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SPECIFICATIONS

	MM1010HB	MM1010WHB
Compressor	3 hp twin cylinder Semi Hermetic	3 hp twin cylinder Semi Hermetic
Condenser	Cleanable Air Cooled	Cleanable Water Cooled
Refrigerant	R12	R12
Refrigerant Charge	110 ounces	105 ounces
Refrigerant Control	Eight Capillary Tubes	Eight Capillary Tubes
Power Consumption	21.7 Amp., 3 Wire 230 V., 60 Cycle Single Phase	15.8 Amp., 3 Wire 230 V., 60 Cycle Single Phase
Water Consumption to Produce Ice	30.9 Gallons per hour	30.9 Gallons per Hour
Water used by Condenser		1 to 3 1/2 Gallons per minute. Varies with water tempera- ture.
Ice Capacity	See Chart. Page 4	See Chart. Page 4
Companion Bin	B-700	B-700
Cube Size	Scotsman Mini cube	Scotsman Mini cube
Cubes Per Harvest	832	832

## NOTE :

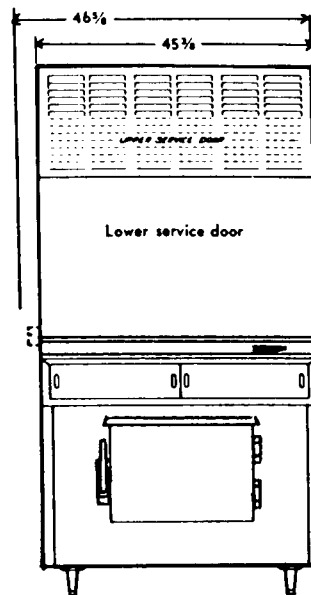
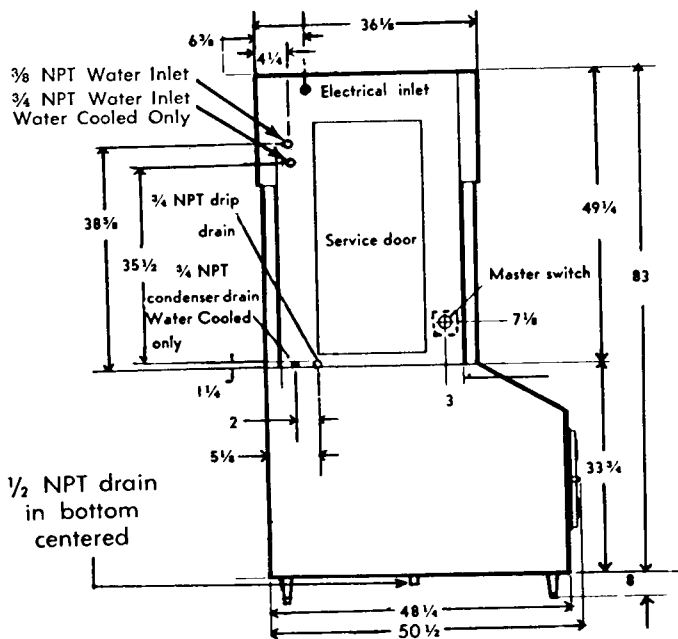
All Scotsman Super Cubers require neutral wire for secondary 115 volt components circuit. 3 phase cubers require 4 wire service with neutral. Special voltages upon request.

## SPECIFICATIONS

SUPER CUBER MM-1010 SERIES	MODEL MM1010HB	MODEL MM1010WHB	MODEL MM1010HB-SS	MODEL MM1010WHB-SS
CONDENSER, Air Cooled	X		X	
CONDENSER, Water Cooled		X		X
CONDENSER DRAIN 3/4" NPT		X		X
FINISH, Hammerloid Grey	X	X		
FINISH, Stainless Steel			X	X
SHIPPING WEIGHT, MACHINE SECTION	930	930	940	940

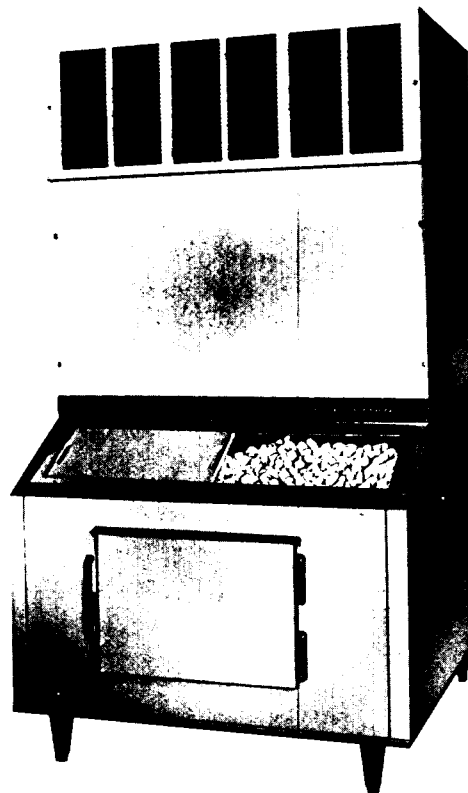
DAILY CAPACITY (See chart)  
 STORAGE UNIT 700 lbs.  
 COMPRESSOR 3 H.P.  
 ELECTRICAL 115-230 V, 60 CY, 1 PH, 3 WIRE  
 (Neutral Wire Required)  
 WATER INLET 3/8" NPT  
 CONDENSER DRAIN 3/4" NPT

DRAIN ON B-700H BIN 1/2" NPT  
 SUMP DRAIN 3/4" NPT  
 STORAGE BIN, Stainless Steel Liner  
 HEIGHT - (With legs and B-700H Bin) 91" to 91-3/4"  
 HEIGHT - (Without legs with B-700H Bin) 83"  
 WIDTH - 46-5/8"  
 OVERALL DEPTH, Air Cooled, Including Bin 50-1/2"



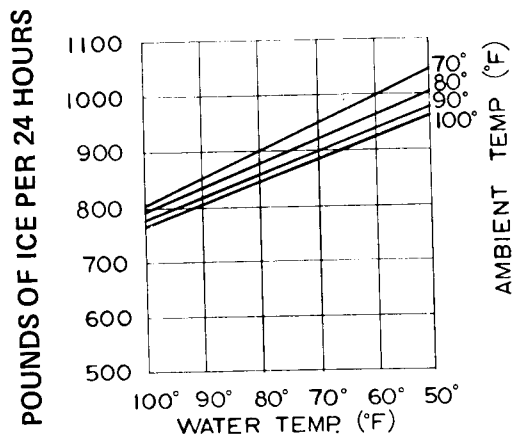
# SCOTSMAN

## SUPER CUBER MM-1010 HB SERIES

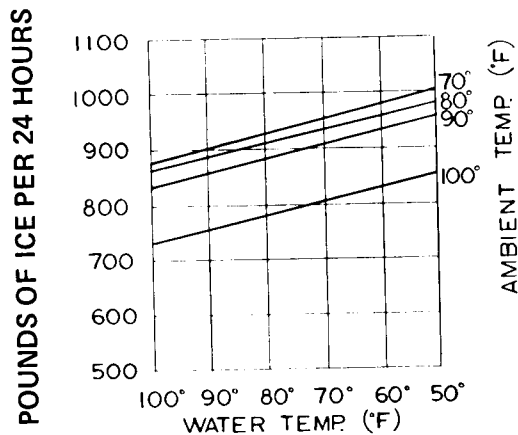


### ice making capacity

WATER COOLED MODELS



AIR COOLED MODELS



## INSTALLATION

### LOCATION OF THE ICE CUBE MACHINE

1. Select a location as convenient as possible for the user.
2. Accessible to the necessary electrical and plumbing connections.
3. If possible, have a minimum space of 12 inches above top and from left end panel for service.
4. A minimum of 24 inches for the convenience of the user in front of the machine.
5. Room temperature--minimum of 50 degrees, maximum of 100 degrees.

ALL INSTALLATIONS--Locate, if possible, so left end panel is accessible. Locate unit so proper circulation can be attained around the unit and behind it at least four inch. Provide plumbing and electrical connections so the unit can be moved out where the entire top can be removed and the unit can still be operated.

KITCHEN INSTALLATIONS--As a rule, the kitchen is not the most practical place to install an air-cooled condensing unit, as grease is almost always present and makes cleaning of the condensing unit difficult. Do not locate near range or steam table or other heating devices that may be used in the kitchen.

STOREROOM INSTALLATIONS--Be sure storeroom is of adequate size and properly ventilated. A small, poorly ventilated room will greatly impair the efficiency of the unit. The storeroom must be kept above 50 degrees in the winter months.

BASEMENT INSTALLATION--Locate machine in the coolest place. Locate the machine in a dry place. Keep away from furnace and boiler room. Keep away from service chutes and runways, also coal or other dust of any kind. If the machine is set over a floor drain, block the machine up enough to eliminate any possible damage to the machine.

LOCATE THE MACHINE SO IT CAN BE SERVICED WHEN NECESSARY.  
ALLOW AT LEAST FOUR INCHES OF SPACE AROUND THE MACHINE  
FOR CIRCULATING AIR.

### UNCRATING

1. If possible, do not uncrate until equipment is in permanent location.
2. Storage bin and machine compartments are shipped in separate crates.
3. Remove hold-down bolts from skids.
4. Remove crate in usual manner for wood crating.

### PREPARATION FOR INSTALLATION

1. Inspect complete unit cabinetry for shipping damage. Notify carrier of concealed damage claims.
2. Remove all service doors and panels.
3. Remove leg package from bin and install 4 legs in bin base sockets.
4. Loosen motor compressor hold down nuts until motor compressor rides freely on mounting springs.

## PREPARATION FOR INSTALLATION

5. Remove all masking tape and packing members from curtains and inner cube making compartments. Re-align components such as sump pump or cube racks that may have shifted in transit.
6. Remove water strainer from compressor section for installation on unit or in water supply line feeding unit.
7. Open electrical control box and prepare for hook up. Use knock outs, cord connectors, etc. Then check unit nameplate voltage against building source voltage to make sure they correspond. Caution - Improper voltage applied to units will void your warranty protection.
8. Select unit location prior to hook up of water, drain and electric in accordance with local and national codes, minimum room temperatures 50° Fahrenheit. On air cooled models select well ventilated location.
9. Remove warranty card and service manual from storage bin and wipe bin clean with damp cloth.
10. Fill out warranty card completely including model and serial numbers as taken from aluminum plate found on the lower left side, above the drain connection. Forward this card to Scotsman factory using self-mailing card.

## SETTING UP MACHINE

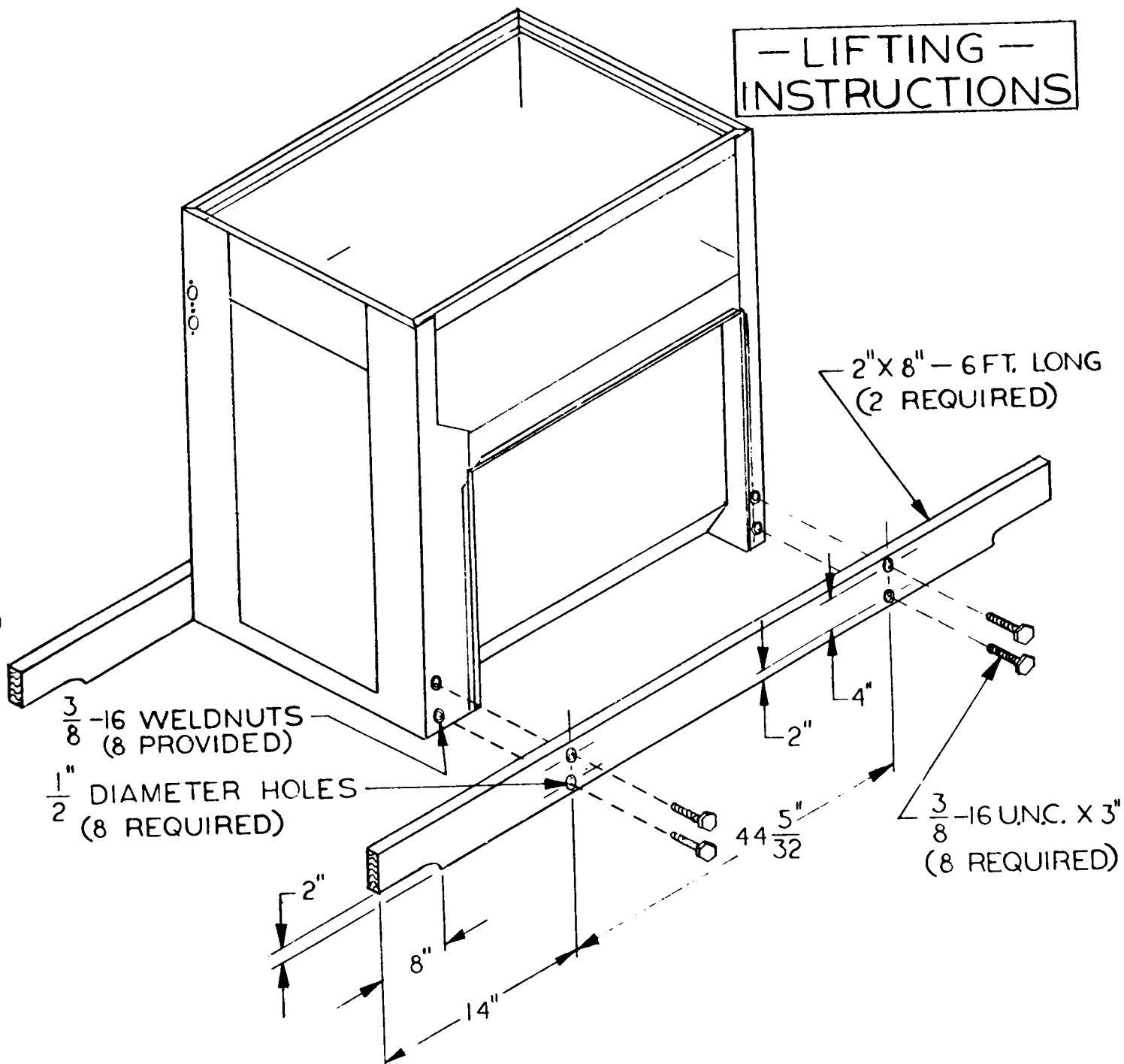
1. Be sure floor strength is capable of 2,000 pounds in an area of 46 inches by 50 inches.

If ceiling height permits, use 8 inch base legs for the storage bin which will make a more convenient height for the user and allow more fall from the storage bin drain.

3. Storage bin must be absolutely level. (This is important).

## PLACING MACHINE SECTION IN POSITION ON ICE STORAGE COMPARTMENT

1. Remove top and bottom doors on front and back of unit.
2. Extreme caution must be used to prevent damage to equipment or injury to the personnel.
3. Weld nuts for attaching carrying handles have been incorporated in each unit. Two in each corner of the front and back, these are 3/8" and spaced 4" x 43 5/8".
4. For carrying handles use 2 x 8's at least 6 feet. This allows 2 feet on each end for hand holds. See page 7
5. On the B-700 bin, care should be taken to avoid damaging rubber gasket around opening.



REMOVE DOORS. BOLT THE 2" X 8"S TO THE MACHINE BY MEANS OF EIGHT  $\frac{3}{8}$  -16 U.N.C. CAP SCREWS INTO THE WELDNUTS PROVIDED IN THE FRAME.



CONDENSER WATER IN  
ON W.C. MODELS

ELECTRICAL  
CONNECTION  
EITHER SIDE

WATER INLET  
1/2" I.P.T. IN-  
STALL STRAINER  
AND HAND SHUT-  
OFF VALVE

ACCESS PANEL  
TO WATER VALVES  
SUMP PUMPS  
AND DRIVE  
LINKAGE

3/4" I.P.S. SUMP  
DRAIN

COND. DRAIN  
W.C.

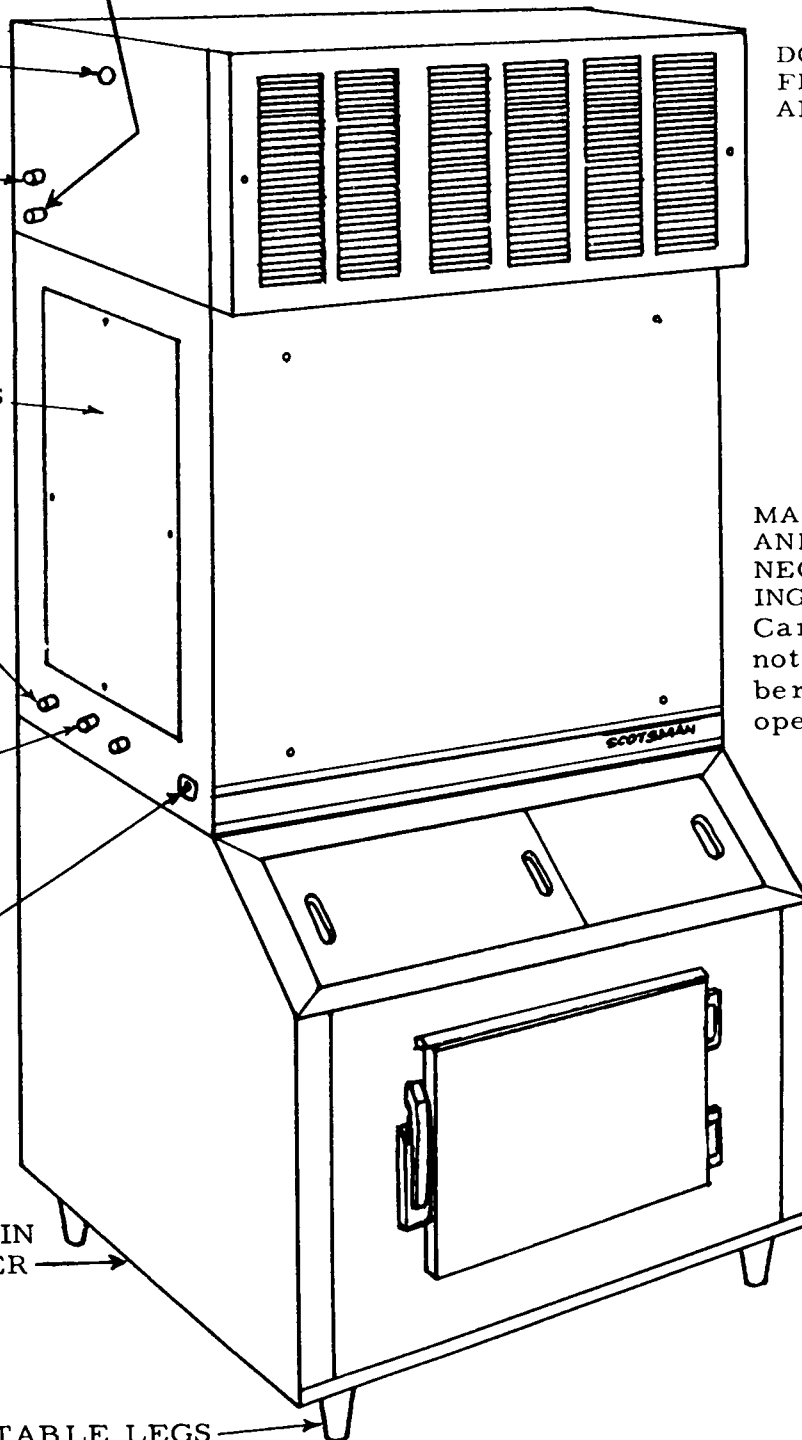
ON AND OFF  
SWITCH

1/2" I.P.T. DRAIN  
BOTTOM CENTER  
OF BIN

8" ADJUSTABLE LEGS  
LEG LEVELERS

DO NOT OBSTRUCT  
FRONT AND BACK  
AIR LOUVERS

MAKE ALL WATER  
AND DRAIN CON-  
NECTIONS ACCORD-  
ING TO LOCAL CODE  
Care should be taken  
not to damage rub-  
ber gasket around ice  
openings in B-700 bin



MM1010 INSTALLATION ON B-700 BIN

## PLUMBING

1. Refer to Installation Diagram. (Page 8)
2. Water inlet should be 1/2" pipe or larger.
3. Strainer should be installed on outside of machine as close as possible to unit.
4. A shut-off valve either of globe or gate type should be installed next to strainer for the convenience of the service man.
5. (MM1010 is equipped with three separate drains so as to comply with all plumbing codes.)
6. Drain marked sump on Page 8 should be kept 3/4" in size with adequate fall which assures complete emptying of the sump tank at the end of the freezing cycle; and also with enough velocity to remove any sediment or solids which may have accumulated from the preceding batch of ice cubes.
7. Storage drain on Page 8 should be connected to open drain.
8. The drain from the condensor on W.C. units has a slight pressure  
Note: If outlet of connected drain is visible, it is helpful to the service man in checking condensor water valve.

## WATER SUPPLY AND DRAIN CONNECTIONS

Page 8 shows recommended water piping connections and drain facilities for Model MM1010.

WATER SUPPLY - Minimum Pressure Required is 20 pounds.

The water supply line is 1/2" I.P.T. for all units. Connect to a cold water supply line with regular plumbing fittings with a shut-off valve installed in an accessible place between supply line and machine. The water strainer supplied with the unit should be mounted with clean-out plug down. Locate the strainer next to the machine and the arrow in the direction of the flow.

Use care in connecting up water line to the machine. Water supply must be installed to conform with local code.

## DRAIN

The recommended drain 1/2" I.P.T. tubing. Sweat to drain connections. Must be run to open or trapped drain. If drain is a long run, allow a 1/4" pitch per foot. Drain must be installed to conform with local code. Run separate 1/2" drain.

## WATER TREATMENT

1. In areas where vast amounts of solids and impurities are present in the water supply, it may be necessary to use some type of filtering equipment on the water that is used in the actual manufacture of the ice and not for the condenser.
2. If above condition is true, it is suggested to disconnect water regulator from present location in machine compartment and connect it to a 3/8" OD copper line which may be run to the filtering equipment. (Note If water softening equipment is available in building, connect 3/8 inch line in soft water ahead of heater.)

3. For water treatment over and above normal local impurities, consult Service Dept., Scotsman Queen Products, Albert Lea, Minnesota.

### PLACING OF BIN THERMOSTAT BULB IN STORAGE AREA

1. When mounting MM1010 on B-700 2 holes for fastening thermo bulb are located on the back wall of the bin.
2. Control has 12 foot cap tube. This should be brought down right front of freezing chamber, under cuber close to right side.
3. Bulb cover, gasket, and 2 buttons are packed with cuber.
4. When mounting unit on custom-built Bin bulb should be mounted close to the bottom, back, right-hand corner of the cuber.
5. Bulb should always be mounted so as to not be damaged by scoops or shovels.

### ELECTRICAL

1. IMPORTANT: An ice machine must be connected by competent electrician.
2. Refer to wiring diagram. (Page 13-18)
3. MM1010-4 (115-230/60/1) requires 230 volt 3 wire, single phase system.
4. MM1010-9 (115-<sup>208</sup>/<sub>220</sub>/60/3) requires 208-220 volt 4 wire, 3 phase system.
5. Compressor operates on higher voltages and component parts on 115 volts only. (Caution: In area where a wild phase is present in the system, it must be kept out of the low voltage circuit.)
6. Electrician should be instructed to install proper disconnect switch with a solid neutral.

### ELECTRICAL CONNECTION AND CHARACTERISTICS

Standard Voltage    3 Wire    230/60/1

All external wiring should conform with National Underwriters' and local code requirements. Check the voltage on the line before connecting the machine.

Be Certain that the Super cubers are on their own circuit and individually fused. The maximum allowable voltage variation should not exceed 10% of the nameplate rating even under starting conditions. Low voltage can cause erratic operation, and may be responsible for serious damage to the overload switches and motor windings. Do not install 230 volt units on 208 volt supply. If necessary, use boost-buck transformer to correct voltage.

208/220/60/3    3 phase    4 wire with neutral

Wire according to diagram on machine. All wiring to be done according to local, state and National codes.

### MANUAL SWITCH

A manual switch is provided on left side of the unit for the convenience of the user when it is desired to shut the unit down for a period of time. When any electrical component parts are being removed or serviced, it is recommended that the line switch be put in the "Off" position. Manual switch is also located in control box for shutting off compressor while cleaning unit.

HIGH PRESSURE CONTROL

## W.C. MODELS

A high pressure control is provided to shut down the complete unit in case of extremely high head pressures or interrupted water supply. Some models are equipped with a lock-out type, and the unit will remain off until the control is reset manually. (To reset, press down small plunger on top of control.) The high pressure control should be set at 185 pounds.

## START UP

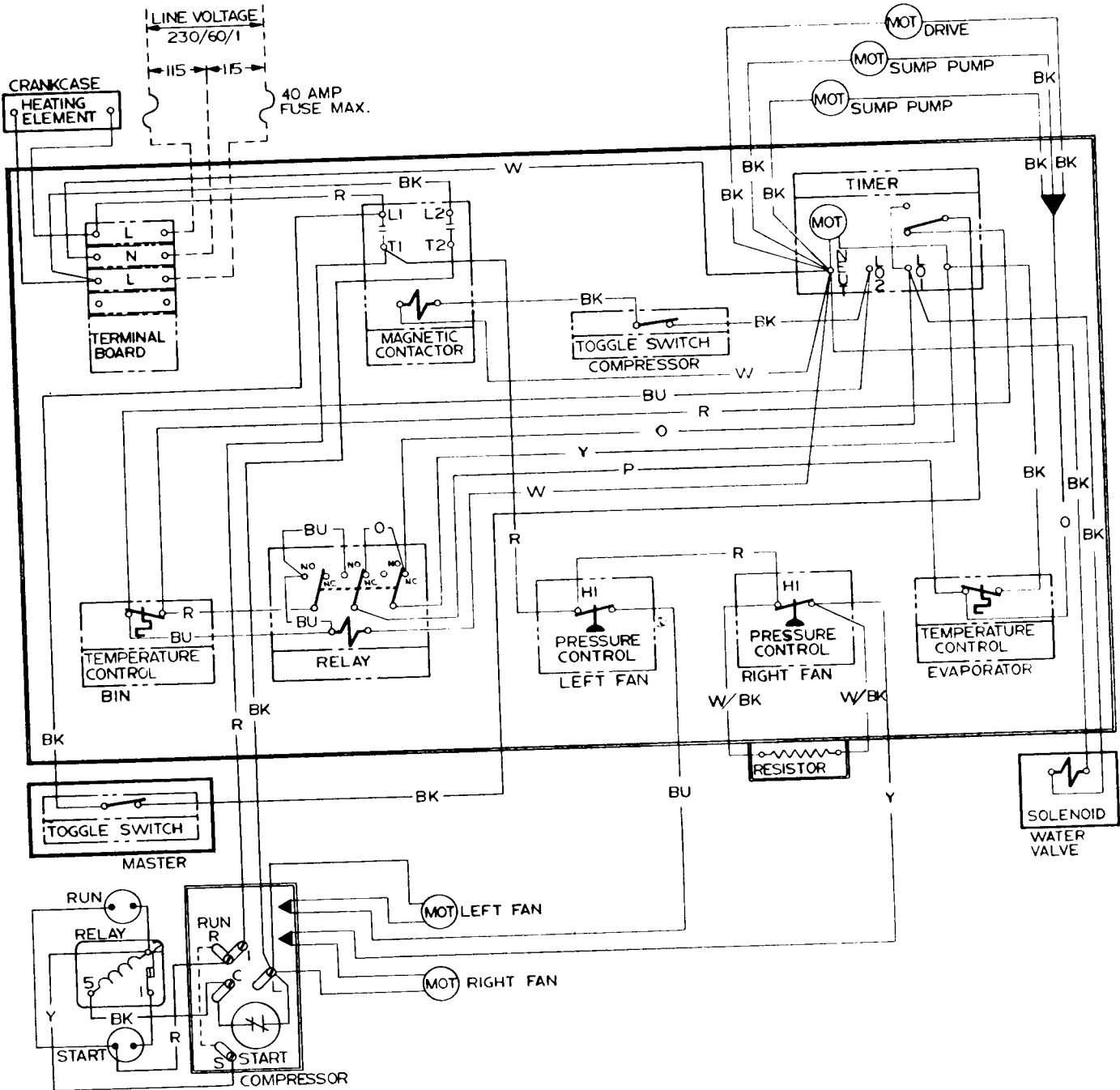
1. Make sure all service valves on the condensing unit are backseated and turned as far as possible to the left. Replace the valve caps after checking the valves.
2. Make sure that the flow of air is not impeded in any way over condenser on air-cooled models. Keep condenser clean, (Check and clean the condenser monthly.)
3. Turn on cube water supply at hand shut-off valve. Make sure water pressure fills to proper level, but does not exceed 50# p.s.i. pressure. If necessary, install water pressure regulator to reduce pressure to approximately 50 pounds.
4. Check electrical circuit. Run in a separate line with fused disconnect switch box.
5. Remove cover from control box, check for loose or frayed wire, then turn compressor switch to "on" position. Also on-off switch left side of unit.
6. Turn disc on time clock to the right just far enough for water solenoid valve to energize. Allow clock to take it through harvest cycle. This will be approximately 2-1/4 minutes. Dial pointer should be set on Number 4. After the compressor starts, turn the dial completely around and send it through another harvest cycle.  
Do this several times. This will completely flush out machine of any dust that may have accumulated in shipment..
7. After the machine has been properly flushed, allow it to go into a freezing cycle--check for possible water leaks, check sump pump operation--should be running freely. Also note if jet tube travel is correct, and that none of the jets are plugged. Jet spray of water should hit the middle of the cup.
8. Time clock dial does not rotate at the end of the harvest cycle; it is started later by the cube size control located in the control box.
9. Freezing time will be approximately 18 minutes in a 70 degree ambient. (Longer if above, and shorter if below.)
10. Watch first cube harvest and check to make sure that plastic curtain has not been damaged in shipment.
11. Check texture of cubes made: Partially cloudy cubes throughout suggest unit running short of water near end of freezing, or possibly an extremely bad water condition, which would indicate use of filtering or purifying equipment. Contact SCOTSMAN -Queen Products, Ice Machine Service Department, Albert Lea, Minnesota, for further details.
12. With unit on harvest cycle, take a handful of cubes made and hold on storage bin thermostat cover. Should cut unit off in one to two minutes--remove ice; unit should cut back on automatically. Thermostat is factory set at 35° out, 39° in.
13. Install gauges and check head and back pressures; on air-cooled models head pressure after ten minutes of freezing cycle at 70° ambient will be approximately 150 pounds p.s.i. back pressure gradually pulls down to approximately 4 pounds p.s.i. just before harvest cycle. Higher ambients will cause higher head pressure.
14. Remove gauges, replace control box cover and all service panels.
15. Operating room temperatures are minimum 50° Fahrenheit and maximum 100° Fahrenheit.

### FINAL CHECK LIST

1. Is the unit level? (IMPORTANT)
2. Have all electrical and piping connections been made ?
3. Has the voltage been tested and checked against the nameplate rating?
4. Have the compressor hold-down bolts been loosened so the compressor rides freely on its mounting springs .
5. Is the water supply valve open and the electric power on?
6. Is the water pressure at least 20 lbs. but not over 50 lbs. P.S.I. ?
7. Is the unit clean?
8. Has the owner been given the operating manual, and has he been instructed on how to operate the machine?
9. Have the installation and warranty cards been filled out? This is the owner's protection as well as the sellers .
10. Check all the refrigerant and conduit lines to guard against vibration and possible failure .
11. Is there 12" clearance behind and around unit for proper air circulation?
12. Is unit in a room where ambient temperatures are minimum 50<sup>o</sup>F. even in winter months?

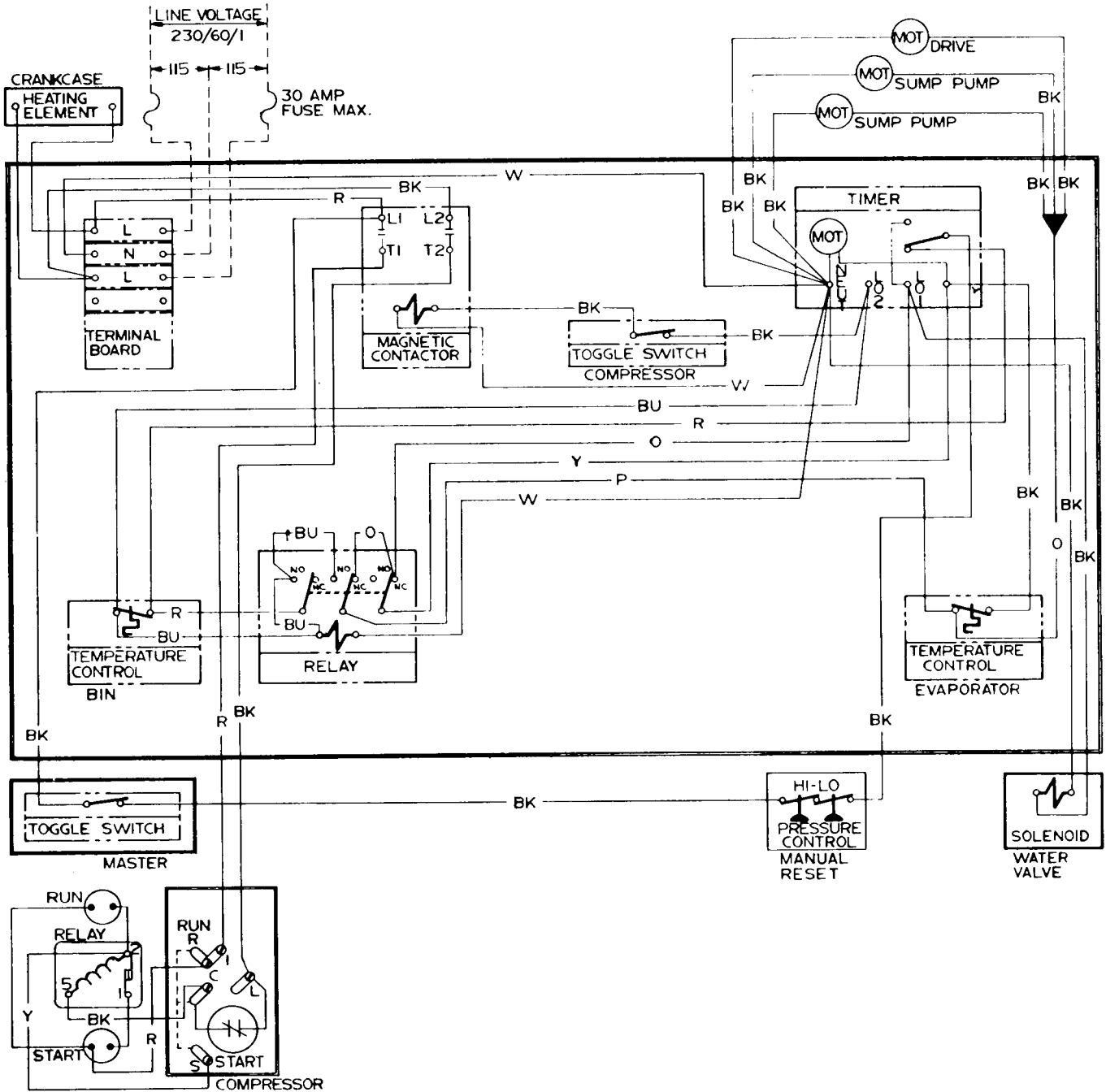
### WIRING DIAGRAM

MM1010HB-4  
Air Cooled  
230/60/1



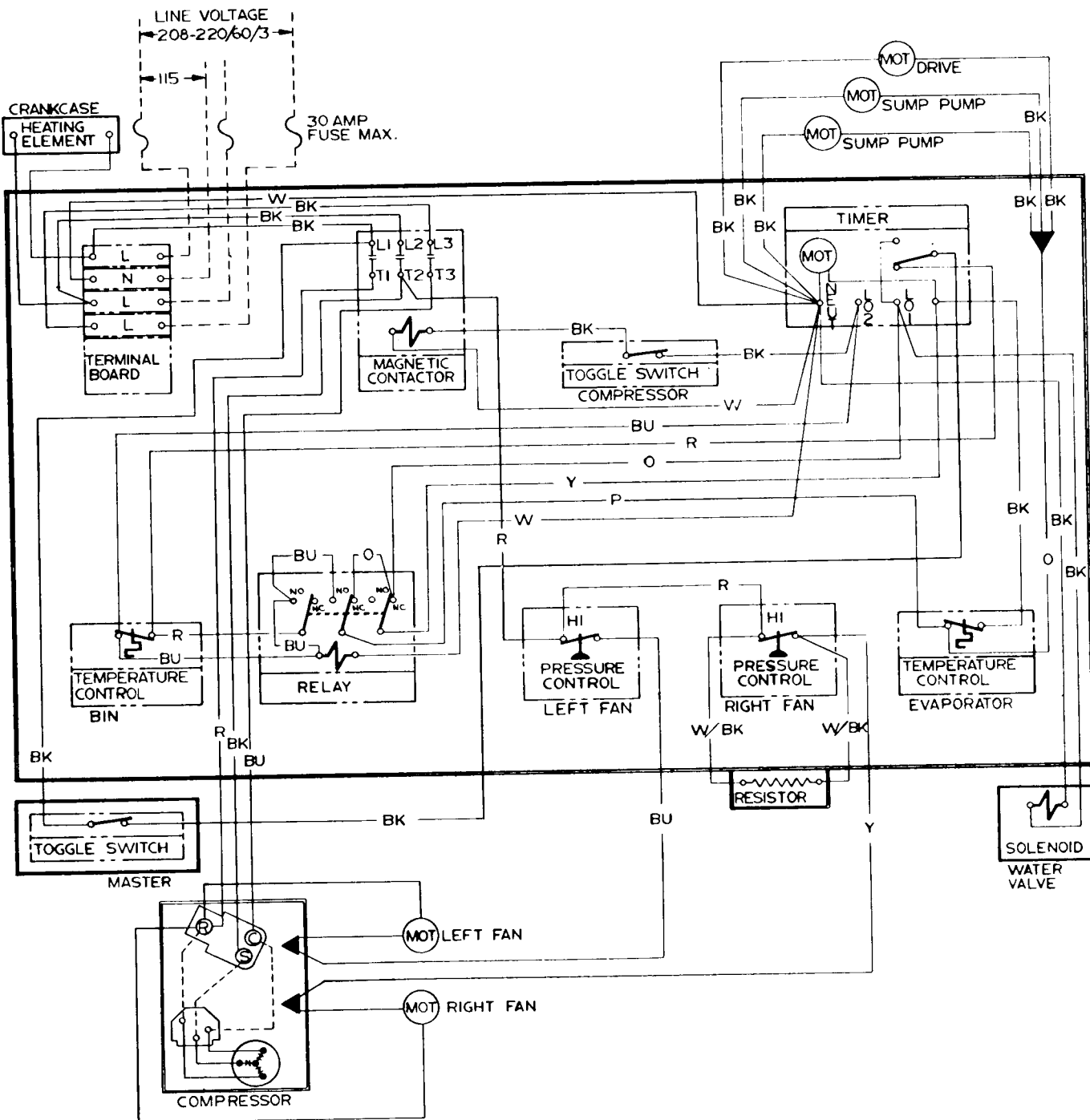
### WIRING DIAGRAM

MM1010WHB-4  
Water Cooled  
230/60/1



WIRING DIAGRAM

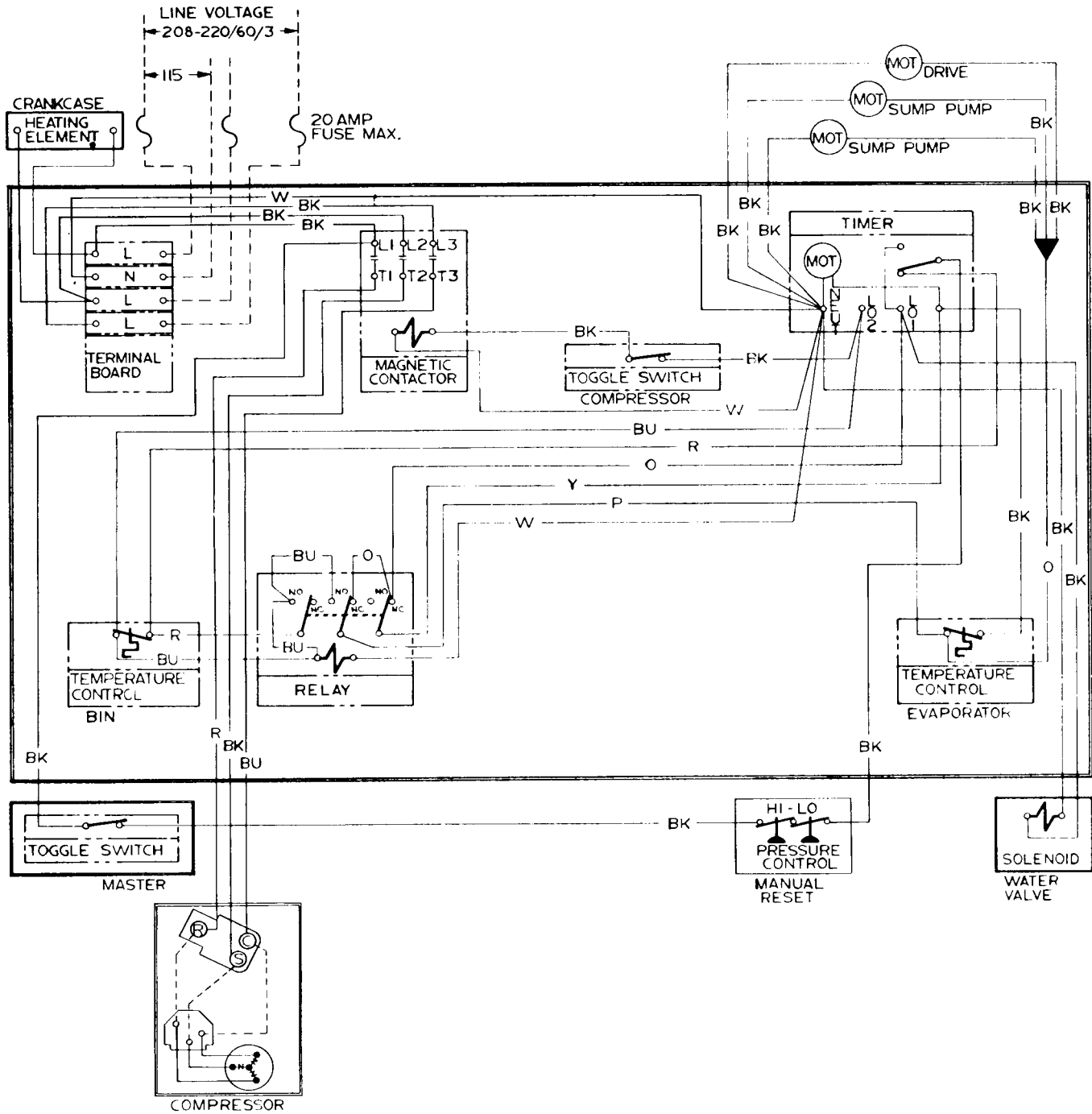
MM1010HB-9  
Air Cooled  
208-220/60/3





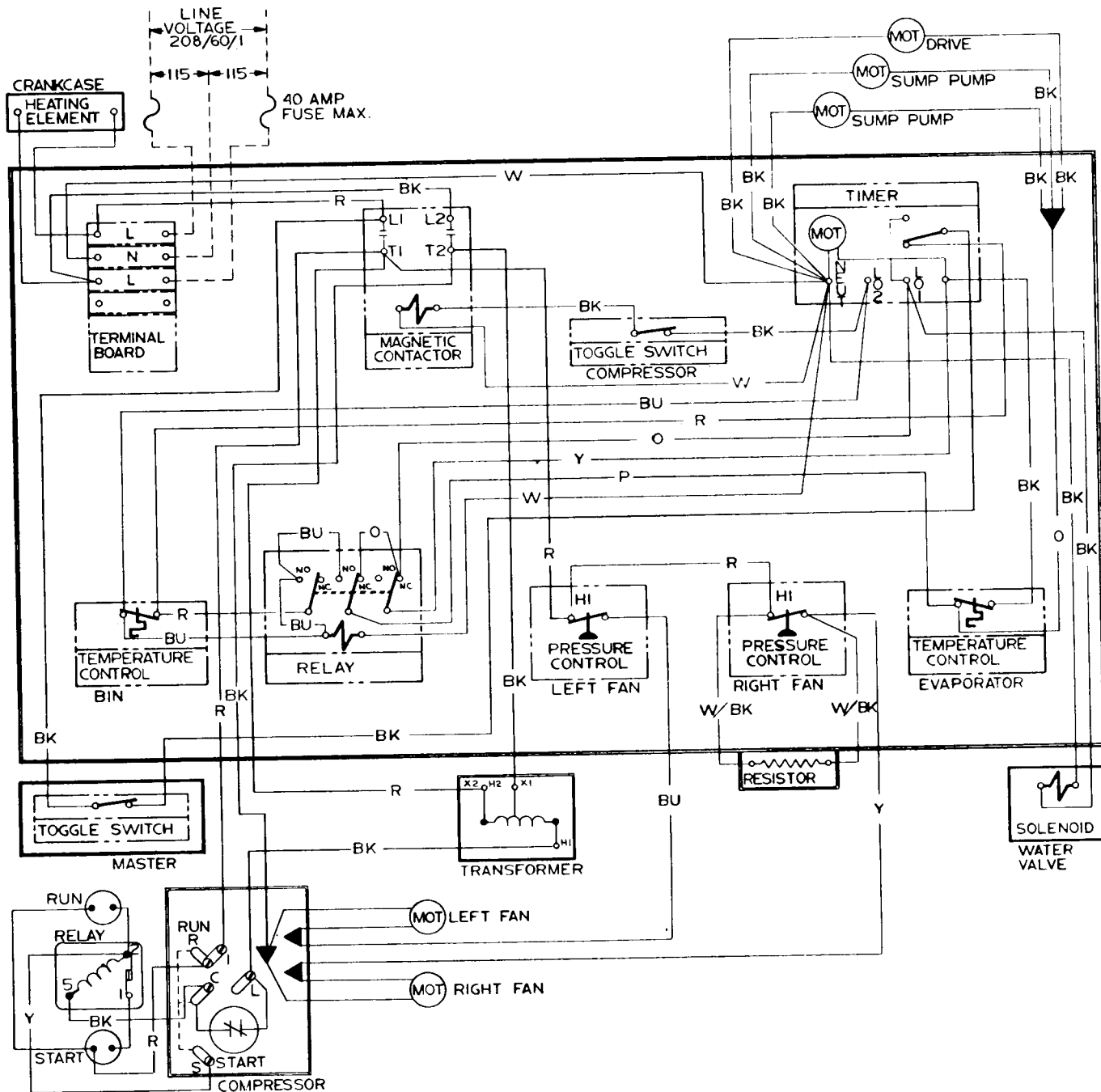
### WIRING DIAGRAM

MM1010WHB-9  
Water Cooled  
208-220/60/3



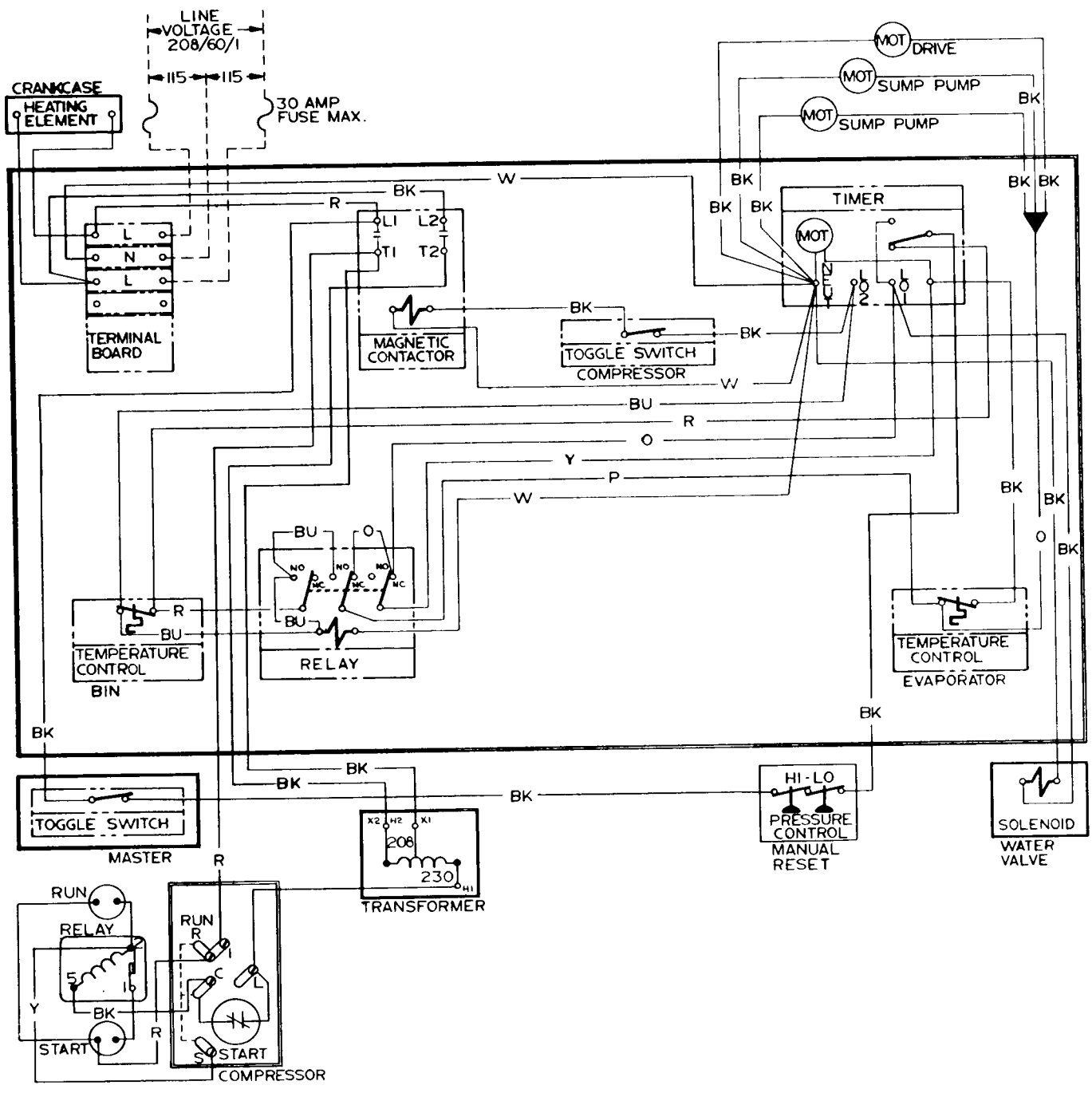
### WIRING DIAGRAM

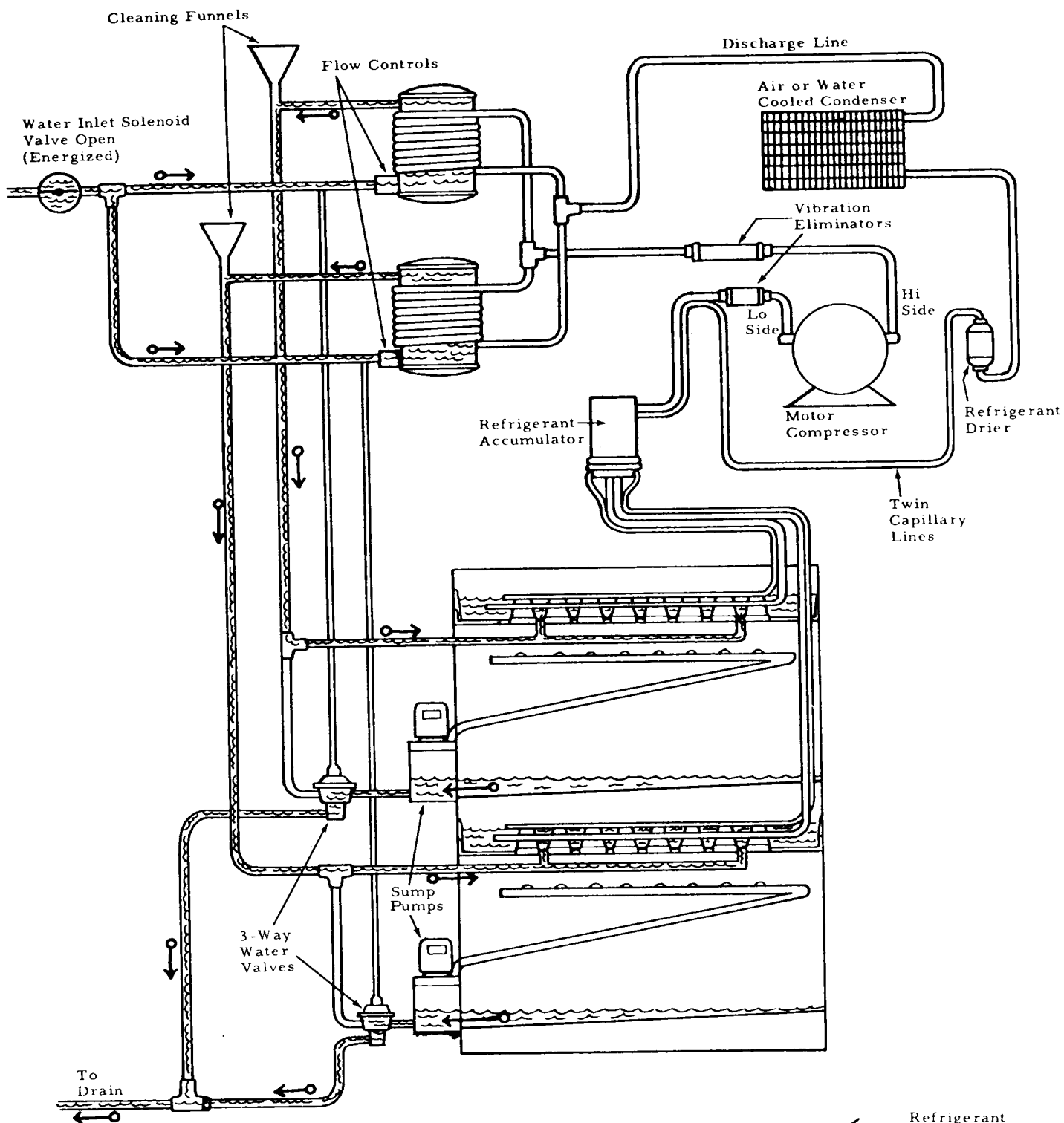
MM1010HB-10  
Air Cooled  
208/60/1



### WIRING DIAGRAM

MM1010WHB-10  
Water Cooled  
208/60/3





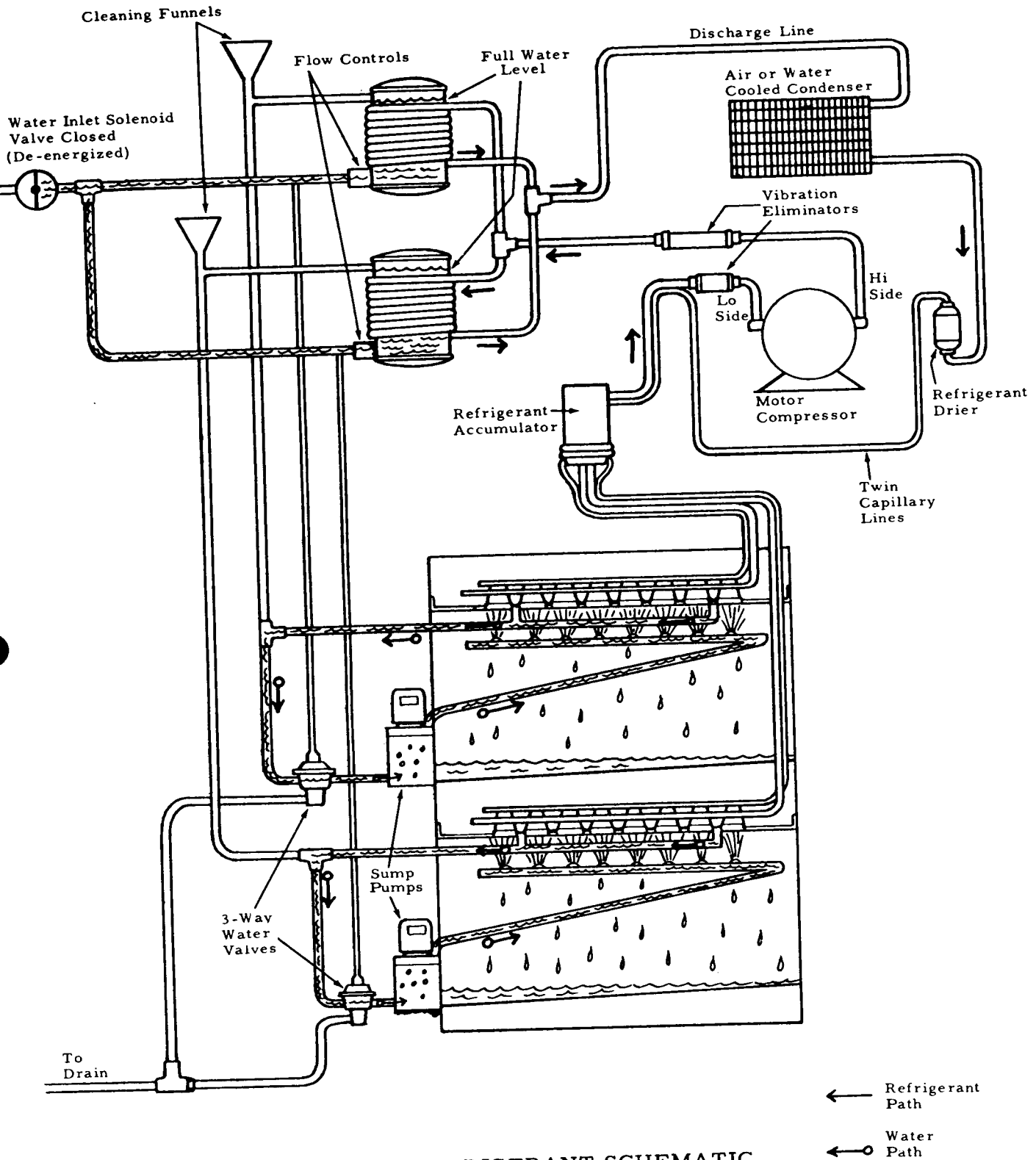
WATER-REFRIGERANT SCHEMATIC  
MM-1010  
HARVEST CYCLE

← Refrigerant Path  
←○ Water Path  
Compressor off during harvest.

## HARVEST CYCLE

With master switch (on left side of unit) and compressor switch (in main control box) in the on position turn timer manually to the harvest position. This energizes water inlet solenoid valve allowing water to flow thru flow controls into heat exchanger tanks. This inlet water pressure forces water out of tanks and also actuates 3-way water valves which in turn allows water to flow into upper cavity of freezing chambers and surplus water from preceeding batch of ice cubes to go down the drain. The platen cavity is completely filled up to the overflow point, and continues to overflow while in the defrost cycle; the amount of this water running over the overflow pipe is controlled by the flow control device and the length of harvest time setting on the time clock; overflow water goes down the drain also. Meanwhile, cubes being released from the cups drop by gravity into cube chute, through curtained opening into storage bin. At completion of harvest cycle, micro-switch on the timer now drops points holding defrost components in cycle and switches to freezing cycle set of contacts. Clock motor now stops and will not start until cube size control closes once more. As the new freezing cycle starts, note that our inlet solenoid closes. Since water enters heat exchanger tank on bottom and flows out through top, this insures full tank for the next cycle. The chilled water from the upper cavity flows by gravity through the water valve to the sump tank and reservoir. This water is used to produce the next batch of cubes.

Models MM1010 cubers have ice cube discharge chutes tapered to both front and back of unit. During a harvest, 1/2 of the cubes fall into bin through back or rear discharge chute, 1/2 through front discharge chute.



**WATER-REFRIGERANT SCHEMATIC**  
 Models MM1010  
**FREEZING CYCLE**

← Refrigerant Path  
 - - - Water Path

## FREEZING CYCLE

As the freezing cycle starts, electrically the components operating are the compressor and fan motors, recirculating water pumps and the sprayer tube drive motor.

The refrigerant circuit which equalized at about 50 pounds gauge during the "off" or harvest cycle, thru the capillary refrigerant control, now rises rapidly to 135 - 150 pounds head pressure. The suction or low side pressure starting at 50 pounds pulls down fairly quickly to about 25 pounds at which point the ice cubes are starting to form a thin shell in cube cups. Continuing from 25 pounds slowly on down towards the finished cube pressure of approximately 4 pounds takes an average of 15-20 minutes.

During this portion of the freezing cycle the electrical brain is the reverse acting, cube size thermostat. This thermostat electrically is holding the freezing cycle components "live". When the ice cubes are about 3/4 formed, the decreasing suction pressure and temperature, activated the temperature sensing bulb of the reverse acting, cube size control, closing its contacts. This does not interrupt the freezing cycle, the closing of the cube size thermostat contacts electrically transfers the finishing of the freezing cycle to the finishing clock motor or timer as it is sometimes called. One full revolution of the timers dial is 8 minutes however of the total 8 minutes only, 2-1/4 minutes are used for the defrost or harvest cycle.

This means then that after the cube size contacts close they activate the timer motor. This control takes over and continues freezing cycle for another 5 minutes with timer dial now turning. When the 5 minutes are completed, an offset in the timer dial allows a micro switch with activating arm riding on that cam to drop into the slot electrically stopping the freezing cycle and starting the 2-1/4 minutes harvest cycle - The clock motor continues thru harvest cycles. A notch on the timer dial now lifts micro switch arm up on dial, electrically stopping harvest cycle and starts back into a new freezing cycle.

### NOTE:

Defrost water is used to make the next batch of ice, therefore on initial start up the unit must be in a defrost cycle. This can be done manually operating the timer.

## SERVICE ANALYSIS

Symptom	Possible Cause	Suggested Correction
1. Unit will not run	Power off	Check main switch, fuses and wiring.
	Manual switch in off position	Check
	High pressure control locked out.	Reset. (Water cooled models)
	Ambient temperature of room too low.	Must be above 50 <sup>o</sup> .
2. Compressor cycles intermittently.	Bin controls set too high.	Set approximately 35 <sup>o</sup> cut out, 39 <sup>o</sup> cut in.
	Low voltage	Check with volt meter.
	Air in system causing high head.	Purge system.
3. Cubes small. (short cycle)	Shortage of refrigerant	Check frost line and operating pressure.
	Cube size control not properly set.	Set control to colder
	Moisture in system	Purge charge, evacuate, change dryer, & re-charge
	Short of water because too low setting on water supply.	Increase pressure, new lines or larger lines.
	Lower drain valve in sump tank leaking.	Flush or remove and clean.
4. Cubes small. (long cycle)	Sump tank stand pipe not properly seated.	Check and re-seat
	Shortage of refrigerant	Check frost line and charge as required. Check for system leaks.



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**SERVICE ANALYSIS**


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Symptom	Possible Cause	Suggested Correction
5. Cubes too large. (slow defrost)	Very small shortage of refrigerant.	Check frost line, charge as required
	Cube size control set too low.	Reset to warmer setting.
6. Cubes cloudy	Drain valve and sump tank leaking, losing water.	Check during freeze cycle Jet tubes plugged, clean all jets
	Curtains damaged or binding	Repair or replace
	Restriction in incoming water	Check at strainer and flow controls
	Screen plugged on bottom of sump pumps.	Remove and clean
7. Irregular cubes. (some clear, some cloudy)	Clogged jets in jet tubes	Remove and clean.
	Cube slides interfering with jets	Adjust
8. Improper harvest	Time clock not set properly	Reset on #4. (2.25 minutes)
	Incoming water restricted.	Check water lines, etc.
	Solenoid valve leaking. (Hot water tank)	Check during freeze cycle
	Head pressure too low	Adjust regulator on water cooled units  Check fan cycling on air cooled units.

## SERVICE ANALYSIS

Symptom	Possible Cause	Suggested Correction
8. Improper harvest (Cont'd.)	Machine not level. (Allow water to stand in upper cavities and freeze.)	Level machine.
9. High head pressure	Over-charge of re- frigerant.	Purge
	Air in system	Purge
	Defective water regulating valve.	Replace
	Burned out or stuck fan motor(s) air cooled	Replace or oil as needed
	Water valve improperly adjusted.	Readjust to desired head. Water cooled models 135# p.s.i.
10. High suction	Incoming water restricted.	Check screens, lines, etc.
	Dirty or plugged con- denser. Air cooled.	Blow condenser clean
	Inefficient compressor	Check with gauges and re- place valve plate if necessary.
11. Low suction pres- sure.	Overcharge of refrig- erant	Check frost line and high back pressures purge off excess.
	Restricted dryer.	Check back pressure and re- place drier if necessary
	Moisture in system.	Blow charge, replace drier evacuate system and re- charge per nameplate specs.

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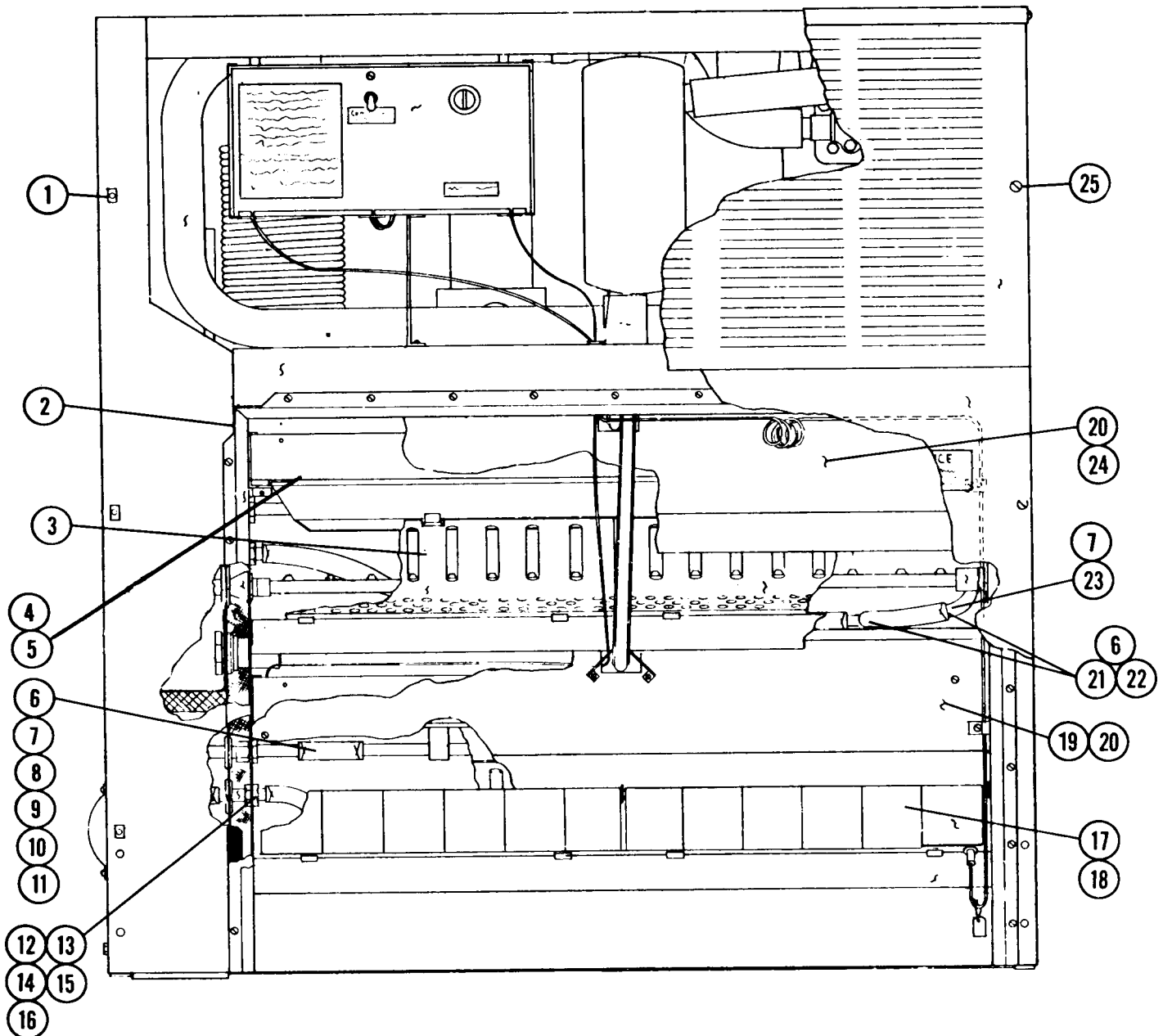
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**SERVICE ANALYSIS**


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Symptom	Possible Cause	Suggested Correction
11. Low suction pressure. (Cont'd.)	<p>Extreme shortage of refrigerant.</p> <p>Ambient temperatures too low. Air cooled</p>	<p>Add refrigerant. Check and correct system leaks.</p> <p>Increase ambient to minimum 50° F.</p>
12. Unit noisy.	<p>Hold-down bolts on compressor not loosened.</p> <p>Refrigerant lines vibrating.</p> <p>Compressor short of oil.</p> <p>High head pressures.</p> <p>Shroud touching fan blades on air cooled models.</p>	<p>Turn up until unit is free.</p> <p>Straighten</p> <p>Check oil level. Proper level 1 1/2 inches below crankcase port, or 1/2 of sight glass bullseye on compressor.</p> <p>Check with gauges. Purge if necessary.</p> <p>Reposition shroud</p>

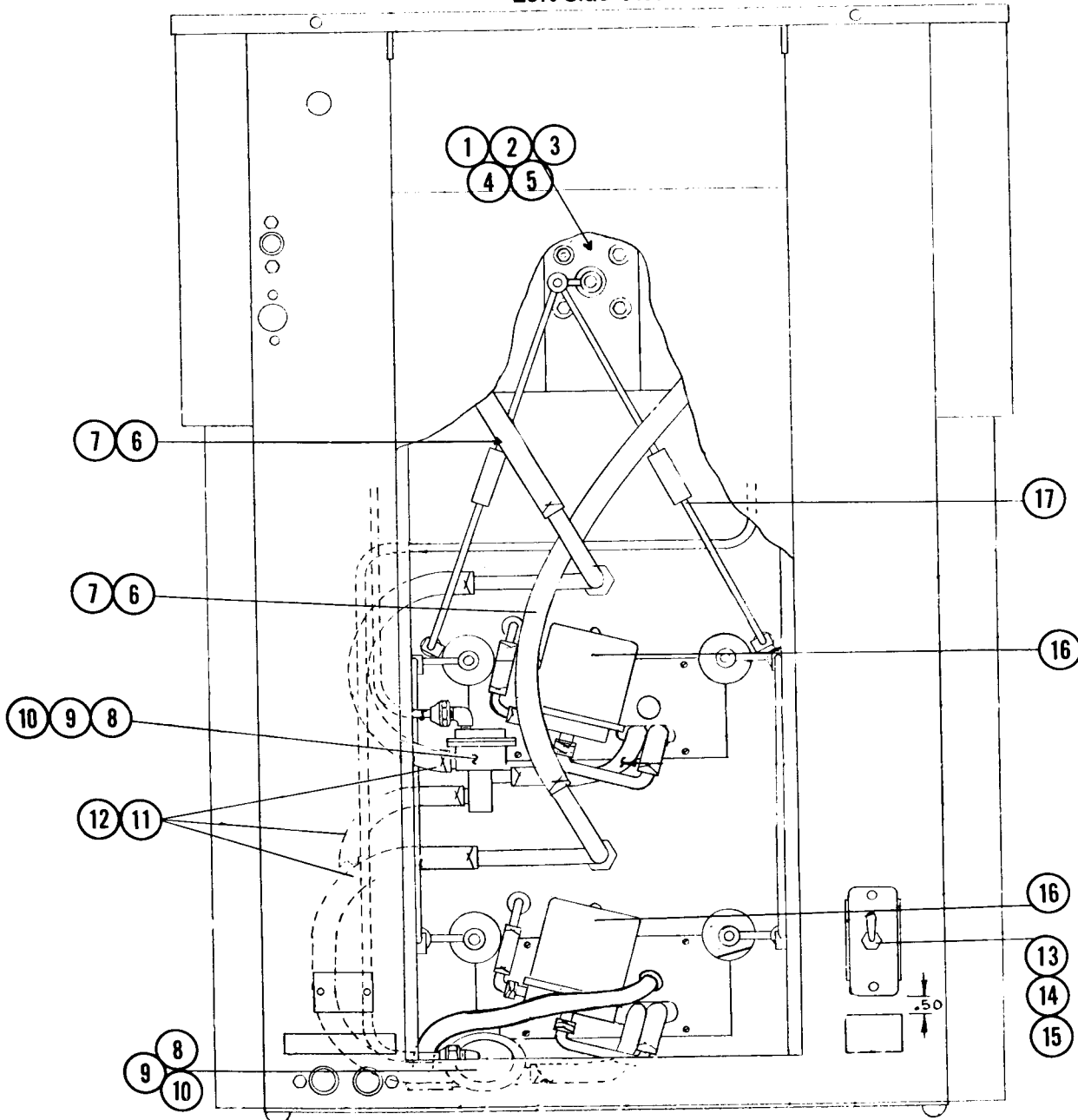
MM1010  
FRONT VIEW



ITEM NO.	PART NO.	NAME	ITEM NO.	PART NO.	NAME
1.	3-1029	Nut (2 reqd.)	17.	A-22678	Curtain Assy (4 reqd.)
2.	A-18165	Door Gasket (2 reqd.)	18.	3-727	Thumb Screw (curtain)
3.	2-1986	Chutes (8 reqd.)	19.	A-22995	Face Plate, Lower Front
4.	A-23038-1	Upper Freezer & Cup Assy.	20.	3-633	S.S. Screws
	A-23038-2	Lower Freezer & Cup Assy.	21.	2-536-1	Hose Clamps
5.	13-573	Rubber Cupholder only (8 reqd.)	22.	16-482	Tee
6.	13-674-7	Tygon 3/4" I.D. Per Foot	23.	5-171	Tygon Tube 5/8" per ft.
7.	2-1358	Hose Clamps 3/4"	24.	A-22997	Face Plate, Upper Front
8.	A-18004	Inlet Water Assy	25.	3-1307	Screws (12 reqd.)
9.	2-1357	"O" Ring	IN PACKAGE		
10.	13-327	Grommet		A-19555	Bulb Cover
11.	A-13796	Inlet, Inner Assy		13-590	Gasket
12.	A-23292	Inlet Spray Bar		A-16108	Bulb Holder Buttons
13.	A18172	Nut, Inlet Tube	26.	A23975-001	Faceplate, Upper Rear (Not Shown)
14.	A18173	"O" Ring Nut	27.	A23977-001	Faceplate, Lower Rear (Not Shown)
15.	13-617-5	"O" Ring			
16.	13-169	Grommet			

## MM1010

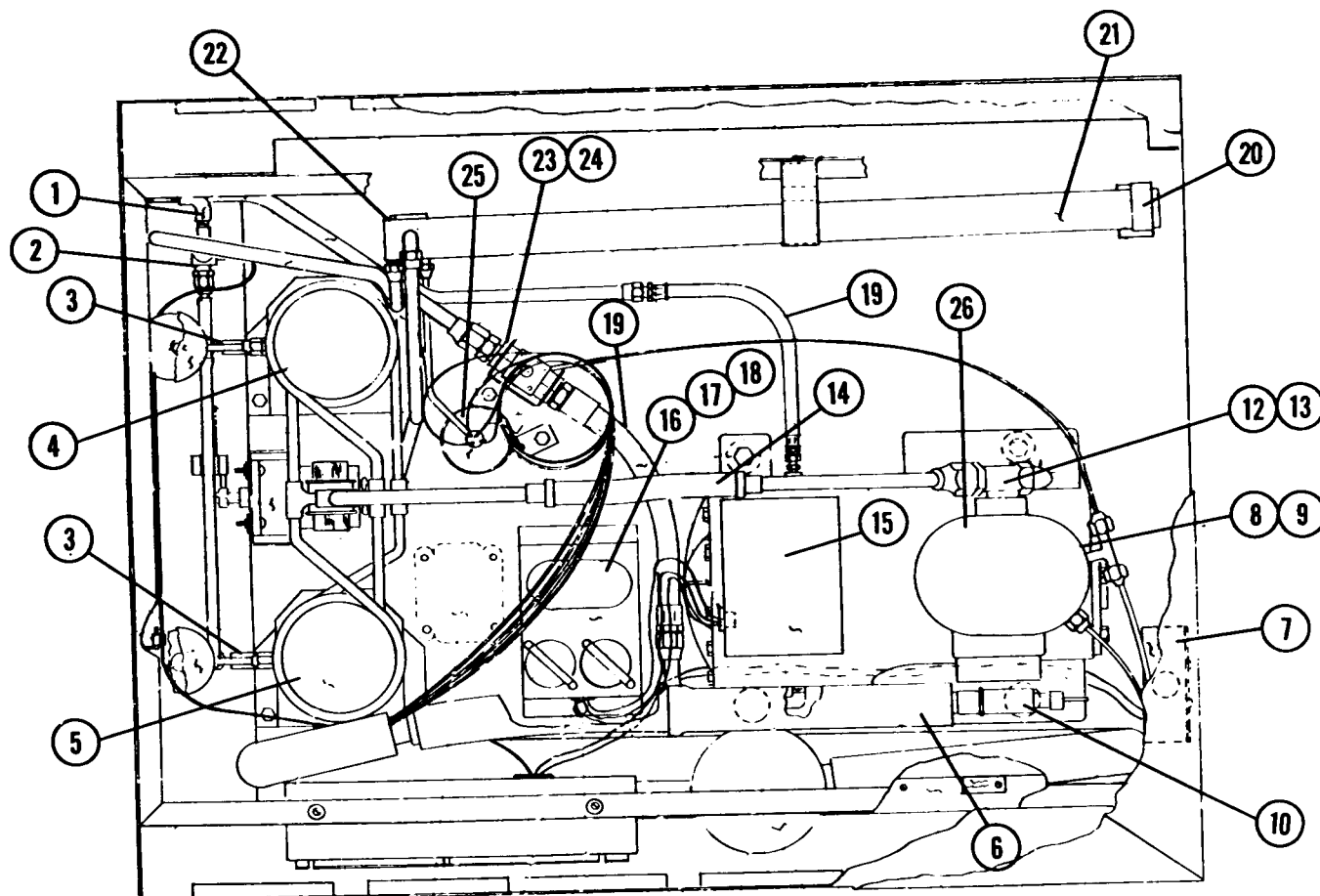
## Left Side View



ITEM No.	PART No.	NAME
1.	12-1277-1	Drive Motor
2.	13-100	Grommet (4 reqd)
3.	3-1403-22	Screw (4 reqd)
4.	3-1414-1	Nut (4 reqd)
5.	03-1408-22	Washer (8 reqd)
6.	13-674-7	Hose 3/4 I.D. per ft.
7.	2-1530	Hose Clamps
8.	A-17954	3 way Water Valve
9.	3-1403-28	Screws (4 reqd)
10.	3-1417-5	Washers (4 reqd)
11.	13-674-6	Hose 5/8 I.D. per ft.
12.	2-1338-1	Hose Clamp
13.	12-426	Switch
14.	A-16865	Switch Plate
15.	3-1403-17	Screw
16.	12-1798-1	Sump Pump
17.	A-17569	Drive Linkage Complete

## MM1010, WATER COOLED

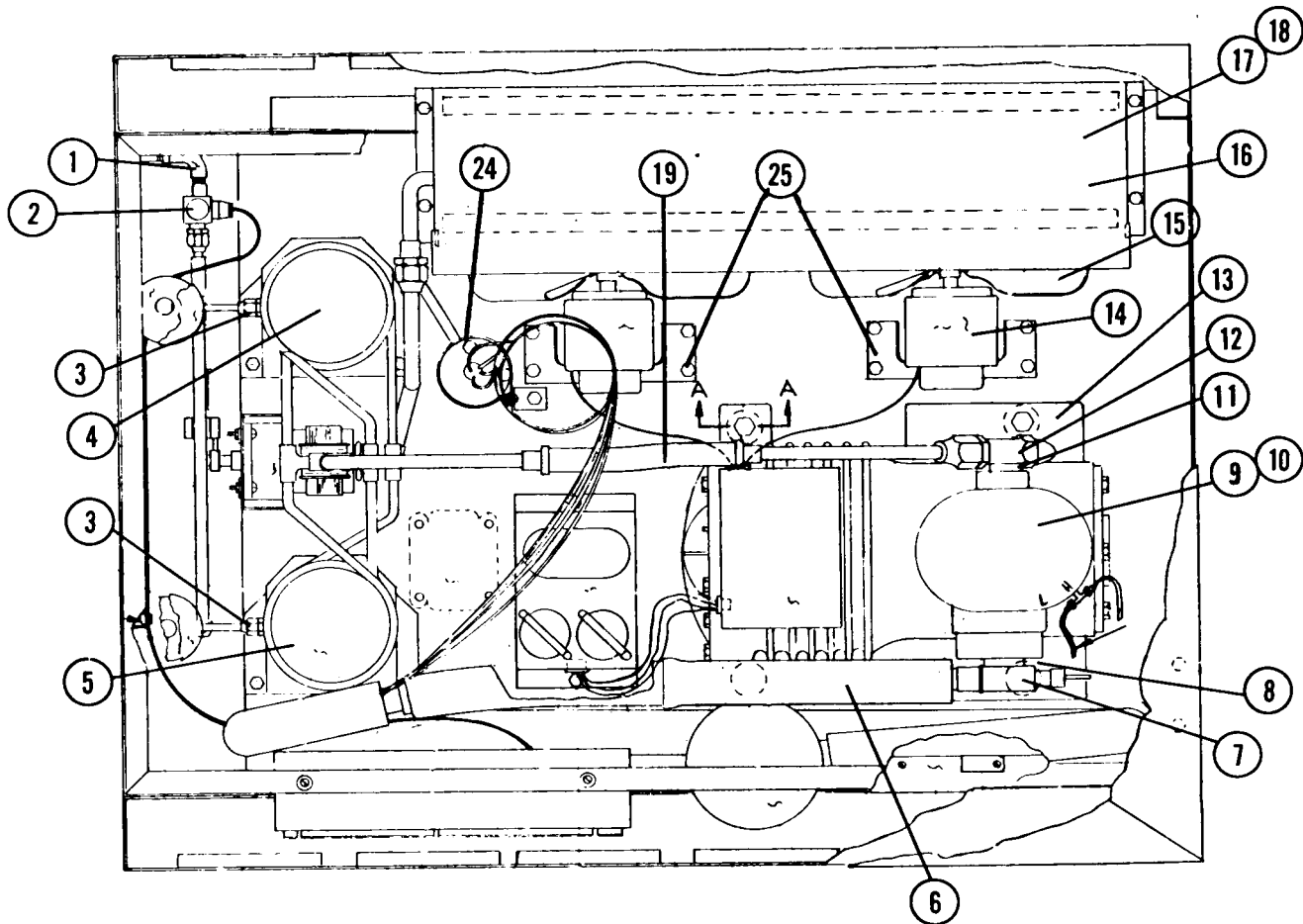
## Top View



ITEM NO.	PART NO.	NAME
1.	16-475	Street Elbow
2.	12-621G1	Solenoid Valve
3.	A-21237-2	Flow Control
4.	A-23087	Rear Water Tank
5.	A-23086	Front Water Tank
6.	16-326	Flexible Line
7.	11-286	Hi-Lo Press Control
8.	18-1418-2	Compressor 115/230/60/1
	18-1418-3	Compressor 115/208-220/60/3
	18-1418-2	Compressor 115/208/60/1
9.	18-1415	Valve Plate Kit
10.	18-1410	Suction Serv. Valve
11.	18-736	Suction Serv. Gasket
12.	18-1411	Discharge Serv. Valve
13.	18-242	Serv. Valve Gasket
14.	16-247	Vibration Eliminator
15.	18-1405	Overload 115/230/60/1
	18-1406	Overload 115/208-220/60/3
	18-1405	Overload 115/208/60/1
16.	18-1901-27	Starting Capacitor
17.	18-1902-27	Running Cap.
18.	18-1903-26	Relay
19.	16-483	Water Hose Assembly
20.	A-1422-2	Condensor Gasket (Plain)
21.	18-1422	Condensor
22.	18-1422-3	Condensor Gasket (Manifold)
23.	11-198-1	Water Regulator
24.	A-18500	Regulator Bracket
25.	2-822	Dryer
26.	18-1929-1	Crankcase Heater

## MM1010, AIR COOLED

## Top View

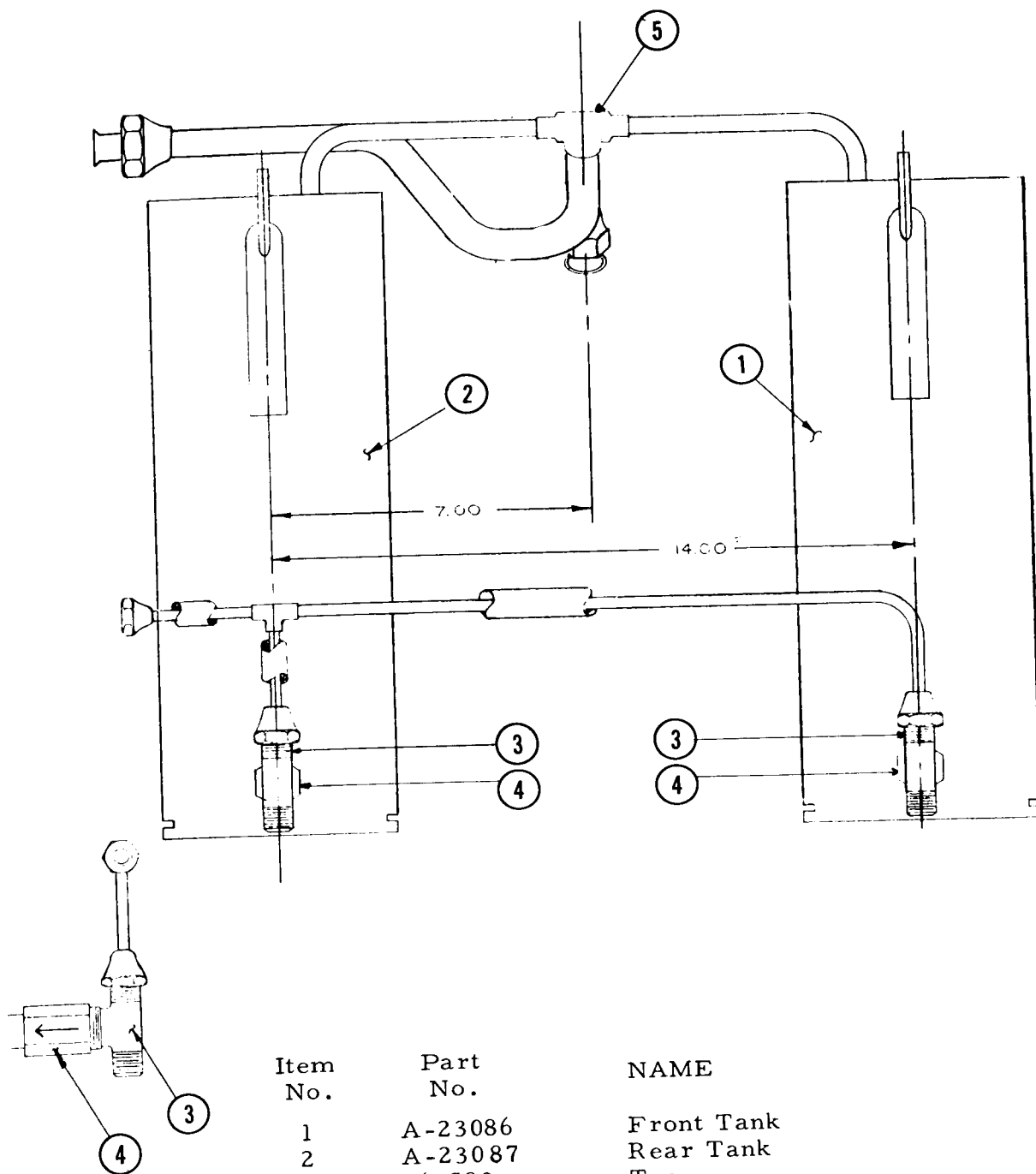


ITEM NO.	PART NO.	NAME
1.	16-475	Street Elbow
2.	12-521G1	Solenoid Valve
3.	A-21237-2	Flow Control
4.	A-23087	Rear Water Tank
5.	A-23086	Front Water Tank
6.	16-326	Flexible Line
7.	18-1410	Suction Serv. Valve
8.	18-736	Suction Serv. Valve Gasket
9.	18-1400-2	Compressor 115/230/60/1
	18-1400-3	Compressor 115/208-220/60/3
	18-1400-2	Compressor 115/208/60/1
10.	18-1415	Valve Plate Kit
11.	18-1411	Discharge Serv. Valve
12.	18-242	Discharge Valve Gasket
13.	18-1929-1	Crank Case Heater *
14.	18-788-2	Fan Motor 115/230/60/1
	18-788-7	Fan Motor 115/208-220/60/3
	18-788-7	Fan Motor 115/208/60/1

ITEM NO.	PART NO.	NAME
15.	18-787	Fan Blade
16.	18-753	Condensor
17.	A-14062	Shroud Assy.
18.	2-784	Shroud Fasteners
19.	16-247	Vibration Connection
20.	18-1405	Overload 115/230/60/1
	18-1406	Overload 115/208-220/60/3
	18-1405	Overload 115/208/60/1
21.	18-1901-27	Starting Capacitor
22.	18-1902-27	Running Capacitor
23.	18-1903-26	Relay
24.	2-822	Dryer
25.	18-1421	Fan Motor Bracket

\* Not Shown

### HOT WATER TANK ASSEMBLY

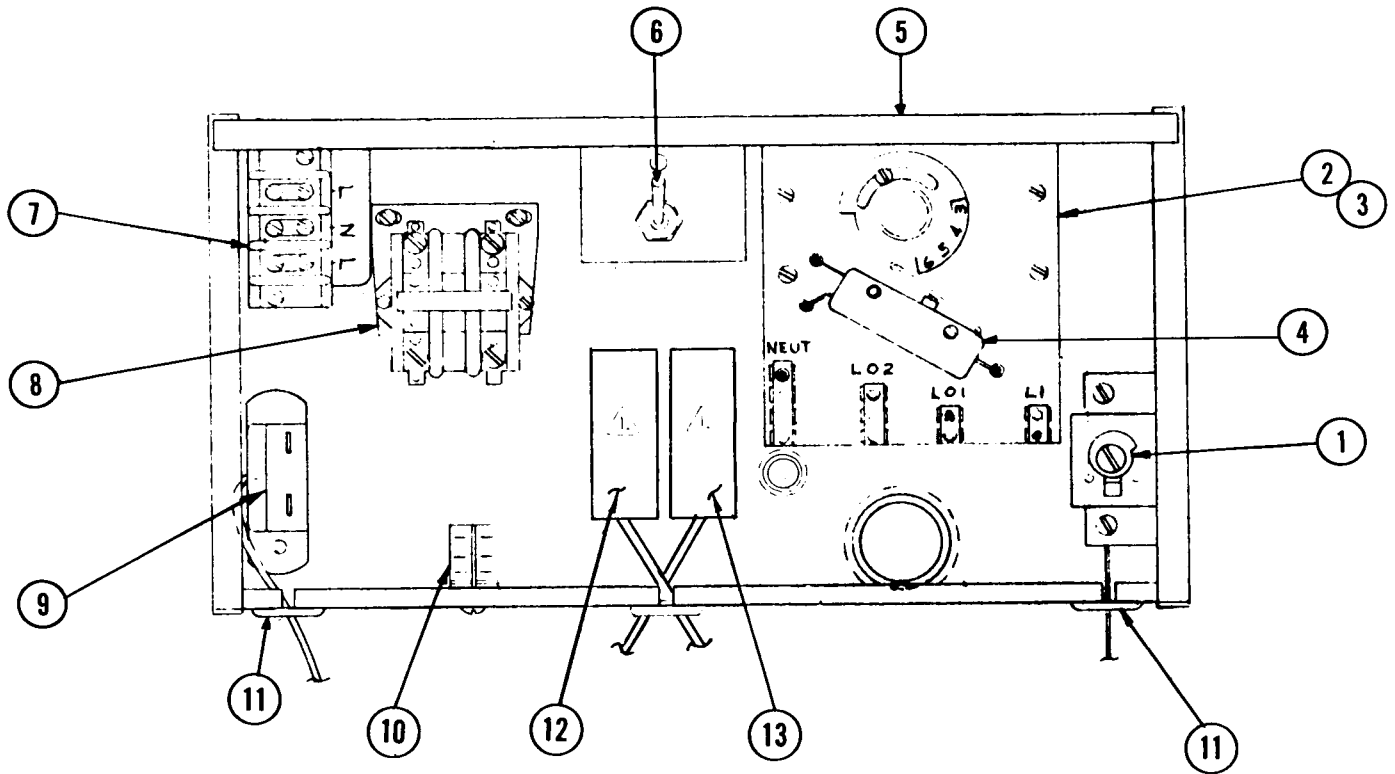


Item No.	Part No.	NAME
1	A-23086	Front Tank
2	A-23087	Rear Tank
3	16-583	Tee
4	A-21237-2	Flow Control
5	16-599	Tee
6	16-247	Vibration Eliminator*

\* Not Shown



## CONTROL BOX ASSEMBLY

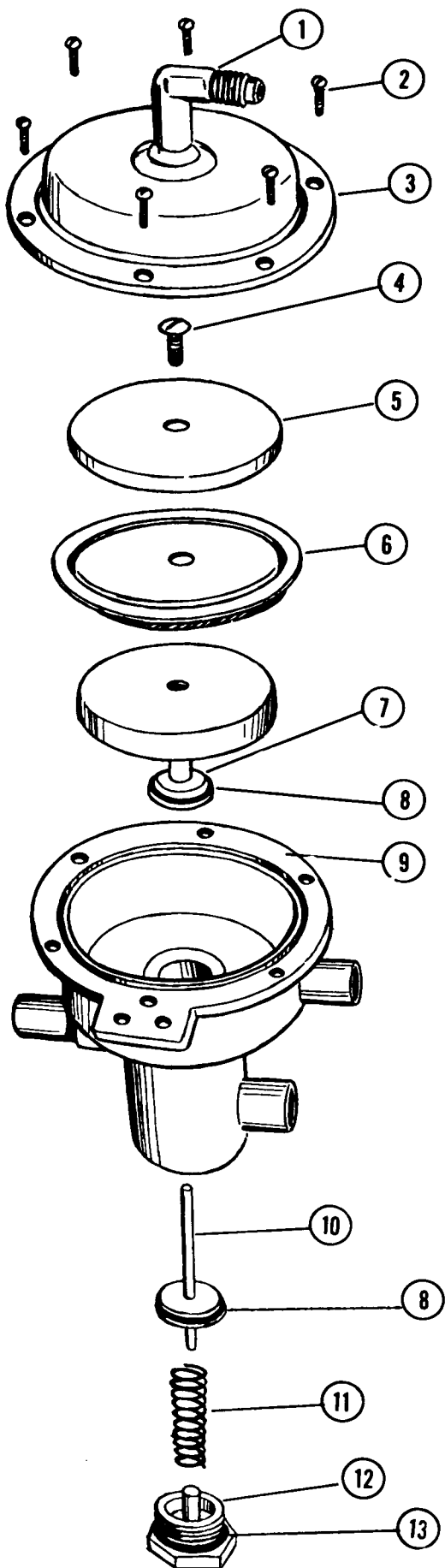


ITEM NO.	PART NO.	PART NAME
1.	11-345	Cube Size Control
2.	A-23121-1	Timer Assembly Complete
3.	3-1404-1	Screws
4.	12-1721-50	Micro Switch
5.	12-481	Resistor *
6.	12-426-1	Switch
7.	12-813	Terminal Block
8.	12-820-1	Contactors 230 V 60 Cy 1 ph
9.	11-353-1	Bin Thermostat
10.	12-1598	Relay,
11.	13-124	Grommet
12.	11-342	Left Fan Control
13.	11-343	Right Fan Control

\* Not Shown — Air Cooled Models Only.

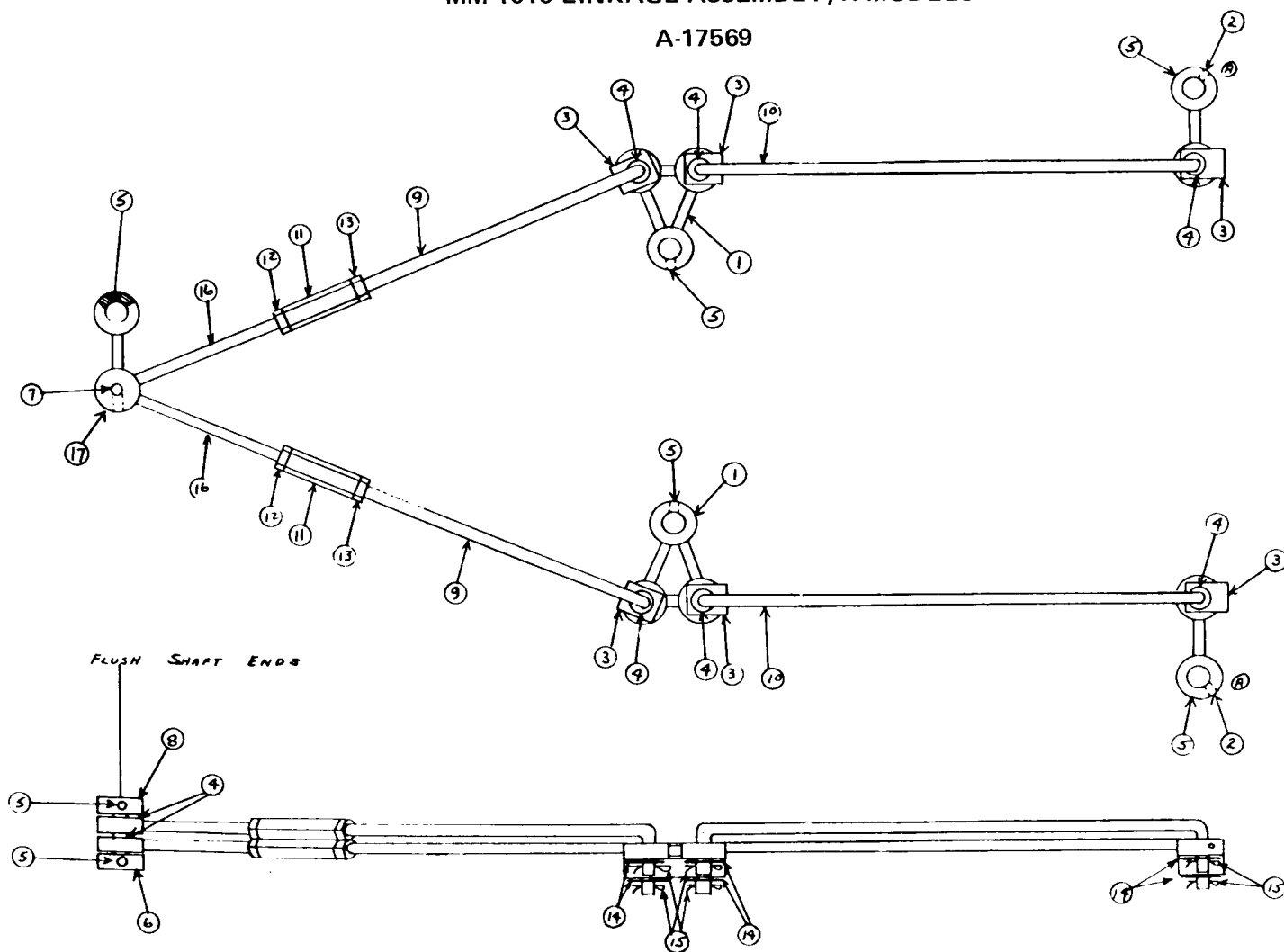
## 3-WAY WATER VALVE

MM1010



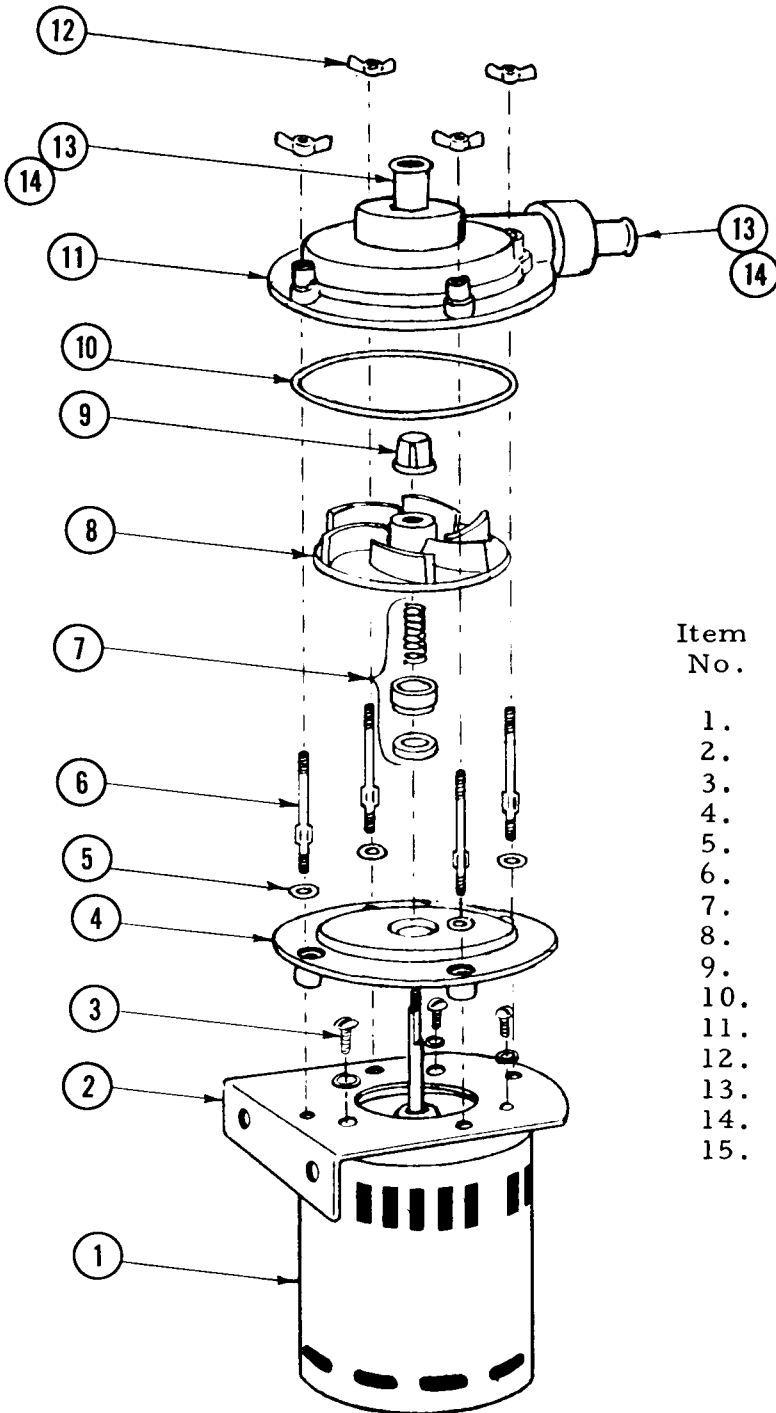
ITEM NO.	PART NO.	NAME
1	16-190	Elbow
2	3-1277	Screws
3	A-18192	Valve Cover
4	3-736	Screw
5	A-18312	Diaphragm Cover
6	13-606	Rolling Diaphragm
7	A-17941	Plunger Assy.
8	13-617-1	"O" Ring
9	A-17947	Valve Body
10	A-17942	Plunger
11	2-1545	Spring
12	A-17937	Valve Cap Bottom
13	13-617-2	"O" Ring
	A-17954	Valve Complete

## MM 1010 LINKAGE ASSEMBLY, H MODELS



ITEM NO.	PART NO.	NAME
1	A-17233	Double Driven Arm
2	A-17232	Driven Arm
3	S-7558	Bearing Clip
4	A-7033	Bearing
5	3-431	Set Screw
6	A-13847	Motor Drive Arm
7	A-13849	Shaft
8	A-13848	Arm End
9	S-7938	Right Linkage
10	A-17568	Lower Linkage
11	S-7936	Linkage Coupling
12	S-7937	Left Linkage Nut
13	3-357	Nut
14	3-75	Washer
15	3-396-1	Cotter Pin
16	A-13850	Linkage Upper Assy.
17	A-18948 A-17569	Motor Drive Arm Complete Linkage

**WATER PUMP  
MM1010**

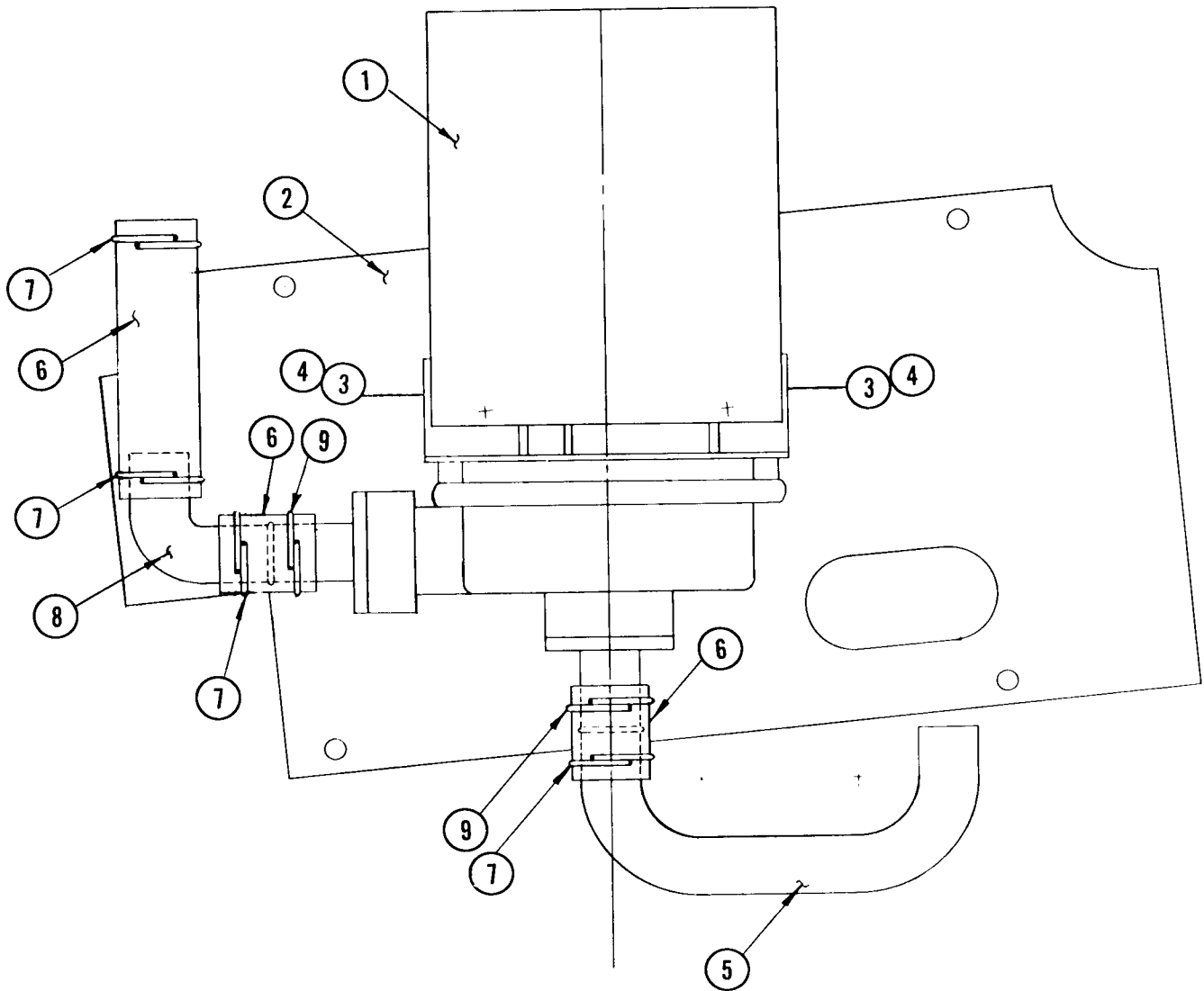


Item No.	Part No.	NAME
1.	12-1798-51	Motor Only
2.	12-1532-52	Mounting Bracket
3.	12-1532-53	Screws
4.	12-1532-54	Pump Base
5.	12-1532-55	Washer
6.	12-1532-56	Screws
7.	12-1532-57	Seal Assembly
8.	12-1798-58	Impeller
9.	12-1532-59	Impeller Cap
10.	12-1532-60	"O" Ring
11.	12-1532-61	Pump Housing
12.	12-1532-62	Wing Nuts
13.	12-1532-63	Gaskets
14.	12-1532-65	Inlet & Outlet Fittings
15.	12-1798-67	Capacitor - 4 MF*
	12-1798-1	Pump Complete

\*Not Shown

## PUMP ASSEMBLY

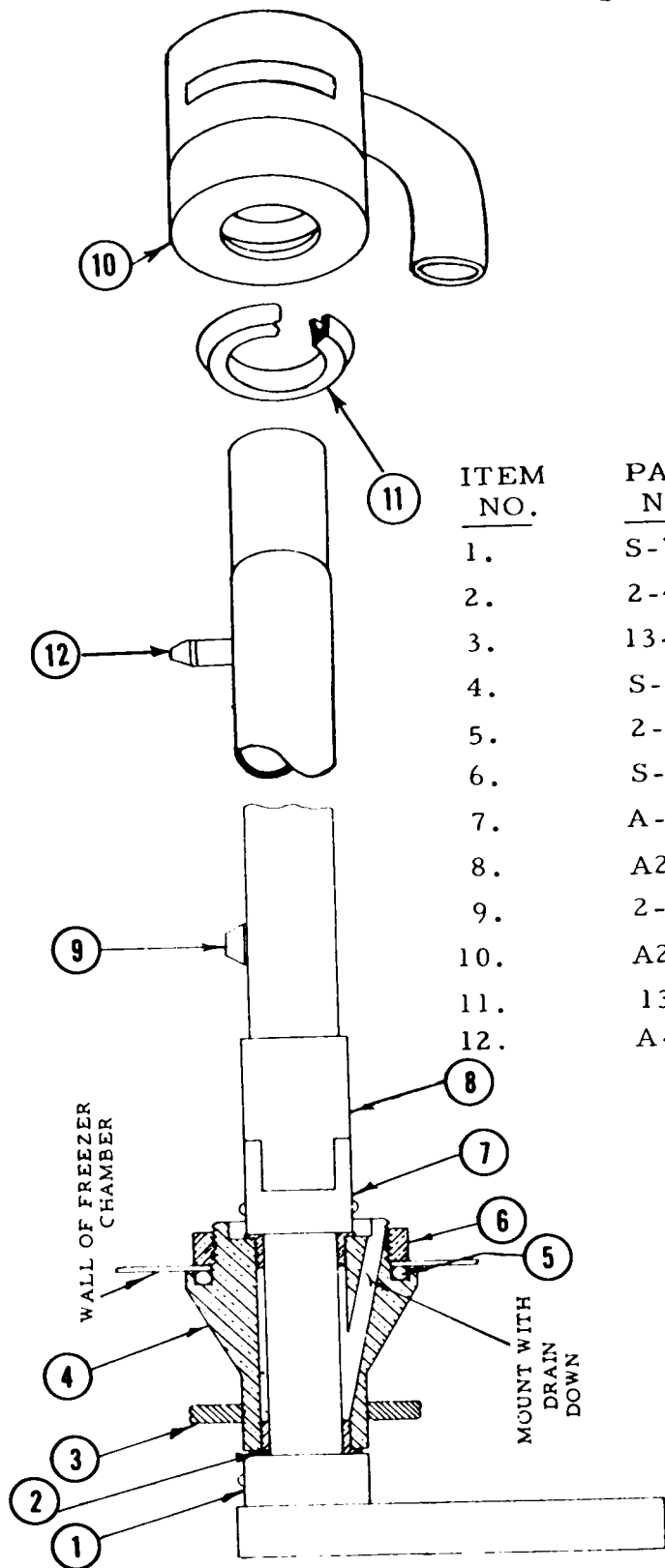
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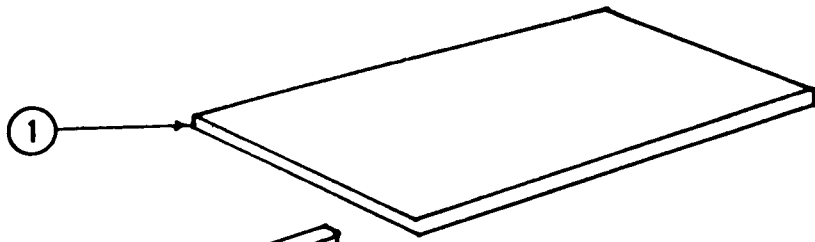
Item No.	Part No.	NAME
1	12-1798-1	Sump Pump
2	A-23260	Mounting Plate
3	3-1405-3	Screw *
4	3-1407-05	Washer *
5	A23971-001	Water Inlet Fab Assy.
6	A203109	Tube
7	2-1338-1	Hose Clamp
8	16-641-3	90° Elbow
9	2-536-1	Hose Clamp

MM1010 SPRAY TUBE AND  
 SPRAY TUBE DRIVE ASSEMBLY

H Models  
 4 per Unit

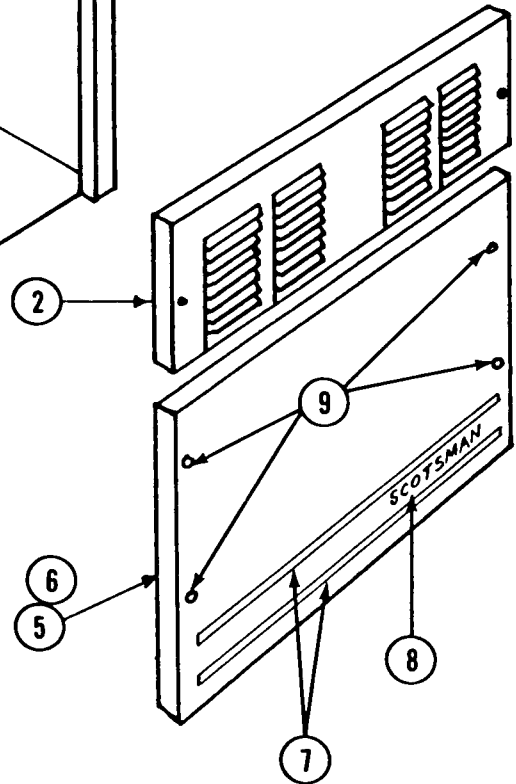
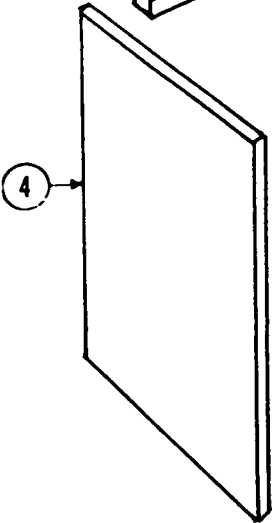
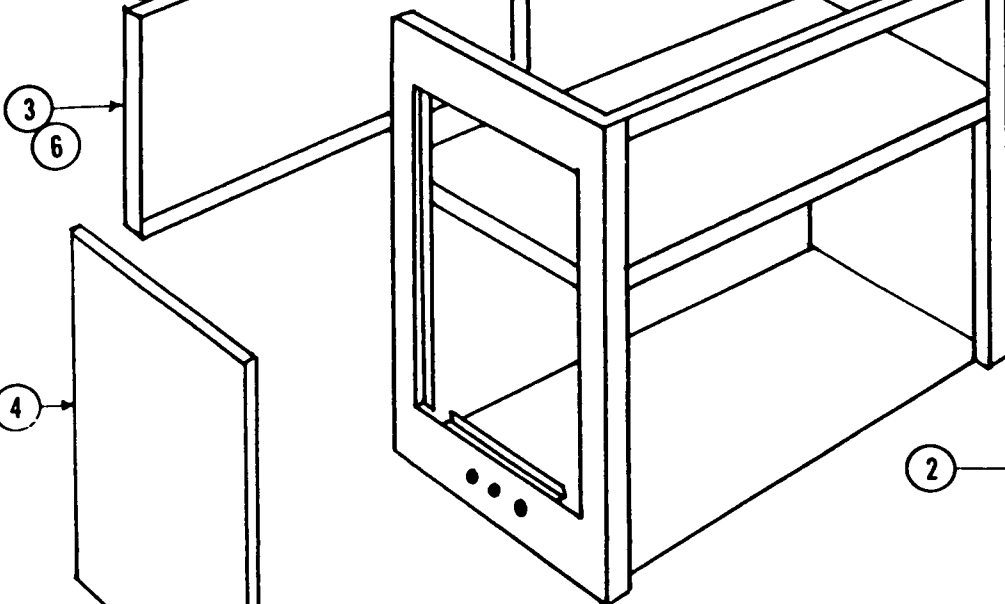
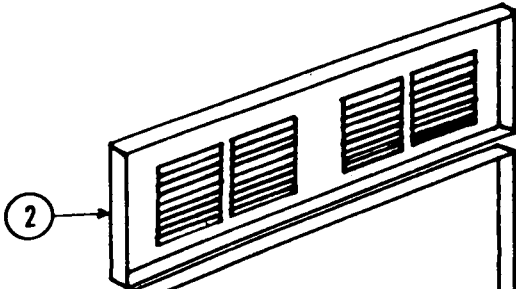


ITEM NO.	PART NO.	NAME
1.	S-7130	Collar
2.	2-438	Flange Bearing
3.	13-169	Grommet
4.	S-8887	Drive Bearing Support
5.	2-610	"O" Ring
6.	S-7635	Nut
7.	A-13837	Driving Journal Assy.
8.	A24048-001	Sprayer Tube Assembly
9.	2-1803-01	Jet 22 per Spray Bar
10.	A24010-001	End Bearing Assy.
11.	13-168	"U" Cup
12.	A-20852-002	Jets - 4 per Spray Bar



MM1010 CASE PARTS

Air and Water Cooled



ITEM NO.	PART NO.	NAME
1	A-17990	Top
2	A-17988	Upper Door
3	A-17684	Rear Lower Door
4	A-17710	Left Door
5	A-17663	Front Lower Door
6	2-1548	Plastic Door Liner
7	A-5720-10	Moulding Trim
8	15-474-1	Emblem Decal
9	3-1307	Screws (26 Req'd)

## SERVICE-COMPLETE UNIT

ALL STEPS LISTED BELOW SHOULD ONLY BE STARTED WHEN WATER AND ELECTRICAL SUPPLY ARE OFF TO PREVENT ACCIDENTS.

TO REMOVE SUMP PUMP

1. Remove left access panel. (4 screws)
  2. Remove hoses from pump inlet and outlet fittings.
  3. Remove four (4) screws holding pump mounting panel.
  4. Remove mounting panel from pump mounting bracket.
  5. Disconnect pump wire from control box.
  6. Replace pump in reverse of above.
- Note: Always try new pump in shop before putting on the job.

TO REMOVE DRIVE MOTOR

1. Remove left side panel.
2. Loosen set screw on drive journal arm to motor.
3. Take 4 nuts loose on mounting bracket to motor, including the four rubber grommets.
4. Pull electrical cord from control box receptacle.
5. Install new motor in reverse of above.
6. Check and adjust spray bar travel as required.

TO REMOVE SPRAY TUBE ASSEMBLY

1. Remove lower front door.
2. Remove plastic curtain and cube chutes.
3. Lift right end of spray bar out of holder. This loosens spray bar, also the tygon tubing connection and elbow.
4. Pull tygon tubing and stationary elbow off this end of spray tube. (Has rubber O-Ring sealer).
5. Replace in reverse order.

TO REMOVE WATER INLET SOLENOID /FLOW CONTROL

1. Remove cabinet top.
2. Pull electrical leads from spade terminals on top of solenoid.
3. Loosen the 3/8" S.A.E. flare nut on outlet side of valve.
4. Unscrew entire valve body assembly from its pipe fitting on inlet side.
5. Replace in reverse of above.

TO REPLACE MOTOR COMPRESSOR VALVE PLATE

1. Install compound gauge in suction service valve port and close suction service valve by turning valve stem all the way in (Front seated).
2. Operate motor compressor until gauge reading reaches zero. Turn off unit.
3. Front seat discharge service valve.
4. Loosen all head bolts and tap lightly with rubber-faced or plastic hammer to break loose.
5. Remove head, defective valve plate and any gasket material that may have stuck to head or compressor body.
6. Install new valve plate with all new gaskets as provided, tightening each head bolt a little at a time until all are snug.
7. Remove port gauge plug from discharge valve and crack open suction side letting gas purge off trapped air from head. Install hi side gauge in this port, back up both service valve stems and check around valve plate for refrigerant leaks.



## SERVICE--COMPLETE UNIT (Continued)

8. Start unit, noting head and back pressures. If normal, let run until compressor gets warm. Tighten all head bolts once more, and again check for leaks.

TO REPLACE THE COMPRESSOR

1. Front seat both suction service valve and discharge service valve on the compressor.
2. Disconnect the wiring from the compressor.
3. Remove the bolts holding the service valve to the motor compressor body.
4. Remove the compressor hold-down nuts and lift the compressor out of the unit.
5. Reverse steps 1 through 4 in replacing the compressor.
6. Check the compressor for oil before connecting the oil lines. Should be 2 inches down from the top of the oil plug hole, or 1/2 of sight glass.
7. Remove the gauge port plug from the discharge service valve. Crack the suction service valve slightly, allowing some gas to escape out the gauge port of the discharge valve. When you have thoroughly purged the compressor, replace the plug and open all valves. It may be necessary to charge the unit because some of the gas was lost when the defective compressor was removed. Check and charge if necessary.

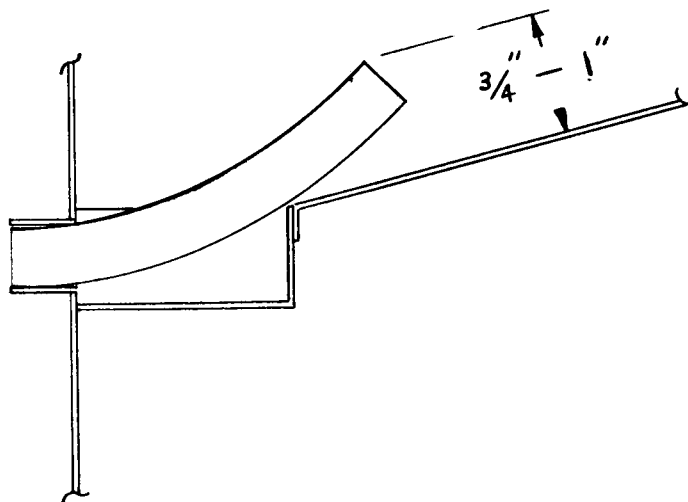
TO REPLACE SILENT 3-WAY WATER VALVES

1. Remove left side access panel.
2. Remove 2 screws from mounting bracket.
3. Remove top 1/4" flare fitting.
4. Remove 3 hose clamps.
5. Replace in reverse.

## SUPPLEMENT TO MM1010HB

## SERVICE MANUAL

NOTE: A stand pipe consisting of a short length of Tygon tubing has been added to the upper and lower sump areas to maintain a minimum water level in each sump. This tube is inserted into the sump drain and extends up from the floor of the sump reservoir. The distance from the floor to the top of the tube should be maintained at approximately 3/4 to 1 inch to prevent water from running over the sides of the sump into the bin and to insure that the sump pumps do not run out of water.



## FUNCTIONAL PARTS AND MAINTENANCE

PART NAME: Relay Ameco or Potter Brumfield 3 P.D.T.  
NUMBER: 12-1598  
FUNCTION: Relay is used as a by-pass on the bin thermostat when it tries to cut unit off on a full bin of cubes during a freezing cycle. This insures full cubes every time a harvest occurs and prevents short cycling on bin thermostat.  
SETTING: Factory set.  
REPAIRABLE: No. Replace when inoperative.  
MAINTENANCE: Check electrical connections and blow points free of lint or dirt.

PART NAME: Bin Thermostat Cutler Hammer  
NUMBER: 11-353-1  
FUNCTION: To automatically cut machine off when ice level in storage bin reaches thermobulb. Automatically starts machine when ice level in bin falls below bulb location.  
SETTING: These controls have adjustable differential. Setting on range dial should be 35° out, 39° in.  
REPAIRABLE: No. Replace when inoperative. If out of warranty it can be sent in through your local refrigeration supply dealers and replaced for a small percentage of original cost.  
MAINTENANCE: Check capillary for cracks or worn spots due to vibration.  
Hold a small handful of ice on thermostat bulb to check operation of control. Tighten electrical connections.

PART NAME: Inlet Water Solenoid  
NUMBER: 12-621G1  
FUNCTION: During freezing cycle this valve is closed, keeps water from entering heat exchanger tank and also from leaking out of tank. During harvest or defrost cycle this valve opens and allows inlet water to pass to flow control orifice and thence to push warm water out of heat exchanger tank into back of cups molds, performing the defrost.  
SETTING: Factory set.  
REPAIRABLE: Yes  
MAINTENANCE: Flush control each six months.



## FUNCTIONAL PARTS AND MAINTENANCE

**PART NAME:** Reverse Acting Cube Size Control  
**NUMBER:** 11-345  
**FUNCTION:** Reverse acting temperature control, closes on temperature decrease, opens on temperature rise. Control determines length of freezing cycle and by the same token, the cube size. A lower setting on control will produce larger cubes, a higher setting, smaller cubes. This control actuates time clock motor, Part No. A-23121-1, which then takes over balance of freezing cycle and also defrost period.  
**SETTING:** Turn dial clockwise to lower setting.  
**REPAIRABLE:** No. Replace when inoperative.  
**MAINTENANCE:** Check electrical connections. Blow points free of dust, dirt, lint, etc.

**PART NAME:** Sump Pump  
**NUMBER:** 2 per unit 12-1798-1  
**FUNCTION:** Recirculating pump used to pump supply water in reservoir to jet tubes during freezing cycle.  
**SETTING:** Factory set.  
**REPAIRABLE:** Motor only available part no. 12-1798-51  
**MAINTENANCE:** Flush out reservoir and sump pump intake with Scotsman ice machine cleaner.

**PART NAME:** Left Fan Control Penn  
**NUMBER:** 11-342 Air cooled models only  
**FUNCTION:** To control one Condenser Fan Motor between pressures of 170 lbs. and 154 lbs.  
**SETTING:** Factory Set  
**REPAIRABLE:** No. Replace if defective.

**PART NAME:** Right Fan Control Penn  
**NUMBER:** 11-343 Air Cooled Models Only  
**FUNCTION:** To Control one Condenser Fan Motor between pressures of 155 and 139 lbs.  
**SETTING:** Factory Set  
**REPAIRABLE:** No. Replace if defective

**PART NAME:** 3 way valve  
**NUMBER:** A-17954  
**FUNCTION:** To route water for freezing and harvest cycles. Incoming water pressure during harvest flexes rubber diaphragm against valve stem assy which opens and closes necessary ports. Stem is spring loaded for return to position during freezing cycle.  
**SETTING:** None  
**REPAIRABLE:** Yes, diaphragm, "O" ring and spring replacable.  
**MAINTENANCE:** Flush during maintenance cleaning.

## MAINTENANCE INSTRUCTION FOR SCOTSMAN SUPER CUBERS

THE FOLLOWING MAINTENANCE MUST BE ACCOMPLISHED TWO (2) TIMES PER YEAR ON ALL SCOTSMAN CUBERS. CALL YOUR AUTHORIZED SCOTSMAN SERVICE DEPARTMENT.

1. Clean air-cooled condenser. This is to be done frequently with the machine shut off.
2. Clean evaporator, sump tank and screen, using Scotsman Ice Machine Cleaner or equivalent.
3. Remove jet tube and manually clean jets by unscrewing jets.
4. Check curtain assembly.
5. Tighten all electrical connections.
6. Tighten all bolts.
7. Check water supply. Clean and flush flow control. Clean water strainer.
8. Oil jet tubes drive motor three (3) places. Use SAE 20 oil-2 oil cups, 1 crank case screw covered opening.
9. Oil condenser fan motor. Punch sealed cap or remove screws where possible.
10. Check for refrigeration leaks with halide torch.
11. Check for water leaks. Tighten drain line connections.
12. Check size and condition of cubes. Adjust as required. See Service Analysis Section.
13. Check bin thermostat setting. Factory set as 35° out, 39° in.

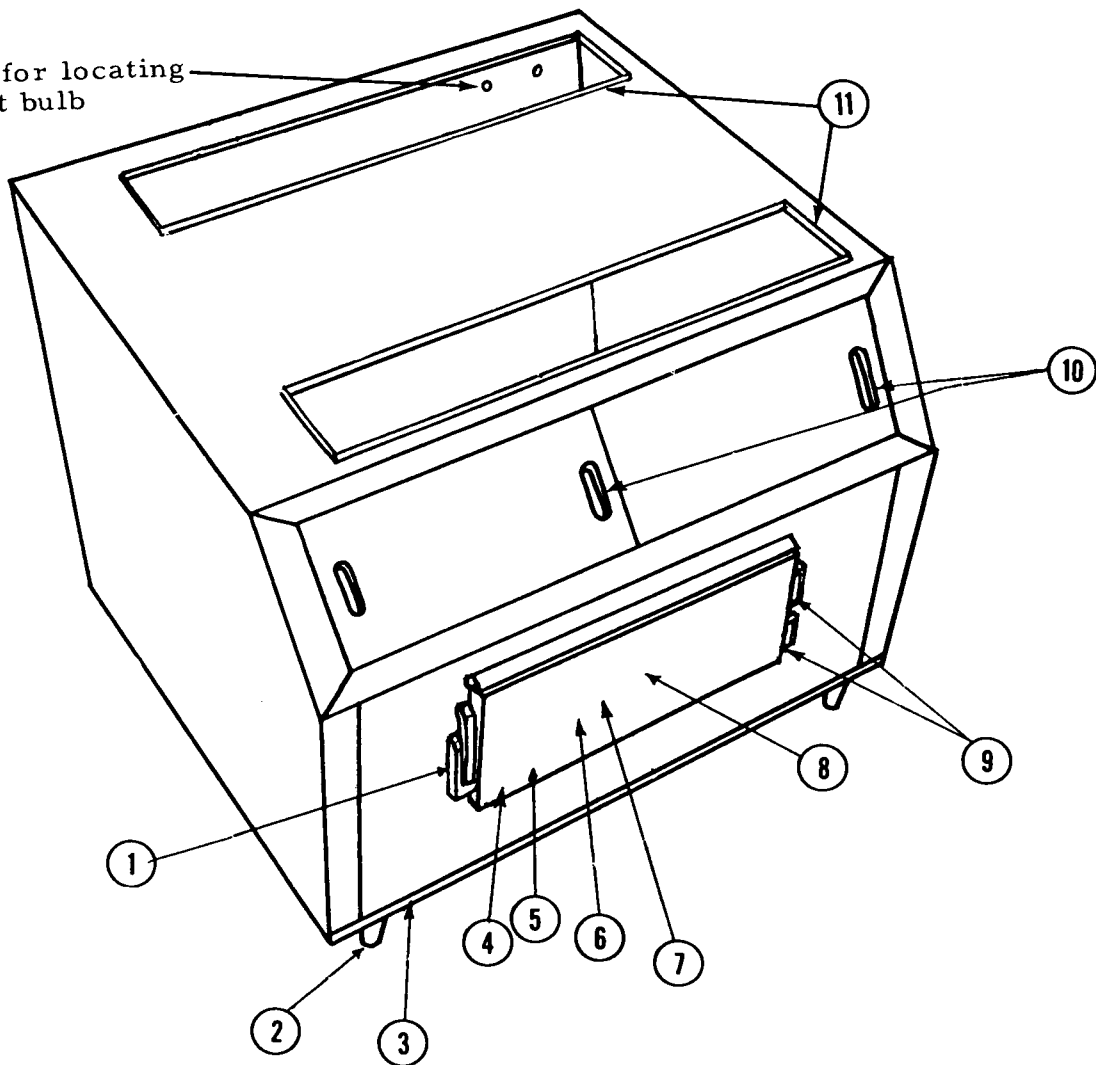
## CLEANING INSTRUCTIONS FOR SCOTSMAN ICE MACHINES

### MODELS MM1010HB

1. Remove front access doors.
2. Locate control box with time clock knob protruding thru cover.
3. Put unit through a harvest cycle manually. This may be done by turning the time clock knob clockwise until you hear the micro-switch actuator arm click into the cam slot.
4. Locate plastic curtain segments on front of machine and immediately after actuator arm has clicked into the cam slot lift curtain segments and pour 24 oz. of Scotsman Ice Machine Cleaner'' into both top and bottom reservoirs.
5. Let unit finish cube harvest cycle and start into freezing cycle. This will be approximately 5 minutes after Step No. 3. At this time turn off the compressor switch.
6. Let unit operate normally for 10-15 minutes into the freezing cycle. No ice will be made because the motor compressor is not in operation.
7. At the end of this time put the unit through 2 or 3 harvest cycles manually to allow fresh make up water to clean out remaining solution. Each time waiting approximately 5 minutes after the actuator arm has clicked into the cam slot until the next harvest cycle is done manually.
8. Turn the compressor switch back on.
9. Check each new batch of cubes until they are clear and until acid taste has been removed from cubes.
10. Put hot water in storage bin to melt the cube and thereby clean the drains with the same solution that has just cleaned the unit.
11. Use a damp cloth to wipe off curtains and inside of storage bin.
12. Replace all access doors.
13. Unit is now ready for continued automatic operation.

## B-700 STORAGE BIN FOR MM1010 CUBER

Weld nuts for locating  
thermostat bulb



ITEM NO.	PART NO.	NAME
1	2-1568	Latch & Strike
2	A-1711-0	Leg (4 Req'd)
3	A-96814	Moulding
4	A-15114	Baffle *
5	A-17342	Spill Door*
6	2-1000	Door Liner*
7	13-264	Door Gasket*
8	A-18300-5	Door Assy. Complete with Hardware--grey
9	A-18300-2	Door Assy. Stainless Steel
9	2-1569	Hinges
10	2-1529	Sliding Door Plastic 2/unit
	A-18770	Sliding Door Stainless Steel
11	2-1544	Gasket