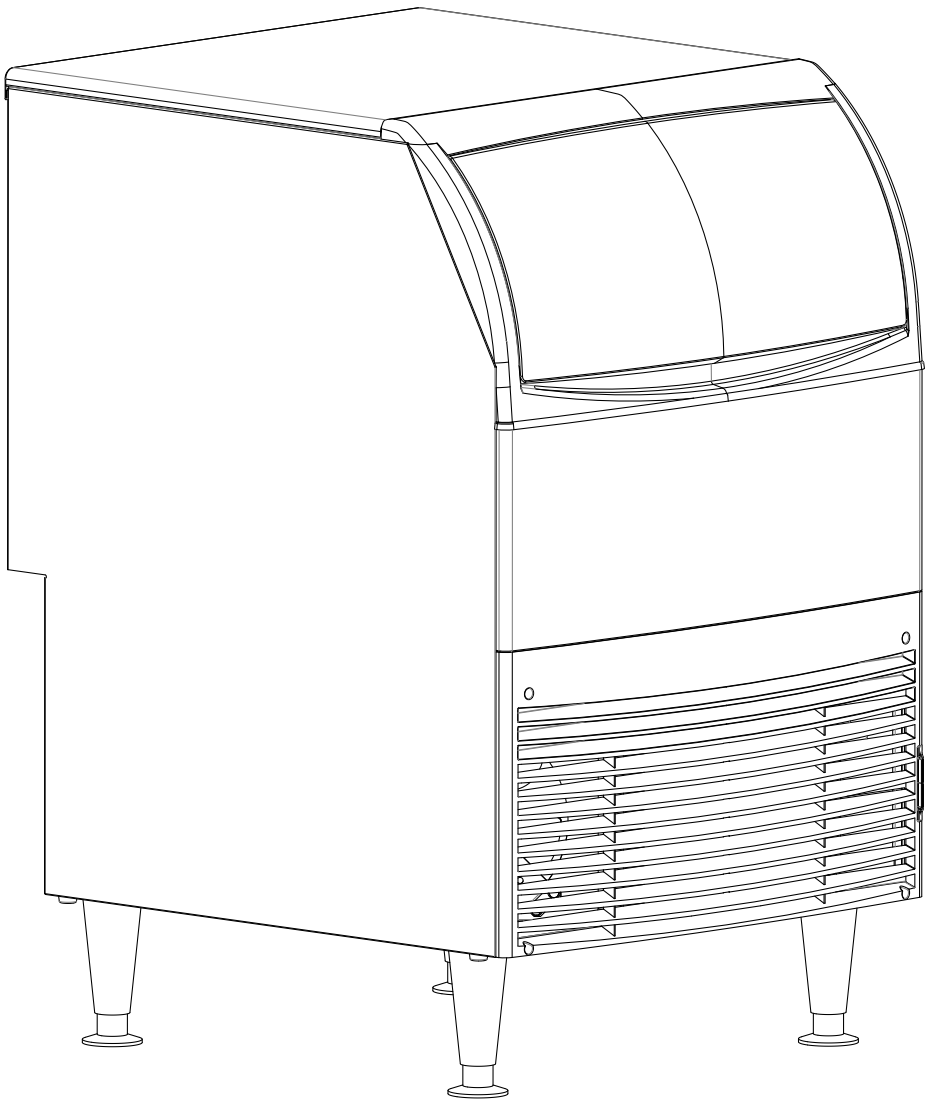
Scotsman®
Ice Systems

User Manual for models UC2024 and UC2724



UC2024 and UC2724 User Manual

Introduction

To the owner or user: this manual is intended to provide you and the maintenance or service technician with the information needed to install, startup, clean, maintain and repair this product. Observe any caution or warning notices. They are important and provide notice of potential hazards.

Keep this manual for future reference.

If additional technical information is needed, go to Scotsman's website, www.scotsman-ice.com.

Note: This is a commercial product. If service is needed on a unit in a residence, warranty may be limited. Use a commercial service company. Locate one from the Scotsman website: www.Scotsman-ice.com

Scotsman Ice Systems are designed and manufactured with the highest regard for safety and performance. They meet or exceed UL563, verified by a nationally recognized safety authority such as UL or ETL.

Table of Contents

WARNING

CAUTION

Observe the Caution and Warning notices. They are indicators of important safety information. Keep this manual for future reference.

WARNING: Cancer and Reproductive Harm
www.P65Warnings.ca.gov

Specifications

This ice maker is designed to be installed indoors, in a controlled environment. Although it can operate in a wide range of air and water temperatures, it will provide the best performance if not subject to extremes.

Air Temperature Limitations

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

Water Temperature Limitations

- Maximum: 100° F or 38° C
- Minimum: 40° F or 4.4° C

Water Pressure, Potable

- Maximum: 80 PSI or 5.5 BAR
- Minimum: 20 PSI or 1.3 BAR

Water Pressure, Condenser inlet

- Maximum: 145 PSI or 10 BAR
- Minimum: 20 PSI or 1.3 BAR; can be as low as 5 PSI or 0.3 BAR if clean and supplied with 45° F water.

Potable Water Inlet Flow Rate

- 1.25 GPM or 4.7 LPM

Water Cooled Condenser GPM

- 70°F or 21°C water: .25 GPM or .95 LPM
- 50° F or 10°C water: .11 GPM or .41 LPM

Voltage 115 volt models

- Maximum 126 VAC
- Minimum 104 VAC

Operating the machine outside of any of the above limitations is considered abuse and any resulting damage is not covered by warranty and could cause a complete loss of warranty coverage.

Warranty Information

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.

Product Information:

The UC is available in two cube sizes. The ice size cannot be changed significantly. The ice is stored in an insulated bin with ice level automatically maintained by the control system.

A back flow preventer may be required by local plumbing codes.

115 volt models include a 5.5 ft. power cord with NEMA 5-15P plug.

Air cooled models flows in the right front and out the left front and include a cleanable air filter.

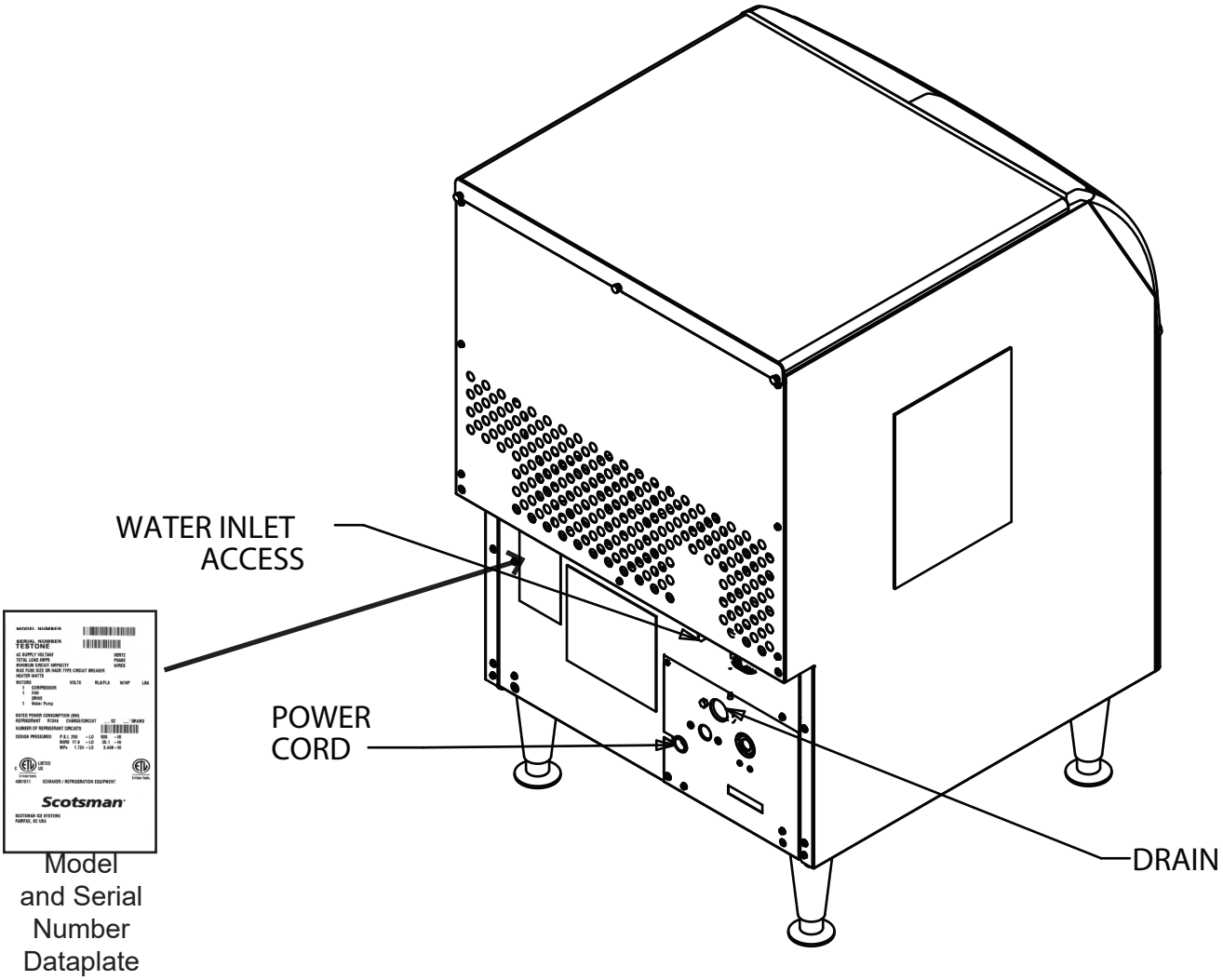
Legs are provided, thread size is 5/8-11. Replacement leg kit number is KLP7.

Machine may be installed without legs.

For available options and kits, see sales literature.

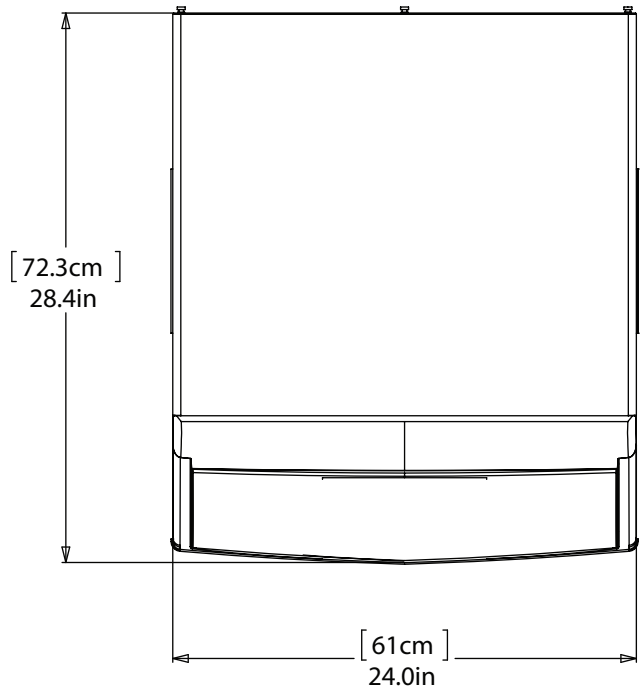
Model	Electrical (Volts/Hz/Phase)	Condenser	Cube Size	Maximum Fuse Size or Breaker (Amps)	Power Cord Termination	Refrigerant Charge (oz) (R-134a)
UC2024SA-1A	115/60/1	Air	Small	15	5-15P plug	15
UC2024MA-1A	115/60/1	Air	Medium	15	5-15P plug	15
UC2024SW-1A	115/60/1	Water	Small	15	5-15P plug	12
UC2024MW- 1A	115/60/1	Water	Medium	15	5-15P plug	12
UC2724SA-1A	115/60/1	Air	Small	15	5-15P plug	14
UC2724MA-1A	115/60/1	Air	Medium	15	5-15P plug	14
UC2724SW-1A	115/60/1	Water	Small	15	5-15P plug	11
UC2724MW-1A	115/60/1	Water	Medium	15	5-15P plug	11

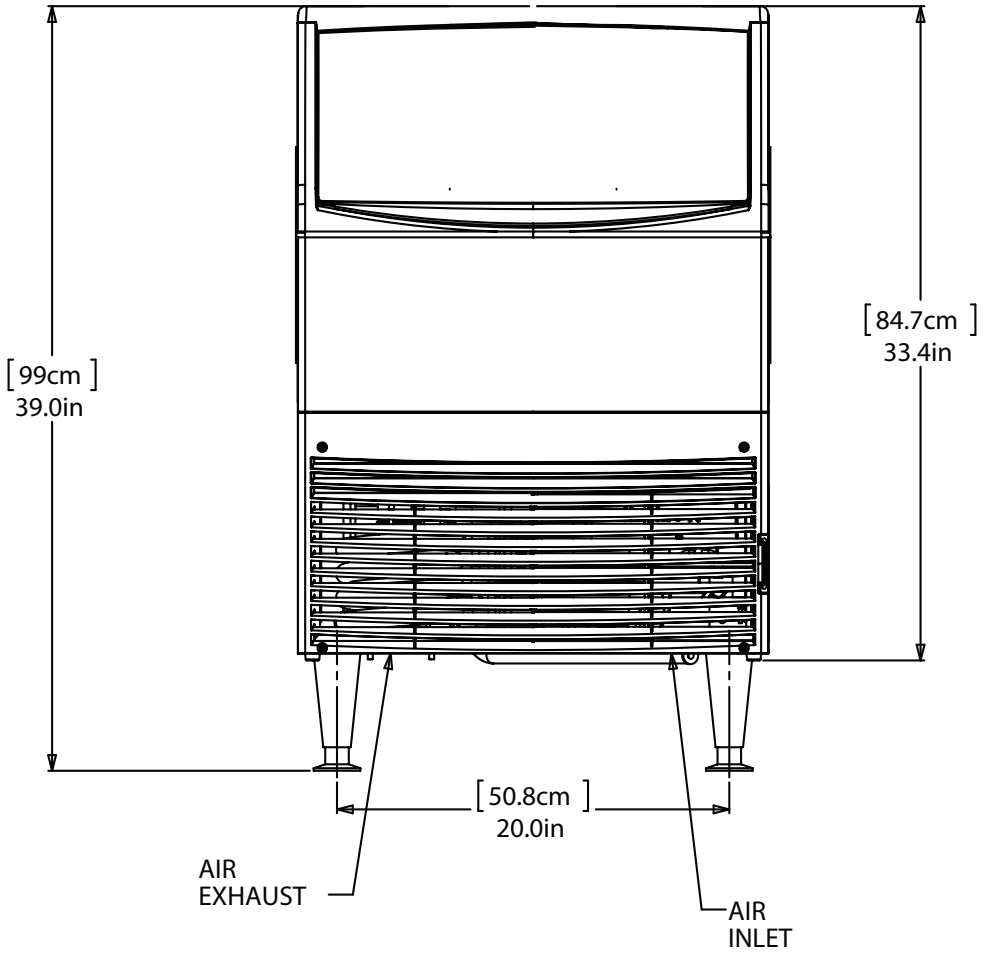
Cabinet Drawing



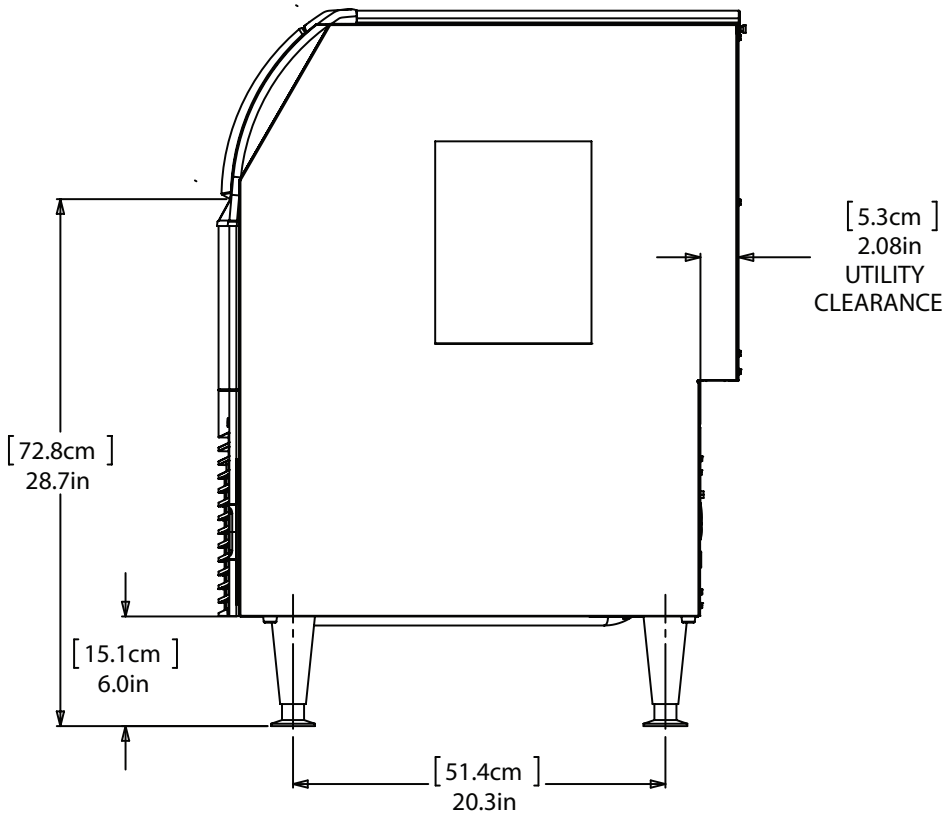
Model and Serial Number Dataplate

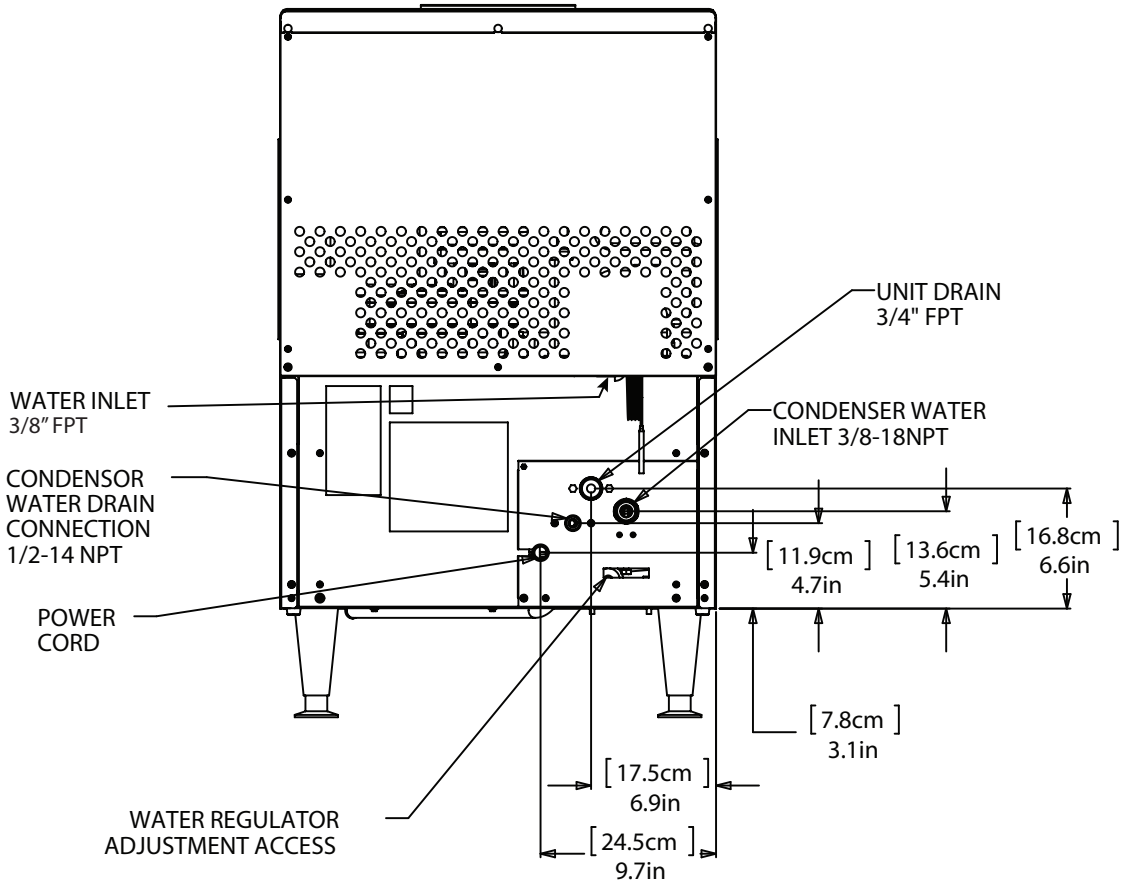
Plan and Front Views





Side and Back Views





Placement

The location of the equipment should be selected with care. Consideration should be given to allow adequate space for air cooled models to breathe.

The ice machine is not designed for outdoor use. It must be installed indoors, in a controlled environment. The air and water temperatures must not exceed rated limits.

Scotsman assumes no liability or responsibility of any kind from products manufactured by Scotsman that have been altered in any way, including the use of any part and/or other components not specifically approved by Scotsman.

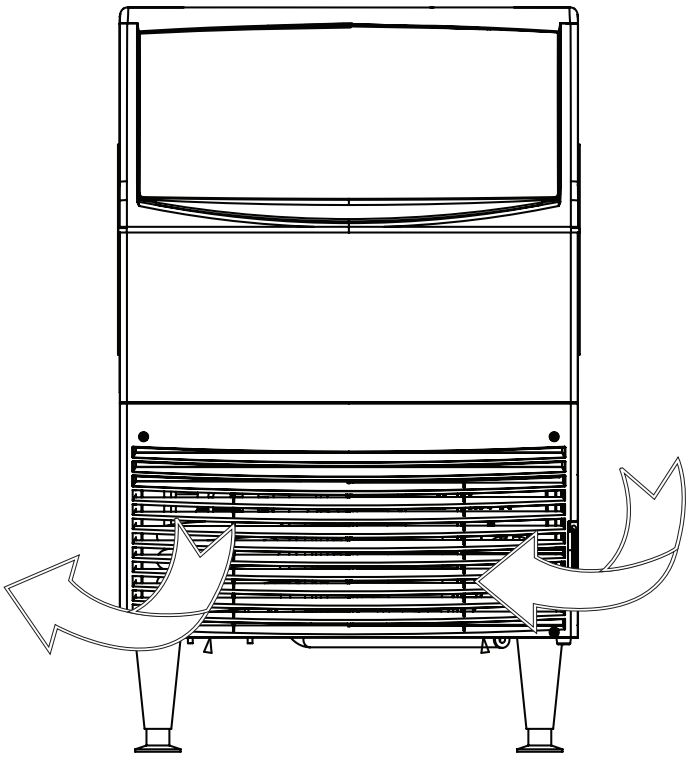
Scotsman reserves the right to make design changes and/or improvements at any time.

Specifications and design are subject to change without notice.

Airflow on air cooled models:

- Intake from the right grill
- Exhaust from the left grill

Do not install where this air flow is blocked.



The power outlet must be located within the length of the supplied power cord. If legs will be used, allow space for the total cabinet height.

Air cooled models in a small room will require ventilation to exhaust heat from the condenser. The condenser fan and motor will generate some noise while the machine is running. Noise sensitive areas should consider water cooled equipment or locate the machine where the noise from ice making will not objectionable.

Unpack

1. Separate the carton from the shipping pallet
2. Inspect for any hidden shipping damage. If any is found, retain carton and notify carrier for potential claim. Shipping damage is not covered by warranty.

Tip Over hazard.

CAUTION

To prevent injury or damage to the machine please use caution when lifting the unit.

3. Remove bolts holding machine to pallet.
4. Install the legs. The legs are to be screwed into the same holes the shipping bolts were removed.
5. Remove the protective plastic covering the panels. The longer it is left on the panel, the more difficult it will be to remove it.

Spacing:

No additional spacing is required at the top or sides. However, suggested minimum side clearance for the installation is 1/8’’ or 3.2 mm and suggested minimum top clearance is 1/4” or 6.4 mm.

The machine may be installed with 0 clearance at the back. Do not block louvers at the front of the cabinet.

Pre Installation:

Water supplied to the ice machine should be filtered. Install a filter system that filters out suspended solids. It may be necessary to add a coarse pre-filter ahead of the fine filter.

Inspect the place where the ice machine is to be installed. Check for:

- Space for the cabinet
- Water Supply
- Drain Availability
- Electrical Power Supply

Installation

Note: The building drain inlet must be lower than the drain outlets at the back of the ice machine. The water supply must have a hand shut off valve accessible when the unit is installed.

For the Plumber

1. Connect cold potable water to the 3/8” FPT inlet water fitting, located below the upper back panel. A water filter is recommended. Flush the water line prior to connecting to the ice machine.

A loop of copper tubing may be used between the ice machine and the water supply. This will allow the ice machine to be pulled out from its installed location without disconnecting water. No back flow preventer is required in the potable water line. This is provided by the sump inlet, which is above the sump water level which then cannot be siphoned.

2. Connect a drain tube to the drain fitting. Drain tubes for a water cooled machine should be run separately. The bin drain fitting is 3/4” FPT. **And it is plastic. Do not overheat.**
   - Drain tube material must be rigid and meet local code.
   - Traps in the bin drain line without vents ahead of them will cause poor draining
   - The bin drain must be vented if there is a long horizontal run 5 feet or more. All drains are gravity and must have a minimum fall of 1/4” per foot of horizontal run.
3. Maintain the air gap required by local code between the end of the drain to, and the building drain receptacle.
   - Drain tubing should be insulated to prevent condensation from forming on the tubing.
4. Water cooled models have a separate 3/8” FPT fitting for condenser water inlet. DO NOT FILTER water to this connection. The condenser drain is 1/2” FPT and does not need a vent.

Water Cooled and Recirculating Systems Note

Water cooled equipment may be connected to a closed loop recirculating system. See the pressure limits on page 2.

The included water regulating valve will vary the amount of coolant needed to maintain a constant discharge pressure. Higher coolant temperatures will result in increased coolant flow to maintain the discharge pressure set point.

For the Electrician

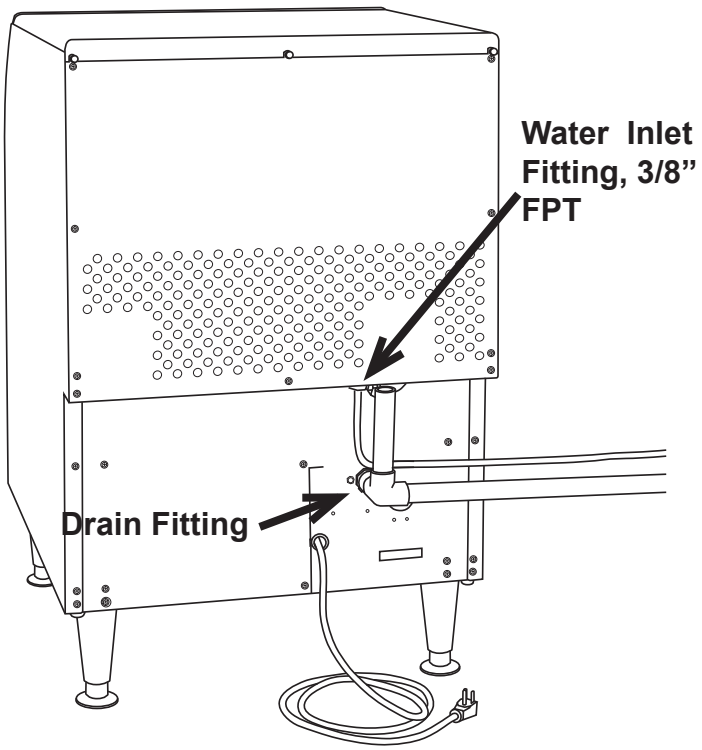
This is a cord-connected unit and must be on a separate single phase power supply. Check the name plate for the correct voltage. The maximum fuse size for this circuit should be 15 A, per the nameplate use fuses or HACR circuit breaker.

Follow all local codes. This unit must be grounded. Do not use extension cords and do not disable or bypass the ground pin on electrical plug.

Note: Electrical outlets can become worn and the connection can then be erratic. Have it replaced if it is loose.

After utility connections

1. Level the cabinet, use the leg levelers on the end of the legs to adjust to cabinet height. Legs should have been installed when the unit was unpacked.
2. Wash the bin and hood. If desired, the interior of the bin could be sanitized.
3. Locate the scoop, wash it and have it available for use when needed.



Initial Start Up

Final check list:

	Ice machine is installed indoors with air and water temperature controlled within the limitations detailed in this manual
	Ice machine is level in its final position
	Electrical disconnect (switch or plug as required) is within sight of the installed machine
	Electrical circuit is dedicated to this ice maker
	Voltage has been confirmed within the specifications in this manual and the name plate on the ice maker
	Plumbing connections are complete and tested for leaks
	Ice maker is installed with proper clearance, allowing for service and utility connections
	Water shut off valve installed near the ice maker
	All packing material has been removed.

Start up:

1. Remove louvered front panel.
2. Open the water valve to allow water to the unit. Check for leaks, if any found correct them.
3. Switch electrical supply on.
4. Move the On/Wash/Off rocker switch to On.

The machine will start the ice making process. The Anti-Slush light will be on, and after a 90 second delay, water will flow into the sump. The unit starts in a 90 second harvest or defrost mode before switching to the freeze mode.

Air cooled models will discharge warm air out the left side of the front panel. Water cooled models will discharge warm (about 120^{0}F/48^{0}C) water out of the condenser drain.

Freezing will continue until ice has formed adequately, then the system will switch to a harvest mode and the ice will release as a group, falling past the ice sensing plate and into the bin. When ice moves the ice sensing plate, that triggers the end of the harvest cycle.

5. Move the On/Wash/Off switch to the off position to switch the machine off. Scoop out any ice in the bin.
6. Create a solution of sanitizer. Mix 4oz/118ml of NuCalgon IMS and 2.5gal/9.5L of (90^{0}F/32^{0}C to 110^{0}F/43^{0}C) potable water to create a 200 ppm solution.
7. Sanitize bin by wiping all surface areas with the sanitizer solution. Allow to air dry.
8. Move the On/Wash/Off switch to ON.
9. Replace louvered panel.
10. Give the owner/user this manual, instruct him/her in the operation and maintenance requirements of the unit. Make sure they know who to call for service.

Fill out the Customer Evaluation and Warranty Registration form, and mail it in to Scotsman or register the unit at Scotsman's website (www.scotsman-ice.com).

Once started, the ice machine will automatically make ice until the ice piles up onto the ice sensing plate, holding it open. The typical ice level when the machine is off will be several inches below the door. When ice level drops from use or meltage, the ice machine will resume making ice.

Tip: To maximize ice storage, scoop the ice to the sides and front of the bin.

Noise:

This is a commercial ice machine. It contains a powerful compressor, and, if air cooled, a fan motor. It will produce some noise when it is making ice. Every effort was made during its design to minimize the sound level but some is unavoidable.

Typical Cycle Times (minutes)

Note: First cycle after any restart will be longer than listed here.

	70/50°F. (21/10°C.)	90/70°F. (32/21°C.)
CU2024	16	19
CU2724	12	15

The time to fill a warm storage bin from empty varies by cabinet temperature and cycle time, but will take about 8 hours.

Use and Operation

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.

Air cooled models must be able to take in room air and discharge air heated by the ice making process. They will make the most ice if there is plenty of room to breathe.

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.

On air cooled models the fan will make some noise during operation, however rattles and other vibrations are not normal and should be attended to.

It is normal for the water to occasionally stop flowing over the evaporator (ice making surface) for a few seconds.

If the machine is in a space colder than the minimums listed it can become damaged.

Risk of Personal Injury

The cabinet is not designed to support anything placed on it. Do NOT step or stand on it.

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 use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

The ice making surface can be damaged by abrasion or by sharp objects. Do NOT scrub the ice making surface with anything.

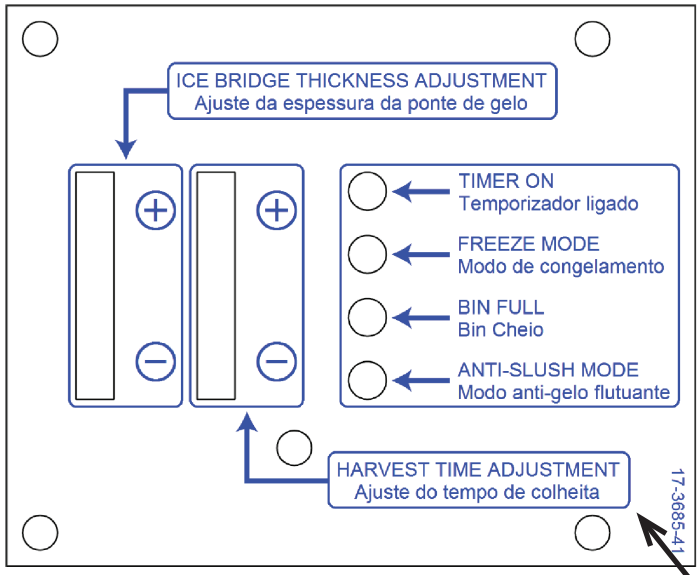
For The Technician: Ice Bridge Thickness Adjustment

Note: The bridge thickness adjustment is used to obtain the CORRECT size, 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.

Refer to the Ice Thickness Diagram for proper ice size.

Access the controller by removing the front panel and pulling out the electrical panel drawer.

Adjust by pushing the + sign or – sign on the ice bridge adjustment section of the control panel. Changing bridge thickness should be a one-time adjustment as the machine will automatically maintain that ice thickness.

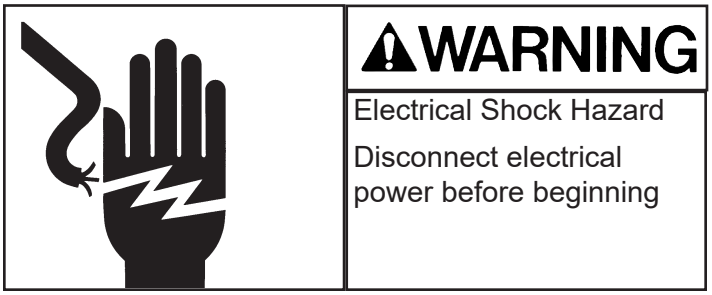


Controller Diagram: Adjustment Indicator Lights

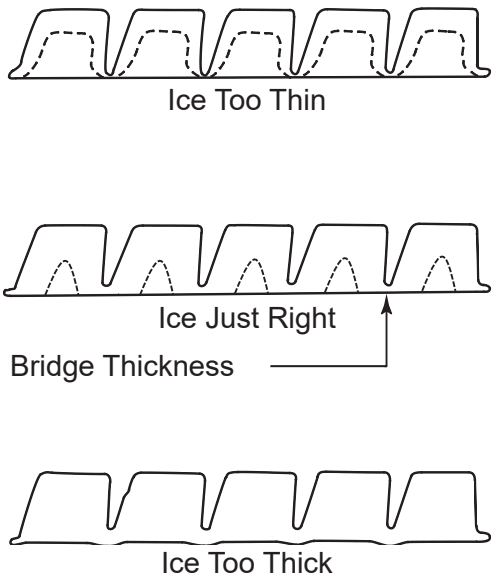
Each push and release of the + or - button will change the lights that glow or blink indicating a change in ice size.

Example: pushing + one time changes a blinking light to steady on type. If the lights are on steady a single push of + will add one more light to the right and it will blink.

There are 10 settings. All 5 lights on steady is the maximum setting and one blinking light is the minimum.



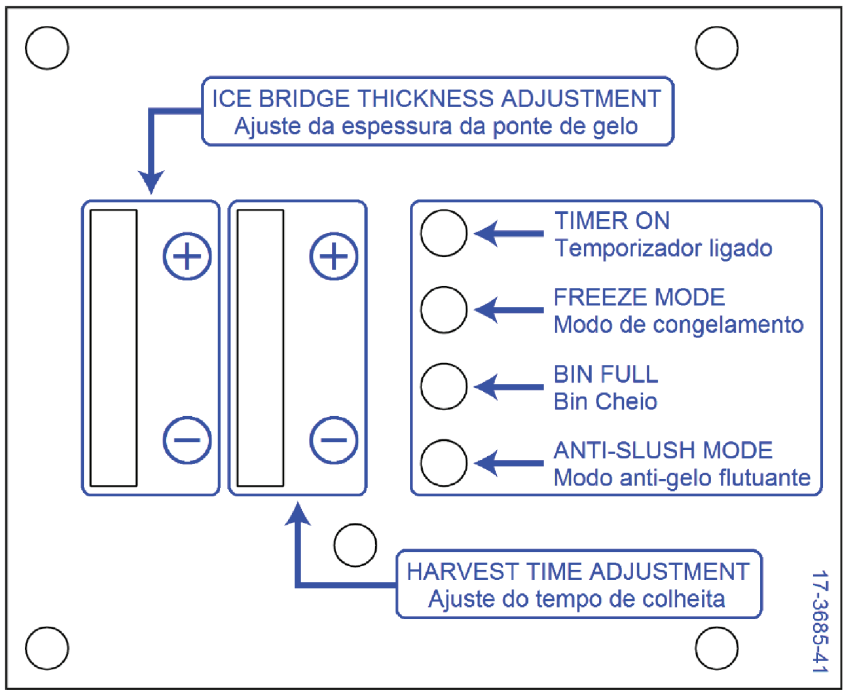
Ice Thickness Diagram



This Section Not Used

For The Technician: Indicator Light Reference

There are four indicator lights visible when the electrical component drawer is pulled out.



Timer Cut In

- This light is switched ON when the freeze cycle has progressed significantly enough for the evaporator thermostat to have reached its freeze preset temperature. At this point there are only a few minutes left in the freeze cycle. It is also switched ON when the harvest cycle has been on and the evaporator thermostat has reached its set defrost temperature.

Curtain Switch

- Normally OFF. This light is switched on and off by the position of the ice sensing plate.

Freeze Cycle.

- Normally ON during a freeze cycle. OFF during harvest or ice release.

Anti Slush

- Normally OFF. This light is switched ON when the pump is stopped during a freeze cycle.

A typical cycle begins when there is no ice on the ice sensing plate (Curtain Switch light OFF). The compressor and water pump will switch ON and when the discharge pressure increases to the cut in point of the fan pressure switch the fan motor will begin to rotate the fan. The hot gas and inlet water solenoids are off.

This continues until the evaporator temperature sensor reaches a preset point, which causes the pump to stop for a few seconds (the Anti Slush light will switch ON). After the Anti Slush light goes out and the water pump is switched back on, the freeze cycle continues until the evaporator temperature sensor reaches the timer start point, (Timer Cut In light is switched on).

When the timer has reached the end of its preset freeze time, Harvest begins (the Freeze Cycle light is switched off). The water pump stops, the hot gas valve and inlet water solenoid valve open and the discharge pressure falls, so the fan motor stops. Harvest continues until the released ice causes the ice sensing plate to move and the Curtain Switch light will either: a) blink On and Off, if the ice bin is not full, or b) switch On when the bin is full and ice is on the ice sensing plate.

If the bin is full the machine will shut off and be in a stand by mode. If not full, the cycle will repeat.

Maintenance and Cleaning

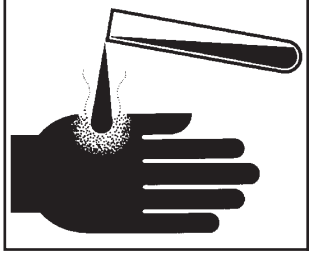
Frequency: Cleaning is recommended about twice a year. The ice machine will not maintain a sanitary condition without human intervention.

Prep: Obtain food grade scale remover such as Scotsman Clear 1. You will also need a clean container, sanitizer, clean cloths and clean rubber gloves. Use of a spray bottle is recommended for ease of washing hard to reach areas.

Note: The ice machine must be connected to water, power and drain during this procedure.

1. Remove the front panel and move the on/off/wash switch to Off.
2. Remove the ice from the ice storage bin.
3. Drain the sump water into the container by removing the plug from the drain hose. The drain hose is under the control box area. Return the plug to the drain hose.

⚠CAUTION



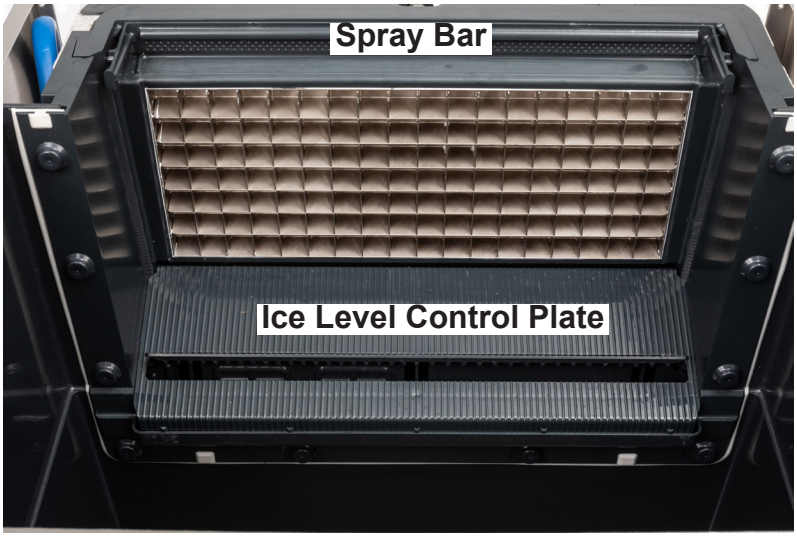
Ice machine scale remover contains acids. Acids can cause burns.

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

4. Put the rubber gloves on.
5. Mix a solution of scale remover and potable water.

Mix a solution of 5 oz or 150 cc of Scotsman Clear 1 Scale Remover and 2.5 quarts or 2.4 liters of clean, warm (95°F/35°C to 115°F./46°C) potable water.

6. Remove the spray bar by unsnapping it from the left and right ends.
7. Remove the ice level control plate by unsnapping it.
8. Place both into the scale remover. Wash them with the clean cloths.
9. Install both the spray bar and ice level control plate back onto the ice machine.
10. Pour the scale remover into the machine's sump.
11. Put the machine into a wash mode. Operate it that way for 20 minutes.
12. Stop the wash mode.



13. Drain the scale remover solution by removing the plug from the drain hose. Return the plug to the drain hose.
14. Check that the scale has cleared from the spray bar. Remove spray bar if needed to clear any scale, be sure it is returned to its original position.
15. Mix a second solution of scale remover and lukewarm potable water.
16. Wash the interior of the ice storage bin with the scale remover solution.
17. Pour any remaining scale remover solution into the bin. Be sure it drains away.
18. Mix a solution of sanitizer and lukewarm potable water: Mix 4 oz/118ml of NuCalgon IMS and 2.5 gal/9.5L of (90^0F/32^0C to 110^0F/43^0C) potable water to create a 200 ppm solution.
19. Pour half of the solution into the sump.
20. Switch the control into a wash mode. Operate it that way for 10 minutes and then switch it to off.
21. Drain the sump by removing the drain plug from the drain hose. Return the drain plug to the drain hose.
22. Wash all interior surfaces of the ice storage bin, including bin door, with the remaining sanitizer solution.
23. Pour a gallon of hot potable water into the bin to clean out the drain.
24. Switch the control to ice making and return the front panel to the unit.

Condensers and Air Filter Cleaning

Filters and Air Cooled Condenser

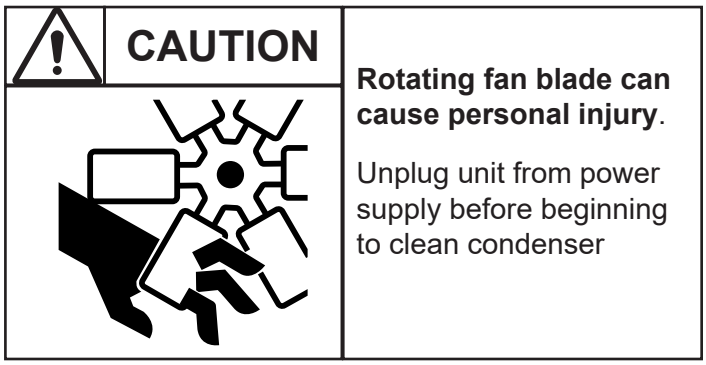
The air filter located on the lower front grill will capture airborne dust during operation. As the dirt builds up, it begins to restrict air flow and causes the refrigeration system to work less efficiently. Clean the air filter regularly.

Remove the filter by sliding it to the right until it is clear of the ice machine.

Note: It is a snap fit and the snaps may be very tight. Pull hard with two thumbs.

Remove dust and dirt by washing the filter in a utility sink.

Reinstall filter in the ice machine.



Condenser

The condenser fins require semi annual cleaning. Use caution to prevent damage to the condenser fins.

Lightly brush dust from the condenser.

Use a vacuum to thoroughly clean the condenser.

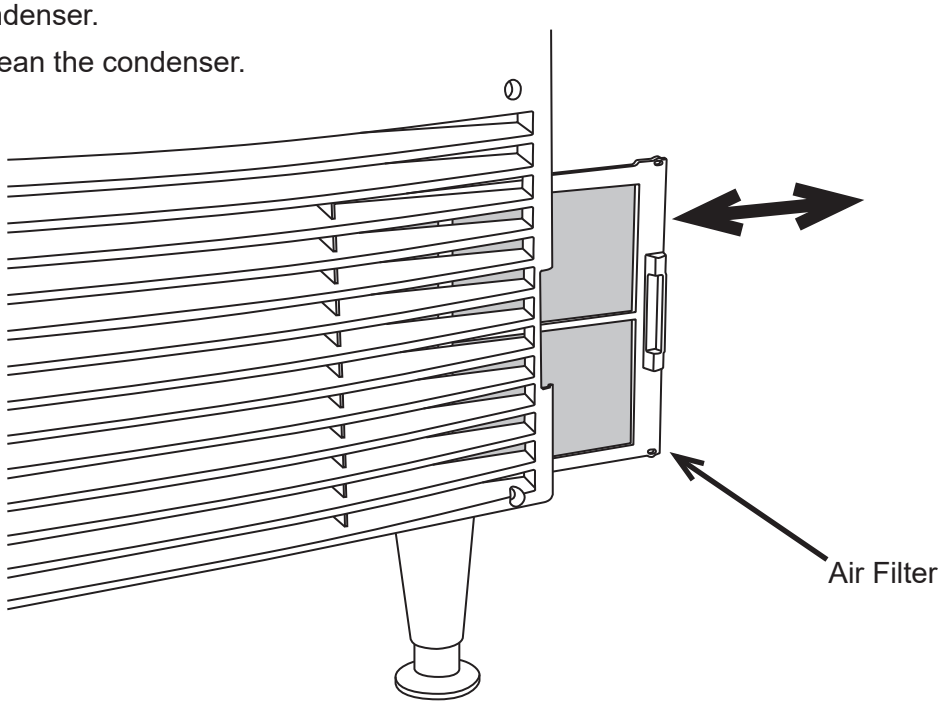
Water cooled equipment may be connected to a closed loop recirculating system or to a regular water supply. See the pressure limits on page 2.

The included water regulating valve will vary the amount of water or coolant needed to maintain a constant discharge pressure. Higher coolant temperatures will result in increased coolant flow to maintain the discharge pressure set point.

That pressure is factory set to 135 PSIG. If needed, it may be field adjusted to that set point. An access port to the adjustment stem is available on the lower back panel.

In areas with highly mineralized water, the inside of the condenser may become coated with scale. When that occurs the amount of water used by the condenser will increase, as the water regulating valve opens further to keep the discharge pressure at the set point.

Scale on the inside of the condenser may be cleaned by circulating an acid solution with an auxiliary pump.



Remove and Clean the Air Filter

Help

Before calling for service, check here for your issue.

Problem: No ice, the machine is silent.

- Be sure the unit is plugged in and that there is power at that outlet. You might temporarily plug the unit into another, nearby outlet to confirm.
- Be sure the ice level sensor plate is in the make ice position.
- If water cooled, is there water pressure to the unit? If the water has been turned off, the machine might shut itself off to keep from damaging its refrigeration system. It will automatically restart after water has been restored and several minutes have passed.
- Remove the front panel and check that the On/Off switch is in the On position.

Problem: No ice, the machine is appears to be operating.

- Check that there is water to the machine. Air cooled models will continue to operate without water but no ice will be made.
- Check for air flowing in and out off air cooled models. If none, call for service.

Problem: Ice is either too thick or too thin.

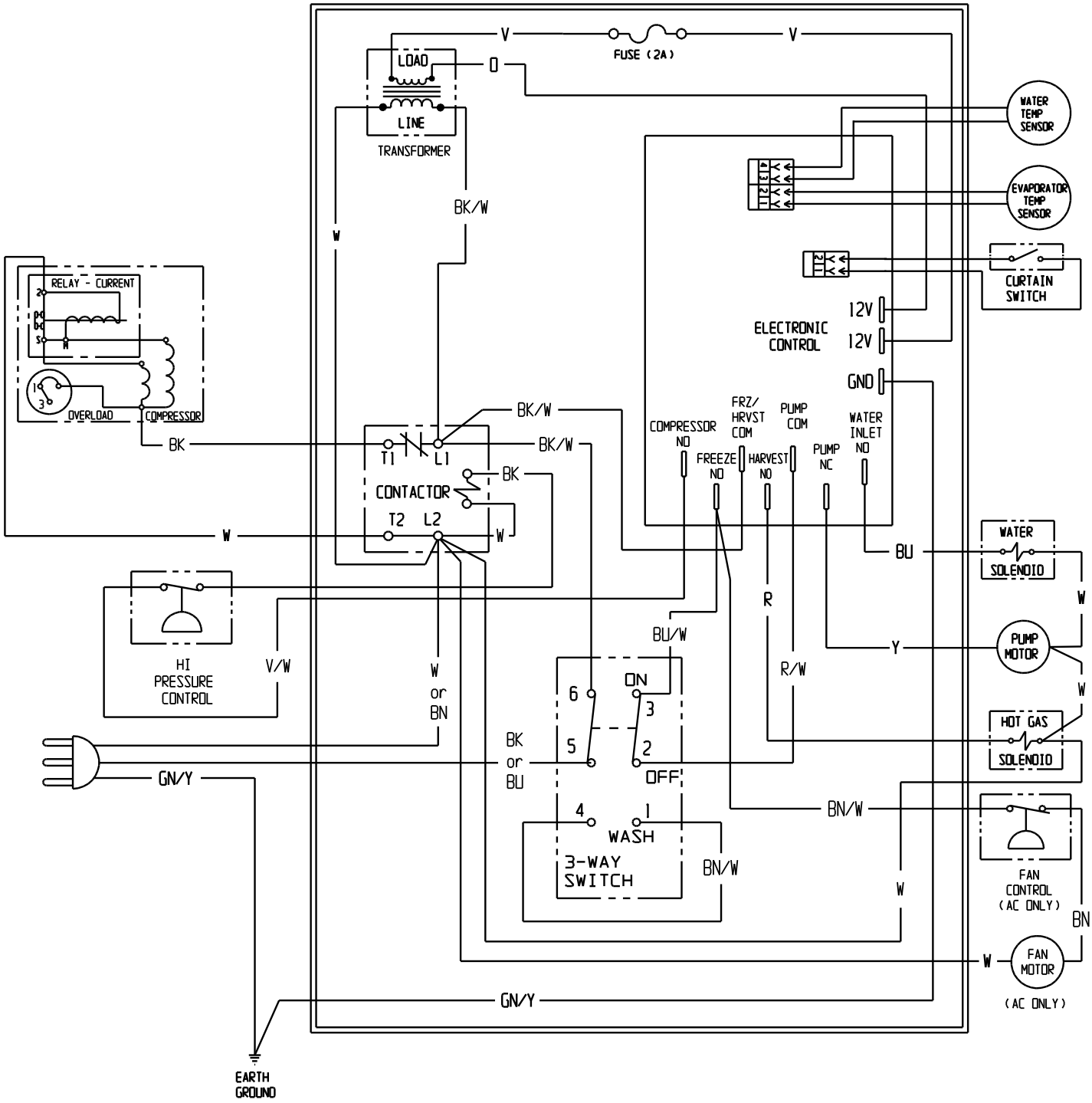
- The ice size may need to be adjusted by a technician. Call for service.
- The ice size sensor may have failed. Call for service.

Winterizing

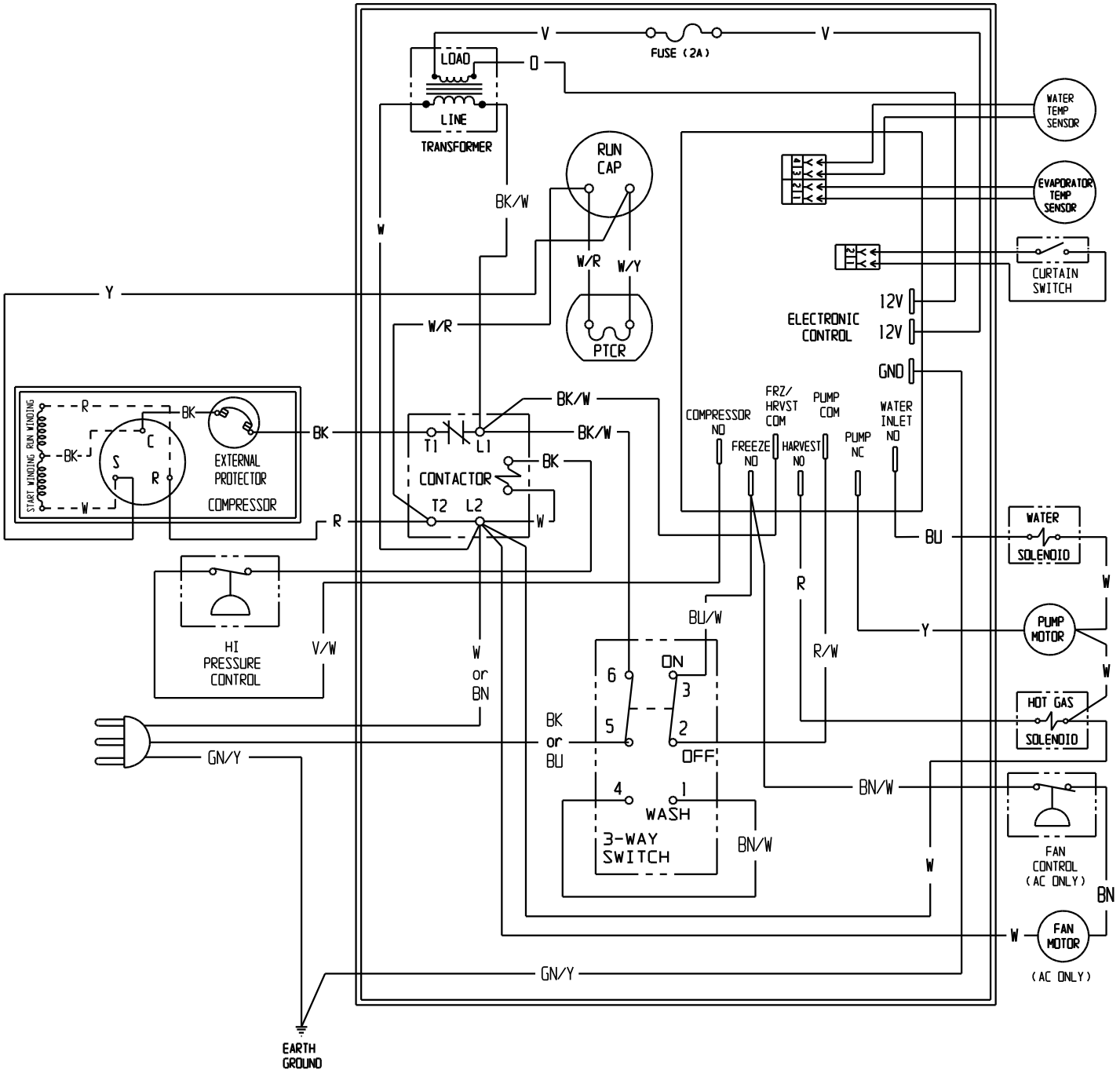
To prepare a unit for storage, follow these suggestions:

- Clean the unit per the instructions in this manual or those on the unit.
- Discard all ice.
- Drain the unit of all water.
- Disconnect the water supply tubing from the unit.
- Unplug the power cord from the outlet.
- Wipe the cabinet clean.
- Cover the machine to keep dust off the cabinet.

Wiring Diagram UC2024



Wiring Diagram UC2724



Shown in ice making mode

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