

CRACKED ICE MAKER/DISPENSER
Water Cooled

(1/79)

P-751537-091

CRACKED-ICE MAKER AND DISPENSER
(WATER COOLED)

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CRACKED-ICE MAKER

Model IV205W

PRINCIPLES OF OPERATION

The **CRACKED-ICE MAKER** utilizes an efficient, sanitary method of forming, cracking, and sizing ice. The process rinses away impurities in the water so that the ice produced from it is crystal clear.

The ice making cycle begins with the water circulating pump circulating fresh water through a water distributor header, which distributes the water over the upper surfaces of a pair of inclined freezer plates. These freezer plates are constructed in the form of a "V". As the water flows downward, it freezes onto the upper surfaces of the freezer plates. When the proper ice thickness on the freezer plates is reached, as determined by an ice thickness thermostat, the ice making cycle stops and the harvest cycle begins. Hot refrigerant gas warms the freezer plates to disengage the ice sheets from them. The ice sheets then slide into the section of the unit where they are cracked. The ice is then forced through sizing holes into the storage bin in clear, solid, bite size pieces.

During the ice making cycle fresh water is admitted through the water float valve to the water reservoir to replace the water which has been made into ice.

During the harvest cycle the water drain valve opens and allows the water to drain from the water reservoir to a building drain. Fresh water then enters the water reservoir to begin a new ice making cycle.

Ice continues to accumulate in the ice storage bin until the bin is full, at which time the ice touches the bulb of the bin thermostat. This stops the Ice Maker until the ice level in the bin has been lowered, at which time the Ice Maker resumes operation. The bin thermostat may stop or start the Ice Maker at any point in the ice making cycle or harvest cycle.

CRACKED-ICE MAKER

Model IV205W

INSTALLATION INSTRUCTIONS

Before proceeding with installation, certain items may be required which are not furnished with the Ice Maker. See Item Nos. 4, 5, 6, and 7 below.

For maximum efficiency and ice output, with either air or water cooled units, select a location for your Remco Cracked-Ice Ice Maker where it will not be exposed to sunlight, excessive heat or reflected radiation (preferably in a room with a temperature of 70° to 80° F.). The Ice Maker normally will not function properly in temperatures below 65° F. The area surrounding the Ice Maker should be well ventilated. Allow a minimum of 3" clearance from any wall.

Proceed with installation as follows:

1. Remove insulated cover on Ice Maker. Then remove tie-downs on water pump assembly and water float valve.
2. A bin thermostat is supplied with the storage hopper. The capillary tube and thermostat are mounted complete and ready for operation with wiring harness on Ice Maker. They are labeled, "Bin Thermostat Leads".
3. Slip each of the two spade terminals, which are a part of the wiring harness in the rear of the Ice Maker, onto the two spade terminals on the bin thermostat which is mounted on front of the bin.
4. Connect the water drain valve on the Ice Maker to the nearest open drain, using 3/8", or larger, copper tubing. Drain line must be pitched down to open drain below the water drain outlet on the Ice Maker. ALLOW NO "TRAPS" IN THE DRAIN LINE.
5. The Ice storage bin requires a 1/2", or larger, drain line pitched down to the nearest open drain. ALLOW NO "TRAPS" IN DRAIN LINE.
6. A hand shutoff valve should be installed on the nearest cold water supply line. A water line strainer should be installed between the shutoff valve and the Ice Maker. A 3/8" or 1/4" inlet fitting. It is desirable to install a water filter between the line strainer and the Ice Maker. In hard water areas, a water conditioner installed on the water supply line may be recommended. Consult your local water treatment specialist on various water conditions. Do not connect to water softener line if at all possible.
7. Each Ice Maker should be connected to its own individual wiring circuit.
Before wiring the Ice Maker to main source of power, check the nameplate on the Ice Maker for the correct voltage and ampere rating. Make sure the unit is wired to correct fuse and wire size.
8. All 1/2 HP Units are 115 V. A.C. 15 Amps. Freon 502 CHG. 3 L.B.

CRACKED-ICE MAKER

Model IV205W

INSTRUCTIONS FOR START UP

Upon completion of the Ice Maker installation, Page 2, and with the housing and cover of the Ice Maker removed, proceed, as follows, for start up.

1. Open water valve to Ice Maker and check float valve for admittance of water to sump, then replace insulated cover.
2. Turn on the power.
3. Check the ice making cycle with insulated cover in place. The initial ice making and harvest cycle will take approximately 15 to 25 minutes. ON THE INITIAL START UP THE TIMER MAY OPERATE THE ICE MAKER ON THE HARVEST CYCLE FIRST. HOWEVER, AT THE COMPLETION OF THE HARVEST CYCLE, THE ICE MAKER WILL START A NORMAL ICE MAKING CYCLE.
4. The Model IV205 Ice Maker has a one V-plate assembly (two inclined freezer plates in the form of a "V"). Observe the water scoop tube(s) fastened to the primary freezer plate(s), the larger of the two inclined freezer plates in the V-plate assembly. The water scoop tube controls the ice thickness on the freezer plates in conjunction with the ice thickness thermostat bulb inserted in the lower end of the water scoop tube. When the ice thickness builds up on the freezer plates, the flowing water will be diverted into the water scoop tube. DO NOT REMOVE INSULATED COVER UNTIL HARVEST CYCLE TIMER STARTS. THIS IS DONE TO MAINTAIN PROPER AMBIENT TEMPERATURE INSIDE CABINET. If it is necessary to make adjustments to the ice thickness thermostat, possibly due to an altitude problem, stop the Ice Maker and refer to Service adjustments, Page 6, Item F. When the ice thickness thermostat is properly actuated the ice will be automatically harvested. Ice that is too thick can jam the ice cracker. It is important, therefore, that Item F, page 6 be closely followed and that the ice thickness thermostat be in proper adjustment.

THE INSULATED COVER SHOULD ALWAYS BE IN PLACE WHEN THE ICE MAKER IS BEING USED.

5. Due to meltage loss because of a warm bin, it takes longer to fill the bin the first time than when the Ice Maker has been operating for several days.

CRACKED-ICE MAKER

Model IV205W

CLEANING INSTRUCTIONS

The **CRACKED-ICE MAKER** should be cleaned at a minimum of three month intervals (more frequently in hard water areas) in the following manner.

1. Stop the Ice Maker at the completion of the harvest cycle and remove the Ice Maker housing and cover.
2. Add two teaspoons of Virginia Ice Machine Cleaner (available from most refrigeration wholesalers).

NOTE: Virginia Ice Machine Cleaner is a mild acid. Normal care should be taken - Keep out of eyes and cuts.
3. There is a three-position clean switch, located on harvest timer, showing clean - run - flush. With switch set in clean position and Ice Machine cleaner in sump, turn on Ice Maker and run until unit is thoroughly cleaned.
4. With a narrow brush such as a 1" wide paint brush, but with a long handle, brush the water/acid solution so that it cleans the water reservoir, water float, water circulating pump and any other surfaces requiring cleaning.
5. Set clean switch to flush position. Allow Ice Machine to run and flush until acid solution is completely removed from machine.
6. Turn off the Ice Maker and siphon or drain the water from the water reservoir. Then turn switch to run position.
7. Wipe the water reservoir and other surfaces clean.
8. Replace the Ice Maker cover and housing. Turn on the water and check operation. The Ice Maker is ready for normal use.

CRACKED-ICE MAKER

Model IV205W

SERVICE ADJUSTMENTS

The Model IV205 **CRACKED-ICE MAKER** has one V-plate assembly (two inclined freezer plates in the form of a "V"), one water distributor header, one water scoop tube, one water diverter, one cracker motor, and one set of ice cracker blades.

A - WATER FLOAT VALVE

Maintains constant water level in the water reservoir while ice is being made.

If the water float valve is stuck or plugged closed, disassemble and clean, or replace.

B - WATER RESERVOIR

Holds the water being pumped to the Ice Maker freezer plates. Water not frozen on the plates returns to this reservoir.

- a. The water level in the water reservoir under the freezer plates should just cover the inlet on the water circulating pump during the ice making cycle. This prevents pumping air. When the water circulating pump is off, during disengagement of the ice sheets from the freezer plates and the ice cracking operation, the water level in the water reservoir rises an inch or so.
- b. The water level in the water reservoir should only be adjusted when the water circulating pump is operating. The water level is adjusted by bending the brass water float arm. Bend the arm as close to center as possible. **DO NOT BEND AT THE MEETING POINT OF THE WATER FLOAT ARM AND THE WATER FLOAT BALL.**

C - WATER CIRCULATING PUMP

Automatically pumps water to the water distributor header which distributes the water uniformly over the upper surfaces of the freezer plates.

The water circulating pump is secured in place by two screws. Check the pump motor for operation. If the motor is running and no water is being pumped, check to see if the pump impeller is turning. If the motor will not run or the impeller will not turn replace the water circulating pump. **CAUTION: DO NOT RUN PUMP AT ANY TIME WITHOUT WATER IN SUMP PAN.**

CRACKED-ICE MAKER

Model IV205W

SERVICE ADJUSTMENTS (continued)

D - WATER DISTRIBUTOR HEADER

Distributes the water pumped from the water reservoir evenly over the freezer plates during the ice making cycle.

If the water distributor header is plugged, it can be taken off for cleaning by slipping off the flexible plastic tubing from the water circulating pump, removing the screws holding the water distributor header to the freezer plate and then removing the plastic end plugs from the water distributor header. The water distributor header may be cleaned with a brush and flushed to remove any accumulated minerals and scale.

E - WATER SCOOP TUBE

When the ice sheets on the freezer plates have frozen to the desired 1/4" thickness (no thicker), the cold water flows through the water scoop tube (fastened permanently to the larger or primary freezer plate) and over the ice thickness thermostat bulb located in the lower portion of the water scoop tube.

The mouth of the water scoop tube is factory adjusted above the upper surface of the primary freezer plate to provide a sheet of ice on the freezer plates of approximately 1/4" thick before water enters the water scoop tube. IN NO CASE SHOULD THE MOUTH OF THE WATER SCOOP TUBE BE ADJUSTED.

F - ICE THICKNESS THERMOSTAT

The thermostat stops the freezing cycle and starts the harvest cycle thru the timer when water flows over the thermostat bulb located inside the lower end of the water scoop tube.

Six inches of ice thickness thermostat bulb is inserted in the lower end of the water scoop tube so that as cold water flows over it the ice thickness thermostat closes the circuit starting the timer for the harvest cycle. The ice thickness thermostat contact should close at 34° F. and open at 39° F.

No adjustment of the ice thickness thermostat should be necessary in normal use. It has been set at the Factory and rarely needs adjusting. However, if adjustment is necessary, check first to determine that the extended lip of the water scoop tube is no more than 1/4" from the primary freezer plate. Replace insulated lid and do not remove until four cam harvest cycle timer starts. This is done to maintain power ambient temperature inside cabinet. Immediately after harvest cycle timer starts remove insulated lid and check to see if a flow of water (a little above a fast drip) is coming out of the bottom of the scoop tube.

CRACKED-ICE MAKER

Model IV205W

SERVICE ADJUSTMENTS (continued)

F - ICE THICKNESS THERMOSTAT (Continued)

If no water is coming out of bottom of scoop tube and cycle timer is in operation, this means the Ice Thickness Thermostat is operating on ambient temperature and should be adjusted colder to operate on water temperature. If mouth of scoop tube is buried in ice this means Ice Thickness Thermostat is set too cold and must be reset to a warmer position. Do not reset the thermostat more than 1/4 turn in either direction at any one time.

G - FREEZER PLATES

Ice sheets are formed on the freezer plates from water flowing over them. Two sharply inclined plates are set in the form of a "V". This is called a V-plate assembly. The primary freezer plate is the one to which the water scoop tube is fastened with two bolts. The secondary freezer plate is the other inclined plate which completes the "V" and is the shorter of the two plates.

A film sometimes forms on a freezer plate due to the type of water in certain areas. This may retard disengagement of the ice sheet from the plate. If this occurs, resurface the plate VERY LIGHTLY with a very fine grade of wet and dry sandpaper.

H - HOT GAS SOLENOID VALVE

Diverts hot refrigerant gas from condenser to freezer plates, by-passing condenser and thermostatic expansion valve. During the harvest cycle this hot refrigerant gas warms the freezer plates, disengaging the ice sheets from them. The ice sheets then slide down to the ice cracker mechanism.

- If the hot gas solenoid valve is inoperative, first check the electric current to the valve; then check continuity and pull of the coil windings. If defective, replace coil only. If plunger will not lift with good coil in place, tap lightly. If valve will not open, replace. REFRIGERATION LINE COMPONENTS SHOULD BE REPLACED ONLY BY A QUALIFIED REFRIGERATION MAN.
- Disengagement of the ice sheets from the freezer plates while the hot gas solenoid valve is open is normally accomplished within 60 to 90 seconds. The cam operating the microswitch is factory set for this period of time and should not be reset unless absolutely necessary.

CRACKED-ICE MAKER

Model IV205W

SERVICE ADJUSTMENTS (continued)

J - ICE CRACKER AND CRACKER MOTOR

The ice cracker blades begin revolving at the start of the harvest cycle. As the ice sheets disengage from the freezer plates and slide down to the cracker at the base of the freezer plates, the revolving ice cracker blades crack the ice sheets and force the ice through sizing holes into the ice chute.

The Ice Cracker Motor is operated by Cam No. 3 on timer and runs for a three-minute period on each harvest cycle. If the motor has been subjected to an unusual load, protective overload may have cut off the electric power. When the motor cools, power will be automatically restored. If the motor still does not operate, check the cracker blade assembly to see that it is firmly affixed to the shaft of the cracker motor and is revolving.

K - TIMER

Sequences the operation of ice harvest components at completion of the ice making cycle.

TIMER SEQUENCE

1. The distance of the flowing water from the freezer plates is increased as ice builds up on the plates so that the water ultimately flows through the water scoop tube over the thermostat bulb of the ice thickness thermostat, causing its contacts to close, starting the timer motor for a six-minute run. (Cam and Timer Switch No. 1).
2. Approximately 10 seconds later, the water circulating pump stops (Cam and Timer Switch No. 2).
3. Immediately after the water circulating pump stops (Cam and Timer Switch No. 2), the hot gas solenoid valve opens for 60-75 seconds (Cam and Timer Switch No. 2). COMPRESSOR RUNS CONTINUALLY DURING THE HARVEST CYCLE.
4. When the hot gas solenoid valve closes (Cam No. 2) a new ice making cycle starts.
5. The water circulating pump starts (Cam and Timer Switch No. 2) immediately after the hot gas solenoid closes.

CRACKED-ICE MAKER

Model IV205W

SERVICE ADJUSTMENTS (continued)

TIMER SEQUENCE (Continued)

6. Approximately 15 seconds after the timer starts, the water drain valve opens for approximately 30 seconds to drain the water reservoir (Cam and Timer Switch No. 4).
7. The timer motor stops at the end of its six-minute run.

IT IS ADVISABLE NOT TO CHANGE TIMER CAM SETTINGS UNLESS ABSOLUTELY NECESSARY.

L - WATER DRAIN VALVE

Drains water reservoir automatically during the first minute of ice harvest cycle.

M - WATER DIVERTER

Directs flowing water into water trough during ice making cycle and prevents water from flowing through ice sizing bar and into ice chute.

N - REFRIGERATION SYSTEM

Freon 502 Refrigeration System. Compressor operates continually except when stopped by bin thermostat.

If the refrigeration system is not functioning properly, check for

1. Plugged or faulty thermostatic expansion valve.
2. Plugged drier.
3. Inefficient compressor.
4. Inoperative condenser fan.
5. Inoperative hot gas solenoid valve (partially open, stuck open, or not opening). See H on Page 7.
6. Stuck open water drain valve.
7. Overcharge or undercharge of Freon 502 Refrigerant Gas.

CRACKED-ICE MAKER
Model IV205W
SERVICE ADJUSTMENTS (continued)

OVERCHARGE OR UNDERCHARGE OF FREON 502 REFRIGERANT GAS

At 75° F. ambient, the back pressure should level off to approximately 25 to 30 lbs. towards the end of the ice making cycle. After the ice sheets are formed, the correct refrigerant gas charge is indicated by a cold suction line to within approximately one inch of the compressor dome.

O - WATER SUPPLY

Water containing an excessive amount of minerals or impurities can result in cloudy ice or difficulty in disengaging the ice sheets from the freezer plates. The installation of a good water conditioner or filter usually will correct this.

See Installation Instructions, Item 8, Page 2.

P - ICE MAKER LOCATION

Ambient temperature in the area surrounding the Ice Maker should be above 65° F. for proper operation.

See Installation Instructions, Page 2.

Q - POWER FAILURE

Check circuit and line fuses.

See Installation Instructions, Item 9, Page 2.

CRACKED-ICE MAKER
Model IV205W
SERVICE PROBLEMS

Problem	Possible Causes	Service Adjustments
No ice build up on freezer plates	Level of water in water reservoir too low	B
	Water circulating pump failure	C
	Hot gas solenoid valve stuck open	1a
	Water float valve stuck or plugged	A
	Water distributor header plugged or water line closed or plugged	B, D, P
	Refrigeration system malfunctioning	O
	Timer out of adjustment	L
	Power failure	S
Ice sheet builds up on but does not disengage entirely from freezer plates	Hot gas solenoid valve not opening or only partially open	1a
	Hot gas solenoid valve open for too short a time for ambient temperature	1a
	Freezer plate surface filmed over	H
	Ice formation on mouth of water scoop tube	F
	Cracker motor not operating	J
	Cracker blades not turning	J
	Ice thickness thermostat inoperative	F
	Ambient temperature below 65° F.	R
Ice sheet very uneven	Freezer plate surface filmed over	H
	Overcharge of 502 refrigerant gas	O
	Undercharge of 502 refrigerant gas	O
	Water supply restricted	A, B, C, D, P
	Water distributor header plugged	D, P
	Water circulating pump pumping insufficient water	B, C
Incorrect ice sheet thickness (over 1/4")	Water scoop tube out of adjustment	E
	Ice thickness thermostat inoperative or incorrectly set	F
	Overcharge of 502 refrigerant	O
	Undercharge of 502 refrigerant	O
	Refrigeration system not functioning properly	O
	Hot gas solenoid valve stuck open	1a
	Ice thickness thermostat bulb slipped out of position in water scoop tube	F

CRACKED-ICE MAKER

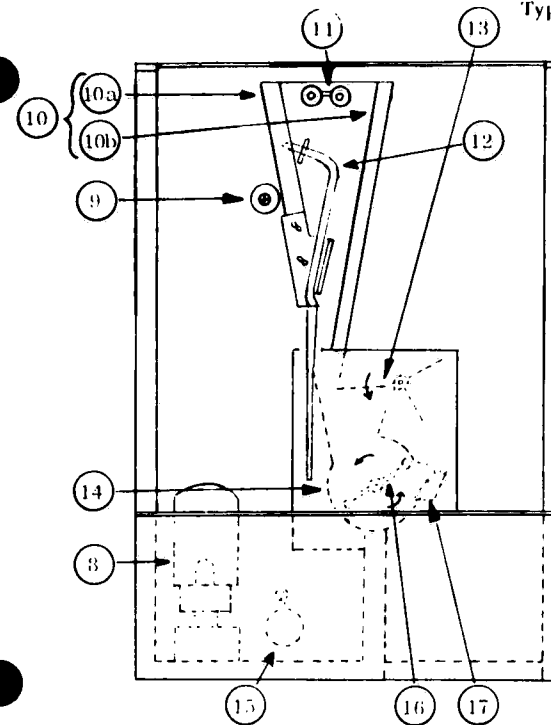
Model IV205W

SERVICE PROBLEMS (continued)

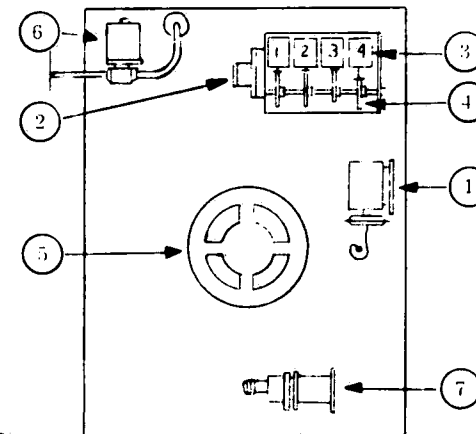
Problem	Possible Causes	See Service Adjustments
Aerated ice (not clear)	Water supply intermittent or restricted	A, B, C, D
	Water float valve faulty or out of adjustment	A
	Water circulating pump pumping insufficient water	C
	Incoming water contains an excessive amount of minerals or impurities	P

Model IV205W

Typical Only Some Details May Vary

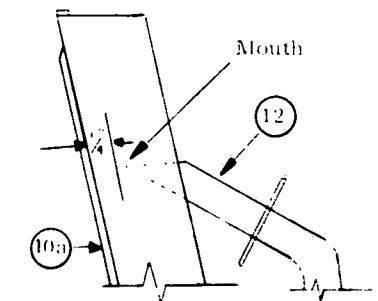


Front View
Ice Maker Mechanism

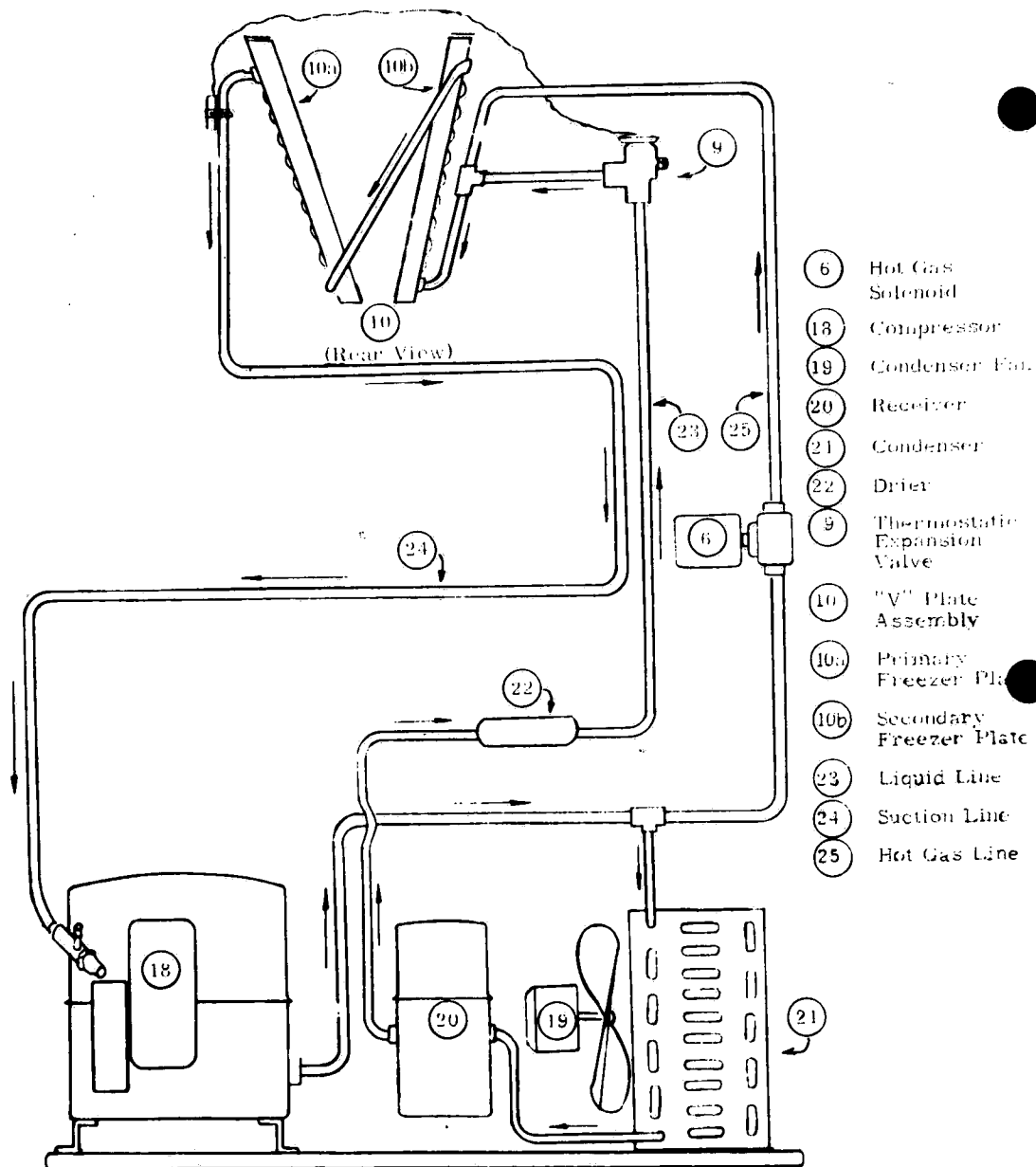


Rear View

- 1 Ice thickness thermostat
- 2 Timer
- 3 Timer micro-switch
- 4 Timer cams
- 5 Cracker motor
- 6 Hot gas solenoid valve
- 7 Water drain valve
- 8 Water circulating pump
- 9 Thermostatic expansion valve
- 10 "V" Plate assembly
- 10a Primary freezer plate
- 10b Secondary freezer plate
- 11 Water distributor header
- 12 Water scoop tube
- 13 Water diverter
- 14 Cracker trough
- 15 Water float valve
- 16 Ice Cracker blades
- 17 Ice sizing holes



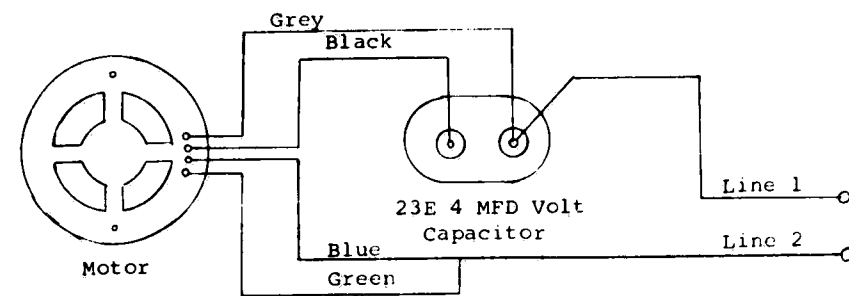
Front View
Water Scoop Tube
Adjustment



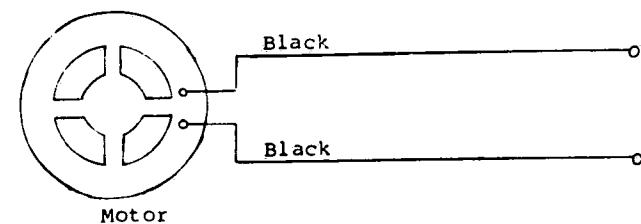
- 6 Hot Gas Solenoid
- 18 Compressor
- 19 Condenser Fan
- 20 Receiver
- 21 Condenser
- 22 Drier
- 9 Thermostatic Expansion Valve
- 10 "V" Plate Assembly
- 10a Primary Freezer Plate
- 10b Secondary Freezer Plate
- 23 Liquid Line
- 24 Suction Line
- 25 Hot Gas Line

REFRIGERANT CIRCUIT
CRACKED-ICE MAKER
Model IV205W

Model IV205W
Typical Only - Some Details May Vary



WIRING FOR MODEL F.H. 4 WIRE PERMANENT SPLIT
CAPACITOR 115 VOLT CRACKER MOTOR WITH 4 MFD
RUN CAPACITOR

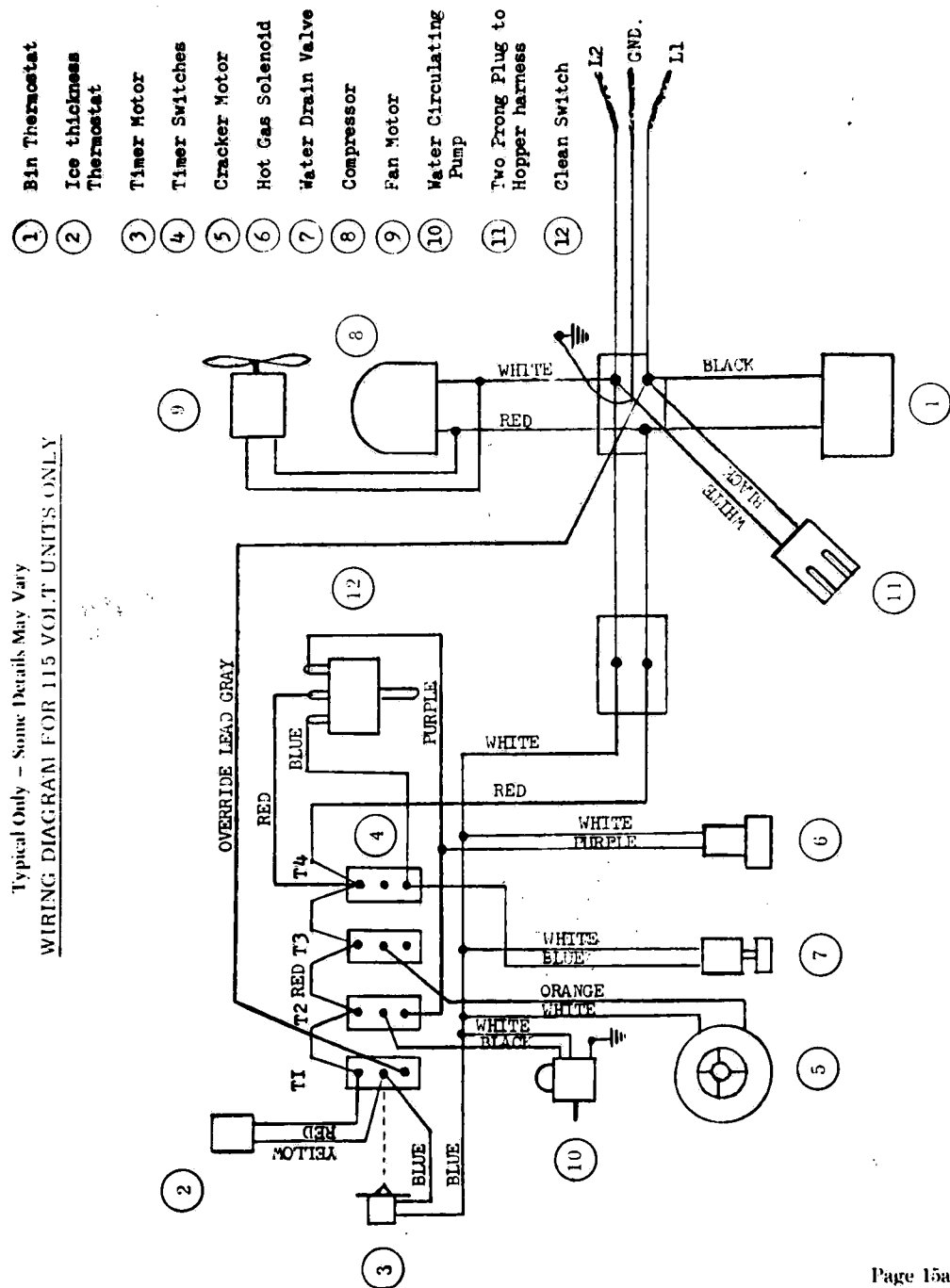


WIRING FOR MODEL F.H. SHADED PULL 2 WIRE
CRACKER MOTOR 115 VOLT

WIRING DIAGRAM FOR F.H. CRACKER MOTOR

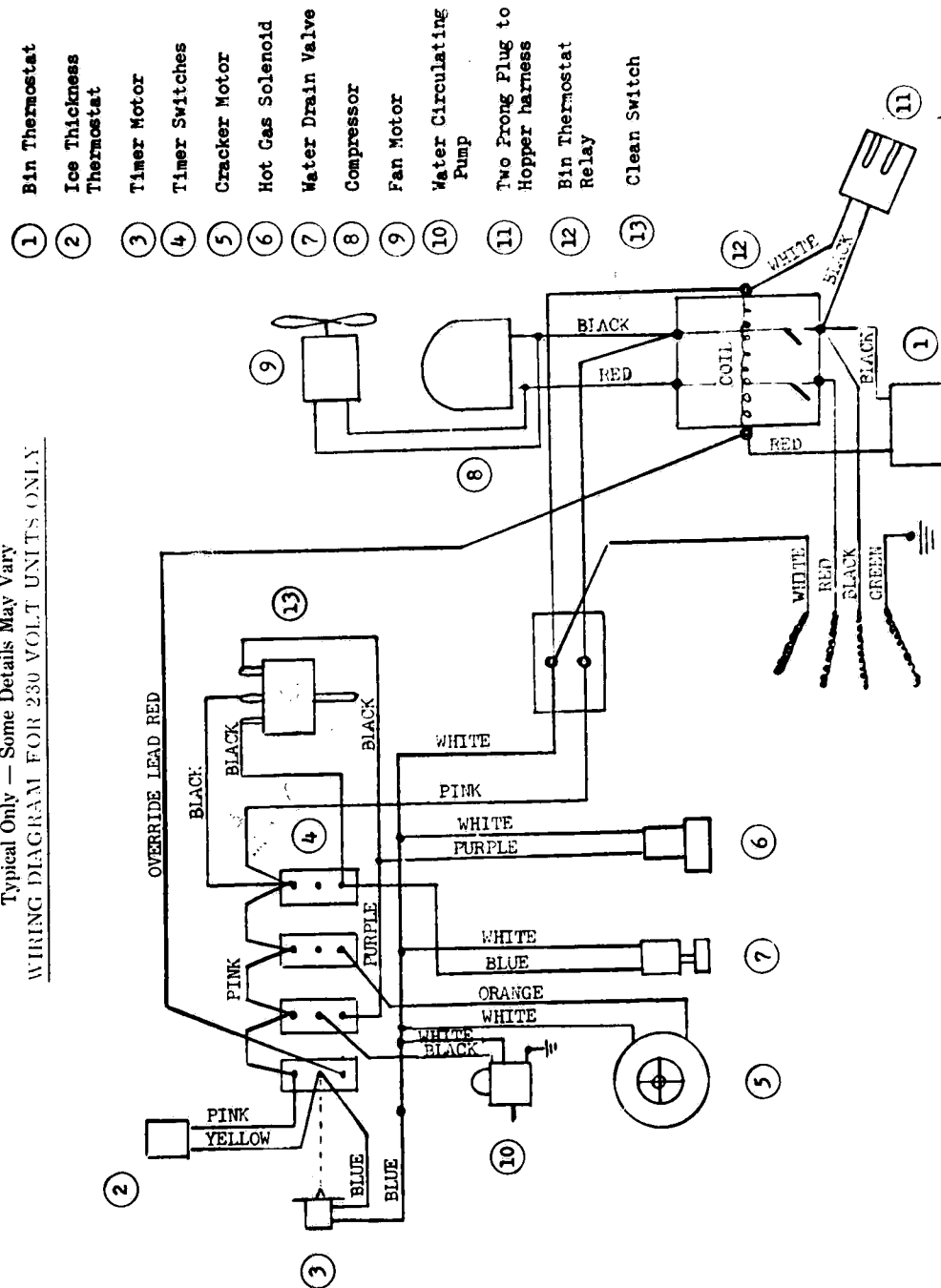
Typical Only — Some Details May Vary

WIRING DIAGRAM FOR 115 VOLT UNITS ONLY



Typical Only — Some Details May Vary

WIRING DIAGRAM FOR 230 VOLT UNITS ONLY



ICE MAKER PARTS LIST
MODEL IV205W

VENDOR PART NO.	DESCRIPTION OF PART	AMSCO PART NO.
30409	Compressor w/relay, overload, & start capacitor (0050) Copeland, 1/2 H.P. 502	P-78807-091 P-753484-091
30357	Timer, four cam 6 min. ● Microswitch	P-78185-091
30358	Thermostat, ice thickness	P-78186-091
30487	Motor, cracker for units after Serial No. 2168 For units prior to Serial No. 2168	N.L.A.
30499	Conversion Kit, cracker motor for units prior to Serial No. 2168	N.L.A.
20708	Cracker bar assembly	P-750949-091
20710 F	Cover, cracker bar assembly	P-754841-091
30484	Pump, water circulating IUMD	P-753851-091
40152	Float valve, water	P-78809-091
50438	Distributor header water	P-756201-091
20712	Scoop tube assembly	P-756394-091
60265	Evaporator plate assembly	P-756146-091
30415	Relay, starting (0050)	
50360	Gasket, cracker motor	P-750159-091
20715	Water diverter bar	P-751491-091
60258	Thermostatic expansion valve for 502	P-754560-091
50445	Insulator, scoop tube	
40101	Drain valve, water	P-78808-091
30405	Capacitor, starting (0050)	
30407	Overload, protector (0050)	
60204	Dryer 1/4" (sweat)	P-756266-091
50351	Plastic hose (ALL MODELS) — 12 ft.	P-756267-091
60206	Solenoid, valve — hot gas	P-754562-091

ICE MAKER PARTS LIST
MODEL IV205W

PART NO.	DESCRIPTION OF PART	AMSCO PART NO.
60224	Condenser, water cooled (0050)	
	Switch — micro (for 4 cam, 6 min. timer)	P-753484-091
40122	Regulating valve, water for 502	P-754563-091
60226	Pressure control (Dual)	P-758205-091
50361	Water pan, plastic	P-750216-091
50446	Insulated unit cover	P-752380-091
30384	Clean switch	P-751480-091
60222	Receiver	

AUTOMATIC ICE DISPENSER

Model SD80

PRINCIPLES OF OPERATION

The Automatic Ice Dispenser utilizes an efficient and sanitary method for dispensing cracked ice. This automatic dispenser completely eliminates handling of ice. By lightly pressing ice container against dispenser operating lever sanitary ice is automatically dispensed in a one-handed operation.

The dispenser should be installed as level as possible to maintain proper draining of water from ice melt down. The drain line must be pitched downward to an open drain, allowing no traps, as this is a gravity-fed drain.

GENERAL OPERATING INSTRUCTIONS

**There are two methods of dispensing available with the ICE DISPENSER:
Continuous flow or Metered flow.**

The standard unit is supplied for continuous flow of ice as long as the operating lever on the front of the unit is depressed.

If the unit is supplied with the optional metered portion control switch three (3) ounces of ice will be dispensed each time the operating lever is depressed when the switch is in metered flow position.

If other than three (3) ounces of ice is desired see page 25 for procedure for setting the dispensing timer.

REMOVAL AND CLEANING INSTRUCTIONS

After disconnecting water drain line, bin thermostat leads, and two prong power plug, the dispenser can be removed by one of two methods, 1) the slide out method is accomplished by removing wing nuts located at right and left bottom front of dispenser, 2) the lift out method is accomplished by removal of band wrapped around base of dispenser.

The Automatic Ice Dispenser should be cleaned at least once a month. After removal of hopper, wash lid and inside of hopper with a solution of hot water and a detergent soap. Rinse with lukewarm water. (DO NOT USE SHARP TOOLS, SUCH AS A PICK OR SCRAPER INSIDE HOPPERS AS YOU CAN DAMAGE THE SMOOTH SURFACE.) You can then replace hopper, unit can then be put back into operation.

AUTOMATIC ICE DISPENSER

Model SD80

SERVICE ADJUSTMENTS

The Automatic Ice Dispenser has only one (1) hopper which contains these main components, a bin thermostat, the dispensing gate solenoid assembly, a dispensing timer, a hopper agitator motor and relay, and a 15 min. agitating timer.

A - BIN THERMOSTAT

Shuts off Ice Maker when dispenser is full. The thermostat bulb is located on side wall of dispenser as shown on page 23, item 1. When the stored ice in the bin reaches a height sufficient to touch this thermostat bulb, the thermostat contacts will open and stop the operation of the Ice Maker. This may occur at any point in the ice making or harvest cycle. When ice is not in contact with the bin thermostat bulb the thermostat contacts close and the Ice Maker resumes operation. The thermostat contacts open at 34° F. and close at 39° F. The thermostat is sensitive the full length of the bulb.

The thermostat can be checked by taking a handful of ice and placing it on the bulb. The machine should shut off in 15 seconds or less. If it doesn't shut off the thermostat is set too cold and should be turned 1/4 turn warmer. Then repeat operation until thermostat is set properly.

B - DISPENSING GATE SOLENOID ASSEMBLY

The dispensing gate solenoid assembly consists of a dispensing gate slider, and a rotary solenoid as shown on page 23, items 2,3,4. The gate slider, when in a down position, closes the opening inside of hopper. When in an up position it allows ice to pass through and dispense. The rotary solenoid is the power for raising the gate slide and operates when activated by the dispensing switch located behind operating lever on front of machine.

A failure to dispense ice can be caused by a binding gate slide which can be either bent or have sharp edges on it, an open coil or a bad rectifier, or a defective dispensing switch.

C - DISPENSING TIMER

The dispensing timer is located in the electrical box near hopper. The function of this timer is to be able to dispense anywhere from 3 to 10 oz. of ice per portion.

This timer is actuated by the dispensing switch located under the operating lever. The timer is operational only when set for metered flow. Should you desire more than 3 oz. of ice per portion, which is factory set, follow instructions for setting dispensing timer on page 24.

AUTOMATIC ICE DISPENSER

Model SD80

SERVICE ADJUSTMENTS (continued)

DISPENSING TIMER (continued)

Failure to dispense ice or ice dispensing continuously when set for metered flow can be caused by a defective timer motor, defective timer switch or a defective dispensing switch.

D - HOPPER AGITATOR MOTOR AND RELAY

The agitator motor Page 23 items located under bottom of hopper and relay is located in electrical box shown on page 23, item 7. This motor rotates agitating arms inside of hopper in a counter-clockwise rotation looking into hopper. The function of the agitating arms is to move the entire mass of ice. This serves three purposes: 1) to keep the ice from solidifying, 2) to maintain an even level of ice inside of hopper, 3) to force ice out of dispensing gate when necessary.

The agitating motor is activated by two methods: 1) when the dispensing switch is depressed, 2) by the 1/2 hour agitating timer.

A failure to dispense ice can be caused by a defective dispensing switch or a defective agitator motor. A failure in the agitator motor can also cause a bridging of ice in the evaporator section, a back up of ice in chute, and a solidification of ice in hopper.

E - 1/2 HOUR AGITATING TIMER

The 1/2 hour agitating timer is located in the electrical box.

The function of this timer is to activate the agitator motor every 1/2 hour, twenty-four hours a day.

A failure in the timer motor or switch can cause a bridging of ice in evaporator section, a back up of ice in chute, and a solidification of ice in hopper.

F - POWER FAILURE

A power failure in the hopper can be caused by 1) broken or disconnected leads on bin thermostat, 2) loose or disconnected three (3) prong power plug.

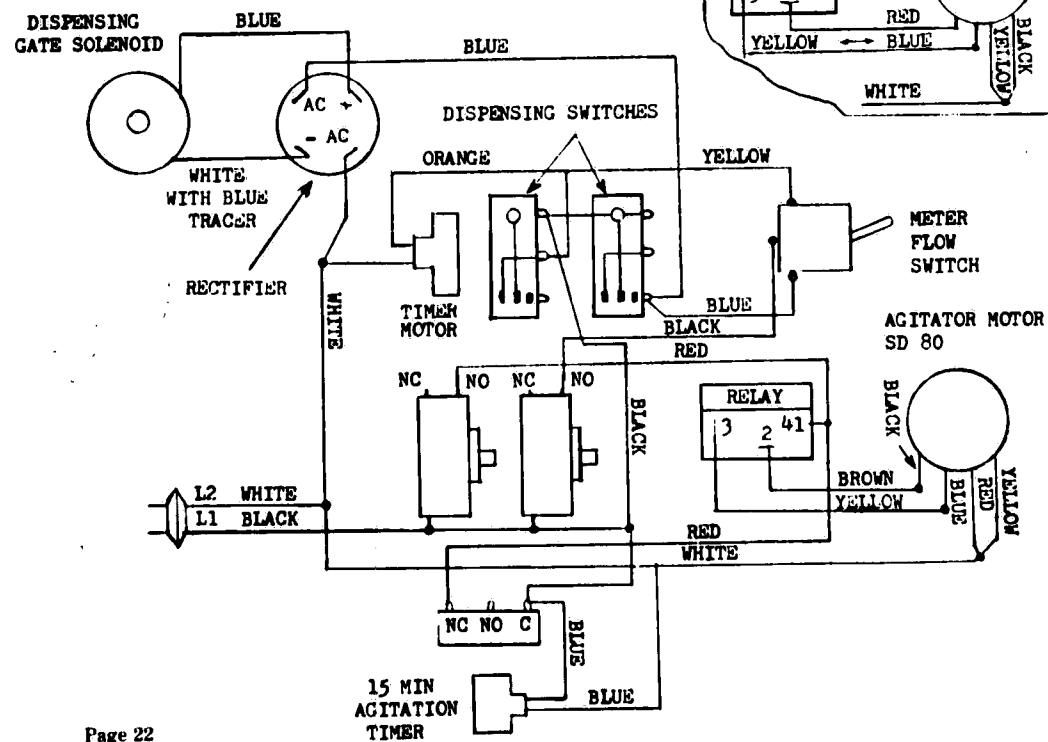
AUTOMATIC ICE DISPENSER

Model SD80

SERVICE PROBLEMS

Problem	Possible Causes	See Service Adjustments
Failure to dispense ice	Power failure Broken agitator motor or defective motor relay Defective dispensing switch Defective rotary gate solenoid or sticking gate slide Defective dispensing timer motor or timer micro switch	F D B, C, D B C
Ice dispensing continuously	Stuck dispensing switch Defective micro switch on timer	B, C, D C
Bridging of ice in evaporator section	No agitation in hopper	D, E
Back up in chute	No agitation in hopper	D, E
Solidification of ice in hopper	No agitation in hopper	D, E
Extremely wet ice in hopper	Plugged drain lines in hopper Water float valve stuck open Leak in water reservoir Defective water diverting bar	Page 5 Item A Page 5 Item B Page 9 Item N

Typical Only Some Details May Vary
WITHOUT DISPENSING TIMER



B-13

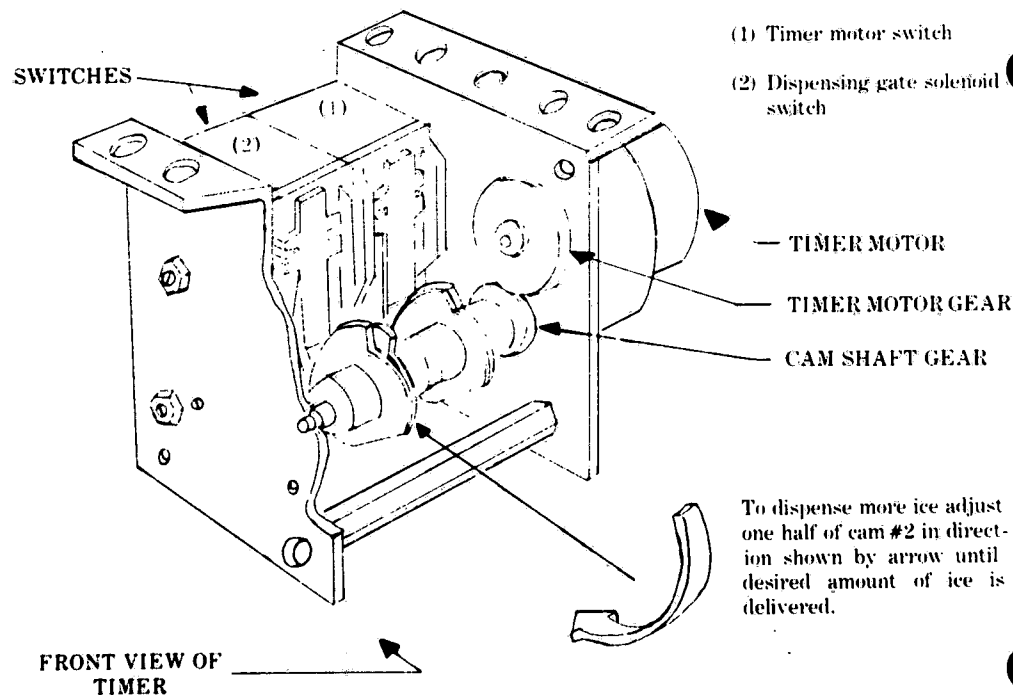
The drawing consists of two views of a mechanical component. The top view is a side elevation showing a vertical assembly. It includes a handle (1) at the top, a pivot point (2) where the handle meets the main body, a vertical rod (3) extending downwards, a base (4) at the bottom, and a foot (6) on the left side. The bottom view is a front elevation showing a circular cross-section. It features a central hole (5), a vertical rod (7) passing through the center, and a base (8) at the bottom. The drawing uses solid lines for visible edges and dashed lines for hidden internal features.

- 1 Ice storage hopper level thermostat
- 2 Ice storage hopper dispensing gate solenoid
- 3 Ice storage hopper dispensing gate
- 4 Ice chute
- 5 Ice storage hopper agitator motor
- 6 Slide rail for removing hopper
- 7 Hopper slide tie down bolt
- 8 Hopper drain tube

B-14

PROCEDURE FOR SETTING DISPENSING TIMER

The dispensing timer is factory set to dispense approximately three ounces of ice for each portion. Should you desire more than three ounces of ice per portion on metered flow, you must (1) remove lower stainless steel front panel with operating lever attached; (2) locate dispensing timer, which is in lower front right-hand side of cabinet; and, (3) adjust the cam on the second micro-switch to the right of the timer motor. Ice is dispensed on metered flow setting only when micro-switch on the timer is in the normally closed position. By backing the cam that raises the switch arm to normally open position, the cam will then hold the dispensing gate solenoid open longer, allowing more ice to be delivered to the glass or container that you are filling with ice.



HOPPER PARTS LIST MODEL SD80

VENDOR PART NO.	DESCRIPTION OF PART	AMSCO PART NO.
50380	Lid Plastic	
30663	Agitator Motor Kit (Round Shaft With Keyway)	P-757203-091
30482	Agitator Motor (Round Shaft)	P-757204-091
20554	Hopper Dispensing Gate Solenoid Arm	
30369	Hopper Dispensing Gate Solenoid	P-78814-091
30394	Hopper Dispensing Gate Solenoid Rectifier Only	P-79747-001
20552	Hopper Dispensing Gate Assembly Complete with Solenoid Rectifier and Spout	P-78811-091
20553	Hopper Dispensing Gate Assembly and Spout Less Solenoid and Rectifier	
20555	Hopper Dispensing Gate Slide	P-752008-091
70341	Hopper Dispensing Gate Slide Spring	P-752009-091
	Ice Chute	P-755598-001
20599 20563	Agitator Assembly for Units Prior to Serial No. 3148 For Units After Serial No. 3148	P-754561-091
20564	Hopper Dispensing Gate Spout Large	P-751500-091
30523	Dispensing Switch and Nuts	P-78805-091
30372	Dispensing Timer (Portion Control)	P-758198-091
30373	Agitating Timer (15 Min.)	P-750500-091
50360	Agitator Motor Gasket	P-750159-091
30397	Hopper Harness	P-750332-091
30757	Hopper Thermostat	P-759077-001
30385	Dispensing Timer Switch	P-758199-091
90201	Label (Press For Ice)	
90205	Label (Meter Flow)	
90204	Label (Continuous Flow)	
30530	Capacitor, Agitator Motor	N.L.A.

SERVICE ADJUSTMENTS

1. ICE THICKNESS THERMOSTAT HEATER

This is a two watt heater clamped to the outside of the lower end of the water scoop tube. This heater is on only when the six minute harvest timer is in operation allowing the ice thickness thermostat to return to the "OFF" position rapidly after the harvest cycle is started.

If the ice thickness thermostat heater is inoperative, check for electrical power. Replace the heater if not operating.

2. TIMER

Sequences the operation of ice harvest components at completion of the ice making cycle.

TIMER SEQUENCE

1. The distance of the flowing water from the freezer plates is increased as ice builds up on the plates so that the water ultimately flows through the water scoop tube over the thermostat bulb of the ice thickness thermostat, causing its contacts to close, starting the timer motor for a six-minute run. (Cam and Timer Switch No. 4A - See Page 15 or Page 15a for Model IV40W-2).
2. Approximately 10 seconds later, the water circulating pump and the condenser fan motor stop (Cam and Timer Switch No. 4B - See Page 15 or 15a for Model IV40W-2). If the ice making equipment is water cooled, just the water circulating pump stops.
3. Immediately after the water circulating pump and the condenser fan motor stop (Cam and Timer Switch No. 4B - See Page 15 or Page 15a for Model IV40W-2), the hot gas solenoid valve opens for 60-75 seconds (Cam and Timer Switch No. 4B). COMPRESSOR RUNS CONTINUALLY DURING THE HARVEST CYCLE.
4. When the hot gas solenoid valve closes (Cam No. 4B), a new ice making cycle starts.
5. The water circulating pump and the condenser fan motor start (Cam and Timer Switch No. 4B) immediately after the hot solenoid closes.
6. Approximately 15 seconds after the timer starts, the water drain valve opens for approximately 30 to 45 seconds to drain the water reservoir (Cam and Timer Switch No. 4D).
7. The timer motor stops at the end of its six-minute run.

SERVICE ADJUSTMENTS (continued)

IT IS ADVISABLE NOT TO CHANGE TIMER CAM SETTINGS UNLESS ABSOLUTELY NECESSARY.

3. REFRIGERATION SYSTEM

Freon 12 Refrigeration System. Compressor operates continually except when stopped by bin thermostat.

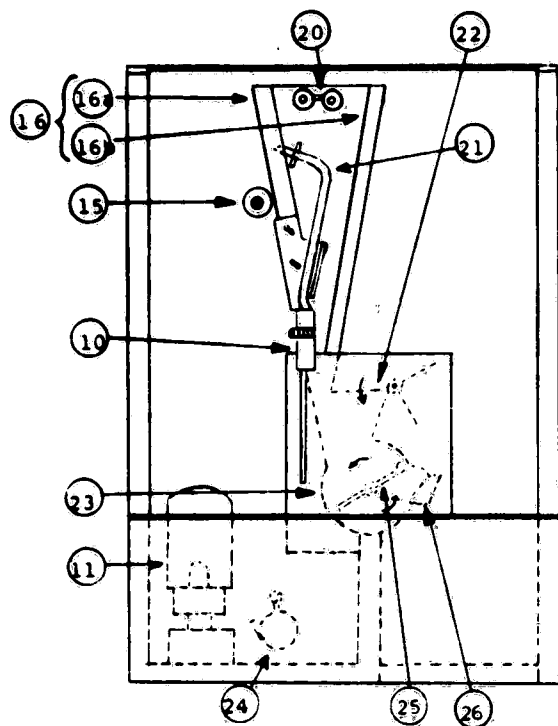
If the refrigeration system is not functioning properly, check for

1. Plugged or faulty thermostatic expansion valve.
2. Plugged drier.
3. Inefficient compressor.
4. Inoperative condenser fan. SEE NO. 5.
5. Inoperative hot gas solenoid valve (partially open, stuck open, or not opening). See H on Page 7.
6. Stuck open water drain valve.
7. Overcharge or undercharge of Freon 12 Refrigerant Gas. SEE BELOW.

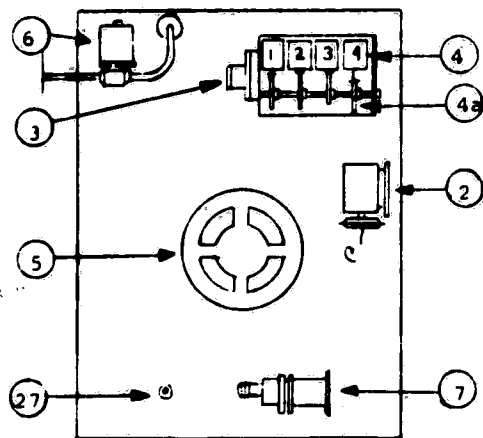
OVERCHARGE OR UNDERCHARGE OF FREON 12 REFRIGERANT GAS

At 75° F. ambient, the back pressure should level off to approximately 8-12 lbs. towards the end of the ice making cycle. After the ice sheets are formed, the correct refrigerant gas charge is indicated by a cold suction line to within approximately one inch of the compressor dome.

Model IV20W
Typical Only - Some Details May Vary



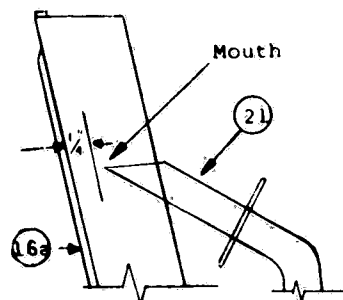
Front View
Ice Maker Mechanism



Rear View

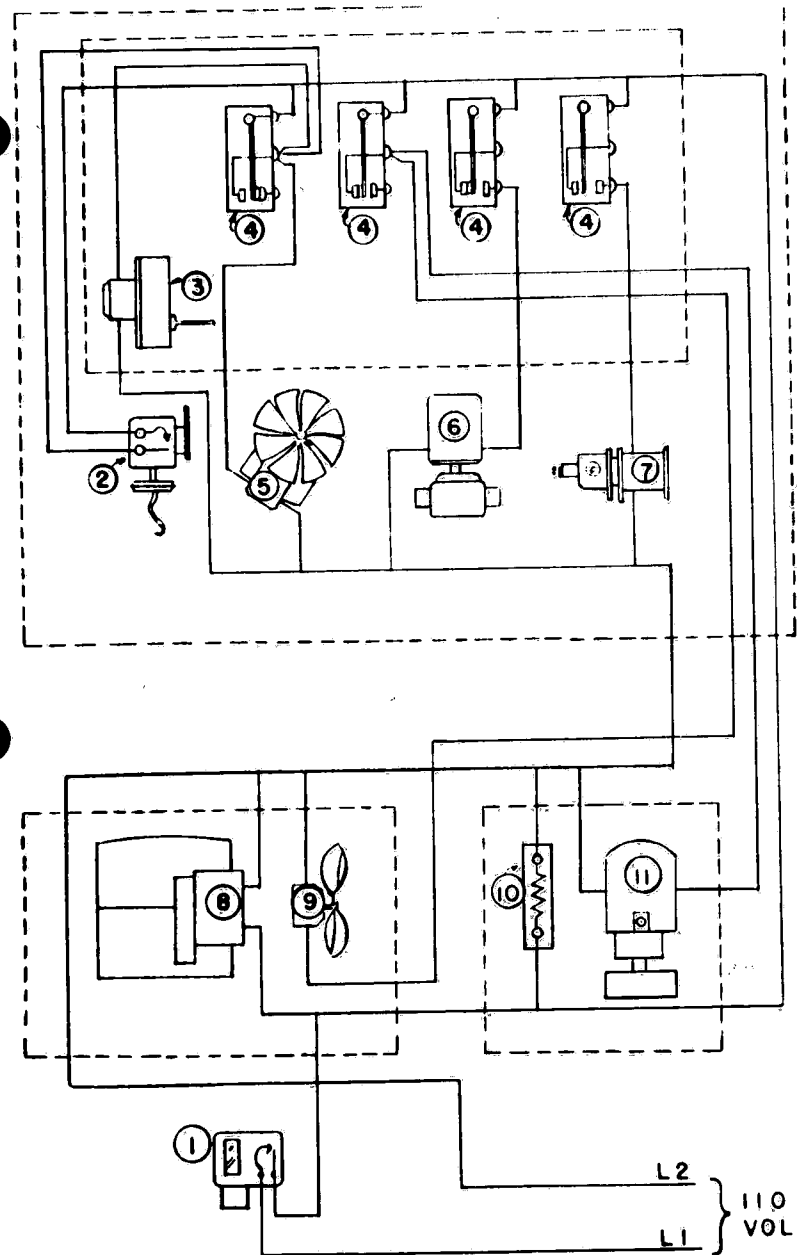
COMPONENT PARTS

- 2 Ice thickness thermostat
- 3 Timer
- 4 Timer micro-switches
- 4a Timer cams
- 5 Cracker motor
- 6 Hot gas solenoid valve
- 7 Water drain valve
- 10 Ice thickness thermostat heater
- 11 Water circulating pump
- 15 Thermostatic expansion valve
- 16 "V" Plate assembly
- 16a Primary freezer plate
- 16b Secondary freezer plate
- 20 Water distributor header
- 21 Water scoop tube
- 22 Water diverter
- 23 Cracker trough
- 24 Water float valve
- 25 Ice cracker blades
- 26 Ice sizing holes
- 27 Water inlet fitting



Front View

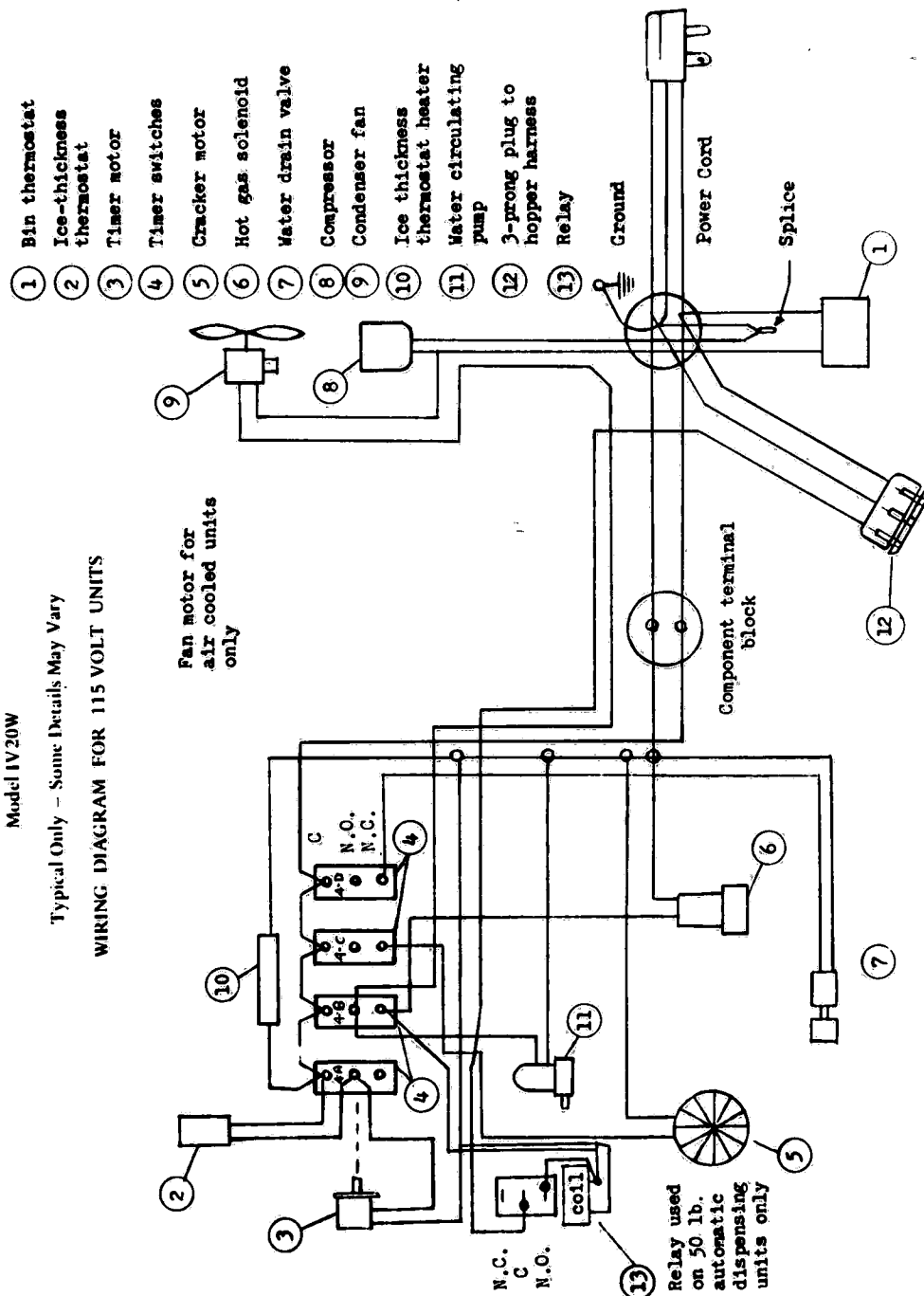
Water Scoop Tube
Adjustment



- 1 Bin thermostat
- 2 Ice-thickness thermostat
- 3 Timer motor
- 4 Timer switches
- 5 Cracker motor
- 6 Hot gas solenoid
- 7 Water drain valve
- 8 Compressor
- 9 Condenser fan
- 10 Ice thickness thermostat heater
- 11 Water circulating pump

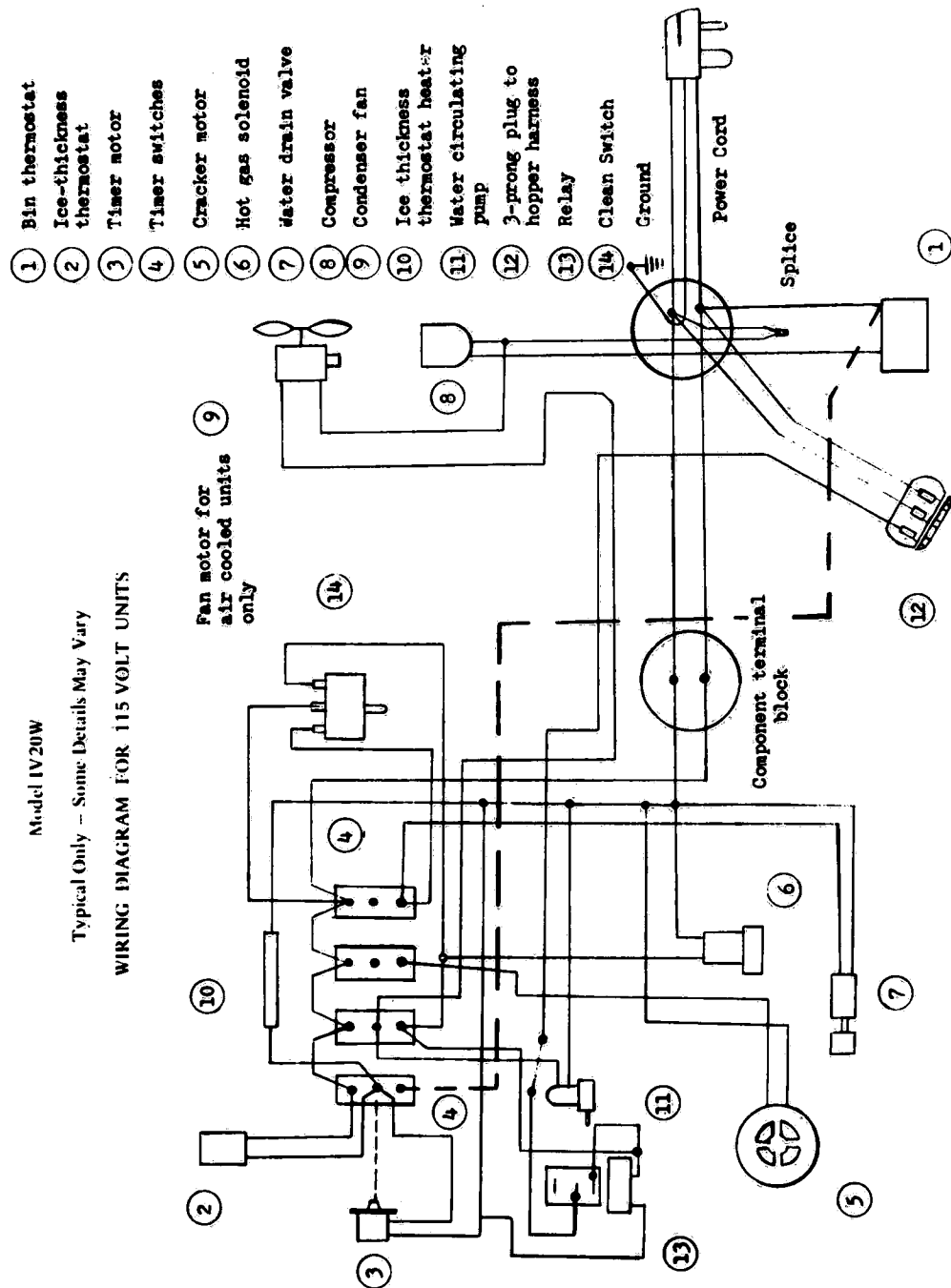
WIRING DIAGRAM MODEL IV20W
Typical Only - Some Details May Vary

WIRING DIAGRAM FOR 115 VOLT UNITS

REMCOR ICE MAKER PARTS LIST
IV-20W MODELS ONLY

VENDOR PART NO.	DESCRIPTION OF PART	AMSCO PART NO.
50360	Gasket, cracker motor	P-750159-091
20715	Water diverter bar	P-751491-091
60257	Thermostatic expansion valve F-12	P-751690-091
50445	Insulator, scoop tube	
40101	Drain valve, water	P-75808-091
30351	Capacitor, starting	P-751330-091
30354	Overload, protector (compressor)	P-751908-091
60204	Dryer 1/4" (sweat)	P-756266-091
50351	Plastic hose (ALL MODELS) Twelve Foot Length	P-756267-091
60206	Solenoid, valve hot gas	P-751562-091
60208	Condenser, water cooled	
40102	Regulating valve, water	P-752455-091
60211	Pressure control (Dual)	
30757	Bin thermostat (use on ice maker w/bin only)	P-759077-001
30377	Wiring harness	P-751830-091
50361	Water pan, plastic	P-750216-091
50446	Insulated unit cover	P-752380-091
30499	Cracker motor conversion kit complete for units prior to Serial No. 2168 see 78486-091 and 750949-091	N.L.A.
IM 694	Feedback relay used on 50# dispensing unit only up to Ser. #2338	P-750435-091
30384	Clean switch (on all units after Ser. #2321)	P-751480-091
30484	Magnetic pump	P-753851-091
50438	Distributor header water small holes	P-756201-091

WIRING DIAGRAM FOR 115 VOLT UNITS



Bin thermostat override lead
(connect to rib side shown in dotted line)

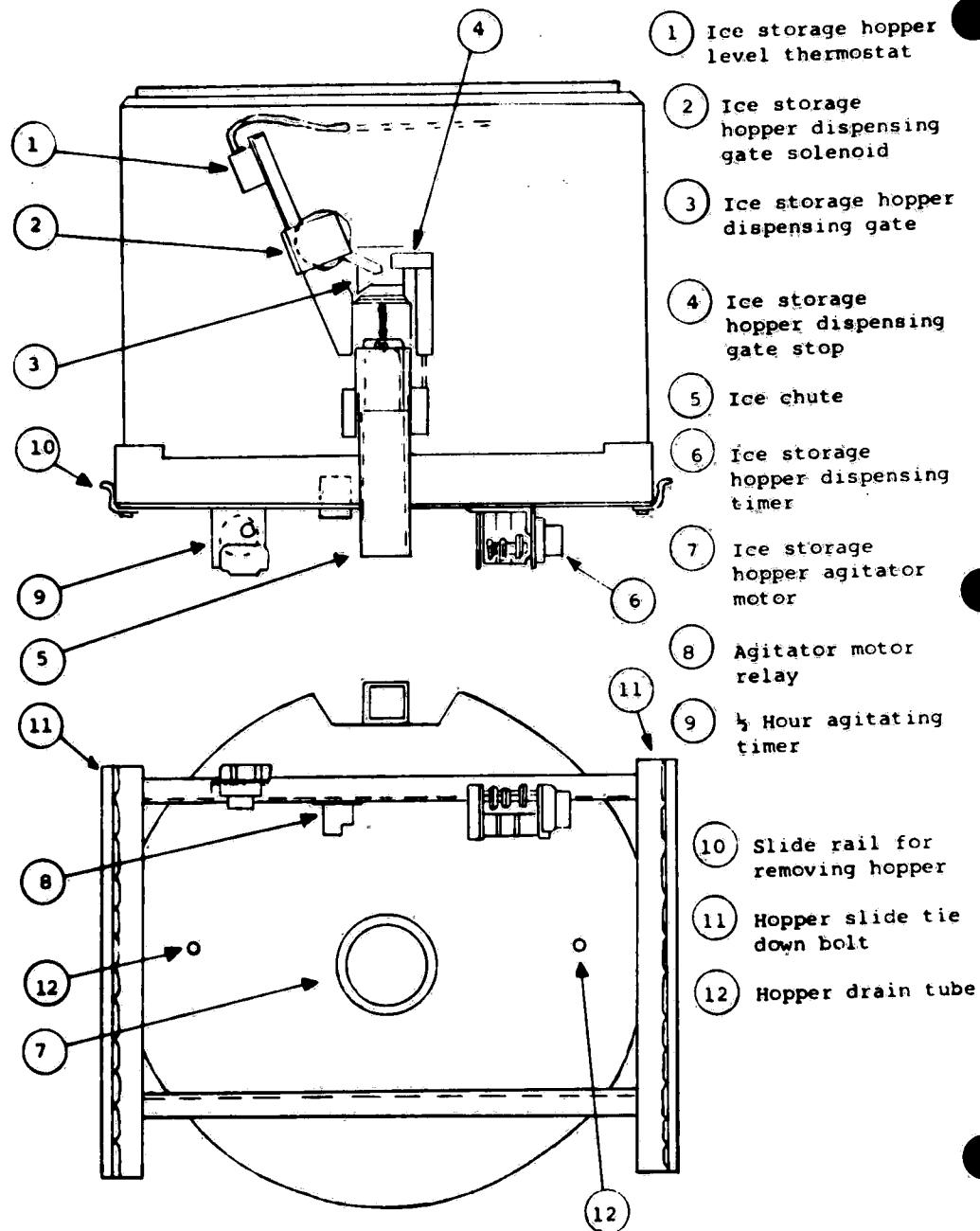
REMCOR ICE MAKER PARTS LIST

IV-20W MODELS ONLY

VENDOR PART NO.	DESCRIPTION OF PART	AMSCO PART NO.
30516	Compressor w/relay, overload & start capacitor (M50T)	P-78813-091
30357	Timer, four cam 6 min.	P-78807-091
30358	Thermostat, ice thickness	P-78485-091
30487	Motor, cracker for units after serial no. 2168	P-78486-091
20708	Cracker bar assembly	P-750949-091
20710	Cover, cracker bar assembly	P-754841-091
50369	Water pump elbow	P-752348-091
40152	Float valve, water	P-78809-091
20712	Scoop tube, water draw off to right	P-756394-091
60265	Evaporator plate assembly	P-756146-091
30496	Relay, starting	P-751907-091
	Switch, micro (for 4 cam, 6 min. timer)	P-754484-091

ICE STORAGE HOPPER - MODEL RD-50

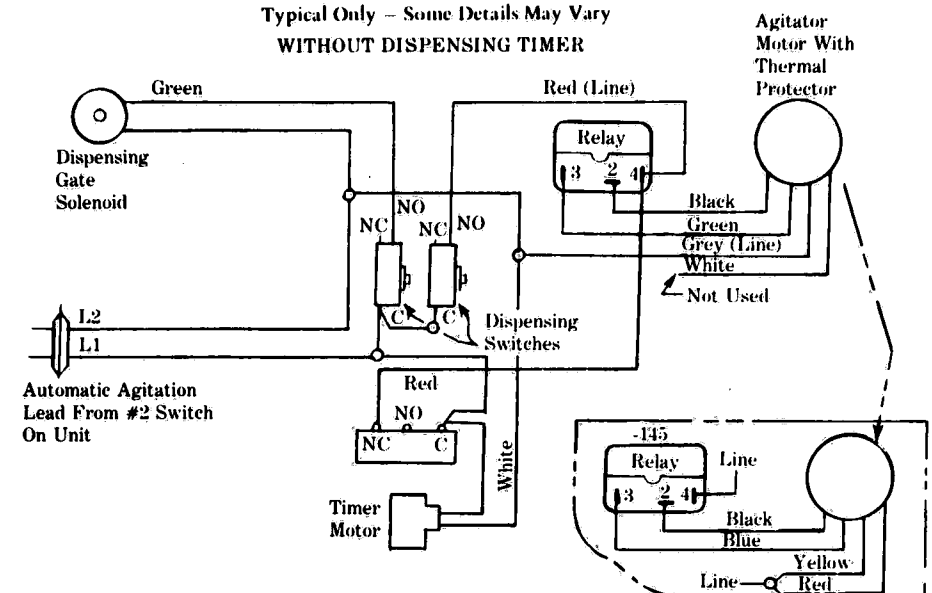
Typical Only Some Details May Vary



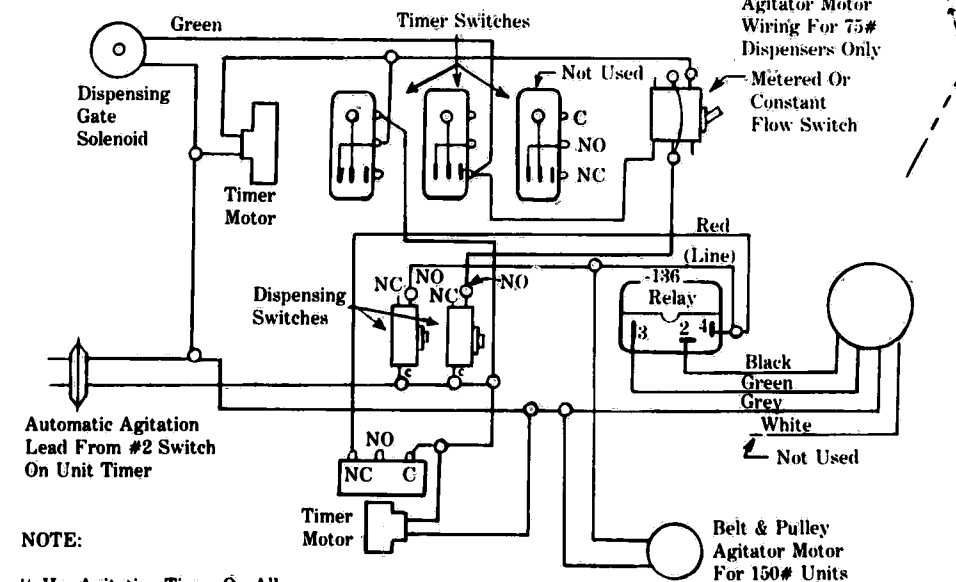
WIRING DIAGRAMS FOR AUTOMATIC ICE DISPENSERS

Model RS-50

Typical Only - Some Details May Vary
WITHOUT DISPENSING TIMER



WITH DISPENSING TIMER



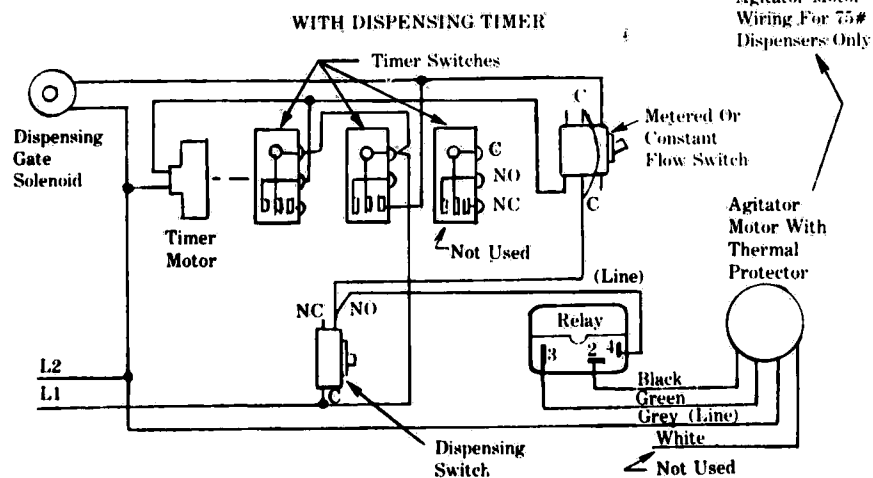
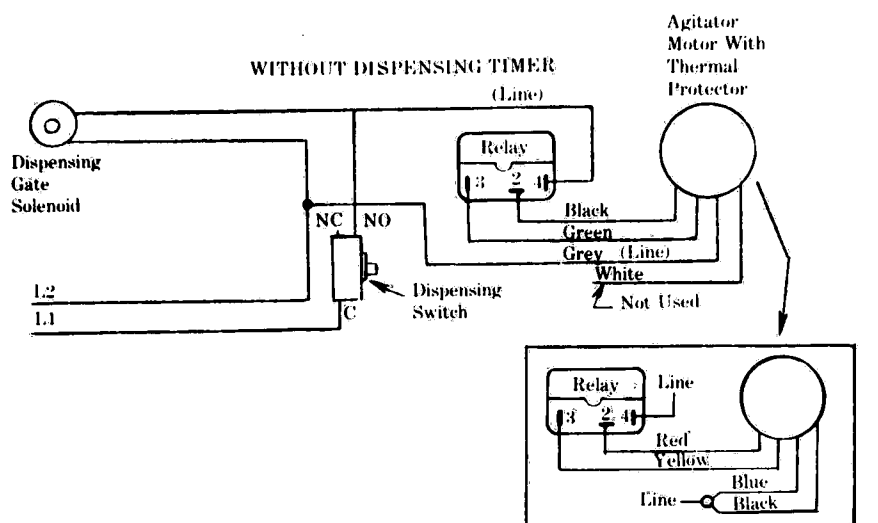
NOTE:

1/2 Hr. Agitation Timer On All 50# and 75# Units Starting With S/N 2339

WIRING DIAGRAMS FOR AUTOMATIC ICE DISPENSERS

Model RS-50

Typical Only -- Some Details May Vary



NOTE:
If unit has agitator motor without overload protector, black and gray are connected to common line (White). Blue goes to terminal #2 on relay, green goes to terminal #3 on relay. Red wire (Line) to terminal #4 on relay.
21066

HOPPER PARTS LIST MODELS RD50

VENDOR PART NO.	DESCRIPTION OF PART	AMSCO PART NO.
50352	Lid, plastic (white plastic) 20 1/4" diameter	P-752572-091
30662	Hopper agitator motor kit (shaft end squared)	P-757200-091
30661	Hopper agitator motor (square shaft)	P-757201-091
20554	Hopper dispensing gate solenoid arm	P-78814-091
30369	Hopper dispensing gate solenoid	P-78811-091
20552	Hopper dispensing gate assembly complete with solenoid, rectifier & Spout	
20553	Hopper dispensing gate assembly less and spout less solenoid & rectifier	
20555	Hopper dispensing gate slide	P-752008-091
70341	Hopper dispensing gate slide spring	P-752009-091
20559	Hopper agitator assembly	P-751609-091
20564	Hopper dispensing gate spout	P-751560-091
20565	Cross channel for top of hopper	
30523	Dispensing switch and nuts	P-78805-091
30372	Dispensing timer (portion control)	P-758198-091
30373	Half-hour agitating timer (15 min.)	P-750560-091
50360	Hopper agitator motor gasket	P-750159-091
30397	Wiring harness	P-750332-091
30757	Hopper thermostat	P-759077-001
30394	Rectifier for dispensing solenoid	P-79747-001
30385	Dispensing timer switch	P-758199-091
30530	Capacitor, agitator motor	N.L.A.
	Storage Hopper	N.L.A.



**AMSCO
SERVICE**

CRACKED ICE MAKER/DISPENSER

(1/79)

P-751537-002

1 of 1

