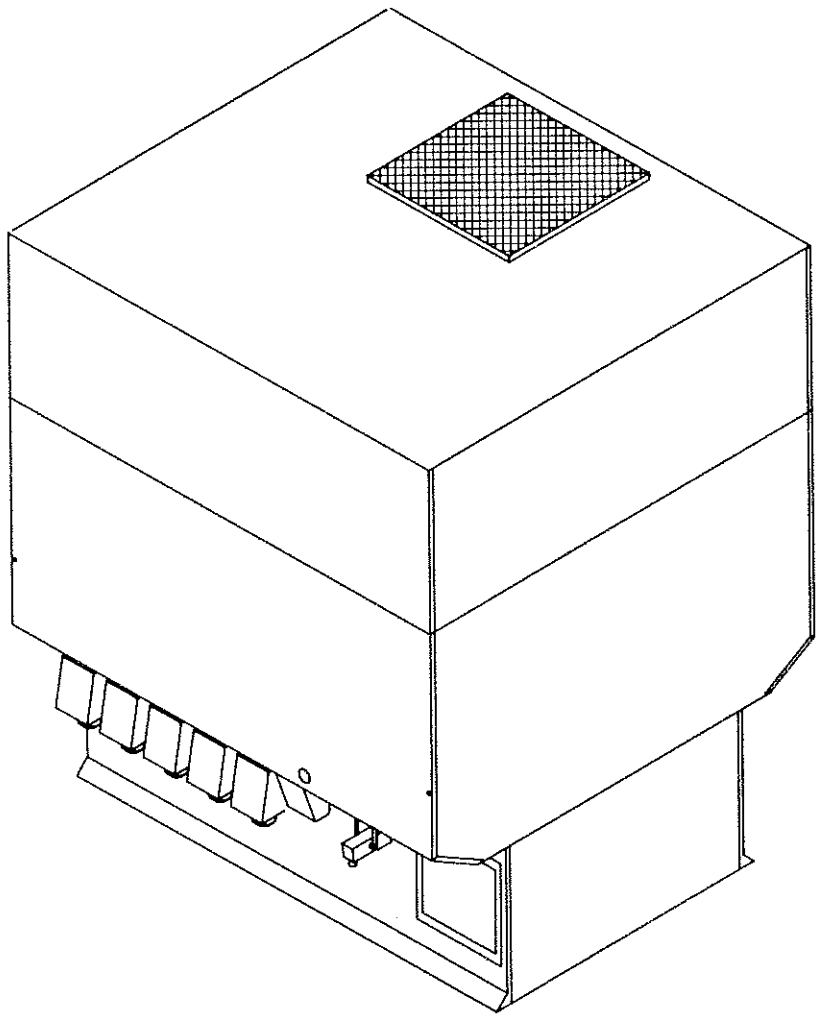
REMCOR®

SPIRAL ICEMAKER/DISPENSER
OWNER'S MANUAL

MODEL:
S1D651A/210S-DBMZ



REMCOR PRODUCTS CO.
500 REGENCY DRIVE
GLENDALE HEIGHTS, IL 60139-2268
(312)980-6900

P/N 91033 REV A

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IMPORTANT

INSTALLATION NOTICE

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

This icemaker is provided with a stainless steel evaporator, designed to last the life of the product. However some of the chemicals in treated and untreated water, specifically chlorine and sulfur (sulfide), have the ability to attack 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.

DESCRIPTION

The Remcor S.I.D. (Spiral Icemaker/Dispenser) is a unique, self-contained, countertop style unit which 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.

SPECIFICATIONS

COMPRESSOR: HP: 3/4

REFRIGERANT: R-502/2 lbs.

VOLTAGE: 208-230/115V, 1 PH, 60 Hz.

AMPS:

CIRCUIT AMPACITY:

FUSE SIZE: 15A Time-delay

ICE STORAGE CAPACITY: 210 lbs.

ICE MAKING CAPACITY: Up to 750 lbs/24 hrs.

Air Temp	Water Temp					
	40°	50°	60°	70°	80°	90°
60°	750	704	663	627	594	564
70°	682	650	607	580	550	520
80°	625	586	552	522	495	470
90°	656	530	499	472	447	425

UNPACKING

1. With the unit upright, carefully remove the shipping crate. Inspect for shipping damage and report any such damage to the shipper immediately.

2. Open hinged service upper front panel.

3. Remove shipping tape from ice drop cover, storage hopper cover, and agitator in storage hopper.

INSTALLATION

1. Location

Locate the icemaker/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 unit in an enclosed area where heat build-up could be a problem. For proper airflow for the refrigeration system, allow 6 in. clearance at the one side of the unit, with the condenser exhaust air opening, and 12 in. above the top panel.

Consult Fig. 1 for unit dimensions.

Consult Fig. 2 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 template drawing (Fig. 2) indicates the openings which 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 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 immediately.

2. PLUMBING

Connect the icemaker to a cold, potable water source, suitable for drinking. This water source must comply with the basic plumbing code of the Building Officials and Code Administration International Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration. Do not install unit on a water softener line. It is recommended that a hand shut-off valve and strainer be used on the incoming supply line. A 3/8 OD compression tube fitting is provided out the bottom of the unit for the water supply hook-up (see Fig. 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 insure proper icemaker 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 N. Blackhawk Drive
   Westmont, IL 60559
   (312)654-4000
   InsurIce Twin System #9320-42

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

For specific recommendations on these filters systems for your water 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 bottom of the unit. These lines must pitch downward to an open drain, and must contain no traps, or improper drainage will result.

NOTE: In areas where consistantly warm water temperatures are encountered, the use of a Remcor precooler in the water line is recommended to maximize the ice production of this unit. Contact Remcor for more information on this product.

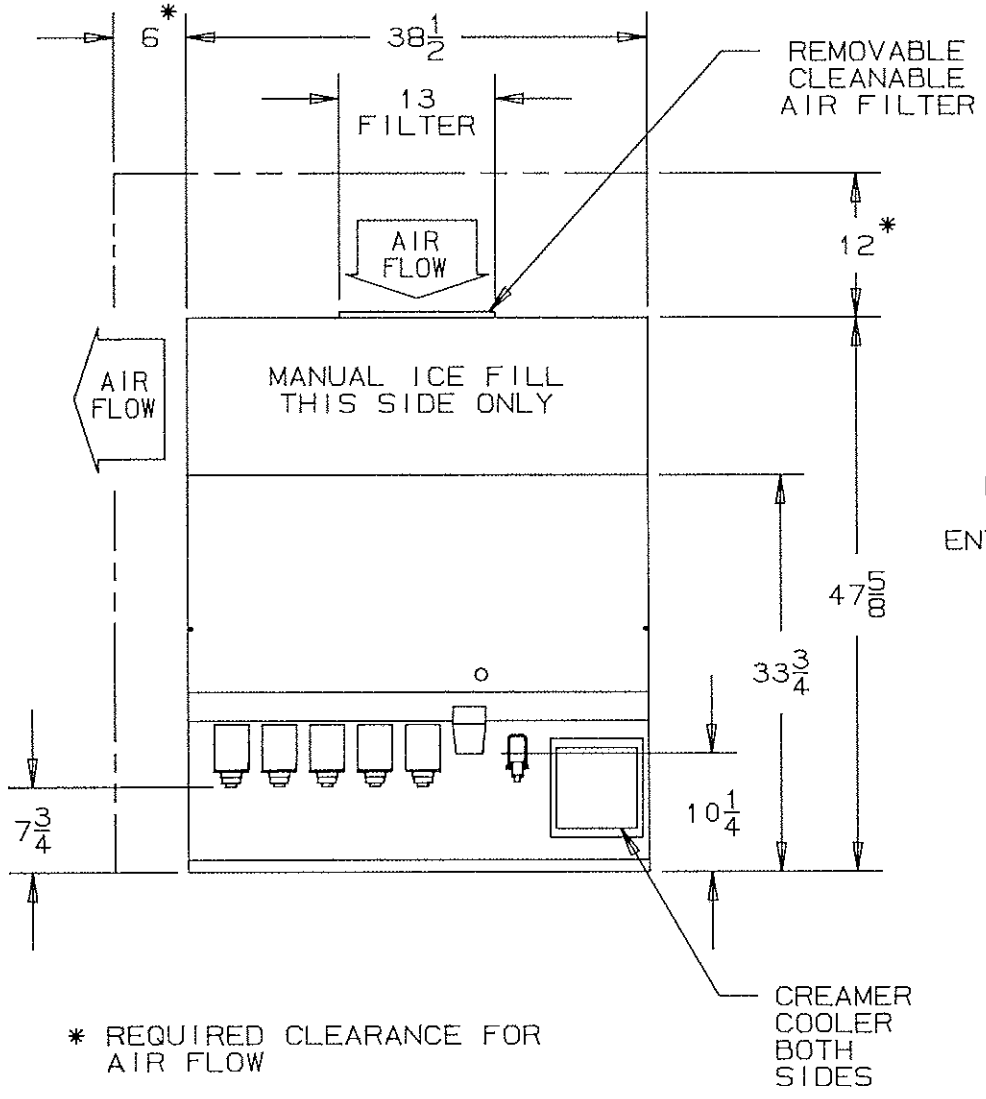
3. ELECTRICAL

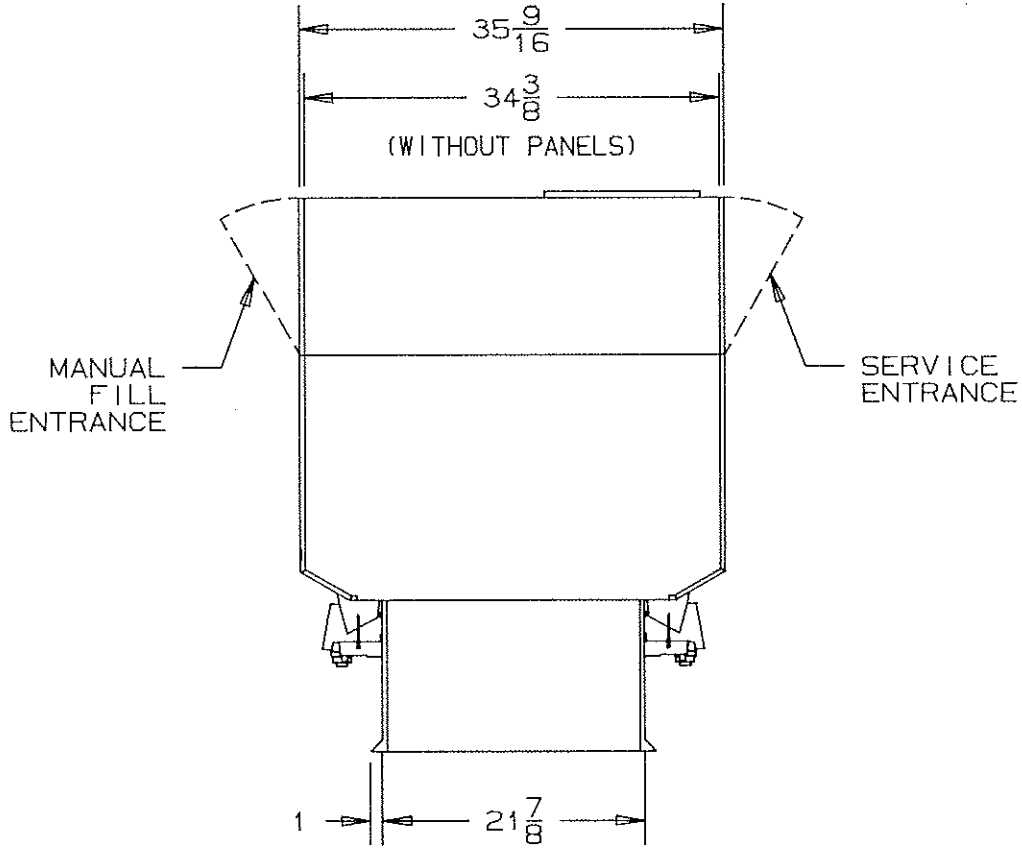
Connect the icemaker to its own individual circuit per the national electric code and local code (see specification section for ampacity and fuse size).

IMPORTANT: The wire size must be adequate for the ampacity rating and the supply voltage must be within a range of ± 10% for proper icemaker operation.

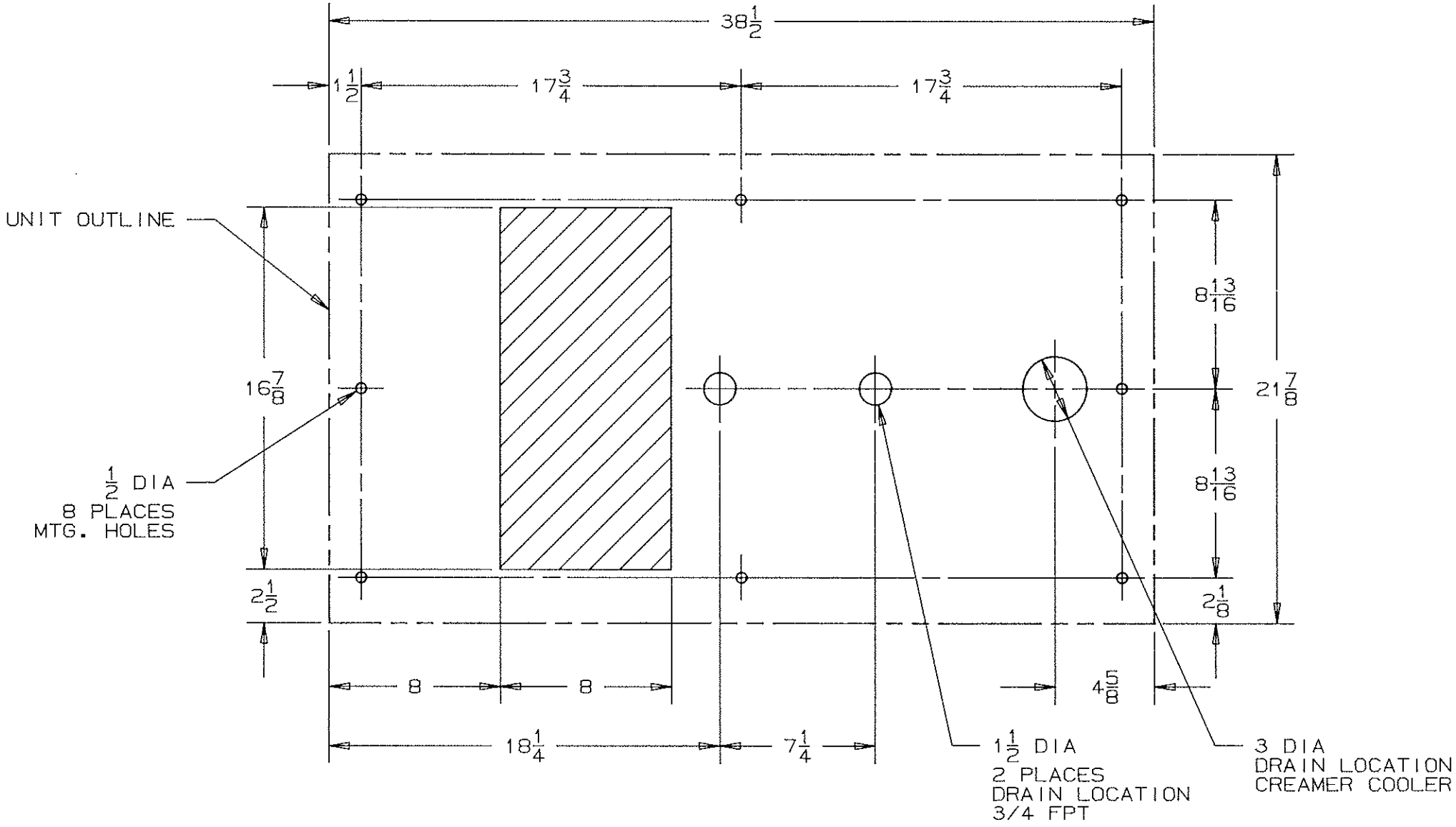
Note that unit requires a 3-wire system plus earth ground for proper operation.

SPECIFICATION DRAWING





MOUNTING TEMPLATE



NOTE

SHADED AREA INDICATES CUTOUT REQUIRED FOR BEVERAGE LINES, WATER LINES, AND CONDUIT CABLE.

BEVERAGE SYSTEM

"B" models contain beverage faucets only and must be supplied with cold product from any remote coldplate or refrigerated soda factory.

INSTALLATION

1. Locate the required openings in the counter top for the beverage lines as shown in Fig. 2.

2. For "B" models, carefully pull the beverage tubes through the bottom opening in the unit and through the clearance opening in the counter.

3. Follow Multiplex Company's Installation Instructions for connection of the beverage system product lines.

START-UP

1. Open the hinged service upper front panel. Remove ice drop cover and storage hopper cover.

2. Turn on water to icemaker.

3. Put the (selector) switch in the run position. Observe that the unit starts and goes through the harvest cycle. After this initial harvest cycle, unit should function in the normal icemaking/harvesting mode. If any deviation from this normal operating procedure is noted, consult the trouble shooting 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 icemaker has been operating continuously.

4. Depress each dispense switch red "push button". 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 trouble shooting 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.

OPERATION

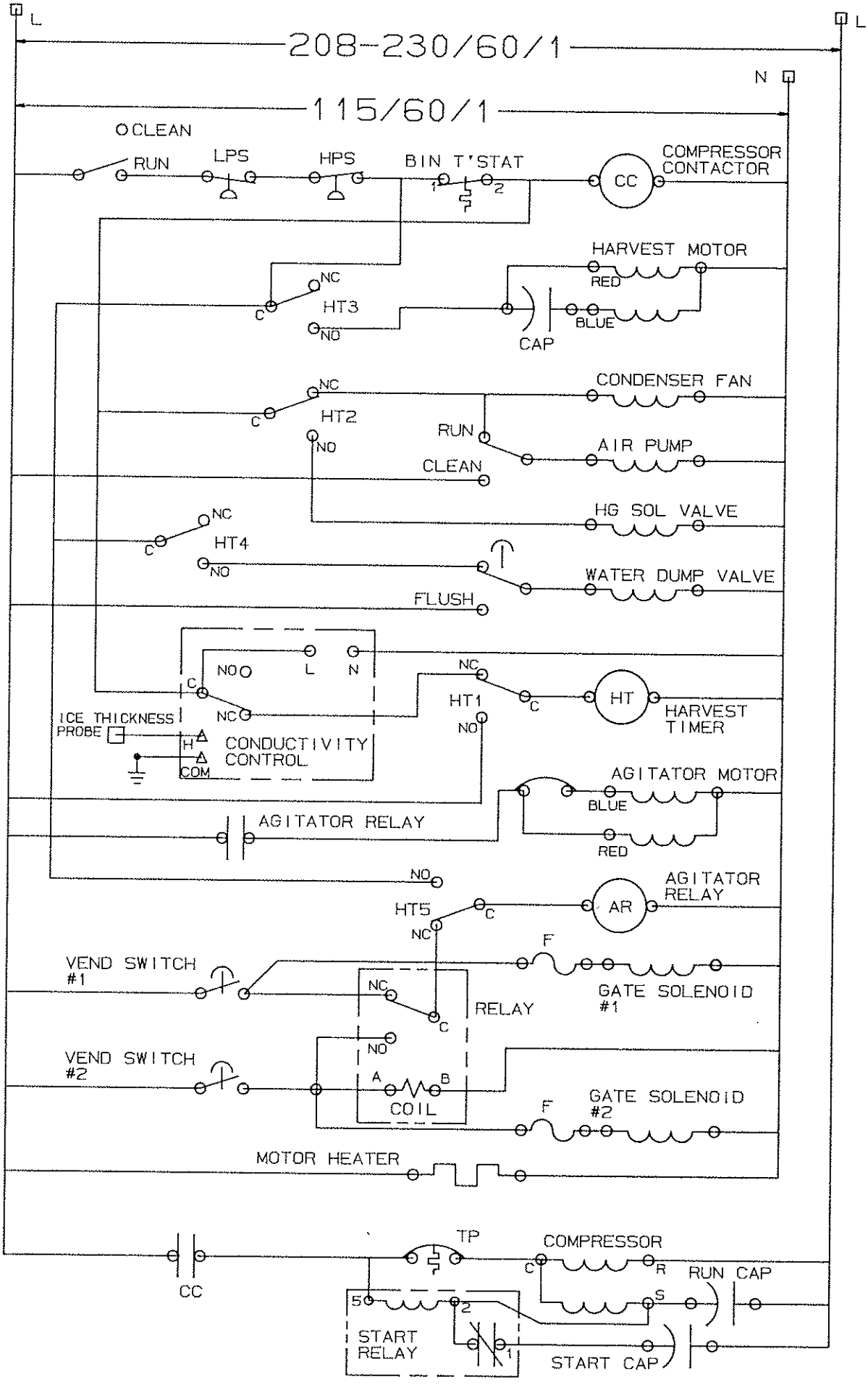
A temperature-sensing control bulb located in the storage hopper starts and stops the icemaking process in response to ice level in the hopper. With this ice-level control "calling" for ice (hopper ice level is low), ice begins to form on the stainless-steel tubing coil in the evaporator section of the 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 function as detailed in the following table:

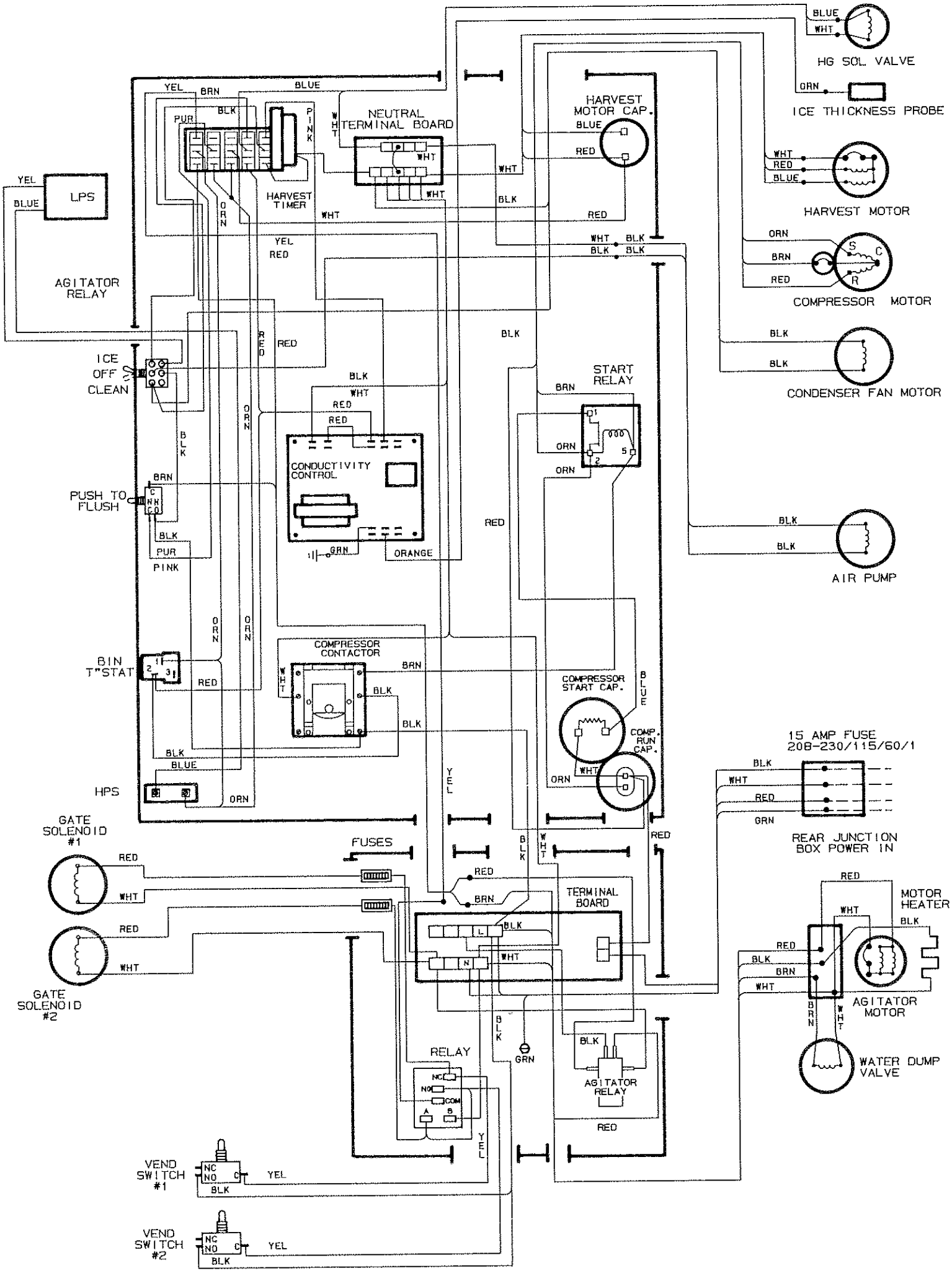
HARVEST CYCLE

Time	Cam Switch	Action
0-86 sec.	#1	Timer motor energized
1-11 sec.	#4	Water pump valve open
1-36 sec.	#2	Hot gas solenoid valve open Air pump off Condenser fan motor off
36-90 sec.	#2	Air pump on Condenser fan motor on Hot gas solenoid valve closed
35-60 sec.	#3	Harvest motor on
41-45 sec. 48-52 sec.	#5 (double set of cams)	Hopper agitator motor operates

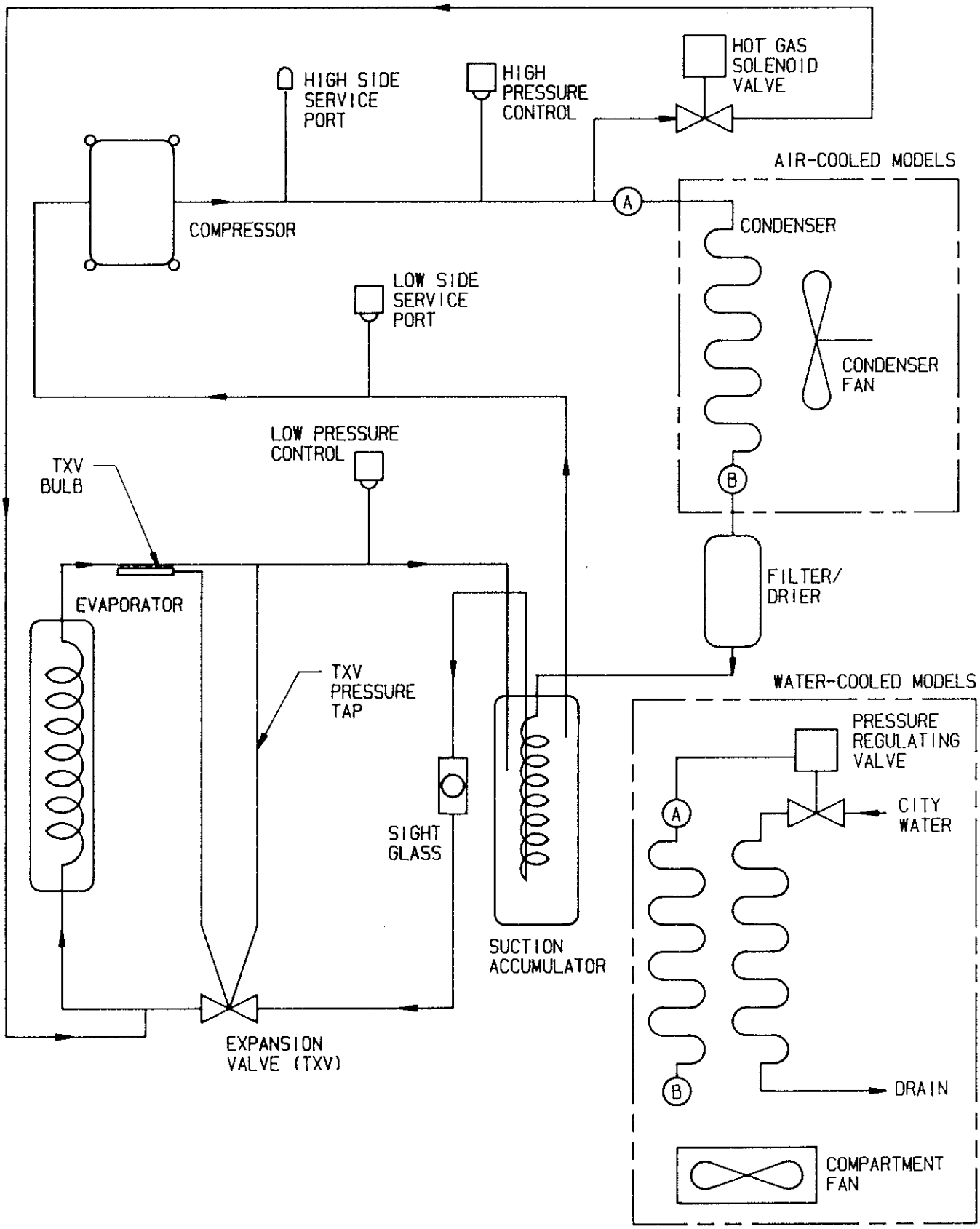
When ice contacts the ice-level control bulb in the storage hopper, the control will shut down the refrigeration system. If this signal occurs during the harvest cycle, the harvest cycle will be completed before shutdown occurs.

To dispense ice, push the red "push-button" located above the ice chute. Ice will flow from the ice chute until pressure is removed from the push-button.


L
208-230/60/1
L
N
115/60/1
CLEAN
RUN
LPS
HPS
BIN T'STAT
CC
COMPRESSOR CONTACTOR
HARVEST MOTOR
RED
NC
C
HT3
NO
BLUE
CAP
CONDENSER FAN
HT2
RUN
AIR PUMP
CLEAN
HG SOL VALVE
HT4
WATER DUMP VALVE
FLUSH
NO
L
N
C
NC
HT1
HT
HARVEST TIMER
ICE THICKNESS PROBE
H
COM
CONDUCTIVITY CONTROL
AGITATOR MOTOR
BLUE
RED
AGITATOR RELAY
AR
AGITATOR RELAY
HT5
VEND SWITCH #1
F
GATE SOLENOID #1
RELAY
VEND SWITCH #2
A
B
COIL
GATE SOLENOID #2
MOTOR HEATER
TP
COMPRESSOR
R
S
RUN CAP
START RELAY
START CAP
CC


BLUE
WHT
HG SOL VALVE
ORN
ICE THICKNESS PROBE
WHT
RED
BLUE
HARVEST MOTOR
ORN
BRN
RED
S
C
R
COMPRESSOR MOTOR
BLK
BLK
CONDENSER FAN MOTOR
BLK
BLK
AIR PUMP
YEL
BRN
BLUE
BLK
PUR
PINK
HARVEST TIMER
NEUTRAL TERMINAL BOARD
WHT
WHT
WHT
BLK
RED
HARVEST MOTOR CAP.
BLUE
RED
YEL
BLUE
LPS
AGITATOR RELAY
WHT
BLK
BLK
YEL
RED
RED
BLK
ICE OFF CLEAN
BLK
WHT
RED
RED
CONDUCTIVITY CONTROL
GRN
ORANGE
START RELAY
BRN
ORN
ORN
PUSH TO FLUSH
BRN
BLK
PUR
PINK
RED
BIN T"STAT
COMPRESSOR CONTACTOR
BRN
BLK
BLK
COMPRESSOR START CAP.
BLUE
COMP. RUN CAP.
ORN
WHT
BLK
BLUE
HPS
ORN
YEL
BLK
WHT
RED
15 AMP FUSE
208-230/115/60/1
BLK
WHT
RED
GRN
REAR JUNCTION BOX POWER IN
GATE SOLENOID #1
RED
WHT
FUSES
RED
BRN
TERMINAL BOARD
L
N
BLK
WHT
RED
WHT
GATE SOLENOID #2
RED
BLK
BRN
WHT
MOTOR HEATER
AGITATOR MOTOR
BRN
WHT
WATER DUMP VALVE
BLK
GRN
RELAY
NC
NO
COM
A
B
AGITATOR RELAY
RED
YEL
VEND SWITCH #1
NC
NO
C
YEL
BLK
VEND SWITCH #2
NC
NO
C
YEL
BLK

REFRIGERATION SCHEMATIC



MAINTENANCE

It is recommended that the air inlet filter be cleaned every 3 months or sooner depending on the operating environment for proper refrigeration system performance. On air-cooled units, also check that the condenser is free of dirt/foreign material that could cause air flow blockage. Consult the maintenance/adjustment procedures for cleaning these items.

Cleaning of the icemaker 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 icemaking production rates and interfere with proper dispensing of the ice. See the cleaning section for the recommended procedure.

Daily (or as required), check the dispensing area sink for proper water drainage. Remove any foreign material from the sink to prevent drain blockage.

Check 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 icemaker should be cleaned at a minimum of 3 month intervals or more frequently depending on local water conditions. The storage hopper interior and beverage faucets should be cleaned weekly.

WARNING: 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 icemaker and hopper.

ICEMAKER SECTION

1. Open the upper front service door.
2. Put the (selector) switch in the "off" position at the end of the harvest cycle. An alternate method would be to stop the unit during the icemaking 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: Electrical power is on to unit during icemaker-section cleaning. To avoid possible injury, do not reach into hopper or into icemaker nozzle. Do not contact exposed electrical wiring and components.

3. Close the water supply valve to the icemaker.
4. Remove the ice drop cover from evaporator and the storage hopper cover.
5. Seal the evaporator outlet with the plastic plug provided with the unit and replace the ice drop cover.
6. Move the water float valve reservoir to the "clean" position by lifting slightly and pulling forward to raise the reservoir to the upper mounting screws.

7. Remove the float valve cover and add 4 oz. of Virginia Ice Machine Cleaner to the reservoir.

> CAUTION: Virginia Ice Machine Cleaner is a mild acid. Normal care should be taken - 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.

8. Open the water supply valve and fill evaporator with water (level is up in float reservoir).
9. Put the (selector) switch in the "clean" position. Allow unit to run in the cleaning mode for at least 30 minutes.
10. Put the (selector) switch in the "off" position.
11. Close the water supply valve.
12. Depress the flush switch pushbutton and drain evaporator for about 1½ minutes. Release pushbutton. Open the water supply valve. Allow evaporator to refill with water. Repeat steps 11 and 12 three times to thoroughly remove cleaning solution from evaporator.
13. Close water supply valve. Depress the flush switch pushbutton for about 1½ minutes to drain the evaporator.
14. Lower float valve reservoir to "run" position. Remove the evaporator plug.
15. Open the water supply valve and fill the evaporator with water.
16. Put the (selector) switch in the "ice" position and allow unit to run through at least 3 complete icemaking and harvest cycles, and until ice is free of "sweet" taste.

> WARNING: If unit fails to harvest ice, put the (selector) switch in the "off" position. Close the water supply valve. Depress the flush switch pushbutton for 1½ minutes to drain the evaporator. Flush the evaporator with hot water to thoroughly melt all the ice in the evaporator. Repeat step 12 to remove all traces of the cleaning solution from the evaporator.

17. Dispense all ice out of storage hopper and discard.

DISPENSER SECTION

18. Turn off main electrical power supply to machine.
19. Remove agitator assembly from storage hopper and wash and rinse it thoroughly.
20. 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.
21. Replace agitator.
22. With brush provided, clean the inside of the ice chutes with a mild detergent solution and rinse thoroughly to remove all traces of detergent.

23. Sanitize the inside of the hopper, agitator, the ice chutes, and the hopper and ice drop covers with a solution of 1 oz. of household bleach in 1 gallon of water.

24. Replace the hopper cover and ice drop cover. Turn on the electrical power supply. The icemaker is ready for normal operation.

BEVERAGE SYSTEM

1. Remove faucet spouts, wash in mild detergent, rinse, and replace.

2. Follow Multiplex Company's Procedures for cleaning and sanitizing beverage faucets and product lines.

CREAMER COOLER SECTION

1. Turn off main electrical power supply to machine.

2. Remove product pans from the cooler enclosure.

3. Wash down all inside surfaces of the enclosure with a detergent solution. Rinse thoroughly to remove all traces of detergent.

4. Wash and rinse the product pans in the same manner.

5. Sanitize the cooler enclosure and product pans with a solution of 1 oz. of household bleach in 1 gallon of water.

TROUBLESHOOTING GUIDE

The following pages contain troubleshooting charts designed to aid an experienced serviceman in diagnosing any operating problems which may be experienced. It is assumed that normal service techniques and skills are familiar to the person doing the troubleshooting. In order to gain maximum benefit from these charts, please note:

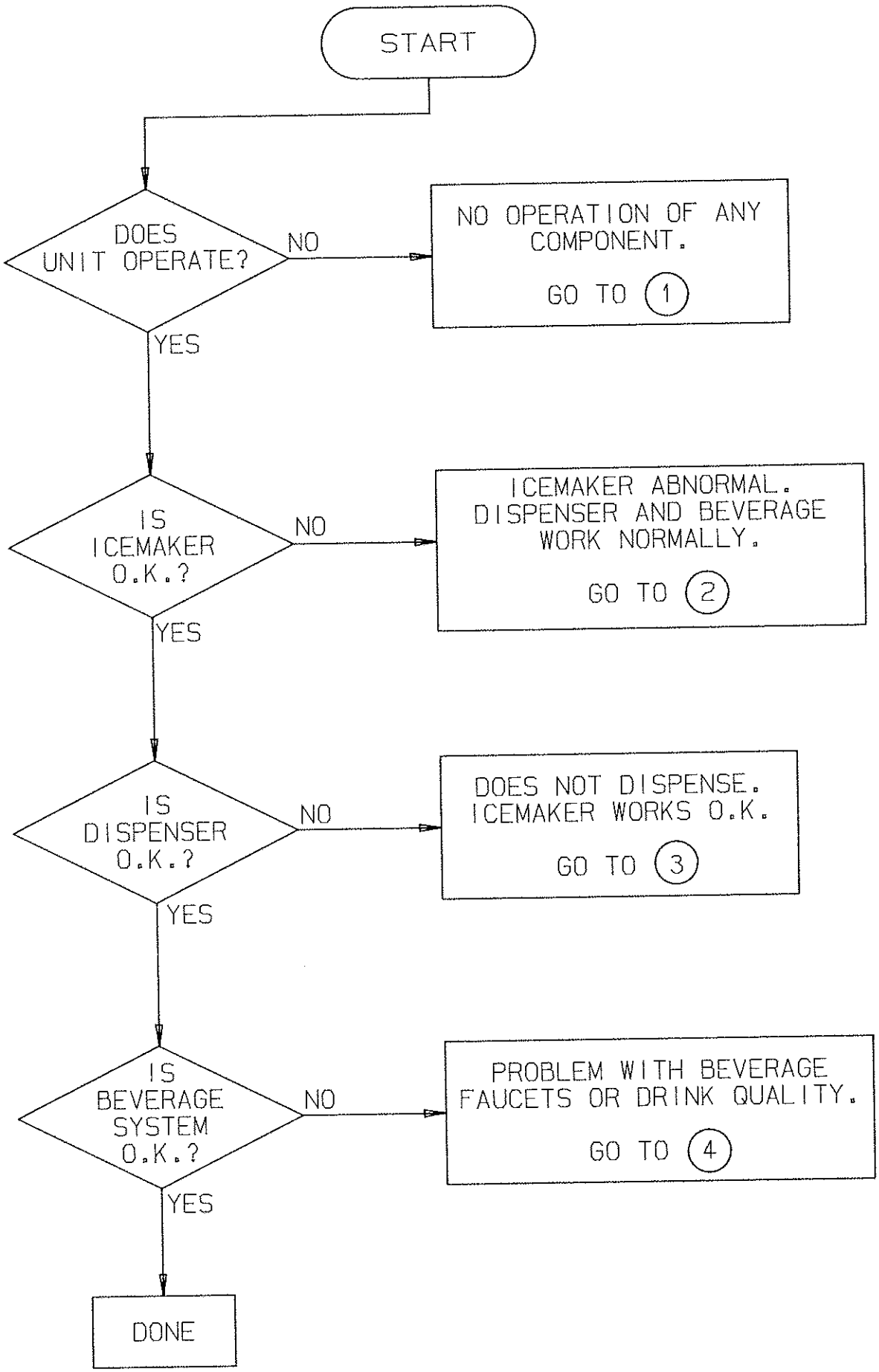
1. Start at the beginning of the chart and supply the appropriate answer to each question.

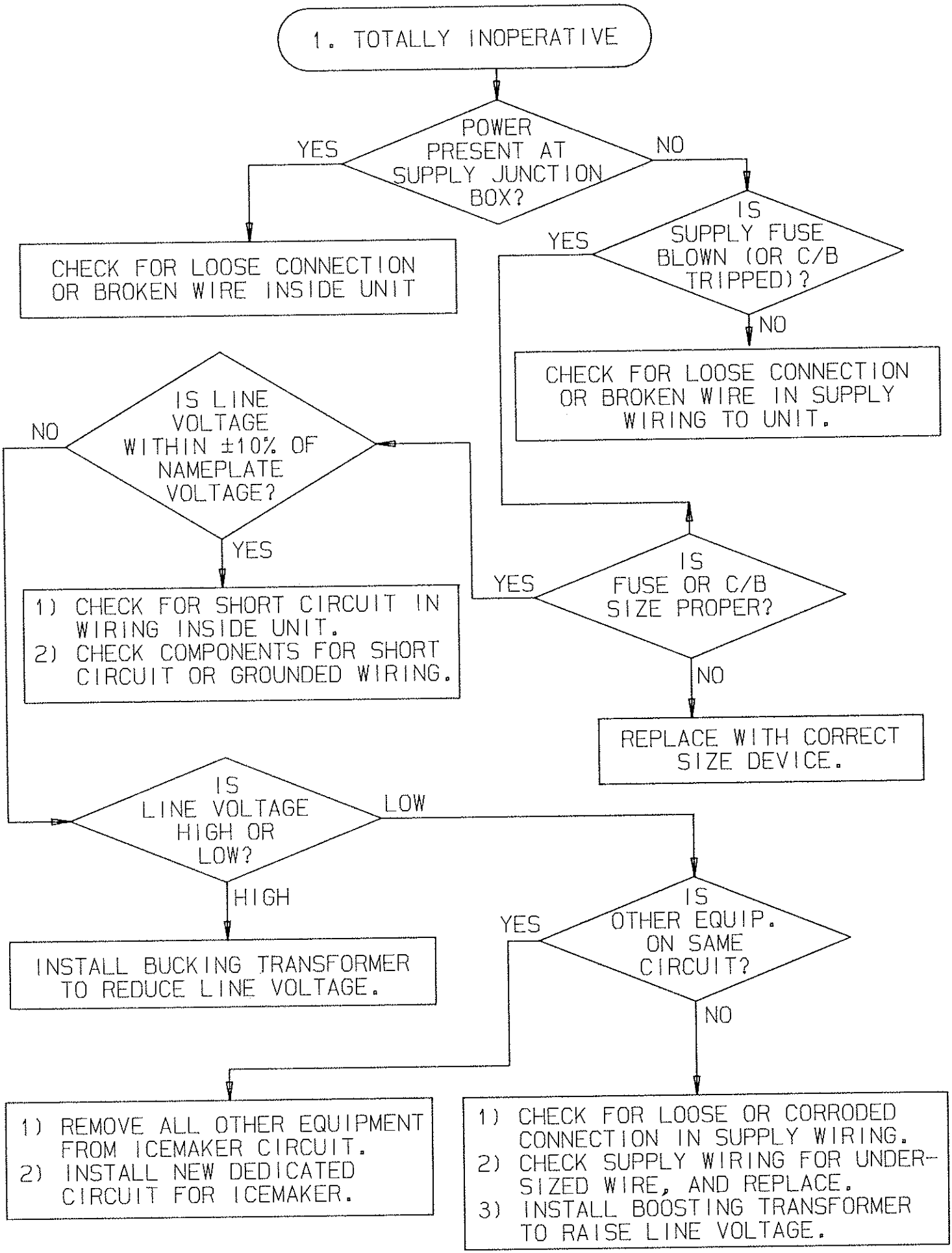
2. Do not skip any section, unless instructed to do so. You might miss the solution to your problem.

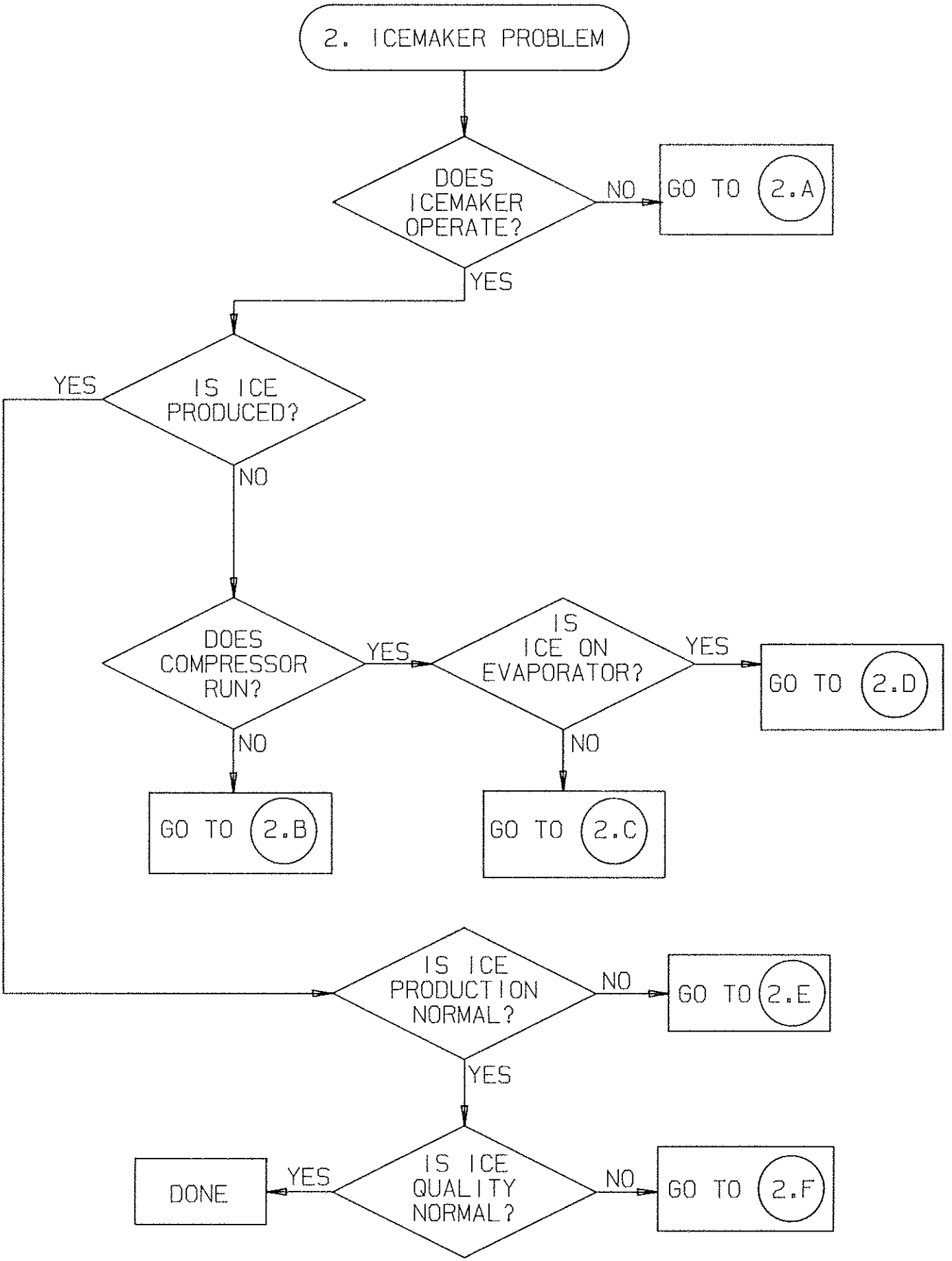
3. Evaluate the possible problem causes in the sequence in which they are presented. In general, they begin with the most likely or easiest to check, and proceed to the less likely or more complicated.

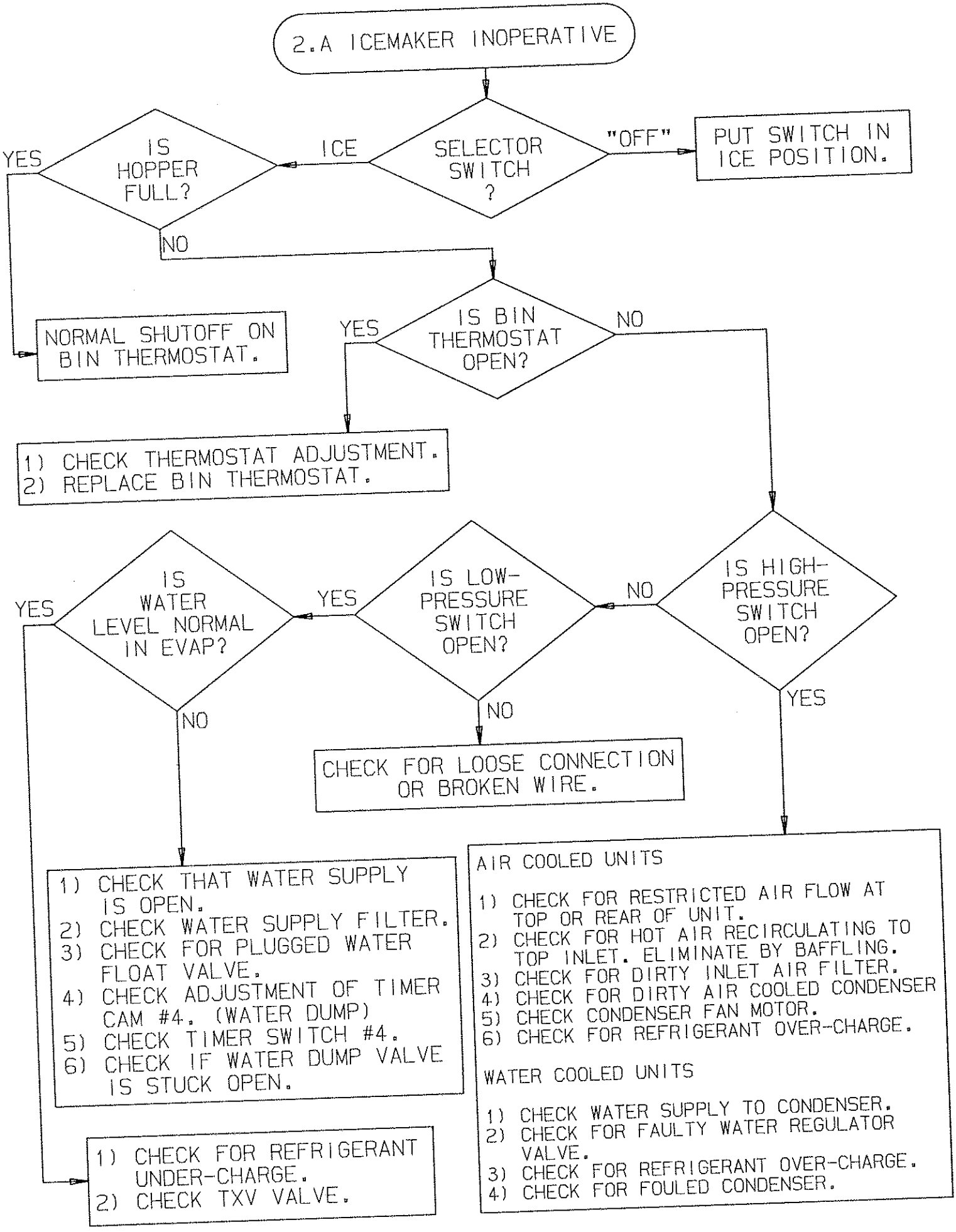
4. If, after checking all indicated causes, the problem is not resolved, it is recommended that you retry a second time, carefully evaluting the symptoms and modifying your answers as necessary.

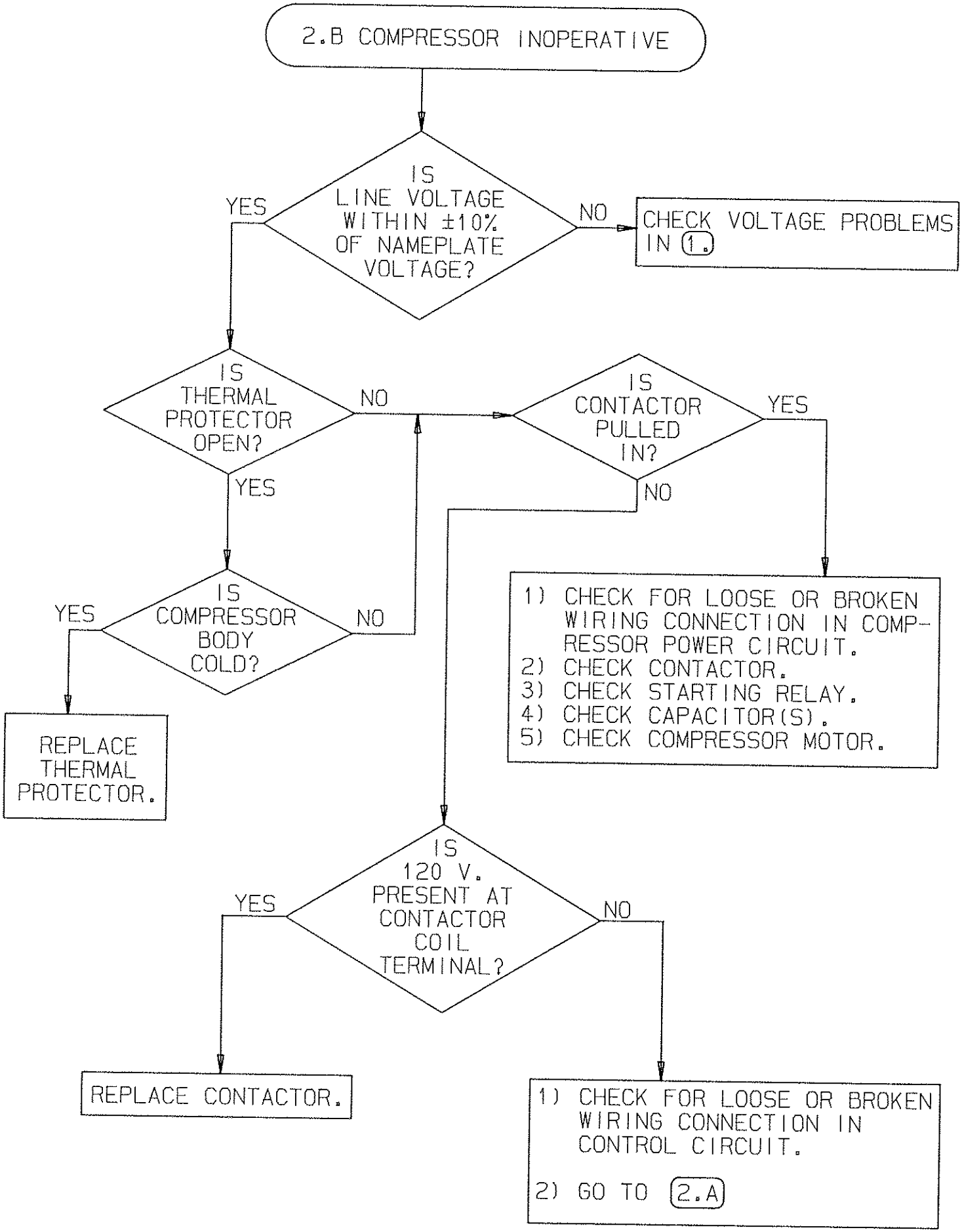
5. If you are unable to resolve a problem after several attempts, contact REMCOR customer service for assistance.

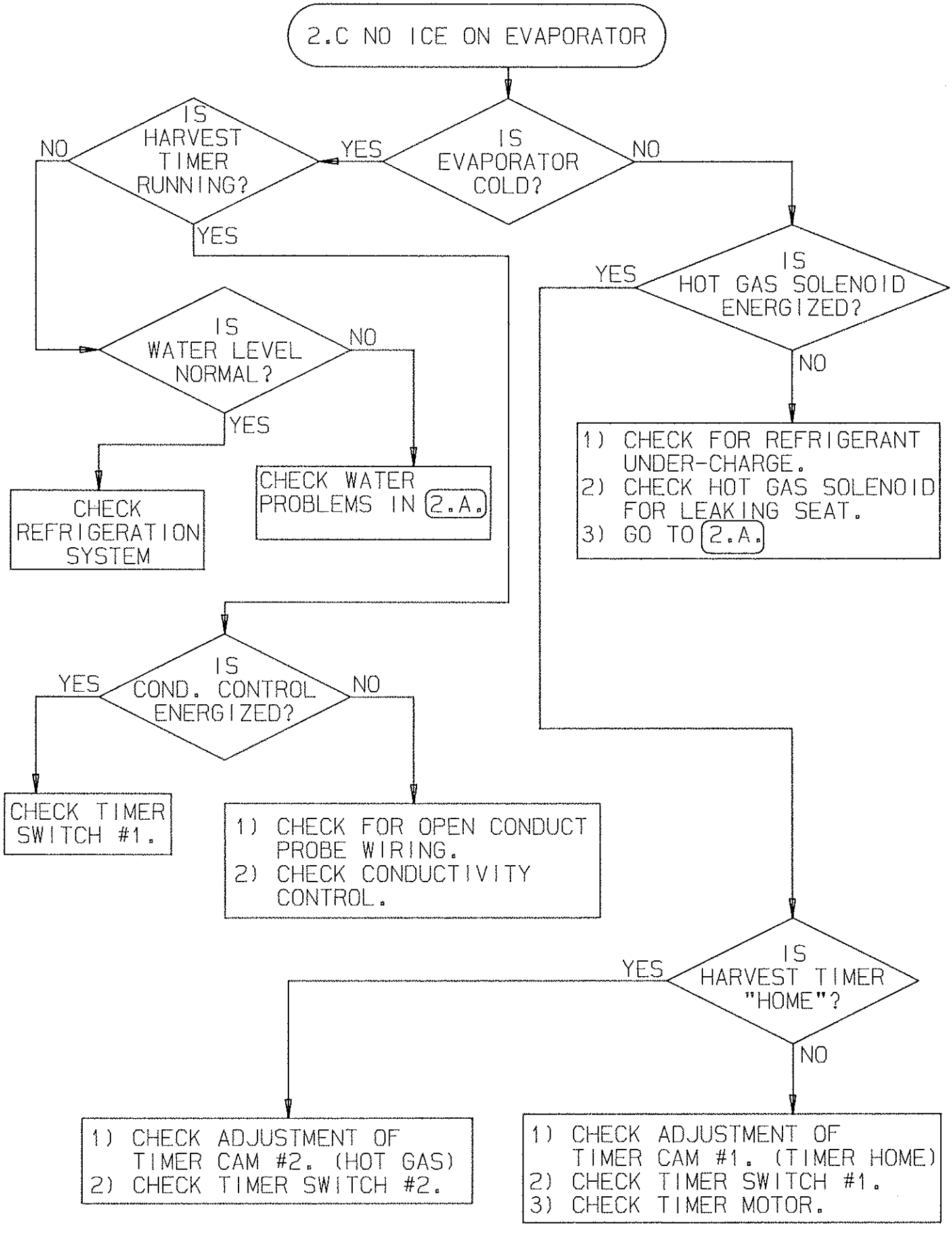

START
DOES UNIT OPERATE?
NO
NO OPERATION OF ANY COMPONENT.
GO TO (1)
YES
IS ICEMAKER O.K.?
NO
ICEMAKER ABNORMAL. DISPENSER AND BEVERAGE WORK NORMALLY.
GO TO (2)
YES
IS DISPENSER O.K.?
NO
DOES NOT DISPENSE. ICEMAKER WORKS O.K.
GO TO (3)
YES
IS BEVERAGE SYSTEM O.K.?
NO
PROBLEM WITH BEVERAGE FAUCETS OR DRINK QUALITY.
GO TO (4)
YES
DONE

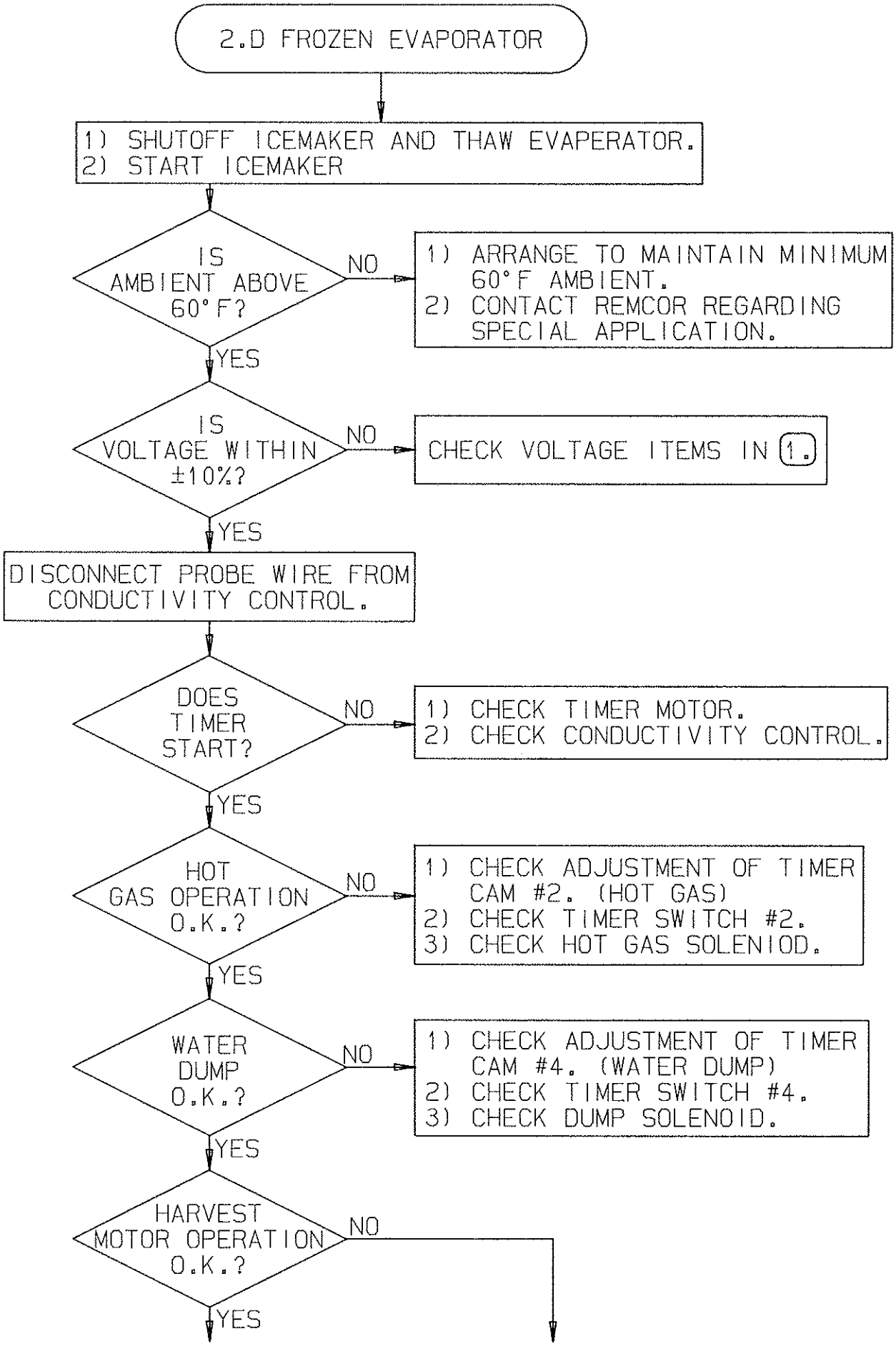

1. TOTALLY INOPERATIVE
POWER PRESENT AT SUPPLY JUNCTION BOX?
YES
NO
CHECK FOR LOOSE CONNECTION OR BROKEN WIRE INSIDE UNIT
IS SUPPLY FUSE BLOWN (OR C/B TRIPPED)?
YES
NO
CHECK FOR LOOSE CONNECTION OR BROKEN WIRE IN SUPPLY WIRING TO UNIT.
IS LINE VOLTAGE WITHIN ±10% OF NAMEPLATE VOLTAGE?
NO
YES
1) CHECK FOR SHORT CIRCUIT IN WIRING INSIDE UNIT.
2) CHECK COMPONENTS FOR SHORT CIRCUIT OR GROUNDED WIRING.
IS FUSE OR C/B SIZE PROPER?
YES
NO
REPLACE WITH CORRECT SIZE DEVICE.
IS LINE VOLTAGE HIGH OR LOW?
LOW
HIGH
INSTALL BUCKING TRANSFORMER TO REDUCE LINE VOLTAGE.
IS OTHER EQUIP. ON SAME CIRCUIT?
YES
NO
1) REMOVE ALL OTHER EQUIPMENT FROM ICEMAKER CIRCUIT.
2) INSTALL NEW DEDICATED CIRCUIT FOR ICEMAKER.
1) CHECK FOR LOOSE OR CORRODED CONNECTION IN SUPPLY WIRING.
2) CHECK SUPPLY WIRING FOR UNDER-SIZED WIRE, AND REPLACE.
3) INSTALL BOOSTING TRANSFORMER TO RAISE LINE VOLTAGE.


2. ICEMAKER PROBLEM
DOES ICEMAKER OPERATE?
NO
GO TO 2.A
YES
IS ICE PRODUCED?
YES
NO
DOES COMPRESSOR RUN?
YES
IS ICE ON EVAPORATOR?
YES
GO TO 2.D
NO
NO
GO TO 2.B
GO TO 2.C
IS ICE PRODUCTION NORMAL?
NO
GO TO 2.E
YES
IS ICE QUALITY NORMAL?
YES
DONE
NO
GO TO 2.F

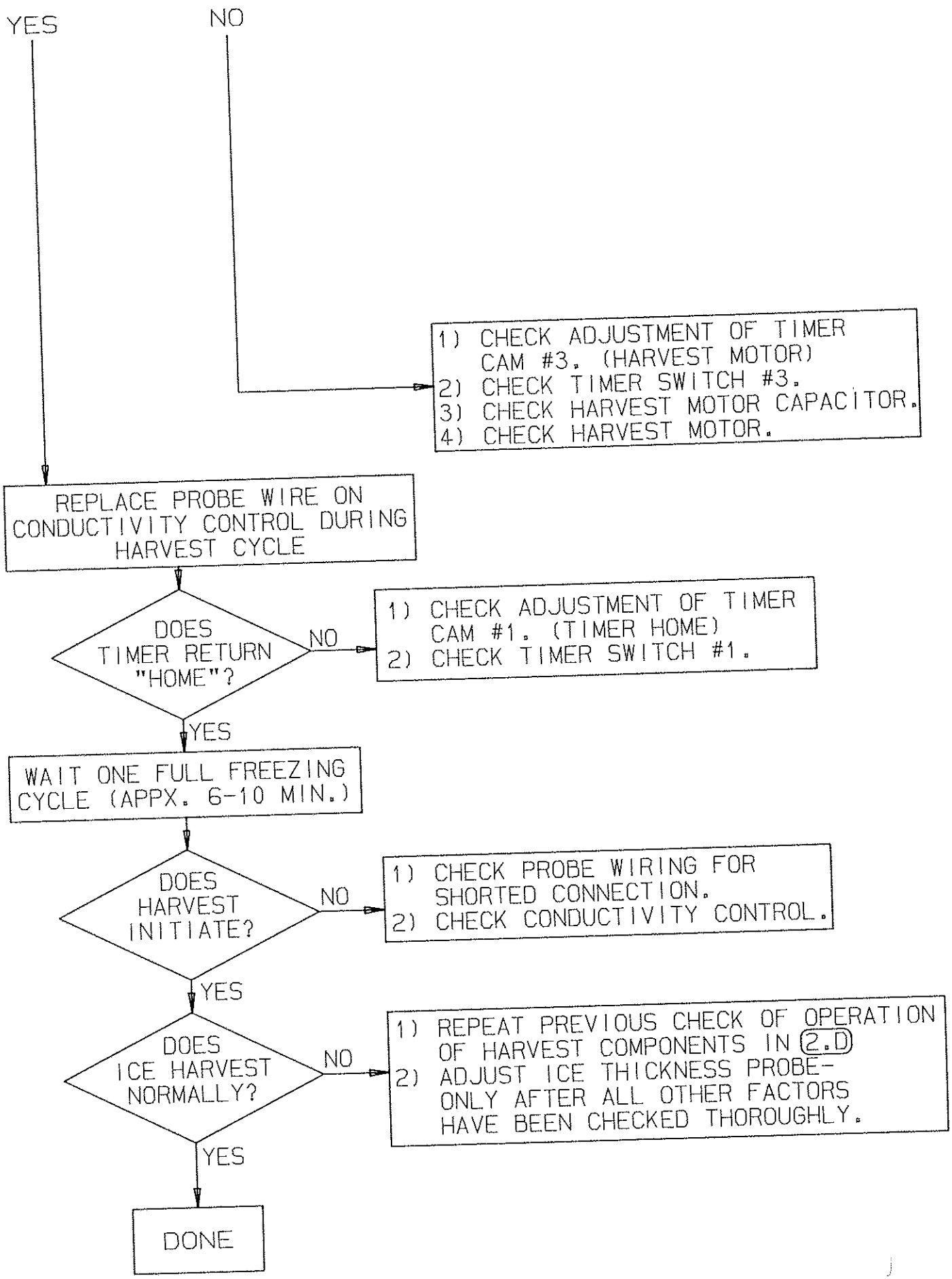

2.A ICEMAKER INOPERATIVE
SELECTOR SWITCH ?
"OFF"
PUT SWITCH IN ICE POSITION.
ICE
IS HOPPER FULL?
YES
NO
NORMAL SHUTOFF ON BIN THERMOSTAT.
IS BIN THERMOSTAT OPEN?
YES
NO
1) CHECK THERMOSTAT ADJUSTMENT.
2) REPLACE BIN THERMOSTAT.
IS HIGH-PRESSURE SWITCH OPEN?
NO
IS LOW-PRESSURE SWITCH OPEN?
YES
NO
CHECK FOR LOOSE CONNECTION OR BROKEN WIRE.
IS WATER LEVEL NORMAL IN EVAP?
YES
NO
1) CHECK THAT WATER SUPPLY IS OPEN.
2) CHECK WATER SUPPLY FILTER.
3) CHECK FOR PLUGGED WATER FLOAT VALVE.
4) CHECK ADJUSTMENT OF TIMER CAM #4. (WATER DUMP)
5) CHECK TIMER SWITCH #4.
6) CHECK IF WATER DUMP VALVE IS STUCK OPEN.
1) CHECK FOR REFRIGERANT UNDER-CHARGE.
2) CHECK TXV VALVE.
AIR COOLED UNITS
1) CHECK FOR RESTRICTED AIR FLOW AT TOP OR REAR OF UNIT.
2) CHECK FOR HOT AIR RECIRCULATING TO TOP INLET. ELIMINATE BY BAFFLING.
3) CHECK FOR DIRTY INLET AIR FILTER.
4) CHECK FOR DIRTY AIR COOLED CONDENSER
5) CHECK CONDENSER FAN MOTOR.
6) CHECK FOR REFRIGERANT OVER-CHARGE.
WATER COOLED UNITS
1) CHECK WATER SUPPLY TO CONDENSER.
2) CHECK FOR FAULTY WATER REGULATOR VALVE.
3) CHECK FOR REFRIGERANT OVER-CHARGE.
4) CHECK FOR FOULED CONDENSER.

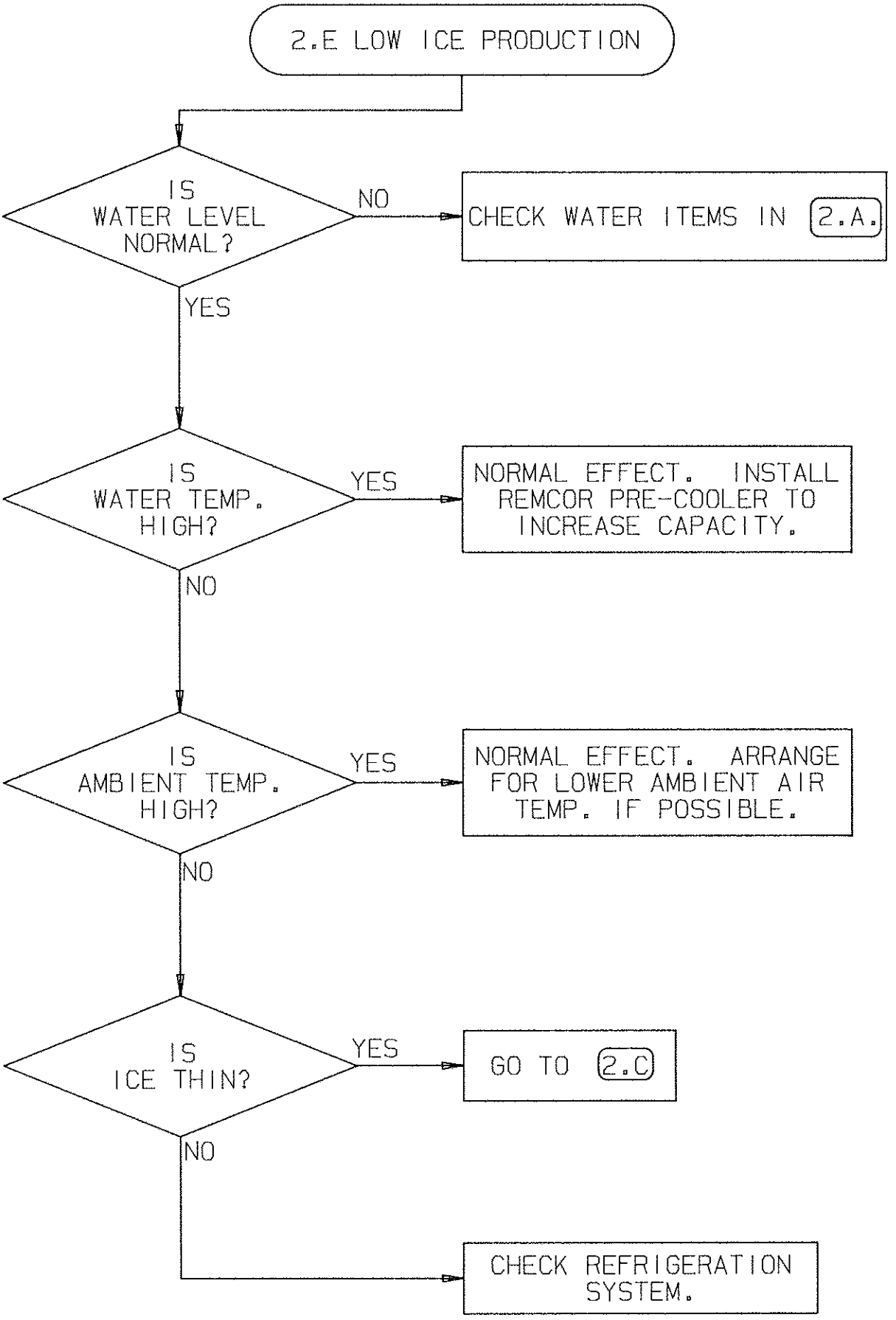

2.B COMPRESSOR INOPERATIVE
IS LINE VOLTAGE WITHIN ±10% OF NAMEPLATE VOLTAGE?
YES
NO
CHECK VOLTAGE PROBLEMS IN (1.)
IS THERMAL PROTECTOR OPEN?
NO
YES
IS CONTACTOR PULLED IN?
YES
NO
IS COMPRESSOR BODY COLD?
YES
NO
REPLACE THERMAL PROTECTOR.
1) CHECK FOR LOOSE OR BROKEN WIRING CONNECTION IN COMPRESSOR POWER CIRCUIT.
2) CHECK CONTACTOR.
3) CHECK STARTING RELAY.
4) CHECK CAPACITOR(S).
5) CHECK COMPRESSOR MOTOR.
IS 120 V. PRESENT AT CONTACTOR COIL TERMINAL?
YES
NO
REPLACE CONTACTOR.
1) CHECK FOR LOOSE OR BROKEN WIRING CONNECTION IN CONTROL CIRCUIT.
2) GO TO (2.A)

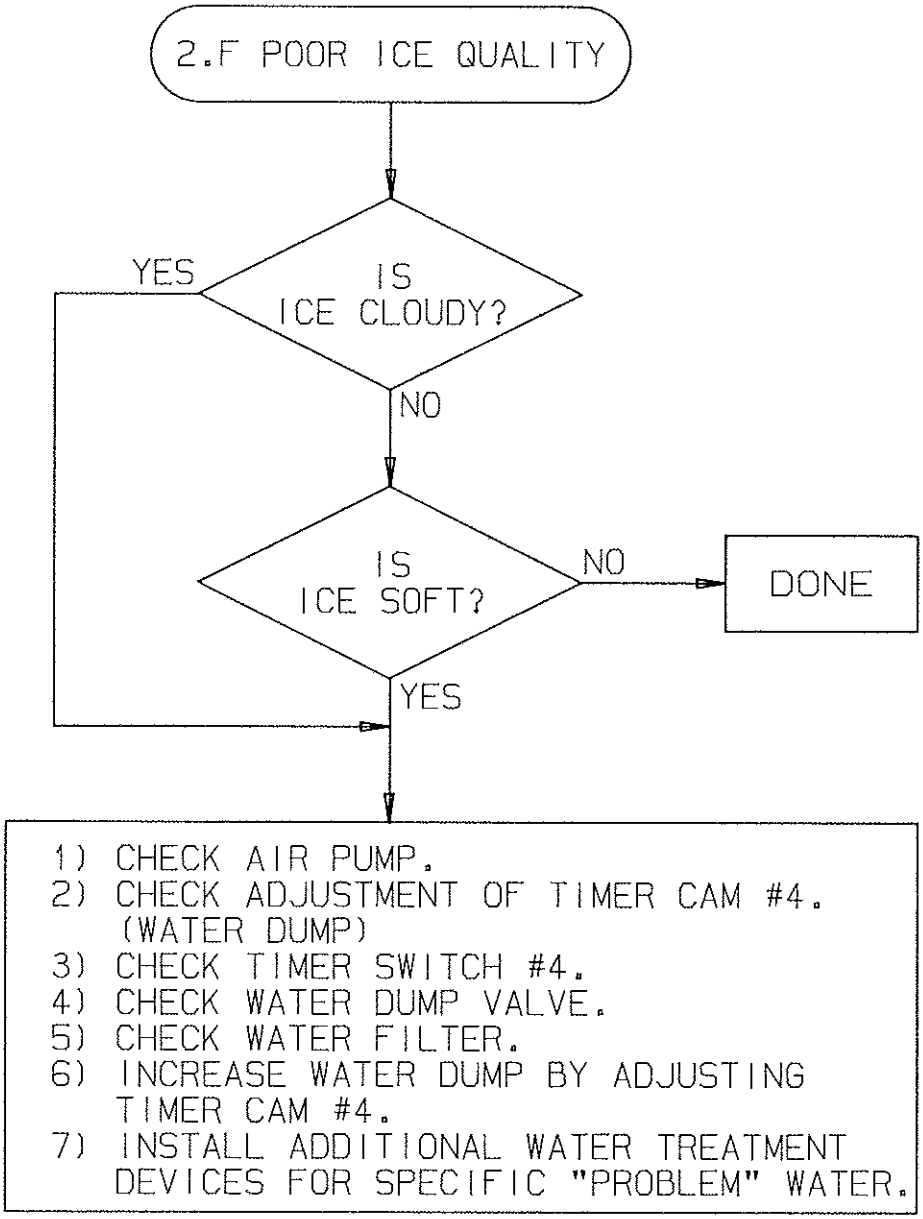

2.C NO ICE ON EVAPORATOR
IS EVAPORATOR COLD?
YES
NO
IS HARVEST TIMER RUNNING?
NO
YES
IS WATER LEVEL NORMAL?
NO
YES
CHECK REFRIGERATION SYSTEM
CHECK WATER PROBLEMS IN 2.A.
IS HOT GAS SOLENOID ENERGIZED?
YES
NO
1) CHECK FOR REFRIGERANT UNDER-CHARGE.
2) CHECK HOT GAS SOLENOID FOR LEAKING SEAT.
3) GO TO 2.A.
IS COND. CONTROL ENERGIZED?
YES
NO
CHECK TIMER SWITCH #1.
1) CHECK FOR OPEN CONDUCT PROBE WIRING.
2) CHECK CONDUCTIVITY CONTROL.
IS HARVEST TIMER "HOME"?
YES
NO
1) CHECK ADJUSTMENT OF TIMER CAM #2. (HOT GAS)
2) CHECK TIMER SWITCH #2.
1) CHECK ADJUSTMENT OF TIMER CAM #1. (TIMER HOME)
2) CHECK TIMER SWITCH #1.
3) CHECK TIMER MOTOR.

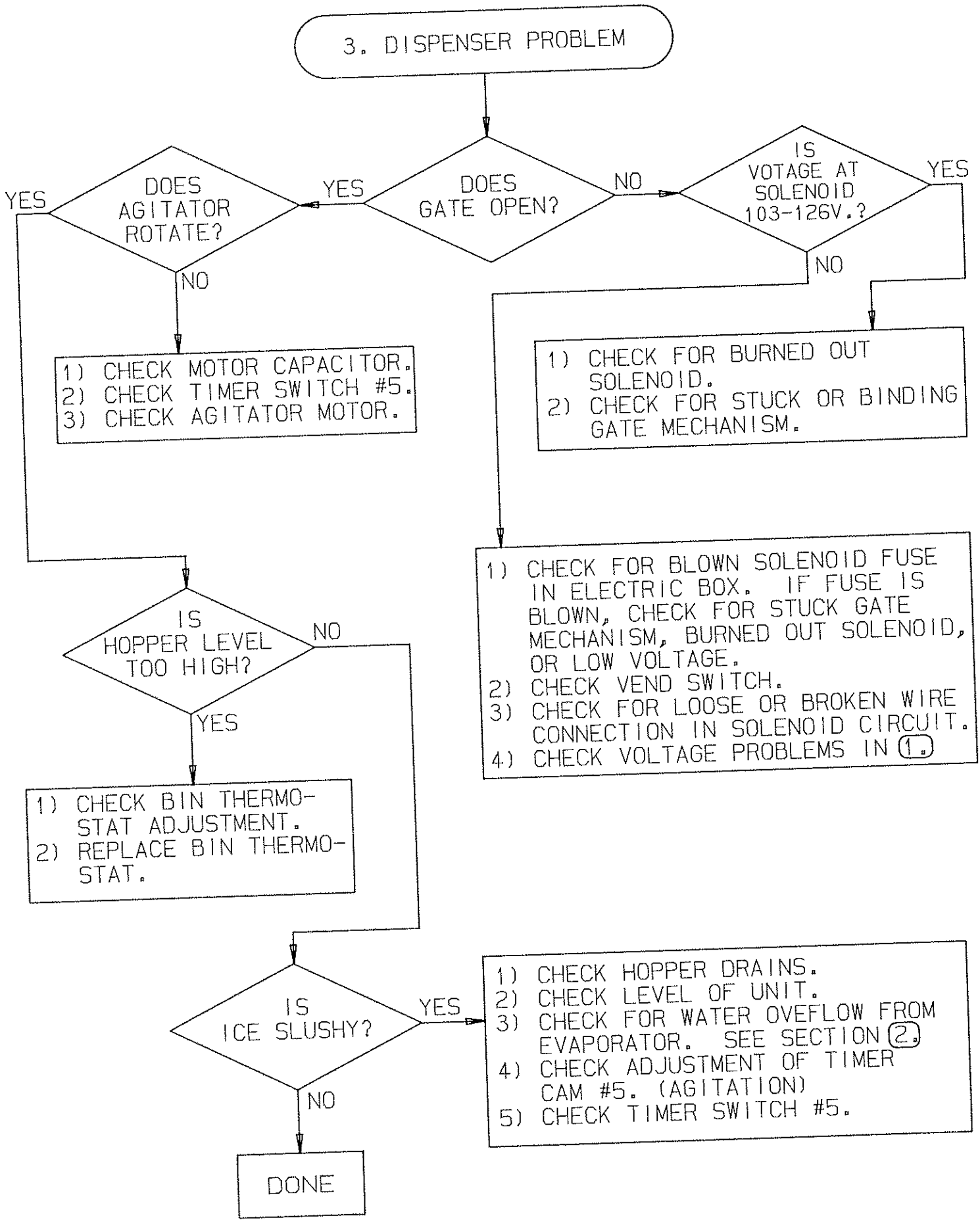

2.D FROZEN EVAPORATOR
1) SHUTOFF ICEMAKER AND THAW EVAPERATOR.
2) START ICEMAKER
IS AMBIENT ABOVE 60°F?
NO
1) ARRANGE TO MAINTAIN MINIMUM 60°F AMBIENT.
2) CONTACT REMCOR REGARDING SPECIAL APPLICATION.
YES
IS VOLTAGE WITHIN ±10%?
NO
CHECK VOLTAGE ITEMS IN 1.
YES
DISCONNECT PROBE WIRE FROM CONDUCTIVITY CONTROL.
DOES TIMER START?
NO
1) CHECK TIMER MOTOR.
2) CHECK CONDUCTIVITY CONTROL.
YES
HOT GAS OPERATION O.K.?
NO
1) CHECK ADJUSTMENT OF TIMER CAM #2. (HOT GAS)
2) CHECK TIMER SWITCH #2.
3) CHECK HOT GAS SOLENIOD.
YES
WATER DUMP O.K.?
NO
1) CHECK ADJUSTMENT OF TIMER CAM #4. (WATER DUMP)
2) CHECK TIMER SWITCH #4.
3) CHECK DUMP SOLENOID.
YES
HARVEST MOTOR OPERATION O.K.?
NO
YES

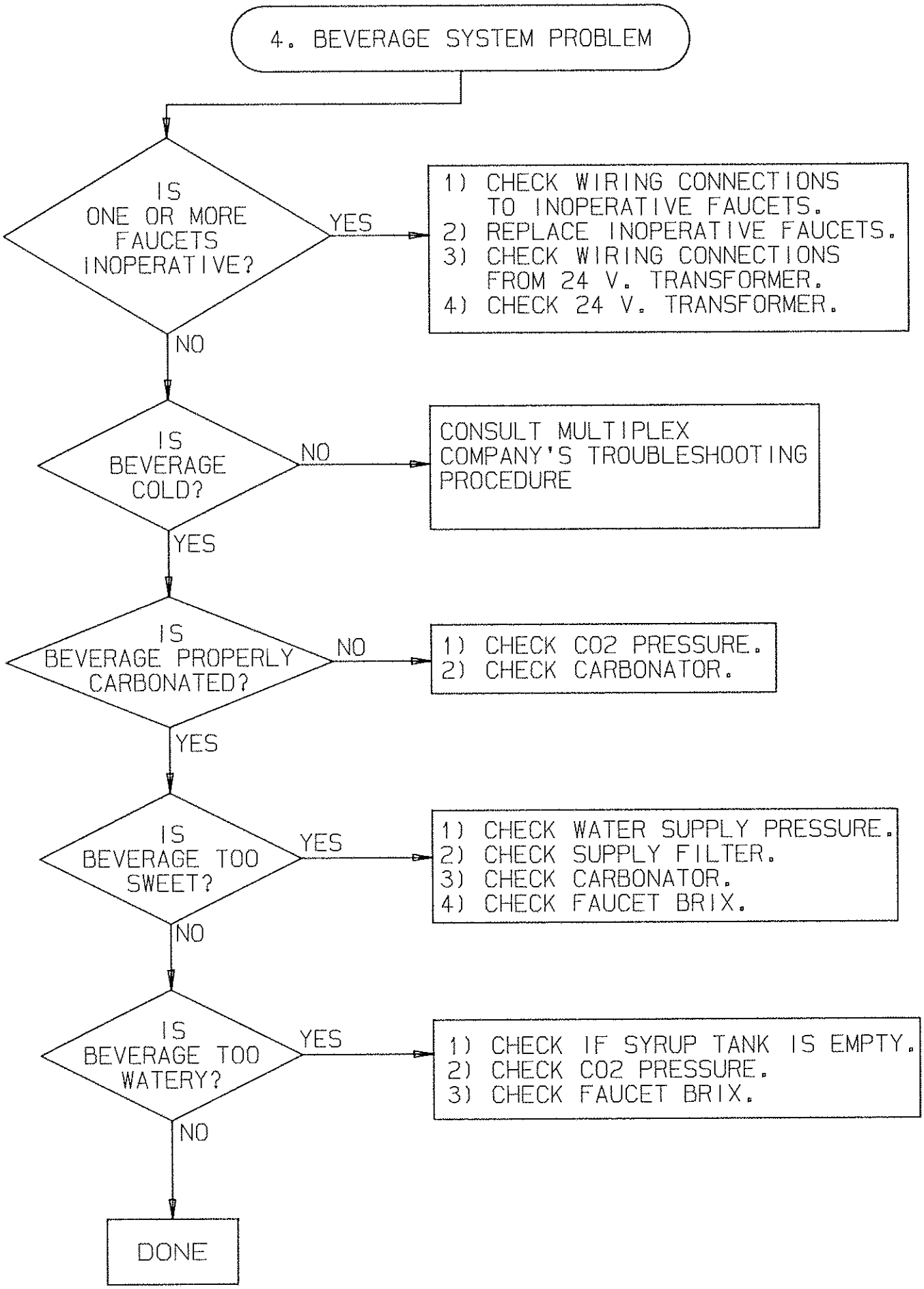
2.D (CON'T)


YES
NO
1) CHECK ADJUSTMENT OF TIMER CAM #3. (HARVEST MOTOR)
2) CHECK TIMER SWITCH #3.
3) CHECK HARVEST MOTOR CAPACITOR.
4) CHECK HARVEST MOTOR.
REPLACE PROBE WIRE ON CONDUCTIVITY CONTROL DURING HARVEST CYCLE
DOES TIMER RETURN "HOME"?
NO
1) CHECK ADJUSTMENT OF TIMER CAM #1. (TIMER HOME)
2) CHECK TIMER SWITCH #1.
YES
WAIT ONE FULL FREEZING CYCLE (APPX. 6-10 MIN.)
DOES HARVEST INITIATE?
NO
1) CHECK PROBE WIRING FOR SHORTED CONNECTION.
2) CHECK CONDUCTIVITY CONTROL.
YES
DOES ICE HARVEST NORMALLY?
NO
1) REPEAT PREVIOUS CHECK OF OPERATION OF HARVEST COMPONENTS IN 2.D
2) ADJUST ICE THICKNESS PROBE- ONLY AFTER ALL OTHER FACTORS HAVE BEEN CHECKED THOROUGHLY.
YES
DONE


2.E LOW ICE PRODUCTION
IS WATER LEVEL NORMAL?
NO
CHECK WATER ITEMS IN 2.A.
YES
IS WATER TEMP. HIGH?
YES
NORMAL EFFECT. INSTALL REMCOR PRE-COOLER TO INCREASE CAPACITY.
NO
IS AMBIENT TEMP. HIGH?
YES
NORMAL EFFECT. ARRANGE FOR LOWER AMBIENT AIR TEMP. IF POSSIBLE.
NO
IS ICE THIN?
YES
GO TO 2.C
NO
CHECK REFRIGERATION SYSTEM.


2.F POOR ICE QUALITY
IS ICE CLOUDY?
YES
NO
IS ICE SOFT?
NO
DONE
YES
1) CHECK AIR PUMP.
2) CHECK ADJUSTMENT OF TIMER CAM #4. (WATER DUMP)
3) CHECK TIMER SWITCH #4.
4) CHECK WATER DUMP VALVE.
5) CHECK WATER FILTER.
6) INCREASE WATER DUMP BY ADJUSTING TIMER CAM #4.
7) INSTALL ADDITIONAL WATER TREATMENT DEVICES FOR SPECIFIC "PROBLEM" WATER.


3. DISPENSER PROBLEM
DOES GATE OPEN?
YES
NO
DOES AGITATOR ROTATE?
YES
NO
IS VOTAGE AT SOLENOID 103-126V.?
YES
NO
1) CHECK MOTOR CAPACITOR.
2) CHECK TIMER SWITCH #5.
3) CHECK AGITATOR MOTOR.
1) CHECK FOR BURNED OUT SOLENOID.
2) CHECK FOR STUCK OR BINDING GATE MECHANISM.
1) CHECK FOR BLOWN SOLENOID FUSE IN ELECTRIC BOX. IF FUSE IS BLOWN, CHECK FOR STUCK GATE MECHANISM, BURNED OUT SOLENOID, OR LOW VOLTAGE.
2) CHECK VEND SWITCH.
3) CHECK FOR LOOSE OR BROKEN WIRE CONNECTION IN SOLENOID CIRCUIT.
4) CHECK VOLTAGE PROBLEMS IN (1.)
IS HOPPER LEVEL TOO HIGH?
NO
YES
1) CHECK BIN THERMO-STAT ADJUSTMENT.
2) REPLACE BIN THERMO-STAT.
IS ICE SLUSHY?
YES
NO
1) CHECK HOPPER DRAINS.
2) CHECK LEVEL OF UNIT.
3) CHECK FOR WATER OVEFLOW FROM EVAPORATOR. SEE SECTION (2.)
4) CHECK ADJUSTMENT OF TIMER CAM #5. (AGITATION)
5) CHECK TIMER SWITCH #5.
DONE


4. BEVERAGE SYSTEM PROBLEM
IS ONE OR MORE FAUCETS INOPERATIVE?
YES
1) CHECK WIRING CONNECTIONS TO INOPERATIVE FAUCETS.
2) REPLACE INOPERATIVE FAUCETS.
3) CHECK WIRING CONNECTIONS FROM 24 V. TRANSFORMER.
4) CHECK 24 V. TRANSFORMER.
NO
IS BEVERAGE COLD?
NO
CONSULT MULTIPLEX COMPANY'S TROUBLESHOOTING PROCEDURE
YES
IS BEVERAGE PROPERLY CARBONATED?
NO
1) CHECK CO2 PRESSURE.
2) CHECK CARBONATOR.
YES
IS BEVERAGE TOO SWEET?
YES
1) CHECK WATER SUPPLY PRESSURE.
2) CHECK SUPPLY FILTER.
3) CHECK CARBONATOR.
4) CHECK FAUCET BRIX.
NO
IS BEVERAGE TOO WATERY?
YES
1) CHECK IF SYRUP TANK IS EMPTY.
2) CHECK CO2 PRESSURE.
3) CHECK FAUCET BRIX.
NO
DONE

MAINTENANCE/ADJUSTMENT PROCEDURES

THERMOSTAT ALTITUDE ADJUSTMENTS

BIN T'STAT

IMPORTANT: Adjust the bin t'stat setting only if storage hopper overfill is a problem.

1. Open the upper front hinged service door.
2. The adjustment screw is located below the flush switch on the left side of the electrical box.
3. For altitudes up to 6000 ft., turn the adjustment screw COUNTER-CLOCKWISE as follows:

ELEVATION (FT)	CCW TURN
2000	1/13
4000	1/6
6000	1/4

4. For altitudes above 6000 ft., consult the factory.

CLEARING EVAPORATOR FREEZE-UP

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

1. Open the upper front hinged service door.
2. Put the (selector) switch in the "off" position.
3. Close the water supply valve to the icemaker.
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 insure that all 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 troubleshooting guide to determine cause of freeze-up before putting unit back in service.

ICE THICKNESS ADJUSTMENT

> WARNING: Do not adjust ice thickness probe unless all other problem causes have been evaluated.

1. Open the upper front hinged service door and remove the ice drop and hopper covers.
2. Collect and weigh the ice produced during the harvest cycle. The amount of ice harvested should be $3\frac{1}{4}$ to $3\frac{1}{2}$ pounds. Use the following procedure to adjust the probe to obtain this weight. (A clockwise adjustment will reduce the harvest weight, while counter-clockwise turns will increase the amount)

> CAUTION: Do not turn the screw on the end of the probe. Rotate the plastic probe body only using a 3/8" open end wrench. Make adjustments in 1/8 turn increments.

   A. Put the (selector) switch in the "off" position. (If unit is in the icemaking cycle, stop the unit at the end of the harvest cycle.)
   B. Access to the probe is obtained by removing the lower front panel on the "service" door side of the unit.
   C. Adjust the probe.
   D. Put the (selector) switch in the "ice" position.
   E. Collect and weigh the ice harvested. Repeat steps A-E as necessary to obtain the required amount of ice.

3. If making an initial adjustment (for example, if the probe has been removed and replaced for any reason), turn probe clockwise until it just touches the evaporator coil (a slight backpressure will be felt). Turn probe counter-clockwise $2\frac{1}{2}$ turns. Follow the procedure in step 2 to obtain the required ice harvest weight.

CLEANING/REPLACING THE FILTER

1. Remove the filter from the top cabinet panel by sliding it forward.
2. Wash the filter is a solution of warm water and a 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 filter coating (see the parts section under miscellaneous components).

CLEANING THE CONDENSER (AIR-COOLED UNITS)

1. Disconnect power to the unit.
2. Open the (2) upper front service doors and remove the exhaust air side panel.
3. Remove all dirt/foreign matter build-up from the condenser fins (fan side). Be careful not to damage the fins. It is recommended that a power vacuum cleaner with a "crevice" tool attachment be used.

HARVEST TIMER ADJUSTMENT

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

1. Disconnect power to icemaker.
2. Open the upper front service door and electrical control box cover.
3. Put the (selector) switch in the "off" position.
4. Using Fig. 7 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 Fig. 7A.

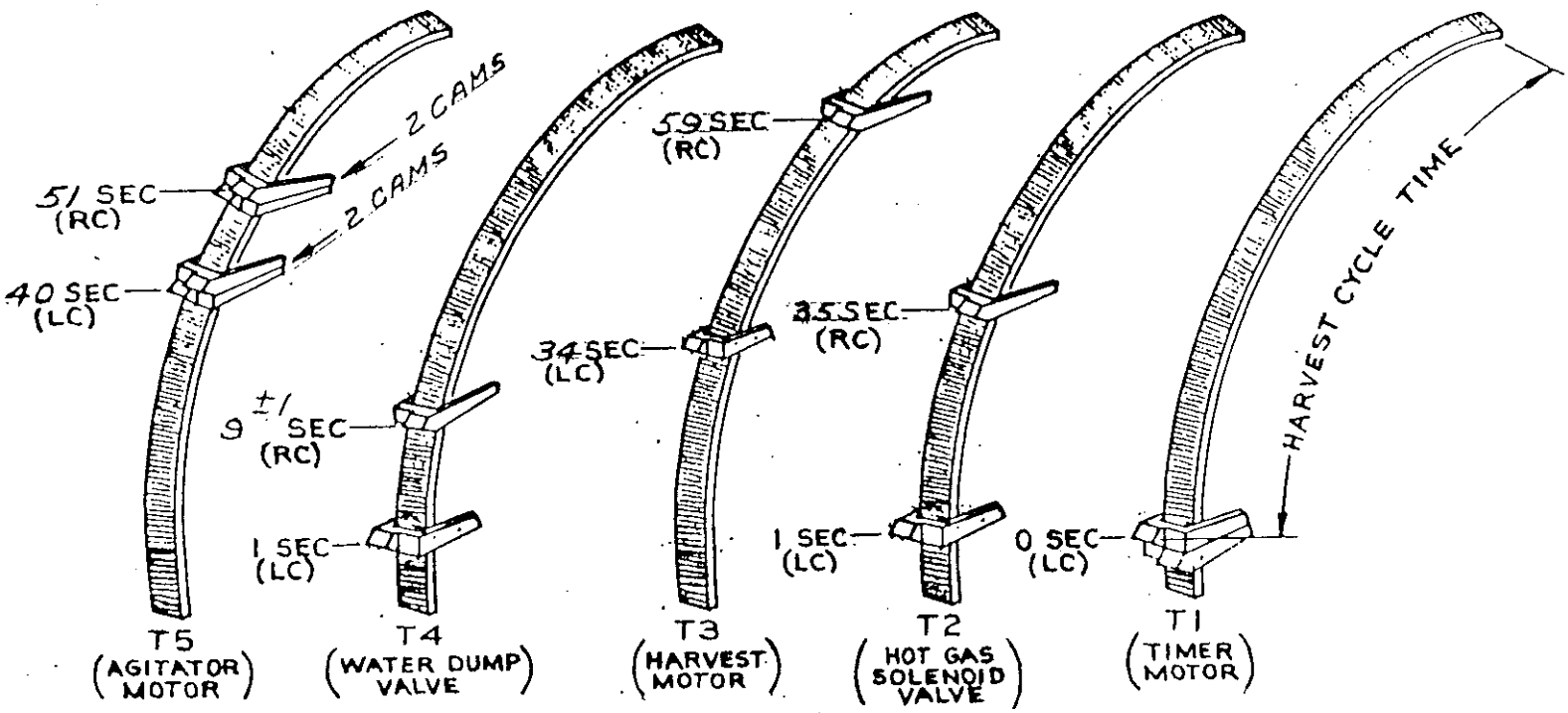
C. Adjust the cam tabs on wheels 2 through 5 in sequence as shown in the chart. Rotate the cam wheels manually downward to set each wheel.

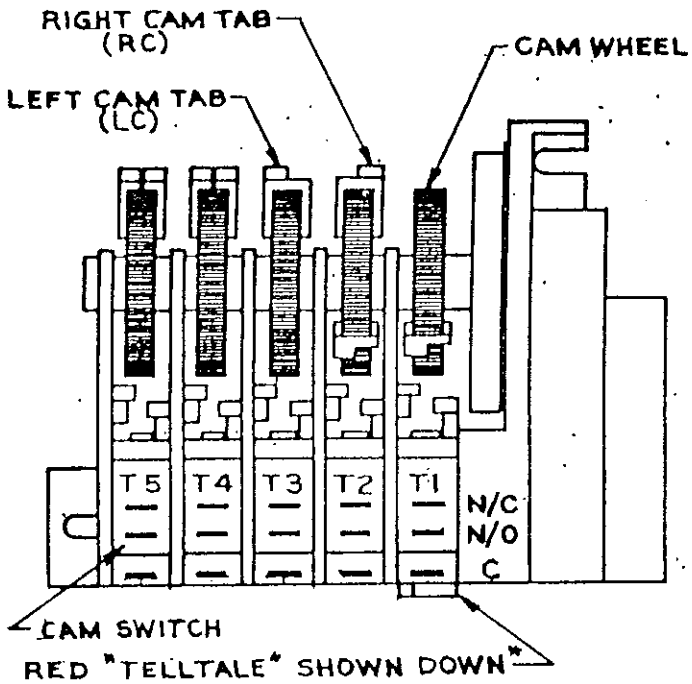
D. After the cam tabs are manually set, reconnect power to the icemaker.

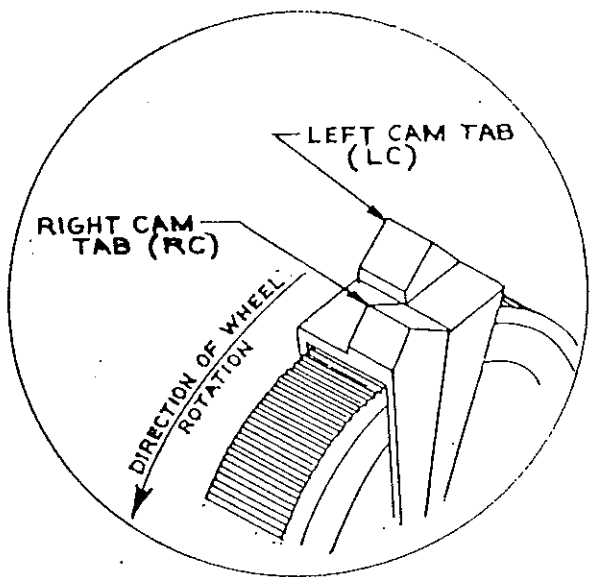
E. Rotate the cam wheels slightly to activate the timer motor (#1 tell-tale down).

F. Using a stopwatch, time the cam switch telltales. Adjust the cam tabs as necessary for the required cycle times.

HARVEST TIMER







DETAIL OF CAM WHEEL # T1

FIG. 7A

MANUAL FILLING

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

1. Open the hinged manual fill upper front door.

2. Put the (selector) switch in the "off" position.

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

3. Remove the storage hopper cover.

4. Fill hopper with ice and replace cover. Unit is now ready for dispensing.

> CAUTION
>
> 1. Do not use crushed or flaked ice.
>
> 2. 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 to 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.

PARTS LIST

DESCRIPTION	PART NO.
Dispenser Components	
Gate Slide	21491
Agitator	23692
Dispense Switch	30894
Agitator Motor	31197
Agitator Motor Shaft Seal	50569
Agitator Motor Plate Insulation	50967
Ice Chute	50751
Gate Gasket	50770
Gate Solenoid Assy	31470
Gate Rebuilding Kit	70438
Agitator Motor Heater	30794
Electrical Controls	
Contactor	30379
Selector Switch	31979
Flush Switch	30895
Bin Thermostat	31001
Fuse, 1¼ Amp	31406
Timer, Harvest	31838
Conductivity Control	31579
Capacitor, Harvest Motor	31600
Compressor Start Relay	31874
Capacitor, Comp. Start	31728
Dispense Relay	31206
Agitator Motor Relay	31375
Capacitor, Comp. Run	31875
Hi Press Control	60501
Low Press Control	60369
Transformer, Beverage	31091
Refrigeration Components	
Compressor	60725
Compressor Mtg. Kit	31607
Air Pump	31568
Hose Adapter 3/8NPT-3/8BARB	51189
90° Hose Adapter 3/8NPT-3/8BARB	51190
Condenser Fan Motor	31738
Condenser Fan Blade	31844
Float & Tank Assy W/Hoses	51183
Condenser Air Cooled	60619
Condenser Shroud	51434
Tinnerman Clip for Shroud	70404
Filter (Drier)	60623
Hot Gas Solenoid Valve	60620
Hot Gas Solenoid Coil 115V	31717
TXV R-502	60635
Water Drain Valve	40652
Tubing, Water Drain 1/2 ID	50351
Tubing, Air Pump 3/8 ID	50096

DESCRIPTION	PART NO.
Evaporator Components	
Evaporator Assy (Complete with Harvest Motor)	60665
Evaporator Housing Foamed W/Gaskets	60666
Evaporator Coil Assy W/Gaskets	60664
Harvest Bar Assy W/Gaskets	51182-1
Gasket Kit	51356
Ice Thickness Probe	51179
Harvest Motor W/Gaskets	31560-1
Hose Adaptor 1/4NPT-3/8BARB	51191
Hose Adaptor 1/4NPT-1/2BARB	51192
10-32 X 1/4 Flat Hd. Screw	70536
Evaporator Cleaning Plug	51300
Misc. Components	
Filter	70542
Filter Coating 16 oz.	51355
Manual	91033

REMCOR PRODUCTS CO.

Rev. 5/30/89

WARRANTY POLICY

Spiral Ice® Icemaker/Dispenser

REMCOR Products Company warrants to the original purchaser of each new REMCOR SPIRAL ICE® ICEMAKER-DISPENSER, for a period of 21 months from date of installation of 24 months from date of shipment, whichever occurs first, that all parts shall be free from defects in material and workmanship under normal use and service. The S.S. icemaker evaporator is specifically warranted for a period of two (2) years, the compressor for a period of five (5) years, and labor cost to repair factory defective parts or workmanship is covered for a period of thirty (30) days from date of installation. Labor warranty does not cover normal installation or start-up.

Under this warranty, a defective part (or parts) is to be returned to REMCOR Products Company, 500 Regency Drive, Glendale Heights, Illinois 60139-2268 (Phone 312/980-6900) and shall be limited exclusively to repairing or replacing F.O.B. Factory, such part or parts which it concludes upon examination to be defective under the terms of the warranty. Return of any part disassembled will void warranty on any part. The decision of our Service Department regarding the warranty of parts will be final.

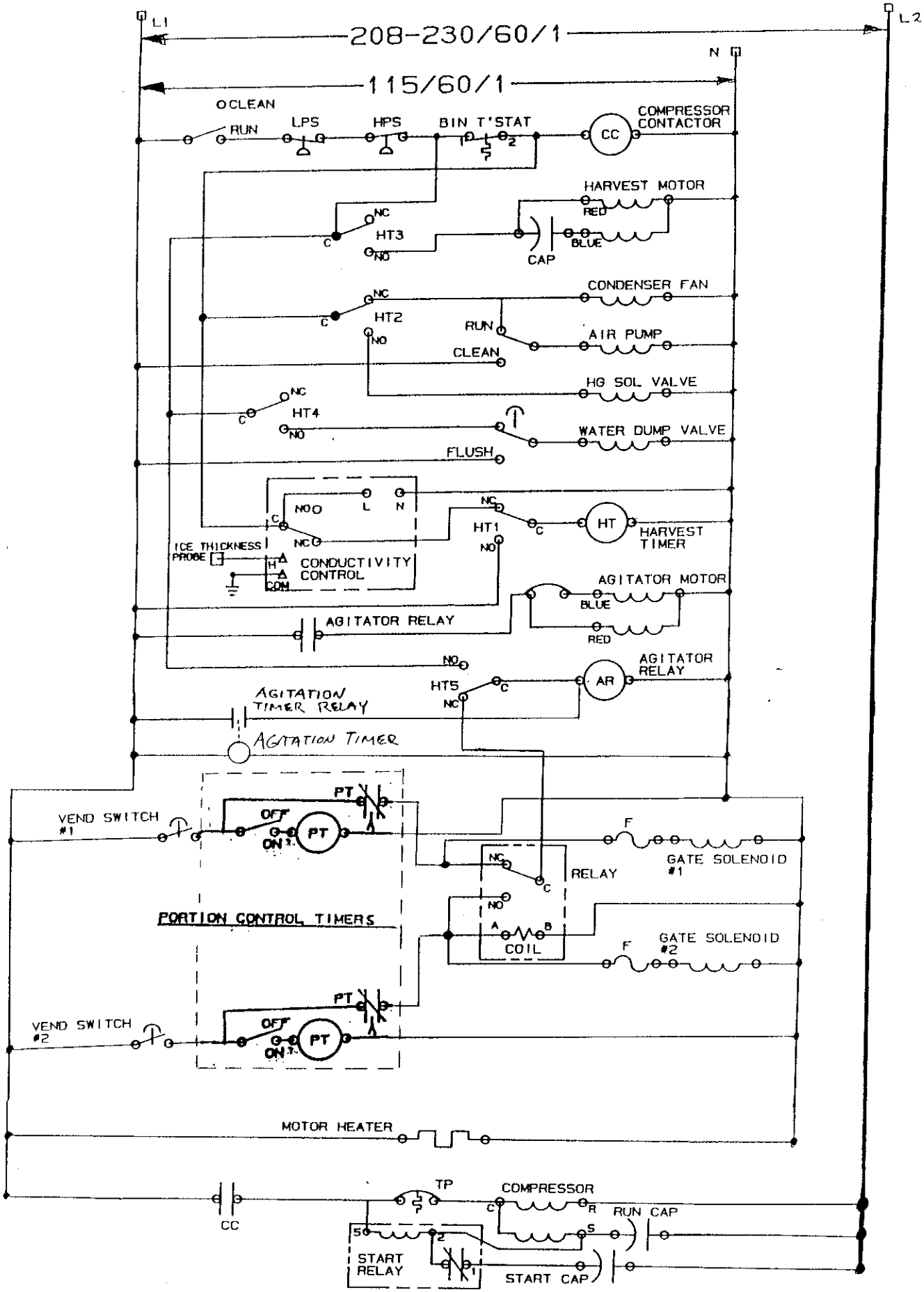
The warranties defined herein shall not apply to any damage of defects created or arising from accident, misapplication, abuse, misuse, neglect, alteration, acts of vandalism, flood, fire, acts of God or any other occurrences beyond the control of REMCOR.® Warranty validity also requires that all instructions have been followed and adhered to as provided in the Owner's Manual included with each unit.

REMCOR's warranty responsibility ceases if shipment is not received by you in good order and in accordance with quantity shown on Invoice or Packing Sheet; if you accept shipment from the Transportation Company in damaged condition without having a proper notation made by the Station Agent you do so at your own risk. If cartons are in apparent good order, but upon opening, contents are found to be damaged; call agent or adjuster to view same and have him mark the freight bill relative to such concealed damage. The procedure must be executed within fifteen days after delivery.

Prior to returning any material, (part or unit), a Return of Material Authorization (RMA) must be obtained. To obtain this authorization provide the reason for return, model number, serial number and part number. Either call or write REMCOR's Parts Service Department and an Authorization number and tag will then be issued - this tag must accompany the material returned. No representative, dealer, distributor or any person is authorized to make any other decisions regarding the warranty liability in accordance with REMCOR's Warranty. Any material that does not have a pre-issued Return Material Authorization number when received will be refused by REMCOR,® and returned to the sender (freight collect).

REMCOR Products Company will not honor, or assume any responsibility for any expenses (including labor), incurred in the field for the repair of equipment covered in our Warranty unless authorization has been granted from REMCOR's Service Department prior to work being performed. The request for repair Warranty work will only apply to units shipped from REMCOR® within a thirty day time period of request. It will further be at the discretion of REMCOR® to decide if said labor will be reimbursed in full, or partial payment. REMCOR Products Company will also control the right to decline payment - all decisions will be based on circumstances prevailing. Charges for a repeat service call on the same unit to rectify the same problem previously corrected shall not be honored. REMCOR Products shall retain the right to select, or recommend another company to complete the necessary repair work.

CAUTION
The inherent nature of ice may cause spillage onto counter or floor areas. The Owner or Operator is cautioned to Maintain these areas in a clean, ice-free condition.


L1
208-230/60/1
L2
N
115/60/1
CLEAN
RUN
LPS
HPS
BIN T'STAT
CC
COMPRESSOR CONTACTOR
HARVEST MOTOR
RED
BLUE
CAP
HT3
NC
NO
C
CONDENSER FAN
HT2
RUN
AIR PUMP
CLEAN
HG SOL VALVE
HT4
WATER DUMP VALVE
FLUSH
L
N
HT
HARVEST TIMER
HT1
ICE THICKNESS PROBE
H
COM
CONDUCTIVITY CONTROL
AGITATOR MOTOR
AGITATOR RELAY
AR
AGITATOR RELAY
HT5
AGITATION TIMER RELAY
AGITATION TIMER
VEND SWITCH #1
PT
OFF
ON
F
GATE SOLENOID #1
RELAY
PORTION CONTROL TIMERS
COIL
A
B
GATE SOLENOID #2
VEND SWITCH #2
MOTOR HEATER
TP
COMPRESSOR
R
S
RUN CAP
START RELAY
START CAP

OPERATION

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 coil 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 function as detailed in the following table:

HARVEST CYCLE

Time	Cam Switch	Action
0-86 sec.	#1	Timer motor energized
1-11 sec.	#4	Water pump valve open
1-36 sec.	#2	Hot gas solenoid valve open Air pump off Condenser fan motor off
36-90 sec.	#2	Air pump on Condenser fan motor on Hot gas solenoid valve closed
35-60 sec.	#3	Harvest motor on
41-45 sec. 48-52 sec.	#5 (double set of cams)	Hopper agitator motor operates

When ice contacts the ice-level 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

BEVERAGE SYSTEM

"B" models contain beverage faucets only and must be supplied with cold product from any remote coldplate or refrigerated soda factory. "BC" units have a built-in coldplate in addition to the beverage faucets and are designed to be supplied direct from syrup tanks and carbonator, with no additional cooling required.

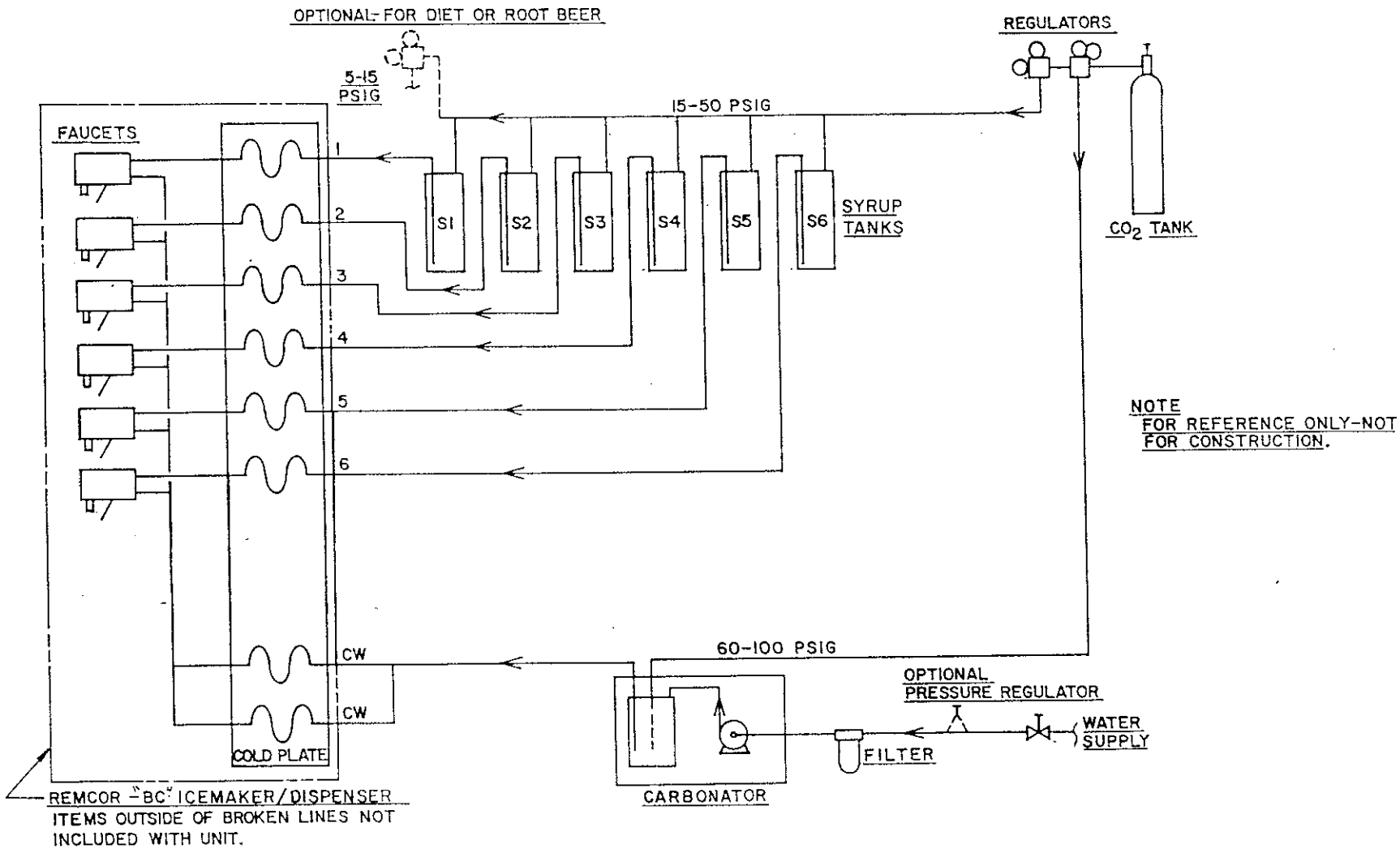
INSTALLATION

1. Locate the required openings in the counter top for the beverage lines as shown in Fig 2.

2. For "B" models, carefully pull the beverage tubes through the bottom opening in the unit and through the clearance opening in the counter.

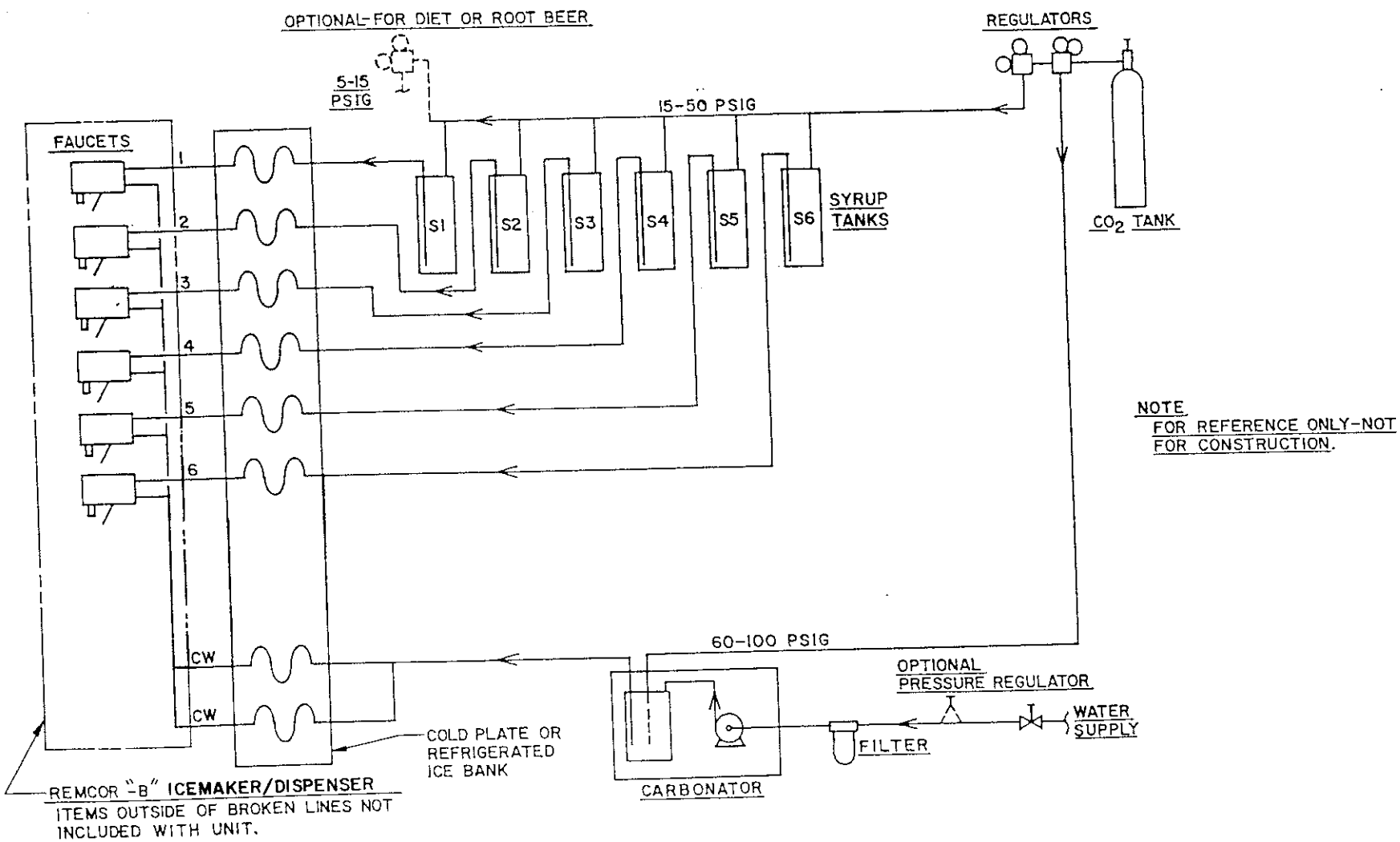
3. For "BC" models, tube fittings are provided at the rear of the unit on the coldplate for syrup and water line hook-up.

4. Connect the beverage system product lines as indicated in Figures 3 (-B units) and 4 (-BC units). This work should be done by a qualified serviceman. Note that the hoses are marked with nos. (1-6) for syrup connections and "CW" for carbonated water conneciton.



"BC" - MODELS

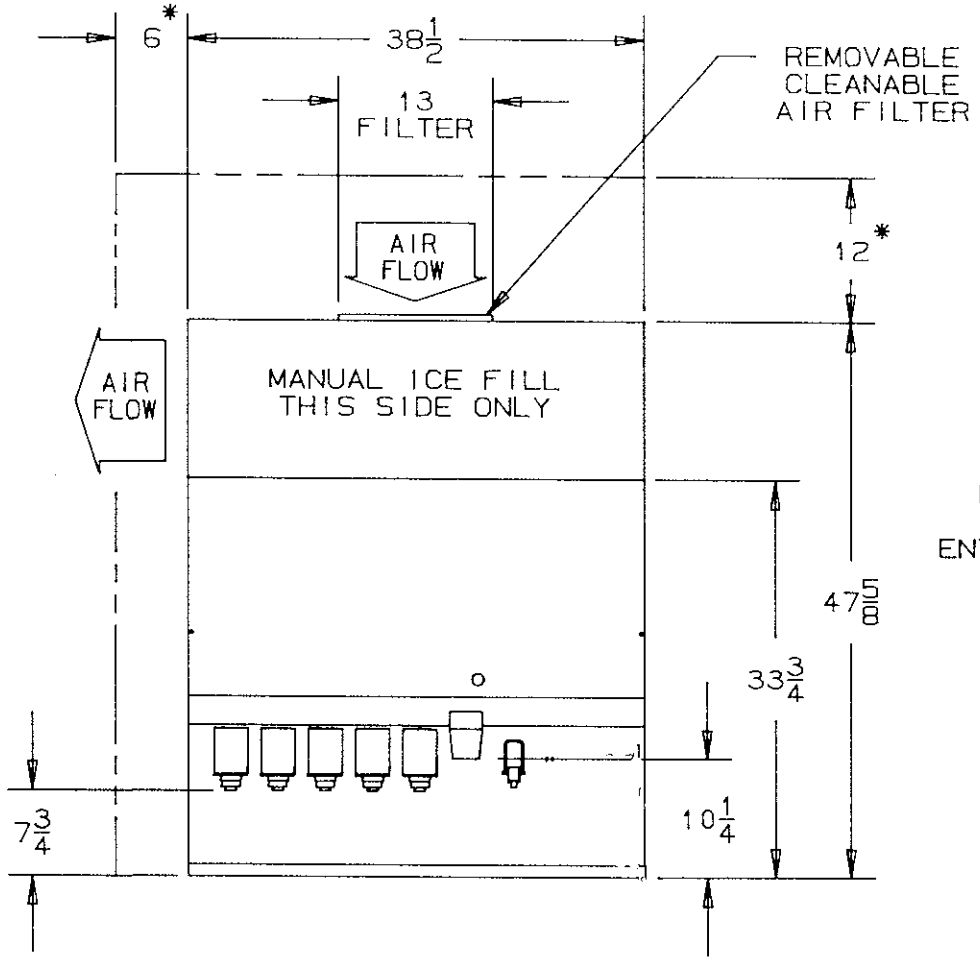
TYPICAL POST MIX BEVERAGE SYSTEM SCHEMATIC

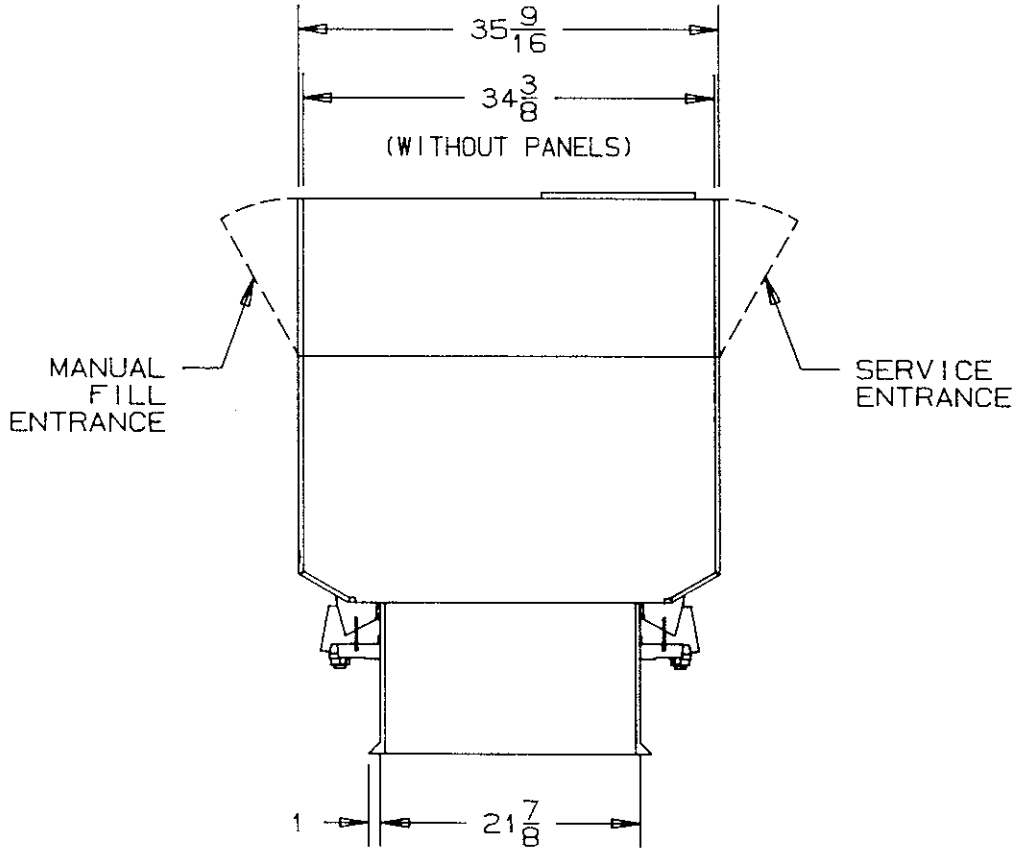


"B"-MODELS

TYPICAL POST MIX BEVERAGE SYSTEM SCHEMATIC

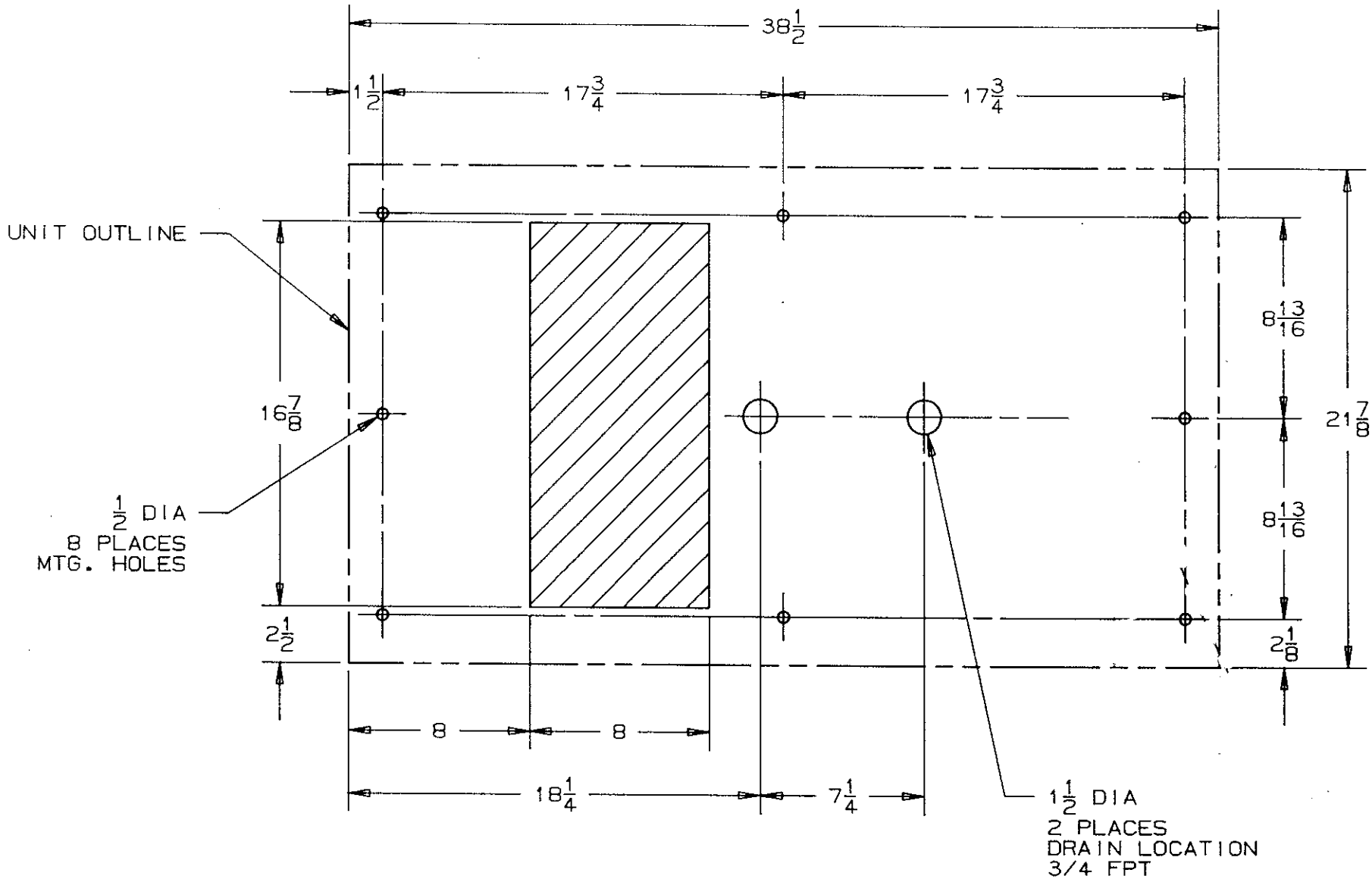
SPECIFICATION DRAWING





* REQUIRED CLEARANCE FOR AIR FLOW

MOUNTING TEMPLATE



NOTE

SHADED AREA INDICATES CUTOUT REQUIRED FOR BEVERAGE LINES, WATER LINES, AND CONDUIT CABLE.

DESCRIPTION

The Remcor S.I.D. (Spiral Icemaker/Dispenser) is a unique, self-contained, countertop style unit which 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.

SPECIFICATIONS

COMPRESSOR: HP: 3/4

REFRIGERANT: R-502/2 lbs.

VOLTAGE: 208-230/115V, 1 PH, 60 Hz.

AMPS: 15

CIRCUIT AMPACITY: 15

FUSE SIZE: 15A Time-delay

ICE STORAGE CAPACITY: 210 lbs.

ICE MAKING CAPACITY: Up to 750 lbs/24 hrs.

Air Temp	Water Temp					
	40°	50°	60°	70°	80°	90°
60°	750	704	663	627	594	564
70°	682	650	607	580	550	520
80°	625	586	552	522	495	470
90°	656	530	499	472	447	425

UNPACKING

1. With the unit upright, carefully remove the shipping crate. Inspect for shipping damage and report any such damage to the shipper immediately.

2. Open hinged service upper front panel.

3. Remove shipping tape from ice drop cover, storage hopper cover, and agitator in storage hopper.

23. Sanitize the inside of the hopper, agitator, the ice chutes, and the hopper and ice drop covers with a solution of 1 oz. of household bleach in 1 gallon of water.

24. Replace the hopper cover and ice drop cover. Turn on the electrical power supply. The icemaker is ready for normal operation.

BEVERAGE SYSTEM

1. Remove faucet spouts, wash in mild detergent, rinse, and replace.

2. Disconnect electrical power to the carbonator. Shut off the water supply and close the CO_2 regulator to the carbonator.

3. Disconnect the syrup tanks from the system.

4. Energize the beverage faucets to purge the remaining soda water in the system.

5. Use a clean 5 gallon tank for each of the following:

   1. Cleaning Tank - Fill with hot (120-140°F) potable water.

   2. Sanitizing Tank - Fill with a chlorine sanitizing solution in the strength of 1 ounce of household bleach (sodium hypochlorite) to 1 gallon of cold (ambient) potable water (410 PPM).

6. Repeat the following procedure on each of the unit's syrup product lines:

   A. Connect the cleaning tank to the syrup line to be sanitized and to the CO_2 system.

   B. Energize the beverage faucet until the liquid dispensed is free of any syrup.

   C. Disconnect the cleaning tank and hook-up the sanitizing tank to the syrup line and CO_2 system.

   D. Energize the beverage faucet until the chlorine sanitizing solution is dispensed through the faucet. Flush at least 2 cups of liquid to insure that the sanitizing solution has filled the entire length of the syrup line.

   E. Disconnect the sanitizing tank. Hook-up the product tank to the syrup line and to the CO_2 system.

   F. Energize the faucet to flush the sanitizing solution from the syrup line and faucet. Continue draw on faucet until only syrup is dispensed.

7. Repeat step #2 in reverse order to turn on the carbonator. Dispense at least 1 cup of beverage from each faucet. Check taste. Continue to flush if needed to obtain satisfactory tasting drink.

TROUBLESHOOTING GUIDE

The following pages contain troubleshooting charts designed to aid an experienced serviceman in diagnosing any operating problems which may be experienced. It is assumed that normal service techniques and skills are familiar to the person doing the troubleshooting. In order to gain maximum benefit from these charts, please note:

1. Start at the beginning of the chart and supply the appropriate answer to each question.

2. Do not skip any section, unless instructed to do so. You might miss the solution to your problem.

3. Evaluate the possible problem causes in the sequence in which they are presented. In general, they begin with the most likely or easiest to check, and proceed to the less likely or more complicated.

4. If, after checking all indicated causes, the problem is not resolved, it is recommended that you retry a second time, carefully evaluting the symptoms and modifying your answers as necessary.

5. If you are unable to resolve a problem after several attempts, contact REMCOR customer service for assistance.