SERVICE MANUAL

EdgeStar 45 Lb. Undercounter Clear Ice Maker with Drain Pump

MODEL:
IB450SSP

CAUTION: READ ALL SAFETY PRECAUTIONS IN THIS MANUAL BEFORE SERVICING THE UNIT

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**Warranty service should be performed by an authorized service representative only.*

CONTENTS

SAFETY PRECAUTIONS

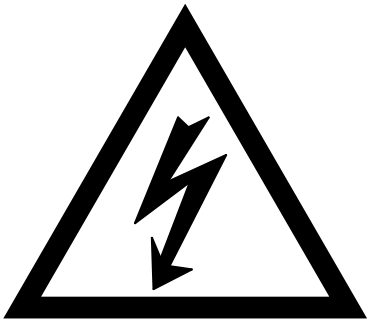
WARNING: This manual and the information contained herein is intended for use by certified technicians. The manufacturer or seller is not responsible for the interpretation or misuse of the information provided, nor does it assume any liability in connection with its use.

The safeguards and warnings indicated in this manual do not cover all possible conditions which may occur. Common sense, caution, and care must be exercised.

- To prevent electric shock, always unplug an appliance from the power supply before attempting any service.
- Disconnect the power cord by grasping the plug, not the cord.
- Do not bypass, cut, or remove the grounding plug.
- Prevent water from spilling onto electric elements or the machine parts.
- Always refer to the rating label on the appliance for rated current and voltage.
- Always check line voltage and amperage.
- Always use exact replacement parts.
- Any attempt to repair a major appliance may result in personal injury and property damage.

Electrical Safety

- Do not exceed the power outlet ratings.
- It is recommended that the unit be connected to its own circuit.
- A standard electrical supply (120V, 60Hz), that is properly grounded in accordance with the National Electrical Code and all state and local codes and ordinances is required.
- Do not use outlets that can be turned off by a switch or pull chain.
- Always turn the unit off and unplug it from the outlet when cleaning.
- Unplug the unit if it is not going to be used for an extended period of time.
- Do not operate the unit with a power plug missing the ground plug, a damaged cord, or a loose socket.
- Be sure the appliance is properly grounded.
- Do not bypass, cut, or remove the grounding plug.
- If the power cord is damaged, it must be replaced by the manufacturer or a qualified technician.
- Do not use extension cords or power strips with this unit. You may need to contact an electrician if it is necessary to use a longer cord or if you do not have a properly grounded outlet. Do not modify the power cord's length or share the outlet with other appliances.
- Do not start or stop the unit by switching the electrical circuit's power on and off.
- Immediately unplug the unit if it makes strange sounds, emits an odor or smoke and contact customer service.
- Do not remove any part of the casing unless instructed by an authorized technician.
- Before the appliance is removed from service or discarded, remove the door and cut off the power cord.



General Safety

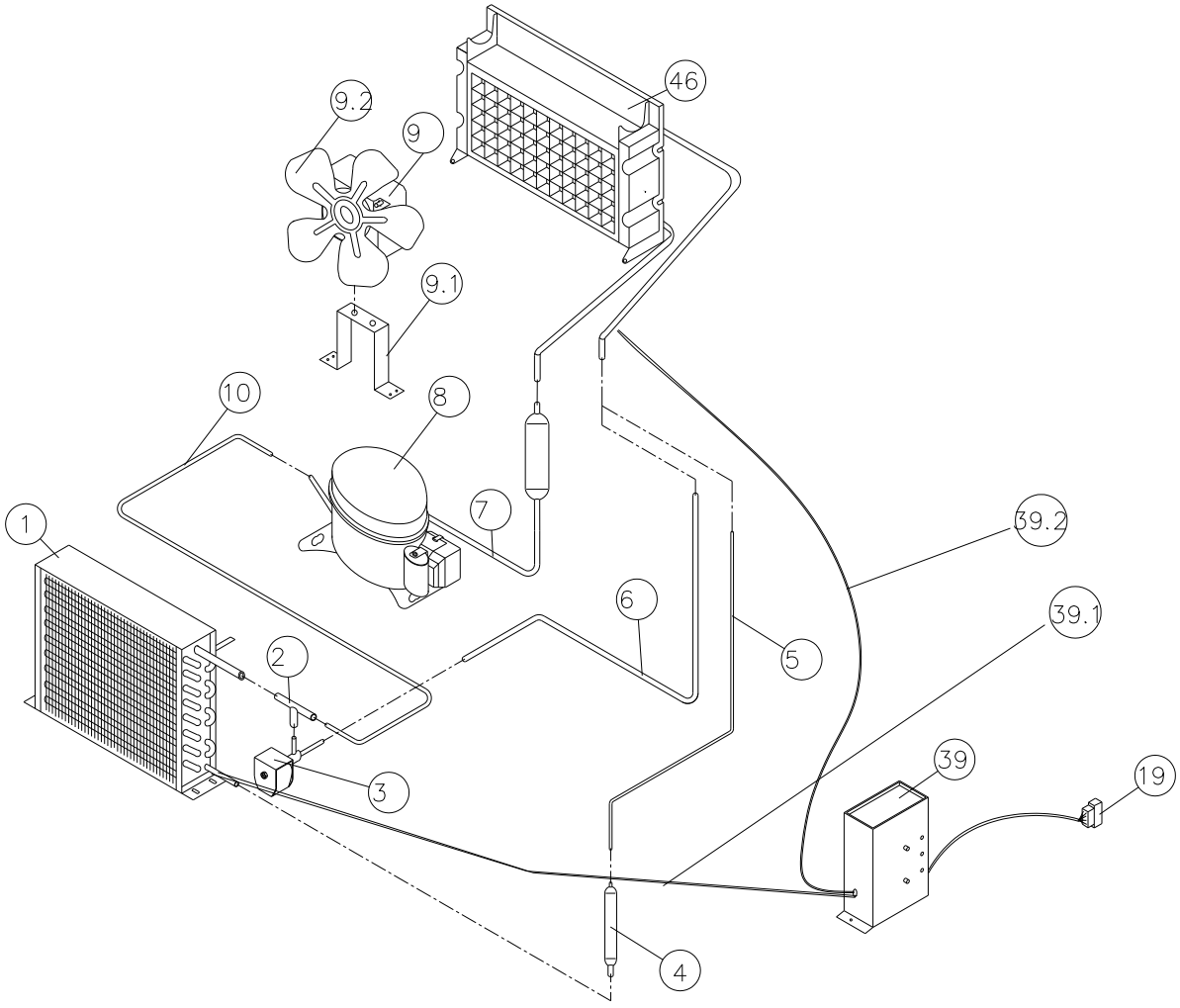
- Always unplug an appliance from the power supply before attempting any service. Disconnect the power cord by grasping the plug, not the cord.
- Do not allow children or pets to play on or in the appliance.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety.
- Do not install or store this appliance where it will be exposed to the weather.
- Disconnect from the power socket before cleaning or maintenance.
- If the plug (power cord) is damaged, it must be replaced by the manufacturer or an authorized service representative.
- This machine shall be repaired only by an authorized service representative. Only genuine replacement parts should be used.
- If connected to a circuit protected by fuses, use time-delay fuses with this appliance.
- Do not lean items against the glass door.
- Please do not close the door with excessive force. If it is found difficult to close the door, please check for obstruction.
- When you plan to dispose of this unit in the future, please comply with the local waste disposal regulations. Remove the door so that children and pets will not be trapped in the unit.

IB450SSP Introduction

The IB450SSP is comprised of 3 systems: The Cooling System, Water System and Electrical System.

Note: Please refer to the IB450SSP User Manual for installation and other use and care guidelines.

Cooling System Overview



Cooling System Parts List

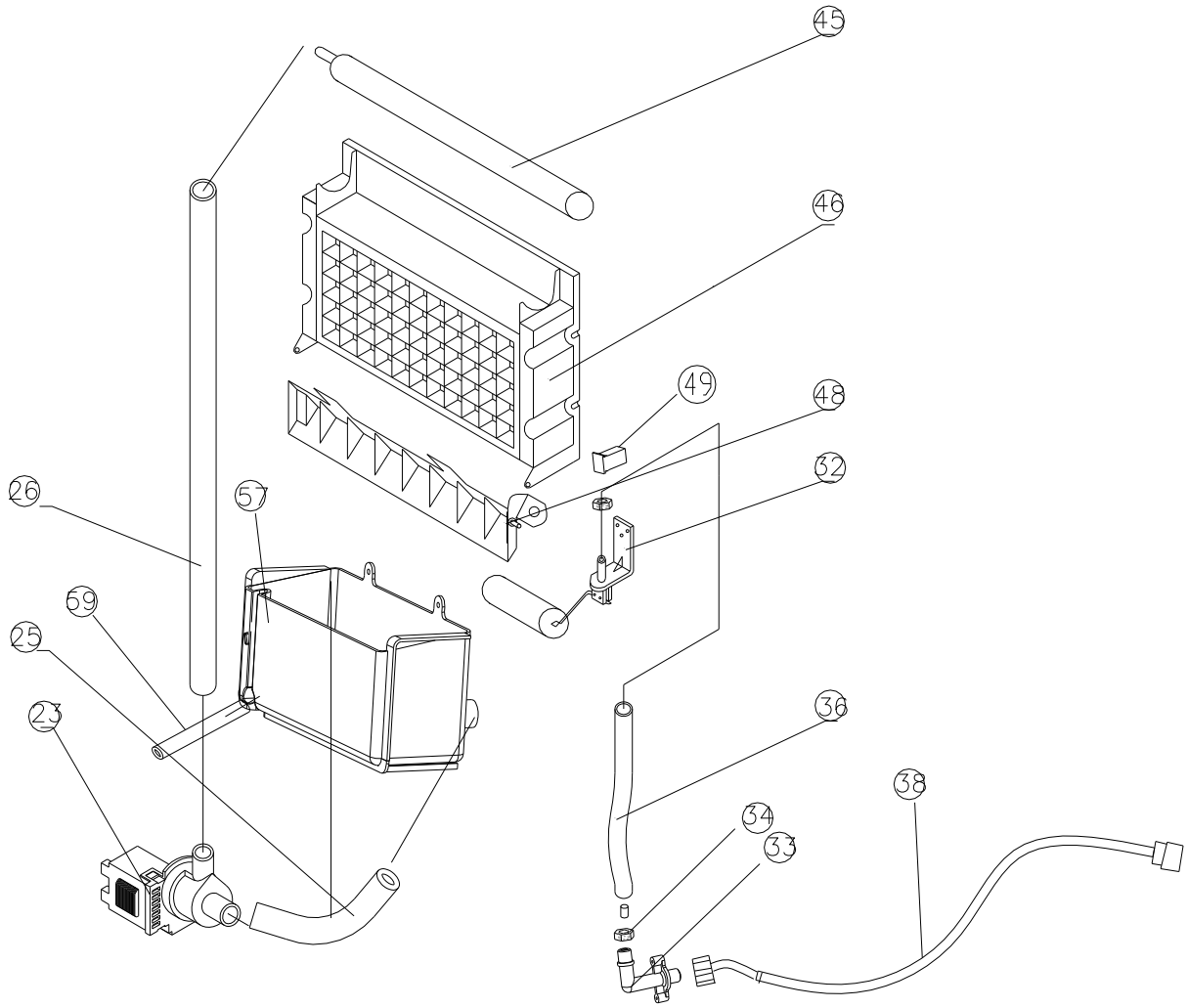
ITEM NO.	DESCRIPTION
1	Condenser
2	Multi-connection copper pipe
3	Hot gas solenoid valve
4	Filter Dryer
5	Capillary tube
6	Hot gas tube
7	Suction tube
8	Compressor
9	Fan motor
9.1	Fan motor bracket
9.2	Fan blade
10	Discharge tube
19	Wiring harness
39	Control box
39.1	Temperature sensor for the condenser
39.2	Temperature sensor of the evaporator
46	Evaporator (Ice Mold)

During the ice making stage the hot gas solenoid valve is closed. The hot refrigerant gas is pumped out of the compressor to the condenser. The hot gas is cooled by fan forced air after passing through the condenser. The filter dryer helps reduce dirt and moisture in the refrigerant. The evaporator is cooled by the refrigerant. Ice is formed on the evaporator as water is sprayed onto the evaporator. Low pressure refrigerant gas goes back to the compressor from the evaporator.

During the ice harvest stage, the solenoid valve is open. The hot refrigerant gas is pumped out of compressor to evaporator through the hot gas valve. As the hot gas passes through the evaporator it warms and the ice touching it is slightly thawed and releases from the evaporator. The harvested ice then proceeds down the slide way into the ice storage bin.

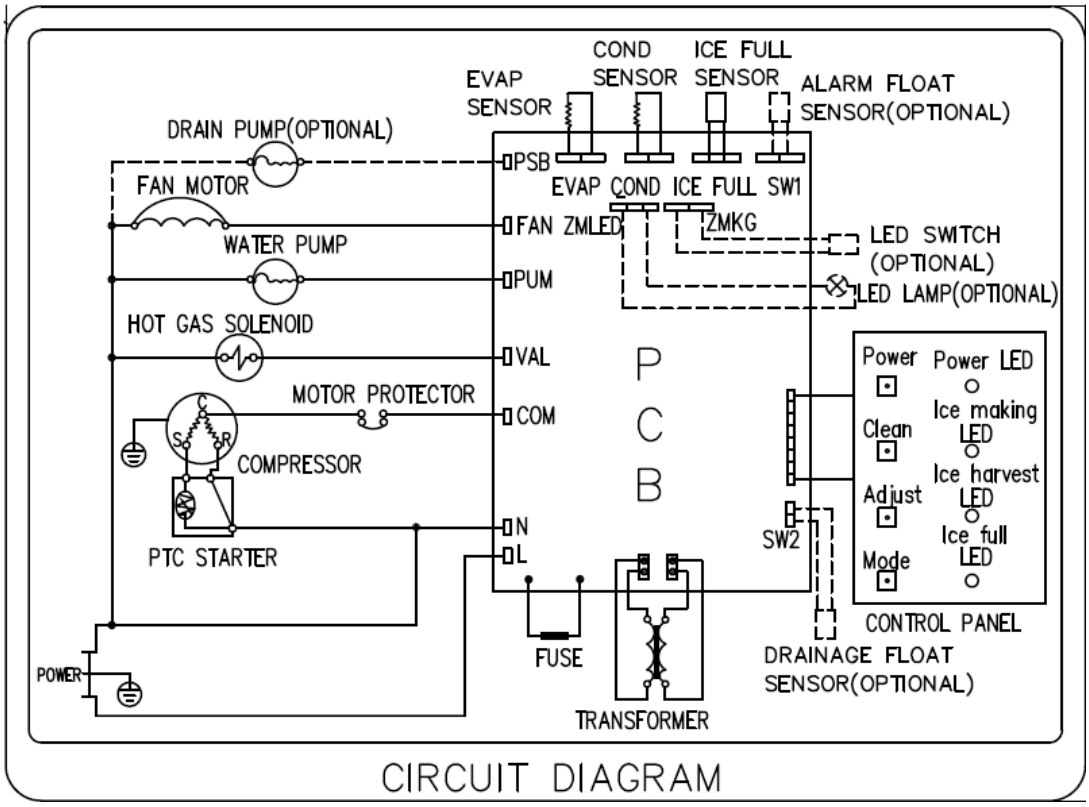
Water System

When the water supply hose (No. 38) is connected with the main water supply, water will fill the water bin (No. 57) through the float valve (No. 32) until water fills the bin enough to make the float valve close. During ice-making stage, water is pumped from the water bin to the water distribution tube (No. 45.) The water then flows over the surface of evaporator. Most of water goes back to the water bin. Some water is frozen onto the evaporator little by little. When water in the bin falls below a certain level the float valve will open and fill the bin again.



ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
23	Water Pump	38	Water Supply Hose
25	Water Pump Inlet Tube	45	Water Distribution Tube
26	Water Pump Outlet Tube	46	Evaporator
32	Float Valve	48	Ice Slide Way
33	Water Inlet Valve	49	Ice Full Sensor
34	Water Inlet Nut	57	Water Bin
36	Water Inlet Tube	59	Water Bin Drain Tube

Electrical System



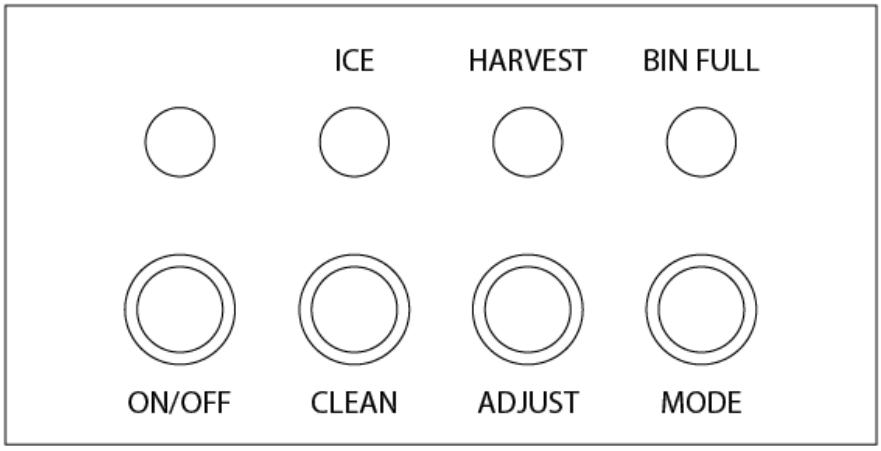
Ice-Making Stage - The compressor, condenser fan and pump are powered on, the water inlet valve and hot gas solenoid valve close and the Green LED on the control panel is lit. When the unit is in this stage it is controlled by a temperature probe on the evaporator. When the Green LED starts flashing the stage is controlled by a fixed timer. The fan motor is also controlled by a temperature probe (on the condenser.) When the ambient temperature is too low the fan stops working to maintain the correct temperature.

Ice-Harvest Stage – In this stage the water pump turns off. The hot gas solenoid, compressor and fan are powered on. The Yellow LED is lit to indicate the ice harvest stage. This stage is controlled by a fixed timer.

Bin-Full Stage - When the ice bin is full of ice and/or the ice slide way is held open the unit will enter this stage. In this stage all electrical components are powered off and the Red LED on the control panel is lit.

Cleaning Stage – Press the button marked **Clean** on the control panel to start the cleaning stage. The pump and water inlet valve are powered on, and the compressor, condenser fan and solenoid valve are powered off. The Green and Yellow LEDs will flash together. To stop the cleaning stage simply press the **Clean** button again.

IB450SSP Controls / Control Box



LEDs and Buttons

Red LED: Ice-Full indicator light. This LED is lit when the ice storage bin is full of ice or there is something between the two arms of the ice-full sensor in the ice storage bin. The electrical components turn off and the unit will go to sleep. When ice cubes are taken out of the ice storage bin, clearing the sensor, the red LED will flash for 3 minutes. Then the unit will then restart and return to the ice-making stage.

Green LED: Ice-Making indicator light. This LED is lit when the unit is in the Ice-Making stage controlled by a temperature probe on the evaporator. When the green LED is flashing, the unit is in the Ice-Making stage controlled by a fixed timer.

Yellow LED: Ice-Harvest indicator light. This LED is lit when the unit is in the Ice-Harvest stage controlled by a temperature probe on the evaporator. When the yellow LED is flashing, the unit is working in the Ice Harvest mode controlled by a fixed timer.

Clean Button: Pressing this button puts the unit into cleaning mode. The green and yellow LEDs flash together and the pump turns on to flush the unit with water. Press the button again to exit cleaning mode.

Mode Button: This button is mainly for service. When this button is pressed, the unit changes from Ice-Making stage to Ice-Harvest stage, or from Ice-Harvest stage to Ice-Making stage. The status of the green and yellow LEDs indicate the stage.

Adjust Button: Pressing this button for over 3 seconds will put the unit into Ice Cube Size Adjustment Mode. The status of the green LED indicates the various stages of this mode. After 10 seconds without any operation the unit will return to normal operations.

Ice Cube Size Adjustment Guide:

1) Press and hold the Adjust button for at least 3 seconds. The unit will enter the Ice Cube Size Adjustment mode. The Ice-Making/Green LED will blink continuously during the ice size adjustment. Release the Adjust button when the LED starts to blink and continue to step 2 to adjust the ice cube size.

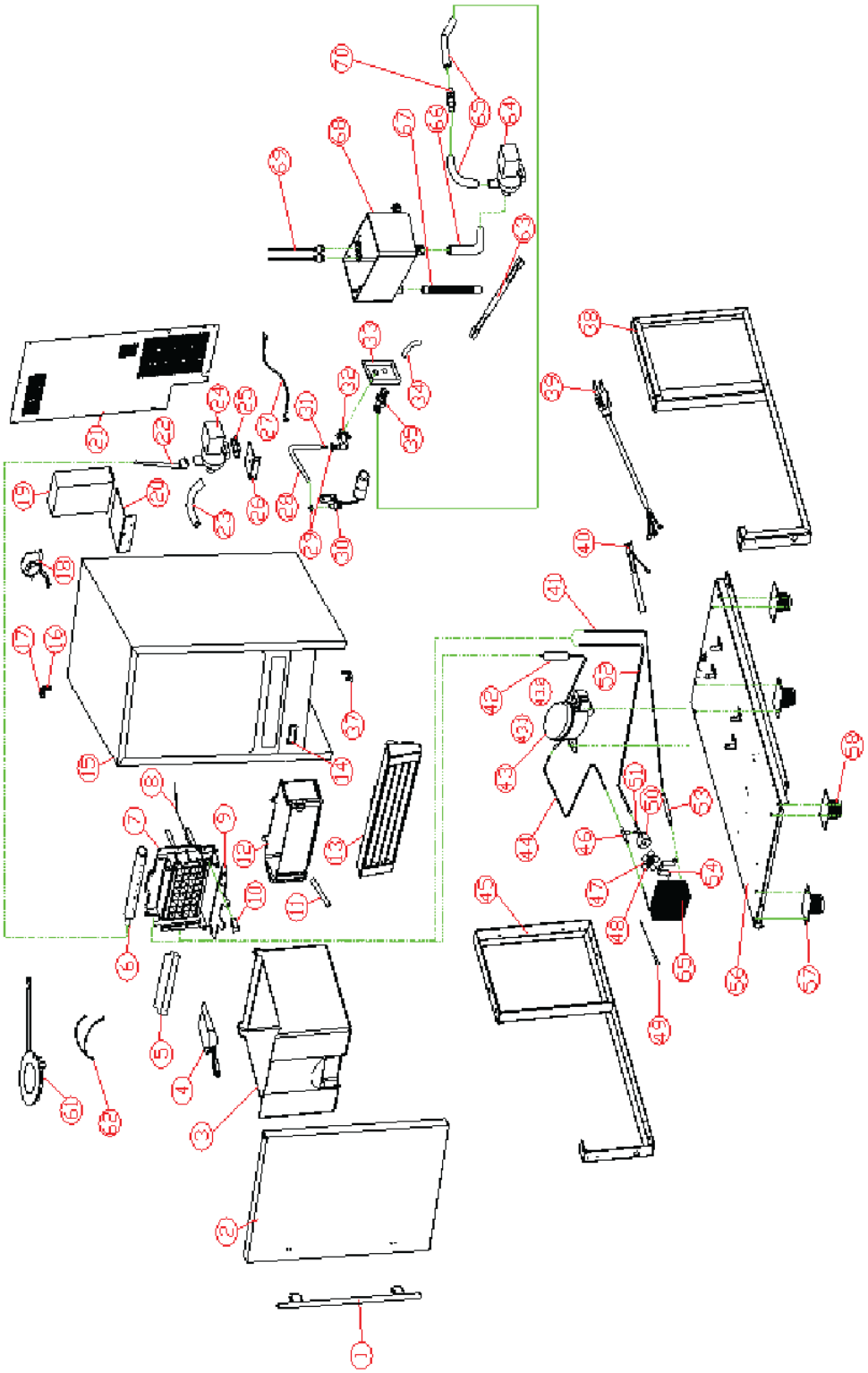
2) While in the Ice Cube Size Adjustment mode, press the Clean button or the Mode button to decease or increase ice cube size.

Smaller ice cube setting:
Pressing the Clean button decreases the size of the ice cubes. The Ice-Full/Red LED will flash as you decrease the ice size and will finally blink once it has reached the smallest setting.

Larger ice cube setting:
By pressing the Mode button, you can increase the size of the ice cubes. The Ice-Harvest/Yellow LED will flash as you increase the ice cube size and will finally blink once it has reached the largest setting.

NOTE: During the ice size adjustment, the Ice-Full, Ice-Making and Ice-Harvest LEDS blinking all at once indicate that the unit is in the regular (middle) setting of the ice cube size. When the machine is in the cleaning stage or ice full stage, the ice size is not available for adjusting.

Exploded View Diagram



Parts List

No.	Description	No.	Description
1	Door handle	35	Drain connector
2	Door	37	Bottom hinge
3	Ice storage bin	38	Left bracket
4	Ice scoop	39	Power cord
6	Water distribution tube	40	Wire harness
7	Evaporator (ice mold)	41	Capillary tube
8	Evaporator sensor	42	Filter dryer
9	Ice slide way	43	Compressor
10	Ice full switch	44	Discharge pipe
12	Water bin	45	Right bracket
13	Kick plate	47	Fan motor
14	ICE/OFF/WASH switch	48	Fan blade
15	Cabinet	49	Condenser sensor
16	Top hinge	50	Hot gas solenoid
17	Hinge pin	51	Electromagnetic valve body
18	Transformer	52	Hot gas pipe
19	Control box	53	Filter dryer
20	Control box bracket	54	Fan motor bracket
21	Back panel	55	Condenser
22	Pump outlet tube	56	Base plate
23	Pump inlet tube	57	Leveling leg
24	Water pump	58	Leveling leg
25	Pump mat	63	Drain pump wire harness
26	Pump bracket	64	Drain pump
27	Water supply hose	65	Drain pipe outlet
28	Water inlet tube	66	Drain pipe inlet
30	Float valve	68	Water bin
32	Water inlet valve	69	Water level switch
34	Drain pipe	70	Drain pipe connector

TROUBLESHOOTING

Basic Precautions

1. Make sure the unit is connected to a 115 Volt, 60Hz. AC only 15 amp electrical supply and is properly grounded to protect against electrical shock.
2. Make sure the power cord is not damaged.

Basic Checks

Listen

- Listen to the customer's description of the problem with the icemaker. Try to understand what the current defect is and how the unit operated before calling for service.
- Listen to how the unit sounds when it runs. Often times problems can be diagnosed by sound(s) or lack of sound.

See

- Check the copper lines of cooling system, especially at the welding points. If oil is seen around any part of the cooling system it is likely due to a refrigerant leak.
- Check if the ice-making and ice-harvest cycles are normal. Too long or too short a cycle may result in a system malfunction.
- Check the water system for leaks, especially at the connections. Make sure the pump drain cap on the rear of the unit is tight and doesn't leak.
- Check the water filter (if installed.) A dirty filter needs to be replaced.
- Check if the icemaker is installed according to the user's manual.
- Check if the icemaker needs to be cleaned. Lack of regular cleaning will result in problems and may cause health issues.

Touch

- Touch the discharge line from the compressor and make sure it is hot. Touch the suction line and make sure it is cool.
- Touch the top of the evaporator. It will be cold during Ice-Making and warm up during Ice-Harvest.

Advanced Troubleshooting Guide

The troubleshooting guide in the user manual should be referred to before this guide. Turn to this guide when the user manual does not solve the issue.

The Unit Does Not Make Ice

Problem	Check point	Possible Cause	Correction
Unit will not turn on	Plug	The icemaker is unplugged.	Plug in the icemaker.
	Wall Socket	Socket is damaged.	Repair or replace.
	Power Switch	The icemaker power switch is OFF.	Turn the power switch to ON.
	Fuse	The fuse is blown.	Replace fuse.
	Wiring Connections	A wiring connection is incorrect, damaged or loose.	Check, repair and/or re-connect.
	Voltage	The voltage to the power PCB is low.	Repair or replace wall socket or power cord.
	Ice Full Sensor	The ice full sensor is defective (The icemaker will stop after it completes 18 cycles.)	Replace sensor.
	Ice Full Sensor	The ice full sensor is covered by something.	Clean and clear the sensor.
	Electric Component	Electric component failure (i.e. fan, PCB, etc.)	Pressing the mode button to change the modes is helpful in diagnosing.
	Control Board	The control PCB is damaged or defective.	Replace.
	Water Supply	The water supply tap is turned off or not all the way up.	Turn on the water supply tap on fully.
Water System	Water Supply Pipe	The water supply pipe is not properly connected or maybe kinked.	Reconnect the water supply pipe.
	Water Line	Water line leaks.	Repair connection or replace line.
	Water Line	The water line is blocked.	Clean line, see user manual "ice making system cleaning"
	Water Inlet Valve	Water supply pressure is low.	Turn water supply on fully to maximize pressure.
	Water Inlet Valve	Water inlet valve is loose.	Check and re-connect.
	Water Pump	Water pump damaged or defective.	Replace water pump.
	Water Pump	If room temperature is out the stated range the water pump stops automatically.	Adjust temperature within the stated range.
	Water Pump	Wires on the water pump loose, damaged or disconnected.	Check, repair and/or re-connect.

	Water Pump	The housing of water pump leaks.	Replace water pump.
Compressor will not run	Wiring connections	A wiring connection is incorrect, damaged or loose.	Check, repair and/or re-connect.
	Start Relay and Overload Protector	One or both defective.	Replace both relay and overload protector.
	Compressor Start and Run Coils	The compressor is short circuited.	Replace the compressor.
	Condenser	The condenser may be dirty.	Clean the condenser.
	Fan	The fan may be dirty or damaged.	Clean or replace the fan.
	Power Board	The board is damaged is or defective.	Replace the board.
Compressor runs but no ice is produced	Refrigerant	Refrigerant leak.	Add low side access valve, locate and repair leak, replace dryer, add nitrogen, pull vacuum and weigh in the refrigerant charge indicated on the data plate.
	Capillary tube	Capillary tube is blocked.	Add low side access valve, locate and repair leak, replace dryer, add nitrogen, pull vacuum and weigh in the refrigerant charge indicated on the data plate.
	Vent / Fans /Condenser	The airflow is obstructed around the ice machine.	Clean the vent, fans, and condenser.
	Hot gas valve	Hot gas valve damaged or defective.	Replace valve.
	Control Board	The control PCB is damaged or defective.	Replace.

Low Ice Production

Problem	Check point	Possible Cause	Correction
Cooling System	Refrigerant	Partial refrigerant leak.	Repair leak and recharge.
	Condenser	The condenser may be dirty.	Clean the condenser.
	Ambient Temperature	The ambient temperature is above 90F or below 65F.	Adjust the ambient temperature or move unit to better location.
	Fan	The fan is dirty or damaged.	Clean or replace fan.
	Hot Gas Valve	Defective valve.	Replace the hot gas valve
Water System	Bin Drain	The bin drain may be partially restricted.	Clean out the drain and check lines.
	Water line	Water line restricted.	Clean line and install a water filter.
	Rubber Water Tubes	Tubes distorted, kinked, leaking or blocked.	Clean, repair or replace tubes.
	Unit Dirty	Unit has not received regular cleaning.	Clean unit as outlined in the User Manual.

Ice Cubes Are Deformed or Wrong Size

Problem	Check point	Possible Cause	Correction
Ice Cubes Too Small	Condenser	The condenser or fans are dirty or the air vents are covered.	Clean the condenser and fans. Leave space around the machine.
	Ambient Temperature	The ambient temperature is too high.	Adjust the ambient temperature.
	Electronic controller	The ice size is set too small.	See “Ice Cube Size Adjustment Guidelines” in this manual.
	Refrigerant	Refrigerant leak.	Repair and recharge.
Ice Cubes Too Large	Electronic controller	The ice size is set too Large.	See “Ice Cube Size Adjustment Guidelines” in this manual.
	Sensor	The evaporator sensor is defective.	Replace the sensor.
	Ambient Temperature	The ambient temperature is too low.	Adjust the ambient temperature.
Ice Cubes Only Partially Formed or Have Ragged Sides	Water Quality	The water quality is poor.	Install a water-softener or water filter in front of the water inlet valve.
	Spray Nozzle	Spraying is blocked by the ice slide way.	Adjust the location of the ice slide way.
	Spray Bar	Spray bar obstructed.	Clean the spray bar see the user's manual.
	Water bin	Not enough water in the water bin.	Check water supply filter may be restricted.
	Water Pressure	Water supply pressure is low.	Turn water supply on fully to maximize pressure.
	The Room Temperature	The room temperature is out the stated range.	Adjust the ambient temperature.

Other problems

Problem	Check point	Possible Cause	Correction
The Unit Body is Electrified	Ground	The ground plug is broken.	Replace power cord.
	Lines	Shorted wiring.	Adjust, reconnect /replace wires.
	Electric component	Shorted electric component.	Replace component.
Scales Occur Frequently Inside Unit	Water Quality	The water quality is poor.	Install a water-softener or water filter in front of the water inlet valve.
Noise During Operation	Water Inlet Valve	Defective water inlet valve.	Replace the water inlet valve.
	Compressor	Excessive noise/vibration.	Tighten compressor bolts or replace the compressor.
	Water Pump	Defective water pump.	Replace the water pump.
	Cooling System	Refrigeration pipes vibrating.	Adjust pipes.
	Leveling Legs	The feet are not leveled.	Level and lock the feet.
	Fan Motor	The fan motor is loose or defective.	Repair or replace the fan motor.
Water Leaking Out of Unit	Water Supply Connection	Water connection leaking.	Tighten fitting. See “Connecting the water line.”
	Water Pump Drain Cap	Leaking around cap.	Tighten fitting.
	Drain Pipe Connection	Drain pipe connection leaking.	Tighten fitting. See “connecting the drain.”
Ice Harvesting is Difficult	Hot gas valve	The hot gas valve damage.	Replace the hot gas valve.
	Evaporator	The evaporator is dirty or finish is damaged.	Clean the ice mold, or replace the evaporator.
	Refrigerant	Refrigerant leaks	Recharge
	Ambient Room and Water Temperature	Temperature is too low.	Adjust the temperature.
	Ice Cube Size	Size is too large.	See “Ice Cube Size Adjustment Guidelines” in this manual.
	Ice Slide Way	Ice slide way is installed incorrectly.	Reinstall ice slide so harvested ice does not get stuck or blocked.

Replacing Water System Components

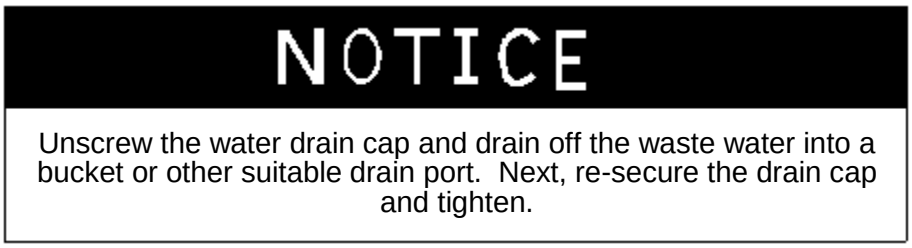
Replacing the water pump

- Disconnect electrical power.
- Remove the rear cover
- Unplug the lines connected to the water pump, the water outlet tube and the water inlet tube.
- Loosen the screws and replace with a new one.
- Reverse the above steps to reassemble.

Replacing the water inlet valve

Note: If the water inlet valve does not work at all, or does not shut off tightly, it should be replaced.

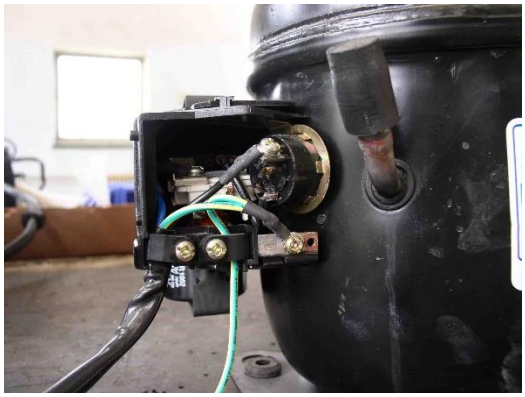
- Unplug or disconnect electrical power.
- Loosen the water supply pipe, remove the water panel, loosen 2 screws holding the water inlet valve, unplug the lines and loosen the water valve outlet tube.
- Replace a new one, reverse the above step to reassemble.



Replacing Cooling System Components

NOTE: Please see the cooling system diagram. Please check for refrigerant leaks after any service is performed to the cooling system.

Replacing the compressor start relay and overload protector.



- To replace the relay and overload protector, remove the rear panel, locate the compressor, take the clip off the cover to relay and overload protector, open the cover, replace the relay and overload protected.
- Reverse the above steps to reassemble.
- To replace the compressor, remove the rear panel, and left side, and locate the compressor.
- Add low side access valve, locate and repair leak, replace dryer, add nitrogen, pull vacuum and weigh in the refrigerant charge indicated on the data plate.
- Reverse the above steps to reassemble.

Replacing the fan motor.

- Remove the top cover, rear and left sides.
- Locate the fan motor, unplug the lines connected to the fan motor, loosen the screws of the bracket holding fan motor to the base. Replace with new fan.
- Reverse the above steps to reassemble.

Replacing the hot gas valve and filter dryer.

- Remove the rear, top cover and the left side.
- Locate the dryer and hot gas valve, add low side access valve, recover refrigerant, replace dryer and valve, add nitrogen, pull vacuum and weigh in the refrigerant charge indicated on the data plate.
- Reverse the above steps to reassemble.

DATE	REVISION NOTES
02/06/2018	INITIAL DOCUMENT

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**Warranty service should be performed by an authorized service representative only.*