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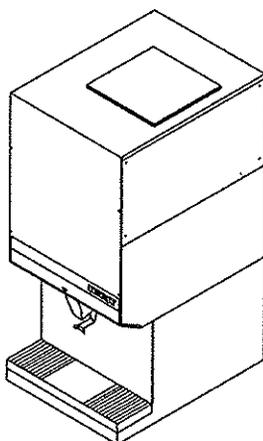
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SPIRAL ICE MAKER® DISPENSER S.I.D. OWNER'S MANUAL

MODELS: SID650A/80S-N

NATIONAL STOCK NUMBER: 4110-01-229-6870

CONTRACT NUMBER: DLA441-92-C5176



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REMCOR PRODUCTS COMPANY
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GLENDALE HEIGHTS, IL 60139-2268

Part No. 90940
March 1997
Revision B

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION

This Manual must be read and understood before installing or operating this equipment

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REMARKS

CERTIFICATION: It is hereby certified that the DGSC technical manual for 4110-01-229-6870 to be provided under contract number DLA441-92-C-5176 has been approved by the approval data shown above.

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IDENTIFYING TECHNICAL PUBLICATION SHEET

1. IDENTIFICATION DATE: Defense General Supply Center
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Model SID650A/80S-N
115V, 1PH, 60HZ, 16A

2. PURPOSE: This technical publication is issued for the purpose of identifying and authorized technical manual for Navy use and for providing supplemental technical information.
 - A. MANUFACTURER: Remcor Product Company, 500 Regency Drive, Glendale Heights, Illinois, 60139

 - B. PURCHASE ORDER OR CONTRACT NO: DLA441-92-C-5176

 - C. EQUIPMENT: Shipboard Icemaker/Dispenser

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 - K. LIST OF TECHNICAL MANUALS FOR THIS EQUIPMENT PROCURED UNDER ANOTHER CONTRACT: Not applicable

SAFETY SUMMARY

The following are general safety precautions that are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the high voltage supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the "off" position, due to charges retained by capacitors. To avoid casualties, always remove power and discharge and ground a circuit before touching it.

DO NOT SERVICE OR ADJUST ALONE

Under no circumstances should any person reach into or enter the enclosure for the purpose of servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

RESUSCITATION

Personnel working with or near high voltages should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

The following warning appears in the text of this volume, and is repeated here for emphasis.



WARNING: Electrical power is on to the unit for this procedure. Avoid contact with uninsulated parts in the electrical control box.

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GENERAL INFORMATION

DESCRIPTION

The Remcor S.I.D. (Spiral Ice Maker/Dispenser) is a unique, self-contained, counter top unit that automatically makes hard, clear cube-quality ice and stores it in a sealed hopper for sanitary dispensing. The ice is made by a new, patented process on a spiral-shaped, stainless steel evaporator and produces true cube-quality ice on the outside of the tubes. There are no augers; no compressing of flaked ice; no bearings; and no high gear motor loads in the ice-making process. The unit has been designed to be simple, yet effective, to provide many years of trouble-free operation.

Table 1. SPECIFICATIONS

Compressor:	3/4 Horsepower
Refrigerant:	R-502 2-1/4 lbs.
Voltage:	115/1/60
AMPS:	16
Circuit Ampacity:	20
Fuse Size:	20A Time-Delay
Ice-Storage Capacity:	80 lbs.
Ice-Making Capacity:	525 lbs./24 hours
Shipping Weight:	350 lbs.

INSTALLATION INSTRUCTIONS

UNPACKING INSTRUCTIONS

1. With the unit upright, carefully remove the shipping crate. Inspect for shipping damage and report any such damage to the shipper immediately.
2. Unlock and open the hinged service door on the upper left side panel.
3. Remove shipping tape from the ice drop cover, storage hopper cover, water float valve and agitator in the storage hopper.
4. Remove shipping tape from the air inlet filter and sink grill.

INSTALLATION INSTRUCTIONS

NOTICE: An Everpure Model 9320-42 Systems IV, Model B1000 (or equal) ice maker quality water treatment unit MUST BE INSTALLED in the water supply line to the ice maker. Failure to do so may result in poor quality ice, low production output, and may cause premature failure of the ice maker evaporator and void the extended evaporator warranty.

This ice maker is provided with a stainless steel evaporator designed to last the life of the product. But, some of the chemicals in treated and untreated water, specifically chlorine and sulphur (sulfide), have the ability to attach stainless steel and cause premature failure. An initial investment in proper water treatment will pay for itself in increased production, quality and long life of the product.

1. Location

Locate the ice maker/dispenser indoors in a well-ventilated area. Avoid exposure to direct sunlight and/or heat caused by radiation.

Ambient room temperature must be in the range of 60° to 90° F. Do not install air-cooled units in an enclosed area where heat build up could be a problem. For proper airflow for the refrigeration system, allow 6" clearance at the back of the unit, 12" above the top panel and 12" clearance at the right side panel.

Consult Figure 2 for (air-cooled) or Figure 3 (water-cooled) for utility connection location.

Consult Figure 4 for dimensions for mounting unit to the counter with the hardware provided. **Note that the unit must be level for proper operation.**

The unit must be sealed to the counter. The mounting template drawing (Figure 4) indicated the openings that must be cut in the counter. Locate the desired position for the unit, then mark the outline dimensions and cut-out locations using the template drawing. Cut openings in counter.

Apply a continuous bead of NSF International (NSF) listed silastic sealant (Dow 732 or equal) approximately 1/4" inside of the unit outline dimensions and around all openings. Then position the unit on the counter within the outline dimensions. All excess sealant must be wiped away.

2. Plumbing

Connect the ice maker to a cold, potable water source suitable for drinking. Do not install unit on a water softener line. It's recommended that a hand shut-off valve and strainer be used on the incoming supply line. A 3/8" outside diameter compression tube fitting is provided at the back of the unit for the water supply hook up (See Figure 2). For proper operation, the incoming water supply pressure must be in the range of 20-120 PSIG. Install a pressure regulating valve if above this range.

IMPORTANT: To ensure proper ice maker operation and also to reduce the frequency of water-related service problems, a water filter should be installed. Remcor recommends the use of one of the following basic systems:

1. **Everpure, Inc.**
660 No. Blackhawk Drive
Westmont, IL 60559
(708) 654-4000
InsurIce Twin System #9320-42

2. **System IV**
16632 Burke Lane
Huntington Beach, CA 92647
(714) 842-4221
Basic Water System #B1000

For specific recommendations on these filter systems for your local conditions, consult with a distributor in your area or contact the filter manufacturer.

Connect 3/4" IPS (or equal) drain lines to the 3/4" threaded drain connections at the lower rear of the unit. Connect the plastic drain tube, supplied with the unit, to the drain fitting located on the bottom of the sink (see Figure 2). It is recommended that the drain tube be installed in the counter. These lines must pitch downward to an open drain and must contain no traps or improper drainage will result.

NOTE: In areas with consistently warm water temperatures, the use of a Remcor Pre-Cooler in the water line is recommended to maximize the ice production of this unit. Contact Remcor for more information on this product.

On water-cooled models:

Connect nonpotable water to the 1/2" pipe at the rear of the unit and separate drain line from the 1/2" pipe at the rear of the unit.

3. Electrical

A 4 x 2 junction box is located at the rear of the unit for the supply hook-up. Connect the ice maker to an individual circuit per the national electric code and local code. See **SPECIFICATIONS** section for ampacity and fuse size.

IMPORTANT: The wire size must be adequate for the ampacity rating and the supply voltage must be within a range of $\pm 10\%$ for proper ice maker operation.

NOTE: The units require a 2 wire system plus earth ground for proper operations.

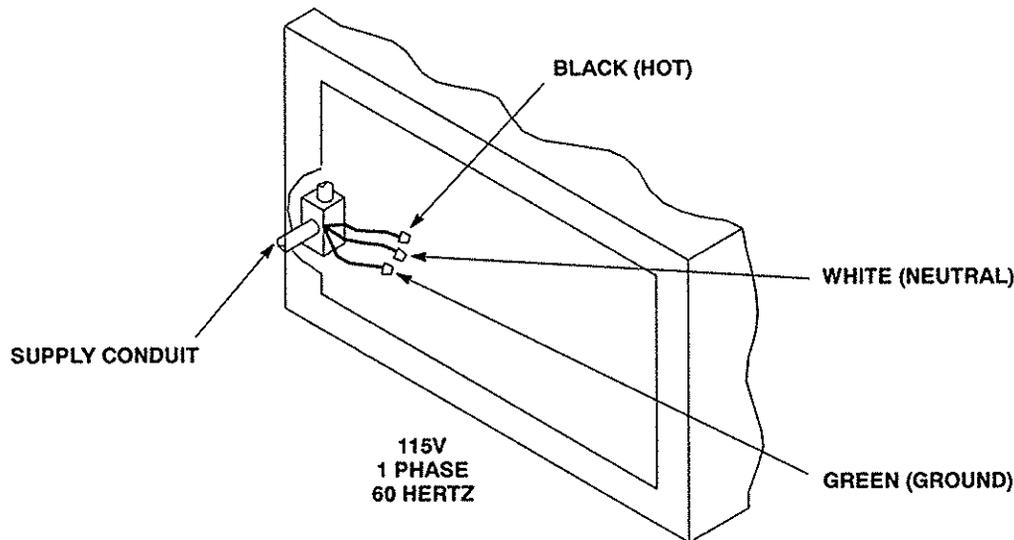


FIGURE 1. REAR VIEW – BOTTOM SECTION SERVICE PANEL REMOVED

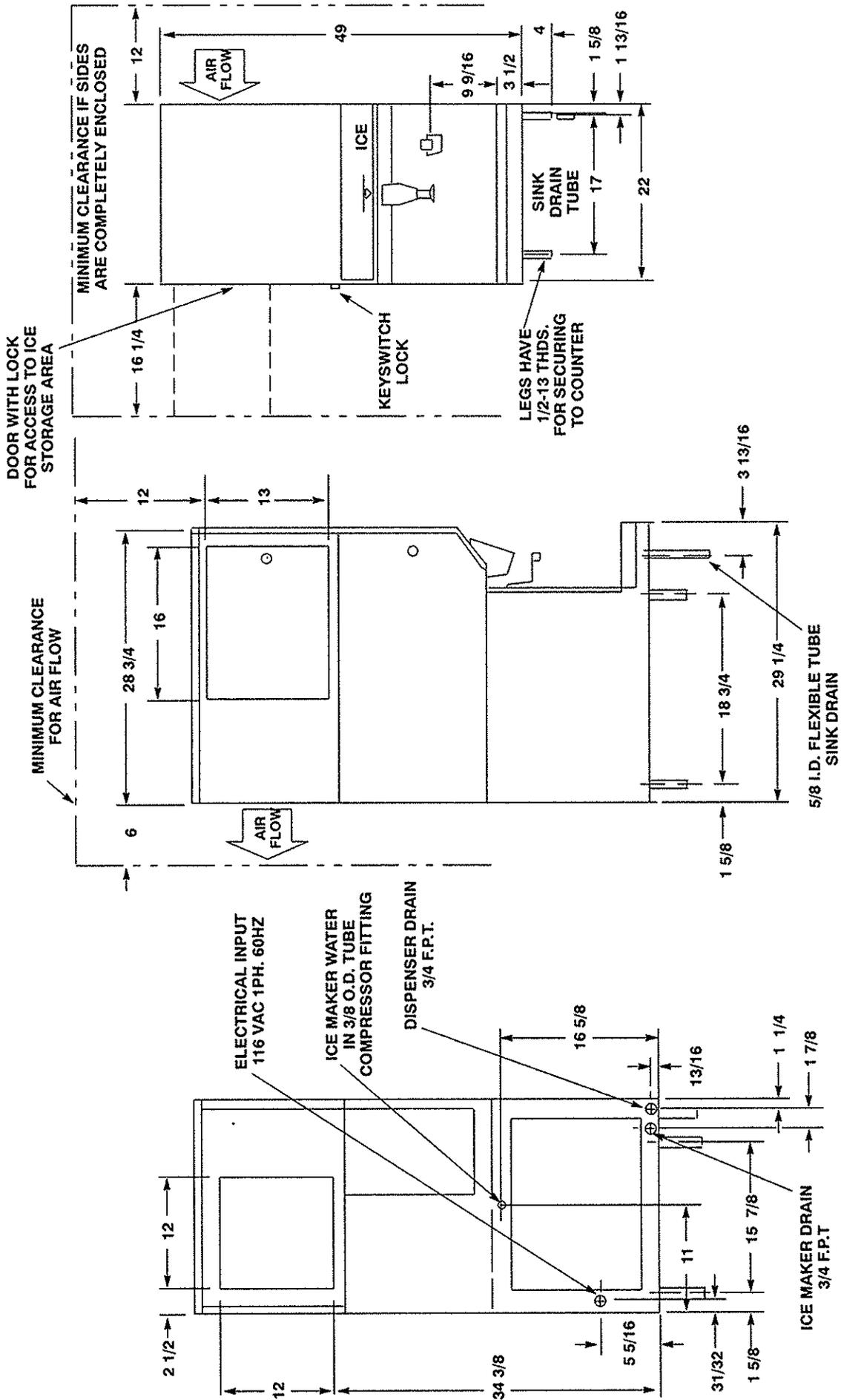


FIGURE 2. INSTALLATION DIMENSIONS FOR AIR-COOLED MODEL SID650A/80S-N

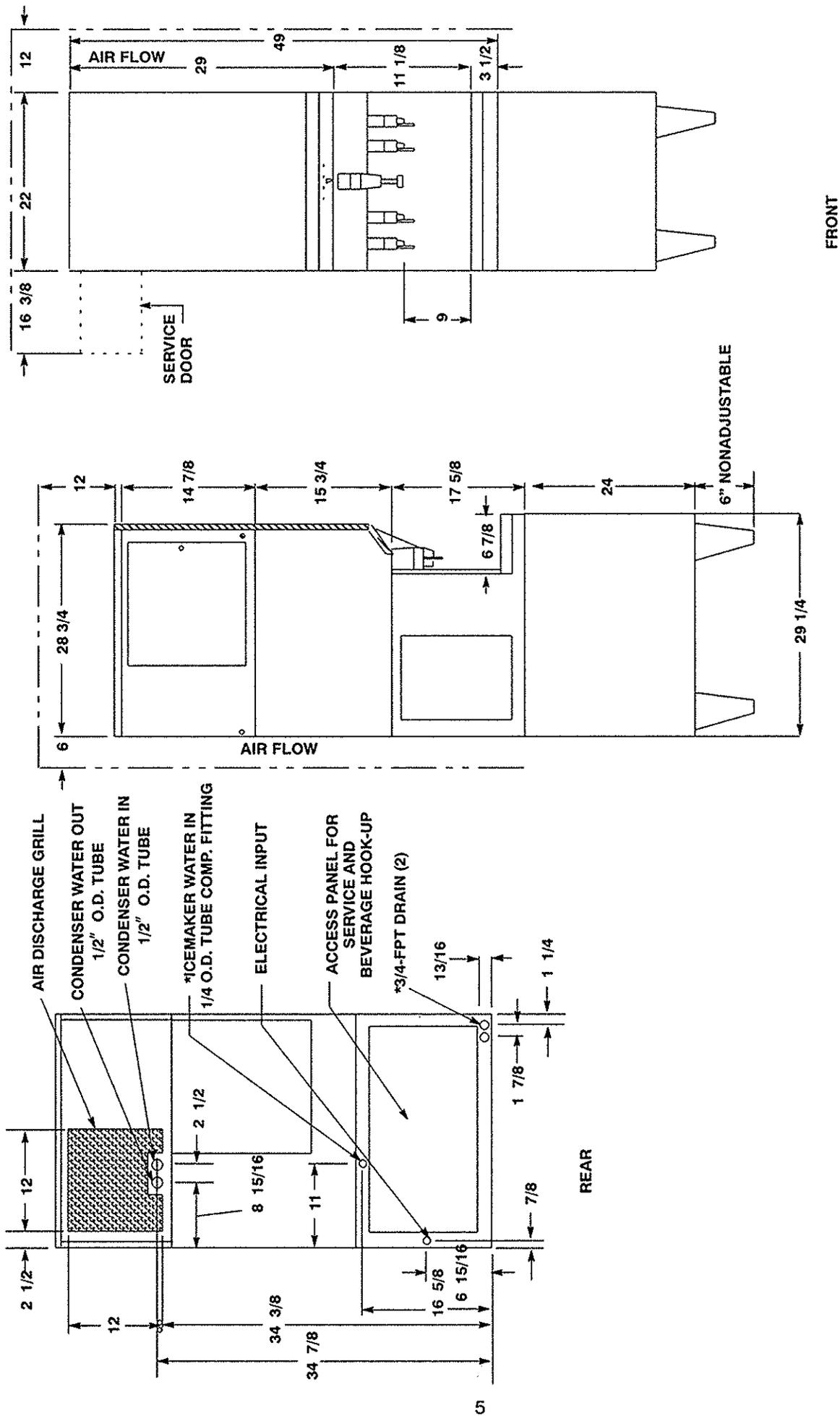
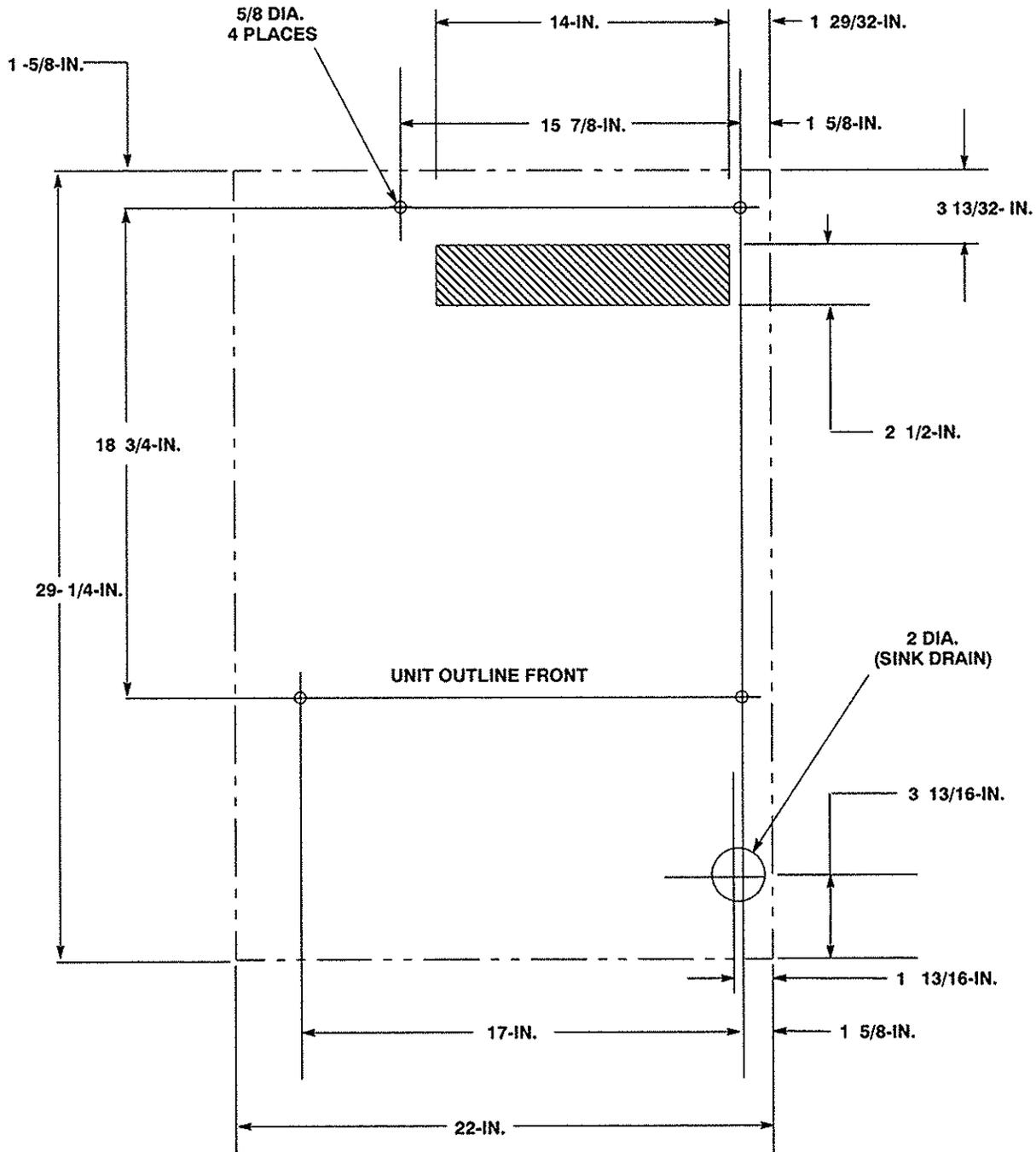


FIGURE 3. INSTALLATION DIMENSIONS MODEL SID650 SW/80S-N WITH 1990 STAND WATER-COOLED



NOTE: SHADED AREA INDICATES OPENING IN CABINET BOTTOM FOR BEVERAGE TUBING FOR -B, -BC MODELS ONLY

FIGURE 4. MOUNTING TEMPLATE MODEL SID650/80-N

BEVERAGE SYSTEM

"BC" units have a built-in cold plate, in addition to the beverage faucets and are designed to be supplied directly from syrup tanks and carbonator, with no additional cooling required.

Installation

1. Locate the required openings in the counter top for the beverage lines as shown in Figure 4.
2. For "BC" models, tube fittings are provided at the rear of the unit on the cold plate for syrup and water line hook-up respectively.
3. Connect the beverage system product lines as indicated in Figure 5. This work should be done by a qualified service person. Note that the hoses are marked with numbers 1 through 6 for syrup connection and "CW" for carbonated water connection.

START-UP

1. Open the hinged service door on the upper left side panel. Remove ice drop cover and storage hopper cover.
2. Turn on water to the ice maker. Make sure that the proper water level is attained in the float chamber before starting unit.
3. Put the "Stop/Run" switch in the "run" position. Observe that the ice maker goes through harvest cycle. After this initial harvest cycle, the unit should function in the normal ice making/harvesting mode. If any deviation from this normal procedure is noted, consult the **TROUBLESHOOTING** section.

NOTE: Due to meltage loss because of a warm storage hopper, it will take longer to fill the hopper the first time than when the ice maker has been operating continuously.



WARNING: To prevent possible injury, do not stick fingers or hand into ice maker nozzle or hopper with power applied to unit.

4. Depress the vend switch lever. Check that both the gate solenoid and agitator motor are energized simultaneously to lift the gate slide and rotate the agitator in the storage hopper, respectively. If either component malfunctions, consult the **TROUBLESHOOTING** section. Replace the ice drop and hopper covers.
5. For beverage units, start up the beverage system and adjust the faucets to the proper brix. Contact your local syrup distributor for complete information on the beverage system. For units with a built in cold plate, it will take approximately one (1) hour from initial machine start-up for the cold plate to be at full capacity.

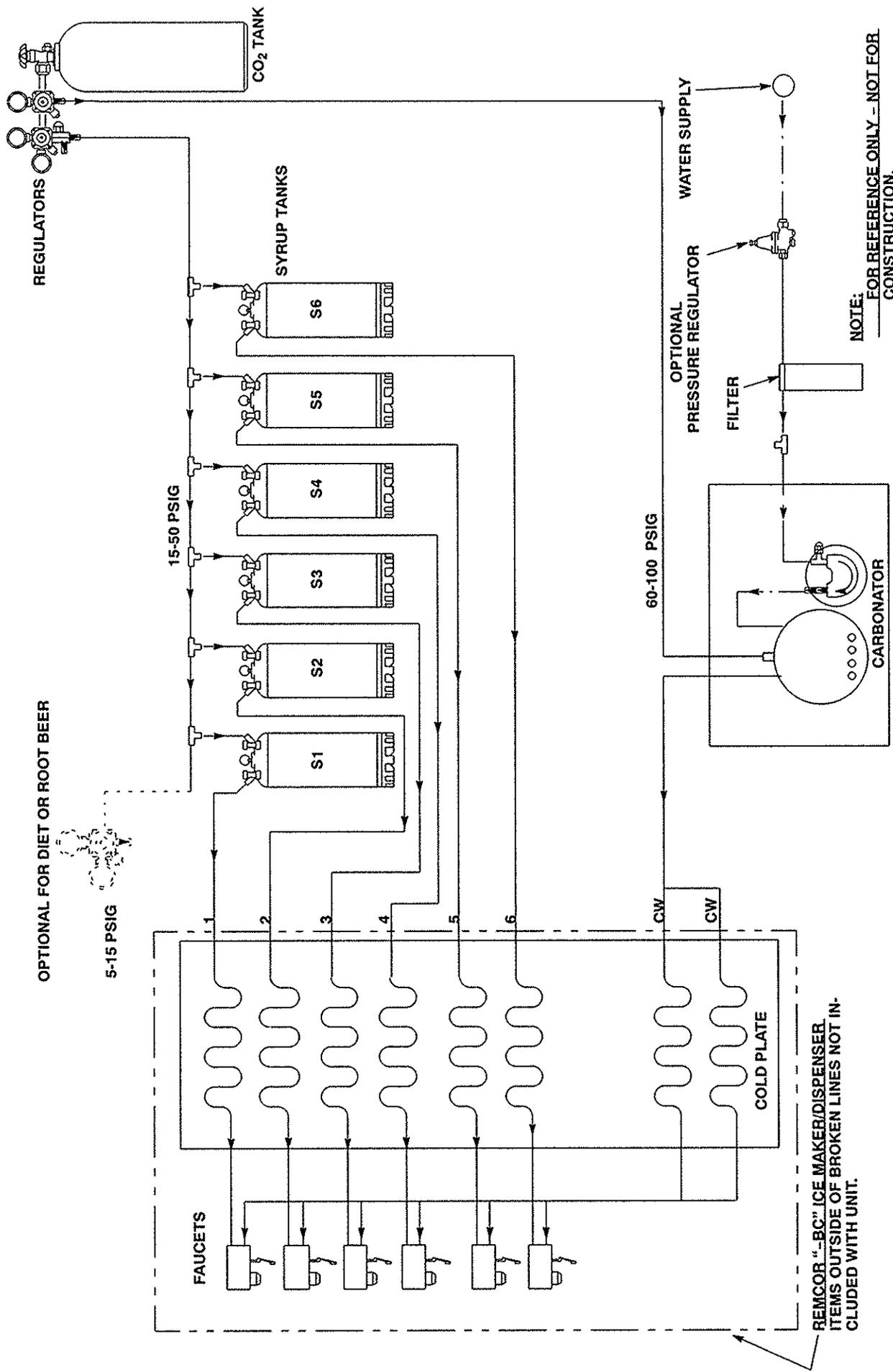


FIGURE 5. BEVERAGE SYSTEM SCHEMATIC "BC" MODELS

OPERATING INSTRUCTIONS

THIS PAGE IS FOR UNITS MANUFACTURED BEFORE JULY 24, 1992

A temperature sensing control bulb located in the storage hopper starts and stops the icemaking process in response to ice level in the hopper. With this ice level control "calling" for ice (hopper ice level is low), ice begins to form on the stainless steel tubing coils in the evaporator section of the icemaker. Ice continues to "grow" on the evaporator coils until the cycle timer triggers the harvest timer motor. The harvest timer contains five cam operated switches with functions as detailed in the following table:

Table 2. HARVEST CYCLE

Time	Cam Switch	Action
0-86 Seconds	#1	Timer motor energized
1-11 Seconds	#4	Water dump valve open
1-36 Seconds	#2	Hot gas solenoid valve open. Air pump off. Condenser fan motor off.
36-90 Seconds	#2	Air pump on. Condenser fan motor on. Hot gas solenoid valve closed.
35-60 Seconds	#3	Harvest motor on.
41-45 44-48 Seconds	#5 (double set of cams)	Hopper agitator motor operates.

When ice contacts the ice lever control bulb in the storage hopper, the control will shut down the refrigeration system. If this signal occurs during the harvest cycle, the harvest cycle will be completed before shutdown occurs.

To dispense ice, push the lever located on the lower front panel. Ice will flow from the ice chute until the lever is released.

For units with a built-in cold plate, ice will automatically fill the cold plate cabinet. Allow one (1) hour for the cold plate to reach its maximum capacity. Start up the beverage system and adjust the faucets to the proper brix. Pushing the lever on any faucet will provide beverage of the appropriate flow.

THIS PAGE IS FOR UNITS MANUFACTURED ON OR AFTER JULY 24, 1992

A temperature sensing control bulb located in the storage hopper starts and stops the ice-making process in response to ice level in the hopper. With this ice level control "calling" for ice (hopper ice level is low), ice begins to form on the stainless steel tubing coils in the evaporator section of the ice maker. Ice continues to "grow" on the evaporator coils until the cycle timer triggers the harvest timer motor. The harvest timer contains five cam operated switches with functions as detailed on the following table:

Table 3. HARVEST CYCLE

Time	Cam Switch	Action
0-86 Seconds	#1	Timer motor energized.
1-23 Seconds	#4	Water dump valve open.
1-36 Seconds	#2	Hot gas solenoid valve open. Air pump off. Condenser fan motor off.
36-90 Seconds	#2	Air pump on. Condenser fan motor on. Hot gas solenoid valve closed.
35-60 Seconds	#3	Harvest motor on.
44-48 Seconds	#5	Hopper agitator motor operates.

When ice contacts the ice lever control bulb in the storage hopper, the control will shut down the refrigeration system. If this signal occurs during the harvest cycle, the harvest cycle will be completed before shutdown occurs.

To dispense ice, push the lever located on the lower front panel. Ice will flow from the ice chute until the lever is released.

For units with a built-in cold plate, ice will automatically fill the cold plate cabinet. Allow one (1) hour for the cold plate to reach its maximum capacity. Start up the beverage system and adjust the faucets to the proper brix. Pushing the lever on any faucet will provide beverage of the appropriate flow.

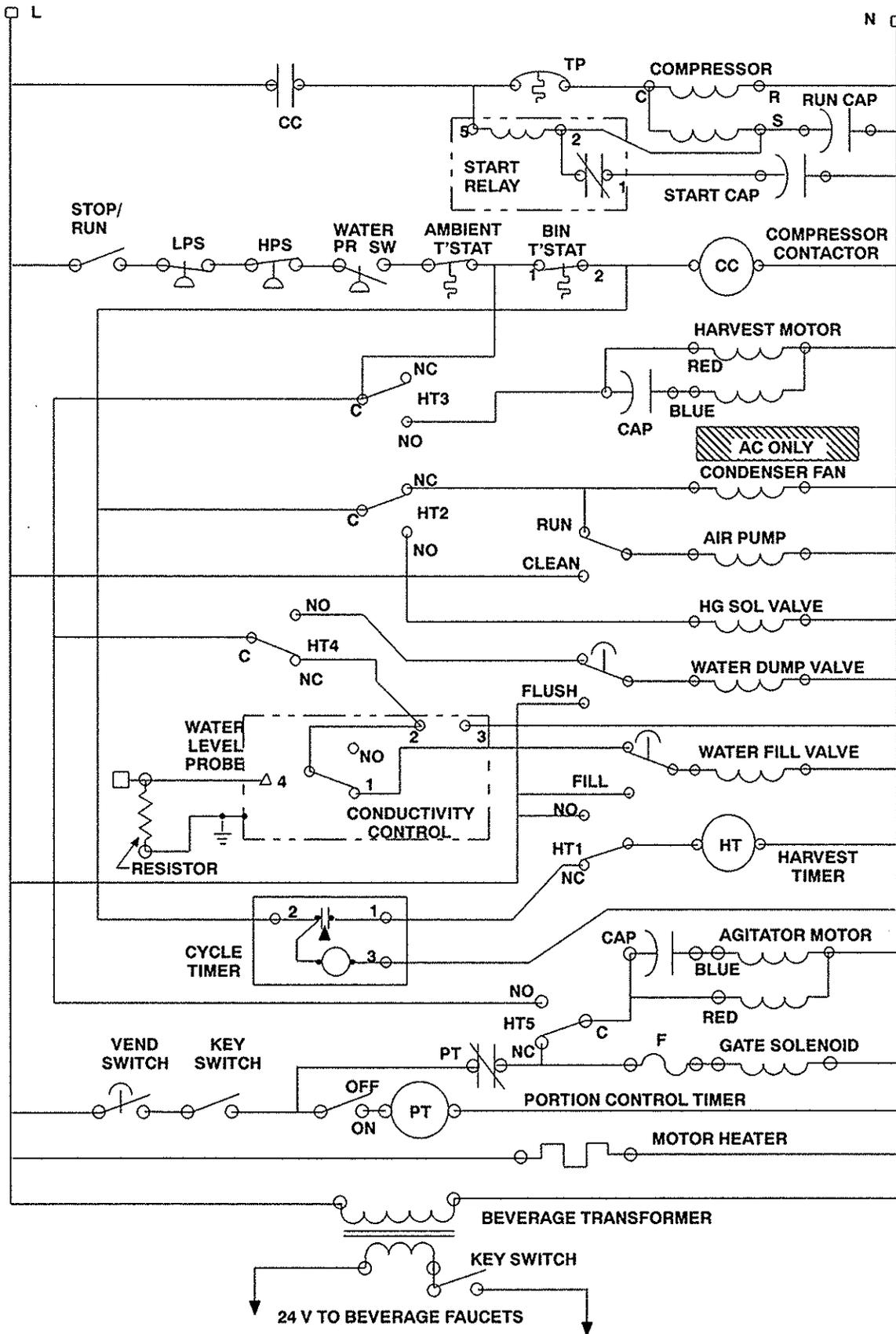


FIGURE 6. WIRING SCHEMATIC

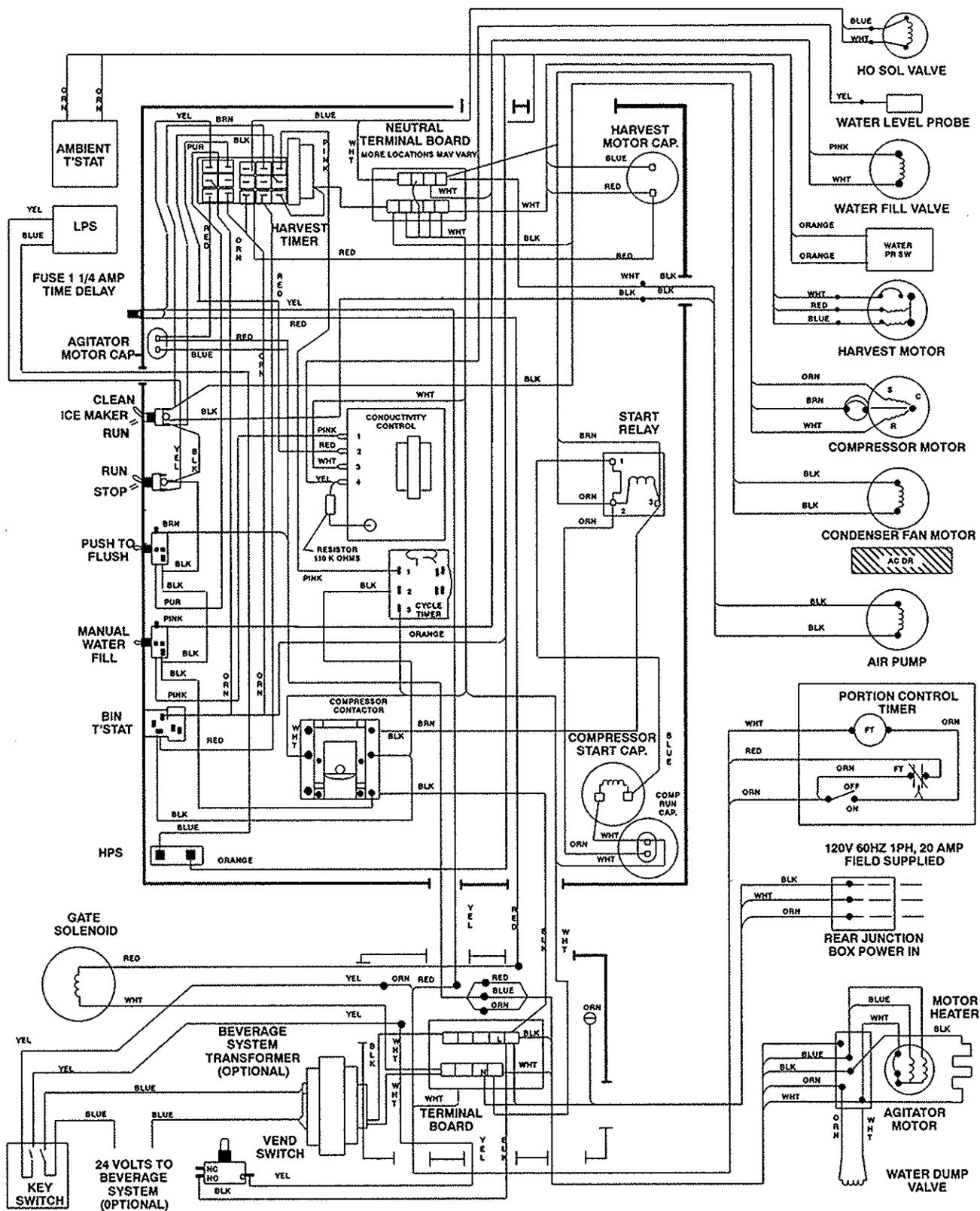


FIGURE 7. WIRING SCHEMATIC SID 850.250 (208-230V, 10 60HZ)

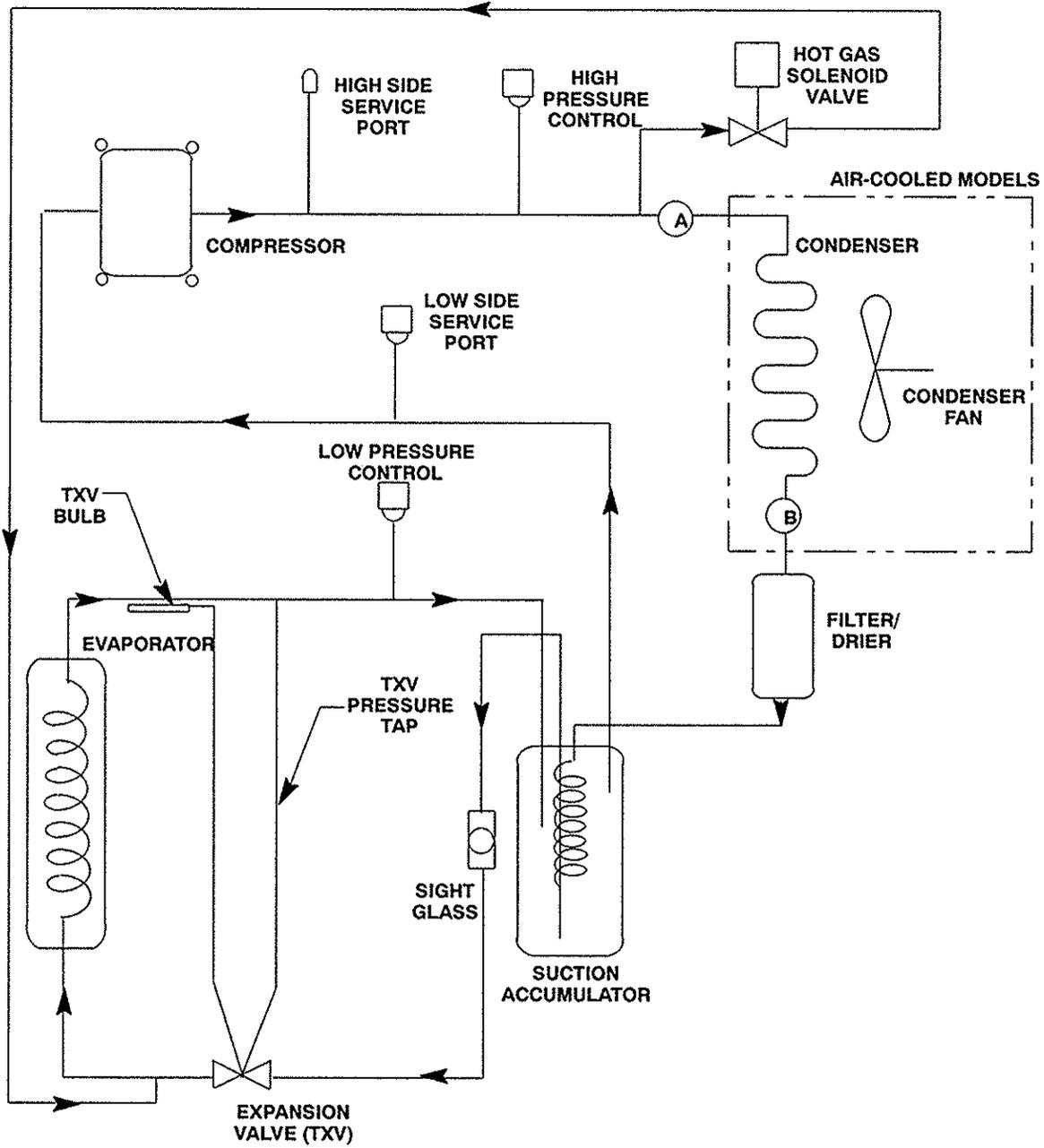


FIGURE 8. REFRIGERATION SCHEMATIC

MAINTENANCE

REGULAR BASIS (or as required)

Cleaning of the ice maker is recommended on a regular basis not only for sanitary reasons, but also to maintain the performance of the unit. Build-up of lime and scale can hinder ice making production rates and interfere with proper dispensing of the ice. See **Cleaning Instructions** for the recommended procedure.

EVERY THREE MONTHS (or as required)

It is recommended that the air inlet filter be cleaned every three (3) months or sooner depending on the operating environment for proper refrigeration system performance. On an air-cooled unit, also check that the condenser is free of dirt/foreign material that could cause air flow blockage. Consult the **Maintenance/Adjustment Procedures** section for cleaning these items.

PERIODICALLY (or as required)

Check the vending area sink for proper water drainage. Remove any foreign material from the sink to prevent drain blockage.

Check the water filter system at regular intervals for build-up of deposits on the filter elements. Consult system manual for servicing procedure.

CLEANING INSTRUCTIONS

IMPORTANT: The ice maker should be cleaned at a minimum of three (3) month intervals or more frequently, depending on local water conditions. The storage hopper interior should be cleaned once a month.



CAUTION: Do not use metal scrapers, sharp objects or abrasives on the surface of the storage hopper, as damage may result. Do not use solvents or other cleaning agents, as they may attack the plastic surface. Use only the recommended chemicals and solutions for both the ice maker and hopper.

Ice Maker Section

1. Remove upper panel.
2. Put the "Stop/Run" switch in the "stop" position at the end of the harvest cycle. An alternate method would be to stop the unit during the ice-making cycle and allow ice in the evaporator to melt by waiting for at least 1 hour before beginning the cleaning procedure. The "Flush" switch can be depressed to bring in warmer water to help the melting process.



WARNING: The unit is still plugged into the electrical power during ice maker section cleaning. To avoid possible injury, do not reach into hopper. Do not contact exposed electrical wiring or components.

3. Remove the ice drop cover from the evaporator and the storage hopper cover.

4. Seal the evaporator outlet with the plastic plug provided with the unit and replace the ice drop cover.
5. Remove the cleaning fill plug and add 4 ounces of Virginia Ice Machine Cleaner to the evaporator and replace the cleaning fill plug.



CAUTION: Virginia Ice Machine Cleaner is a mild acid, therefore normal care should be taken when using. Keep out of eyes and cuts. Read warnings on package before using. Do not operate unit in the cleaning mode without the ice drop cover in place. There may be some overflow of cleaning solution through the evaporator vent tube during the cleaning cycle.

6. Push manual water fill switch and fill evaporator with water (approx. 5 seconds).
7. Put the "Clean/Run" switch in the "clean" position. Allow unit to run in the cleaning mode for at least 30 minutes.
8. Put the "Clean/Run" switch in the "run" position.
9. Depress the "Flush" switch push button and drain evaporator for about 1-1/2 minutes. Release pushbutton. Push manual water fill switch and allow evaporator to refill with water. Repeat Step 9 three (3) times to thoroughly remove cleaning solution from evaporator.
10. Depress the "Flush" switch push button for 1-1/2 minutes to drain the evaporator.
11. Remove the evaporator plug.
12. Put the "Stop/Run" switch in the "run" position and allow unit to run through at least three (3) complete ice-making and harvest cycles, or until ice is free of "sweet" taste.



WARNING: If unit fails to harvest ice, put the "Stop/Run" switch in the "stop" position. Close the water supply valve. Depress the "Flush" switch push button for 1-1/2 minutes to drain the evaporator. Flush the evaporator with hot water to thoroughly melt all the ice in the evaporator. Repeat Step 9 to remove all traces of the cleaning solution from the evaporator.

13. Dispense all ice out of the storage hopper and discard.

Dispenser Section

1. Turn off main electrical power supply to machine.
2. Remove agitator assembly from storage hopper and wash and rinse it thoroughly.
3. Wash down all inside surfaces of the ice storage area, including the top cover and ice drop cover with a mild detergent solution and rinse thoroughly to remove all traces of detergent.
4. Replace agitator.
5. Remove ice chute cover as follows:
 - A. Flex sides outward to disengage lower pins.
 - B. Lift ice chute cover to disengage upper pins.
 - C. Lower ice chute cover down out of unit. **NOTE: it may be helpful to twist cover slightly.**
6. Clean the inside of the ice chute, and ice chute cover with a mild detergent solution and rinse thoroughly to remove all traces of detergent.
7. Reverse steps above to reassemble ice chute.
8. Sanitize the inside of the hopper agitator, ice chute, the hopper cover and ice drop cover with a solution of 1 ounce of household bleach to 2 gallons of water. (200 PPM)

9. Replace the hopper cover and ice drop cover. Replace the cabinet panels and turn on the electrical power supply. The ice maker is ready for normal operation.

FOR UNITS WITH BEVERAGE SYSTEM

Cold Plate

1. Carefully remove the lower front panel.
2. Remove cold plate cover by loosening thumbscrew on the ice drop chute and lowering the chute from the plastic drop tube. Then, remove cover by lifting slightly in front and slide forward.
3. Remove any debris from the drain trough and spring. Check that drain hole is not clogged.
4. Wash down the inside of the cold plate, tray and cover with a mild detergent solution and rinse. A small, long handled brush will be found helpful in reaching the corners.
5. Replace the cover, taking care that it is securely positioned in cold plate tray.
6. Replace the ice drop chute.
7. Replace the lower front panel, carefully feeding the tubing and wires into the cabinet. Be sure not to pinch any tubing or wires between the panel and cabinet.

Beverage System

1. Remove faucet spouts, wash in mild detergent, rinse and replace. This is normally the only routine cleaning required. For special situations, contact your local syrup distributor or beverage equipment service organization.

TROUBLESHOOTING GUIDE

The following pages contain information to aid an experienced service person in diagnosing possible problems which may occur. The troubleshooting guide is divided into the following 9 main areas:

- A. Sections I - VII: Ice making Problems
- B. Section VIII: Ice Dispensing Problems
- C. Section IX: Beverage Dispensing Problems

In using this guide, refer to both the Service Procedure portion of the manual and the appropriate assembly illustration/parts list when the specific remedy involves either checking and/or replacing a component. Note that the service procedures assume a working knowledge of refrigeration systems and electro-mechanical devices.

TROUBLESHOOTING

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.



WARNING: If repairs are to be made to carbonated water system, disconnect electrical power to Cooling Unit, shut off plain water and CO₂ supplies, and relieve the carbonated water system pressure before proceeding. If repairs are to be made to syrup system, remove quick disconnects from applicable syrup tank, then relieve the system pressure before proceeding. If repairs are to be made to CO₂ system, stop dispensing, shut off CO₂ supply, then relieve the system pressure before proceeding.
If repairs are to be made to an existing Remote Condensing unit, disconnect the power to the condensing unit before proceeding

Trouble	Probable Cause	Remedy
I. UNIT IS TOTALLY INOPERATIVE.	A. No electrical power at rear junction box.	A. . 1. Check for loose connection or broken wire in supply wiring to unit 2. Check for loose connection or broken wire inside unit.
	B. Supply fuse blown or circuit breaker tripped.	B. 1. Wrong device size. Replace with correct size (20A time-delay). 2. Short or grounded circuit. Check internal wiring/components for shorts. Repair and/or replace defective components.
	C. Line voltage too high- (greater than 110% of nameplate voltage).	C. Install bucking transformer to reduce line voltage.
	D. Line voltage too low- (less than 90% of nameplate voltage).	D. 1. Check for loose or corroded connection in supply wiring. 2. Check supply wiring for undersized wire. Replace if necessary. 3. Check that unit is on it's own circuit. Remove all other equipment from ice maker conduit. 4. Install boosting transformer to raise line voltage.
II. ICE MAKER IS NOT OPERATING.	A. Hopper is full of ice.	A. Normal operation. Unit is shut off on bin thermostat.
	B. Run/Stop switch in "stop" position.	B. Put switch in "run" position.
	C. Hopper is not filled but bin thermostat is open.	C. Check thermostat adjustment. Replace bin thermostat if required.
HIGH PRESSURE SWITCH AND/OR THERMOSTAT IS OPEN. (AIR COOLED ONLY HOPPER IS NOT FULL).	A. Check for restricted air flow at top or rear of unit.	A. Check for restriction in water lines to condenser or water supply shut off.

Trouble	Probable Cause	Remedy
HIGH PRESSURE SWITCH AND/OR THERMOSTAT IS OPEN. (AIR COOLED ONLY HOPPER IS NOT FULL). (CONT'D)	B. Check for hot air recirculating to top inlet. Eliminate by baffling.	B. Check for faulty or misadjusted water regulator valve.
	C. Check for dirty inlet air filter.	C. Check for refrigeration and over-charged.
	D. Check for dirty air cooled condenser.	D. Check for high (greater than 100°F) inlet water temperature to condenser.
	E. Check condenser fan motor.	E. Check for "scaled up" water passages in condenser.
	<hr/>	
III. ICE MAKER IS OPERATING BUT IS NOT PRODUCING ICE.	A. Compressor is not running.	A. Check that line voltage is within $\pm 10\%$ of nameplate voltage. Check voltage problems in IC and ID.
	B. Compressor overload is open.	B. Check that a compressor body is cold. Replace compressor overload.
	C. Compressor contactor is not "pulled in".	C. Check that 120V is present a contactor coil. Replace contactor. If 120V is not measured at coil, check for loose or broken wiring connection in control circuit.
	D. Compressor contactor "pulled in" but compressor is not running.	D. Check for loose or broken wiring connection in compressor power circuit. Check contactor. Check starting relay. Check capacitor(s). Check compressor motor.
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IV. ICE MAKER (COMPRESSOR) IS OPERATING BUT NOT PRODUCING ICE. THERE IS NO ICE ON THE EVAPORATOR.	A. Evaporator is not cold. (Hot gas solenoid valve not energized).	A. Check for refrigerant under-charge. Check hot gas solenoid valve for leaking seat.
	B. Evaporator is not cold (Hot gas solenoid valve is energized).	B. If harvest timer is in the "home" position: <ul style="list-style-type: none"> . Check adjustment of timer cam #1. (timer home) . Check timer switch #1. . Check timer motor.
	C. Evaporator is cold. (Harvest timer is running).	C. Check function of cycle timer. Ice making cycle time is 500 seconds.
	D. Evaporator is cold. (Harvest timer is <u>not</u> running).	D. If water level in evaporator is normal, check refrigeration system. If water level is low, check water problems in VI.

Trouble	Probable Cause	Remedy
<p>V. ICE MAKER (COMPRESSOR) IS OPERATING BUT NOT PRODUCING ICE. THERE IS ICE ON THE EVAPORATOR.</p>	<p>A. Frozen evaporator.</p>	<p>A. Shut off ice maker and thaw evaporator. Start ice maker and perform the following troubleshooting procedures:</p> <ol style="list-style-type: none"> 1. Check that ambient is not lower than 60°F. 2. Check that voltage is within $\pm 10\%$ of nameplate rating. 3. Check that harvest timer goes through the following proper operation: <ol style="list-style-type: none"> a. Timer motor starts. If not, check timer motor. b. Hot gas solenoid valve opens and closes in proper sequence (see harvest cycle chart in "operation" section). If not: <ol style="list-style-type: none"> 1. Check adjustment of timer cam #2 (hot gas). 2. Check timer switch #2. 3. Check hot gas solenoid valve. c. Water dump valve opens and closes in proper sequence. If not: <ol style="list-style-type: none"> 1. Check adjustment of timer cam #4 (water dump). 2. Check timer switch #4. 3. Check dump solenoid. d. Harvest motor starts and stops in proper sequence. If not: <ol style="list-style-type: none"> 1. If harvest thermostat is not closed, check adjustment of thermostat and replace if necessary. 2. If harvest thermostat is closed. <ul style="list-style-type: none"> . Check harvest motor capacitor. . Check harvest motor. e. If timer does <u>not</u> return to "home" position: <ol style="list-style-type: none"> 1. Check adjustment of timer cam #1 (timer home). 2. Check timer switch #1. f. If timer returns to the "home" position, wait one full freezing cycle. Observe that the harvest cycle is initiated and that the ice is harvested normally. If <u>not</u>, repeat the check of the harvest cycle sequence of events.
<p>VI. ICE MAKER (COMPRESSOR) IS OPERATING BUT ICE PRODUCTION IS LOW.</p>	<p>A. Low water level in evaporator.</p>	<p>A. Check water problems in VI.</p>
	<p>B. High supply water temperature.</p>	<p>B. Normal effect. Install Remcor Pre-cooler to increase capacity.</p>

Trouble	Probable Cause	Remedy
VI. ICE MAKER (COMPRESSOR) IS OPERATING BUT ICE PRODUCTION IS LOW. (CONT'D)	C. High ambient temperature.	C. Normal effect. Check air flow problems in II. Arrange for lower ambient air temperature if possible.
	D. Ice thickness is too thin.	D. Check problems in IV. Check refrigeration system.
VII. ICE MAKER (COMPRESSOR) IS OPERATING BUT ICE QUALITY IS POOR: SOFT AND/OR CLOUDY ICE.	A. Air pump not operating.	A. Replace air pump.
	B. Water dump valve time too short.	B. Check adjustment of harvest timer cam #4.
	C. Water dump valve not operating properly.	C. Replace dump valve.
	D. Clogged water filter.	D. Replace filter element. Install additional water treatment devices for specific "problem" water.
VIII. UNIT DOES NOT DISPENSE ICE. ICE MAKER IS FUNCTIONING PROPERLY.	A. Gate slide not opening.	A. 1. If voltage at gate solenoid is in the range of 103 - 126V: <ul style="list-style-type: none"> a. Check for burnt out solenoid. b. Check for stuck or binding gate mechanism. 2. If gate solenoid voltage is not 103 - 126V: <ul style="list-style-type: none"> a. Check for blown solenoid fuse in electric box. If fuse is blown, check for stuck gate mechanism, burnt out solenoid and/or low voltage. b. Check vend switch. c. Check for loose or broken wire connection in solenoid circuit. d. Check voltage problems in I.
		B. Agitator in ice storage hopper not rotating.
	C. Ice level in storage hopper too high.	C. 1. Check bin thermostat adjustment. 2. Replace bin thermostat.

Trouble	Probable Cause	Remedy
VIII. UNIT DOES NOT DISPENSE ICE. ICE MAKER IS FUNCTIONING PROPERLY. (CONT'D)	D. Ice is "slushy".	D. 1. Check hopper drains. 2. Check level of unit. 3. Check for water overflow from evaporator. See VI. 4. Check adjustment of timer cam #5 (agitation time). 5. Check timer switch #5.
IX. BEVERAGE SYSTEM PROBLEMS.		
A. ONE OR MORE FAUCETS INOPERATIVE	A. 1. No electrical power to faucets. 2. Faucet is bad.	A. 1. a. Check wiring connections. b. Check wiring connections from 24V transformer. c. Check 24V transformer. 2.. Replace Faucet.
B. BEVERAGE IS NOT PROPERLY CARBONATED.	B. 1. Low CO ₂ pressure. 2. Low water pressure. 3. Improper CO ₂ pressure.	B. 1. a. Check carbonator. b. Check CO ₂ supply tank. 2. a. Check water supply. b. Check water filter. 3.. Check carbonator and CO ₂ supply.
C. BEVERAGE IS TOO SWEET OR NOT SWEET ENOUGH.	C. Faucets not adjusted properly.	C. 1. a. Brix faucets. b. check syrup tanks.
D. BEVERAGE ARE NOT COLD.	D. No ice in cold plate cabinet.	D. Operate dispenser section of unit to automatically drop ice onto cold plate.

SERVICE PROCEDURE

HIGH PRESSURE CONTROL

The high pressure control is factory set at 400 PSIG. To check the setting, install a refrigeration discharge pressure gauge on the service port located adjacent to the electrical control box. Open the hinged service door on the upper left side cabinet panel or remove the upper front panel to access this service port. Disconnect electrical power to the unit and the condenser fan motor leads in the control box. Run the ice maker to determine the control cut-out point. Adjust if necessary. The adjustment screw is located to the left of the reset lever. This control is the manual reset type: the reset lever is located on the lower left side of the control box. Push into reset. If the ice maker will not run after the control has been reset, replace the control.

AMBIENT THERMOSTAT (Air-Cooled Units.)

The ambient thermostat is used to protect the refrigeration system from high operating pressures due to high ambient temperatures or airflow problems. It is an automatic reset type of control: the cut-out point is 110°F and the cut-in is 106.5°F. It is located on the partition wall behind the control box in the condensing unit assembly area. To adjust and/or replace the control, disconnect electrical power and remove either the top or the upper right side cabinet panel.

BIN THERMOSTAT

1. The bin thermostat is located in the electrical control box on the lower left side.
2. To adjust the thermostat, open the hinged service panel on the upper left side cabinet panel. The adjustment screw is located below the flush switch on the control box. The factory setting is 35°F cut-out and 41°F cut-in. Check that the adjustment screw is turned clockwise to the stop position. (CCW adjustment will raise the cut-out/cut-in temperatures.)



WARNING: Electrical power is on for the service procedure in item 3. Avoid contact with uninsulated parts in the control box.

3. The thermostat sensing bulb is located in the ice storage hopper on the upper left side wall. Remove the ice drop and hopper covers. With the adjustment, screw in the full cold position and no ice contacting the sensing bulb, check that the thermostat is closed (terminals 1 and 2). With ice contacting the t'stat bulb, terminals 1 and 2 should be open. To perform this check, remove the upper front panel and control box cover. Use a voltmeter connected between the t'stat #2 and neutral to determine the correct operation.
4. To replace a defective thermostat, disconnect electrical power to the unit. Remove the left side and top panels. Remove the sensing bulb from the storage hopper (2 thumbscrews). Remove the thermostat from the control box (2 screws) by disconnecting the two electrical leads. Install the new control, being careful not to kink the capillary tubing (sensing bulb) when routing it from the control box to the storage hopper.

CLEANING THE CONDENSER (Air-Cooled Units.)

1. Disconnect electrical power to the unit.
2. Remove the upper front and top or right side panel.
3. Release refrigerant charge from system.
4. Remove screws (2) from hot gas solenoid valve bracket that is secured to the condenser shroud.

5. Unbrazed the refrigerant line connections.
6. Remove the screws (4) that secure the condenser to the condensing unit base.
7. Remove the condenser and then remove the shroud.
8. Replace the shroud on the new condenser and repeat the above steps in reverse order to install the new condenser.
9. It is recommended that the filter-drier also be replaced at this point.
10. Evacuate and charge the system to name plate specifications.
11. Run the ice maker and check that suction/discharge pressures are in the range of 30 - 60 PSIG/230/-330 PSIG respectively. Also check that the sight glass remains "locked" (no bubbles) during this check-out run.

CLEANING/REPLACING AN INLET AIR FILTER (Air-Cooled Units)

1. Remove the filter from the right side cabinet panel by removing the mounting screw and sliding it forward towards the front of the unit.
2. Wash the filter in a solution of warm water and mild detergent. Do not use caustic detergents as they may attack the aluminum filter elements.
3. Dry filter thoroughly.
4. For maximum effectiveness, reactivate the filter with an air coating (see the parts section under miscellaneous components).

CLEANING THE CONDENSER (Air-Cooled)

1. Disconnect power to the unit.
2. Remove the upper front and right side panels.
3. Remove all dirt/foreign matter build-up from the condenser fins (fan side). Be careful not to damage the fins. Use a power vacuum cleaner with a "crevice" tool attachment.

CONDENSER (Water-Cooled)

The condenser should only have to be replaced if it has been physically damaged to the point that repair is not practical. If replacement is necessary, the following equipment is needed: vacuum pump, refrigeration manifold with gauges, brazing equipment and various hand tools. The replacement procedure is as follows:

1. Disconnect electrical power to the unit.
2. Shut off water flow to condenser.
3. Remove the upper front panel and top or right side cabinet panel.
4. Release refrigerant charge from system.
5. Unbrazed the refrigerant line connections and water line connections.
6. Remove the screws (4) that secure the condenser to the condensing unit base.
7. Remove the condenser.

8. Replace with the new condenser and repeat the above steps in reverse order to install.
9. It is recommended that the filter-drier also be replaced at this point.
10. Evacuate and charge the system to name plate specifications.
11. Run the ice maker and check that suction is in the range of 30 - 60 PSIG. Also check that the sight glass remains "locked" (no bubbles) during this check-out run.

CLEANING THE CONDENSER (Water-Cooled Units)

As this condenser is intended for use with sea water, maintenance cleaning should be done on a regular basis.

To clean the condenser:

1. Disconnect electrical power to the unit.
2. Shut off water supply to the condenser.
3. Remove upper and right side panels.
4. Remove six bolts on each of the two Delrin end plates and remove plate and gasket.
5. Using a wire brush (1/2" ID Tube), approximately 15" long, run through water jacket to clean.
6. Replace end plates and jackets with existing parts.
7. Return water and electric power.
8. Start unit and watch for leaks at endplate gasket seal.

CONDENSER FAN MOTOR (Air-Cooled)



WARNING: Electrical power is on to the unit for the following procedure.

1. To check for a defective fan motor, remove the upper front panel, top or upper right side cabinet panel and the electrical control box cover.
2. Put the stop/run switch in the "stop" position. Verify that the fan blade is free to turn.
3. Put the stop/run switch to the "run" position. Refer to the wiring diagram for the following check (a volunteer is required):
 - A. Verify that high pressure safety control (HPS) is closed and unit is "calling" for ice (no ice on the bin t'stat sensing bulb in hopper).
 - B. Check for voltage between neutral and:
 - a. HT2-C (common terminal of cam switch #2 of the harvest timer)
 - b. HT2-NC
 - c. "Run" position of the clean/run switch.
 - C. If voltage is shown at the 3 locations in Step 3B and the motor wiring connections are secure, then the fan motor is defective.
4. To replace the fan motor, disconnect the electrical power to the unit. Disconnect the electrical leads in the control box. Remove the four mounting screws securing the fan motor bracket to the condensing unit assembly base. Remove the complete motor/bracket/fan blade assembly from the unit for ease of motor replacement.

WATER REGULATOR VALVE

The water regulating valve is connected to both the refrigeration and the water systems. Make sure it is the valve that needs replacement, not an adjustment of outside influences such as plugged water circuit or low refrigerant charge.

Replacement Procedure:

1. Disconnect electrical power supply.
2. Shut off condenser water supply.
3. Remove upper front, top and right side panels.
4. Release refrigerant charge from system.
5. Drain water circuit.
6. Disconnect valve cap tube from port on discharge line.
7. Remove valve (valve installed with union fittings).
8. Install new regulator in water line.
9. Reconnect cap tube to discharge line.
10. Evacuate and recharge system to name plate specifications.
11. Attach high side gauge to port at front of unit.
12. Start up ice maker and adjust regulating valve to 250 PSIG high side pressure. Adjustment screw is located at the top of the regulating valve.

STRAINER ASSEMBLY

Replacement procedure:

1. Disconnect electrical power supply.
2. Shut off condenser water supply.
3. Remove top and right side panels.
4. Drain water circuit.
5. Check strainer portion only. If plugged, clean or replace with new strainer.
6. Repeat steps 1, 2 and 3 in reverse order.

REFRIGERANT UNDER-CHARGE

1. The sight glass and refrigeration system service parts are located on the partition wall adjacent to the electrical control box. Access to this area can be done either through the hinged service door on the left side or by removal of the upper front panel.
2. While the ice maker is running, observe the sight glass for a "locked" condition (no bubbles). If bubbles are present, leak check and charge the system until the sight glass is locked.
3. Observe that the sight glass remains locked after a restart.

EXPANSION VALVE (TXV)

1. To check the TXV, hook-up a refrigeration suction pressure gauge to the appropriate access port (see item 1 of Refrigerant Under-Charge).
2. While the ice maker is running, observe the gauge pressure. The nominal suction pressure range during the ice making cycle is 60–30 PSIG. The low pressure safety control (LPS) “trips” at 18 PSIG. The TXV is operating properly if the suction pressure drops no lower than 24 PSIG.
3. If the suction pressure is within 6 PSIG of the LPS trip point and there are no bubbles in the sight glass, replace the TXV. If bubbles are observed, recharge the system and then recheck the TXV.

TXV

4. To replace the TXV, the following items are required: vacuum pump, refrigeration manifold with gauges, charging cylinder and various hand tools (wrenches, screwdrivers, etc.). The procedure is as follows:
 - A. Disconnect electrical power from the unit.
 - B. Release refrigerant charge from system.
 - C. Remove insulation from TXV and sensing bulb.
 - D. Disconnect TXV from system (3 flare nut connections) and remove bulb from clamps on suction line.
 - E. Install replacement valve being careful to completely insulate TXV and bulb/suction line area.
 - F. Evacuate and recharge the system to nameplate specifications.
5. Observe that the unit functions normally in both the ice making and harvest cycles; specifically that suction and discharge pressures are in the range of 30–60 PSIG and 230–330 PSIG and also that the sight glass remains locked.
 - A. Remove the upper front panel and control box cover.
 - B. Using a voltmeter, check for voltage between neutral and the following points (see wiring schematic):
 - a. HT4-C (common terminal of the harvest timer cam switch #4)
 - b. HT4-NC
 - c. Conductivity control terminal #2.
 - d. Conductivity control terminal #1.
 - C. If there is no voltage at steps Ba, Bb or Bc, then check harvest timer.
 - D. If there is no voltage at step Bd, then control is not “calling” for water. Either the control is defective or the water level probe is grounded. Replace the control.
 - E. If the problem is that the water fill valve will not shut off, then check the following:
 - a. Check for lime deposits on the probe fitting. Clean fitting if required.
 - b. Check that conductivity control is grounded.
 - c. Check that probe circuit has continuity.
 - d. Disconnect wire lead at conductivity control #4. Voltage should be measured at terminal #1. Reconnect lead at #4. If voltage is still seen at #1, then the control is defective.

To replace the conductivity control:

1. Disconnect the electrical power to the unit.
2. Remove the four electrical wires at the control terminals.
3. Remove the two screws securing the control to the electrical box and remove the control.

COMPRESSOR

The compressor can exhibit basically two types of malfunctions. It will run but the refrigeration system produces little or no ice. In this case, check the suction and discharge pressures. A high suction pressure (greater than the normal range of 30 - 60 PSIG) and low discharge pressure (less than the normal range of 230 – 330 PSIG for air-cooled units or 247 PSIG for water-cooled units) indicates an internal valve problem and loss of compression. The second type of failure is characterized by the fact that the compressor will not run but there is voltage at the terminals. The cause is a defective motor (check for open or grounded windings).

In the case where the compressor is not operating, the electrical system can be checked as follows (a VOM type instrument is required):

1. Remove the upper front panel and the control box cover.
2. Put the stop/run switch in the "run" position.
3. Verify that there is voltage at the compressor contactor coil and also that the contactor has "pulled-in" (voltage between contacts and neutral). If there is no voltage in either case, refer to the appropriate troubleshooting/service procedure section before proceeding.
4. Disconnect electrical power to the unit.
5. Disconnect the following wires so that continuity can be checked on the compressor electrical components: (consult wiring diagram)
 - A. Start relay #5 to thermal protector #1 (brown).
 - B. Start relay #5 to compressor contactor (brown).
 - C. Start relay #2 to run capacitor (orange).
 - D. Start relay #2 to compressor #5 (orange).
 - E. Start relay #1 to start capacitor (blue).
 - F. White wire to compressor #R.
 - G. White wire to run capacitor.
6. Check continuity across the following:
 - A. Start relay terminals 5 and 2 – no continuity – replace relay (open relay coil).
 - B. Start relay terminals 2 and 1 – no continuity – replace relay (open contacts).
 - C. Compressor C & S – no continuity – replace compressor (open start winding).
 - D. Compressor C & R – no continuity – replace compressor (open run winding).
 - E. Run capacitor terminals
 - a. VOM on RX1 scale – continuity – replace capacitor (shorted).
 - b. VOM on RX100,000 scale – no continuity – replace capacitor (open).
 - F. Start capacitor terminals – procedure same as 6E.

- G. Overload (TP) 1 and 3 – no continuity – replace TP (open).
- H. Compressor C and Shell – continuity – replace compressor (grounded motor).
- I. Check the continuity of the wires removed and reconnect to the proper terminals.
- J. If all the above tests prove satisfactory and the compressor still fails to operate properly, change the start relay as the new relay will eliminate any faulty electrical characteristics, such as improper pick-up of drop-out, which cannot be determined by the above tests. If the new relay fails to correct the difficulty, the compressor shall be considered to be inoperative because of internal defects and must be replaced.

WATER FILL VALVE

The water fill valve is located on the condensing unit assembly base, adjacent to the air pump. To check for proper operation, open the hinged service door on the upper left side cabinet panel. Put the stop/run switch in the "stop" position. Remove the ice drop and hopper covers. Depress the fill switch. Water should overflow out the evaporator nozzle (for an empty evaporator, this procedure will take about 60 sec). If water doesn't overflow and both the dump valve (not stuck open) and water supply have been checked, then the fill valve is defective.

To replace the fill valve:

1. Disconnect electrical power to the unit.
2. Remove either the top or right side cabinet panels.
3. Disconnect the electrical wires from the solenoid.
4. Remove the water inlet line and water pressure switch control bulb from the "tee" fitting (1/4 compression nuts).
5. Disconnect the evaporator water inlet tube (hose clamp) from the valve.
6. Remove two screws securing the valve mounting bracket to the condensing unit assembly base. Remove the valve.
7. With the valve "free", remove the inlet fitting assembly (garden hose X pipe thread adapter and pipe X compression thread tee) from the valve inlet.
8. Install the inlet fitting assembly on the new valve. Repeat the above procedure in the reverse order to complete installation of the fill valve.

CONDUCTIVITY CONTROL

This control contains an electronic circuit for sensing the water level in the evaporator and turning water fill valve on/off to maintain the required level. The water level probe consists of a metal fitting with electrical terminal in a threaded boss on the side of the evaporator housing. A wire is run from this fitting directly to the control in the electric box. The changing water level in the evaporator "makes/breaks" the signal circuit (continuity through the water and ground) which the control uses to operate the water fill valve.

The following procedure is to check the control when the problem is either no water or low water level in the evaporator.



WARNING: Electrical power is on. Avoid contact with uninsulated parts in the control box.

To replace the compressor, the following items are needed: vacuum pump, refrigeration manifold with gauges, charging cylinder, brazing equipment and various hand tools. The procedure is as follows:

1. Disconnect electrical power to the unit and remove wires from the compressor terminals.
2. Release refrigerant charge from system.
3. Unbrazed discharge and suction lines.
4. Remove mounting bolts (four) and hardware from old compressor
5. Install new compressor following the above steps in reverse order.
6. Evacuate and recharge system to nameplate specifications.
7. Run ice maker and perform the following items:
 - A. Check that suction/discharge pressures are in the normal operating ranges.
 - B. Check for locked sight glass (no bubbles).
 - C. Check ice production capacity (see ice thickness adjustment section for procedure).

HOT GAS SOLENOID VALVE (HGV)

There are three situations to monitor for determining the proper functioning of the HGV. Install suction and discharge pressure gauges on the access ports located on the partition wall adjacent to the electrical control box. Either opening the hinged service door on the left side cabinet panel or removing the upper front panel will be required for this procedure. First, observe the suction/discharge pressures during the ice making cycle. A high suction pressure (greater than 30-60 PSAIG) range and a low discharge pressure (less than 230-330 for air-cooled units or 247 PSIG for water-cooled units) range indicate a leaking valve seat problem and the HGV must be replaced. Secondly, observe the suction pressure during the hot-gas portion of the harvest cycle.

The minimum suction pressure valve is 70 PSIG; Pressures less than this indicate the HGV is not operating properly and must be replaced. The third situation to analyze is the valve coil. During the hot gas portion of the harvest cycle, check for voltage between HT2-N 0 terminal (see harvest timer adjustment procedure and illustration and the wiring diagram) and neutral. If there is voltage but an audible "click" is not heard at the valve, replace the HGV (defective coil – valve not opening). The minimum suction pressure would be attained in this case.

To replace HGV, the following equipment is needed: vacuum pump, refrigeration manifold with gauges, charging cylinder, brazing equipment and various hand tools. The replacement procedure is as follows:

1. Disconnect electrical power to the unit and the leads to the valves.
2. Release the refrigerant charge from the system.
3. Unbrazed the line connections at the valve. Remove the screw that attaches the valve to the mounting bracket.
4. Install a new valve.
5. Evacuate and recharge system to nameplate specifications.

CYCLE TIMER

The following procedure is to check for the proper functioning of the cycle timer (a voltmeter is required):

1. Remove the upper front panel and the electrical control box cover.
2. Put the stop/run switch in the "stop" position. Allow system pressures to equalize before proceeding.
3. Put the stop/run switch in the "run" position. The harvest cycle should start within 5 seconds.

4. Upon completion of the harvest cycle, the unit should resume a normal ice making cycle for 50 seconds.
5. At the completion of the ice making cycle time period, the cycle timer should initiate harvest through the NC terminals of HT1 (cam switch #1 of the harvest time – see wiring schematic).
6. If the cycle timer does not initiate harvest in step 5, check the voltage between neutral and the following points:
 - A. Cycle timer terminal #1 – if voltage, then timer is functioning properly. If there is no voltage, replace timer.
 - B. HT1-C: If voltage, then check neutral connection of harvest timer motor. If the connection is good, then HT motor is defective. If there is no voltage at HT1-C, then the cam switch is defective.
7. If the cycle timer initiates the HT motor and the motor stops when HT1 transfers to the NO terminal, then check for voltage at HT1–C. If there is no voltage, then the cam switch is defective.

HARVEST TIMER

Refer to both the wiring schematic and harvest timer illustrations in performing the following procedure for determining the proper functioning of the timer (a VOM and timing device are required):



WARNING: Electrical power is on to the unit for this procedure. Avoid contact with uninsulated parts in the electrical control box.

1. Remove the upper front panel and electrical control box cover.
2. Put the stop/run switch in the “stop” position.
3. Activate the timer motor “manually” by rotating the cam wheels slightly (downward). The timer will then go through one complete cycle and stop at the “home” position.
4. To determine the proper functioning of cam switches #2 through #5, check continuity between switch terminal C and NO during the appropriate “on” time for each switch (see the harvest cycle chart in the Operation section). If no continuity, then switch is defective and timer should be replaced. The cam settings can be checked by timing the “on” (continuity) and “off” (no continuity) periods. (See harvest time adjustment.)
5. To check the timer motor, refer to the cycle timer procedure.

Harvest Timer



WARNING: Disconnect electrical power to the unit before servicing timer in electric box.

1. Disconnect power to ice maker.
2. Remove upper front panel and electrical control box cover.
3. Put the stop/run switch in the “stop” position.
4. Using figure 10 as a guide, set the timer cam tabs as follows, starting with cam wheel #1. (All cam tab positions are in relation to #1 left cam tab).

NOTE: Timer cam wheels can be manually rotated only in the normal direction of rotation downward as viewed from the front of the unit.

- A. “Manually” adjust the cam tabs by using each “click” , as the cam tab is rotated, as equivalent to .75 second.

- B. Set up cam wheel #1 with the left and right cam tabs back-to-back as shown in Figure 10A.
- C. Adjust the cam tabs on wheels 2 through 5 in sequence as shown in the chart. Rotate the cam wheels manually downward to set each wheel.
- D. After the cam tabs are manually set, reconnect power to the ice maker.
- E. Rotate the cam wheels slightly to activate the timer motor (#1 tell tale down).
- F. Using a stopwatch, time the cam switch tell tales. Adjust the cam tabs as necessary for the required cycle times.

CLEARING EVAPORATOR FREEZE-UP



WARNING: To prevent possible injury, do not stick fingers or hand into ice maker nozzle or hopper with power applied to unit.

1. Open the hinged door on the upper left side of panel.
2. Put the stop/run switch in the "stop" position.
3. Close the water supply valve to the ice maker.
4. Remove the ice drop and hopper covers.
5. Depress the flush switch pushbutton and drain the evaporator.
6. Pour hot water into the evaporator ice exit opening. It will be necessary to use either a funnel or a container with a spout. Fill the evaporator completely.
7. Drain the evaporator. Repeat steps 5 and 6 as required to ensure that all of the ice in the evaporator is melted.
8. Open the water supply valve and refill evaporator.
9. Replace the ice drop and hopper covers.
10. Consult the **TROUBLESHOOTING** guide to determine cause of freeze-up before putting unit back in service.

WATER DUMP VALVE

To check for proper operation, depress the flush switch located on the side of the electrical control box. (Access the switch through the hinged service door on the upper left side cabinet panel). Observe the water drain line for flow indicating the valve is energized. The evaporator must be full of water for this procedure. If no flow is observed, replace the valve.

The valve is located under the evaporator on the lower left side of the unit. To replace the valve:

1. Disconnect electrical power to the unit.
2. Remove the rear service panel. An alternate method would be to remove the lower front panel.
3. Remove the hoses from the valve inlet and outlet (spring hose clamps) and the two screws from the mounting bracket.
4. Disconnect the electrical wires from the solenoid and remove valve.
5. Install new valve, repeating above procedure in reverse order. Make sure that hoses are insulated properly to avoid condensation and drippage problems.

HARVEST MOTOR

To check the harvest motor for proper operation, it will be necessary to monitor voltage during the harvest cycle. The procedure is as follows:



WARNING: Electrical power is on to the unit. Avoid contact with uninsulated parts in the electrical control box.

1. Remove the upper front panel and electrical control box cover.
2. Check for voltage between neutral and the following points: (refer to wiring schematic):
 - A. HT3-C (common terminal of the harvest timer cam switch #3) – if no voltage, check safety control circuit for open device.
 - B. During harvest motor operation portion of the harvest cycle, check harvest thermostat #3 for voltage. If no voltage, cam switch is defective. (See harvest timer procedure).
 - C. Harvest thermostat #2 – If no voltage, check for proper operation of harvest thermostat.
 - D. Check voltage at run capacitor. If harvest motor is not running during it's portion of the harvest cycle, then either the run capacitor or motor is defective with voltage at the capacitor. Check capacitor (see procedure for compressor). If capacitor passes check, then replace motor.

To replace the harvest motor:

1. Disconnect electrical power to the unit.
2. Remove top cabinet panel.
3. Disconnect the electrical wires from the control box harness at the motor.
4. Remove four screws holding the motor mounting bracket to the evaporator top cap and remove the motor from the evaporator.
5. Remove four screws securing the mounting bracket to the motor and remove the bracket.
6. Replace the motor, installing the new gaskets that are supplied with the motor.
7. Check out the new motor by turning on the ice maker. Observe that after start-up, the ice maker immediately goes into a harvest cycle. Check that harvest motor starts and stops in the proper sequence in the harvest cycle. Observe also that normal ice making and harvesting cycles occur.

AIR PUMP

The air pump is located on the condensing unit base between the electrical control box and the compressor. It's purpose is to recirculate air from the ice storage hopper through the evaporator to agitate the water during the ice making cycle. This agitation reduces the amount of impurities that are retained in the ice formed on the evaporator coils and hence, increases the clarity of ice. If the air pump is not operating properly, the ice will turn "cloudy". To check for proper operation of the pump, perform the following procedure:



WARNING: Electrical power is on to the unit for this procedure. Avoid contact with uninsulated parts in the electrical control box.

1. Remove the upper front panel and control box cover.

2. Put the stop/run switch in the "stop" position.
3. Put the clean/run switch in the "clean" position.
4. If the pump is not running, check for voltage between neutral and the common terminal of the clean/run switch. If there is no voltage, the switch is defective. If there is voltage, check the motor wire connections. If connections are good, then the motor is defective.
5. If the pump is running then it will be necessary to check it's performance. This check will require an airflow meter and pressure gauge. Remove discharge tube (line running to evaporator). Check flow (the required range is 10 to 16 liters per minute). Check pressure by "dead-heading" pump (required range is 18-20 PSIG). If either condition is not achieved, pump is defective.

To replace the air pump:

1. Disconnect electrical power to the unit.
2. Remove either the top or right side cabinet panel.
3. Disconnect the electrical wires in the control box.
4. Remove the suction and discharge tubes from the pump fittings.
5. Remove the two screws holding pump to the condensing unit base and remove pump.
6. Repeat this procedure in reverse order to install new pump.

VEND SWITCH

The ice vend switch is located on the rear side of the lower front panel. It can be checked by using a voltmeter between neutral and the NO switch terminals. If there is no voltage when the switch pushbutton is depressed, then the switch is defective. Disconnect electrical power to the unit and replace the switch as shown in the lower cabinet assembly illustration.

GATE SOLENOID

The gate solenoid is located in the upper cabinet assembly and operates the gate slide for dispensing ice out of the storage hopper. To protect the solenoid, a fuse is located on the left side of the electrical control box. If the solenoid fails to operate, check the fuse first. Determine next that the gate mechanism operates freely. To check the solenoid:

1. Disconnect electrical power to the unit.
2. Remove the upper front panel.
3. Disconnect the wires to the solenoid.
4. Check continuity across the solenoid terminals and from one terminal to the solenoid frame.
 - A. If no continuity is measured across the terminals, then replace the solenoid (open coil).
 - B. If continuity is measured from one terminal to the frame, replace the solenoid (coil is shorted to ground).
5. To replace the solenoid assembly, remove the three nuts securing the solenoid mounting bracket to the studs on the storage hopper (see upper cabinet assembly illustration).

AGITATOR MOTOR

The agitator motor operates the agitator in the storage hopper for dispensing ice out through the gate opening. The motor is mounted to the bottom of the storage hopper and secured by brackets to the upper cabinet. To check the agitator motor, perform the following procedure:



WARNING: Electrical power is on to the unit during this procedure. Avoid contact with uninsulated parts.

1. Remove the upper front panel and control box cover.
2. Put the stop/run switch in the "stop" position.
3. Check voltage between neutral and the following points with the vend switch depressed:
 - A. HT5-NC (normally closed terminal of the harvest timer cam switch #5 – see harvest timer illustration).
 - B. HT5-C
 - C. Agitator motor capacitor.
4. If voltage is not seen at 3A or 3B, then check the harvest timer switch #5. If voltage is measured at 3A and 3B, then either the capacitor or motor is defective.
5. Disconnect electrical power to the unit and check for continuity at the capacitor and motor. (Remove the appropriate wires to isolate each component from the remainder of the circuit; see the wiring schematic and diagram.)
 - A. Use a VOM and check continuity across the capacitor terminals.
 - a. RX1 scale – continuity – replace capacitor (shorted)
 - b. RX100,000 scale – no continuity – replace capacitor (open)
 - B. Check continuity across the motor common and the start and run windings. If either reading shows no continuity, replace the motor (open winding).

To replace the agitator motor:

1. Disconnect electrical power to the unit.
2. Remove the lower front panel.
3. Disconnect the motor leads from the control box harness at the junction box.
4. Remove the four screws securing the motor to the storage hopper and the two screws for the motor clamp. (See the upper cabinet illustration).
5. Install the new motor using the new gasket supplied with the motor.

MANUAL FILLING

In the event that the ice maker is not functioning, the hopper may be manually filled with ice.

1. Open the hinged service door.
2. Place the "Stop/Run" switch in the "Stop" position.



WARNING: Electrical power is on to the agitator motor and the gate solenoid. Avoid contact with these components.

3. Remove the ice drop and storage hopper covers.
4. Fill hopper with ice and replace covers. Unit is now ready for dispensing.



CAUTION: Do not use crushed or flaked ice. Use of bagged ice, which has frozen into large chunks, can void warranty. The agitator is not designed to be an ice crusher. Use of large chunks of ice which “jam up” inside the hopper will cause failure of the agitator motor and damage the hopper. If bagged ice is used, it must be carefully and completely broken into small, cube size pieces before filling into the storage hopper. Do not allow foreign material to enter the ice storage hopper.

NOTE: Packaging for this unit is intended only for indoor storage under dry conditions. Do not stack units, as the packaging is not designed for support of additional loading. Follow the carton instructions for storing the unit in an upright position. Storage temperatures up to 150° F are acceptable. Above this limit, some of the plastic material in the unit may be adversely affected.

HARVEST TIMER

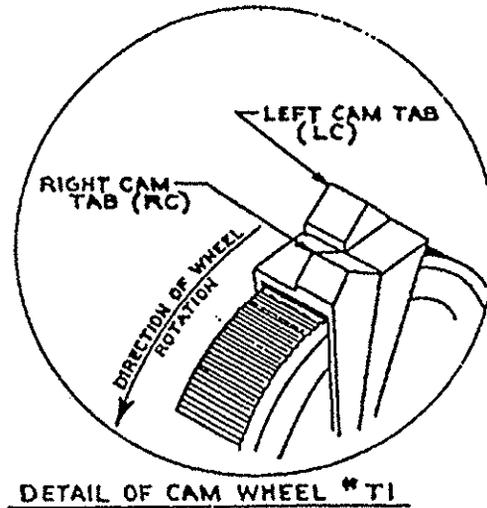
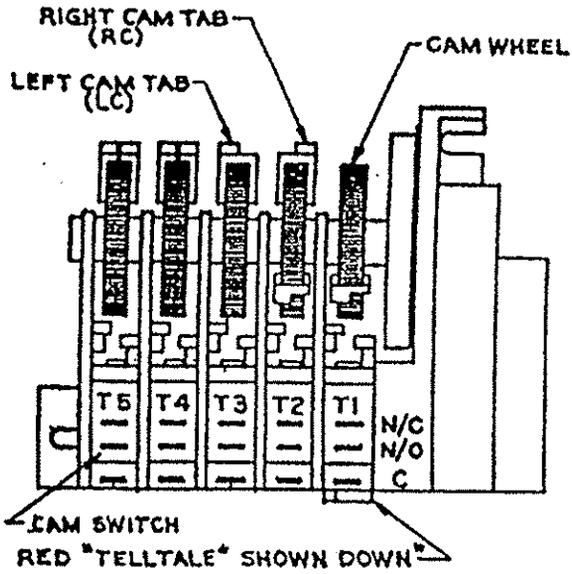
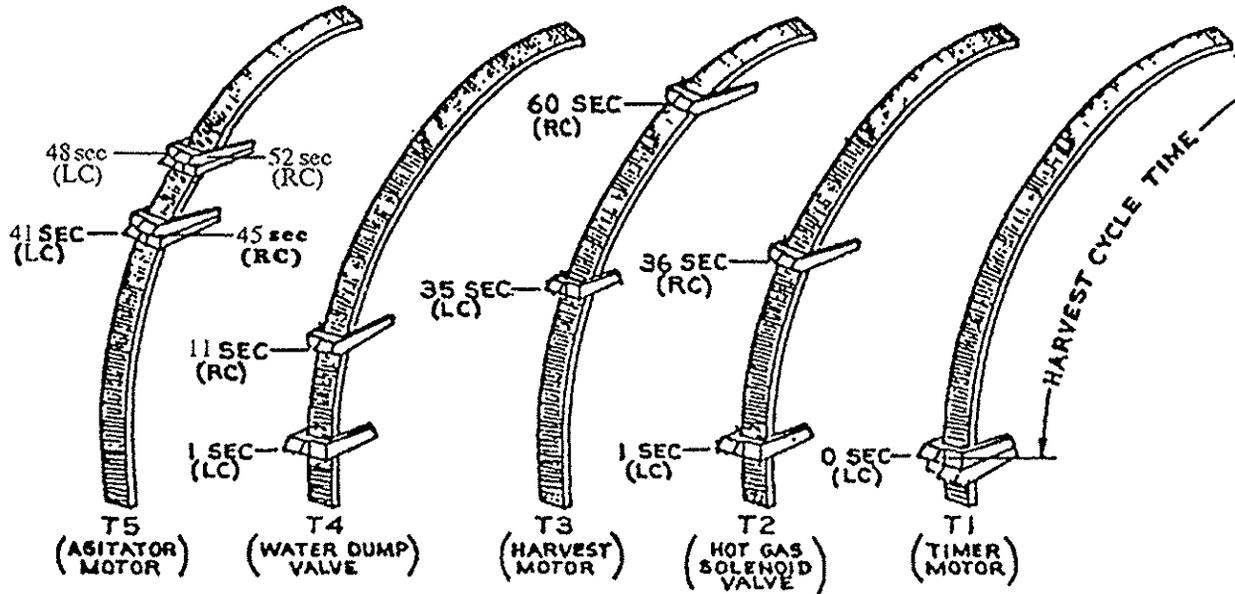
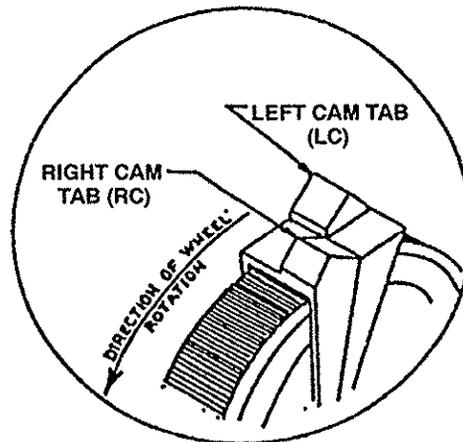
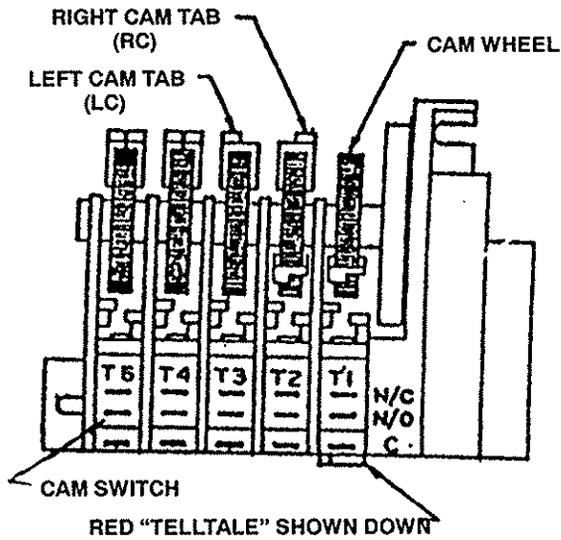
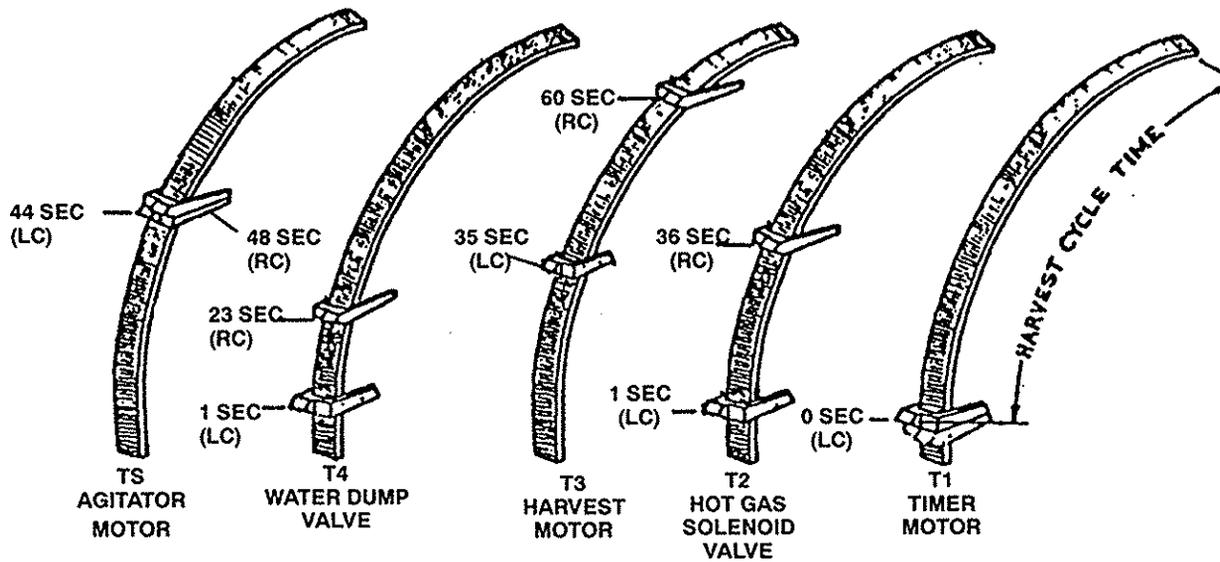


FIG. 9A

FIGURE 9. HARVEST TIMER

FOR UNITS MANUFACTURED AFTER JULY 24, 1992



DETAIL OF CAM WHEEL #T1
FIG. 10A

FIGURE 10. HARVEST TIMER

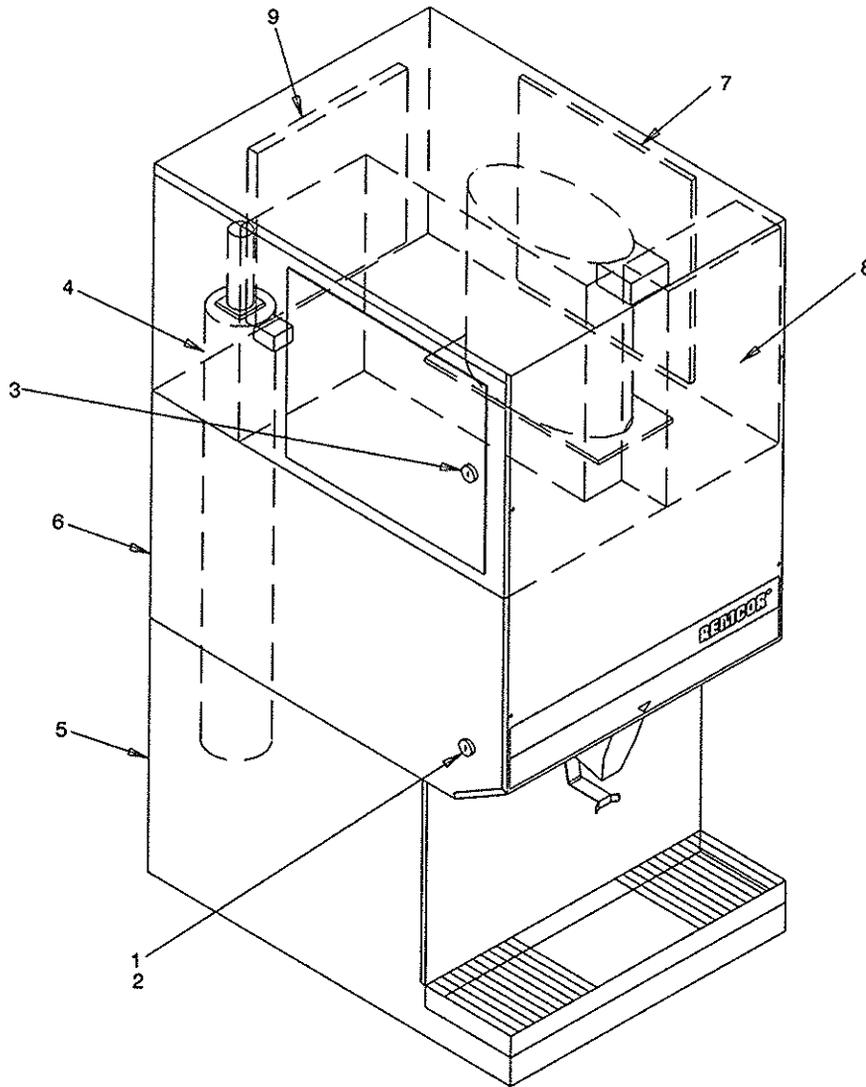


FIGURE 11. UNIT FINAL ASSEMBLY

UNIT FINAL ASSEMBLY

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Keylock	31808	Auget Inc. Alcoswitch Div. 1551 Osgood St. North Andover, MA 01845	M6201
2	Contact Block	31809	Same as above	F50
3	Cabinet Lock	70476	Wico Cor	34-1322
4*	Evaporator Assy			
5*	Lower Cabinet Assy			
6*	Upper Cabinet Assy			
7*	Air Filter	70551	Research Product Corp. 1015 E. Washington Ave. Madison, WI 53703	97017568
8*	Electrical Ctrl Box Assy			
9*	Condensing Unit Assy			
10	Water Valve (Not Shown)	40653	Fisher 5332 Santa Fe Ave. P.O. Box 58904 Los Angeles, CA 90058	1013

* Refer to individual assembly part listings.

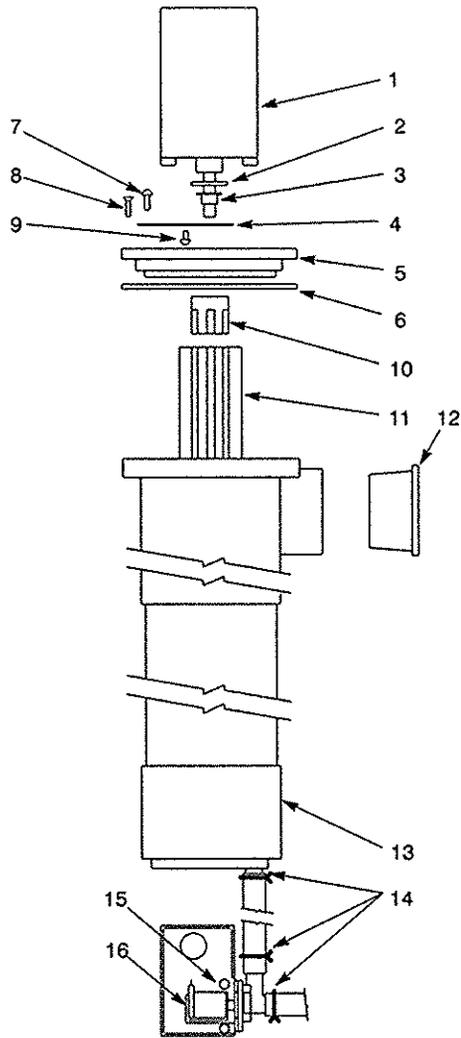


FIGURE 12. EVAPORATOR ASSEMBLY

EVAPORATOR ASSEMBLY

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Harvest Motor W/ Gaskets	31560-1	Remcor	
2	Gasket - Motor Shaft	50481	Remcor	
3	Seal - Harvest Motor Shaft	51163	Remcor	
4	Bracket - Harvest Motor Mounting	23334	Remcor	
5	Top Cap - Harvest Motor Mounting	51421	Remcor	
6	Gasket - Flange Top Cap	51422	Remcor	
7	Screw, 10-24UNC-2A, 3/8" length Phillips truss head s.s.	Com1.		
8	Screw, 10-32UNF-2A 3/4" length Phillips flat head s.s.	Com1.		
9	Screw, 10-32UNF-2A 3/8" length, Phillips truss head, s.s.	Com1.		
10	Drive, Harvest Bar	10095	Remcor	
11	Harvest Bar w/Gaskets	51423-1	Remcor	
12	Evaporator Cleaning Plug	51300	Remcor	
13	Evaporator Housing W/coil Subassembly	51416/ 60698	Remcor	
14	Hose Clamp - .750 Clamping range s.s.	Com1.	Corbin Hose Clamp	A-125
15	Screw, 8-32-UNC-2A 3/8" length, Phillips truss head, s.s.	Com1.		
16	Water Drain Valve	40652	Singer Controls Div. 9655 W. Soreng Ave. Schiller Park, IL 60176	Model 678 "B" inlet "I" outlet

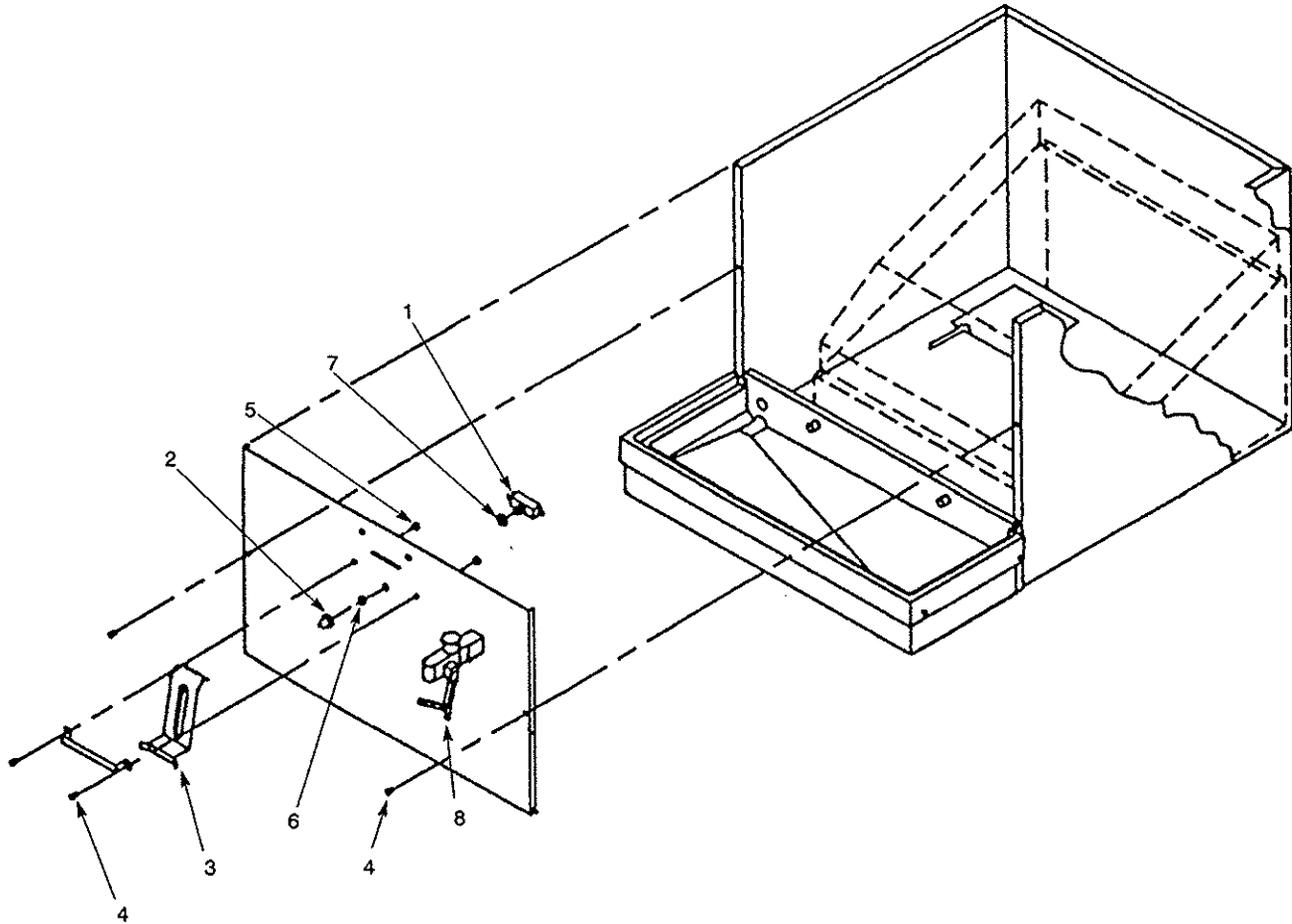


FIGURE 13. LOWER CABINET ASSEMBLY

LOWER CABINET ASSEMBLY

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Vend Switch	30895	Unimax Switch Corp.	AJ
2	Switch Boot	31007	AMP Hex Seal Corp. 44 Honeck St. Englewood, NJ 07631	N3030-2201
3	Depressor Lever	21515	Remcor	
4	Screw, 8-32UNC-2A 3/8" length, Phillips truss head, s.s.	Com1.		
5	Nut 8-32-UNC-2B Hex plated steel w/lockwasher	Com1.		
6	Switch Insert	31163	AMP Hex Seal Co. 44 Honeck St. Englewood, NJ 07631	2500-1-5
7	Nut, 3/8-32UNEF-2B Hex Plated Steel 5/64" Thick	Com1.		
8	Water Valve	40653	Fisher Manufacturing Co. 5332 Santa Fe Ave. P.O. Box 58904 Los Angeles, CA 90058	1013

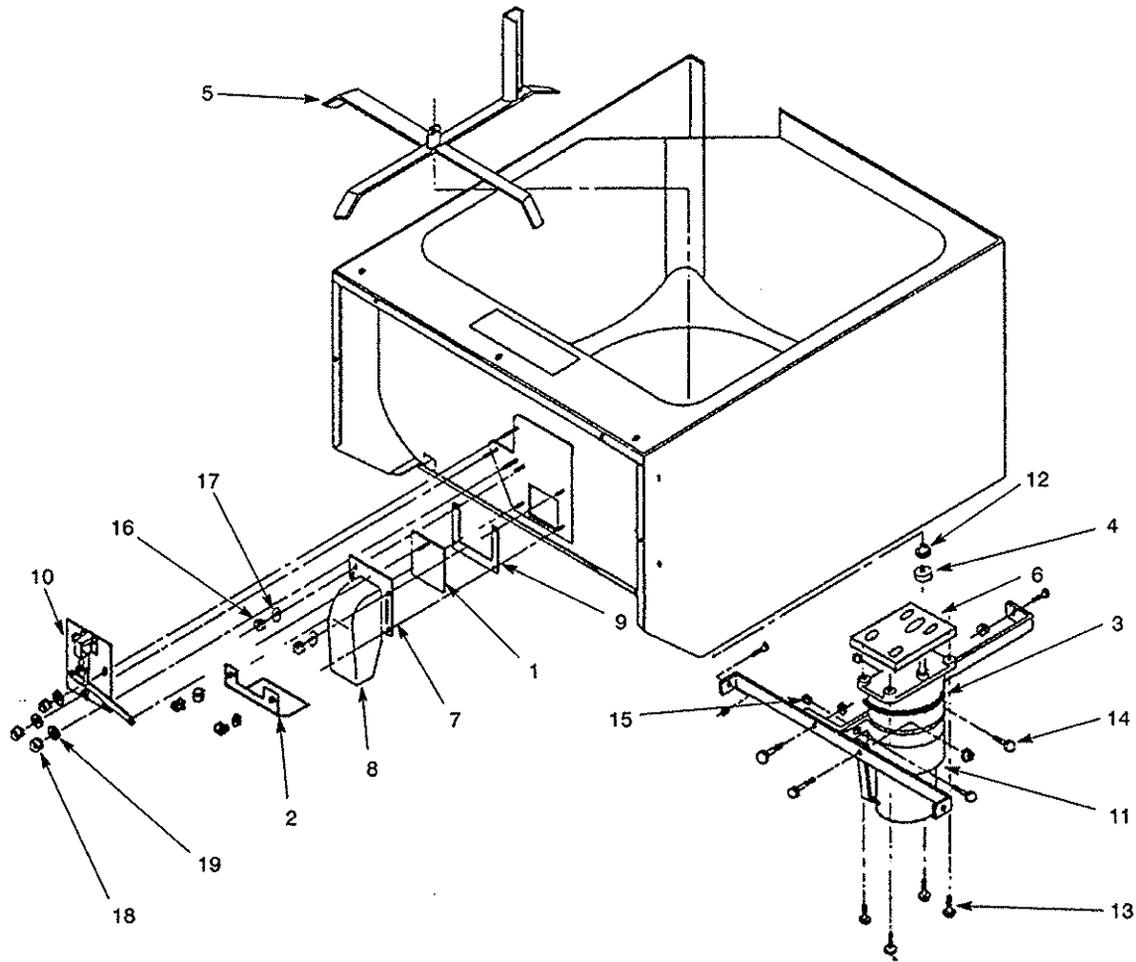


FIGURE 14. UPPER CABINET ASSEMBLY

UPPER CABINET ASSEMBLY

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Gate Slide	21491	Remcor	
2	Foam Shield	23062	Remcor	
3	Heater - Agitator Motor (-BC Units only)	30794	Remcor	
4	Agitator Motor Shaft Seal	50454	Remcor	
5	Agitator	22855, 21854 (-BC units)	Remcor	
6	Agitator Motor Plate Insulation	50894	Remcor	
7	Ice Chute Back	53015	Remcor	
8	Ice Chute Cover	53016	Remcor	
9	Gate Gasket	50770	Remcor	
10	Gate Solenoid Assy	31093	Remcor	
11	Agitator Motor w/Gaskets	31112-1	Howard Industries One N. Dixie Highway Milfor, IL 60953	5-08-0200
12	Agitator Motor Gasket	50806	Remcor	
13	Screw, 1/4-20-UNC-2A Phillips, round head s.s.	Com1.		
14	Screw, 1/4-20-UNC-2A Hex Head, Plated Steel	Com1.		
15	Nut, 1/4-20-UNC-2B Plated Steel w/lockwasher	Com1.		
16	Nut, 10-32 UNF-2B Hex s.s.	Com1.		
17	Washer, #10 Flat s.s.	Com1.		
18	Nut, 10-32 UNF-2B Hex Plated Steel	Com1.		
19	Washer, 7/32" ID x 7/8" OD x 3/64" thick Plated Steel	Com1.		

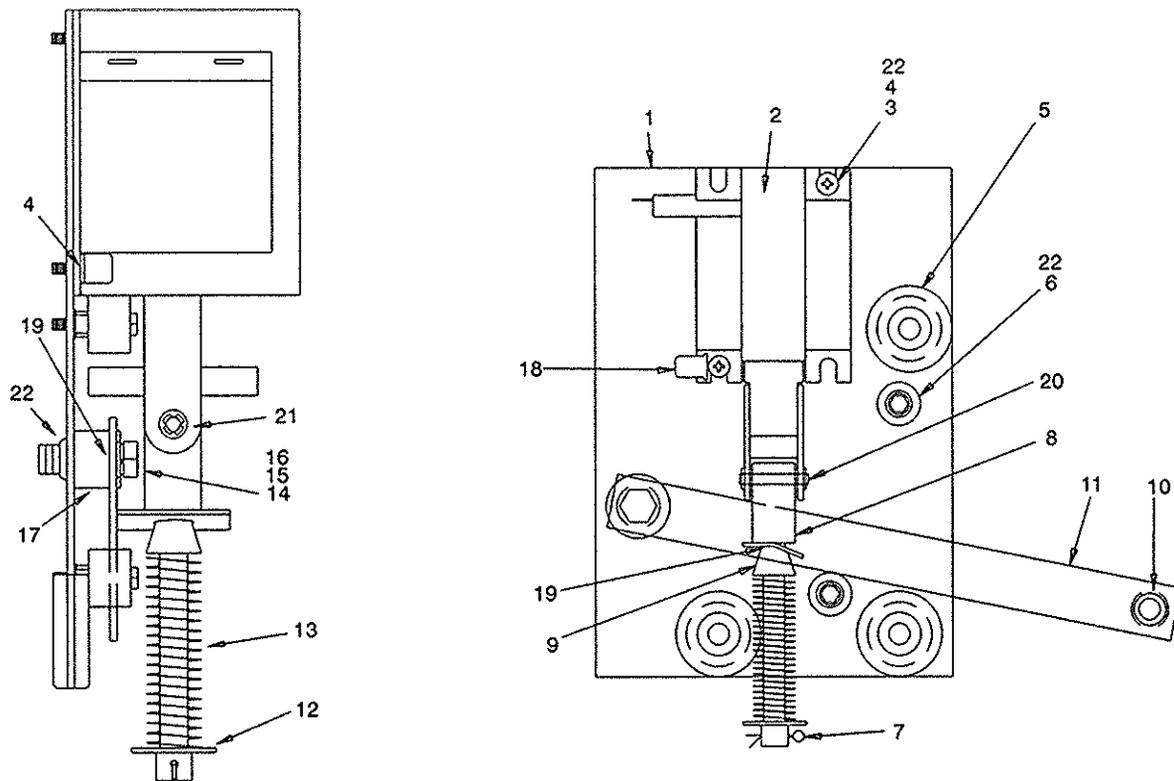


FIGURE 15. GATE SOLENOID ASSEMBLY - EXPLODED VIEW AND PARTS LIST

Index No.	Part No.	Qty.	Name
1	21493	1	Solenoid Mounting Plate
2#	31551	1	Solenoid Service Kit
3	70171	2	8-32 x 3/8 Phil Tr HD Screws
4	70121	2	No. 8 Lockwasher
5	50752	3	Isolator
6*	50789	2	Bumper Assembly
7*	70423	1	Cotter Pin
8*	10080	1	Gate Lift Rod
9	10081	1	Gate Lift Rod Bushing
10	50754	1	Gate Arm Bearing
11	21492	1	Gate Lift Arm
12	70043	1	Flatwasher
13*	70422	1	Spring
14	70263	1	1/4-20 x 3/4 Hex Hd Screw
15	70048	1	1/4 Lockwasher
16	70066	1	1/4 Flatwasher
17	10077	1	Pivot Bearing
18	30227	1	1/4 Quick Connect Tab
19	50305	--	Lubricant
20*	21592	1	Solenoid Linkage Pin
21*	70433	2	Retainer Ring
22	51088	--	Loctite
--*	70438	--	Rebuilding Kit

NOTE: * Parts supplied with rebuilding kit.
 # 31551 solenoid supplied with items 20 & 21.

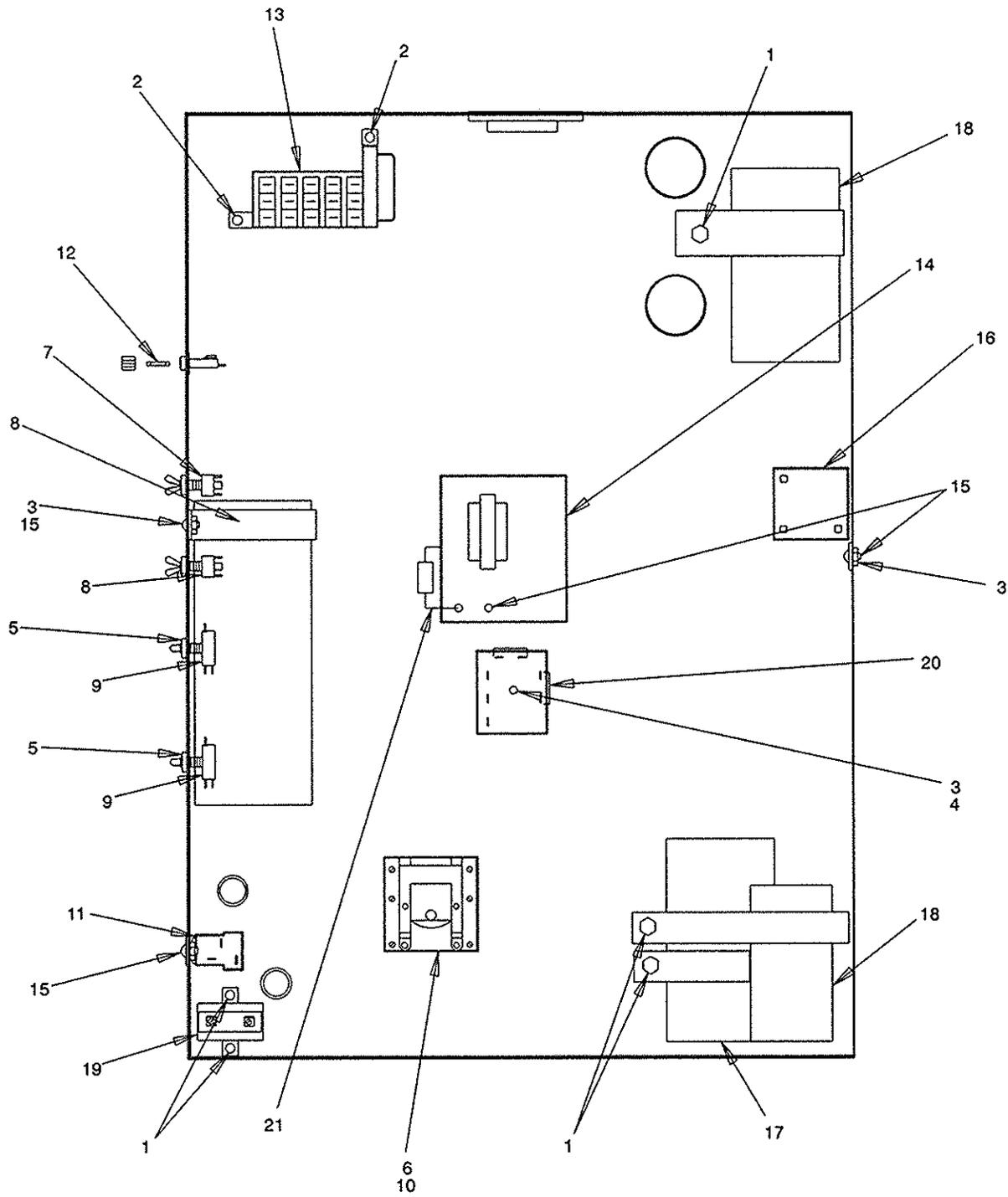


FIGURE 16. ELECTRICAL CONTROL BOX ASSEMBLY

ELECTRICAL CONTROL BOX ASSEMBLY

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Screw, #8 type B 1/4" length, hex slotted washer head plated steel	Com1.		
2	Screw, #8 type B 1/2" length hex slotted washer head plated steel	Com1.		
3	Nut, 8-32UNC-2B plated steel w/lockwasher	Com1.		
4	Screw, 8-32UNC-2A 1-1/4" length, truss head plated steel	Com1.		
5	Nut, 3/8-32UNEF-2B hex plated steel 5/64" thick	Com1.		
6	Contactora	30379	Potter & Brumfield 200 Richland Creek Dr. Princeton, IN 47671	PRD7AGO120V
7	Toggle Switch	30385	McGill Manuf. Co. Electrical Division Valparaiso, IN 46383	3192-0003
8	Capacitor, Agitator Motor	30774	Ronken Industries Wolfer Industrial Park Spring Valley, IL 61362	P71A12855K05
9	Flush./Vend/Manual Water Fill Switch	30895	Unimax Switch Corp. AJ Ives Rd, P.O. Box 152 Wallingford, CT 06492	
10	Screw, #8 type B 5/8" length, slotted round head, plated steel	Com1.		
11	Bin Thermostat	31001	General Electric Co. West Wall Street Morrison, IL 61270	3ART24H10
12	Fuse, 1-1/4 Amp	31406	Littel Fuse 800 E. Northwest Hwy Des Plaines, IL 60016	3131.25
13	Timer, Harvest	31868	Remcor	
14	Conductivity Control	31806	National Controls Corp. 931 N. DuPage Ave. Lombard, IL 60148	LNC-NS156-120RC
15	Screw, 8-32IMC-2A 3/8" Length, Phillips truss head, s.s.	Com1.		
16	Compressor Start Relay	31671	Copeland Corp. Order Service Dept. 1675 W. Campbell Road Sidney, OH 45365	040-0001-38
17	Capacitor, Comp. Start	31672	Same as above	014-0008-66
18	Capacitor, Harvest Motor/Comp. Run	31673	Same as above	014-0037-09
19	High Pressure Control	60501	Johnson Controls Inc. 1302 E. Monroe St. Gashen, IN 46526	P20DB-1
20	Cycle Timer Assy.	31816	Remcor	
21	110K Resistor Assy.	31941	Remcor	

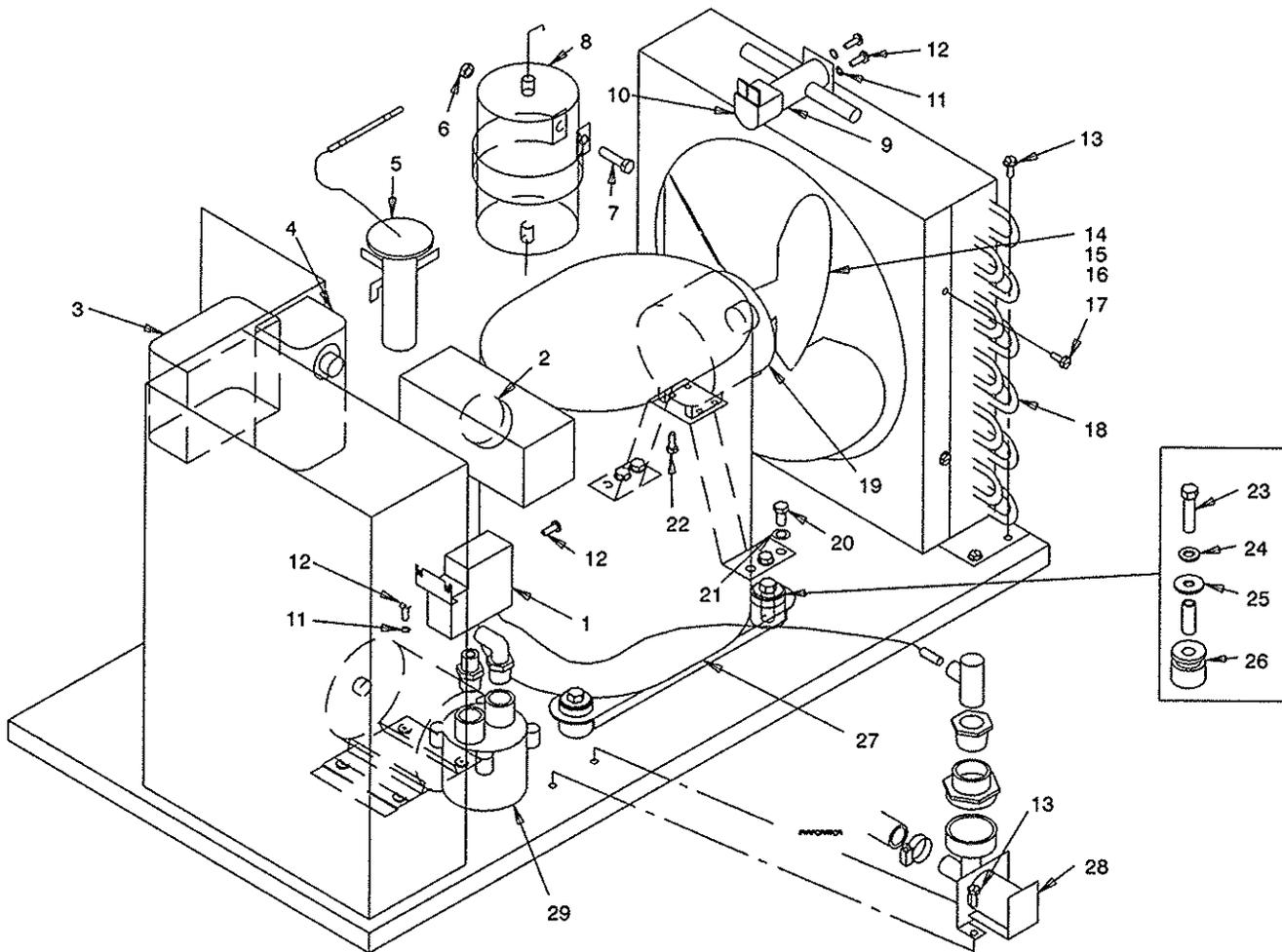


FIGURE 17. CONDENSING UNIT ASSEMBLY (AIR COOLED)

CONDENSING UNIT ASSEMBLY (AIR COOLED)

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Water Pressure Switch	60817	Remcor	
2	Compressor Overload	31674	Copeland Corporation Order Service Dept. 1675 W. Campbell Road Sidney, OH 45365	071-0127
3	Low Pressure Control	60369	Johnson Controls, Inc. 1302 E. Monroe St. Goshen, IN 46526	P70AB-2

CONDENSING UNIT ASSEMBLY (AIR COOLED CONT'D)

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
4	Ambient Thermostat	31804	Johnson Controls, Inc. 1302 E. Monroe St. Goshen, IN 46526	A 19ABC-4
5	Expansion Valve	60635	Remcor	
6	Nut, 1/4-20UNC-2A Plated Steel W/Lockwasher			
7	Screw, Hex Hd., 1/4-20UNC-2A By 1 1/2-In. Long			
8	Filter (Drier)	60623	Sporlan Valve Co. 7525 Sussex Ave. St. Louis, MO 63143	CG-162-S
9	Hot Gas Solenoid Valve	60620	Alco Controls Div. Emerson Electric Co. P.O. Box 102057 Atlanta, GA 30368-0057	200RB5T3-T
10	Coil, Hot Gas Solenoid Valve	32576	Alco Controls Div. Emerson Electric Co. P.O. Box 102057 Atlanta, GA 30368-0057	AMS
11	Lockwasher, No. 8			
12	Screw, Phil Truss Hd., 8-32UNC-2A By 1/2-In. Long			
13	Screw, Hex Hd., 8-32UNC-2A By 1/2-In. Long			
14	Condenser Fan Blade	31844	Electric Motor Specialties, Inc. P.O. Box 180 Garrett, IN 46738	FF100CW34P
15	Silencer-Fan Blade	70091		
16	Nut-Fan Blade	70090		
17	Screw, SI Hex Hd., No. 8 By 1/4-In. Lg			
18	Condenser, Air Cooled	60619	Modine Heat Transfer 415 E. Prairie Ronde St. Dowagiac, MI 49047	005452
19	Condenser, Fan Motor	31738	Electric Motor P.O. Box 180 Garrett, IN 46738	ESP-L35EMI
20	Screw, Hex Hd., 1/4-20UNC-2B By 1/2-In. Long			
21	Lockwasher, 1/4			
22	Screw, Hex Hd., 8-36UNF-2A By 3/8-In. Long			
23	Bolt, Hex Washer Hd., 5/16-18UNC-2A By 1 1/2-In. Long			
24	Lockwasher, 3/8			
25	Washer, 3/8			
26	Compressor Mounting kit	31607	Copeland Corporation Order Service Dept. 1675 W. Campbell Road Sidney, OH 45365	527-0039-04
27	Compressor	60642	Copeland Corporation Order Service Dept. 1675 W. Campbell Road Sidney, OH 45365	RSN4-0075-PAA -210
28	Water Inlet Valve	40642	Eaton Corp. Controls Div. 191 E. North Ave. Carol Stream, IL 60188	674-324
29	Air Pump	31568	Barnant Corp.	400-1911

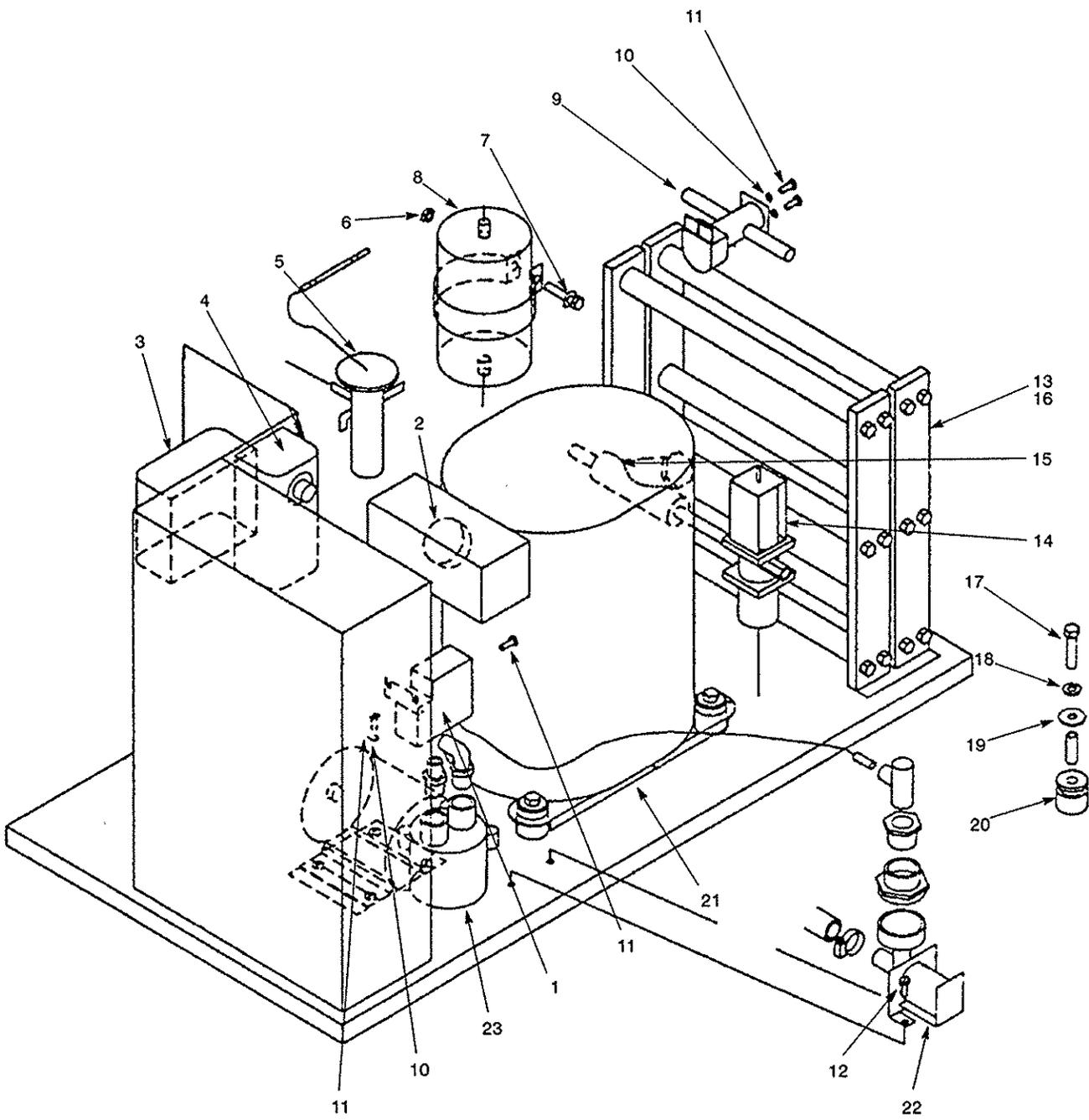


FIGURE 18. CONDENSING UNIT ASSEMBLY (WATER COOLED)

CONDENSING UNIT ASSEMBLY (WATER COOLED)

Item	Description	Remcor Part No.	Manufacturer	Manufacturer Part No.
1	Water Pressure Switch	60817	Remcor	
2	Compressor Overload	31674	Copeland Corporation Order Service Dept. 1675 W. Campbell Road Sidney, OH 45365	071-0127
3	Low Pressure Control	60369	Johnson Controls, Inc. 1302 E. Monroe St. Goshen, IN 46526	P70AB-2
4	Ambient Thermostat	31804	Same as Above	A19ABC-4
5	Expansion Valve	60635	Remcor	
6	Nut, 1/4-20UNC-2A Plated steel w/lockwasher	Coml.		
7	Screw, 1/4-20UNC-2A 1-1/2 length, hex head plated steel	Coml.		
8	Filter (drier)	60623	Sporlan Valve Co. 7525 Sussex Ave. St. Louis, MO 63143	CG-162-S
9	Hot Gas Solenoid Valve	60620	Alco Controls Div. Emerson Electric Co P.O. Box 102057 Atlanta, GA 30368-0057	200RB5T3-T
	Coil, Hot Gas Solenoid Valve	32576	Same as Above	AMS
10	Lockwasher, #8 Internal-tooth, s.s.	Coml.		
11	Screw, 8-32UNC-2A 1/2" length Phillips truss head, s.s.	Coml.		
12	Screw, 8-32UNC-2A 1/2" length hex head, plated steel	coml.		
13	Condenser	60801	WEDJ, Inc.	60801
14	Regulating Valve	60802	Metrex Valve Corp. 505 South Vermon Ave. Glendora, CA 91740	DA8670-37-UEM
15	Strainer	60803	WEDJ, Inc. P.O. Box 209 Glendora, CA 91740	60803
16	Condenser Water Tubing Change-Out Kit	60804	Same as above	60804
17	Bolt, #5/16-18UNC-2A,	Coml.		
18	Lockwasher, #3/8 Internal tooth-plated steel	Coml.		
19	Washer, .375" ID x .875" OD x .070" TK, plated steel	Com.		
20	Compressor Mtg Kit	31607	Copeland Corporation Order Service Dept. 1675 W. Campbell Road Sidney, OH 45365	527-0039-04
21	Compressor	60642	Same as above	RSN40075PAA-210
22	Water Inlet Valve	40672	Eaton Corp. Controls Div. 191 E. North Ave. Carol Stream, IL 60188	674-324
23	Air Pump	31568	Barnant Corporation 28 W. 092 Commercial Ave. Barrington, IL 60010	400-1911

**NAVSEA (USER) TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)
(NAVSEA S0005-AA-GYD-030/TMMP & NAVSEAINST 4160.3)**

INSTRUCTIONS: Insert classification at top and bottom of page. Read the following before completing this form. Continue on 8 1/2" x 11" paper if additional space is needed.

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2. Blocks marked with "*" are to be filled in by the contractor before printing.
3. For unclassified tmders. Fill in your return address in space provided on the back, fold and tape where indicated, and mail. (See opnavinst 5510. 1E for mailing classified tmders'.)
4. For additional information, call Autovon 360-4805/5084 or commercial 805-4805/5084.

1. NAVSEA NO. *	2. VOL. PART *	3. TITLE *
4. REV. DATE OR TM CH DATE	5. SYSTEM/EQUIPMENT	6. IDENTIFICATION/NOMENCLATURE (MK/MOD/AN)

7. USER'S EVALUATION OF MANUAL (CHECK APPROPRIATE BLOCKS)

A. EXCELLENT		B. GOOD		C. FAIR		D. POOR		E. COMPLETE		F. INCOMPLETE
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8. GENERAL COMMENTS

9. RECOMMENDED CHANGES TO PUBLICATION

PAGE NO. A.	PARA-GRAPH B.	LINE NO. C.	FIG. NO. D.	TABLE E.	F. RECOMMENDED CHANGES AND REASONS

10. ORIGINATOR AND WORK CENTER (PRINT)	11. ORIGINATOR'S RANK, RATE OR GRADE, AND TITLE	12. DATE SIGNED
13. SIGNATURE OF WORK CENTER HEAD	14. SIGNATURE OF DEPARTMENT OFFICER	15. AUTOVON.COMM NO.

16. SHIP HULL NO. AND/PR STATION ADDRESS (DO NOT ABBREVIATE)

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A. CONTROL	B. COG ISEA	C. DATE			D. PRIORITY	E. TRANSMITTED TO
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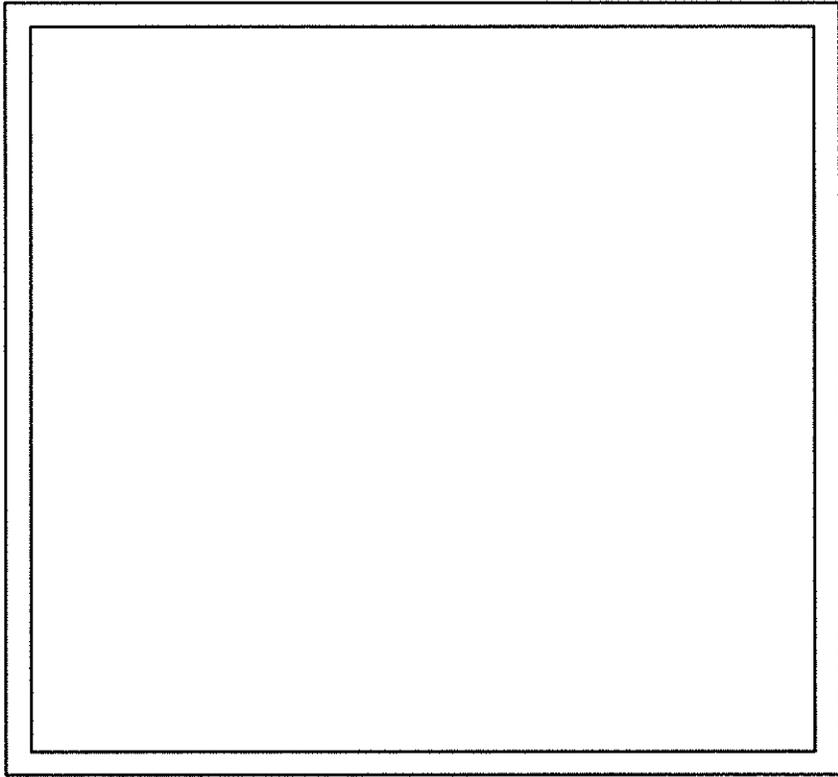
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