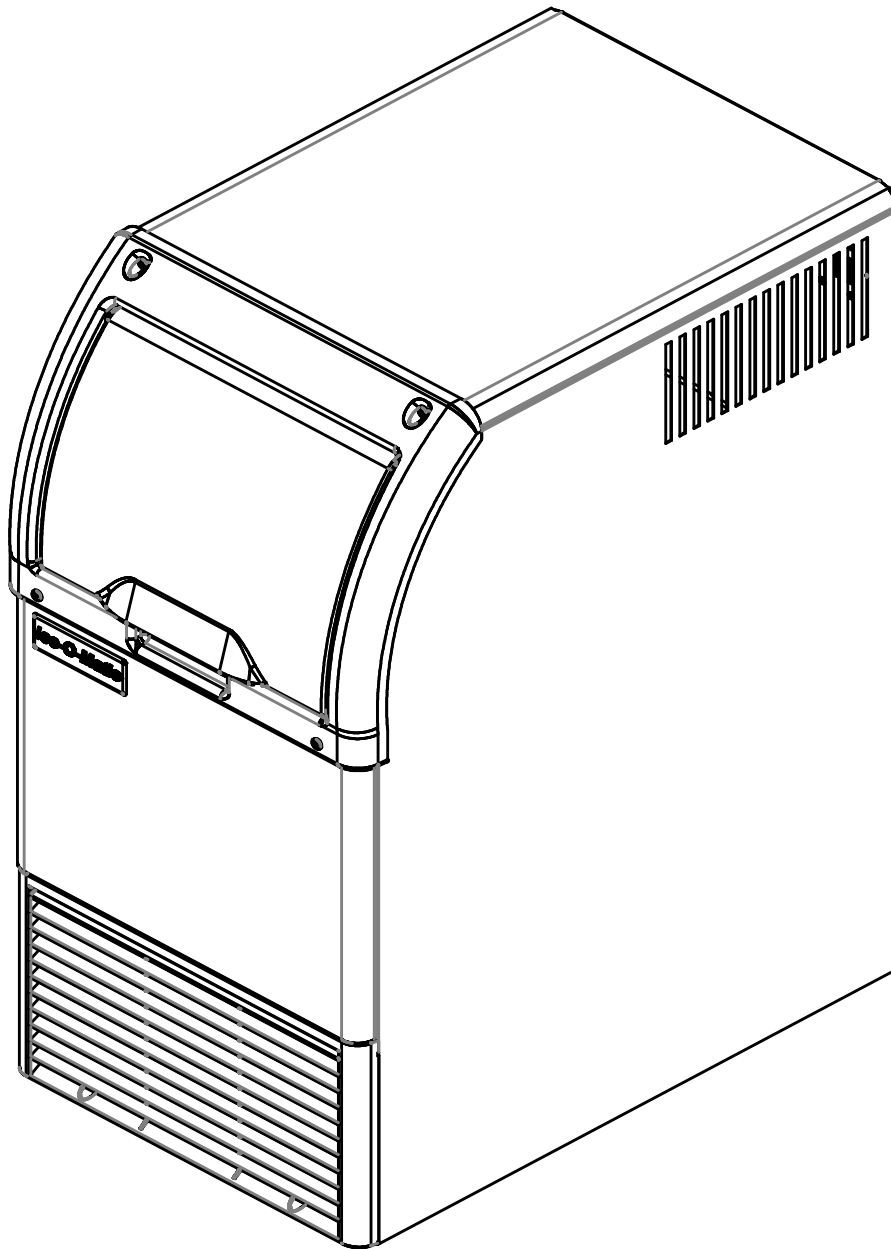


Ice-O-Matic®

Ice. Pure and Simple™

SERVICE MANUAL **The CIU Series Undercounter Cubers** **MODEL-CIU050 CIU070**



16-8001

Date 9/1/17

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Service Manual for CIU050, CIU070 and CIU090

Important Details

The machine is designed for use indoors in a controlled environment. It must be kept dry, not overheated or subjected to excessive cold. The water and power supply must be maintained or the machine will stop making ice.

There are limits to how hot or cold the room the ice machine is installed.

- Minimum air temperature: 50°F or 10°C
- Maximum air temperature: 100°F or 38°C

There are also limits to how hot or cold the water supply can be:

- Minimum water temperature: 40°F or 4.5°C
- Maximum air temperature: 100°F or 38°C

There are limits to the voltage supply to the unit and the power supply outlet.

- Voltage: 115-120 Volts.
- **A GFI outlet is NOT approved.**
- Check the data plate on the machine for voltage and fuse size.
- A factory supplied power cord is included with the machine; **do not use an extension cord.**

Water supply must be potable by the localities definition.

There are limits to the water supplied to the unit:

- Maximum water pressure. Static: 80 psi or 5.5 bar or 551.6 kilopascals.
- Minimum water pressure. Static: 15 psi or 1 bar or 103.4 kilopascals.

A floor drain will be required for melted ice and rinse water.

Operation outside these limits, may damage the unit.

- It is NOT recommended to connect a water softener because the ice may be more moist and slushy than desired.
- Water Softeners add salinity lowering the freeze point resulting in "softer" ice. This results in lower ice production.
- An Ice-O-Matic water filter is recommended.
- This is NOT an individual cube machine, it is a slab cube machine.
- To be covered under warranty: Installation must be performed by a company authorized service representative or a refrigeration service company as qualified by the company.

Warranty

The warranty statement for this product is provided separately from this manual. Refer to it for applicable coverage. In general warranty covers defects in material or workmanship. It does not cover maintenance, corrections to installations, or situations when the machine is operated in circumstances that exceed the limitations printed above.

This is a commercial model, if installed in a residence some commercial service companies may not be able to service it on site.

The manufacturer has designed and produced this machine with the finest in materials. The manufacturer assumes no liability for units that have been altered in any way. Alterations or part substitutions will void the warranty. Specifications and designs are subject to change without notice.

Service Manual for CIU050, CIU070 and CIU090

Pre-Installation

This appliance is intended to be used in commercial applications including:

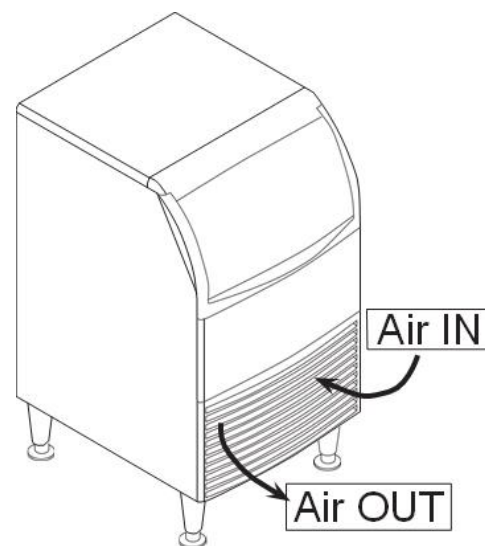
- Restaurant Kitchens
- Bars
- Hotels

Dimensions and Electrical:

Model	Electrical (volts/Hz/Phase)	Width (in / cm)	Depth (in/cm)	Height (w/o legs) (in/cm)	Total Load Amps
CIU050	115/60/1	15 / 38	23.7 / 60.3	31.94 / 81.1	7
CIU070	115/60/1	15 / 38	23.7 / 60.3	31.94 / 81.1	7

Location:

The unit can be built into a cabinet as the air flow is in and out the front. **The front of the machine must not be blocked.** Certain maintenance or repair procedures will require removal of the top, back and side panels, so plan ahead for service and maintenance needs.



Spacing:

No additional spacing is required at the top or sides. However, suggested minimum side clearance for installation is 1/8 inch or 3 mm and suggested minimum top clearance is 1/4 inch or 7 mm. Allow 4 inches (100 mm) minimum space at the back for the utility connections. Do not block louvers at the front of the cabinet.

Unpacking and setup:

Remove all shipping and packing materials that may be in the ice storage bin.

The unit can be installed with or without legs. An optional floor mounting kit is also available. If using legs, carefully tip the machine and install the legs by screwing them into the leg sockets in the bottom of the machine. For reference, the thread size is 1/2-13.

If the machine has been tipped onto its side or back allow 1 hour before starting the unit for the oil in the refrigeration system to return to the compressor.

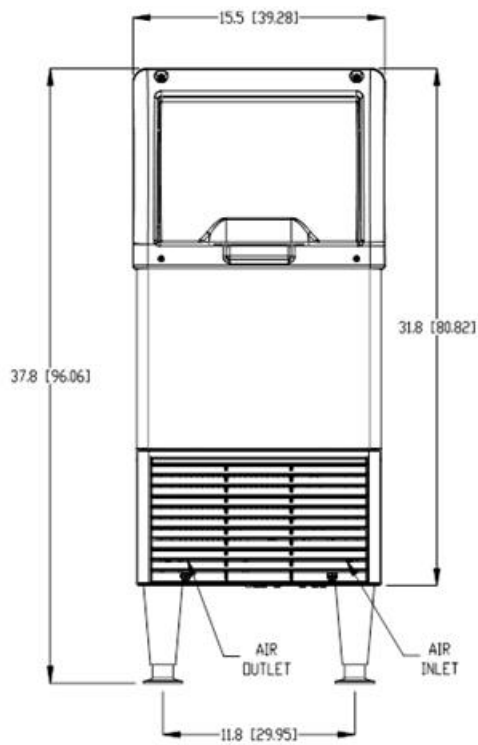
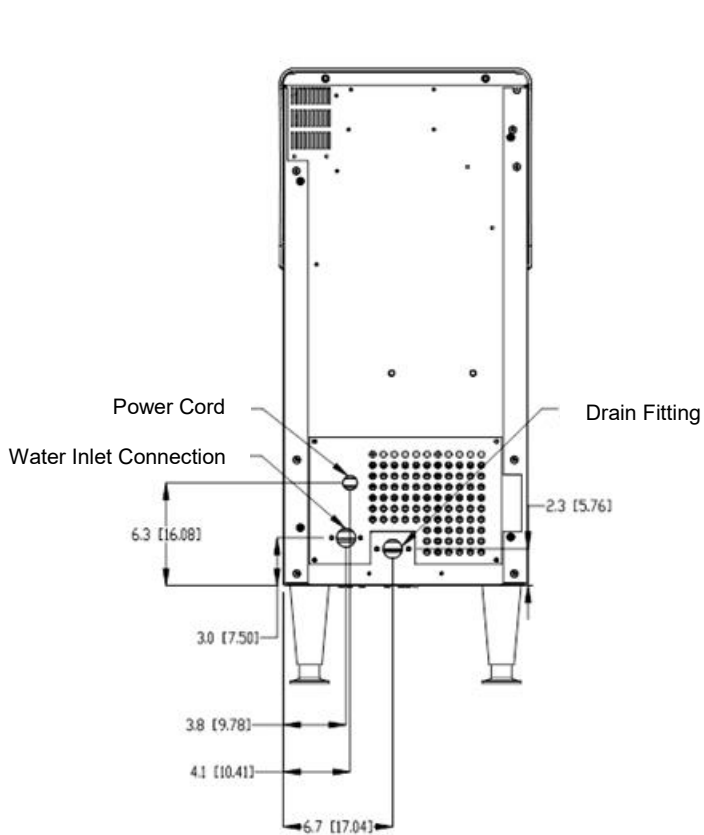
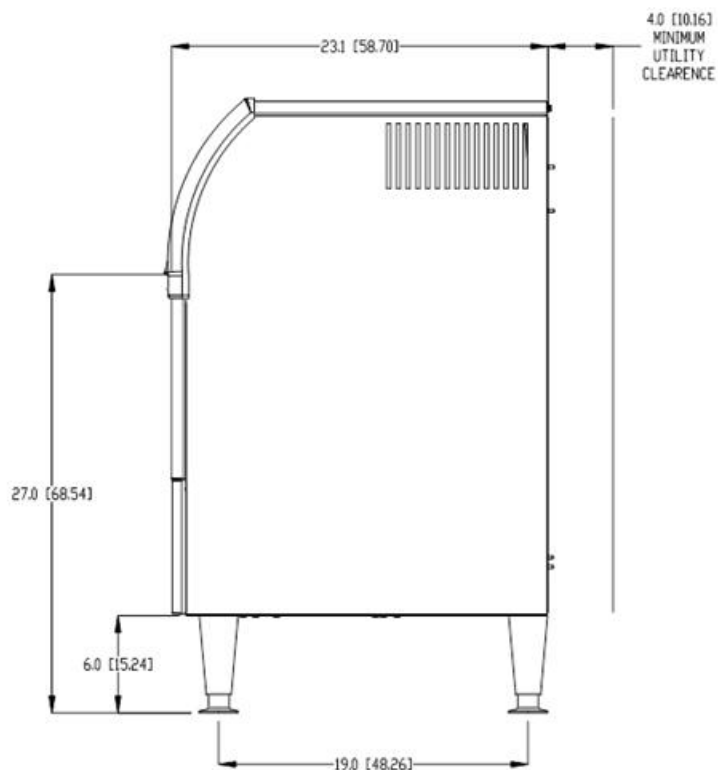
Place the machine in its intended location and level it front to back and left to right. If using legs, adjust their feet in and out to level the cabinet. If legs are not used the bottom edges of the cabinet must be sealed to the floor.

If built into a cabinet, the adjacent cabinet walls will provide the means for containment. There are no means for attachment to the cabinet.

Be sure to remove the plastic covering the exterior panels, if left on it will be much harder to remove later.

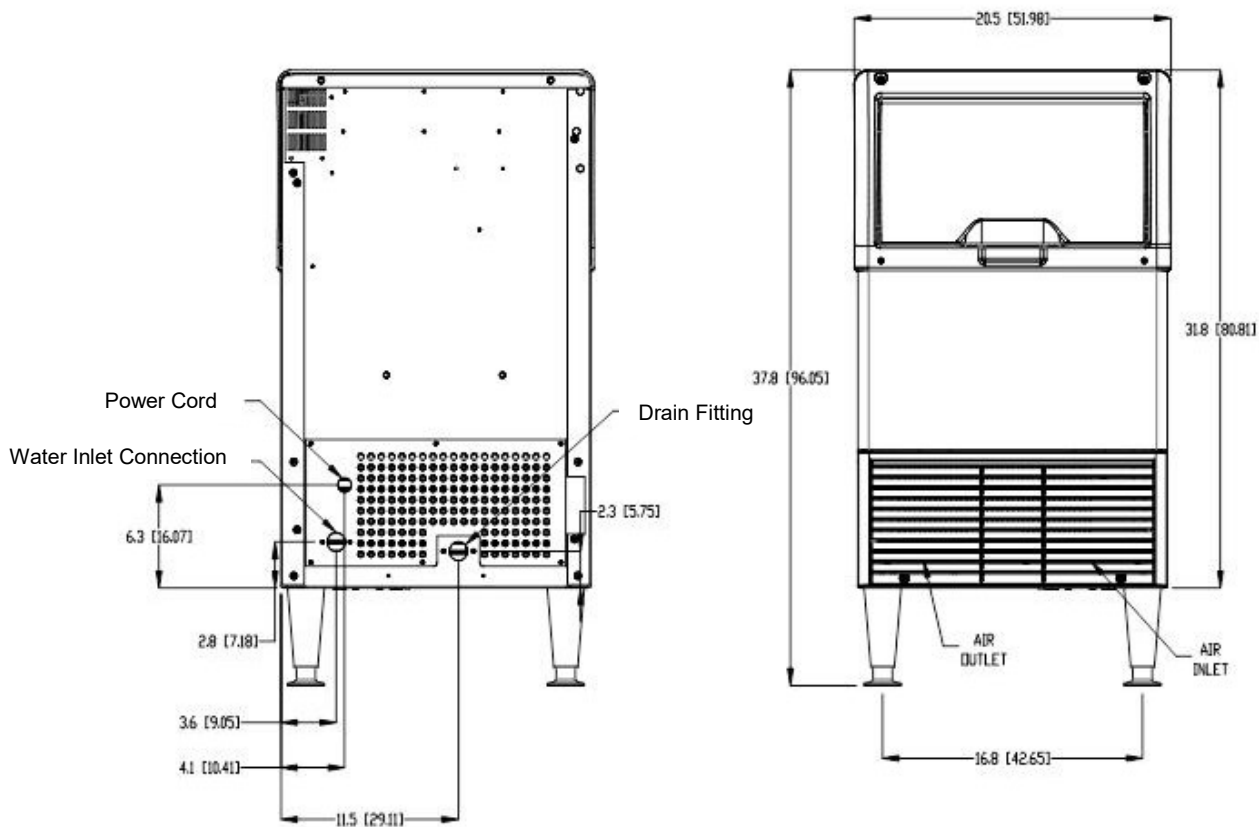
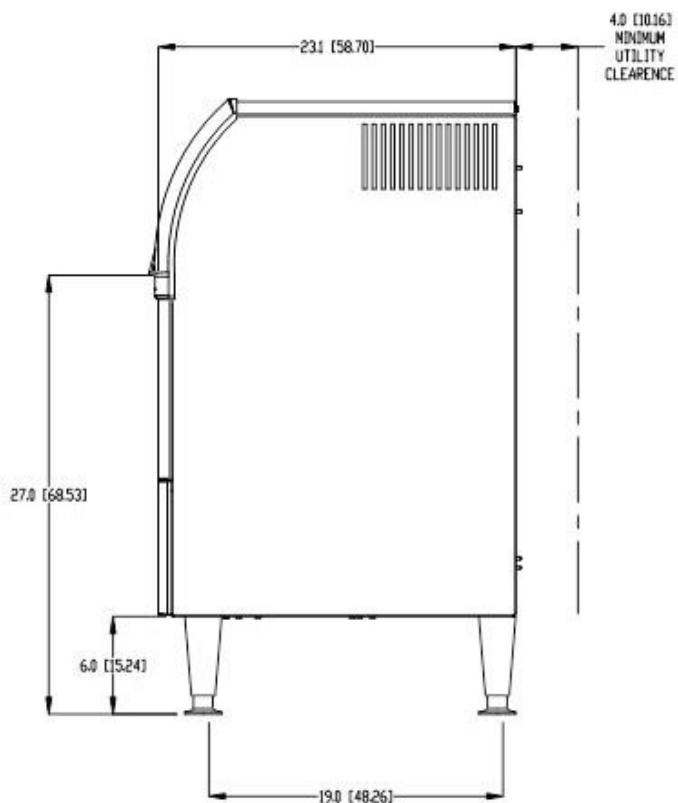
Service Manual for CIU050, CIU070 and CIU090

Cabinet Layout, CIU050 and CIU070

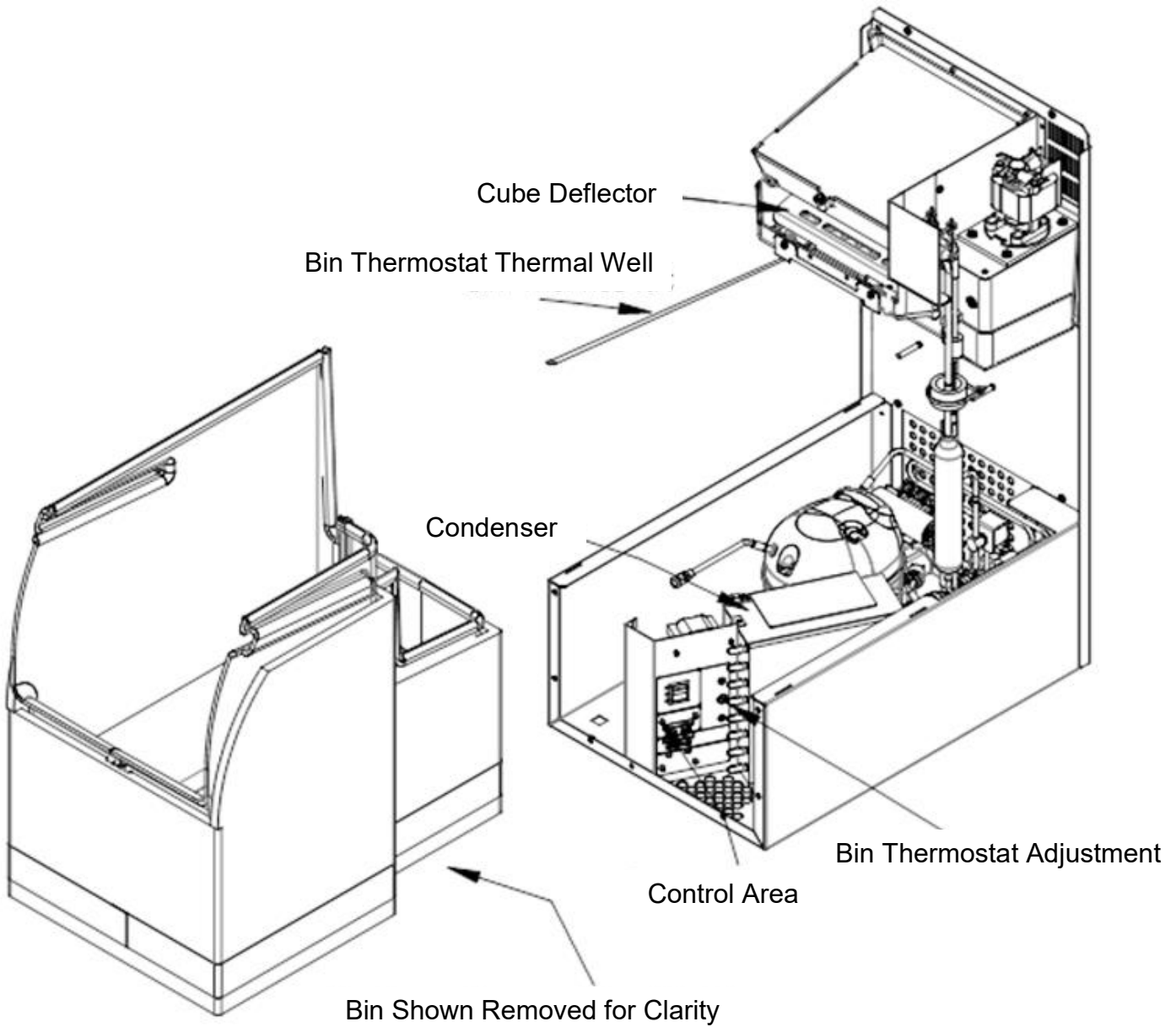


Service Manual for CIU050, CIU070 and CIU090

Cabinet Layout CIU090 Not Released



Component Location



Water Supply Connection

Plumbing information:

There is a single 3/4 gas BNF inlet water connection.

- A hand actuated water valve (Not Supplied with unit- Field Supplied) must be installed within site of the machine to isolate unit when being serviced.
- The machine has a built-in back flow preventer (an air gap between the end of the water inlet hose and the top of the water); no additional back flow preventer is needed.

Units that are built into a cabinet:

Include a loop or coil of tubing between the water supply and the connection on the ice machine. When the machine is pushed back into the cabinet the tubing will coil and not kink. The unit should be easily removable from the cabinet or millwork for service. Additional time for inaccessibility will not be cover under warranty.

Connection Information:

WARNING: connect to potable water supply only.

Important: Open the hand water valve to flush water through the tubing before connecting to the ice machine

Note: Do not use a piercing-type saddle valve to connect to the building's water supply. Valves of that type restrict water flow and clog easily.

Connect the drain

The drain connection is at the back panel. The fitting size is 3/4 FPT. Connect rigid tubing to this fitting and vent it at the machine, use an 8 inch or 200 mm vertical tube for the vent.

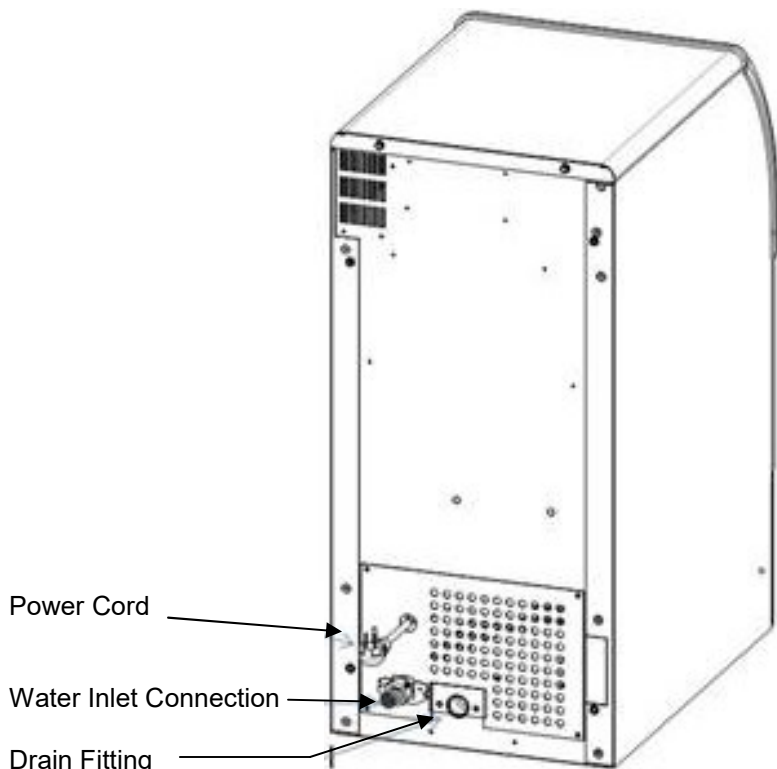
Drain tubing must slope down from the ice machine to the floor drain and the slope must be at least 1/4 inch per foot or 20 mm per meter. Insulating the drain tubing will reduce condensation and is recommended for environments that have high humidity.

Due to the potential for leaks, condensate pumps are not recommended.

If flexible tubing is being used, follow the instructions above.

The floor drains must be large enough to accommodate drainage from the drain line.

It may be desirable to insulate the drain line thoroughly



Service Manual for CIU050, CIU070 and CIU090

Connect the Power

This is a cord-connected unit, and must be connected to its own dedicated power supply.

A GFI outlet is not approved. Check the data plate on the back of the machine to confirm the voltage and per the data plate uses fuses or HACR circuit breakers.

Power Cord:

This 115 volt model is equipped with a cord.

Follow All Local Codes-This Unit Must Be Grounded.

Plug the power cord into the proper power supply.

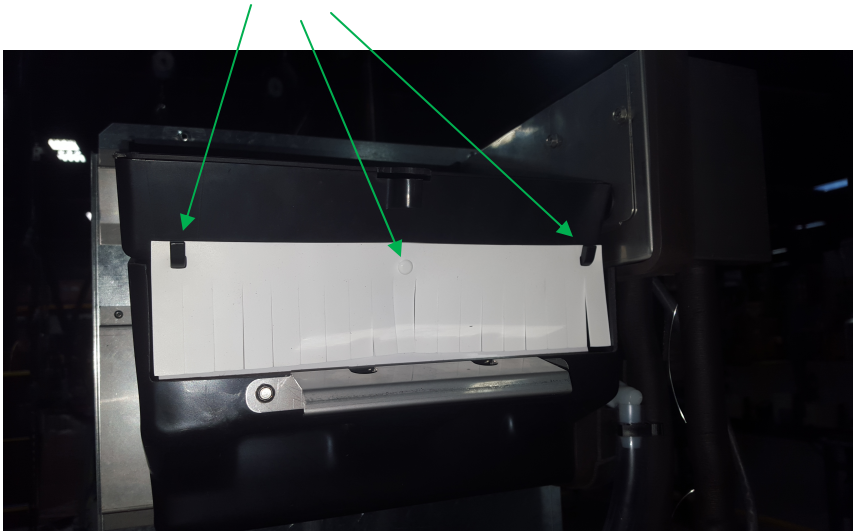
DO NOT use extension cords.

DO NOT disable or by-pass ground prong on electrical cord.

DO NOT utilize a GFI outlet as it is NOT APPORVED.

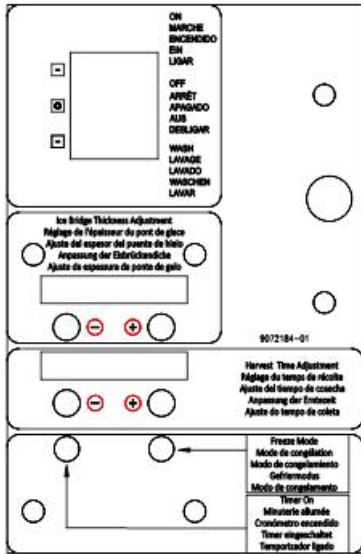
Installation Check List:

- Has the machine been installed indoors in an environment suitable for it?
- Have all of the shipping items and packaging been removed?
- Has the plastic covering the exterior panels been removed?
- Is the ice deflector in the correct position?
- Has the water supply been connected and confirmed to not leak?
- Has a properly sized and sloped drain tube been attached?
- Has the correct voltage from a dedicated power supply been connected?
- Is the curtain hooked on both sides and the central plastic rivet?



Control Panel Adjustments

Ice Bridge Thickness Adjustment Area - See Page 10 for Ice Thickness Specifications



Master Switch. Move to **ON** to make ice, **OFF** (centered) to shut off and **WASH** for use in cleaning.

Harvest Time Adjustment.

Indicator Light Area.

Freeze mode light is ON when unit is in a Freeze cycle.

Timer On light is ON when trigger point temperature is reached in Freeze or Harvest.



Machine must be adjusted to settings as shown for proper operation.

Control box is located inside lower louvered front panel. Lights are illuminated when power is supplied to the machine.

Bin Control Adjustment Settings.

Hold ice against the brass thermal well making sure that ice is touching at least 6 inches of the thermal well. The bin control should open in approximately 1 minute. If an adjustment is required, turn the adjustment screw counterclockwise (**warmer**) until it stops, then turn the adjustment screw clockwise (**colder**) 1/8 of a turn.

If a minor adjustment is needed, turn the adjustment screw clockwise (**colder**) or counterclockwise (**warmer**)

Hint: The colder the ambient, then the control should be adjusted warmer, the warmer the ambient, then the control should be adjusted colder.

Ice Bridge Thickness Adjustment Setting.

Using Minus (-) or Plus (+) buttons adjust for 2 solid **green** lights as shown.

Harvest Time Adjustment Setting.

Using Minus (-) or Plus (+) buttons adjust for 4 solid, 1 blinking lights. (5th light counting from left will blink when set properly)

Bridge Thickness and Harvest Settings should be adjusted by depressing either the Minus (-) or Plus (+) button one time, and then checking ice at end of cycle.

Initial Start Up

1. Remove the front grill by removing the two screws located at the bottom holding it to the cabinet and pulling the panel down and off the machine.
2. Turn on the water supply, correct any leaks.

Note: Water supply MUST be turned on first to allow water to enter the machine properly.

3. Locate the On/Off/Wash master switch.
4. Move the switch to the ON position.
5. Ice bridge thickness and harvest time indicator lights will switch on. They will not change unless the cube size or harvest times are manually adjusted. The timer light will also be on.
6. The unit will fill the reservoir with water. The compressor and hot gas valve will be energized, but the fan motor and pump will be off. After 2 minutes the water will have filled the reservoir but will continue to fill and excess water will drain from the machine. This is normal and helps the machine from forming excessive mineral scale.
7. After 2 minutes, the water and hot gas valve will close and the pump and fan motor will start. A blue light in the control panel will glow indicating the beginning of the freeze cycle.
8. Warm air will begin to blow out the left front of the machine and water will spray up at the inverted ice making evaporator. It is normal for a small amount of water to drip from the ice making area.

Freezing then continues for many minutes until the temperature of the refrigeration system drops to a set point, indicated by the yellow time light glowing on the control panel. In colder rooms, the fan motor may turn on and off. After the yellow light switches on the freeze cycle continues for seven more minutes. At that time the unit changes to the ice release or harvest cycle. During ice harvest, the hot gas valve and inlet water valve are open, while the pump and fan motors will stop. During harvest, the yellow timer light should be on.

9. Within a minute or so the ice formed in the evaporator will fall down and slide into the ice storage bin. The ice will release as a group so all of the ice formed will fall at once and the next freeze cycle will begin in a few seconds. The blue light indicates freeze.
10. Check the thickness of the ice connecting the cubes to each other, that connection is known as a bridge and it should be about 1/8 inch or 3 to 4 mm thick. It is preset from the factory and should be satisfactory.

Adjustments:

If the ice bridge is too big or too small, the thickness may be adjusted.

Note: The bridge thickness adjustment is used to obtain the **CORRECT** bridge size, (1/8 inch thick) not to adjust to individual preferences.

DO NOT make the ice bridge too thick or too thin, as either will reduce ice making capacity. Do **NOT** attempt to adjust the machine to release individual cubes. There is only **ONE** correct size which is 1/8 inch bridge.

11. Ice making will continue until the ice level reaches the brass tube in the storage bin, when ice contacts that tube the machine will stop making ice within a minute. This can occur in any part of any cycle.
12. Removing ice from the ice storage bin will restart the ice making process. If the machine does not cycle on and off, please refer to the Service Manual for instructions on adjusting the bin control.
13. Check for and correct any water leaks from the unit or drain system.
14. Return the front grill to its normal position and secure it to the cabinet with the original screws.

Typical Cycle Times (minutes)

	70/50°F. (21/10°C.)	90/70°F. (32/21°C.)
CIU050	28-30	34-37
CIU070	16-18	23-26

The time to fill a warm storage bin from empty varies by cabinet temperature and cycle time, but will take about 10- 12 hours.

Use and Operational Notes


To use, simply lift the door by its bottom edge and slide it up and into the top of the machine. Use the scoop to remove ice and close the door.

The machine will have better performance if it has plenty of room to breathe. This is an air cooled product and it must be able to take in room air and discharge air heated by the ice making process. Blockage of vents or exposure to excessive heat will reduce the ice making and storage capacity. The storage bin is insulated but not refrigerated, so ice will melt during use. That is normal and assures that fresh ice is available in the bin.

The fan will make some noise during operation, however rattles and other vibrations are not normal and should be attended to. When the air temperature surrounding the machine is cold, the fan might cycle on and off (150 psi -100 psi) during the freeze mode.

If the machine is in a space colder than the minimums listed it will not switch on to make ice.

Minor adjustments may be made to compensate for local conditions by rotating the adjustment screw visible above the control area. If in a cold room, CW rotation changes the control to COLDER to fill the bin higher.

 CAUTION	<p>No Step Do Not stand on the machine. Severe damage may occur.</p>
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Maintenance

Regularly vacuum the right side of the air cooled condenser with a brush to remove all loose dust and dirt. Be careful not to damage the fins.

Cubed ice machines of this type make ice that is purer than the water supplied to it. Since the ice has fewer impurities, the water that remains in the reservoir has more. The water system dilutes that concentration but eventually it does build up and need to be removed. Ice-O-Matic recommends cleaning and sanitizing the machine every six (6) months, but local water conditions may require more frequent cleaning.

To remove scale from the water system.

Materials needed:

Ice-O-Matic Approved*, nickel safe scale remover for ice machines, also known as ice machine cleaner.

- Ice-O-Matic Approved* Sanitizer
- Hand tools.
- Clean bucket
- Clean cloths
- Rubber or plastic gloves

1. Remove front grill.
2. Move master switch to **OFF**, wait for 1 minute and then move it to **ON**.
3. When the freeze cycle begins (blue light on), switch the machine to **OFF**.
4. Remove and discard the ice from the bin.
5. Drain reservoir by pulling drain plug and return drain plug to its original position.
6. Mix a solution of 5 oz. or 150 cc of ice machine Scale Remover and 2.5 quarts or 2.4 liters of clean, warm (95°F/35°C to 115°F/46°C) water.
7. Pour the solution into the reservoir by carefully adding it at the reservoir's front lip.
8. Move the master switch to the **WASH** position.
9. Wait 10 minutes.
10. Move the master switch to the **OFF** position.
11. Drain the reservoir by removing drain plug and draining the solution into the bin. Return the drain plug to its normal position.
12. Remove spray platform by removing curtain and ice deflector. Confirm all jets are open. Rinse out any debris, reclose and return it as well as the deflector and curtain.
13. Pour 2.5 quarts or 2.4 liters of warm (95°F/35°C to 115°F/46°C) water into the reservoir by adding it at the reservoirs' front lip.
14. Switch the master switch to **WASH** for 1 minute, then switch it to **OFF**.
15. Repeat step 11. Go to the next process to sanitize the machine.

Sanitize Water System – after completing prior scale removal and stopping at the end of its steps.

1. Mix a 1 gallon or 4 liter of warm (95°F/35°C to 115°F/46°C) water with EPA approved food equipment sanitizer following recommended mixture by sanitizer manufacturer.
2. Pour about half of the sanitizer mix into the reservoir.
3. Remove the curtain deflector and spray platforms. Wash them with the sanitizer, then return them to the ice machine.
4. Move the master switch to the **WASH** position.
5. Circulate the sanitizer for 2 minutes.
6. Move the master switch to **OFF**.

Continued on Page 14

*Refer to www.iceomatic.com for approved formulations.



Ice machine scale remover contains acids. Acids can cause burns.

If concentrated cleaner comes in contact with skin, flush with water. If swallowed, DO NOT induce vomiting. Give large amounts of water and milk. Call Physician immediately, Keep out of reach of children.

Follow the manufactures safety instructions printed on the label.

Maintenance

7. Drain the reservoir into the storage bin by removing the drain plug. Return the drain plug to its normal position.
8. Wash all interior surfaces of the ice machine storage bin, reservoir surface and inside of the door with the remaining sanitizer solution.
9. Pour any excess sanitizer down the ice machine bin drain.
10. Pour 2.5 quarts or 2.4 liters of warm (95°F/35°C to 115°F/46°C) water into the reservoir by adding it at the reservoirs' front lip.
11. Move the master switch to the **WASH** position for 1 minute, then switch it to **OFF**.
12. Drain the reservoir by removing the drain plug and draining the solution into the bin. Return the drain plug to its normal position.
13. Move switch to the **ON** position. The machine will resume normal ice making.
14. Return the front panel to its original position and secure it with the original screws.

Cleaning the Condenser

1. Remove the front panel.
2. Switch the machine to **OFF**.
3. Vacuum the surface of the condenser fins, carefully brush off any loose dirt. **If grease is imbedded use coil cleaner to wash it out.**
4. Switch the machine to **ICE**.
5. Return the front panel to its original position.

Electrical Sequence

Proper voltage must be supplied and the bin thermostat closed and calling for ice or the control system will not have power.

Initial power up: Moving the master switch from **OFF** to **ON** starts the machine in a harvest mode, the compressor is operating with the inlet water solenoid valve and the hot gas valve energized, water enters the machine at the top of the evaporator, flowing down into the reservoir.

After a set time of 2 minutes, the water inlet valve shuts off, the hot gas valve closes and the water pump, compressor and fan motor start operation. A blue light indicated the freeze cycle mode.



Unit in ice making mode, freeze mode indicator light is ON

As the freezing cycle continues, the suction line temperature will fall, changing the resistance of the thermistor attached to it. At a pre-set resistance, a timer in the control board will start to finish the freezing cycle. A yellow light switches on and the freeze cycle will continue for 7 more minutes.

The harvest or defrost mode begins. The yellow and blue lights switch off. The water pump and fan motor switch off. The hot gas valve and inlet water solenoid valve are switched on. The compressor is on any time the unit is in the ice making mode.

Harvest continues until the thermistor attached to the suction line warms up, changing its resistance to a pre-set point. At that time, the yellow timer light will switch on.

Harvest time equals the minimum harvest time plus the time it take to change the thermistors resistance plus a final timer. When all timers are satisfied, harvest is complete and the freeze cycle restarts.

The unit will shut off anytime the bin control thermostat is open, including while the unit is in the freeze mode or harvest cycle.



Unit in ice making mode, timer indicator light is ON

Service Manual for CIU050, CIU070 and CIU090

Components

Compressors,

Type: Hermetic

Condenser: Air cooled forced draft, copper and aluminum.

Evaporator: Nickel plated copper, inverted grid

Ice: Slab cuber style, 40 cubes per cycle, about 1 lb. per cycle.

Metering Device: Thermostatic Expansion Valve

Refrigerant: R-134a

Refrigerant Charge: 12.6 oz.

Fan Motor: The fan motor may cycle during freeze, the fan motor should be off during harvest as the discharge pressure will drop below 100 PSIG.

Fan Blade: Stamped Aluminum

Fan Control Switch: Opens at 100 PSIG and Closes at 150 PSIG.

Water Pump: OEM, Water pump runs during freeze.

Hot Gas Valve: Line Voltage Coil

Inlet Water Solenoid Valve: .275 GPM flow, line voltage coil.

Transformer: Output, 12 Volt AC.

Control Board: Microprocessor operated relays for fan and pump. Internal electronic timer. Bridge thickness and harvest time is adjustable on controller. Indicator lights for bridge thickness and harvest time. No maximum time limits or error codes. Lights for timer and freeze mode. Thermistor failure indicated by all Bridge Thickness and Harvest Time green lights blinking. Unit continues to operate on a fixed time freeze and harvest cycle.

Sensors: Thermistor for suction line temperature.

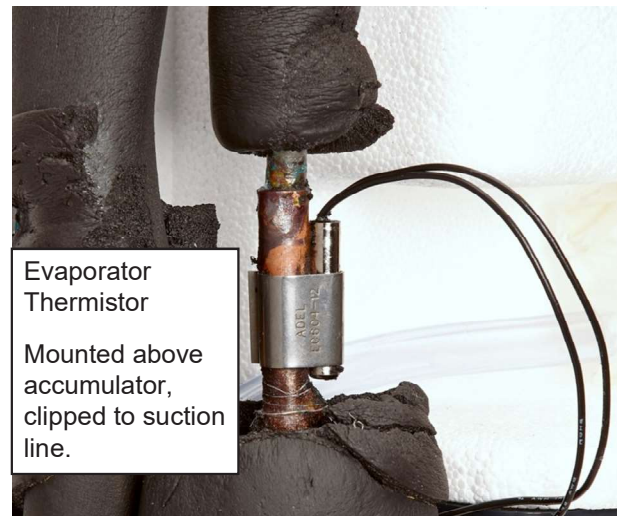
Bin thermostat: Opens on temperature fall, must be closed to power control system. Operates compressor directly.

Master Switch: ON-OFF-WASH. DPDT, not a service disconnect switch

ON: When contacts 2-1 are closed, power is connected to the bin thermostat, allowing it to automatically switch the machine **ON** and **OFF**. At the same time, contacts 5-4 are closed, making a circuit to the water pump common and fan control.

OFF: All contacts open.

WASH: Contacts 2-3 provides a connection to contacts 5-6, connecting power to the pump common. Only the pump operates when the switch is in the **WASH** position.



Performance

CIU050

Compressor Amp Draw, 115 Volt:

- Freeze, 5 minutes in: 1.8 to 1.9
- Overall Freeze cycle amps, begin at 1.9, decline to 1.7
- Harvest: 1.9 – 1.8

Compressor dome is normally warm.

Drain water per cycle at standard setting: about 1.4 quarts, at shorter setting drain water is reduced to 1 quart.

CIU070

Compressor Amp Draw, 115 Volt:

- Freeze, 5 minutes in: 2.6
- Overall Freeze cycle amps, begin at 2.7, decline to 2.5
- Harvest: 2.9 – 3.2

Drain water per cycle at standard setting: about 1 quart, at shorter setting drain water is reduced slightly.

Refrigerant Pressures (R134a)

Conditions:

90°F Air 70°F Water

	High Side Pressure	Low Side Pressure
Beginning of Freeze Cycle	160 PSI	65 PSI
End of Freeze Cycle	145 PSI	6 PSI

70°F Air 50°F Water

	High Side Pressure	Low Side Pressure
Beginning of Freeze Cycle	156 PSI	51 PSI
End of Freeze Cycle	105 PSI	6 PSI

Service Manual for CIU050, CIU070 and CIU090

Thermister Values At the temperature indicated, the thermistor should read that value.

<u>Deg. F</u>	<u>Ohms</u>	<u>Deg. F</u>	<u>Ohms</u>
0	85325	52	18873
1	82661	53	18381
2	80090	54	17903
3	77607	55	17439
4	75210	56	16988
5	72896	57	16551
6	70660	58	16126
7	68501	59	15714
8	66415	60	15313
9	64400	61	14924
10	62453	62	14546
11	60571	63	14179
12	58752	64	13823
13	56995	65	13476
14	55296	66	13139
15	53653	67	12812
16	52065	68	12494
17	50529	69	12185
18	49043	70	11884
19	47607	71	11592
20	46217	72	11308
21	44872	73	11031
22	43571	74	10763
23	42313	75	10502
24	41094	76	10247
25	39915	77	10000
26	38774	78	9760
27	37669	79	9526
28	36600	80	9299
29	35564	81	9077
30	34561	82	8862
31	33590	83	8652
32	32649	84	8448
33	31738	85	8250
34	30855	86	8056
35	30000	87	7868
36	29171	88	7685
37	28368	89	7507
38	27589	90	7333
39	26835	91	7164
40	26104	92	6999
41	25395	93	6839
42	24707	94	6683
43	24041	95	6530
44	23394	96	6382
45	22767	97	6238
46	22159	98	6097
47	21569	99	5960
48	20997	100	5826
49	20442	101	5696
50	19903	102	5569
51	19381	103	5446

Controller Use

When in a Freeze cycle or mode, a blue light will be illuminated.
The light indications are as follows:

The upper row of LED lights indicators of the adjustment for Bridge Thickness. More lights illuminated=more freeze time and a thicker bridge.

The lower row of LED lights are indicators of the adjustment for Harvest Time. More lights=more harvest time and more water rinse.



Unit in Ice making mode, freeze mode indicator light is illuminated.

At the end of the freeze cycle, a yellow timer light will be illuminated, indicating that there are 7 minutes remaining until Harvest.

During the end of the Harvest, the Timer light may also be illuminated.



Unit in ice making mode, timer indicator light is on.

Control Board Self-Test

The Control Board Self-Test Routine. Begin with the unit unplugged and NO ice touching the bin control.

1. Remove the top and back panels to access the thermistor on the suction line. (Located above Accumulator)
2. Remove the thermistor probe from the suction line.
3. Shut water supply off.
4. Remove front panel the access the control.
5. Place evaporator thermistor probe in ice water, ice water temperature should be 0°C or 32°F.
6. Plug unit in, master switch in the ON position. Check the reservoir water temperature 5 minutes or more after the freeze cycle starts. When the reservoir water temperature is 32°F and the evaporator thermistor ice water temperature is at 32°F, hold BOTH upper left minus (-) button and lower right plus (+) button in for at least 5 seconds, then release the buttons.
7. The green level LEDs will turn off and the yellow Timer LED will turn ON for two seconds once you have entered the test mode.
8. Press the upper left minus (-) button and the evaporator thermistor test will begin. The yellow timer LED will turn ON for 2 seconds if the evaporator thermistor temperature is 32°F +/- 2°F.
9. Press the upper left minus (-) button again and the sump thermistor temperature test will begin. The yellow Timer LED will turn ON for 2 seconds if the sump temperature is 32°F +/- 2°F.
 Note: Pressing the minus (-) button repeatedly will toggle between testing the two thermistor temperatures. There is no need to check the anti-slush thermistor because it is not used in this unit.
10. Press the upper right plus (+) button and the Freeze relay will close and the blue freeze LED will turn ON for 5 seconds. The compressor, fan motor and water pump will start. If not, the control board has failed.
11. Press the upper right plus (+) button again and the Water pump relay will switch, the Water Pump will stop and the red LED (on back side of the control board) will turn ON for 5 seconds.
 Note: Pressing the plus (+) button repeatedly will toggle between testing the two relays.
12. Press and hold the lower left minus (-) button and it will turn on each of the green LEDs, one at a time. Hold lower left minus (-) button in until all of the green LEDs are tested.
13. Press lower right plus (+) button to test the EEPROM read and write. The yellow Timer LED will turn on for 2 seconds if the EEPROM read and write operations are successful.

Power Down the Control Board to exit the test mode.

Test Results:

Step	Pass	Fail	Action if Failed
8	Yellow Timer LED switches ON	No Timer Light	Replace thermistor set
9	Yellow Timer LED switches ON	No Timer Light	Replace thermistor set
10	Compressor, fan and pump start	Either comp or pump do not start	Check voltage to compressor or pump, If no voltage to one or both, replace control board
11	Water Pump stops	Pump does not stop	Replace Control board.
12	All green LEDs light up	Some do not illuminate	Replace Control board.
13	Yellow Timer LED switches ON	No Timer light	Replace control board.

If the control board passes all tests, there is nothing wrong with it and the issue is in something else.

1. Reattach the evaporator thermistor to the suction line at the same place it was mounted and re-insulate it.
2. Reconnect the water supply, restart the unit and return all panels to their original position.

Service Diagnosis

Problem	Possible Cause	Probable Correction
No ice	No water to ice machine	Check water filters, check water pressure. Pressure lower than 10 psi flowing may not fill reservoir enough.
No ice, nothing operating	No power to ice machine	Check power, restore if needed.
	Open contacts in bin thermostat	Check cabinet temperature, thermostat will be open if cabinet is too cold. Advise user to operate unit in proper conditions.
		Check bin thermostat contacts, if open at bin temperature above 45 degrees F., replace thermostat
	Master switch in OFF position	Move switch to ON
	Transformer failure	Check transformer output voltage, must be 12 volts at J1 - J2 of controller. If correct line voltage is supplied but output is too low, replace transformer.
	Controller failure, some lights visible	Check controller, use self-test on page 20
	Controller failure, 12 volts to it, no lights visible	Replace controller
No ice, compressor and fan on, pump not spraying water	No or low water in reservoir	Check water filters, check water pressure. Pressure lower than 10 psi flowing may not fill reservoir enough.
		Check inlet water solenoid valve for proper operation
		Check drain plug for leaks, correct as needed.
	Pump hose disconnected	Check hose at spray platform and pump
	Pump motor not working	Check voltage to pump. If none and blue freeze mode light is ON, wait 30 seconds. If still none, replace controller.
	Pump motor overheated	Check cabinet temperature, if too hot relocate unit. If not, replace pump.
		Voltage too high.
		Pump jammed, check inlet for debris, remove and retry.
Pump failed, replace pump		
No ice, pump spraying, fan motor and compressor off	Master switch in Wash position	Move switch to ON position
No ice, pump spraying, compressor on, fan motor not turning	Fan motor open, no power or stuck	Check blade for free rotation - correct by clearing debris jamming blade or replace motor if blade is not jammed, check for open fan control

Service Diagnosis

Problem	Possible Cause	Probable Correction
No ice, fan motor not turning	No power to it	Check controller Freeze NO terminal to COM for proper voltage. If blue freeze light is on and no voltage, replace controller
		Check fan pressure control, if air temperature is over 70 degrees F, the pressure control should be closed when in freeze mode.
	Open windings	Check motor for continuity, replace if open
No ice, everything operating, poor spray to evaporator	Spray platform leaking	Check seams of spray platform, be sure it is sealed together, Loose pump tube
No ice, everything operating, good spray to evaporator	Too much water	Check inlet water valve for leaking thru and overfilling reservoir, replace valve if leaking
No ice, everything operating, water in reservoir is hotter than supply water	Hot gas valve not shutting off	Check body of hot gas valve, if hot, replace valve.
No ice, everything operating	Not enough refrigeration	Check suction line temperature. When blue freeze mode light is on, suction line should begin to get cold. If not, confirm compressor is operating.
No ice in bin, evaporator mold forms ice properly	No heat for harvest, ice does not release	Hot gas valve does not open. Check water valve, if it adds water during harvest and the hot gas valve does not open, replace the hot gas valve. If both are not opening, replace the controller.
	Very cold water supply	Increase harvest time.
	Damaged evaporator	Check plating and replace if needed
No ice, compressor is off	Compressor relay not working	Check current relay for proper operation, replace if not working
	Compressor overload open, will not reset	Check / replace overload
	Compressor windings open	Check compressor windings, replace compressor if motor is open
	Compressor overheated	Check refrigeration system for proper charge, dirty condenser, no fan
Makes ice but ice is cloudy or not completely formed	Spray jets restricted by mineral scale	Clean ice machine water system
	Lack of rinse water due to hot room temperature	Harvest time affects how much water is used to rinse the reservoir, if harvest time is short and mineral scale builds up fast adjust controller for more harvest time to add more rinse water.

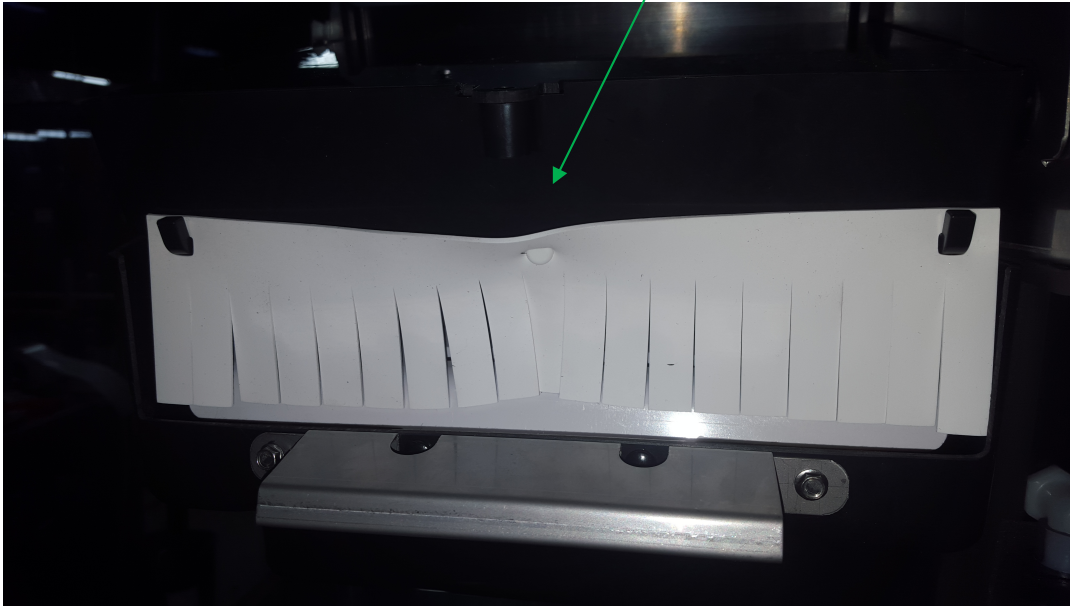
Service Diagnosis

Problem	Possible Cause	Probable Correction
Makes ice but makes blocks or shells	Ice bridge wrong size	Adjust to proper size
	Evaporator thermistor out of calibration, adjustment erratic	Check thermistor resistance to chart, replace if incorrect
	Poor thermal contact of evaporator thermistor to suction line	Check clip holding probe, must have metal-to-metal contact and covered with insulation
	Thermistor failure, unit operating on timed cycles	Check controller for all green lights blinking, if all blinking change thermistor set.
Makes ice but does not hold bridge setting, gradually increases over time	Evaporator temperature taking longer to get to cut in point	Refrigerant leak, check refrigeration system.
Makes ice but does not fill the bin	Bin thermostat opens and shuts machine off before bin is full	Unit in cold room, check conditions.
		Thermostat out of calibration, replace
Unit makes ice but it is wet	Normal	Fresh ice will be wet
	Water dripping / spraying on it	Check curtain, may be torn or not in position
		Check that cube deflector is correctly positioned
Makes ice but is slow, cannot keep up	Air cooled condenser is dirty	Clean condenser fins
	Too much water	Slight leak from inlet water solenoid valve, check/replace valve
	Air flow to cabinet restricted	Confirm nothing blocking front louvers; unit cannot operate in a closet
	Room air hot	Hot air slows ice making and increases bin meltage
	Restricted drain	Water in bottom of bin melts ice, correct drain so all water drains including the water from harvest cycle
	Ice on top of evaporator	Drain slots plugged, clean water system
Makes ice but is loud	Some noise is normal, the fan, pump and compressor all produce sound	Check for fan blade touching debris or shroud.
		Check that all panel fasteners are on tight.
		Identify loud part and replace it.
Door binds opening or closing	Pin is broken	Check / replace door roller
Bin overfills	Bin thermostat does not open	Replace thermostat

Removal and Replacement

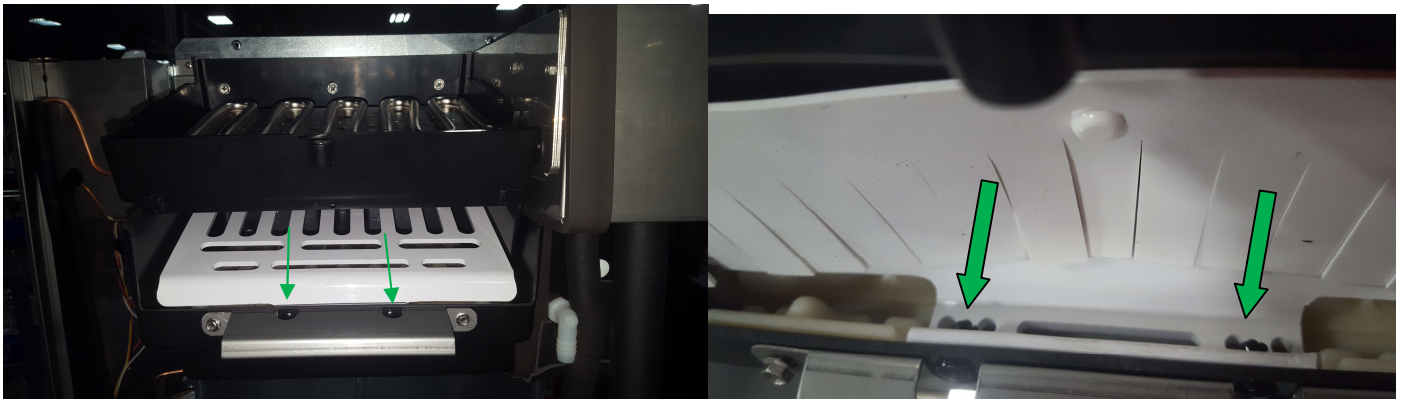
Curtain

1. Remove curtain from central plastic rivet, do not remove the central rivet.
2. Remove curtain from both hooks.
3. Reinstall by reversing these steps.



Ice Deflector

1. Locate the 2 rivets holding the ice deflector in place, push the rivets out from the inside.
2. Take the deflector out.



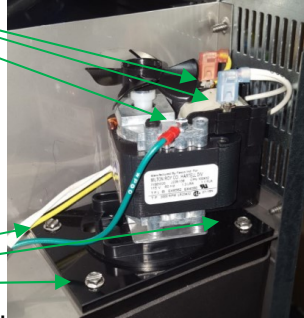
3. The rivets may be a little flared out, as shown in picture below. Squeeze the front portion of the rivet if needed, to make sure it passes through the hole during reinstallation.



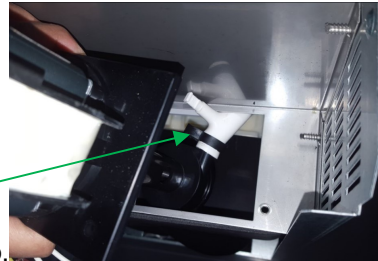
Removal and Replacement

Pump

1. Disconnect electrical power.
2. Remove door & trim by taking out 4 screws.
3. Remove top by taking out 2 screws.
4. Disconnect all electrical connections from the pump.



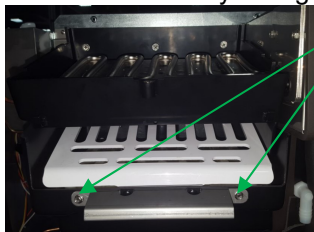
5. Remove pump & pump bracket by taking out 3 screws.



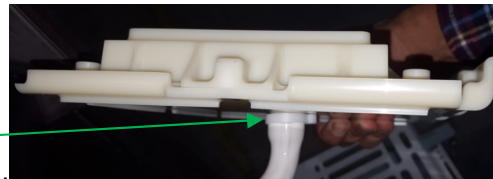
6. Unhook spraybar water distribution tube by removing clamp.
7. Twist pump out of pump bracket.
8. Twist replacement pump on bracket.
9. Connect spraybar water distribution tube and secure with clamp.
10. Complete the remaining steps in reverse order of removal steps.

Spray Bar

1. Remove curtain (See instructions on Page 24).
2. Remove ice slide by taking out 2 screws.



3. Remove ice deflector (See instructions on Page 25).



4. Unclamp water distribution tube from spraybar bottom.
5. Remove from sump and unscrew 8 screws to open for cleaning.

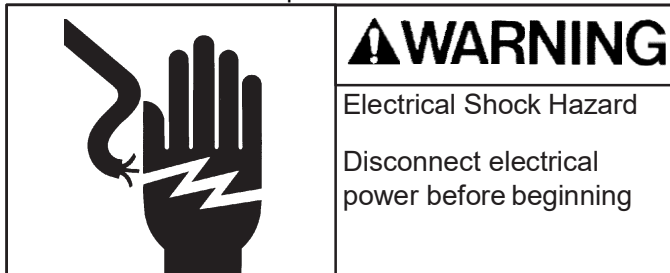


6. After cleaning, verify that the gasket is installed in the spraybar. Reinstall the spray bar by completing all the steps in reverse order of removal steps.

Removal and Replacement

Bin Thermostat

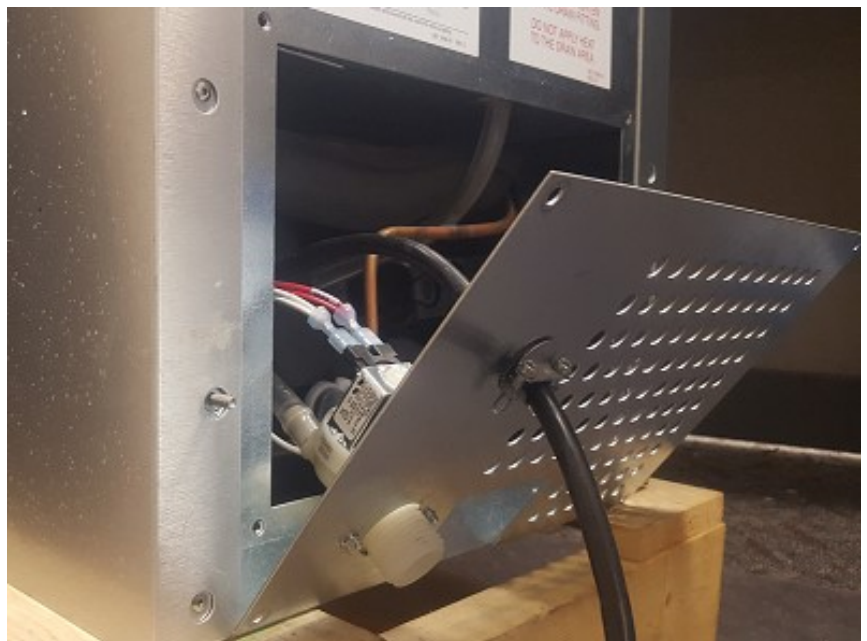
1. Disconnect electrical power.



2. Remove front panel.
3. Remove top panel.
4. Remove left side panel.
5. Remove tape covering cap tube and pull cap tube out of sensing tube. .
6. Remove back cover of control box.
7. Remove bin thermostat from control box and disconnect wires from it.
8. Remove sheet metal air baffle from in front of the compressor
9. Pull cap tube and bin thermostat from unit.
10. Route new bin thermostats cap tube through notch in left side of unit and up to the hole in the left side of the bin.
11. Insert cap tube into sensing bulb.
12. Connect wires to bin thermostat.
13. Mount bin thermostat to control box.
14. Reinstall air baffle and control box back.
15. Reinstall left side panel. Be sure master switch is in the ON position.
16. Reinstall all panels.
17. Reconnect electrical power.

Inlet Water Solenoid Valve

1. Disconnect electrical power.
2. Pull unit out to get back access.
3. Shut water off to unit.
4. Remove potable water supply from valve.
5. Remove utility panel by removing the 4 screws, viewed from the back. Valve is attached to utility panel.
6. Locate inlet water solenoid valve.
7. Disconnect electrical wires from valve.
8. Disconnect the plastic outlet tubing from the valve.
9. Remove two screws holding valve to utility panel.
11. Remove valve and discard.
12. Install new valve and secure to panel with screws.
13. Reconnect plastic outlet tubing by pushing it on the valve barbed fitting.
14. Reattach wires to valve.
15. Install potable water supply to valve.
16. Switch water on and check for leaks. Correct as needed.
17. Reconnect electrical power and confirm that there are no leaks while the water valve is on.
18. Install utility panel using 4 screws..



Control Board

The control board ships set for CIU070 and must be adjusted for other models. Please review these instructions prior to installation.

1. Disconnect electrical power
2. Remove front panel.
3. Remove control box back cover.
4. Disconnect all wires from the control board, squeeze standoffs together to release from bracket and remove the control board from the ice machine.
5. Touch the metal base of the ice machine before touching the new control board to discharge static electricity.
6. Mount the new control board onto the sheet metal bracket of the control box.
7. Connect all wires per the wiring diagram.
8. Reconnect electrical power and adjust the control board per this table (bin thermostat must be warm):

Model	Ice Bridge Lights On Steady	Ice Bridge Lights Blinking	Harvest Lights On Steady	Harvest Lights Blinking
HISU050	1	1	3	1
HISU070	2	0	3	1

9. Return control box back and front panel to their normal positions.

Ice Bridge Thickness Adjustment

Adjust by pushing the + (plus) sign or – (minus) sign on the ice bridge adjustment section of the control panel until the correct number of lights are on steady or blinking.

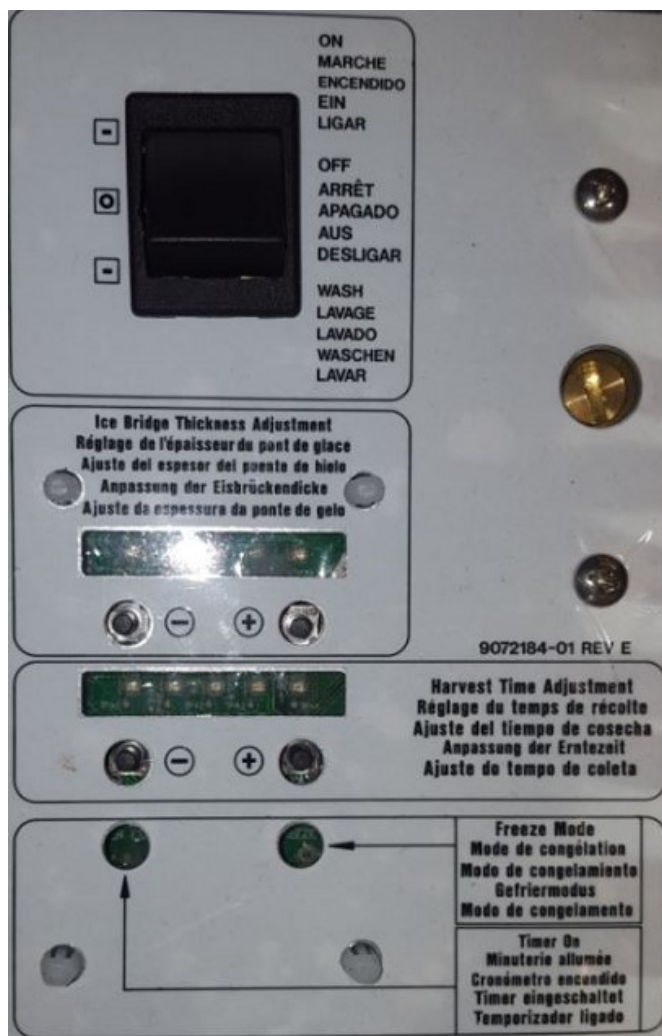
That is the factory setting. The ice bridge may be adjusted further if needed, but do NOT adjust the ice bridge too thin. Ice must release as a unit.

Harvest Cycle Time Adjustment

Adjust by pushing the + (plus) sign or – (minus) sign on the Harvest time adjustment section of the control panel until the correct number of lights are on steady or blinking. That is the factory setting.

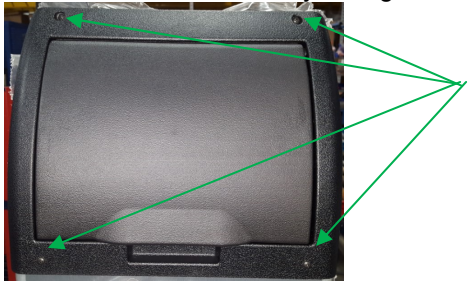
Proper harvest time is when the ice falls into the bin and there is about 10 seconds extra harvest time (water pump and fan are off) before the freeze cycle restarts.

If the harvest time is too short to release the ice, or if more water must be purged in high ambient conditions, increase the time by pushing the + (plus) sign on the harvest time adjustment section of the control panel. Operate the machine for another cycle to confirm that the adjustment was correct. Note that too much harvest time will slightly decrease making ice capacity.



Cabinet Removable for Service

1. Remove door and trim by taking out 4 screws.



2. Remove louvers by taking out 2 screws.

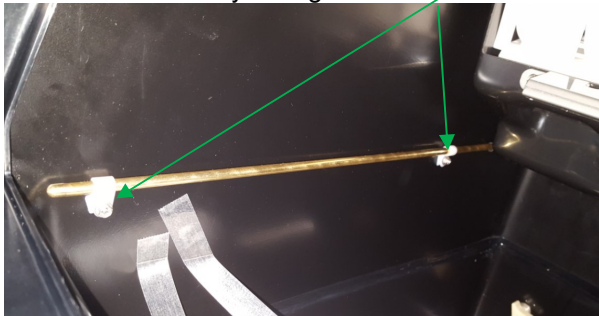


3. Remove front panel by taking out 2 screws.

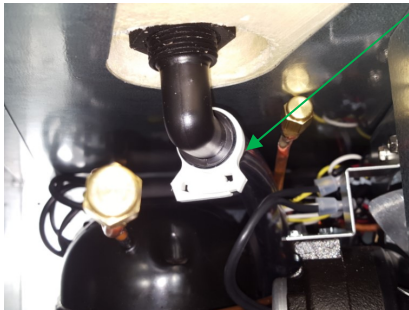
4. Remove top panel by taking out 2 screws.



5. Remove bin stat by taking out 2 screws.



6. Unhook the drain hose from the bin.



7. Remove Bin from unit.

8. Remove base cover to access unit.

