

**SERVICE MANUAL
BEDIENUNGSANLEITUNG**

SD 10

R 134 a

**Home ice cuber
Kegeleisbereiter**

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TO THE USER

Your model SD 10 Ice Maker is a product carefully engineered and quality constructed to provide you with many years of faithful performance and a minimum of maintenance costs.

Produced by the world's leading group of automatic ice making equipments, your ICE CUBE MAKER incorporates the same reliable systems already proven over years of actual operation by thousands of users. Many of you will have an opportunity to see and use clear, slow melting CUBERS for the first time.

You will quickly compare the clear, glass-like

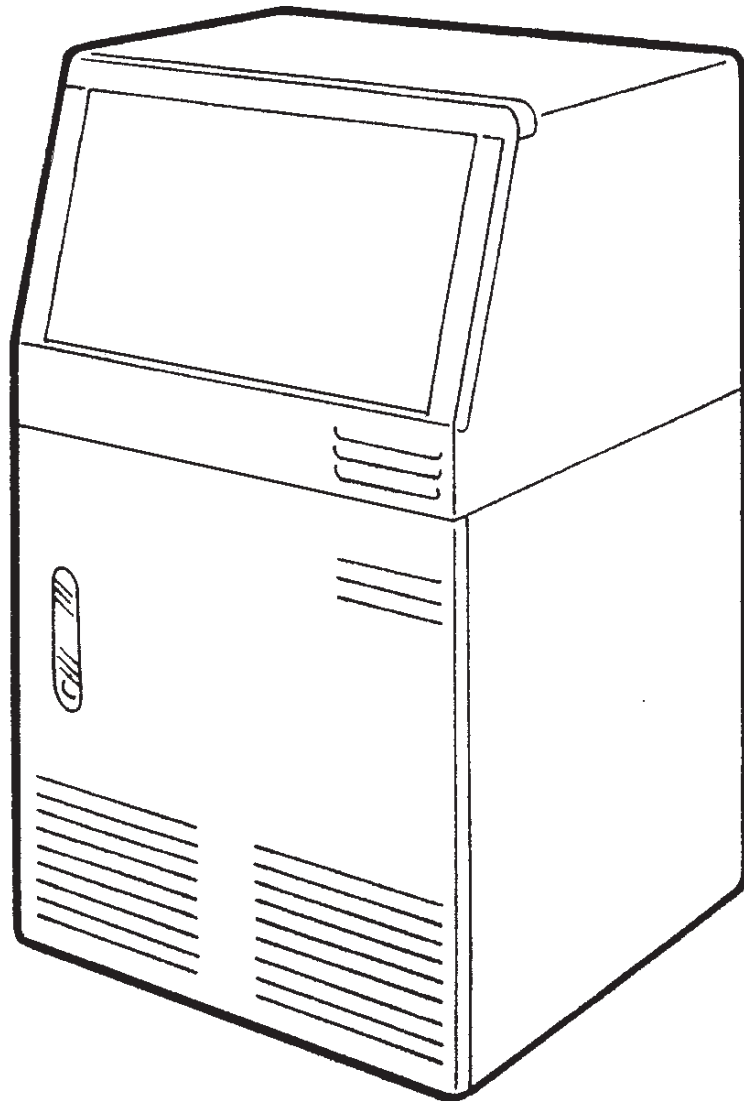
quality of your Cubes to the type produced by your home refrigerator, freezer.

By comparison, cubes made in trays in your refrigerator are very white or cloudy, they also melt faster than clear ice.

Take the time now to review this manual and you will see why these Cubes are solid and clearer than ice cubes of your refrigerator.

No installation is required

Easy access for service is provided by the prompt removal of the front panel and/or the cabinet.



USER'S INFORMATION

INTRODUCTION

This manual provides the specifications and the step-by-step procedures for the start-up and operation and, the maintenance and cleaning for the Model SD 10 Automatic Ice Cube Maker.

The SD 10 Automatic Cubers are quality designed, engineered and constructed and thoroughly, tested ice making and ice storage systems, providing the utmost in flexibility to fit the needs of particular users.

Separate sections detail more specifically: General Informations & Start-up Operation; Principles of Operation; Adjustment and Removal and Replacement Procedures; Maintenance & Cleaning Instructions; Service Diagnosis; Wiring Diagrams; and the illustrated Assemblies, Parts List & Accessories.

One of the outstanding features of this series of cubers is the easy way for starting it up.

Since it does not require any plumbing connection, it can be placed in any location and put in operation.

DESCRIPTION

An attractive compact cabinet of textured plastic with an almond enamel finish, makes the styling of the SD 10 very handsome allowing it to be in harmony with many interior decors. The easy removable front panel provides immediate access to the water reservoir and to the electro-mechanical components.

SEALED REFRIGERATION SYSTEM

The compressor is fully hermetic and its motor is internally spring-mounted to ensure quiet and efficient operation of the Ice Maker.

The refrigerant circuit is entirely sealed to prevent mishandling and refrigerant leaks.

SELF CONTAINED STORAGE BIN

The SD 10 ICE MAKER stores its own ice supply in a properly insulated ice storage bin.

A sensing bulb of a thermostat keeps automatic control of the stored ice cubes level.

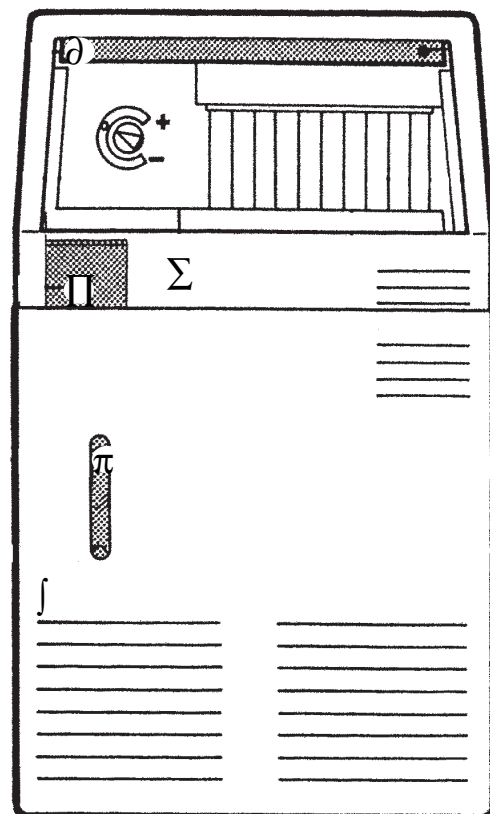
A sliding (recessing) plastic door located in the upper front of the cabinet gives ample access to the storage bin.

REMOVABLE WATER RESERVOIR

The most exclusive feature of the SD 10 consists in having a removable water sump reservoir. It can be easily removed at any time to be washed clean.

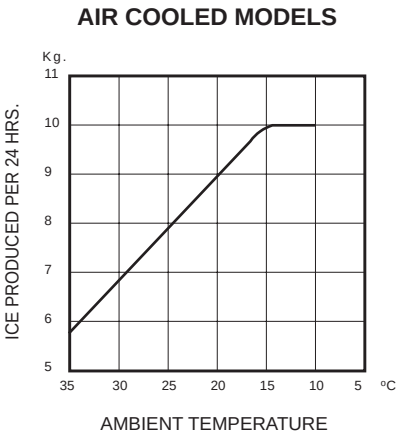
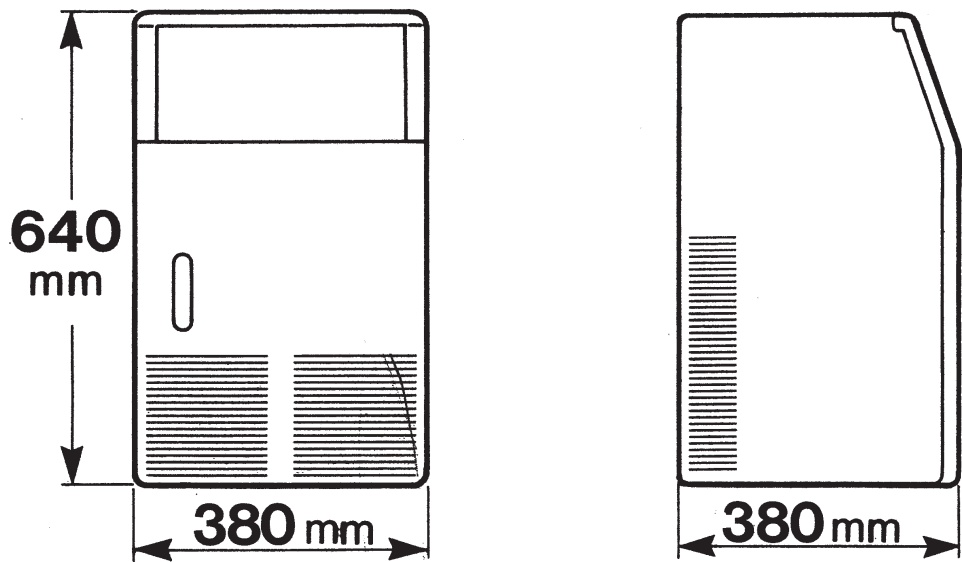
A water level indicator is provided on the front of the reservoir allowing prompt visual inspection of water level into reservoir.

A special funnel in communication with the water reservoir allows prompt and easy filling of water reservoir itself without the need to remove it.



- ∂ bin recessing door
- Σ ice storage bin
- Π water vessel
- π water level indicator
- $\int$ front panel

SPECIFICATIONS

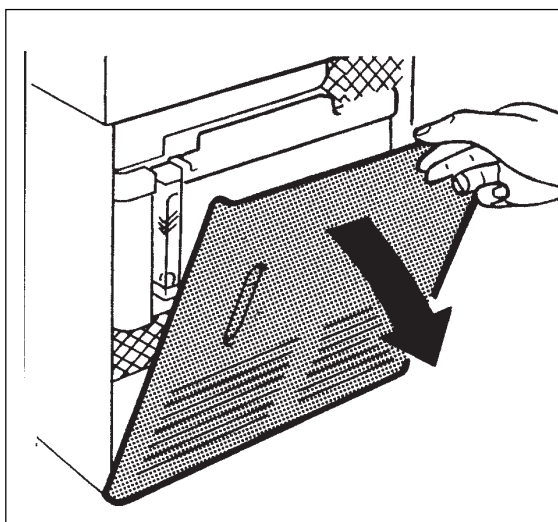


- **Dimensions** = m/m 380 wide-380 deep-640 high
- **Weight** = 29 kg (64 lbs.)
- **Cabinet** = Plastic
- **Finish** = Enamel
- **Color** = Almond
- **Storage bin** = ABS
- **Door** = Sliding (recess)
- **Power Requirements** = 230 Volts, 50 Hz, 1 Phase
- **Power Consumption** = 4,5 Kwh x 24 HRS
- **Wire Size** = 1 m/m²
- **Fuse Size** = 6 Amps
- **Compressor** = 1/5 HP
- **Refrigerant metering device** = Capillary
- **Refrigerant Charge** = 220 grms FREON, R 134 A
- **Harvest Means** = Hot gas
- **Cubes per harvest** = 8
- **Storage bin capacity** = 3.5 Kgs. (7.7 lbs.)
- **Water reservoir capacity** = 4 liters (1.1 gl.)

NOTE. When machine is "built-in" at ambient temperature of 32°C (90°F) indicated ice capacity decreases about 10%.
To keep your HOME ICE CUBER performing at its maximum capacity, it is necessary to perform periodic maintenance as outlined on page 7 of this manual.

OPERATIONS TO PERFORM BEFORE UNIT START-UP

- 1) After unpacking the unit, visually inspect its exterior and make sure it does not show any severe damage.
- 2) Remove Lower Compartment Panel and inspect for concealed damage; then check if fan blades move freely, and if compressor is snug on all mounting pads.



- 3) Open the bin door and remove any wrappings or adhesive tape that may be inside, as well as the instruction card attached to the control knob.
- 4) Use clean damp cloth or disposable paper wiper to wipe clean the interior surface of ice storage bin.
- 5) Place ice maker in its selected permanent location and make sure that it is properly levelled.

NOTICE: Prior consideration for location site shall include:

- a) Minimum room temperature 10°C (50 degrees F); and maximum room temperature 40°C (100 degrees F)
- b) Well ventiled location for efficient air removal around the unit and maintain proper condensing operation.
- c) Service Access i.e. adequate space for prompt service inspections.

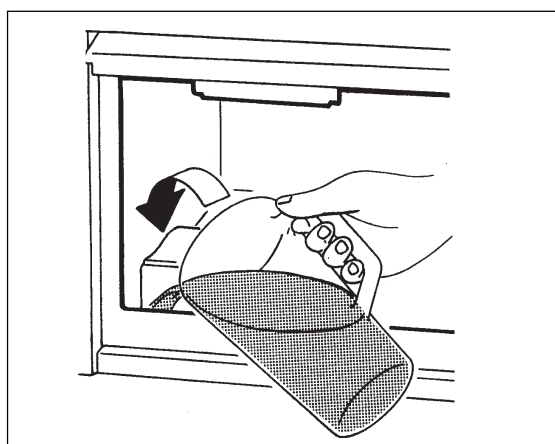
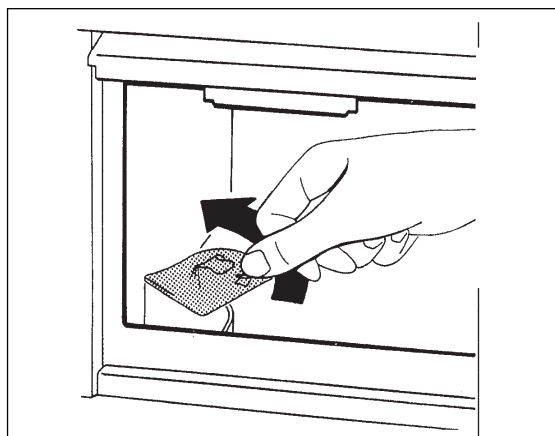
- 6) Check that the location source voltage corresponds with the voltage specified on the nameplate of the unit.

WARNING: The location power source must have a solid earth wire connection.

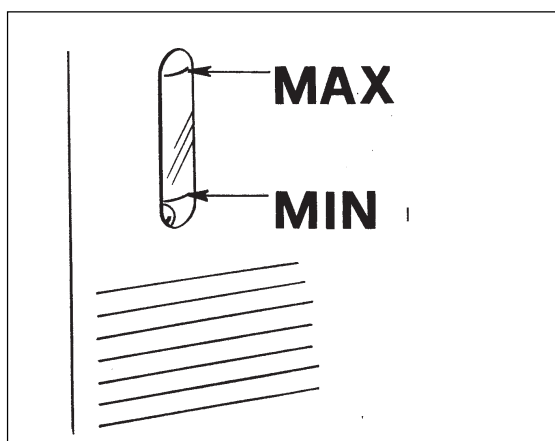
OPERATING INSTRUCTIONS

START-UP

- 1) Locate on left side, in storage bin compartment the funnel for pouring the water.
- 2) Through this funnel pour in unit water reservoir 4 liters of fresh potable water.



- 3) Check to see through the water level glass the water level obtained. (Must not exceed the maximum level line and not below minimum level line).



4) Plug the electric cable into the appropriate socket. Make sure that the indicator on the control knob is pointing to the "white dot". The machine is now working and the first cooling cycle can begin.

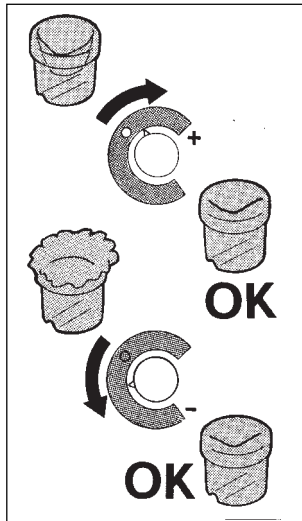
5) The first freezing cycle will last about 35 minutes. During this time, make sure that the plastic curtain that covers the water spray system hangs down loose and no excessive water is passing through, make sure to eliminate eventually noises and vibration sources.

6) After about 35 minutes of operation, the first ice cubes harvest takes place.

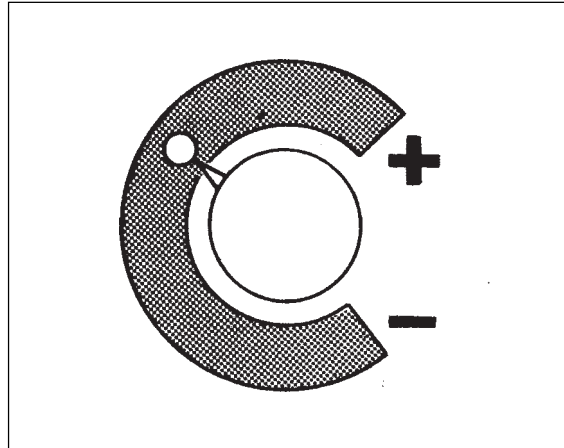
7) During the harvest cycle, which lasts about 3 minutes, the hot gas, circulating through the evaporator serpentine, defrosts the ice cubes up to the point that they are released from their mold cups and drop into the storage bin.

8) **If the temperature of the room in which the machine is placed is below 20°C, the cubes will tend to be partly hollowed out (see fig. on right).**

If, on the other hand, the room temperature is above 30°C the cubes produced will have a jagged rim of ice around the crown.



9) If it is thought necessary, the above situations can be remedied by, in the first case, turning the control knob indicator (as little or as much as is required) to the right of the white marker and, in the second case, turning the knob to the left. It should, however, be remembered that if the room temperature returns later to the 20 ÷ 30°C range, the knob indicator must once again be turned to point to the white dot. (see fig. below).



10) The ice maker will automatically stop when the ice cubes in this storage bin compartment cover the sensing bulb of the bin thermostat and will automatically start when the same sensing bulb will be cleared from the ice.

11) Remember to fill up the water reservoir before the water level in it goes below the minimum level line of the indicator. In any case, if for some reason the machine is left running for a short time without water, no serious harm will be caused.

CLEANING AND CARE

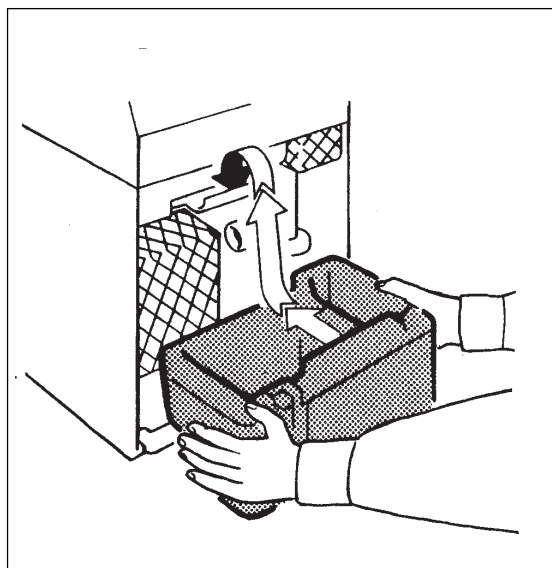
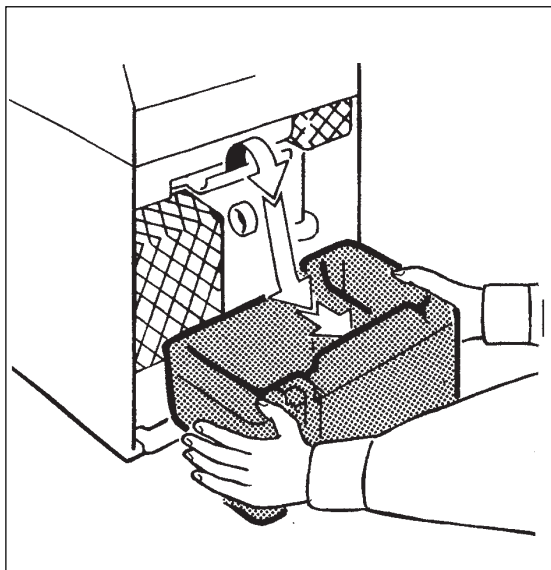
WARNING - Before proceeding with any cleaning operation make sure that the power line of the unit is disconnected.

WATER RESERVOIR AND STORAGE BIN LINER

All commercial units that make or contain edible produces, require a frequent thorough sanitation of all their parts that are in contact with the produces.

It is recommendable, therefore, to perform the cleaning and disinfecting operation once a week as per the following indications.

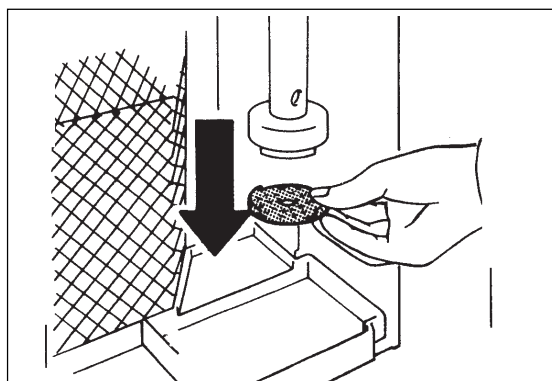
- Remove all ice cubes deposited in ice storage bin if there are any.
- Remove the front lower panel by pulling it from its upper edge and locate the water reservoir.
Place one hand under the reservoir in order to hold it and with the other grab the hooked front edge.
- Slightly move the reservoir upward until it is loose, then lower and tilt it a bit while drawing out (try to avoid the pump body in doing this).
- Make this reservoir empty and then place it back in the unit.
- In a separate plastic pan, prepare a solution with our rinsing - disinfectant P/N 264000 02.
- Pour the prepared solution into the storage bin compartment then wipe clean its interior, meanwhile the solution flows down into the reservoir.
- Connect the power line and put in operation the unit for few minutes. The bleaching solution will be circulated by the pump through the water pipes and nozzles.
- Disconnect the power line, remove again the plastic reservoir, make it empty then re-fit it in its place.
- Pour through the funnel the necessary quantity of new fresh water until the maximum water level in the water reservoir is reached.
- The unit is now sanitized and can resume normal operations.



PUMP INLET SCREEN

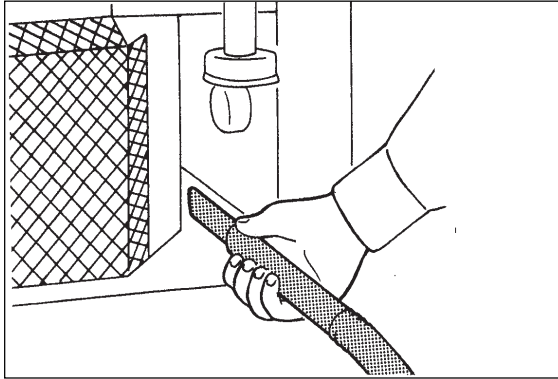
While the water reservoir is removed, it is recommendable to clean the water pump inlet screen.

Pull it down with gentle pressure and wash it clean under a stream of tap water. Once the screen is properly cleaned reposition it in its original place on the pump body.



AIR COOLED CONDENSER

It is very important to clean the condenser regularly. A dirty or blocked condenser, will drastically reduce ice production. Use a vacuum cleaner to remove dust from the front of the condenser.



CABINET EXTERIOR

Clean with warm water. Do not apply wax.

Note. When cleaning the floor in the immediate front of the unit, try to do not move much dust that could be easily sucked inside the units through the panel louvers. Eventually, for few seconds, you can place in front of the louvers a piece of paper or cardboard to prevent that the brushed dust penetrates into the machine compartment.

PRINCIPLE OF OPERATION

In the SD 10, the water to make ice is continually moved or circulated by a small electric pump that sprays the water under gentle pressure through the two spray jets into the eight inverted cube molds.

Part of the water that hits the cold refrigerated molds freezes, building gradually into full ice cubes bell shaped.

FREEZING CYCLE (How it works)

The hot gas refrigerant, pumped and discharged by the compressor, passes through the condenser where the fan blowing air causes the changing of it into liquid.

The liquid line takes the refrigerant from the condenser to the capillary tube. During the travel into the capillary tube, the liquid refrigerant loses gradually its temperature and pressure, then it reaches the evaporator coils.

Because of the water sprayed against the evaporator molds and coil, the liquid refrigerant senses the heat of this water and starts boiling, changing, as a consequence, from liquid into vapor state.

The vapor refrigerant is sucked back to the compressor through the suction line.

The freezing cycle is controlled by a temperature control which determines as well the length of the cycle and consequently the size of the ice cube. During this phase, the contact point of the temperature control maintains closed the circuit of the water pump which constantly sprays the water under the evaporator mold cups up to the point that the ice cubes reach their full size.

HARVEST CYCLE (How it works)

As soon as the temperature control senses the temperature in the evaporator corresponding to the full size cubes, the contact moves to close the circuit of the Hot Gas Valve Coil and consequently to open the circuit of the water pump which momentarily stops.

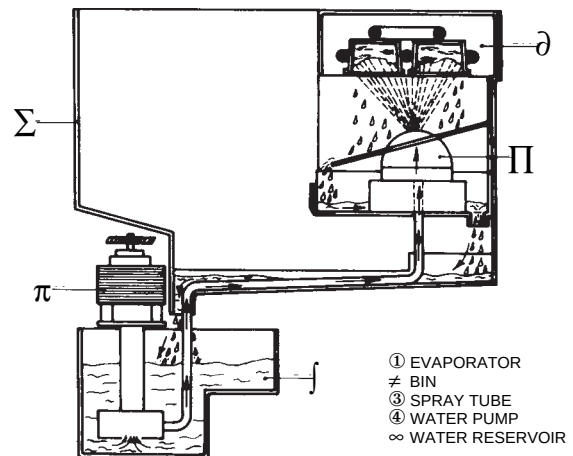
The hot gas refrigerant discharged by the compressor is now diverted through the opened hot gas valve to the evaporator coil.

The hot gas circulates through the evaporator coil raising the temperature around the cube cups sufficiently to release the ice cubes.

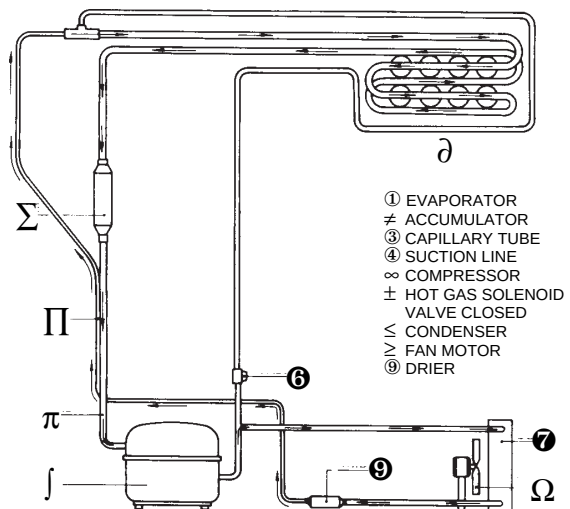
The released ice cubes drop by gravity into the storage bin.

The temperature control bulb, due to the warm temperature in the evaporator moves again the contact de-energizing the hot gas valve and energizing the water circulating pump starting a new freezing cycle.

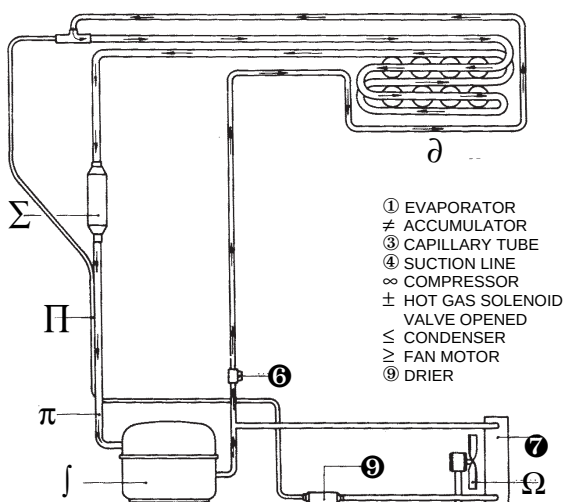
WATER CIRCUIT



FREEZING CYCLE



HARVEST CYCLE



SERVICEMAN'S INFORMATIONS

GENERAL

Models SD 10 Ice Cube Makers have been designed for little service and maintenance requirements.

Average head pressure is 10 atm at the start-up of the freezing cycle at 21°C ambient tem-

perature.

It gradually pulls down to 7 atm at the end of the cycle.

Suction pressure at the start-up of the freezing cycle will be around 3 atm then it pulls down gradually to approximately 0 atm at the end of freezing cycle.

SERVICE ANALYSIS

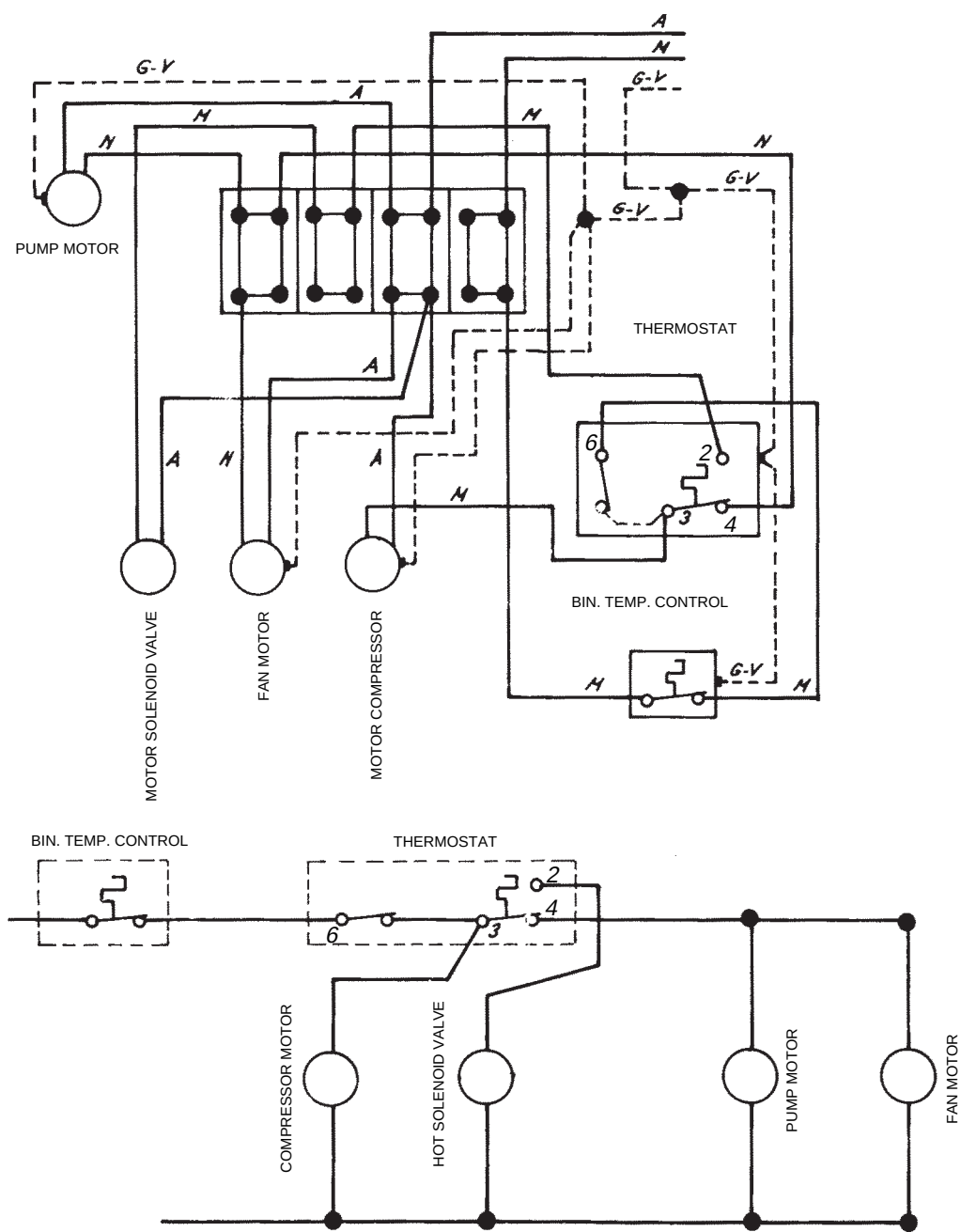
The following Service Analysis Section is for use in aiding the serviceman in diagnosing a particular problem for pin-pointing the area in which the problem lies, thus an ever available reference for proper corrective action.

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Machine does not make ice.	Fuse in Power Line Blown. Water reservoir empty. Temp. control out of setting. Wiring broken or connection off. Compressor does not run. Water pump not operating. Bin thermostat not operating correctly. Restricted Capillary Tube. Moisture and air in system. Shortage of refrigerant.	Check fuses in the house fuse box. Other loads on the same line may have caused fuse to blow. Use a 10 amp circuit and fuse. Re-fill water reservoir. Check for proper setting. Check electrical circuitry. Any of the following may be the cause. Starting relay, overload, or defective compressor. Clean or replace pump. Check thermostat by warming with hand and cooling with ice cube. Replace if necessary. Purge and recharge. Purge - recharge - replace drier. Charge unit properly.
Low ice capacity.	High Room Temperature. High head pressure.	Provide ventilation to the unit. Decrease temperature as much as possible. Dirty condenser. Clean.
Cubes too large.	Cube Size Control set improperly.	Check and adjust for proper operation.

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Cubes cloudy.	Spray jets Dirty. Shortage of Water. Dirty water supply, accumulator of dirty in water system.	Clean. Check water level in water reservoir and re-fill. Wipe clean water reservoir and re-fill with new fresh water. Clean water pump screen.
Cubes too small.	Shortage of water. Cube size control set improperly. Water leaking from pump hoses.	Check water level in reservoir. Check and adjust for proper operation. Check clamp and hoses. Replace if necessary.
Compressor cycles intermittently.	Low voltage. Air in the system.	Minimum voltasge to be 10% less than normal rating. Purge and recharge.
Poor harvest cycle.	Too short defrost time. Hot gas not passing through valve. Shortage of refrigerant. Ice cubes too big.	Check temperature control - replace if necessary. Check hot gas valve coil, replace if necessary. Charge unit properly. Set control knob correct shape of ice cubes.

WIRING DIAGRAM

A	BLUE
M	BROWN
N	BLACK
G-V	YELLOW-GREEN



REMOVAL & REPLACEMENT PROCEDURE

WARNING: DISCONNECT THE ELECTRICAL SUPPLY BEFORE PERFORMING ANY OF THE FOLLOWING OPERATIONS

Cabinet Removal

1. Remove lower panel by pulling forward at both top corners.
2. Remove water reservoir.
3. Disconnect the electrical cord and pass it through the rear side of the cabinet into the unit compartment.
4. Unloose and remove the two screws securing the front door trim to the side walls of cabinet.
5. Through the interior of the compressor compartment reach the three screws securing the cabinet to the chassis and unloose them. (See indicating arrows).
6. Remove the bottom drip tray.
7. Remove the cabinet by pulling it forward from the rear side.

Temperature control replacement (Evaporator)

1. Follow step 1 thru 7 for cabinet removal.
2. Remove temperature control knob by pulling it.
3. Unloose the screw securing the control box panel.
4. Pull forward the control box panel.
5. Unloose and remove the nut securing the temperature control to the panel.
6. Remove the spade connections from the control.

7. Locate the thermostat bulb on the evaporator and push it out from its well.
8. The control is now entirely removed.
9. Re-assemble the new control by proceeding on reserve.

NOTE: Seal both the ends of bulb holder after the introduction of the new evaporator thermostat capillary tube to avoid that some water freezes inside.

Bin thermostat replacement

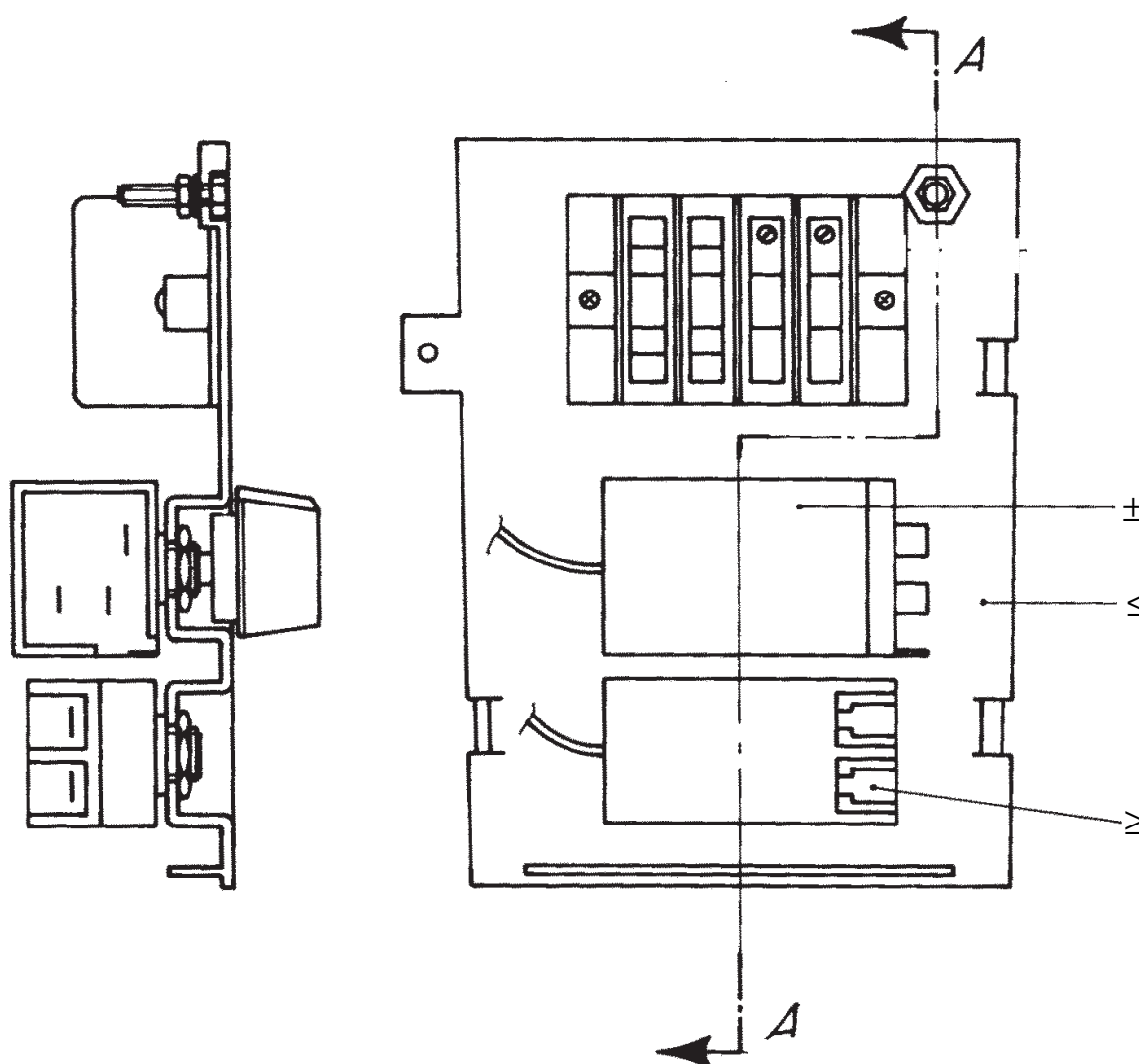
1. Follow step 1 thru 7 for cabinet removal.
2. Follow step 1 thru 4 for temperature control replacement.
3. Unloose and remove the nut securing the bin control to the panel.
4. Remove the end of bin control capillary tube from the interior of the bin.
5. Remove the spade connection from the Temp. Control.
6. The control is now completely free. Proceed to re-assemble acting on reserve.

Water pump Replacement

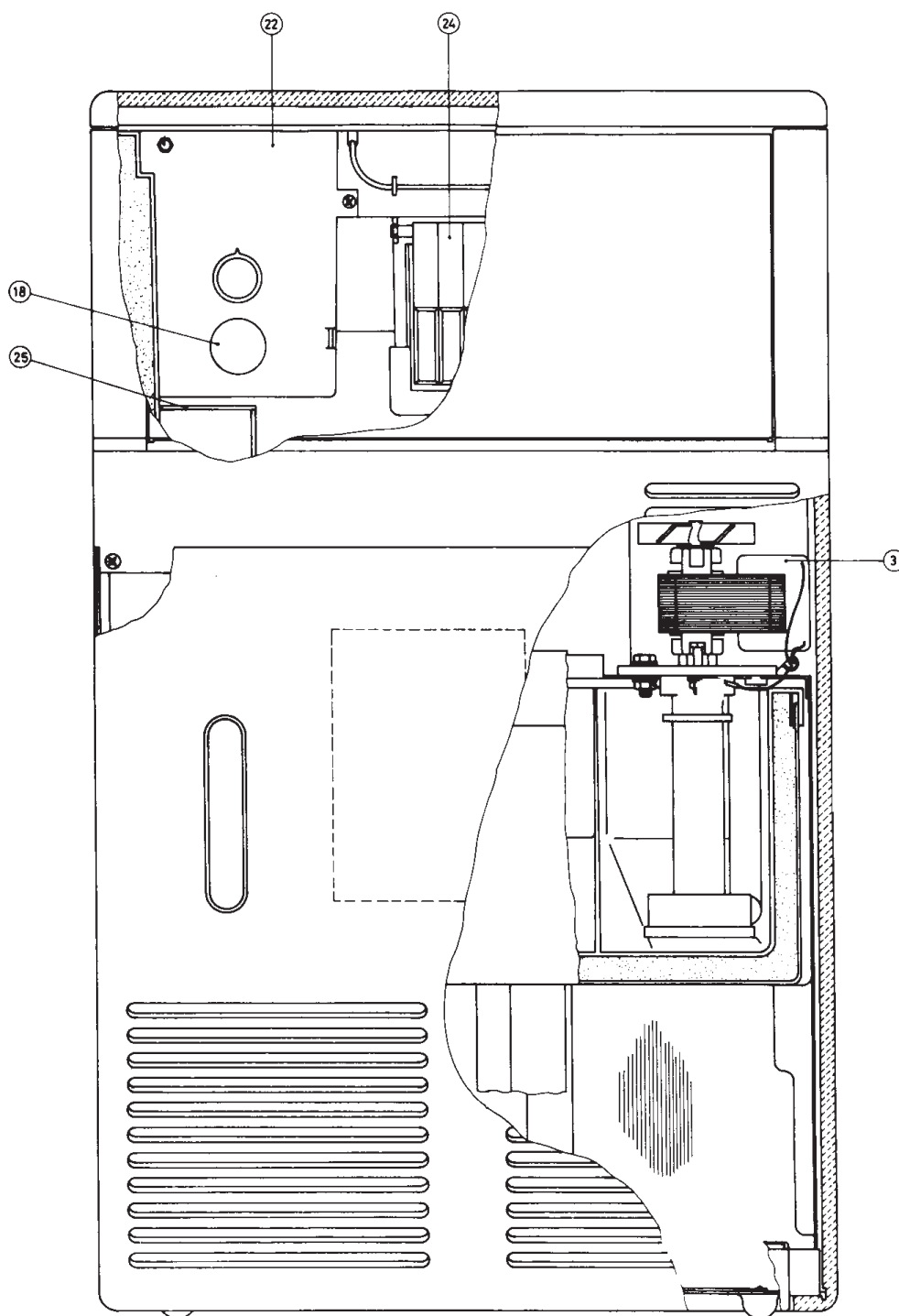
1. Follow step 1 thru 7 for cabinet removal.
2. Remove the screw which holds the water pump in place.
3. Remove the two water pump electrical leads.
4. Remove the hose from pump bottom housing.
5. Lift out the pump.
6. To small the replacement pump, follow previous steps in reverse.

THE PARTS ILLUSTRATIONS AND PARTS LIST

CONTROL PANEL ASSY

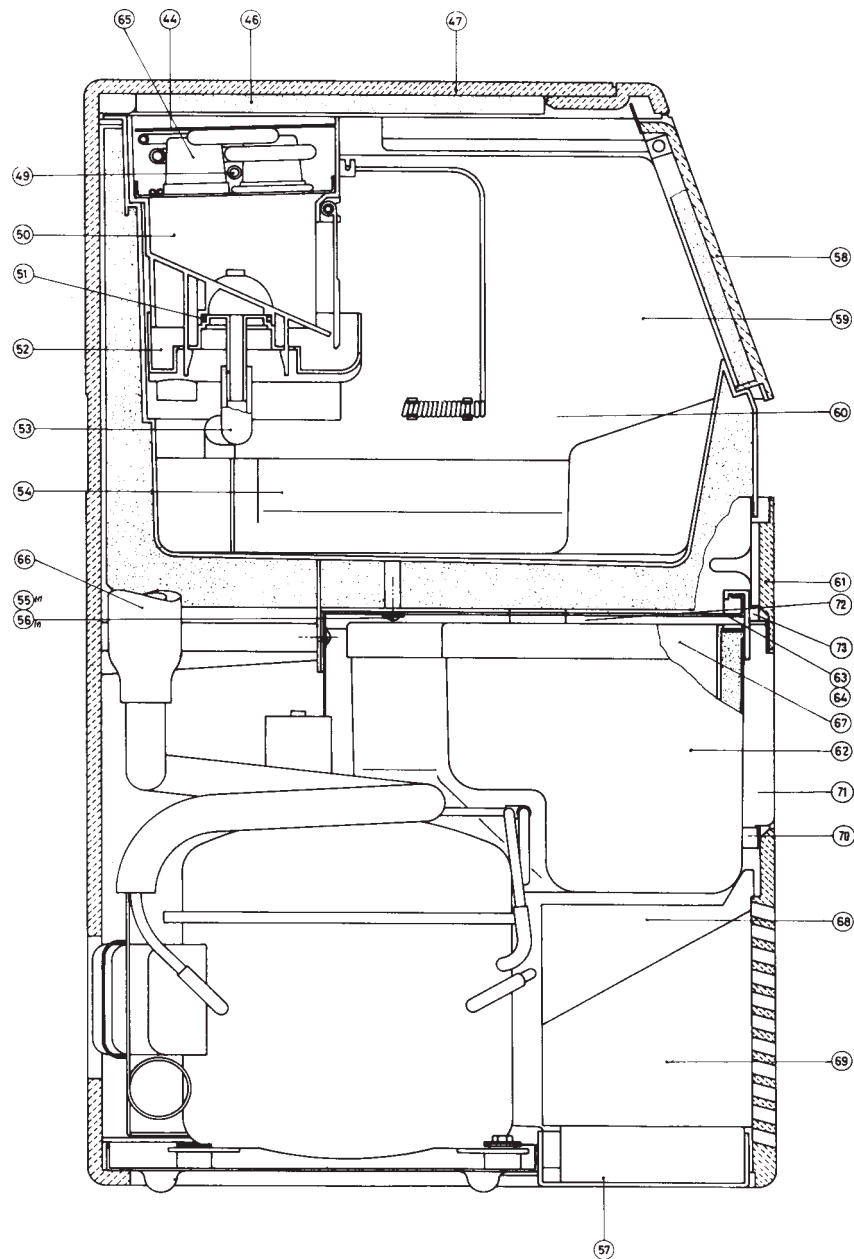


Pos.	Part. N.	Description
6	620264.10	Evaporator thermostat
7	660321.01	Panel
8	620263.00	Bin control

FRONT - VIEW

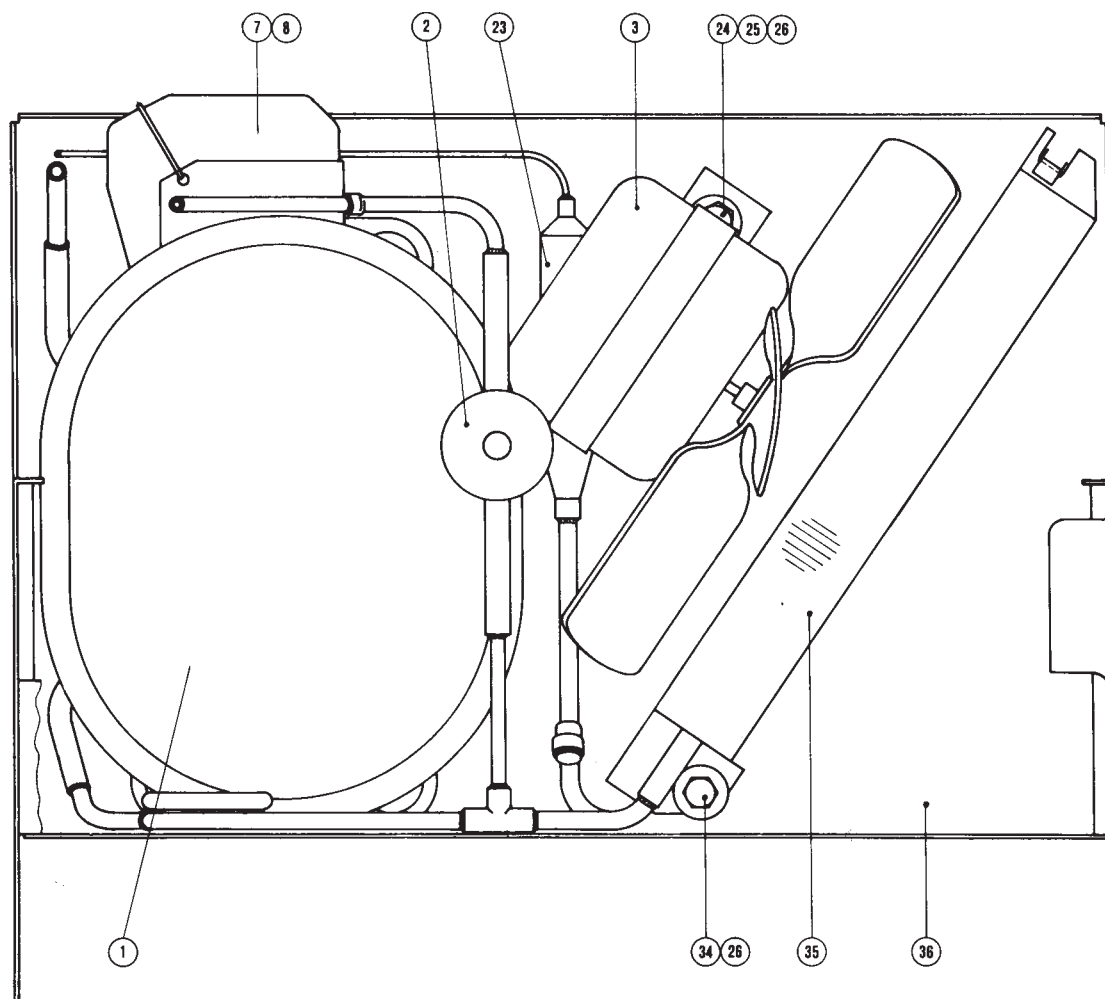
Pos.	Part. N.	Description
3	620433.00	Water pump assy
18	650330.00	Plug
22	660321.00	Control panel
24	784169.03	Curtain
25	660330.00	Funnel cover

SIDE - VIEW



Pos.	Part. N.	Description	Pos.	Part. N.	Description
44	784378.02	Evaporator cover	61	781285.04	Front lower panel assy
46	650361.05	Insulation	62	793114.00	Water reservoir assy
47	660326.05	Cabinet assy	63	781335.00	Reservoir holder
49	660340.02	Evap. bulb holder	65	784234.00	Evaporator platen assy
	660386.00	Clip	66	784252.02	Suction accumulator
50	783130.00	Evap housing	67*	660359.00	Funnel insert
51	640093.00	Seal ring	68	660335.00	Upper separator
52	660320.00	Water spray tray	69	660343.00	Lower separator
53	610139.00	Plastic hose (pump to spray system)	70	660338.00	Rubber fitting
54	660336.00	Cover	71	660337.00	Sight glass
57	660325.00	Water drip tray	72*	783141.00	Reservoir cover
58	781284.03	Bin door assy		660424.00	Reservoir cover - Pump
59	782053.00	Ice storage bin	73	660341.00	Rubber plug
60	660339.00	Bulb holder			

* Not shown

COMPRESSOR & CONDENSING UNIT

Pos.	Part. N.	Description
1	670097.08	Compressor cpl. Cubigel
2	620306.48	Hot gas valve coil
	620306.14	Hot gas valve body
3	620419.00	Fan motor only
7	620058.65	Protector for Cubigel

Pos.	Part. N.	Description
8	620057.35	Relay for Cubigel
23	630003.05	Dryer
35	620285.00	Condenser
36	781283.00	Chassis assy

SD 10 - COMPRESSOR AND ELECTRIC COMPONENTS CHART

Model	Volts	Compr. Model	Compr. Cpl.	Compr. relay	Compr. protector	Start Capacitor
SD 10-2	220/60/1	U.H. AE Z4425Y	670066.08	620057.40	620058.74	620167.45
SD 10-6	220/50/1	Cubigel GL 80PB	670097.08	620057.35	620058.65	—

Model	Hot gas valve coil	Hot gas valve body	Water pump	Fan motor only
SD 10-2	620306.48	620306.14	620433.01	620419.00
SD 10-6	620306.48	620306.14	620433.00	620419.00

SD 10 - KOMPRESSORBAUTEILE UND ELEKTRISCHE KOMPONENTEN

Modell	Spannung	Kompressor- Modell	Kompressor Cpl.	Relais Kompr.	Schutz Kompr.	Startkon- densator
SD 10-2	220/60/1	U.H. AE Z4425Y	670066.08	620057.40	620058.74	620167.45
SD 10-6	220/50/1	Cubigel GL 80PB	670097.08	620057.35	620058.65	–

Modell	Spule Warmgasventil	Körper Warmgasventil	Pumpenaggregat	Ventilator- aggregat
SD 10-2	620306.48	620306.14	620433.01	620419.00
SD 10-6	620306.48	620306.14	620433.00	620419.00



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Certified ISO 9001
TOTAL QUALITY

