



CIMU Undercounter Ice Machines

Service Manual



5/21/26

11100 E. 45th Avenue • Denver, CO 80239 • Phone: 1.866.PURE.ICE • www.iceomatic.com



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Your safety and the safety of others are very important.

Many important safety messages have been provided in this manual and on the appliance. Always read and obey all safety messages.

 This is the safety alert symbol.
This symbol alerts you to potential hazards that can kill or hurt you and others.
Safety messages will follow the safety alert symbol and either the word "DANGER" OR "WARNING". These words mean:

 **DANGER** Indicates death or serious injury will result if proper precautions are not taken.

 **WARNING** Indicates death, serious injury, or property damage can result if proper precautions are not taken.

 This is the Risk of Fire / Flammable Materials symbol.
This symbol alerts you to the presence of flammable materials.
When this symbol appears in this manual or on the ice maker, care should be taken to avoid causing a fire by igniting flammable material.

 This is the Potable Water symbol.
This symbol indicates that connection to potable drinking water supply is required.

 This is the Minimum Room Floor Area symbol.
This symbol indicates that the ice maker has a minimum room floor area for the location in which it is installed. If this symbol is on the icemaker it shall not be installed in a space with less than the indicated minimum room floor area.

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 **DANGER**

Please read these instructions completely before starting the installation or performing any service. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death. Manufacturer assumes no responsibility for improperly installed equipment.

IMPORTANT SAFETY INSTRUCTIONS

WARNING: To reduce the risk of fire, electric shock, or injury to persons when using the ice maker, follow basic precautions, including the following:

- Children should be supervised to ensure that they do not play with the appliance.
- This appliance 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 the use of the appliance by a person responsible for their safety.
- Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.
- **WARNING:** Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- **WARNING:** Do not use electrical appliances inside of the ice storage compartment unless they are recommended by the manufacturer.
- **WARNING:** The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).
- **WARNING:** Do not pierce or burn.
- **WARNING:** Be aware that refrigerants may not contain an odor.
- **NOTICE:** Servicing shall be performed only as recommended by the manufacturer.

SAVE THESE INSTRUCTIONS

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 WARNING

BEFORE PROCEEDING, VERIFY YOUR PRODUCT'S REFRIGERANT TYPE
YOUR PRODUCT CONTAINS FLAMMABLE REFRIGERANT. IT IS IMPORTANT TO VERIFY THE TYPE OF REFRIGERANT YOUR PRODUCT CONTAINS IN ORDER TO TAKE APPROPRIATE SAFETY PRECAUTIONS.

- Refrigerant type is designated on the product's Serial Nameplate
- Refrigerant type is designated on the product's Specification Sheet
- Refrigerant type is designated by the model number. The last two digits indicate the refrigerant type. For example, model CIMU300FA90 contains refrigerant R-290 (propane) as indicated by the "90" at the end of the model name.

How to use this Manual

Ice-O-Matic provides this manual as an aid to the Refrigeration Service Technician for installation and maintenance of the **CIMU** cube ice machines. Do not attempt to perform installation, start-up or maintenance unless you have read and fully understand this manual.

Ice-O-Matic icemakers and dispensers are not approved for outdoor installation.

To find a Service Provider, please reference our "Find a Service Technician" tab at www.iceomatic.com
Keep this manual for future reference.

The CIM Series Service Parts Manuals are available separately.



WARNING

Always disconnect electrical power and shut off water supply whenever maintenance or repairs are performed on the ice machine and related equipment.

CAUTION

Always wear protective eye wear whenever maintenance or repairs are performed on the ice machine and related equipment.

[Type here]

Ice-O-Matic Warranty

Every Ice-O-Matic ice maker is backed by a warranty that provides both parts and labor coverage. To view the warranty details, register products, or check your warranty status visit the “Warranty and Water Filter Registration” page on www.iceomatic.com

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SAVE THESE INSTRUCTIONS

FREIGHT CLAIMS

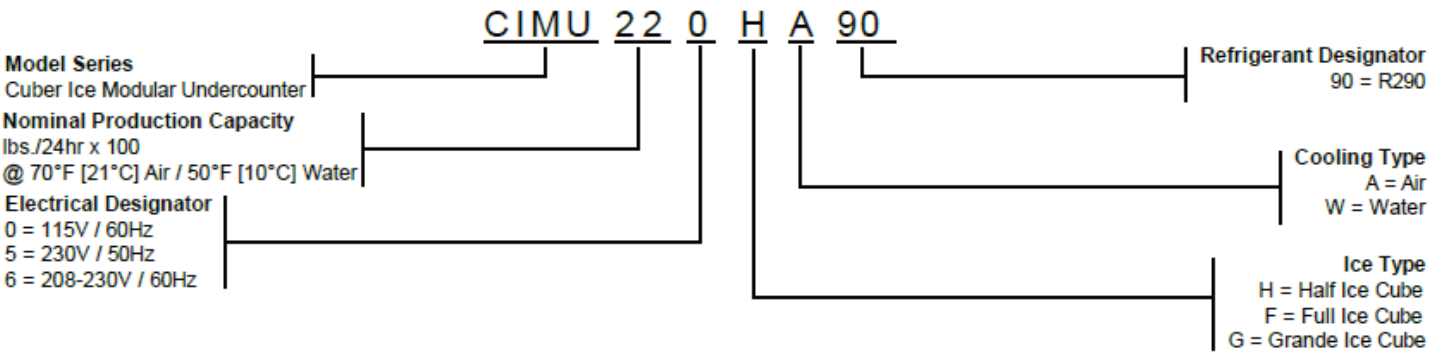
INSPECT PROMPTLY: This merchandise has been carefully inspected and packed in accordance with the carrier’s packing specifications. Responsibility for safe delivery has been assumed by the carrier. If loss or damage occurs, you as the consignee must file a claim with the carrier and hold the container for carrier’s inspection.

VISIBLE LOSS OR DAMAGE: Any external evidence of loss or damage must be fully described and noted on the freight bill or express receipt and signed by the carrier’s agent. The claim should be filed on a form available from the carrier.

CONCEALED LOSS OR DAMAGE: If loss or damage does not appear until merchandise has been unpacked, make a written request for inspection by the carrier within five days of delivery date, then file a claim on a form from the carrier.

FILE CLAIMS WITHOUT DELAY—DO NOT RETURN DAMAGED GOODS TO MANUFACTURER

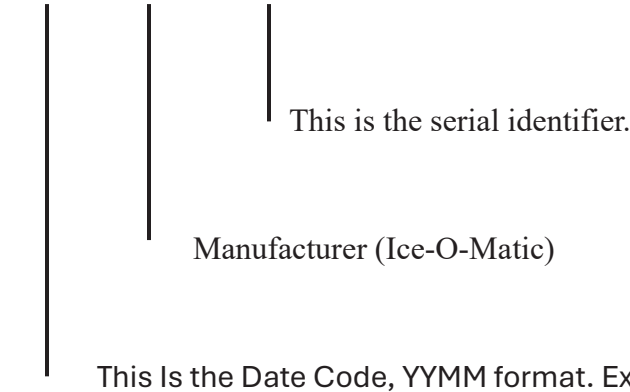
MODEL NOMENCLATURE



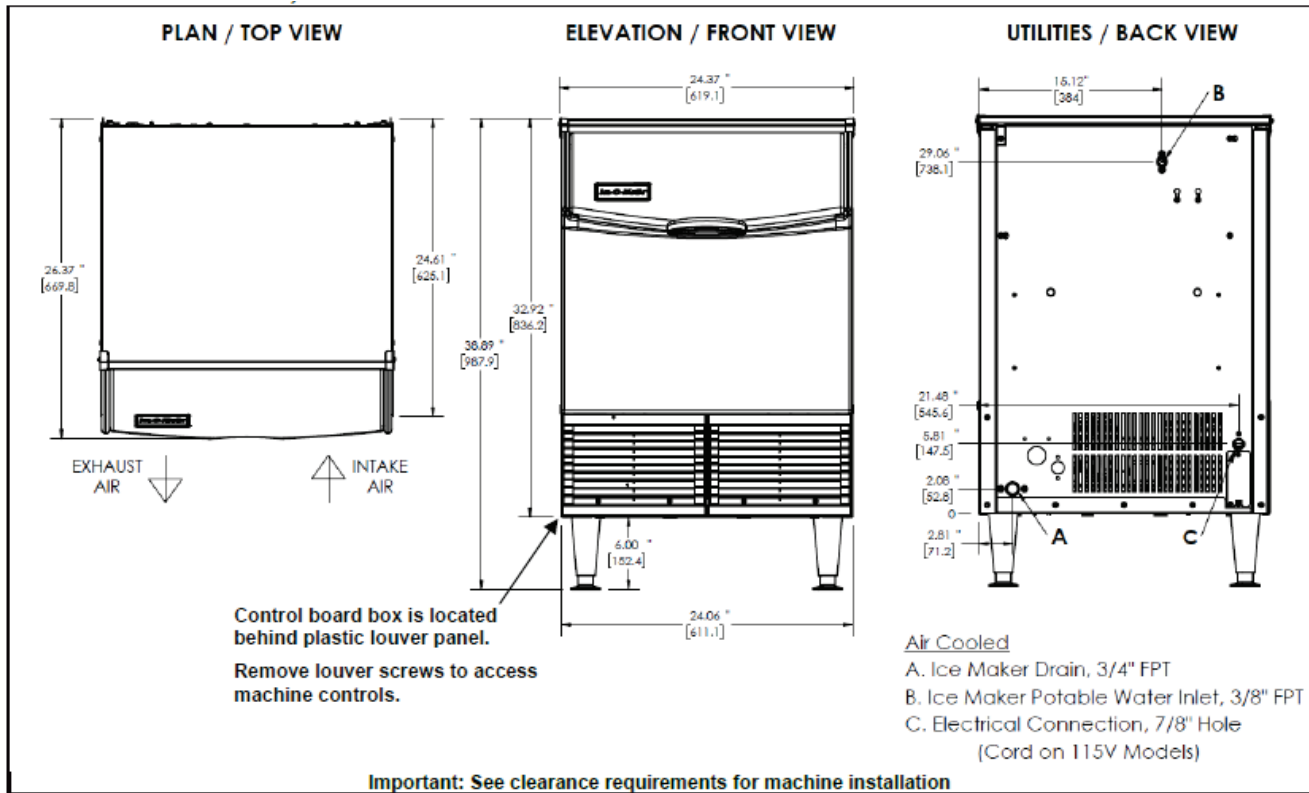
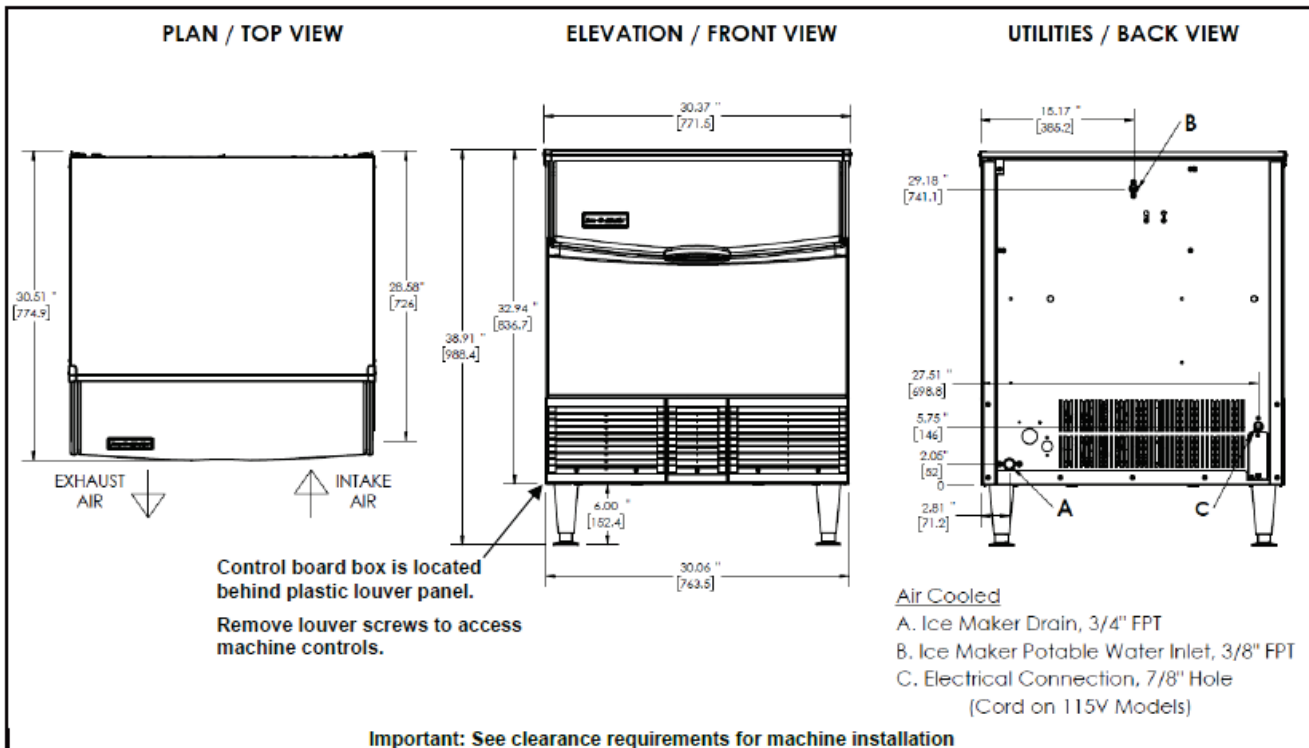
Serial Number

The format for the Serial Number is 14 characters long and begins with a date code followed by the Ice-O-Matic identifier, and then a sequential number. This is an entirely numerical serial number.

2601 12800 12345



Each serial number provides essential information not only about production dates and manufacturer but also serves as a key for tracing unit specifications and service history. Accurate identification remains vital, especially as we move toward new refrigerant standards and labeling requirements.

CIMU22 MODELS, PRODUCTION CAPACITY 220 LBS/24H**CIMU30 MODELS, PRODUCTION CAPACITY 300 LBS/24H**

REFRIGERANT CHANGES

In compliance with EPA regulations requiring the transition away from R-404A refrigerant, effective January 1, 2026, we are updating the refrigerants used in our units to more environmentally sustainable options. Larger remote units will utilize R449A refrigerant, while self-contained units will operate with R-290 refrigerant. Identification of these units will be facilitated through multiple indicators: the final two digits of the model number (as referenced on the preceding page), the data tag, and stickers affixed to line-sets. Additionally, R-290 units will feature specific warning labels as detailed below.

R449 refrigerant possesses characteristics closely resembling those of R-404A, requiring minimal modifications to existing units aside from a TXV replacement.

In contrast, R-290 exhibits distinct properties that necessitate different considerations.

What is R290?

R290 is Propane

- Extremely Pure
- Highly Flammable
- **NO ADDED ODORANT** (no smell)
- Heavier than air (pools up in low areas)
-

R290 SAFETY HAZARDS

Fire/Explosion



Asphyxiation

- You cannot get enough air to breathe – there's not enough oxygen
- R404 and R449 are also asphyxiants



Installation Guidelines

Unpackage Ice Maker

 WARNING
Excessive Weight Hazard
Use two or more people to move and install or uninstall the appliance.
Failure to do so can result in back or other injury.

Remove the Packaging

- Remove the cardboard box from the ice maker
- Remove (2) shipping bolts which secure the ice maker to the pallet
- Open the bin door and remove the ice scoop and leg set secured inside of the bin with tape.
- Install the legs on the ice maker by threading them into the captive nuts on all four corners of the base.

Verify that the ice maker is level within 1/8 inch in all directions, the leg height can be adjusted by rotating the foot of the leg.

Location Requirements

 WARNING
Fire Hazard
Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.

IMPORTANT: Appliance is intended for indoor commercial use only. Appliances containing refrigerant R290 with charge exceeding 114 grams must not be installed in public corridors or lobbies. Appliance must be installed in accordance with ANSI/ASHRAE 15.

Check safety equipment before putting it into service.

Installer must provide adequate clearance for proper ventilation to ensure optimum performance.

Make Electrical Connections

 WARNING
Electrical Shock Hazard
Electrical connection must be made by authorized service personnel.
Failure to do so can result in death, fire, or electrical shock.

Ensure you have the proper electrical connections:

- 115V Undercounter units are supplied with a NEMA 5-15P electrical cord, all other voltages must be wired and installed per local electrical codes.
- Refer to the serial nameplate on the left side of the machine for the required supply voltage and circuit breaker size.
- Appliance is to be installed on a dedicated circuit.
- A means for disconnect from the supply mains must be incorporated in the fixed wiring in accordance with the wiring rules.

Units are not approved for GFI outlets. Electrical connections or cord installation must be performed by a qualified electrician to prevent electrical hazards.

For proper operation of the ice machine, the following installation guidelines must be followed by **a Qualified Refrigeration Technician**. Failure to do so may result in loss of production capacity, premature part failures, and may **void all warranties**.

Reference the installation parameters prior to installing the machine. Ice-O-Matic assumes no responsibility for improperly installed equipment. **Excessive time required for service or time for units requiring removal for service of inaccessible equipment will be the sole responsibility of the equipment owner.**

Ambient Operating Temperature

Minimum operating temperature:

Air cooled units 50°F (10°C)

Maximum operating temperature:

Air cooled Units 100°F (38°C) (60 Hz.), 110°F (43°C) (50 Hz.).

(See Electrical and Plumbing diagrams for line sizing)

Incoming Water Supply

WARNING: Connect to unheated potable water supply only!

Minimum incoming water temperature:	40°F (4.5°C)
Maximum incoming water temperature:	100°F (38°C)
Minimum incoming water pressure:	20 psi (1.4 bar, 0.14 MPa)
Maximum incoming water pressure:	60 psi (4.1 bar, .41 MPa)

Note: if water pressure exceeds 60 psi (4.1 bar), a water pressure regulator must be installed

All water supply lines must be installed per local codes. Use 3/8-inch O.D. minimum using a 3/8 MPT fitting to connect to the machine using PTFE plumbers' tape or Paste. Make 2 coils of extra tubing so that the machine can be pulled away from the wall if service is needed.

Water Filtration/Treatment

A water filter system should be installed with the ice machine. Refer to Ice-O-Matic water filter specification sheet.

Reverse Osmosis (RO) water can be very acidic and can attack the evaporator and other metal in the ice machine. Because the RO process removes all minerals and metals from the water it can promote the faster growth of microbial mold and slime. If RO water is used, Ice-O-Matic recommends the water pH verified to be a neutral 7.0 to minimize the corrosive effects. Incorrect cleaners, sanitizers, and RO water that does not have a neutral pH could **void the machine's warranty**.

Drains

All drain lines must be installed per local codes. Flexible tubing is not recommended. Route bin drain, purge drain and water condenser drain individually to a floor drain. The use of condensate pumps for draining water is not recommended.

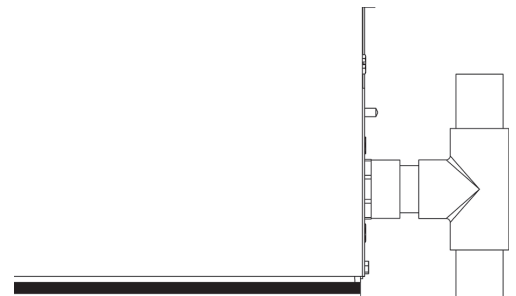
Ice-O-Matic assumes no responsibility for improperly installed equipment. This may void the warranty.

Note: The Purge Drain Fitting is plastic: DO NOT apply heat to the purge drain area;

DO NOT over-tighten drain connection.

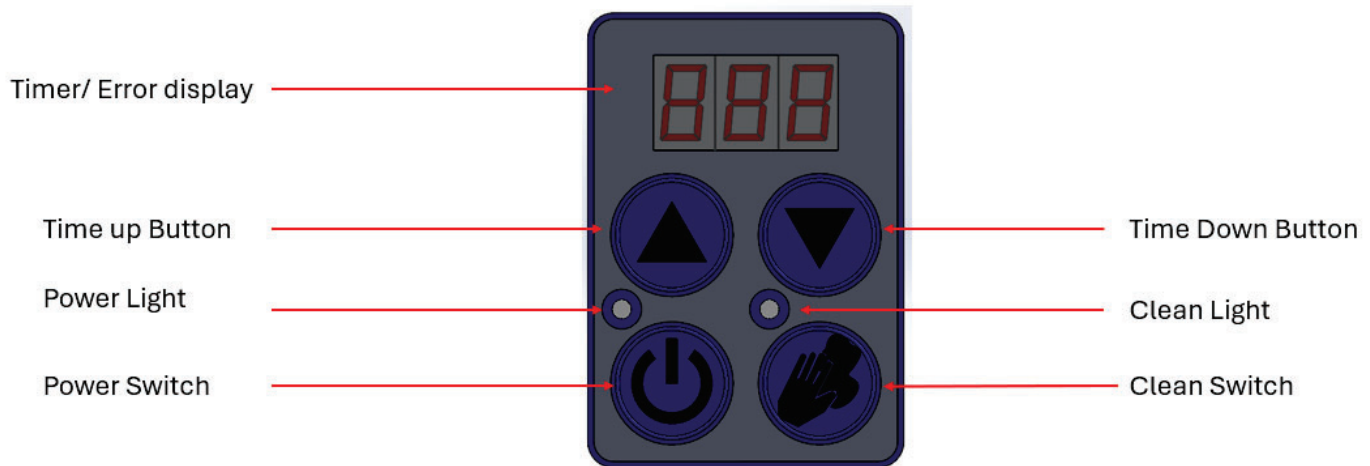
The purge drain should be a minimum of 3/4 inch O.D. tubing, and properly vented. The condenser drain on water cooled units should be 1/2 inch O.D. minimum. The drain line fittings on Ice-O-Matic bins are 3/4 FPT. The bin drain should be a minimum of 3/4 inch O.D. and properly vented. Cold water drains should be insulated to prevent condensation from forming.

It is not recommended that a Drain pump be used on CIMU Model Ice Machines



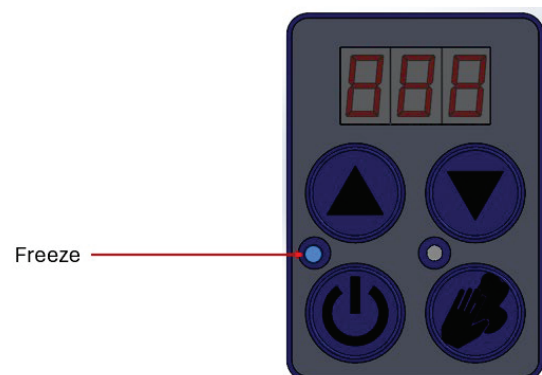
OPERATION

This unit operates in a similar fashion to the older ICEU units, there are a couple of differences though. The CIMU now uses a control board. Familiarization with this will help in understanding what it is telling you much easier.



Startup

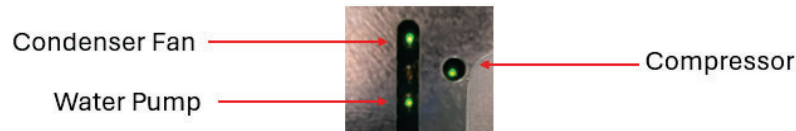
1. Ensure drain line has been routed to a floor drain. Ensure water supply pressure is ON. Turn on electricity supply to unit; indicator light near buttons should be steady red.
2. Verify that the water level in the sump is approximately 1/2" above the top of the water pump impeller housing. The water level can be adjusted by bending the float arm.
3. Quickly press and release ON/OFF button. Indicator light will change to steady blue. Machine is now ON and will begin producing ice.



4. Follow the sequence of operations described below. Check the operation of each component through the cycle as explained below.

Freeze Cycle Sequence of Operations

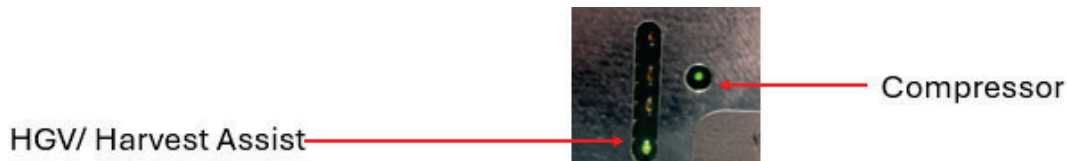
- After unit has been turned ON, the compressor, fan motor, and water pump are energized – the machine is in the freeze cycle and water is flowing across the evaporator plate.



- Water will continue to flow over the evaporator plate and as the ice cubes are formed, the suction pressure will pull down and activate the low-pressure control switch. When the low-pressure setting is reached, the contacts will close and the control board will initiate the saved timer setting to finish the remainder of the freeze cycle and achieve the proper ice bridge thickness.
- When the timer setting has passed, the freeze cycle has completed and the unit will enter the harvest cycle.

Harvest Cycle Sequence of Operations

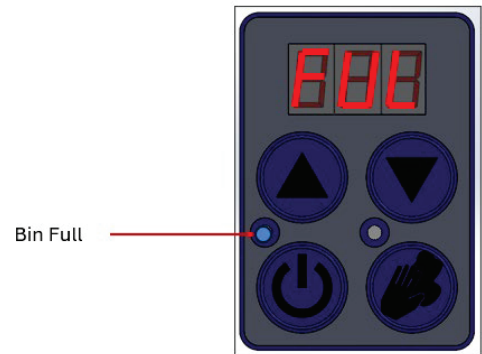
- Upon entering a harvest cycle, the fan motor and water pump are turned off, the hot gas valve opens, and the harvest assist motor is energized. The purge valve and water pump deenergize after the timed purge time setting ends (sw 1&2). The unit continues in this mode until the harvest assist motor pushes the ice slab off the evaporator plate.



- When the harvest assist has pushed the ice slab off the plate and the probe is fully extended, the harvest assist cam switch will open as the arm of the switch contacts the high side of the harvest assist cam signaling the control board to energize water pump. while the harvest assist motor retracts to its home position.



- If the ice level in the bin is high enough to open the thermostatic bin control, the unit will shut off on bin full, and the display will read “FUL” with the blue LED illuminated.



- If the bin control remains closed, the unit will start the next freeze cycle.

Bin Thermostat Adjustment

Hold ice against the brass bin thermostat tube, making sure the ice is in contact with the majority of the accessible portion of the tube. The bin control should open in approximately 1 minute. Remove the ice. The bin control should close in approximately 3 minutes. 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. This should put the control close to the proper adjustment, recheck and make a minor adjustment if needed. If a minor adjustment is required, turn the adjustment screw clockwise (colder) or counterclockwise (warmer).

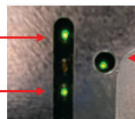
Shutdown

For Normal Shutdown: Quickly press and release the ON/OFF button. Indicator light will change from steady blue to flashing blue and the display will read “h1”. The machine will complete the current freeze cycle and harvest the ice,



Condenser Fan

Water Pump

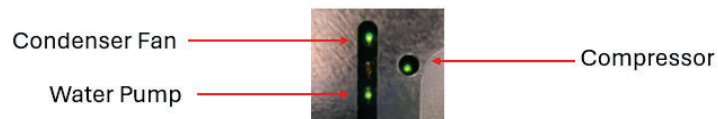


Compressor

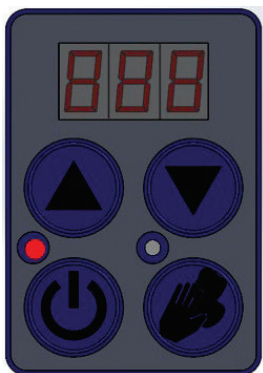
then it will shut down. The light indicator will then change to steady red.



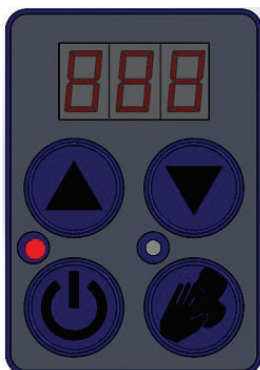
For Accelerated Shutdown: Press and hold ON/OFF button for three seconds. Indicator light will change from steady blue to flashing blue and the display will read “h2”. Machine will immediately go into harvest, then will shut down after harvest is completed. The light indicator will change to steady red.



then will shut down after harvest is completed. The light indicator will change to steady red.



For Immediate Shutdown: Press and hold ON/OFF button for six seconds. Machine will immediately shutdown. Indicator light will change from steady blue to steady red.

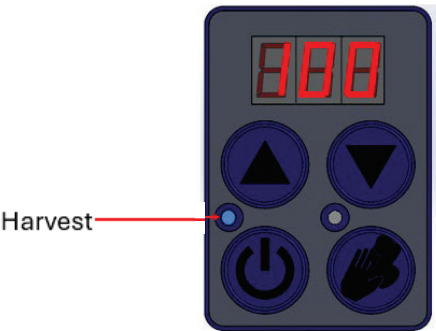


Adjust Ice Bridge Thickness

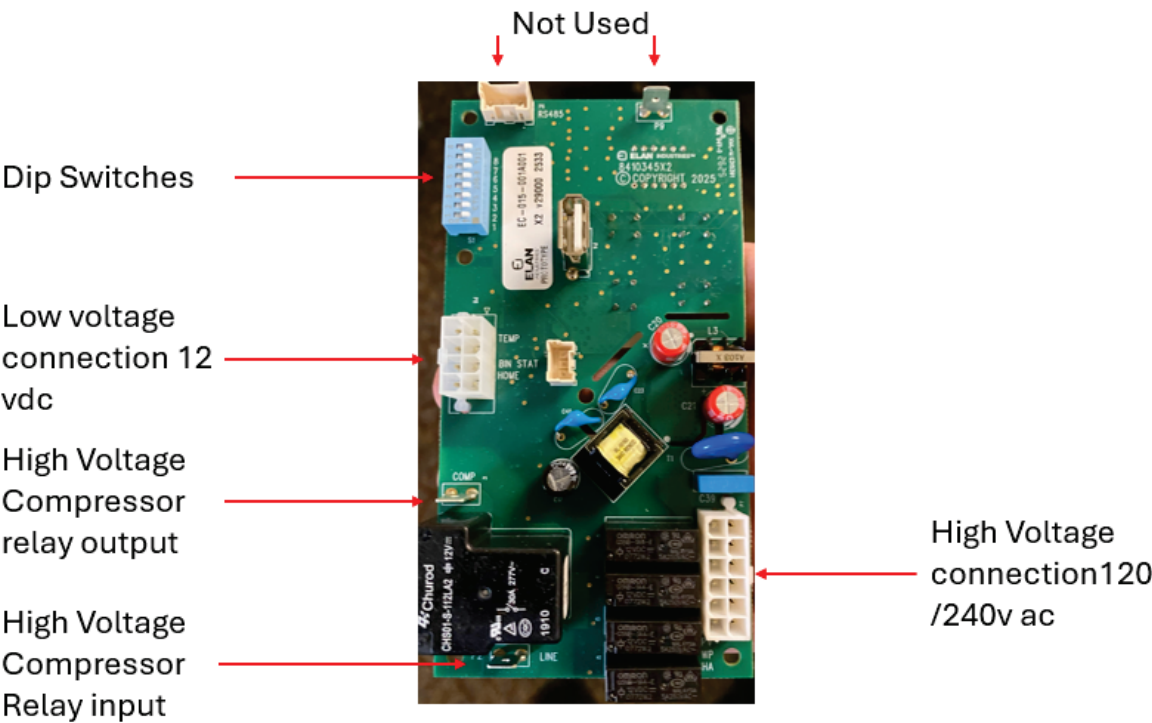
- 1. Allow machine to produce at least one slab of ice.
- 2. On the second harvest cycle, measure ice bridge thickness across the middle of the ice slab.
Proper bridge thickness, when measured in the middle of the slab should be approximately 3/16 inch [5 mm] thick. Alternatively, ice batches may be weighed to determine proper bridge thickness. See table below for proper ice batch weights.

Batch Weight (lbs)		
Half Cube	Full Cube	Grande Cube
2.9-3.15	3.25-3.5	-

- 3. Timer can be adjusted by pressing up or down. First press shows time set, additional presses are 30 sec increments from 0 to 990 seconds (Does not show unless button is pressed) using the Up and Down buttons on the control board. See figure below.
- 4. Pressing either Up or Down button once will illuminate the display and the current timer setting will be displayed. Decrease the timer setting to decrease the bridge thickness. Increase the timer setting to increase the bridge thickness.



Control Board



Dip Switch Block

Allows for a couple of changes on the control board see below

- DIP Switch 1 is no purge (note highlighted areas in chart below)
- DIP Switch 2 is High purge
- DIP Switch 3-7 Not Used
- DIP Switch 8 is a fixed freeze time (15 Minutes) used for LPTI failure

					Switch # 1 takes priority over switch #2
DIP Switch	1	2			State
Label	NO PRG	HI PRG			
	Off	Off			Standard purge time (SP15)
	On	Off			No purge
	Off	On			High purge (SP16)
	On	On			No purge

Low Voltage Connector (12VDC) for control switches

This Molex connector is the connection point to the board that provides 12 VDC to the Low Pressure Timer Initiate Switch, the Harvest Assist Cam Switch, and the Bin Thermostat to the control board.

High Voltage Connector (120/240VAC)

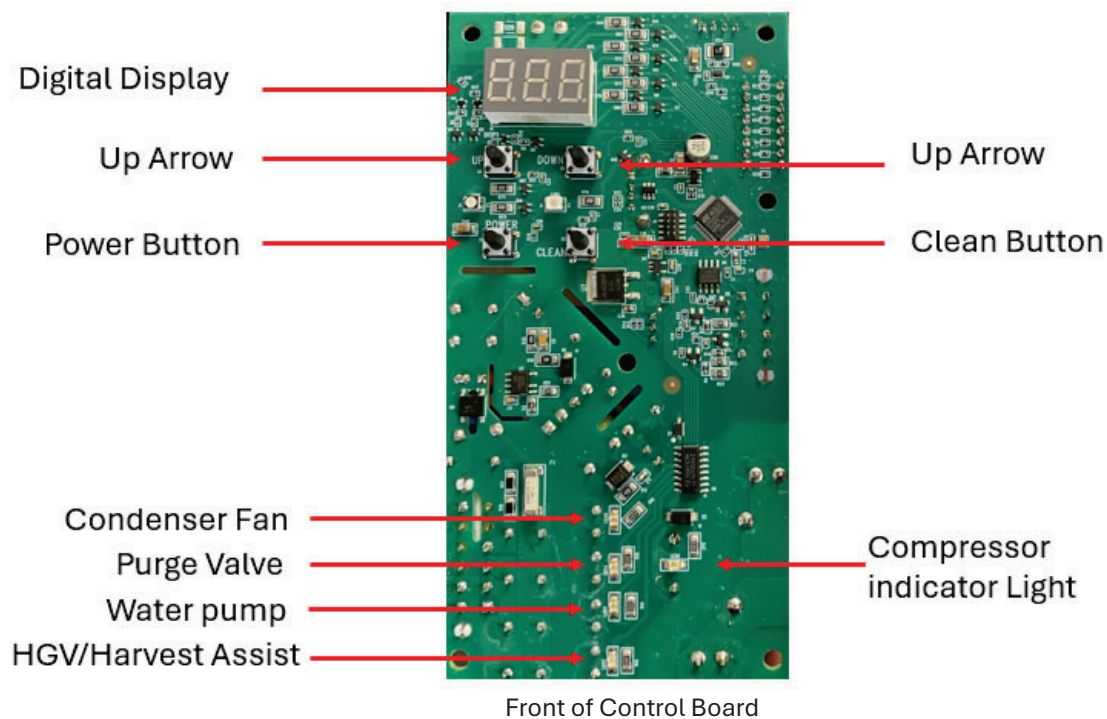
This Molex connector is the connection point to the board for the Line voltage connection that includes the Water Pump (Yellow Wire), Hot Gas Valve (Red Wire), the Purge Valve (Pink Wire), and the Condenser Fan Motor (Violet Wire).

High Voltage Compressor Input

This terminal provides power to the Compressor relay on the control board for the Line voltage that supplies the compressor.

High Voltage Compressor Output

This terminal provides power to the compressor from the relay on the control board for the Line voltage that goes from the control board to the compressor, as there is no contactor in this unit.



Digital Display

The Digital Display shows the timer settings, Error Codes, the Clean function, Purge, and manual harvest selections. *(shown without the overlay)*

Up Arrow

The up arrow allows time adjustment up to 990 seconds of freeze time adjusted in 30 second increments. *(shown without the overlay)*

Down Arrow

The down arrow allows time adjustment Down to 0 seconds *(shown without the overlay)*

Power Button

Turns the power on and off to the unit, and also allows for Manual Harvest 1 and 2, and with the clean button will reset error codes. *(shown without the overlay)*

Clean Button

Starts the wash mode and along with the Power Button resets error codes *(shown without the overlay)*

Condenser Fan

This Is an Indicator light that shows the condenser fan should be on. *(shown without the overlay)*

Purge Valve

This Is an Indicator light that shows the Purge Valve should be on. *(shown without the overlay)*

Water Pump

This is an indicator light that shows the water pump should be on. *(shown without the overlay)*

HGV/Hot Assist

This is an indicator light that shows the HGV/Hot Assist should be on

Compressor

This is an indicator light that shows the Compressor should be on. *(shown without the overlay)*

ERROR CODES

Error 1 MAX FREEZE

Rapid flashing power light until successful freeze

Will display E1 on the display

After 75-minute Max Freeze, unit shuts down for 2 hours. Unit will retry freeze, if successful unit will clear error and continue running. If unsuccessful will shut down for 2 hours, then retry freeze. If unsuccessful, unit will lock out after the 3rd failure.

Like CIM, press power and wash for 3 seconds to clear error code.

Quick flash



Error 2 MIN HARVEST ERROR

If Harvest assist makes a full revolution before the 45 second Min Harvest timer elapses during harvest cycle it will turn off unit in E2 retry freeze every 2 hours

Like CIM press power and wash for 3 seconds to clear error code.

Quick flash



Error 5 MAX HARVEST

After 2 hours, the harvest assist will try again. If it completes a full cycle, the unit will stop. If it doesn't, the unit will stay in Error 5 and try again in 2 hours.

Like CIM press power and wash for 3 seconds to clear error code.

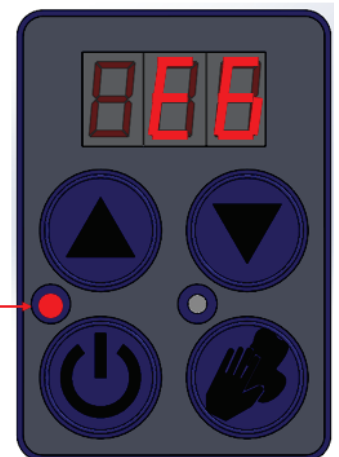
Quick flash

**Error 6 Max Freeze after Max Harvest**

After a Max Harvest, if the unit performs a max freeze (75 min) after 2 hours unit will cycle harvest assist if successful. If harvest isn't successful, it remains in Error 6 with a 2 hour retry.

Like CIM press power and wash for 3 seconds to clear error code.

Quick flash



Harvest Confirmation/ Verification

Shows on start of machine to verify harvest assist rotates 360° to ensure ice no longer on plate



Manual Harvest 1

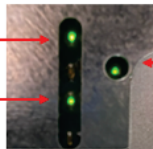
Like CIM press and release power button this will start manual harvest 1 unit shuts down after next harvest

Press and release button to cancel.



Condenser Fan

Water Pump



Compressor

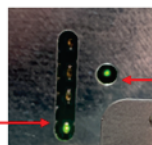
Manual Harvest 2

Like CIM Press and hold power button for 3 seconds while in freeze this will start harvest unit will shut down after harvest.

Press and release power button to cancel shut down



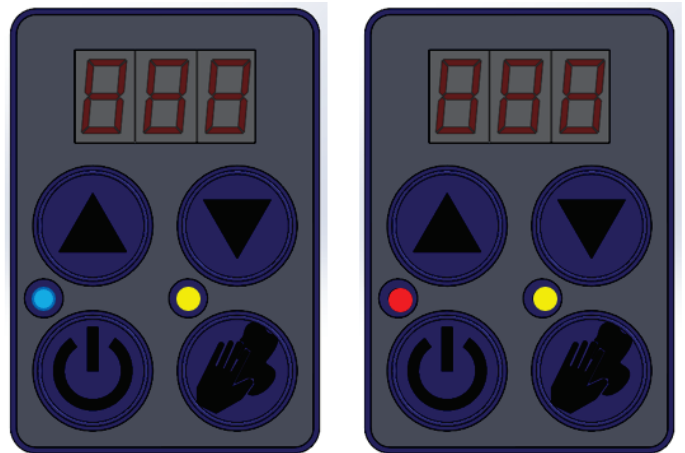
HGV/ Harvest Assist



Compressor

Clean Reminder

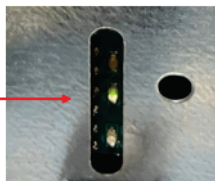
The Yellow clean reminder light will show with either a solid Blue or a solid Red light and flash once every 3 seconds until reset by running wash mode.

**Clean Mode**

With unit in off state, press and release clean button display will show a CLn the power light will be solid red, and the clean light will show a slow yellow flash. This Reminder is set for 6 months and can only be reset by cleaning the machine. Unit will run through a 15-minute clean cycle



Water Pump

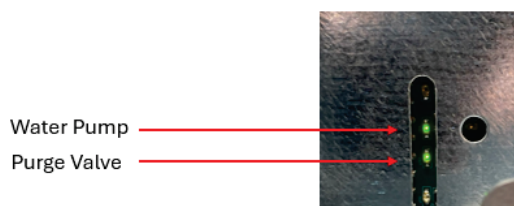
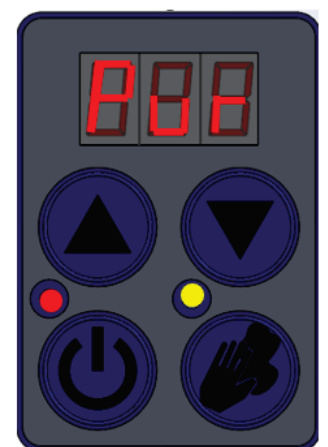


Clean Mode Purge/Rinse

After 15-minute wash cycle, unit will then purge for 1 minute, then rinse for 2 minutes, then purge again for 1 more minute.

**Clean Mode: Forced Purge**

While in clean mode, press the clean button for 3 seconds to force a purge cycle.



Cleaning Overview

 WARNING
Skin Corrosion/Irritation Hazard
Always wear protective gloves, protective clothing, and eye protection while handling descaling and sanitizing solutions.

Proper cleaning of an ice machine requires two parts: Descaling and Sanitizing.

Descaling should be scheduled at a minimum of twice per year, but no more than once per month. Descaling dissolves the mineral deposits on the evaporator and on other surfaces. It removes scale, calcium, lime, and other mineral buildup. Ice-O-Matic requires a “nickel-safe” cleaner such as Nu-Calgon Nickel-Safe Ice Machine Cleaner diluted per manufacturer’s instructions. At dilution, the chemical composition is citric acid 5-10%. Refer to manufacturer’s website for approved chemical formulations and proper pH balance.

Sanitizing should be performed after each descaling, but no more than once per month. Sanitizing disinfects the machine and removes microbial growth including mold and slime. Ice-O-Matic requires a “nickel-safe” sanitizer such as Nu-Calgon IMS-III. Refer to manufacturer’s website for approved chemical formulations and proper pH balance.

IMPORTANT: Do not mix descaler and sanitizer solutions together. Electrical power must be ON to complete the cleaning cycle. Take precautions while working inside the machine.

IMPORTANT: Never use cleaning or sanitizing solutions that contain nitric acid, sulfuric acid, hydrochloric acid, carbolic acid, acetic acid, diluted acetic acid, non-food-grade vinegar (concentration of acetic acid greater than 6% and does not contain enzymes created in processing), bleach, chlorine dioxide, or salts such as potassium chloride (potassium salts) or sodium chloride. Check the label or the manufacturers’ safety data sheets (SDS) to be sure. Use of these chemicals can attack the surface of the evaporator and other metals causing corrosion and flaking and will void the warranty.

Cleaning Procedure

Before starting, make sure all ice is off of the evaporator. If ice is being made, press and hold the POWER button for 3 seconds to initiate harvest. Once the harvest cycle is complete, the POWER light will turn solid red (OFF mode).

Model	Sump Volume	Nu-Calgon Nickel Safe Ice Machine Cleaner Descaler Concentration Ratio: 5 fl. oz. per 1 gal water (39 mL per 1 L water)
CIMU22/CIMU30	0.65 Gal (2.46 L)	Add 3.25 fl. oz. (96 mL)

1. Remove or melt all ice from bin to prevent contamination.
2. Add recommended amount of nickel safe ice machine cleaner to sump according to label instructions on container. Sump volume is 0.65 gallons (2.46 L).
3. Initiate the wash cycle by pressing and holding the CLEAN button for 3 seconds. The ice machine will show a solid red and flashing yellow light during the cleaning cycle and the machine will circulate the cleaner for 15 minutes to remove mineral deposits.
4. After WASH time has elapsed, the machine will PURGE the cleaner, then RINSE for 2 minutes with fresh incoming water, then PURGE again to flush any residual cleaner, and return to OFF mode.
5. Inspect the evaporator, sump, and water spillways to ensure all mineral residue has been removed. Clean all interior surfaces of the bin, bin drain, and door using ice machine cleaner diluted per label instructions with a clean, soft cloth. A soft bristled brush may be required to remove all deposits.
6. If necessary, wipe evaporator, spillway, and other water transport surfaces with a clean, soft cloth to remove remaining residue. If necessary, remove water distribution tube, disassemble and clean with a bottle brush. Reassemble all parts and repeat Steps 4 through 7 as required to remove residue.
7. Turn off machine water supply and clean sump thoroughly to remove all scale or slime build-up. Remove sump to reach all splash areas and float. Reinstall sump.
8. Turn off machine water supply and clean sump thoroughly to remove all scale or slime build-up. Remove sump to reach all splash areas and float. Reinstall sump.
9. Prepare 1-1/2 to 2 gallons (5.7 to 7.6 L) of an EPA approved food equipment sanitizer at the solution mix recommended by the sanitizer manufacturer.
10. Add enough sanitizing solution to fill the sump to overflowing and initiate the wash cycle again by pressing and holding the CLEAN button for 3 seconds. During the 15-minute WASH time, turn on the water supply machine, inspect all previously disassembled fittings for leaks. Wipe down all other ice machine splash zones, interior surfaces of the bin, bin drain, and door with the remaining sanitizing solution. Inspect to ensure all functional parts, fasteners, thermostat bulb, etc. are in place.
11. After WASH time has elapsed, the machine will PURGE the sanitizer, then RINSE for 2 minutes with fresh incoming water, then PURGE again to flush any residual sanitizer, and return to OFF mode.
12. Quick press the POWER button to return the ice machine to the ice making cycle.
13. Discard the ice from the first two harvests.

Cleaning Stainless Steel and Aluminum

Commercial grades of stainless steel and aluminum are susceptible to rusting or corrosion if not properly maintained. It is important that you properly care for the stainless steel and aluminum surfaces of your ice machine to avoid the possibility of rust and corrosion. It's recommended that you clean stainless steel and aluminum surfaces once per week to avoid the build-up of hard, stubborn stains. Use the following guidelines to keep your machine looking new.

IMPORTANT: Do not use abrasive tools to clean the metal surface. Do not use steel wool, abrasive sponge pads, wire brushes, or scrapers to clean the metal. Do not use cleaners that use chlorine or chlorides. Do not use bleach products to clean the metal surfaces.

1. Using a non-abrasive cloth or sponge and an appropriate cleaning agent (see table below), thoroughly wash stainless steel and aluminum surfaces, wiping in the same direction as the grain.
2. Rinse with clean water and immediately wipe dry.

For Routine Cleaning: Use a mild dish soap, ammonia, glass cleaner, mild detergent with water, or other household kitchen cleaning chemicals approved for metal surfaces. Apply with a clean cloth or sponge. Rinse with clean water and wipe dry.

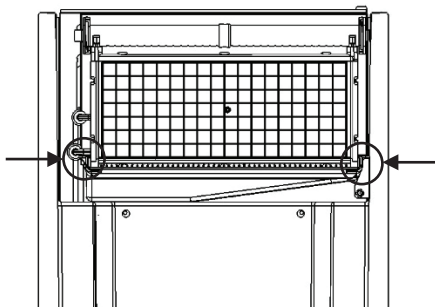
For Removing Grease or Fatty Acids: Use oven cleaners. Apply generously; allow to stand for 15-20 minutes. Rinse with clean water. Repeat as required.

For Removing Hard Water: Use vinegar. Swab or wipe with a clean cloth. Rinse with water and wipe dry.

Sump Removal Procedure

It may be necessary to remove the water sump for proper cleaning and sanitation.

1. The sump is attached to the evaporator assembly using two 3/8" brass thumb screws. After removing these thumb screws, the sump can be lowered to clear the water pump assembly and removed from the machine for cleaning.



2. When reinstalling the sump, take care to ensure that the top flange of the thermostatic bin control bracket on the right side of the machine is positioned between the evaporator assembly and the top surface of the sump before tightening the brass thumb screws to secure the sump.

REPAIR

 WARNING
<p>This machine contains flammable refrigerant.</p>
<p>Follow handling instructions carefully in compliance with Federal or Local regulations.</p>
<p>Ensure proper ventilation in the repair location.</p>
<p>Be aware that malfunction of the equipment can be caused by</p>

- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area will be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed, or intrinsically safe.
- Use of dyes to detect refrigerant leaks is prohibited and will void any warranties.
- If any hot work is to be conducted on the refrigerant equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand. A dry chemical or CO₂ fire extinguisher should be adjacent to the charging area.
- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion.
- All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing, and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
- Ensure the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times, the manufacturer's maintenance and service guidelines shall be followed. If in doubt contact the manufacturer's technical service department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
- Marking to the equipment continues to be visible and legible.
Markings and signs that are illegible shall be corrected.
- Repair and maintenance of electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
 - That no live electrical components and wiring are exposed while charging, recovering, or purging the system.
 - That there is continuity of earth bonding.
-
- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
 - Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting glands, etc. Ensure the apparatus is mounted securely. Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer's specifications.

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring

that this will not exceed the permissible voltage and current for the equipment in use.

- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. Any testing or measurement devices will be calibrated and set correctly for the application.
- Replace components only with parts specified by the manufacturer. Other parts can result in the ignition of refrigerant in the atmosphere of from a leak.
- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.
- Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.
- **The following leak detection methods are deemed acceptable for all refrigerant systems:**
 - Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity might not be adequate, or might need re-calibration. Detection equipment shall be calibrated in a refrigerant free area. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.
 - Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work. Examples of leak detection with fluids are the bubble method and fluorescent agents.
 - If a leak is suspected, all naked flames shall be removed/ extinguished.
 - If a leakage of refrigerants is found which requires brazing, all of the refrigerant shall be recovered from the system or vented outside (if allowed by local and national codes).
- **When Brazing is required, the following procedures shall be carried out in the following order:**
 1. Safely remove the refrigerant following local and national regulations. If recovery is not required by national regulations, drain the refrigerant to the outside. Take care that the drained refrigerant will not float back into the building.
 2. Purge the refrigerant circuit with oxygen free nitrogen for 5 minutes.
 3. Evacuate again.

4. Remove parts to be replaced by cutting and brazing
 5. Purge the braze joint with nitrogen during the brazing procedure required for repair.
 6. Carry out a leak test before charging with refrigerant.
- Check safety equipment before putting into service

R-290 Troubleshooting

R-290 is an A3 refrigerant, which refers to refrigerant grade propane (pure), a substance that is odorless, highly flammable and displaces air as it is heavier than air. This refrigerant has been used in the industry for several years. Specific precautions should be taken when handling R-290. Since R-290 is flammable, work in an open, well-ventilated area.



Use appropriate tools to ensure safety.

- Combustible gas leak detector
- Tubing cutters
- Pinch-off tool
- Voltmeter
- Amp meter
- Temperature clamp probes
- Schrader taps
- Combustible gas Warning signs
- Refrigerant scale
- Vacuum pump
- Nitrogen
- R290 Temperature pressure Chart



All of the components work the same. But testing of the refrigeration section will be a little different. Pressure will not be tested until the last resort as these units are critically charged.

Using a temperature pressure chart you can determine approx. pressure.

Measuring compressor amperage can show workload of the compressor to determine if the charge is correct, restriction, or compressor performance. High amperage could be indicative of dirty condenser coils, condenser fan motor, compressor beginning to fail, or low voltage to the compressor.

Low amperage could be a compressor motor weak or failing, low refrigerant charge, restriction, or the valves in compressor not pumping

Using temperature clamps txv operation, hot gas valve operation, evaporator performance, and condenser performance can be determined.

Units are sealed with no Schrader ports and will need to be resealed after any refrigeration service.

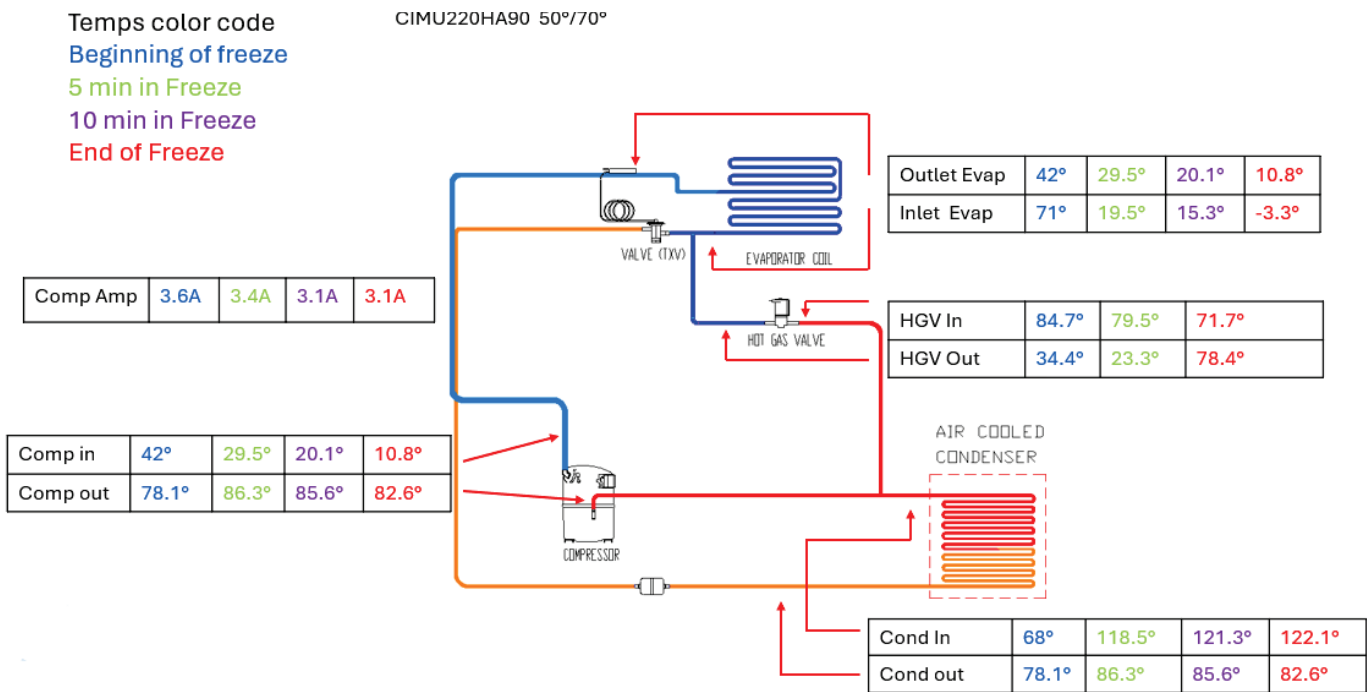
Refrigeration System

Understanding Freeze and Harvest Cycles in Ice Machines

The diagram referenced illustrates the flow of refrigerant through an ice machine’s components during both freeze and harvest cycles. For R-290 machine trouble shooting

Freeze Cycle

During the freeze cycle, refrigerant circulates from the compressor to the condenser via the discharge line. In the condenser, heat exchange occurs: hot, high-pressure gas releases its heat into the air and condenses into a warm, high-pressure liquid. This liquid proceeds through the thermal expansion valve (TXV), which meters the flow, resulting in a cool, low-pressure liquid. As this refrigerant absorbs heat from the water at the evaporator, it transforms into a cool, low-pressure gas, which is then drawn back to the compressor, completing the loop. The temperature and pressure at various points—evaporator and condenser inlets and outlets—can be matched with a temperature-pressure chart for diagnostic purposes.



Harvest Cycle

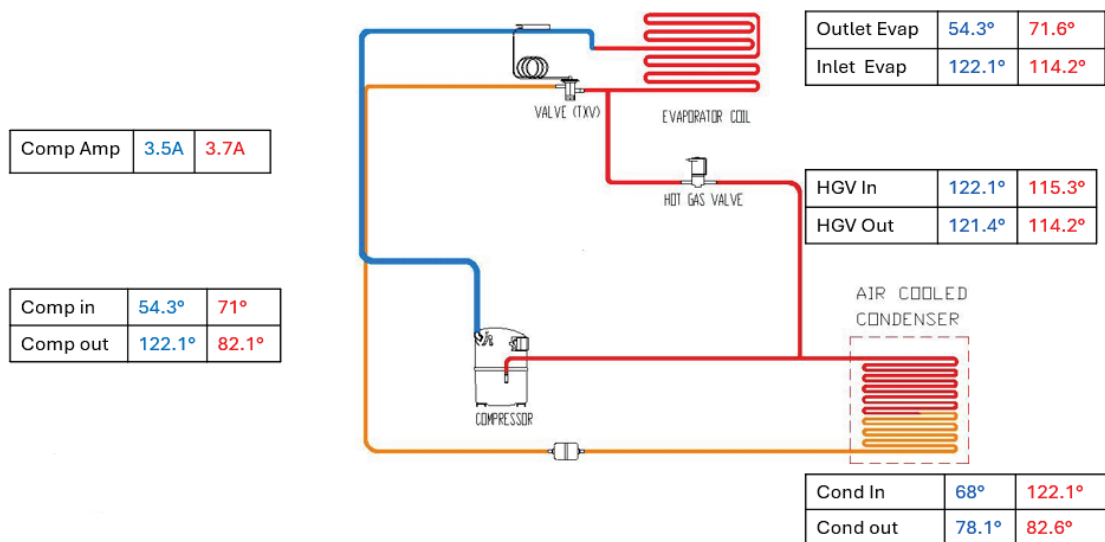
In the harvest cycle, the hot gas valve opens, redirecting hot, high-pressure gas directly to the evaporator. This sudden influx of heat raises the plate temperature above freezing, allowing ice to be released from the plates. At this stage, the mixture of hot gas and cool liquid from the TXV ensures an efficient harvest. Proper timing is crucial; if the harvest phase is too prolonged, it can cause overheating or lead to liquid flooding in the compressor, which may damage the system.

Temps color code

Beginning of Harvest

End of Harvest

CIMU220HA90 50°/70°



Diagnostic and Maintenance

- Temperature-pressure charts help estimate system pressures for troubleshooting.
- Compressor amperage readings indicate if the compressor is working properly or if there are issues such as restrictions, low charge, or failing components.
- Units are critically charged and sealed, lacking Schrader ports, so testing pressures is a last resort.
- Routine cleaning and maintenance, especially of the condenser and ice-making sections, are vital for reliable operation and to maintain warranty coverage.

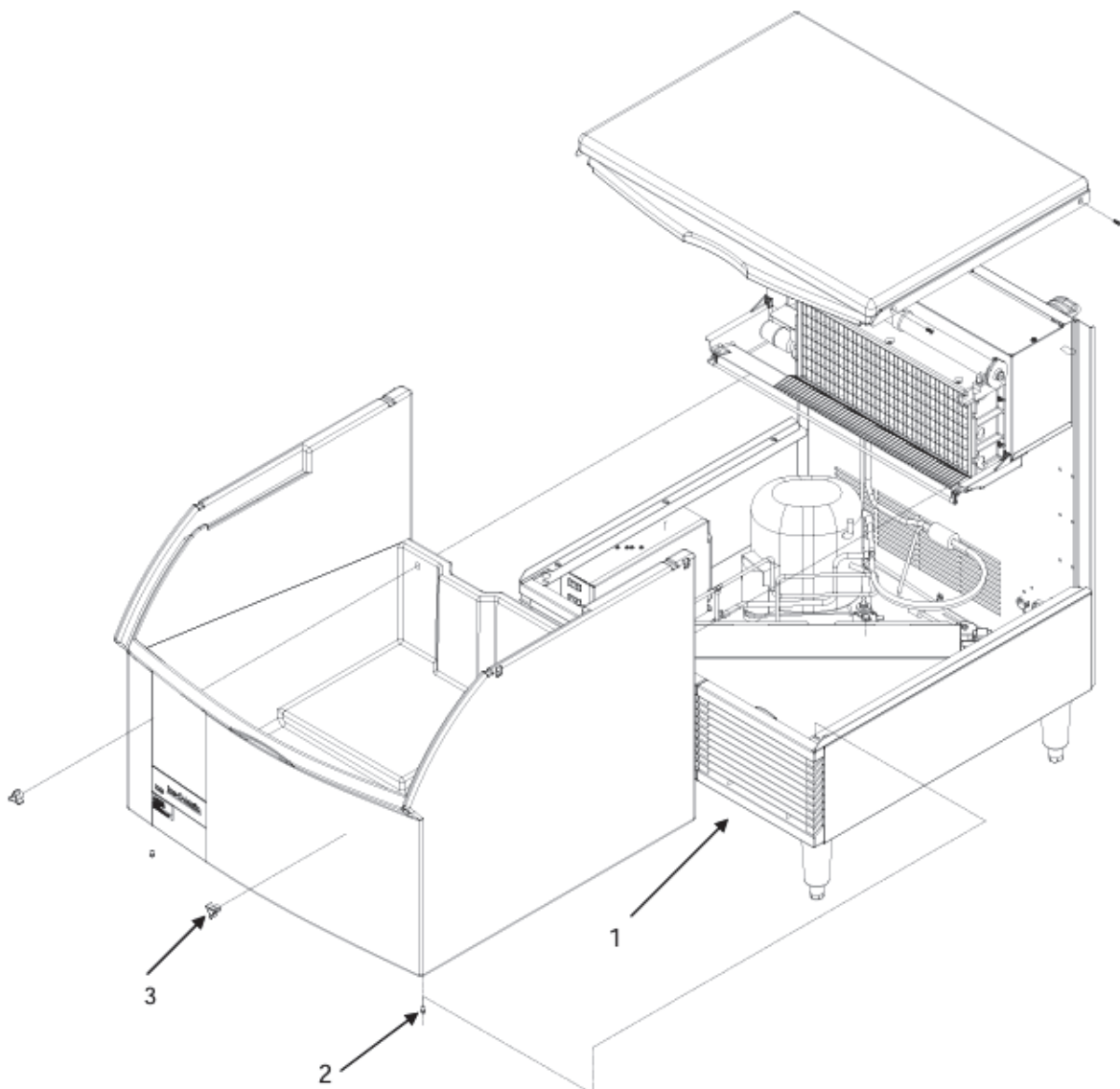
These diagrams help the technicians to assess performance and diagnose problems by following the refrigerant's path and monitoring system temperatures and pressures. Understanding the freeze and harvest cycles enables efficient troubleshooting and ensures the longevity of the ice machine.

Bin Removal

Undercounter Bin Removal-CIMU300/305 and CIMU220/225/226

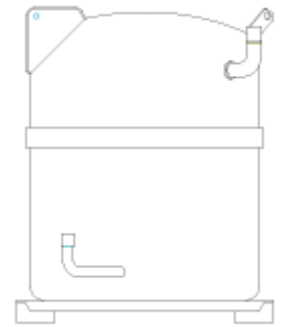
The storage bin can be removed by:

1. Remove the lower grill.
2. Remove two screws securing bin to cabinet base.
3. Remove the thumbscrews from the back wall of the bin.
4. Disconnect bin drain.
5. Lift front of bin slightly and pull bin forward to remove



Compressor

The compressor runs during the entire cycle. If the valves in the compressor are damaged, the compressor will be unable to pump refrigerant efficiently. Damaged valves are usually the result of another problem in the refrigeration system such as liquid refrigerant returning to the compressor, oil slugging or high head pressure. When a compressor is replaced it is important that the refrigerant charge be weighed in and the system checked for proper operation to prevent a repeat failure.



An inefficient compressor will usually have a higher than normal suction pressure at the end of the cycle. The freeze cycle will be longer than normal and/or the harvest cycle may be excessively long. Check the compressor amperage draw 5 minutes into the freeze cycle. If the compressor amp draw (Reference data plate on ice machine back panel) is less than 70% of rated full load amps, the compressor may be inefficient. These symptoms may also be caused by other problems, therefore it is important to use the troubleshooting trees when diagnosing a problem. See Electrical System for more information on the compressor and compressor start components.

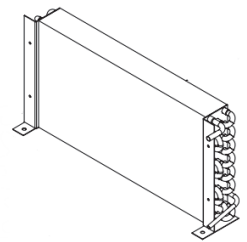
Filter Drier

The filter drier traps small amounts of moisture and foreign particles from the system. The filter drier must be replaced whenever the refrigeration system is opened or if the refrigerant charge has been completely lost.



Air Cooled Condenser

Air intake and discharge is through the front panel. This is a micro channel condenser so care in cleaning must be taken.



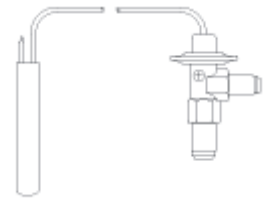
High Pressure Safety Control (Automatic Reset)

The automatic reset high pressure control opens at 450 psi (30.62 bars) and closes at 350 psi (24.1 bars).



Thermostatic Expansion Valve (TXV)

The thermostatic expansion valve meters the flow of refrigerant into the evaporator changing its state from a high- pressure liquid to a low-pressure liquid. This drop in pressure causes the refrigerant to cool. The cooled refrigerant absorbs heat from the water circulating over the evaporator. As the evaporator fills with liquid refrigerant, the evaporator becomes colder.



The flow of refrigerant into the evaporator is controlled by the temperature at the outlet of the evaporator. The expansion valve bulb, mounted to the top of the suction line, senses the evaporator outlet temperature causing the expansion valve to open or close. As ice forms on the evaporator, the temperature drops and the flow of refrigerant into the evaporator decreases, resulting in a drop in suction pressure.

The evaporator should become completely flooded (filled with liquid refrigerant) during the freeze cycle. A completely flooded evaporator will have a uniform freeze pattern (ice formation across the evaporator). A starved evaporator (not enough liquid refrigerant) will have poor or no ice formation at the top of the evaporator, and the tube(s) exiting the evaporator will not frost. All tubes should be within 10 degrees of each other and frosted approximately 5 minutes from the start of the freeze cycle.

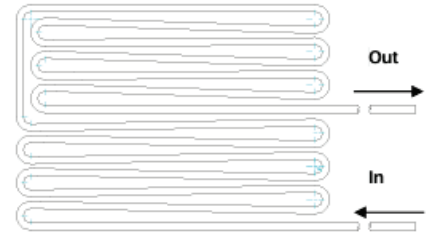
An expansion valve that is restricted or not opening properly will starve the evaporator resulting in lower than normal suction pressure. A low refrigerant charge will also starve the evaporator and cause low suction and discharge pressures. If not sure of the amount of charge in the system, the refrigerant should be recovered, and the correct charge be weighed in before a defective valve can be diagnosed.

If the evaporator is starved but the suction pressure is higher than normal, the TXV is not the problem. If the TXV sticks open or if the thermal bulb is not making good contact with the suction line, the flow of refrigerant into the evaporator will be too great and liquid refrigerant will flood the compressor. The suction pressure will remain higher than normal and the machine will remain in an extended freeze cycle. Ice will build evenly but will be very thick.

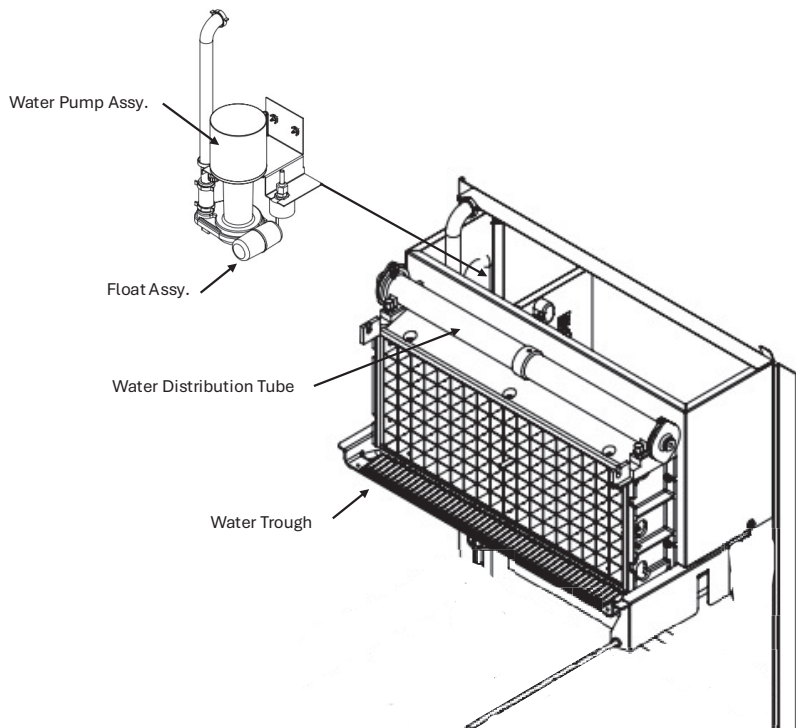
Symptom	Problem	Possible Remedy
Evaporator flooded but suction temp not dropping.	1. TXV thermal bulb not making Good contact with suction line or uninsulated.	1. Tighten Bulb Clamp and insulate bulb.
Compressor has been checked and appears to be good.	2. TXV bulb installed incorrect	2. Locate bulb on top of suction line
Suction line at compressor may be colder than normal	3. System overcharged 4. TXV Stuck Open	3. Recharge system by weighing charge. 4. Replace TXV
Evaporator starved, no frost on line exiting the evaporator.	5. Machine low on charge	5. Recover and weigh in correct charge
Suction Temp Low	6. TXV restricted or stuck closed	6. Replace TXV and drier

Evaporator

As water is circulated over the front of the evaporator, liquid refrigerant is circulated through the tubing attached to the back of the evaporator. As the liquid refrigerant in the tubing vaporizes, it absorbs heat from the water causing the water to freeze. The evaporator should be completely flooded throughout most of the freeze cycle. A flooded evaporator will build ice evenly across the evaporator. A starved evaporator will have uneven ice formation. Most problems with ice formation or harvesting are not related to a defective evaporator.



Water System



Water Distribution and Components

Water enters the machine through the **float valve** located in the **water trough**. The water trough holds water used for ice making. The float valve is used to maintain the proper water level in the water trough. During the freeze cycle water is continuously circulated over the evaporator by the **water pump**. When the machine enters harvest, the **purge valve** (not shown) opens and mineral laden water is pumped out of the water trough to the drain. After water is purged from the trough, the water pump and purge valve are de-energized and the trough refills.

Float Valve

The water level can be adjusted by carefully bending the arm of the float. The water level should be ½ inch (13mm) above the top of the water pump impeller housing during the freeze cycle.

If the float valve does not allow water into the trough or water flow is slow, the float valve may be restricted. Remove and disassemble the float valve and clean the orifice. If the water flow is still slow, check the water pressure to be sure it is at least 20 PSI (1.4 bar).

If the float valve does not stop the water flow, make sure the water pressure to the machine does not exceed 60 PSI (4.1 Bar). Install a water pressure regulator if the pressure is too high. If the water pressure is not the problem, the float plunger or the entire float valve assembly may need to be cleaned or replaced.

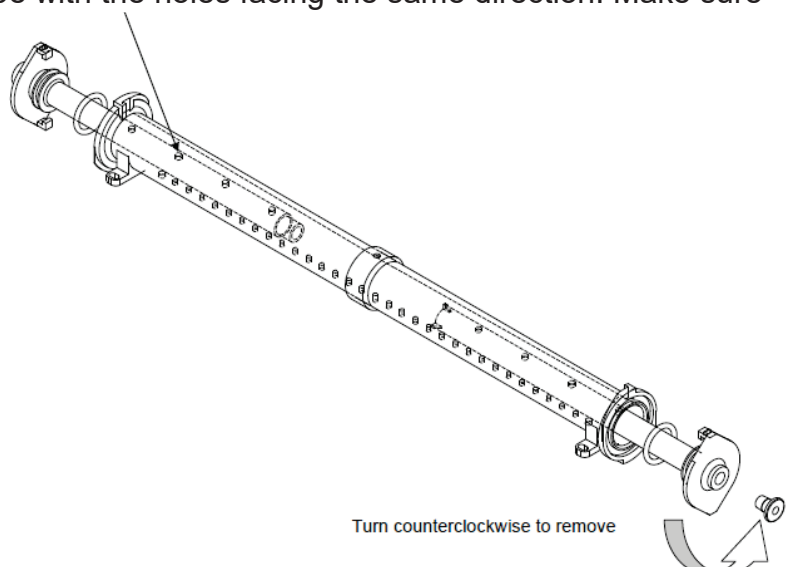
Water Distribution Tube

Water is pumped to a distribution tube located at the top of the evaporator and is used to distribute water evenly over the evaporator. The distribution tube can be removed and disassembled for cleaning if the hole becomes plugged or if there is excessive mineral build-up in the water system. The water distribution tube is a tube within a tube. Water enters and fills the inner tube and exits through a series of holes along the top of the inner tube. Water then fills the outer tube and exits through a series of holes along the bottom of the outer tube. For proper water flow over the evaporator, it is important that the tube be assembled correctly after cleaning. The tube can be checked for proper assembly by checking the “bump” on the flanges at the tube ends, the “bump” should be at the top.

Water Distribution Disassembly

Remove 2 screws holding the distribution tube to the evaporator spillway. Remove the clamp holding the water tube to the distribution tube. Twist the end caps of the distribution tube counterclockwise and pull to remove the inner tube halves from the outer tube. To reassemble, push the inner tube halves into the outer tube with the holes facing the same direction. Make sure the inner tube halves seat together completely. Twist the end caps clockwise ½ turn to lock the inner tubes in place. The holes in the tubes will now be facing in the opposite directions.

Important! For proper water flow over the evaporator, the inner tube holes must face up.



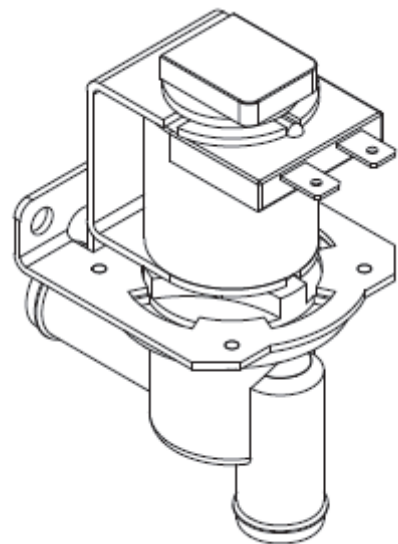
Water Purge Valve

When the machine enters the harvest cycle, the water pump continues to run and the purge valve opens. This allows mineral laden water to be pumped from the water trough to the drain. This helps keep the water system clean. The water pump and purge valve de-energizes once the water is flushed from the water trough. The cam switch controls the length of time that the water pump and purge valve remains energized. The purge valve can also be energized manually by pushing the purge switch. The purge switch is used when cleaning the water system to flush cleaning solution down the drain. The purge valve must be completely closed during the freeze cycle. If water leaks through the purge valve during the freeze cycle, the freeze cycle will be extended due to the float allowing warm water into the trough and poor ice formation will result. The purge valve may be defective or need cleaning.

The purge valve can be disassembled for cleaning by:

1. Disconnect electrical power from the ice machine.
2. Locate the Purge valve in the machine.
3. Leave the coil wires attached to the coil and lift coil from the valve body. (Note coil orientation)
4. Rotate the enclosing tube $\frac{1}{4}$ turn counterclockwise to remove.
5. Remove the enclosing tube, plunger and diaphragm from the valve body
6. Reverse procedure to reassemble.

The purge valve can be easily cleaned without removing the entire valve body. Dirty or clogged purge valves are not considered a warranty repair.



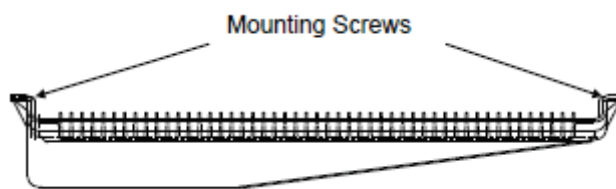
Water Trough

The water trough can be easily removed by the following procedures:

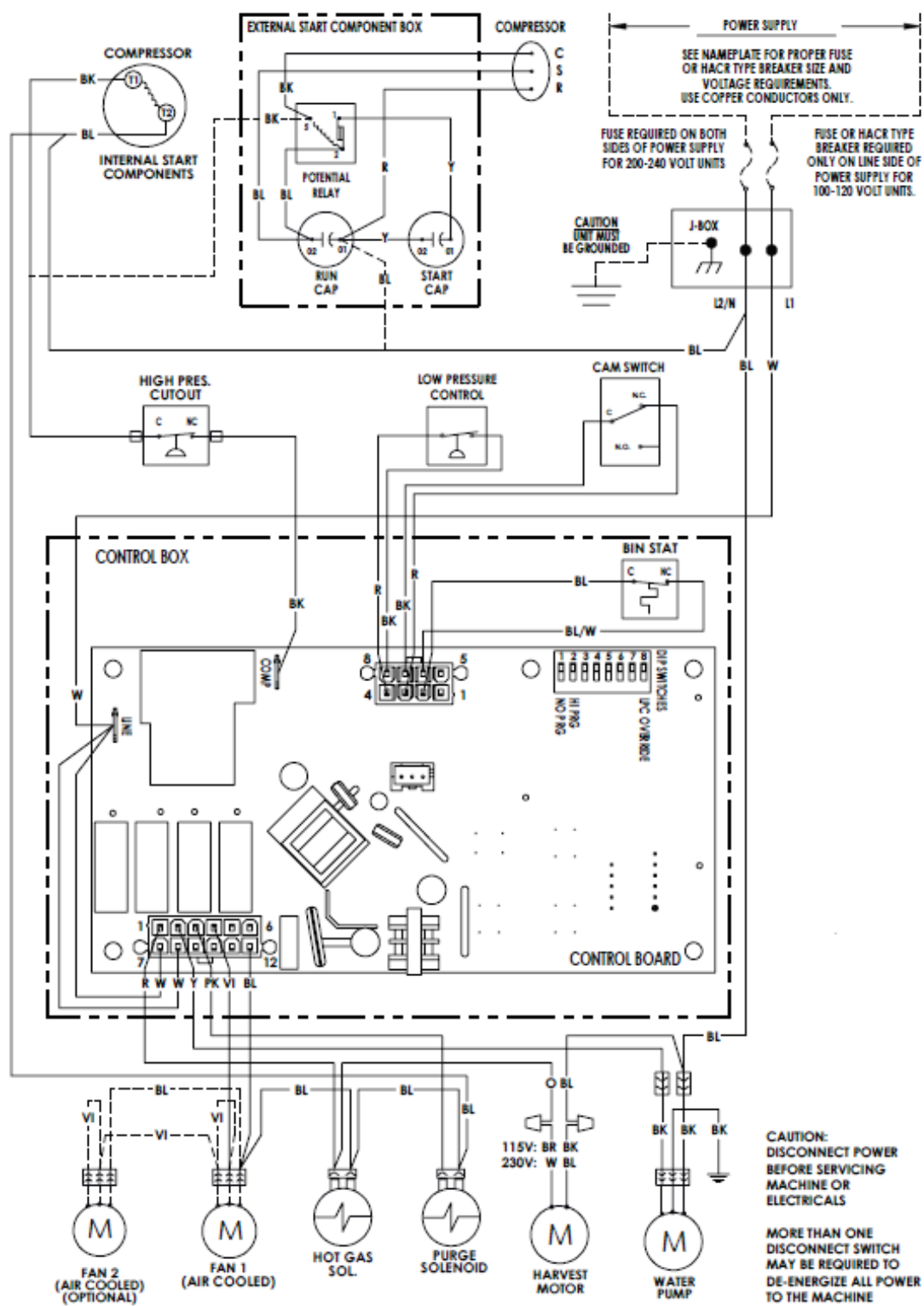
CIMU220/300 Models

1. Disconnect power to the ice machine.
2. Shut the water supply off to the ice machine.
3. Remove water trough mounting screws.

4. Carefully remove water trough from the ice machine.
5. Reverse procedure to reassemble.



CIMU220/300 Wiring Diagram



9072266-01
REV NPD1

Cuber Performance Data

Model	Voltage, HZ, Phase	24 Hr. Capacity	24 Hr. Capacity	H2O gal per 100lbs ice made	BTUH	Max Fuse Size	Min circuit amps	Comp RLA/LRA	Refrige rant	R2 90	Batch Weight	Approx. Cycle Time	
		@70°/50°	@90°/70°	@90°/70°								70° /50°	90° /70°
CIMU220A90	115/60/1	223lbs/ 101 kg	167lbs/ 76 kg	22.5 Gal	2195	15A	9.1A	6.4A / 30.6A	2.82	80	3.34lbs	23 min	30 min
CIMU300A90	115/60/1	302lbs/ 137kg	234lbs/ 106kg	23.7 Gal	4590	15A	10.6A	7.3A / 46A	2.47	70	3.35lbs	17 min	25 min



5/21/26

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