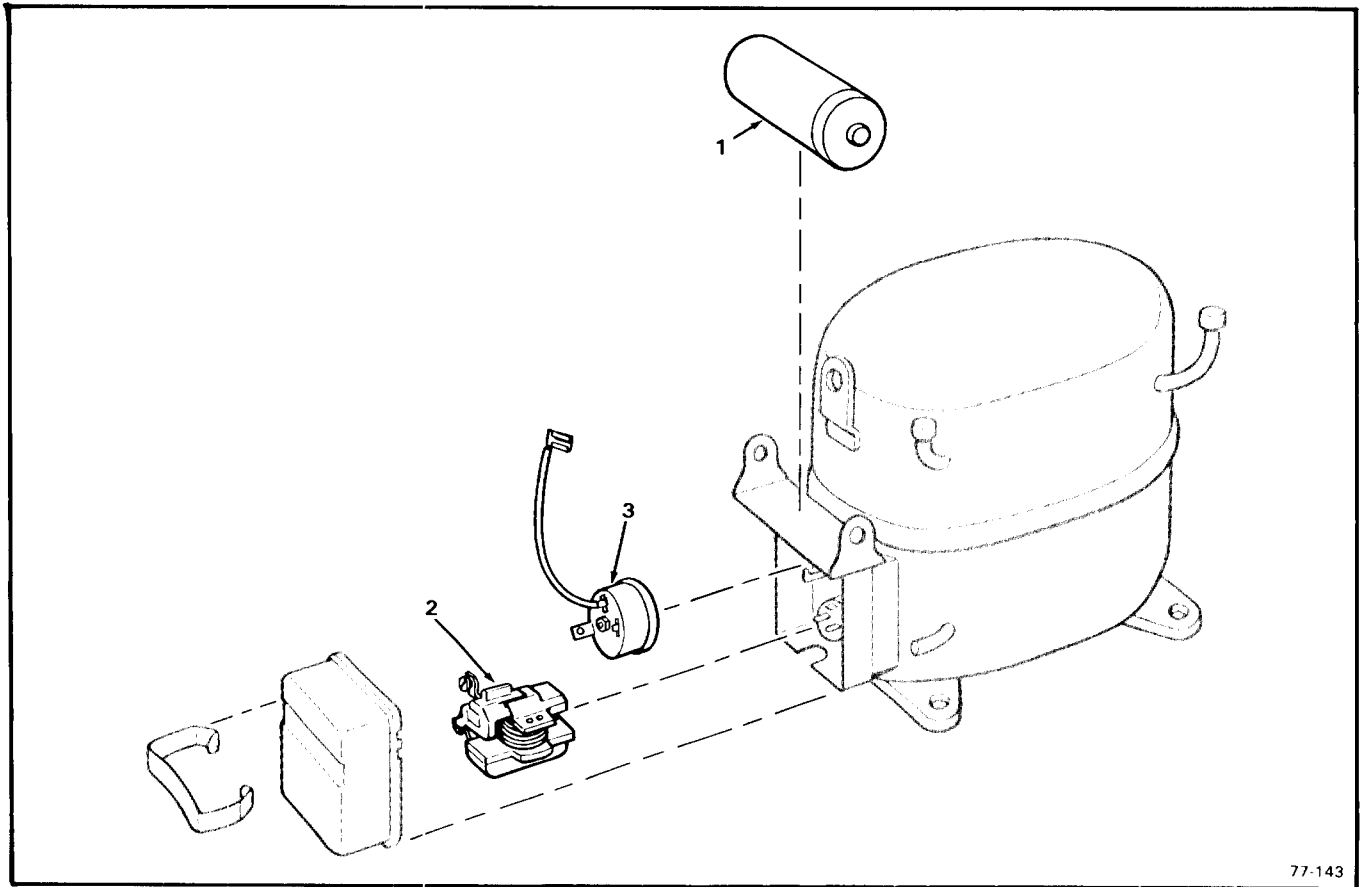


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Figure 8-7. Water Pump, Bracket & Enclosure Assembly.

Figure 8-7. Water Pump, Bracket & Enclosure Assembly.

| INDEX NO. | DESCRIPTION   | PART NUMBER  | REQ'D NUMBER          |
|-----------|---|--|-----------------------|
|           | Water Pump, Bracket & Enclosure Assembly<br>(See Figure 8-1 for next higher Assembly)<br>* * *  | No Number  | Ref.                  |
| 1         | Enclosure, Pump<br>attaching part, Index 1<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *   | A25795-001<br>03-1404-10   | 1<br>4                |
| 2         | Bracket, Water Pump   | No Number  | Ref.                  |
| 3         | Bracket, Pump Box<br>attaching parts, Index 2, 3 & 4<br>Screw, No. 1/4-20 x 1/2 T/X Hex Hd<br>attaching part, (Pump & Bracket to Cabinet Liner)<br>Screw, Thumb - No. 10-24 x 1/2 Knurled Hd<br>* * * | A25794-001<br>03-0571-00<br>03-0727-00                             | 1<br>2<br>2           |
| 4         | Pump, Water<br>attaching part, Index 4 to 2 & 3<br>Screw, No. 1/4-20 x 1/2 T/C Hex Hd   | 12-1975-01<br>03-0571-00   | 1<br>Ref.             |
| 4a        | Housing, Pump Intake  | 12-1849-61   | 1                     |
| 4b        | O-Ring  | 12-1849-60   | 1                     |
| 4c        | Screw   | 12-2061-54   | 1                     |
| 4d        | Impeller  | 12-2061-53   | 1                     |
| 4e        | Spring<br>attaching parts, Index 4a thru 4e<br>Washer, No. 6 Plain S/S<br>Lockwasher, No. 6 External Tooth-Phosphor Bronze<br>Screw, No. 6-32 x 7/8 Phil Recess Pan Hd<br>Nut, No. 6-32               | 12-2061-55<br>03-1407-01<br>03-1417-01<br>03-1403-08<br>03-1406-01 | 1<br>2<br>2<br>2<br>2 |
| 4f        | Blade, Fan<br>* * *   | 02-1719-00   | 1                     |



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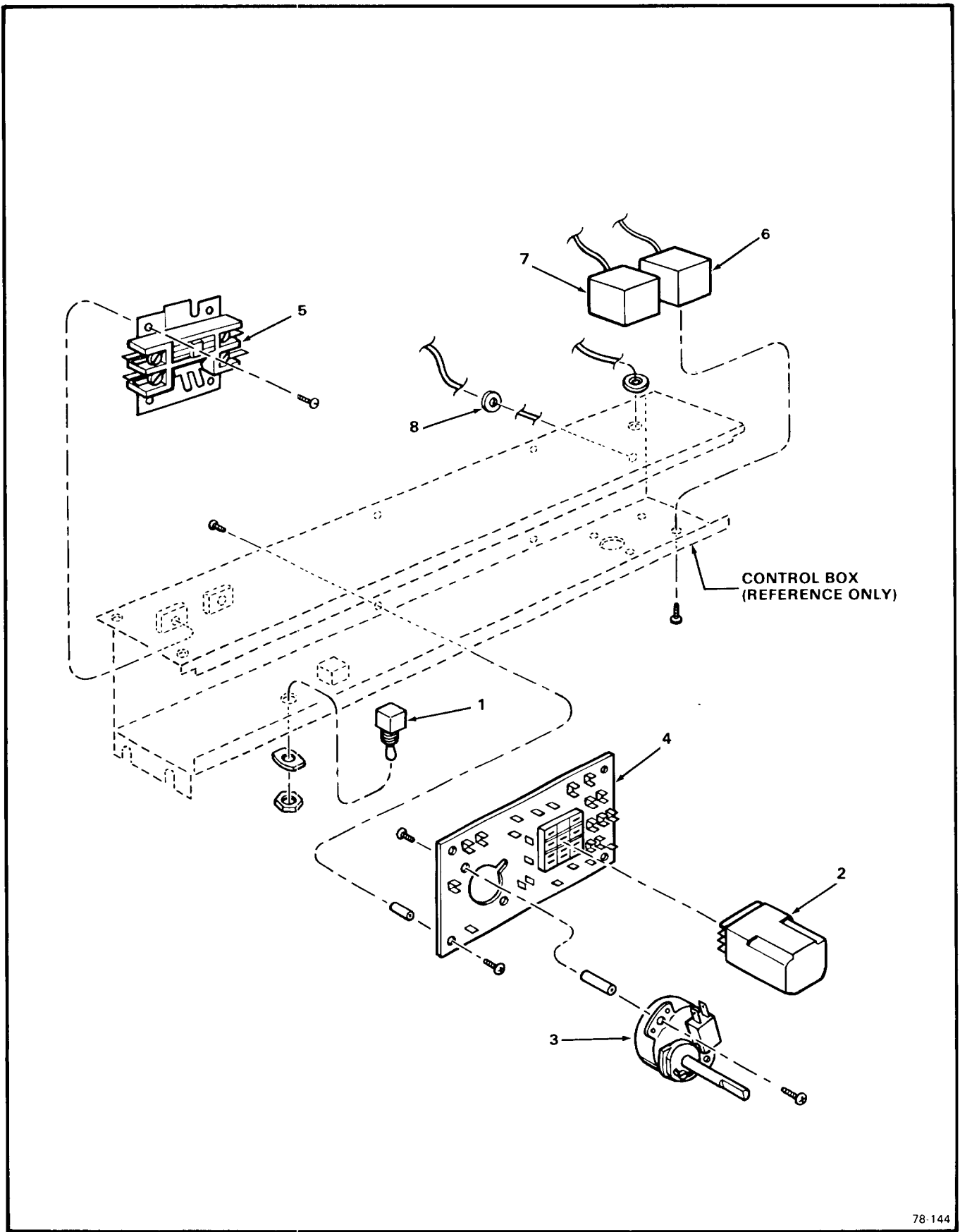
Figure 8-8. Compressor Assembly.

| INDEX NO. | DESCRIPTION                              | PART NUMBER | REQ'D NUMBER |
|-----------|--|-------------|--------------|
|           | Compressor Assembly (Copeland)           | 18-4100-01  | Ref.         |
|           | (See Figure 8-2/11 and 8-3/11 (Tecumseh) | 18-3600-01  | Ref.         |
|           | for next higher Assembly)                |             |              |
|           | ***                                      |             |              |
| 1         | Capacitor, Start (Copeland)              | 18-4100-43  | 1            |
|           | Capacitor, Start (Tecumseh)              | 18-3600-30  | 1            |
|           | ***                                      |             |              |
| 2         | Relay (Copeland)                         | 18-4100-42  | 1            |
|           | Relay (Tecumseh)                         | 18-3600-34  | 1            |
|           | ***                                      |             |              |
| 3         | Overload (Copeland)                      | 18-4100-41  | 1            |
|           | Protector (Tecumseh)                     | 18-3600-35  | 1            |
|           | ***                                      |             |              |

Figure 8-8. Compressor Assembly. (Cont'd.)

**NOTE:**

1. Early Model AC-20's used the COPELAND Compressor, except 400 units produced during 1976, when the TECUMSEH Compressor was installed, serial number usage for the 400 units include:  
  
6Q302269 through 302514 (256 units)  
6Q306164 through 306308 (144 units)  
400 units total
2. Complete Motor Compressors are interchangeable. However, for replacement of defective component parts, replace with like part. DO NOT MIX TECUMSEH with COPELAND parts.
3. Current production of the Model AC-20, beginning with Serial No. 406754-09R uses the TECUMSEH Compressor.



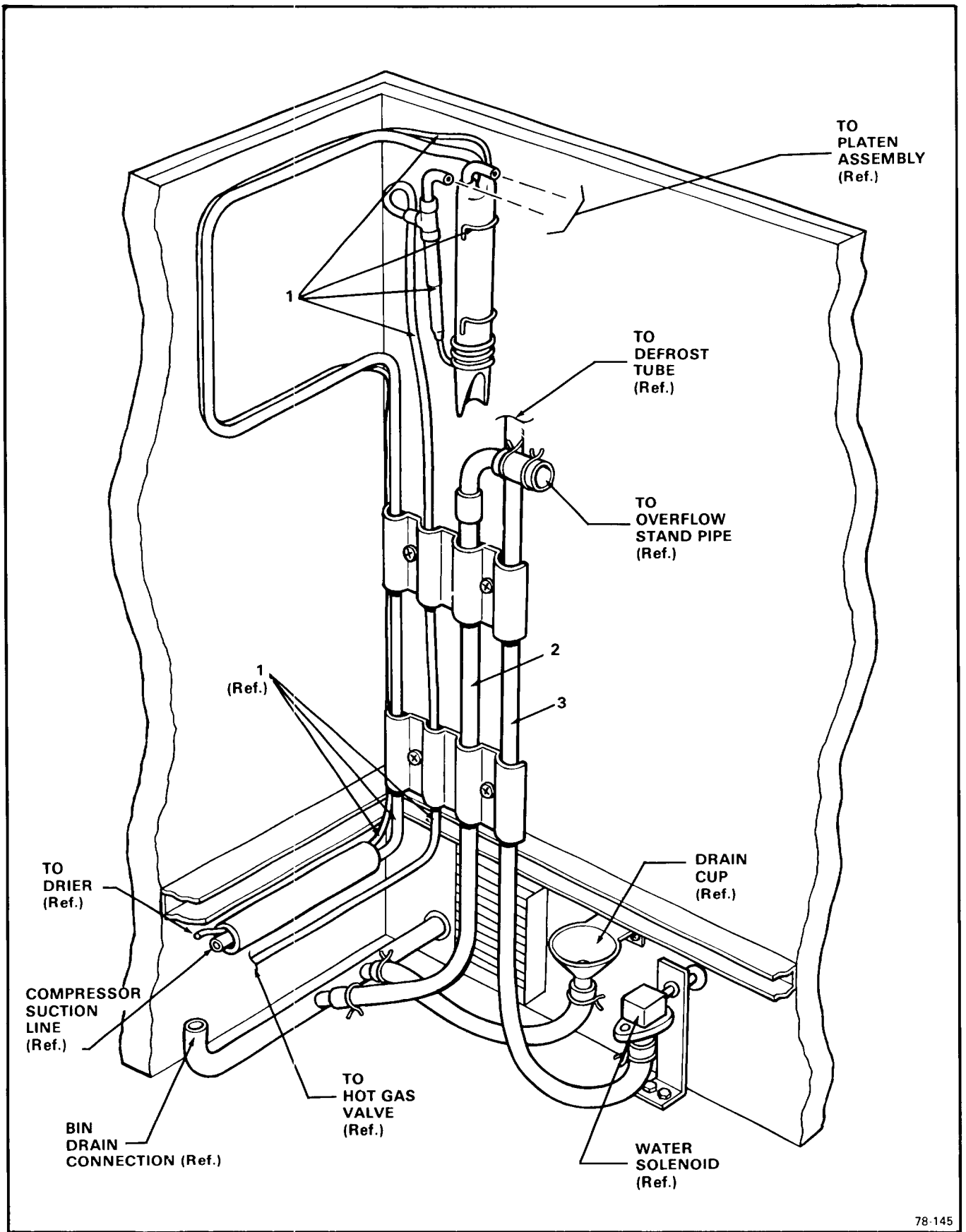
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Figure 8-9. Control Box Assembly.



Figure 8-9. Control Box Assembly.

| INDEX NO. | DESCRIPTION   | PART NUMBER                            | REQ'D NUMBER |
|-----------|---|--|--------------|
|           | Control Box Assembly<br>(See Figure 8-1 for next higher Assembly)<br>* * *  | No Number                              | Ref.         |
| 1         | Switch, Toggle<br>* * *   | 12-0426-01                             | 1            |
| 2         | Relay 3PDT Covered (Air-Cooled Model)<br>Relay 3PDT Covered (Water-Cooled Model)<br>* * *   | 12-1879-03<br>12-1879-02               | 1<br>1       |
| 3         | Timer & Switch Assembly<br>attaching parts, Index 3<br>Stand - Off - (7/8 lg.)<br>Screw, No. 6-32 x 1/4 Phil Recess Pan Hd<br>* * * | 12-1980-01<br>02-2242-01<br>03-1403-02 | 1<br>2<br>4  |
| 4         | Board Assembly, Circuit<br>attaching parts, Index 4<br>Stand - Off - (5/8 lg.)<br>Screw, No. 6-32 x 1/4 Phil Recess Pan Hd<br>* * * | 12-1912-01<br>02-2242-02<br>03-1403-02 | 1<br>5<br>5  |
| 5         | Contactor<br>attaching parts, Index 5<br>Screw, No. 8-32 x 3/16 Phil Recess Pan Hd<br>* * *   | 12-2041-01<br>03-1403-14               | 1<br>2       |
| 6         | Control, Temperature (Bin)  | 11-0353-02                             | 1            |
| 7         | Control, Cube Size<br>Screw, No. 8-32 x 1/4 Phil Recess Pan Hd<br>* * *   | 11-0345-02<br>03-1403-15               | 1<br>4       |
| 8         | Grommet<br>* * *  | 13-0557-00                             | 2            |



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Figure 8-10. Heat Exchanger, Tubing & Fittings.

Figure 8-10. Heat Exchanger, Tubing & Fittings.

| INDEX NO. | DESCRIPTION   | PART NUMBER | REQ'D NUMBER |
|-----------|---|-------------|--------------|
|           | Heat Exchanger, Tubing and Fittings<br>(See Figure 8-1 for next higher Assembly)<br>* * * | No Number   | Ref.         |
| 1         | Exchanger Assembly, Heat<br>* * *   | A25755-001  | 1            |
| 2         | Tube, Tygon 1/2 inch I.D. x 23 (Order per foot)   | 13-0674-04  | 1            |
| 3         | Tube, Tygon 1/2 inch I.D. x 40 (Order per foot)<br>attaching parts                        | 13-0674-04  | 1            |
|           | Clamp, Hose 11/16 inch I.D. Index 2 & 3   | 02-0535-00  | 2            |
|           | Clamp, Hose 1 inch I.D. Index 2<br>* * *  | 02-1358-01  | 2            |

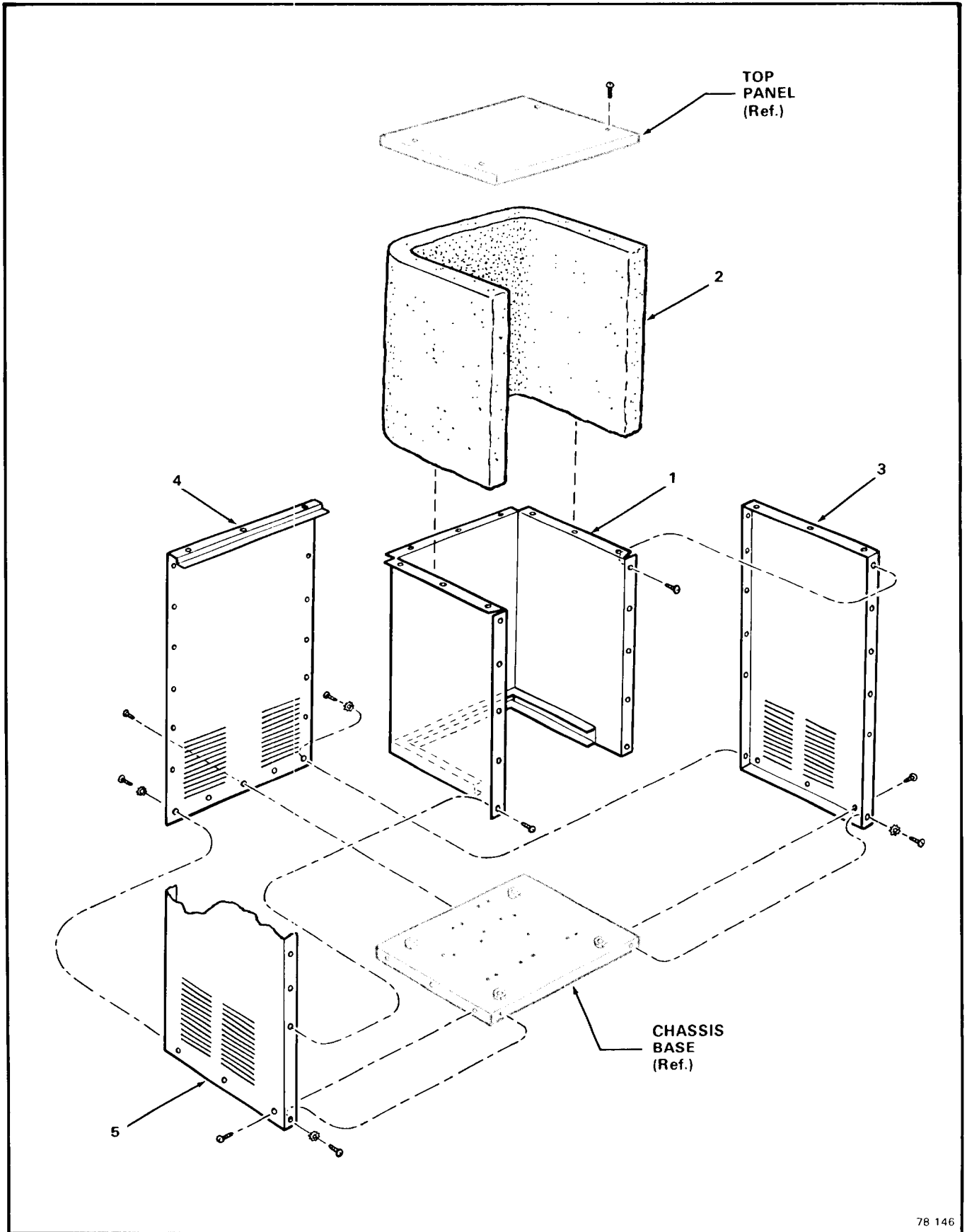


Figure 8-11. Panels and Cabinet Liner Assembly.

Figure 8-11. Panels and Cabinet Liner Assembly.

| INDEX NO. | DESCRIPTION   | PART NUMBER  | REQ'D NUMBER             |
|-----------|---|--|--------------------------|
|           | Panels and Cabinet Liner Assembly<br>(See Figure 8-1 for next higher Assembly)<br>* * *   | No Number  | Ref.                     |
| 1         | Liner Assembly, Cabinet<br>attaching parts, Index 1<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *  | A25735-001<br><br>03-1404-10                             | 1<br><br>6               |
| 2         | Insulation, Fiberglass 1-1/4 Thk. x 24 Wide x 56 Lg.<br>* * *   | No Number  | 1                        |
| 3         | Panel, Right Side (C.R.S. Painted)<br>Panel, Right Side (Stainless Steel)<br>attaching parts, Index 3<br>Lockwasher, No. 8 External Tooth-Carbon Steel Zinc Plated<br>Screw, No. 8 x 1/2 T/F Tap<br>* * * | A25703-001<br>A25703-002<br><br>03-1417-03<br>03-1404-10 | 1<br>1<br><br>2<br>4     |
| 4         | Panel, Back (C.R.S. Painted)<br>Panel, Back (Stainless Steel)<br>attaching parts, Index 4<br>Lockwasher, No. 8 External Tooth-Carbon Steel Zinc Plated<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *             | A25707-001<br>A25707-002<br><br>03-1417-03<br>03-1404-10 | 1<br>1<br><br>Ref.<br>17 |
| 5         | Panel, Left Side (C.R.S. Painted)<br>Panel, Left Side (Stainless Steel)<br>attaching parts, Index 5<br>Lockwasher, No. 8 External Tooth-Carbon Steel Zinc Plated<br>Screw, No. 8 x 1/2 T/F Tap<br>* * *   | A25702-001<br>A25702-002<br><br>03-1417-03<br>03-1404-10 | 1<br>1<br><br>2<br>4     |