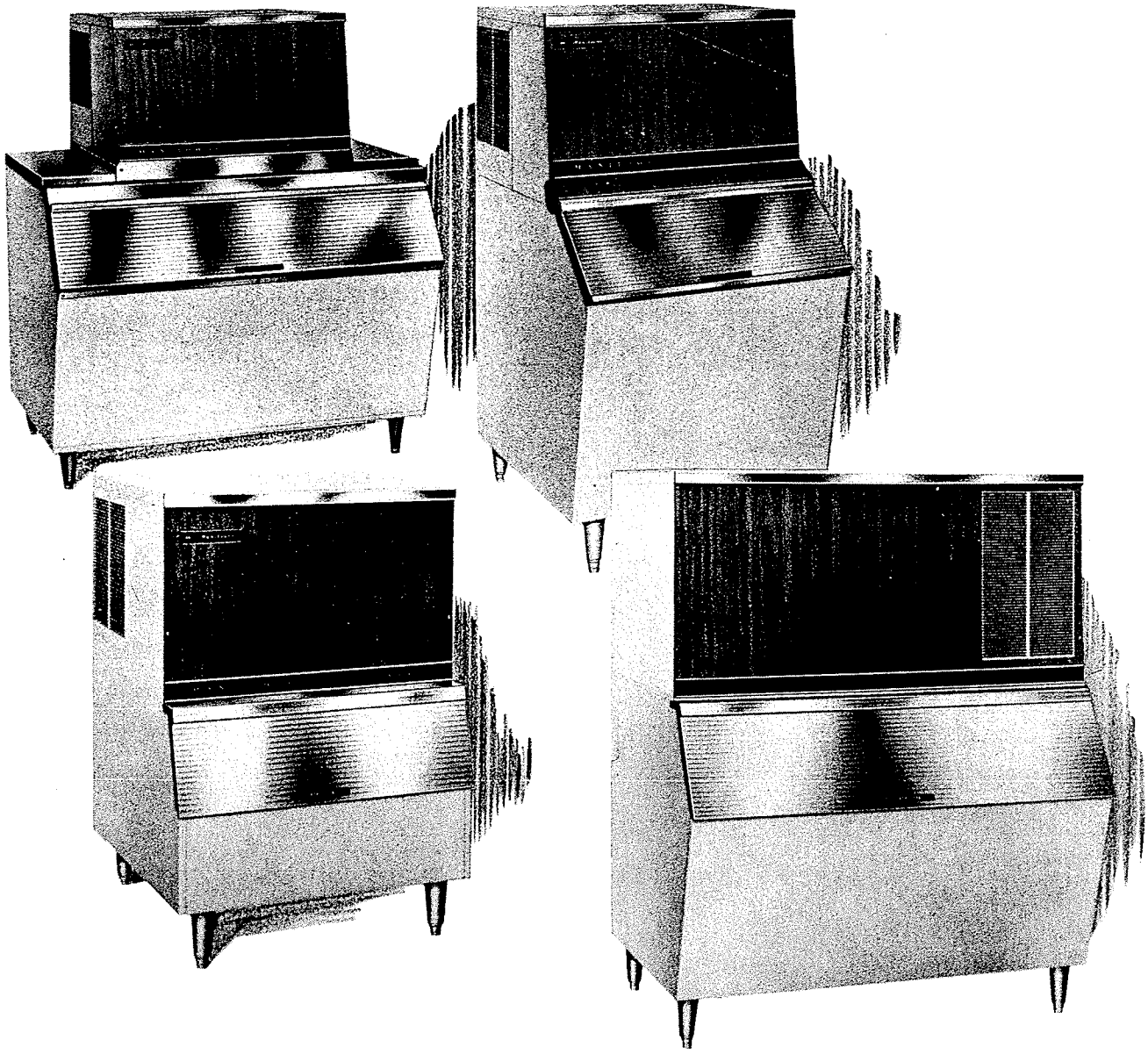
Manitowoc

MCD & MCR 500 SERIES ICE CUBER SERVICE MANUAL



Manitowoc equipment works
Division of The Manitowoc Company, Inc.,

MANITOWOC
WISCONSIN

80-0040-1

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FORWARD

Manitowoc Equipment Works, Division of the Manitowoc Company, Inc., Manitowoc, Wisconsin, presents this Service Manual to assist the service man with information concerning CONSTRUCTION, INSTALLATION, and MAINTENANCE of the MANITOWOC ICE MAKER.

The problems of the user and the service man have been given special emphasis in the development of the latest MANITOWOC Ice Machines.

If you encounter a problem which is not answered by this manual, please feel free to write or call the Service Department of the Manitowoc Equipment Works, Division of The Manitowoc Company, Inc., Manitowoc, Wisconsin, describing the problem you have encountered. The Service Department will be happy to give you particularized advice and assistance. Whenever calling or writing, please state the complete model and serial number of the ice making equipment.

MANITOWOC EQUIPMENT WORKS
Div. of THE MANITOWOC CO., Inc.
Manitowoc, Wisconsin 54220

UNCRATING AND INSPECTION

This model is shipped in a corrugated carton. Remove the staples around the lower edge of the carton. Lift the carton upwards and off, and inspect for concealed damage. The machine is held to skid by two bolts. Remove these skid bolts and set the machine in place. Before opening the carton, inspect for punctures, dents, or evidence of mishandling. Notify the carrier requesting that their representative be present if you suspect concealed damage. Insist that freight bills be marked. If you find any damage and no external evidence, save the carton and all packaging for the carrier's inspection. Once inspection has been made, advise the carrier of the cost of repairs, loss due to discounted price or replacement cost if bin cannot be salvaged.

LOCATION

For maximum efficiency, pick a location away from sources of heat like radiators, ovens, other refrigeration condensing units, direct sunlight, etc. Provide space around the cabinet for air circulation. Air cooled models require a minimum of 3 inches at any louvered opening to the compressor compartment. Cabinets located in unheated areas must be protected from freezing or shut down and drained. When machine is in place, remove wooden wedges under compressor. These were placed there for shipping purposes.

SERIAL AND ELECTRICAL PLATE

The combined serial and electrical plate is located outside the cabinet on the right end panel in the upper front corner. Be sure to send the complete serial number (14 numbers) and the model number when calling for service or parts.

REMOVING FRONT PANEL

To remove front panel pull forward on lower edge of panel and lift panel up and off. To install panel, set top of panel on edge at the top of head unit and snap into place on the bottom.

ELECTRICAL CONNECTIONS

115/230 Volt – 60 Cycle – 1 Phase.
Maximum fuse size (See Serial and Electrical Plate)
Minimum wire size (See Serial and Electrical Plate Minimum Ampacity Rating)

GENERAL REQUIREMENTS

All electrical and water supply and drain connections must conform to all local and national codes.

CONNECTING POWER SUPPLY

Your cuber should be connected to a separately fused circuit. Fuse size must not exceed maximum fuse size shown on the electrical plate.

All electrical wiring connected to your cuber must be rated equal to the minimum circuit ampacity shown on the electrical plate.

Remove screws and "L" shaped panel covering the side and rear of the compressor compartment. Separately fused wire (2), 230 volt, supply leads **with a neutral** should be run from the fuse box to the ice maker. Wiring will enter the cabinet through the rear wall. ONLY the compressor circuit is 230 volt, the amperage load being carried by a magnetic contactor. All other circuits are 115 volt, necessitating a neutral in the supply line.

COMPRESSOR CONTACTOR

The 500 Series machines use a 230 volt Copelaweld compressor. A compressor starting contactor is used to control the compressor. The contactor has a 115V coil which, when energized, close the 230V contacts; thereby starting the compressor. (See 500 Series Wiring Diagram.)

WATER SUPPLY

Quality and ice making capacity are affected more by chemistry, temperature, and foreign matter in supply water than any other factor. A survey made of water departments of large cities all over the country made it obvious that external filters or strainers should be installed. Such equipment is very effective in improving ice quality and reducing the frequency of cleaning out the ice making sections.

CONNECTING WATER SUPPLY

A 1/2" female pipe fitting is provided on the right end of the head unit. Install a water filter screen provided with the cabinet. Use 3/8" O.D. copper tubing for the water supply.

DRAIN CONNECTIONS

It is essential that drain connections be made so waste water can't back up into the head unit or bin. On water cooled models, a separate connection is provided for discharging condenser water. All connections are labeled. **We recommend covering all incoming water and drain lines with a plumbing insulation material to prevent condensation.** If the head unit and bin drains are tied together through a "T" connection, we recommend using a **3/4" pipe and a stand pipe** vented to the atmosphere to prevent water traps. Drains must be at least 1/2" inside diameter and have 1½" drop per 5 feet of run. If drains are not close enough to allow drop for proper drainage, or water is to be drained in a stationary sink higher than ice machine drains, use an automatic condensate disposal pump. (Check and follow local plumbing codes.)

CHECK LIST PRIOR TO STARTING UNIT

Remove tape securing the damper door, splash curtain, harvest rack, water pump, and float valve assembly.

Remove and discard tape securing the water pump mounting bracket to the cabinet wall. Raise the pump enough to remove the packing under the pump.

Turn on the water and observe that the float shuts off the water when the level is about 2 inches deep. Should float require adjustment, merely bend float rod carefully until desired water level is reached.

Turn the toggle switch located on the cube size control to "water pump", left position. The water pump will start pumping water through the hose into the tube located on top of the evaporator. The water flows down the evaporator and returns to the sump. NOTE: During the pull down, water is very erratic across the evaporator. After ice begins to form, you will note that the tracking of the water is very uniform.

CHECK FOR THE FOLLOWING THINGS:

A higher than necessary water level wastes water and reduces ice making capacity.

Turn the machine on and off several times to flush clean water through the system and to observe that waste water drains properly.

With the toggle switch in the "ICE" position, reach down and push the damper door open. The entire machine should stop and remain off until the damper is released.

The installer should replace the top on the head unit, put the front panel in place, and check the first harvest of cubes to see that the machine functions properly.

The basic change in the MC Series has been the ice size control. This consists of a Ranco or Penn reverse-acting pressure control (open on pressure rise) and a Paragon time clock.

These controls are factory set and should need no adjustment except in altitudes above 5,000 feet.

All tubing and components are joined by silver brazing, except the suction service port.

MANITOWOC'S FREEZE AND HARVEST CONTROL FOR MODEL MCR–MCD 500 SERIES

Freeze and harvest cycles on the above model Manitowoc Cubers are regulated by three very simple controls. The basic control is a low side reverse-acting pressure regulator made by either Ranco or Penn. This is mounted in the compressor compartment at the upper edge of the bulk head which separates this area from the freezing section. The second control is a Paragon Timer, located in the upper right hand portion of the freezing compartment. The third is a thermo disc installed on the suction line outlet of the evaporator.

On starting a warm machine, the suction pressure may be upwards of 75 PSIG; but as the compressor runs, the suction pressure and temperature within the line is lowered. When the line temperature reaches 35°F., the thermo disc "cuts in" and closes the clutch on the timer and holds it "in" continuously through the freezing cycle. When the suction pressure reaches 9 lbs. in the regular cube unit (11 lbs. in the dice cube unit), the pressure control electrically activates the timer motor. The cam on the timer motor is set at approximately 4½. This is equal to 6½ minutes running time. The clock continues to run until the cam stalls against the harvest micro switch. This places the unit in defrost, and it will stay in defrost until released by the bin damper switch when the sheet of ice falls into the bin. The thermo disc remains closed during the entire harvest cycle. It opens only when the temperature of the suction line rises to 65°. This is a safety measure to prevent overheating in case the unit would stay in harvest.

If the dimple in the cubes is too pronounced, you may set the timer dial to 5. This will increase the freezing time. Likewise, if the bridging between cubes is too heavy, you may set the dial back to about 4. This shortens the freezing time.

CONTROLS

HIGH PRESSURE CUT-OUT

The high pressure cut-out in all models is a safety device to stop the entire unit. This protects the water cooled units if the water is shut off or the condenser becomes contaminated with impurities from the water, and the air cooled units if the condenser fan motor stops or the condenser becomes clogged with foreign material.

This control is a manual reset, and is factory set at 275 PSIG, plus or minus 5 PSIG, and is not adjustable in the field. If the control becomes inoperative, remove and replace.

SUCTION LINE THERMO DISC

The suction line thermo disc is located on the suction line behind the evaporator on MC500 Series. This control is a Klixon switch that opens at 75°F+ – 5°, and closes at 35°F + – 5°. The thermo disc acts only as a safety device to prevent overheating of the machine. Should the damper door switch fail after harvest, the thermo disc will open. When the suction temperature reaches 75°F + – 5° this will return the machine to its normal freezing cycle by disengaging the clock clutch located on the clock.

TOGGLE SWITCH

The cleaning "ON and OFF" toggle switch is a double pole, double throw switch with "OFF" in the center position. With the toggle switch in the "water pump" (Left) position, only the water pump and the condenser fan operate. This is for checking the water inlet float level, pump operation, and for circulating cleaning solution.

With the toggle switch in the "ICE" (Right) position, the water pump, compressor, and condenser fan (air cooled models), run for a normal ice making cycle.

RANCO OR PENN PRESSURE CONTROL

This control is a reverse-acting pressure control that opens on pressure rise. Upon decrease in suction pressure (11 lbs. dice cube, 9 lbs. regular cube), the pressure control closes, actuating the time clock.

PARAGON TIME CLOCK

After the pressure control energizes the time clock, the time clock motor turns a cam for 6½ minutes (number 4½ on time clock face). When the 6½ minutes have elapsed, the cam trips a micro switch which in turn cycles the machine into hot gas or harvest cycle. Simultaneously, the water pump (and condenser fan on air cooled models) are shut off.

DAMPER DOOR SWITCH

When the harvest is completed, the ice falls through the damper door tripping the damper door switch. This in turn, opens the holding clutch on the time clock momentarily to reset the clock and return the machine to its normal freeze cycle.

When the ice bin is full, the ice holds the bin switch open keeping the machine shut off.

Should the damper switch fail, the suction line thermo disc will open to reset the time clock.

SETTING PARAGON TIMER

Should it be necessary to adjust the timer for an accurate bridge thickness, proceed as follows:

1. Remove cover from the control box.
2. Locate timer Fig. 1.
3. Loosen adjustment screw, Fig. 1 "E".
4. To decrease bridge thickness, set arrow Fig. 1 "E" to number 3. Likewise to increase bridge thickness, set arrow to number 5.
5. Retighten set screw.

SOLID STATE TIMER

Ice cubers equipped with the newly designed solid state timer can be adjusted as per Fig. 2. After the low pressure cut-in control has energized the timer motor, the timer motor will run for the length of time that it is set at for the proper bridge thickness. When this time has elapsed the machine will go into hot gas defrost or harvest cycle, by the hot gas solenoid valve opening and simultaneously shutting off the water pump (and condenser fan on air cooled models).

SETTING SOLID STATE TIMER

Should it be necessary to adjust the timer for an accurate bridge thickness, proceed as follows:

1. Remove cover from the control box.
2. Locate timer.
3. To increase rotate dial clockwise.
4. To decrease rotate dial counter-clockwise. 1/4 turn equals approximately 5 minutes. See Fig. 2.

CLEANING INSTRUCTIONS

IN PLACE CLEANING

To clean the ice cuber water system without removing the components proceed as follows. NOTE – This is only recommended in locations where impurity build-up is not heavy.

1. Remove ice cuber front panel.
2. Shut off ice cuber.
3. Remove ice from bin.
4. Shut off water supply and remove water from water sump.
5. Pour one bottle of ice machine cleaner into sump and turn supply water on.
6. Place toggle switch to water pump position and circulate cleaner for about 30 minutes.
7. After cleaning shut machine off and remove cleaner. Flush water system thoroughly.
8. Clean ice storage bin with ice machine cleaner also.

DISASSEMBLING WATER SYSTEM FOR CLEANING

To clean parts by removing proceed as follows:

1. Shut machine off.
2. Remove splash curtain, water pump and water distributor.
3. Disassemble distributor as indicated in Fig. 4.
4. Disassemble water pump as follows:
   A. Turn pump over and remove the 6 brass thumb screws.
   B. Hold and depress impeller. Rotate plastic thumb nut counter-clockwise.
   C. Remove screws and pump housing. Pump is now ready for cleaning.
   D. Reassemble in reverse order as removed.

Scrub all parts removed using a nylon scouring pad, brushes, and a cleaning solution such as LIME–A–WAY from Economics Laboratory, Inc., Calgon Ice Machine Cleaner, or Boss Brand Milk Stone Cleaner from Northern Laboratores. Rinse all parts with clear water.

It is recommended that the ice be removed from the storage bin before scrubbing the base and evaporator assembly. Rinse with clear water. Check to see that overflow or drain hole in the base is clear and that water drains through freely.

Reassemble unit. To sanitize unit, mix ONE TEASPOON OF SODIUM HYPOCHLORITE IN ONE GALLON OF WATER. Pour solution into sump, then turn toggle switch to the left to start water pump.

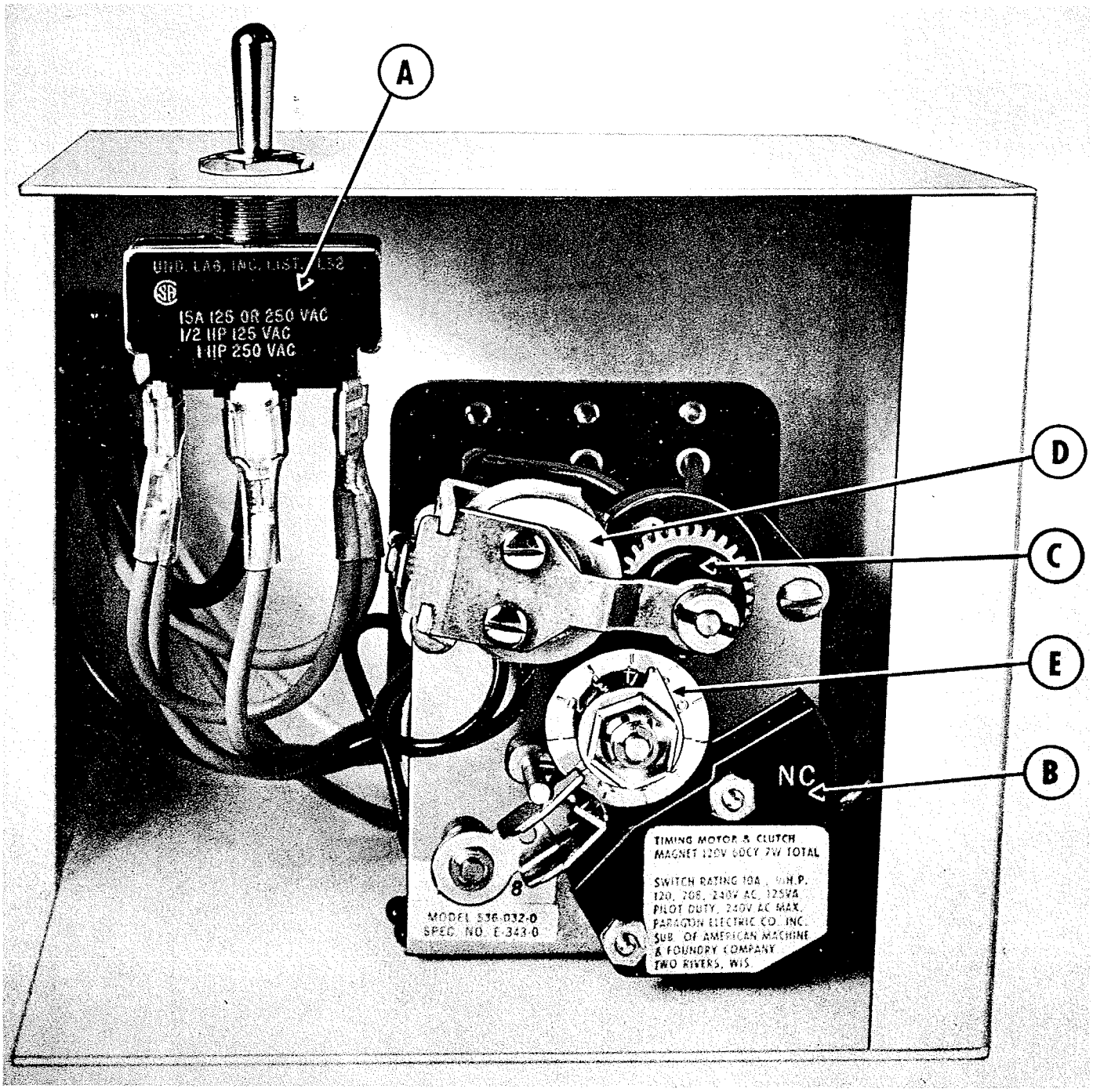
Keep pouring solution into sump until system has enough to keep pump primed. After one minute, turn off pump and remove solution from water sump. Repeat with clear water before turning switch back to the ice making position. Make visual inspection for leaks and operation before replacing the front panel.

DISASSEMBLING WATER PUMP

Hartell water pumps disassemble as follows:

a. Remove pump supply cord located directly behind motor.
b. Lift pump out and disconnect supply hose and remove assembly.
c. Turn pump over and remove 6 brass thumb screws.
d. Hold and depress impeller. Rotate plastic thumb nut counter-clockwise.
e. Remove screws from pump housing. Pump is now ready for cleaning.

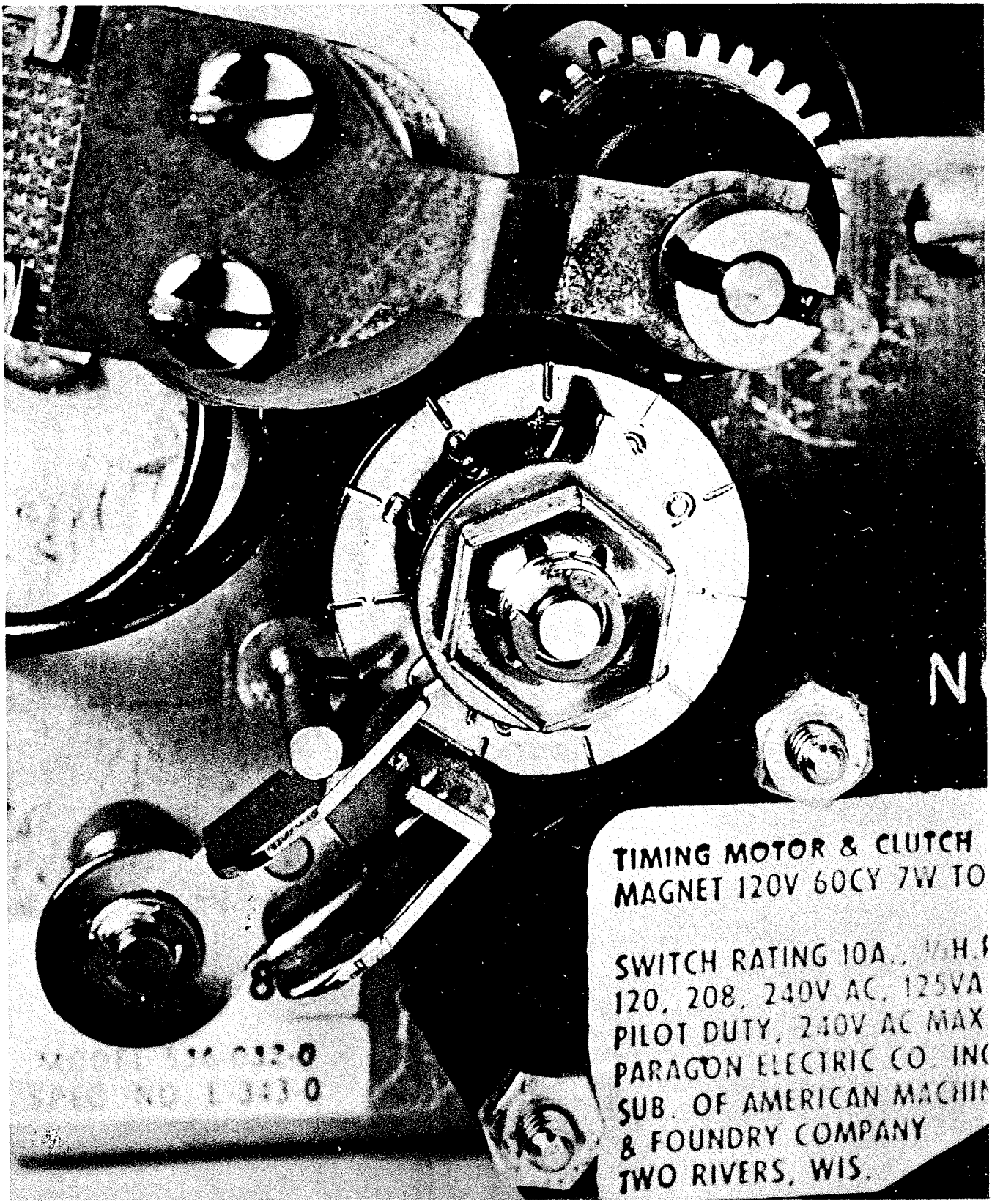
TO REASSEMBLE HARTELL PUMPS, REVERSE DISASSEMBLY INSTRUCTIONS.



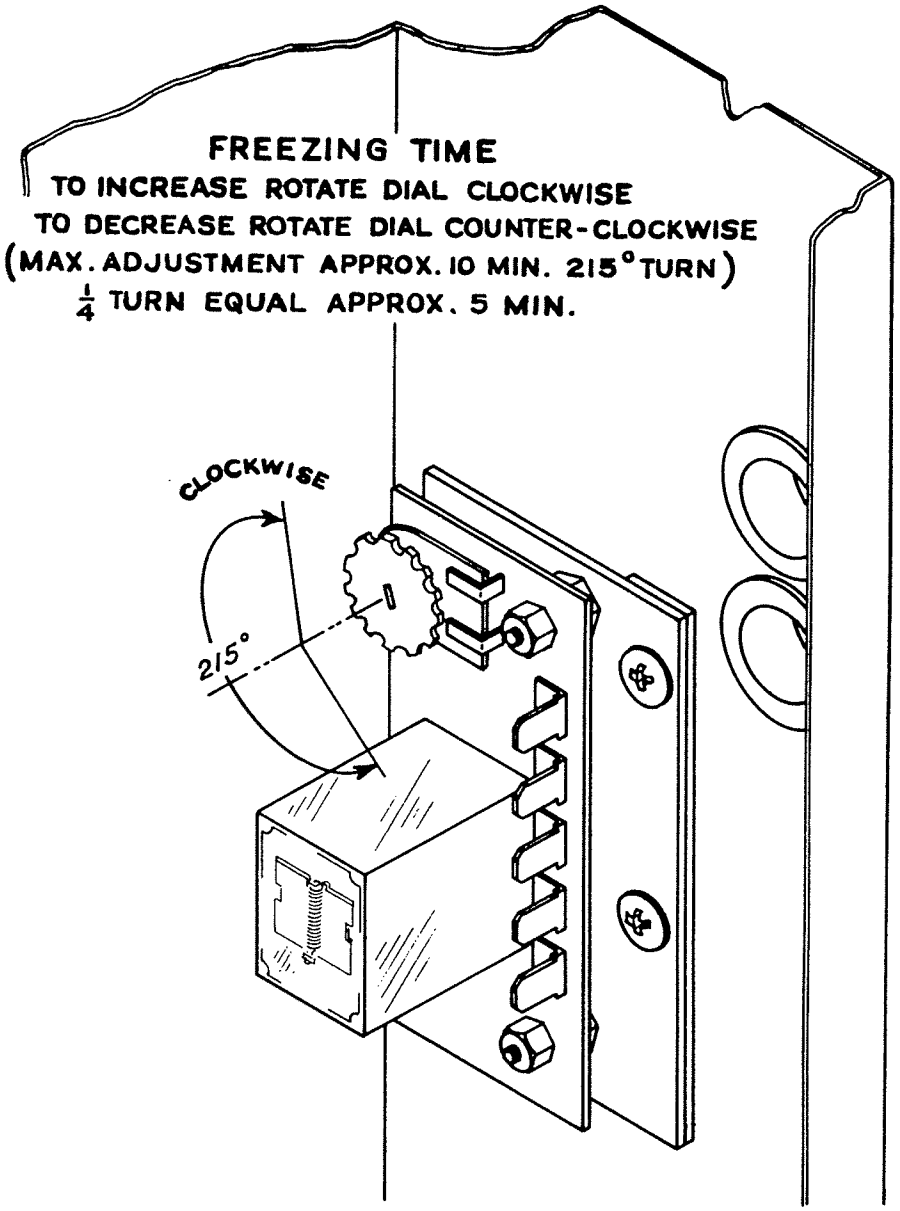
TIMER ASSEMBLY

A. Toggle Switch
B. Micro Switch
C. Clutch
D. Coil
E. Time Setting

FIG. 1

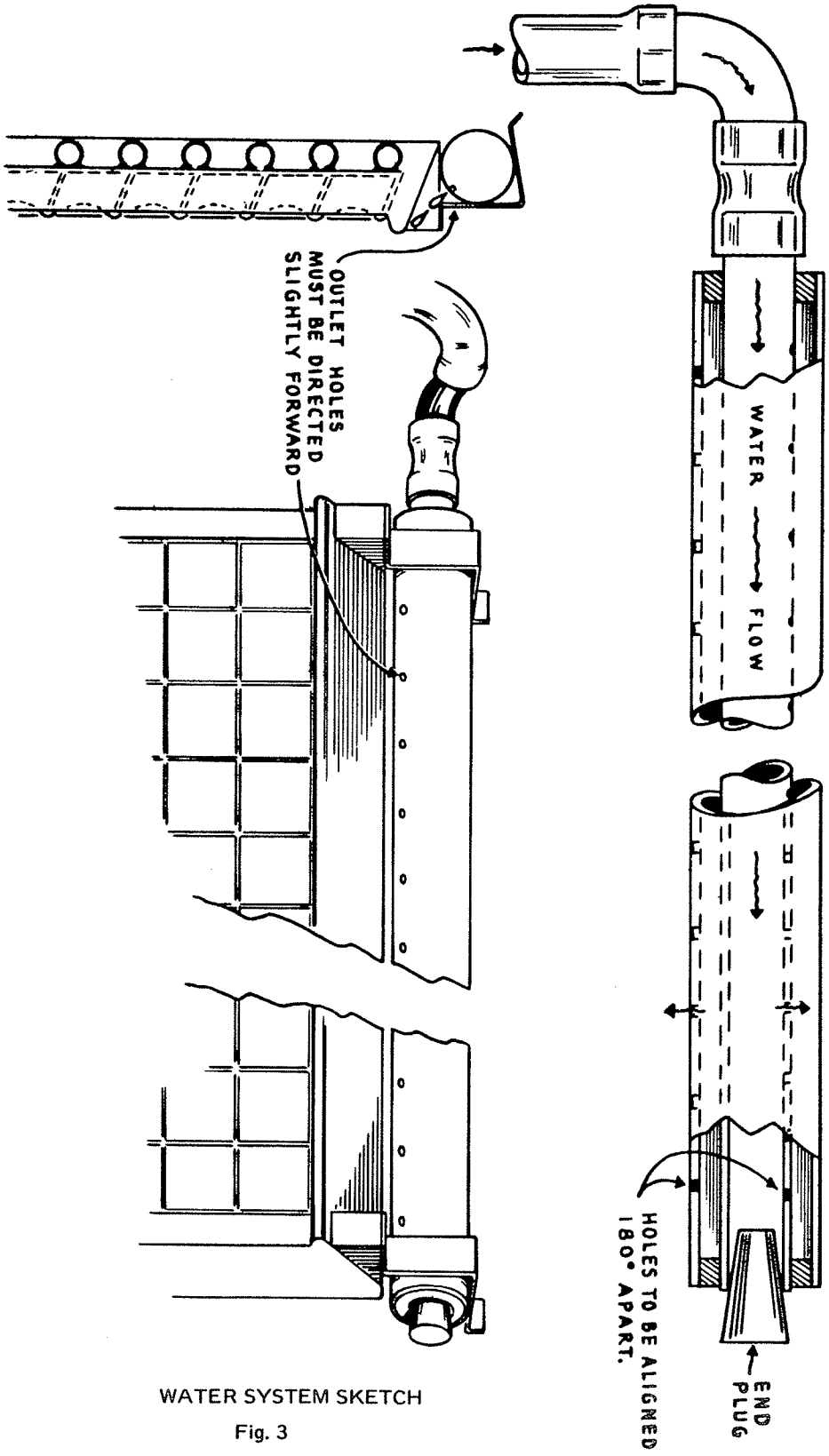


TIME CLOCK DIAL SETTING



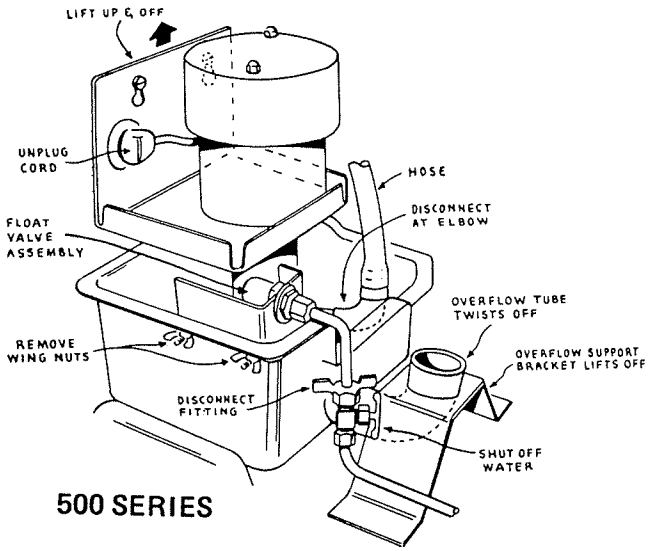
CONTROL BOX VIEW OF SOLID STATE TIMER SETTING INSTRUCTIONS

FIG. 2

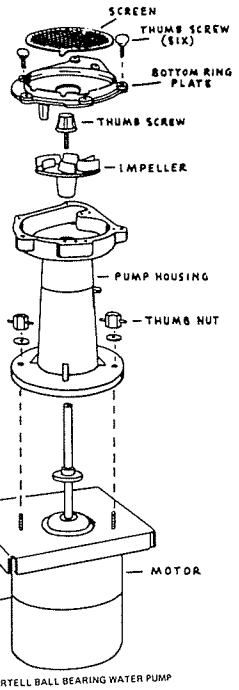


WATER SYSTEM SKETCH

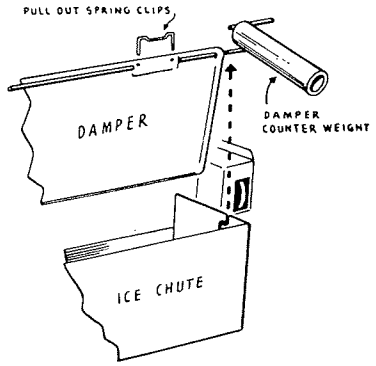
Fig. 3



500 SERIES

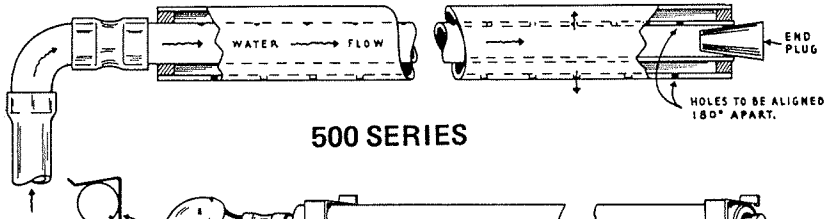


HARTELL BALL BEARING WATER PUMP



500 SERIES

500 SERIES



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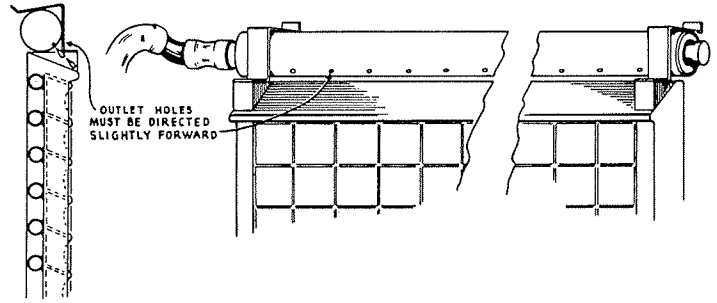
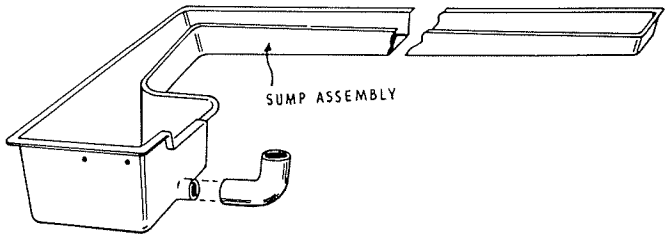
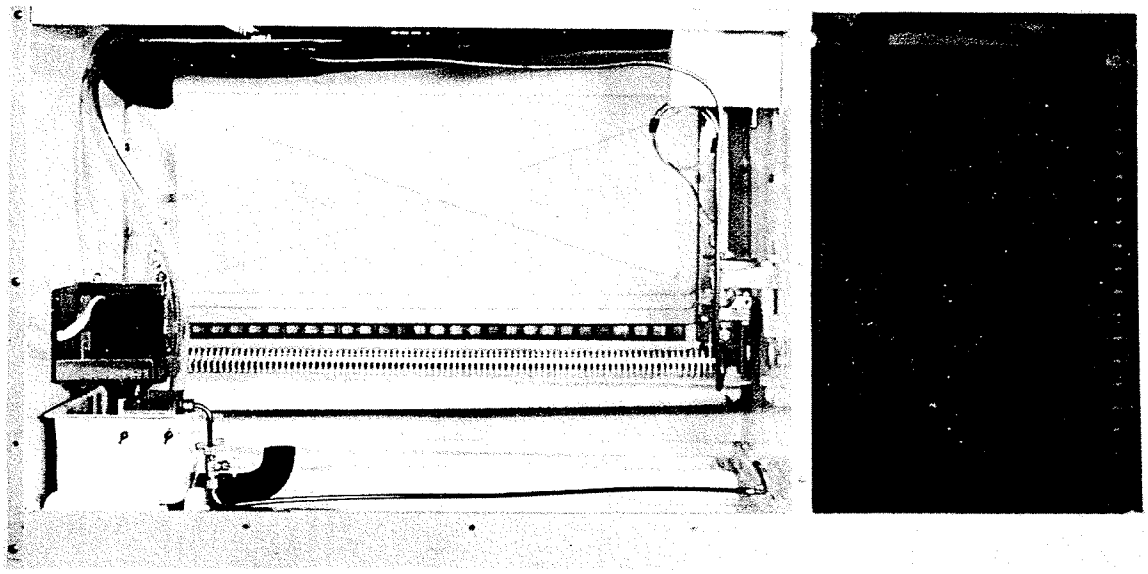




500 SERIES

CLEANING INSTRUCTIONS
Fig. 4



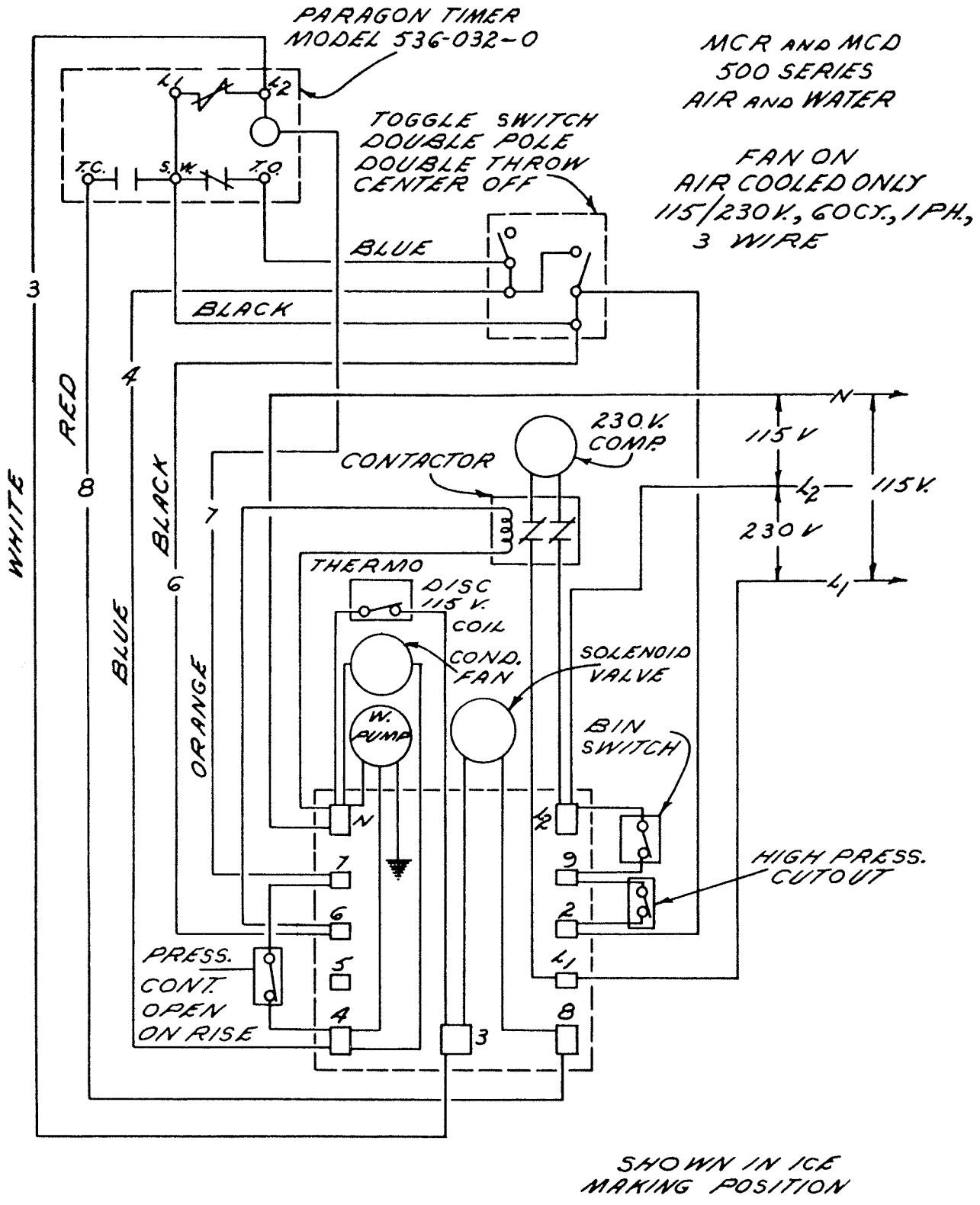
MC 500 SERIES ICE CUBER
60 and 50 CYCLE

60 CYCLE

CUBER MODEL	MCR-MCD 500 SERIES WATER COOLED 60 Cycle			MCR-MCD 500 SERIES AIR COOLED 60 Cycle		
Compressor Model	SSC2-0100-CAV			SSC2-0100-CAV		
Compressor Voltage	230V-60Cy-1Ph			230V-60Cy-1Ph		
Winding Resistance Common to Run	1.7 OHMS			1.7 OHMS		
Winding Resistance Common to Start	6.3 OHMS			6.3 OHMS		
Start Capacitor Rating	145-175MFD220V			145-175MFD220V		
Run Capacitor Rating	15MFD-370V			15 MFD-370V		
Fan Motor Model	MORRILL			MORRILL		
Fan Motor Amps	1.4			1.4		
Fan Motor Watts	35 Watt			35 Watt		
Fan Motor Volts	115 Volts			115 Volts		
Fan Winding Resistance	11 OHMS			11 OHMS		
Solenoid Valve Volts	115V			115V		
Solenoid Valve Winding Resistance	49 OHMS			49 OHMS		
Little Giant Water Pump Winding Resistance	11 OHMS			11 OHMS		
Little Giant Water Pump Amperage	1.5 Amps			1.5 Amps		
Hartell Water Pump Winding Resistance	9.5 OHMS			9.5 OHMS		
Hartell Water Pump Amperage	1.8 Amps			1.8 Amps		
Refrigerant Charge — R-12	41 Ozs.			42 Ozs.		
Normal machine amperage	10.5 Amps.			12 Amps		
Room Temperature	70	90	110	70	90	110
HEAD Maximum				136	161	210
PRESSURE Minimum				113	138	180
Suction Maximum				16	17	20
Pressure Minimum				5	6	6
Water Temperature Condenser Out	100	100	100			

50 CYCLE

CUBER MODEL	MCR-MCD 500 SERIES AIR COOLD 50 CYCLE			MCR-MCD 500 SERIES WATER COOLED 50 CYCLE		
Compressor Model	SSE-0100-CAG			SSE-0100-CAG		
Compressor Voltage	230V-50Cy-1Ph			230V-50Cy-1Ph		
Winding Resistance Common to Run						
Winding Resistance Common to Start						
Start Capacitor Rating						
Run Capacitor Rating						
Fan Motor Model	ELECTRIC MOTORS			ELECTRIC MOTORS		
Fan Motor Amps	.54			.54		
Fan Motor Watts	23.2 WATTS			23.2 WATTS		
Fan Motor Volts	230 VOLTS			230 VOLTS		
Fan Winding Resistance	18 OHMS			18 OHMS		
Solenoid Valve Volts	230 VOLT			230 VOLT		
Solenoid Valve Winding Resistance	22 OHMS			22 OHMS		
Hartell Water Pump Winding Resistance	46.5 OHMS			46.5 OHMS		
Hartell Water Pump Amperage	.77 AMPS			.77 AMPS		
Refrigerant Charge — R-12	42 Ozs.			41 Ozs.		
Normal Machine Amperage	14 AMPS			10.5 AMPS		
Room Temperature	70	90	110	70	90	110
HEAD Maximum	136	161	210			
PRESSURE Minimum	113	138	180			
SUCTION Maximum	16	17	20			
PRESSURE Minimum	5	6	6			
Water Temperature Condenser Out				100	100	100


PARAGON TIMER
MODEL 536-032-0
MCR AND MCD
500 SERIES
AIR AND WATER
TOGGLE SWITCH
DOUBLE POLE
DOUBLE THROW
CENTER OFF
FAN ON
AIR COOLED ONLY
115/230 V., 60 CY., 1 PH.,
3 WIRE
L1
L2
T.C.
S.W.
T.O.
BLUE
BLACK
RED
WHITE
BLACK
BLUE
ORANGE
3
4
8
7
6
N
230 V.
COMP.
CONTACTOR
115 V
L2
230 V
L1
115 V.
THERMO
DISC
115 V.
COIL
COND.
FAN
SOLENOID
VALVE
W.
PUMP
BIN
SWITCH
HIGH PRESS.
CUTOUT
PRESS.
CONT.
OPEN
ON RISE
9
2
5
SHOWN IN ICE
MAKING POSITION

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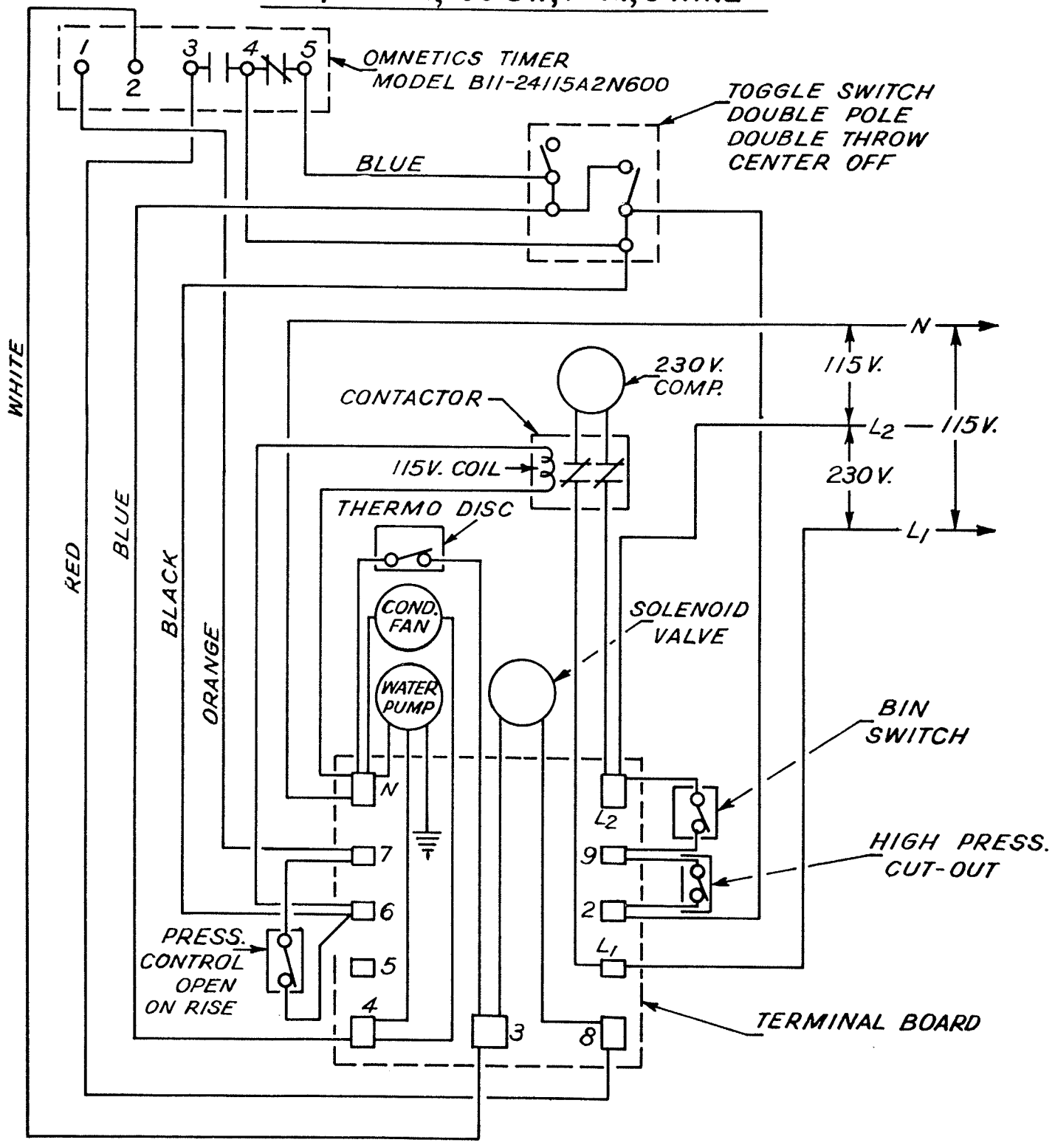
MCR AND MCD 500 SERIES AIR AND WATER
FAN ON AIR COOLED ONLY
115/230 V., 60 CY., 1 PH., 3 WIRE



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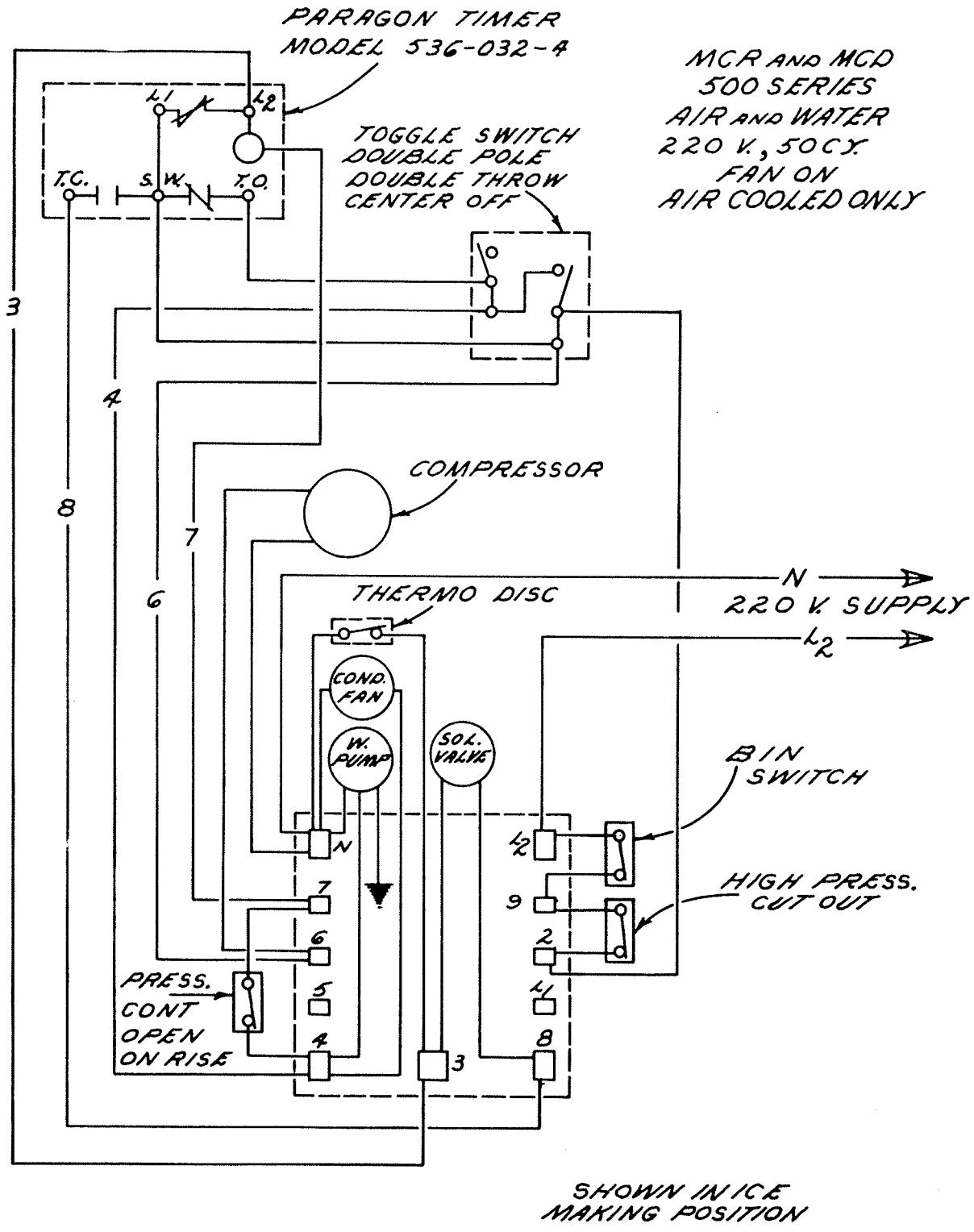
SHOWN IN ICE MAKING POSITION


PARAGON TIMER
MODEL 536-032-4
MCR AND MCD
500 SERIES
AIR AND WATER
220 V., 50 CY.
FAN ON
AIR COOLED ONLY
L1
L2
T.C.
S.W.
T.O.
TOGGLE SWITCH
DOUBLE POLE
DOUBLE THROW
CENTER OFF
3
4
8
7
6
COMPRESSOR
THERMO DISC
N
220 V. SUPPLY
L2
COND. FAN
W. PUMP
SOL. VALVE
BIN SWITCH
HIGH PRESS. CUT OUT
PRESS. CONT OPEN ON RISE
SHOWN IN ICE MAKING POSITION

81-0410-1

SERVICE ANALYSIS

COMPLAINT	CAUSE	CORRECTIVE MEASURES
Slow Harvest	Contaminated or limed water system.	Clean water system
	Low ambient (air cooled models)	Must be above 50°F.
	Water valve set too low	Adjust water valve to 125 PSIG head pressure
	Leaking water valve (water cooled models)	Replace water valve
High Head Pressure	Air in system	Evacuate and recharge
	Defective water valve (water cooled models)	Replace water valve
	Defective fan (air cooled models)	Replace fan
	Water valve not properly adjusted	Adjust water valve
	Contaminated air cooled condenser	Clean condenser
	Defective expansion valve	Replace
High Suction Pressure	Contaminated condenser	Clean
	Defective fan	Replace fan
	Defective water valve (water cooled models)	Replace or adjust water valve
	Moisture in system	Replace drier, evacuate, and recharge
Low Suction Pressure	Shortage of refrigerant	Locate leak and repair
	Moisture in system	Replace drier, evacuate system
	Ambient too low for operation	Must be above 50°F.
Unit Noisy	Fan shroud touching fan blades	Adjust fan mounting brackets
Ice maker will not stop when full of ice	Damper door not properly adjusted	Adjust damper door
	Defective damper door micro switch	Replace damper door micro switch
Time Clock Will Not Operate	Ranco pressure control not closing	Replace control
Time Clock Will Not Actuate Harvest	Timer micro defective	Replace micro switch
	Thermo disc is not closed	Check thermo disc
Small cube bridge	Ranco pressure control not opening	Replace control
	Leak in refrigeration system	Locate leak, repair, evacuate, and recharge
Machine Will Not cycle into harvest	Defective time clock clutch coil	Replace
	Defective time clock micro switch	Replace

SERVICE AND PARTS PROCEDURES

ORDER AND PRICING PROCEDURE

Replacement parts for Manitowoc ice machine equipment should be ordered directly from your local Manitowoc Ice Machine distributor. Parts are stocked by the distributor in order to provide prompt and efficient service for ice machines sold in their areas.

Should you encounter difficulty in locating a Manitowoc distributor in your area, contact Manitowoc Service Parts Dept. for the name or names of distributors in your area.

When placing your order, be sure to do as follows:

1. Print name and address plainly.
2. If special routing is requested, please show the name of the carrier.
3. Indicate quantity desired, print catalogue part number plainly and print name as shown in the catalogue.
4. Indicate model and serial number of the unit. The complete serial number is needed.
5. If uncertain as to the proper part number, please give a complete description or sketch of the part and the location of the part which is needed.
6. Check to see that all required information is contained in your order to facilitate prompt shipment from the factory on a f.o.b. Manitowoc basis. It is company policy to bill for all field replacement parts, according to terms as specified by our Credit Department.

All parts orders will be honored by the factory and will be billed according to our parts lists schedules.

Parts which are covered by our warranty policy are to be returned to the factory for credit, transportation charges prepaid. Upon receipt of these parts here at the factory, they will be inspected; and if they are found to be defective, in material and workmanship, under normal use and service, credit will be issued.

Transportation companies are responsible for damages in transit as all shipments are tendered to them in good condition; and our responsibility ceases upon receipt of a signed bill of lading from the carrier. If the shipment arrives in a damaged condition or is short, the delivery carrier should be notified immediately.

PARTS WARRANTY

From the date of original installation, we do hereby warrant each new Ice Machine and Bin to be free from defects in material and workmanship, under normal use and service, for a period of one year, and four additional years on the hermetic motor compressor in the Ice Machine.

Our obligation under this warranty is limited solely to correcting or replacing without charge at the factory in Manitowoc, Wisconsin any part or parts of this equipment which shall have been returned, transportation prepaid, and which our examination discloses to our satisfaction to be defective.

RETURN OF DEFECTIVE PARTS

All defective parts returned to the factory, transportation prepaid, must be tagged with a return material tag properly filled in. It is especially important that the cabinet serial number be secured and recorded on the tag, securing as much information as possible about the nature of the defect to prevent any delays in issuing credit. All parts should be returned as they are removed from the cabinet and not mutilated or tampered with. The return material tags are provided on a no-charge basis by the factory upon receipt of your request.

Our warranty and protection plan does not apply to cabinets that are not registered; therefore, it is necessary that, upon completion of the installation of the cabinet, the registration card be signed on the date of installation and mailed promptly to the factory Service Department in order for the cabinet to be registered.

RETURN OF HERMETICALLY-SEALED UNITS

Extreme care should be used in servicing the hermetically-sealed mechanism. It is important that the trouble be correctly determined before the unit is changed. Be sure it is not the control, relay, or overload causing the trouble. The defect must be listed on the return material tag.

Ice Machine and Bin Warranty

From the date of original installation, we do hereby warrant each new Ice Machine and Bin to be free from defects in material and workmanship, under normal use and service, for a period of one year, and four additional years on the hermetic motor compressor in the Ice Machine.

Our obligation under this warranty is limited solely to correcting or replacing without charge at the factory in Manitowoc, Wisconsin any part or parts of this equipment which shall have been returned, transportation prepaid, and which our examination discloses to our satisfaction to be defective.

This warranty does not apply to any equipment that has been damaged by flood, fire, or suffered abuse, misuse, neglect or accident, or to any Ice Machine which has been altered so as to affect performance or reliability, except where such alteration has been accomplished with our prior written consent.

We further limit this warranty in that we shall not be held liable under this contract for any special, indirect, or consequential damages whatsoever resulting from any defect in material and workmanship which interferes with the normal use and service of such Ice Machine and Bin.

This warranty is a complete and exclusive statement of all terms of the agreement between the Manitowoc Equipment Works and the owner of the equipment, and all representations of the parties. This agreement shall not be varied, supplemented, qualified or interpreted by any prior course of dealing between the parties or by any usage of the trade.

Sales are made on the express understanding that there are no express or implied warranties other than the express warranty herein contained and that there are no implied warranties that the goods shall be merchantable or fit for a particular purpose other than the expressed one year and five year warranty set forth above.

To validate this warranty, the registration card must be signed on the date of installation and mailed promptly to the Manitowoc Equipment Works, Manitowoc, Wisconsin.

DEALER _____

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INSTALLATION DATE _____

MANITOWOC EQUIPMENT WORKS
Div. of THE MANITOWOC COMPANY
500 South 16th Street
Manitowoc, Wisconsin 54220

Form 80-0032-1
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