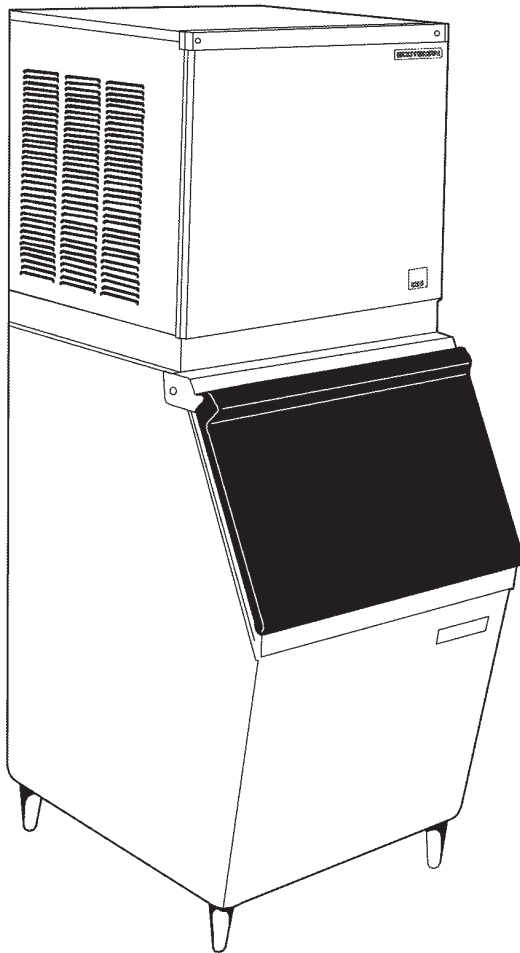




Installation and
User's Manual for
Modular Cuber

Models: CME256, CME506, CME656
and CME806



CME256, 506, 656, 806: AutoIQ Cubers

Introduction:

This product manual contains the information needed for the setup, installation, initial start up, sanitation and maintenance of this ice machine. Keep it for future reference.

Be certain that the information applies to the model in question. If no model is listed, the information applies to all models, including A through F series.

All series of these 4 models are covered in this manual:

This manual is organized in the same way as the expected use of the machine, it begins with specifications, goes thru unpacking and setup, shows where everything is; continues with initial start up, then describes how it works. After that is the sanitation section, followed by service diagnosis and repair.

- CME256, a 115 volt, single evaporator machine
- CME506, a 115 volt, dual evaporator machine (115 volt if 60 Hz, 230 volt if 50 Hz)
- CME656 and CME806, 230 volt, dual evaporator machines

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Specifications:

These ice machines are designed to be installed indoors, in a controlled environment. They can operate satisfactorily under a wide variety of conditions. However, Do NOT operate the machine where it has not been designed for. Do NOT operate the machine in temperatures it has not been designed for. Do NOT operate the machine above or below the voltage limits for the particular model. Do NOT operate the machine with too little or too much water pressure.

All models will fit a standard, 30" wide Scotsman Ice Storage Bin. Some examples are:

- BH550; HTB555; HTB350; HTB250

The CME256 and CME506 are the typical models used in hotel applications and they fit the Scotsman HD30 dispenser without an adapter. All models fit the ID200 or ID250 dispensers which require a KBT44 adapter. Check Scotsman's sales literature for other application information.

CME256 or CME506 Operational Limits

	Minimum	Maximum
Air Temperature	50°F.	100°F.
Water Temperature	40°F.	100°F.
Water Pressure	20 psi	80 psi
Voltage (115 volt model)	103	126
Voltage (208-230 volt mdl)	198	253
Voltage (230 volt model)	207	253

Note: These machines fill the bin very full, up to the base of the ice machine. Bin Model BH800 may need kit **KBaffle2** and Bin Model BH550 may need kit **KBaffle1**. In some cases the ice level in the bin may be too high for a customer's needs. A thermostat kit is available to lower the ice level, its part number is A37749-001.

A stacking kit, for like models, is **KSCME6-30**.

CME656 or CME806 Operational Limits

	Minimum	Maximum
Air Temperature	50°F.	100°F.
Water Temperature	40°F.	100°F.
Water Pressure	20 psi	80 psi
Voltage (60 Hz model)	198	253
Voltage (50 Hz model)	207	253

Scotsman reserves the right to make design changes and/or improvements at any time. Specifications and designs are subject to change without notice.

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

BASIC INFORMATION

Current Model Number	Dimensions W" x D" x H" (w/o bin)	Basic Electrical	Condenser Type	Minimum Circuit Ampacity	Maximum Fuse Size
CME256AS-1H	30 x 24 x 27	115/60/1	Air Cooled	16	20
CME256WS-1H	same	115/60/1	Water Cooled	16	20
CME256AS-32H	same	208-230/60/1	Air Cooled	7.9	15
CME506AS-1H	same	115/60/1	Air Cooled	19	20
CME506WS-1H	same	115/60/1	Water Cooled	19	20
CME506AS-6H	same	230/50/1	Air Cooled	7.9	15
CME506WS-6H	same	230/50/1	Water Cooled	7.1	15
CME506AS-32H	same	208-230/60/1	Air Cooled	8.9	15
CME656AS-32H	same	208-230/60/1	Air Cooled	13.6	20
CME656WS-32H	same	208-230/60/1	Water Cooled	12.7	20
CME656AS-3H	same	208-230/60/3	Air Cooled	6.6	15
CME656WS-3H	same	208-230/60/3	Water Cooled	5.8	15
CME656AS-6H	same	230/50/1	Air Cooled	13.4	20
CME656WS-6H	same	230/50/1	Water Cooled	12.6	20
CME806AS-32H	same	208-230/60/1	Air Cooled	17.5	20
CME806WS-32H	same	208-230/60/1	Water Cooled	16.0	20
CME806AS-6H	same	230/50/1	Air Cooled	17.6	20
CME806WS-6H	same	230/50/1	Water Cooled	16.2	20

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Pre-Installation

Other Applications:

Models CME256 or CME506 may be placed on certain Ice Dispensers, including Scotsman models: HD30, ID200 and ID250.

Check with other dispenser manufacturers for recommendations regarding application.

Check the nameplate for electrical requirements. The nameplate is located on the back of the ice machine. While the model and serial number are on the nameplate, a serial number plate is located at the front of the machine, below the metal control box.

Water:

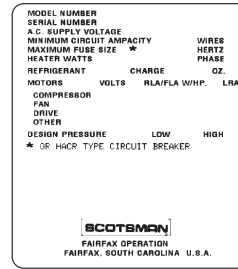
There is no such thing as pure water. There are two ways water can contain impurities: in suspension or in solution. Suspended solids can be filtered out. In solution or dissolved solids must be diluted or treated. Water filters are recommended to remove suspended solids. Some filters have treatment in them for suspended solids. Check with a water treatment service for a recommendation.

Cube Ice machines use more water than what ends up in the bin as ice. While most water is used during ice making, a portion is designed to “rinse” out the water system to keep hard water scale from clogging up the machine. That water rinse, combined with water filters, prolongs the times between needed water system cleaning.

Note: All Scotsman CM³ models, like those described in this manual, feature Scotsman’s AutoIQ™ control system and ReliaClean™ water system cleaning process.

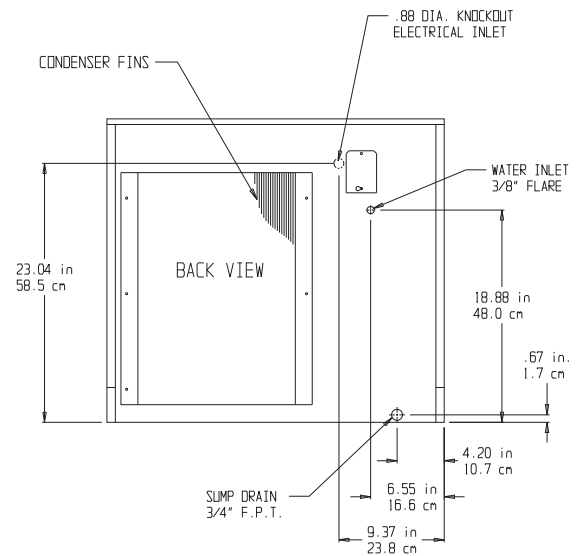
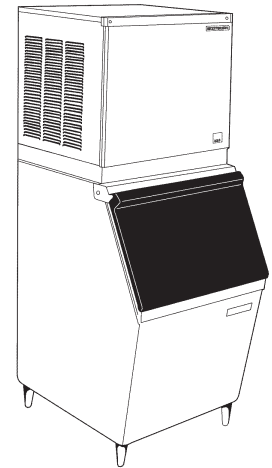
Service Technicians: All models are set by the factory at a “standard” water rinse, which is compatible with typical water conditions. The ReliaClean™ water system provides an adjustment method so to the amount of water rinsed per cycle can be changed. If the prior ice machine worked acceptably well with the local water conditions, leave the machine at the factory setting. If severe water conditions are present, and water filters do not solve the problem acceptably, adjust the machine to use more water. If water conditions are excellent, adjust the machine to use less water. See the Adjustments section.

Note: Water use adjustments are customer convenience adjustments; they are NOT factory defects and are NOT covered by warranty.

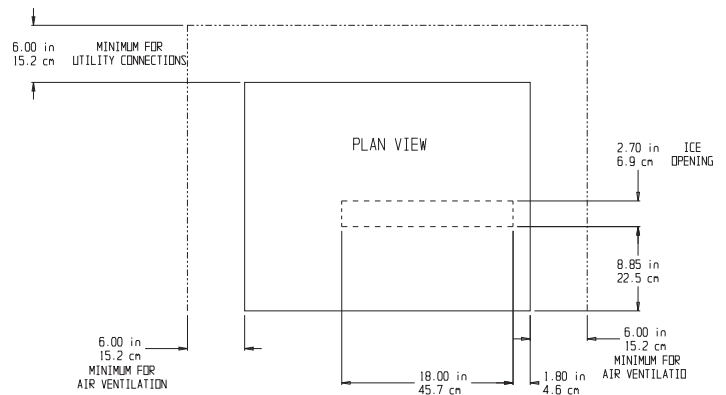


Nameplate

Location of Nameplate
(on the back, plus a serial plate is behind the front panel)



Back View Diagram (air cooled)



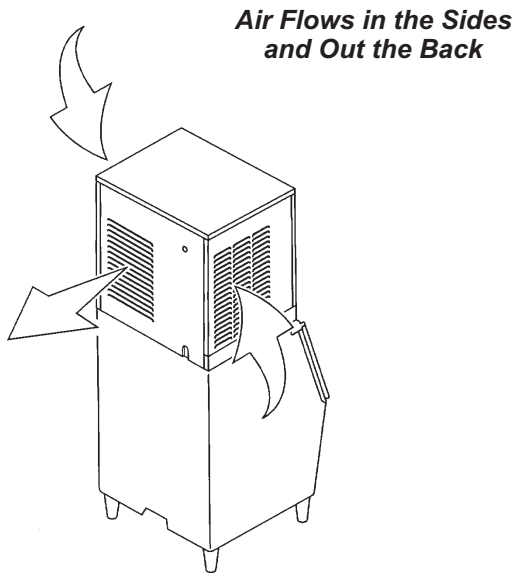
Top View Diagram

Note: Although the machine will function, ice capacity of air cooled machines will be significantly reduced with only 6 inches of clearance at the sides, back and top.

Location & Assembly:

Air cooled models take room temperature air in from the left and right sides, and discharge warm air out the back. If installed in a corner or with another cabinet next to the right side, an air baffle could be installed on the back of the cabinet to minimize air re-circulation.

A 6 inch **minimum** clearance on the back, left and right sides is required for operation and service of this machine.



Note: Although the machine will function, ice capacity of air cooled machines will be **significantly** reduced with only 6 inches of clearance at the sides, back and top.

Unpacking and Assembly:

Begin with unpacking the ice storage bin. Remove the carton, and using part of the carton as a cushion, tip the bin on its back to remove the skid and attach the legs or casters. Note: Stacked applications may not use casters.

Return the bin to an upright position. Check the bin top gasket for gaps and tears, fill any in with food grade sealant prior to placing the ice machine on the bin.

If the ice machine has not been unpacked, do so now. Remove the carton from the skid. Lift the ice machine off the skid directly onto the bin.

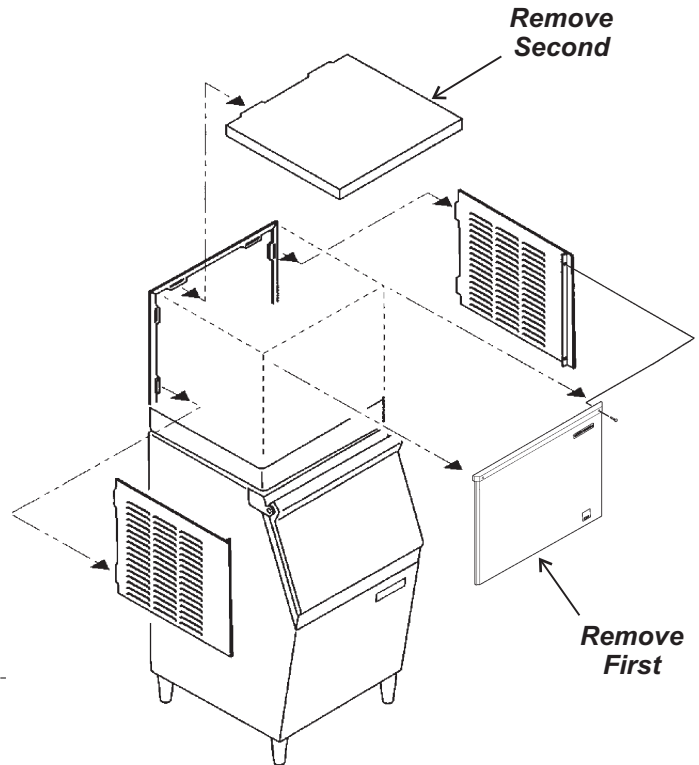
Note: The machine is heavy! Use a mechanical hoist if necessary.

Secure the ice machine to the bin with the hardware provided (two metal straps and 4 bolts).

Cabinet Panel Removal:

Note: The top panel holds the upper edges of the side panels in place.

1. **Front Panel:** Remove top two screws, and pull the bottom of the panel away from the machine to unsnap it from the machine.



Removal of Panels

2. Remove 2 screws at the front edge of the top panel, and pull the top panel forward until it releases from the tabs connecting it to the back panel.

3. Remove the screws at the front edge of each side panel, and pull them forward until they release from the tabs connecting them to the back panel.

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Plumbing:

All models require an adequate potable water supply and a gravity drain. The recommendations for tubing are: Water supply to be $\frac{3}{8}$ " OD. Drain to be $\frac{3}{4}$ " OD.

Supply:

Air cooled models have 1 water supply connection, a $\frac{3}{8}$ " male flare at the back of the cabinet. Water cooled models have an additional $\frac{3}{8}$ " FPT condenser inlet connection at the back of the cabinet.

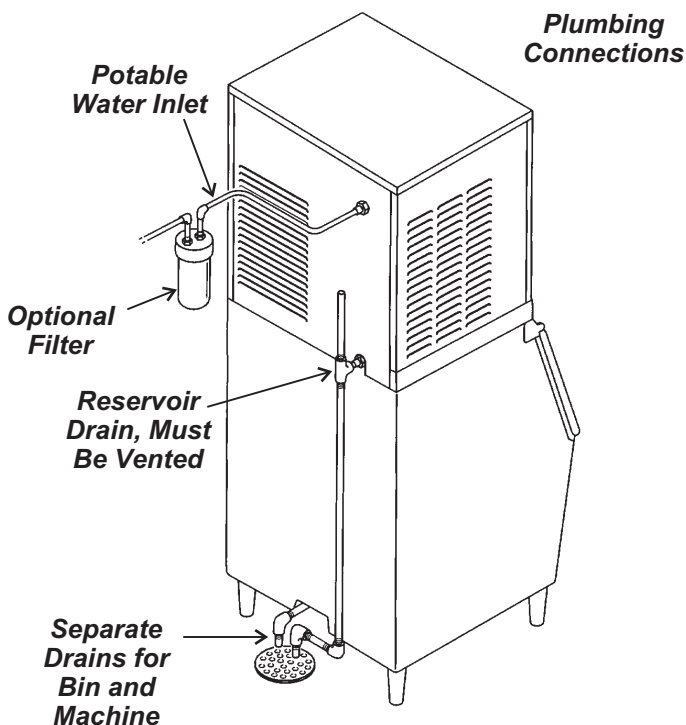
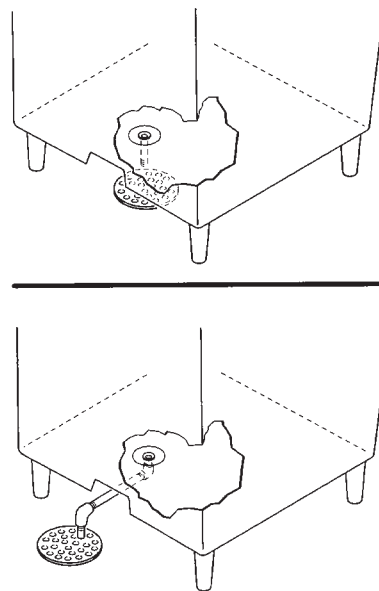
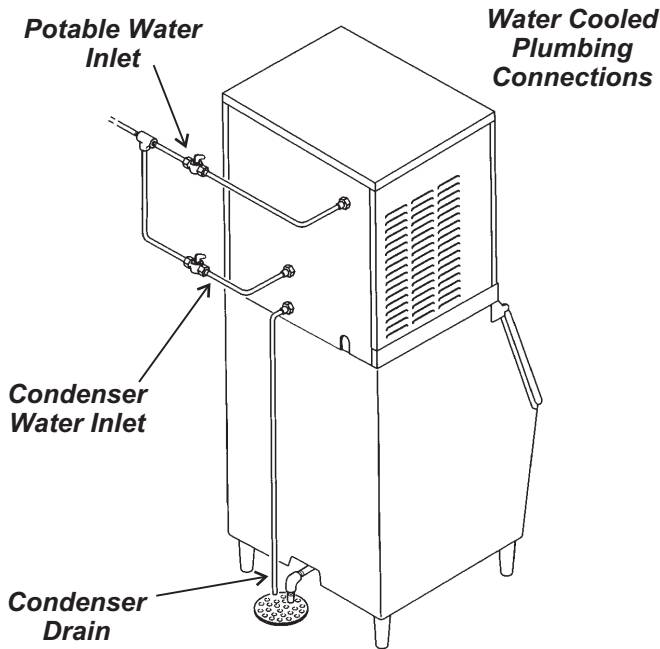
Drain:

Air cooled models have 1 gravity drain connection, a $\frac{3}{4}$ " FPT fitting at the back of the cabinet.

It must be **vented** at the back of the cabinet.

Water cooled models have an additional condenser drain, it is a $\frac{1}{2}$ " FPT fitting at the back of the cabinet. Do not vent this drain.

The ice storage bin will have a drain out the back or base, depending upon the model. Note: Scotsman HTB555 (shown in this manual) may be drained either out the back or the base.



Insulation is recommended for the ice machine reservoir and bin drains.

Follow all applicable codes

CME256, 506, 656, 806: AutoIQ Cubers

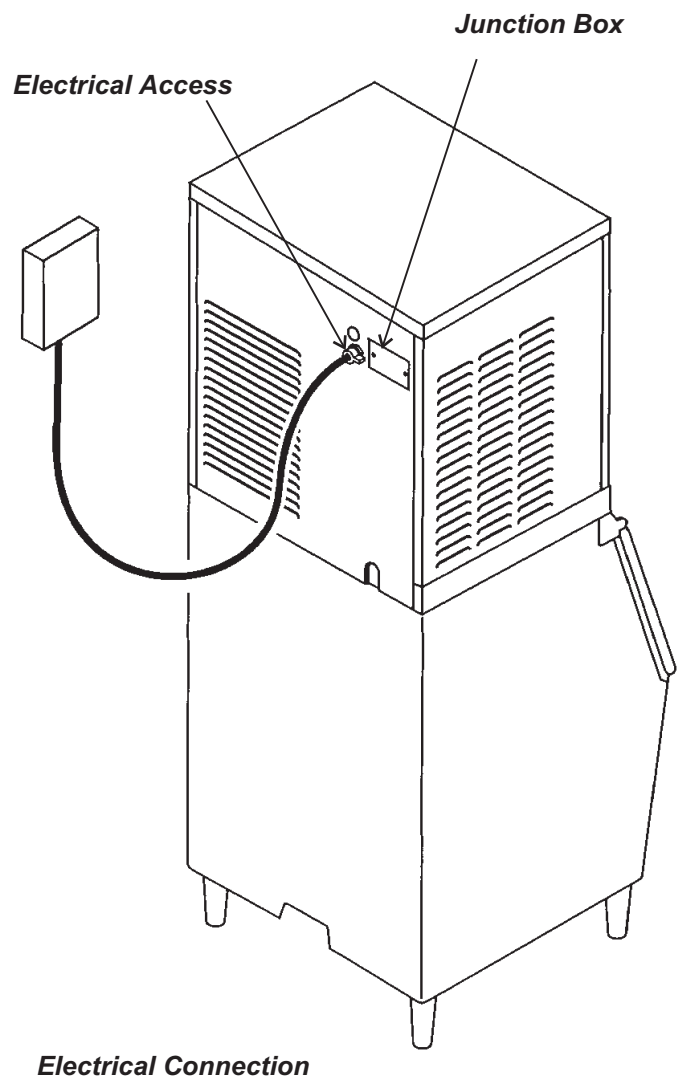
Electrical:

All models must be installed with the correct wire size and type per the National Electric Code. Locate the nameplate on the back of the cabinet and find the numbers for Voltage, Phase, Minimum Circuit Ampacity and Maximum Fuse Size. Either fuses or HACR type circuit breakers may be used.

Electrical connections are made in the junction box in the back of the cabinet.

1. Remove the junction box cover.
2. Knock out 1 hole for a field supplied strain relief.
3. Install wires and strain relief per code.
4. Connect to wires and secure ground wire to ground screw inside junction box.

Follow all Local, State and National codes.



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After Utility Connections:

1. Level the cabinet, use the leg levelers on the end of the legs to adjust the cabinet height.
2. Wash out the bin. If desired, the interior of the bin could be sanitized.
3. Locate the ice scoop (if supplied) and have it available for use when needed.

Final Check List:

1. Is the unit located indoors in a controlled environment?
2. Is the unit located where it can receive adequate cooling air?
3. Has the correct electrical power been supplied to the machine?
4. Have all the water supply connections been made?
5. Have all the drain connections been made?
6. Has the unit been leveled? The unit must be leveled at the water reservoir.
7. Have all unpacking materials been removed?
8. Is the water pressure adequate?
9. Have the drain connections been checked for leaks?
10. Has the bin interior been wiped clean or sanitized?
11. Have any water filter cartridges been replaced?

Initial Start Up:

1. Remove the front panel.
2. Locate the AutoIQ Controller.
3. Switch on the electrical power. Note that the indicator lights all flashed on briefly.
4. Open the water supply valve.
5. Push and release the Freeze cycle push button (the Freeze indicator light will blink until the compressor starts). The next several operations are automatic.

Initial Start Sequence

- The Freeze light is blinking.
- The Hot Gas Solenoid valve is open.
- The inlet water valve opens to fill the reservoir. The inlet water valve will shut off when the reservoir is full.
- The water pump starts to pump water.
- The inlet water valve opens again to refill the reservoir.
- After 30 seconds the compressor starts.
- After 5 seconds the hot gas valve closes.

Freeze Cycle:

- The Freeze indicator light will come on. The machine will stay in a Freeze cycle for many minutes. Slush may appear in the reservoir, it is temporary and normal.
- Under certain conditions, the pump may stop for a few seconds. After that the inlet water valve will refill the reservoir.
- The fan motor (of air cooled models) will begin to turn and soon warm air will be forced out the back of the cabinet.
- The freeze cycle will continue until the water level in the reservoir drops to its factory set point, then the Harvest Cycle will begin.

Harvest Cycle:

- The Harvest indicator light will be ON,
- The hot gas valve will open.
- The water pump will stop. It will restart in less than a minute.
- The Inlet water valve will open. The machine will fill the reservoir and overflow it for a specified number of seconds then shut off. The harvest cycle may still be in progress.
- The Bin Full indicator light will go on and off as ice falls from the evaporators.

6. Machines are shipped from the factory with the purge level set to accommodate average water conditions. See page 13 for purge adjustment instructions.

24 hours of run time may be need to attain full ice making capacity.

7. The machine's correct cube size should result in ice falling from the evaporator in vertical strips of 8 - 10 cubes; the top 2 cubes might fall individually.

8. After a few minutes the machine will return to a freeze cycle.

9. Fill out the Customer Evaluation and Warranty Registration. Send it to Scotsman.

10. Replace the front panel.

11. Inform the user of the location and telephone number of the local service company. Also inform the user of the required maintenance of the machine.

Notes On Operation:

1. The electric eyes signal the ice machine to shut off whenever the bin becomes full. After the eyes sense that there is ice between them, the ice machine will shut off at the end of the next harvest cycle. This last harvest cycle will be longer than the rest.

2. After the bin has filled the ice machine will not be able to restart for 4 minutes. However, if needed, the Freeze button may be pushed and the unit will restart.

For example: If ice is removed from the bin immediately after the machine has filled up and shut off, the machine will not restart for 4 minutes.

3. If the bin controls sense a bin full signal before any water is used (float stem up), the machine will shut off on bin full.

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Adjustments:

If there was a problem during Initial Start Up:

If an error light came on, check the following.

1. Water error.

A water error could have been determined by the System Controller if the inlet water valve does not fill the reservoir, or if the water pump does not start and lower the water level.

2. Refrigeration error.

A refrigeration error could have been determined by the System Controller if the water temperature did **not** drop during the freeze cycle. The controller will next check the compressor discharge temperature, If the discharge temperature is too low, the refrigerant error light will be switched on, and the machine will Shut Down.

Note: Reset and restart the machine by pushing and releasing the Off push button switch, and then pushing and releasing the freeze push button switch.

How to Adjust the Amount of Water Purge

Adjustment is done by use of the control buttons on the AutoIQ Controller. Examine the next section to become familiar with the Controller before beginning.

1. If the machine is on, push and hold the OFF button for more than 3 seconds, then release it. This switches the machine Off.

2. Push and hold the OFF button for more than 3 seconds (just until all lights flash on) then release it. Do not hold it in it too long.

3. Examine the green lights. They should have all flashed once, then certain ones will have turned on to indicate which purge level the machine is set at. There are 5 levels of purge available:

- 1. **Maximum Purge** is when All 5 lights are ON. Use for extreme water conditions. Note: This setting may extend the Harvest cycle and reduce capacity.
- 2. **Heavy Purge** is when these 4 lights are ON: Freeze, Harvest, Clean, Off. Use for severe water conditions.
- 3. **Standard Purge** (factory setting) is when these 3 lights are ON: Harvest, Clean, Off. Use for moderate to severe water conditions.
- 4. **Moderate Purge** is when these 2 lights are ON: Clean, Off. This is for typical water conditions.
- 5. **Minimum Purge** is when this light is ON: Off. For excellent water conditions.

Adjust by pushing and releasing the Freeze button. Pushing and releasing the Freeze button increases the purge one level up to the maximum, then it goes to the minimum.

4. The machine will automatically restart after 60 seconds of no switch inputs, or restart the machine by pushing in and holding the Off button for more than 3 seconds, then releasing it. The unit will then be Off. From there the machine may be placed in a freeze cycle by pushing and releasing the Freeze button.

How To Operate The AutoIQ Controller

The AutoIQ Controller is a microprocessor based device that receives input from several sources and switches various components on and off.

Its manual control is thru the use of the Push Button Control Switches

1. **Freeze Button.** Pushing and releasing this button starts or restarts the machine. The System Controller remembers what cycle it was last in and returns to that cycle.

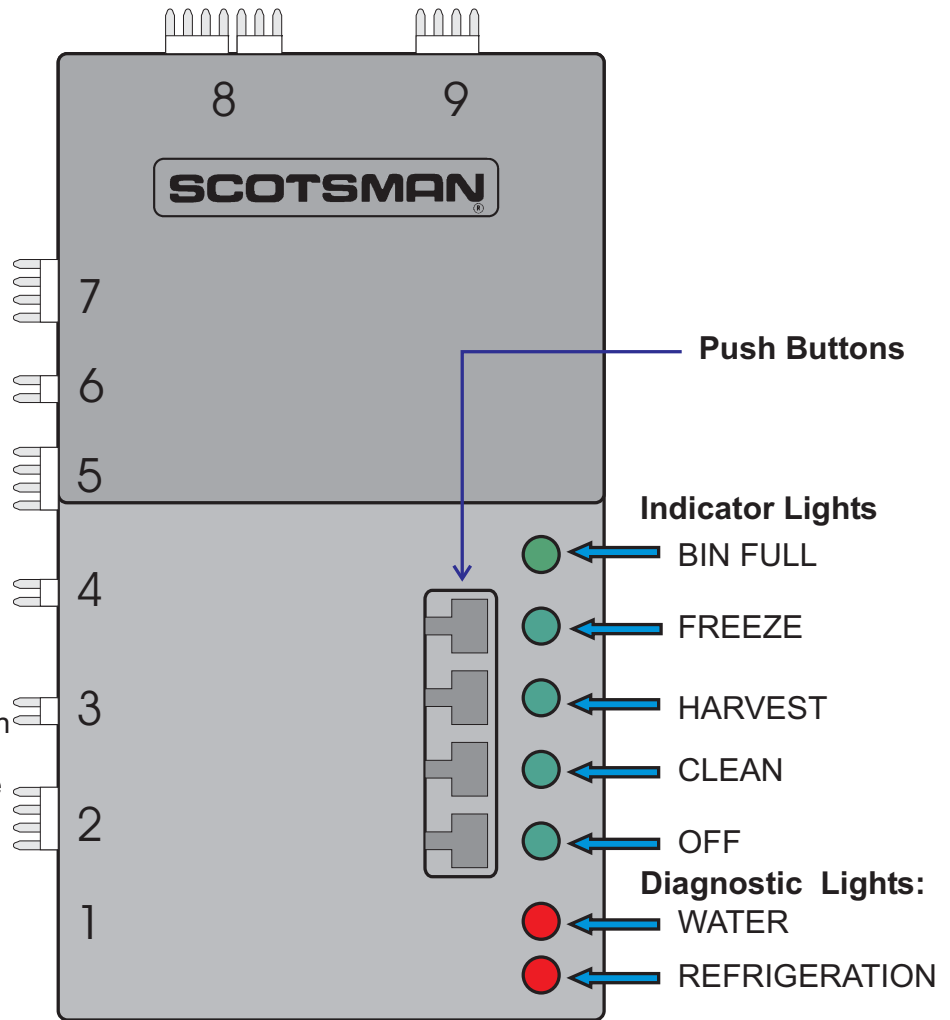
2. **Harvest Button:** Pushing and releasing this button will cause the machine to go directly to a Harvest Cycle. Can be done from Freeze or Off. The machine will switch Off at the end of the Harvest cycle.

3. **Clean Button:** Pushing and releasing this button will cause the machine to only power the water pump for circulation of ice machine cleaner. After the ice machine cleaner has circulated for about 10 minutes a second push of this button will switch on the rinsing system to flush out the dissolved scale and ice machine cleaner.

4. **Off Button:** Pushing and releasing this button will switch the machine OFF at the end of the next cycle. If the button is pushed and HELD for more than 3 seconds, the unit will switch off immediately.

To Reset Machine (machine off, error light on): First push and release the Off button, then push and release the Freeze button.

To Recall the last two diagnostic codes: Push and hold the Off button until the machine shuts off. Then push and hold the Off button again until the green lights flash on. Push and release the Harvest button to recall the most recent diagnostic code. Push and release the Harvest button again to recall the second to last diagnostic code (the bin full light will be on when the second to last code is displayed). If no code is displayed, there was none recorded. Push and release the off button again to return to the normal setting.



Controller Indicator Light Description

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Sanitation and Cleaning


It is the User's responsibility to keep the ice machine and ice storage bin in a sanitary condition. Without human intervention, sanitation will not be maintained. Ice machines also require occasional cleaning of their water systems with a specifically designed chemical. This chemical dissolves mineral build up that forms during the ice making process.

Sanitize the ice storage bin as frequently as local health codes require, and every time the ice machine is cleaned and sanitized.

The ice machine's water system should be cleaned and sanitized a minimum of twice per year.

In Place Cleaning of the Ice Machine Water System:

1. Remove all ice from the bin. Either save it in a sanitary container or discard it. If the cleaning was planned, the ice machine could be switched off the night before to minimize waste.
2. Remove the front panel.
3. Push and release the Harvest button (this releases any ice that may be on the evaporators and warms them up).
4. Wait for the machine to finish the Harvest cycle (the machine will stop).
5. Remove the cube deflector, the evaporator cover, the cascading shield (if used) and the bin control sensors. Place the cascading shield and the cube deflector in a separate container. Place the bin controls in the reservoir.
6. Push and release the Clean button. The Clean indicator light will be blinking, and the pump will restart.
7. Pour 12 ounces of Scotsman Clear 1 scale remover into the reservoir water. Return the evaporator cover to its normal position.

CAUTION	Scotsman Ice Machine Cleaner contains acids. Acids may 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.

8. Mix a solution of 8 ounces of Scotsman scale remover and 1 gallon of warm (95-115°F.) water. Use the solution to scrub the cascading shield and cube deflector in the separate container.

9. After the ice machine cleaner has circulated for 10 minutes, push and release the Clean button. This starts the rinsing process. The Clean indicator light will be ON. Note: The rinse process flushes any residual cleaner out of the ice machine's water system.
 10. Continue the rinsing process for 20 minutes, then push the off button to switch the machine off.
 11. Go to the next step to sanitize the machine or go to step 19 to finish the cleaning process.
 12. Mix 2 gallons of Sanitizer solution. Follow local codes for Sanitizer.
- Note: A possible sanitizing solution may be made by mixing 1 ounce of liquid household bleach with 2 gallons of warm (95-115°F.) potable water.
13. Push and release the Clean button again.
 14. Pour 16 ounces of Sanitizer solution into the reservoir water.
 15. After the solution has circulated for 10 minutes push and release the Clean button. This starts the rinse process. Sanitize the ice storage bin while waiting.
 16. Continue the rinsing process for 20 minutes, then push the off button to switch the machine off.
 17. Remove the evaporator cover and spray or wash all interior surfaces of the freezing compartment including the evaporator cover with sanitizer solution.
 18. Thoroughly immerse the cascading shield and cube deflector in the sanitizing solution.
 19. Return the bin controls, cascading shield and cube deflector to their original positions.
 20. Return the evaporator cover to its original position. Push and release the Freeze button.
 21. Return the front panel to its normal position and secure it to the machine with the original screws.

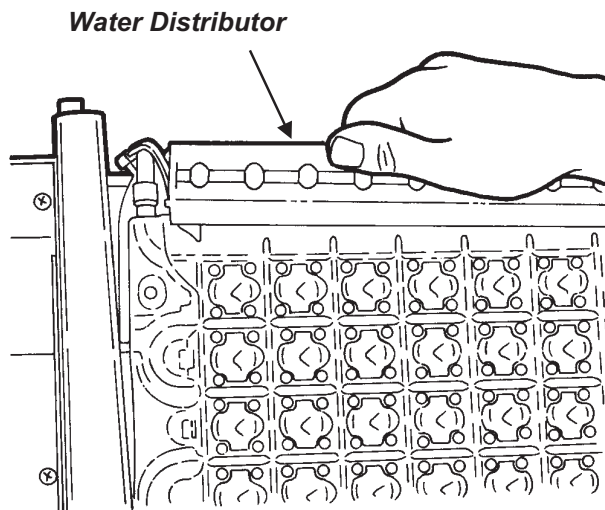
Additional Maintenance

To Sanitize the Ice Storage Bin

1. Remove all ice.
2. Remove baffle.
3. Switch ice machine OFF or wait for it to be in a cleaning cycle.
4. Mix a 1 gallon solution of warm (95-115°F.) water and sanitizer. Follow local codes for sanitizer.
5. Wash or spray the entire interior of the ice storage bin with the sanitizer solution. This includes the bottom of the ice machine and the inside of the door, the door gaskets (if any) and door frame.
6. Pour excess sanitizer into the bin to flush the drain system.
7. If the approved sanitizer requires a rinse, rinse all interior surfaces with potable water.

Water Distributors

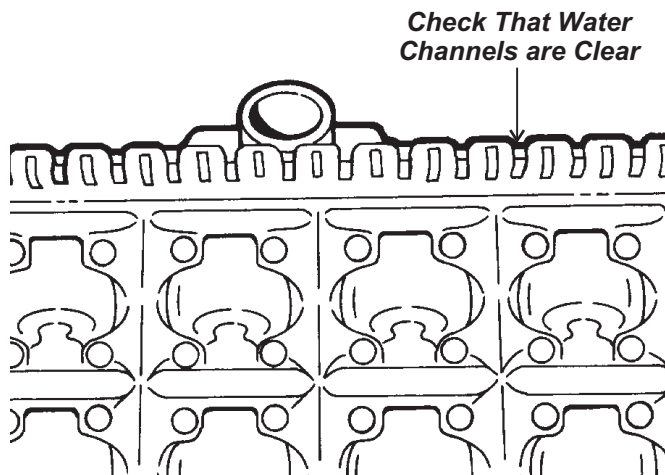
It may become necessary to remove the water distributors from the top of the evaporator and clean (de-mineralize) them outside of the ice machine.



Removal of Water Distributor

1. Remove front panel.
 2. Push and release the OFF button.
- Single Unit Installation:
3. Remove the evaporator covers.
 4. Reach over the water distributors and pull the hose off.

5. Push the two water distributors to the right until the left end clears its retaining slot, then pull the left end up.
6. If there are two evaporators, repeat for the back one.
7. Examine the top of the evaporators. The Water Distribution Channels must be free from mineral build up. If build up is evident, scrub the channels with scale remover and a plastic bristle brush.



8. Examine the water distributors. Although they are made of a material that is resistant to mineral build up, some may be present. Soak or scrub the distributors in or with a solution of Scotsman Ice Machine Cleaner and warm potable water.
9. Return the water distributors to their normal installed position.
 - 9a. Snap the two distributors onto the water manifold. Place them on the back evaporator, right end first. Push the distributors far enough to the right until the left end clears the retaining slot, then release. Check that the distributors are seated properly.
 - 9b. Place the water hose onto the back water distributors.
 - 9c. Repeat for the front evaporator, if there is one.
10. Push and release the clean button to flush the water system.
11. After the machine stops, push and release the Freeze button.
12. Replace the evaporator cover.
13. Replace the front panel.

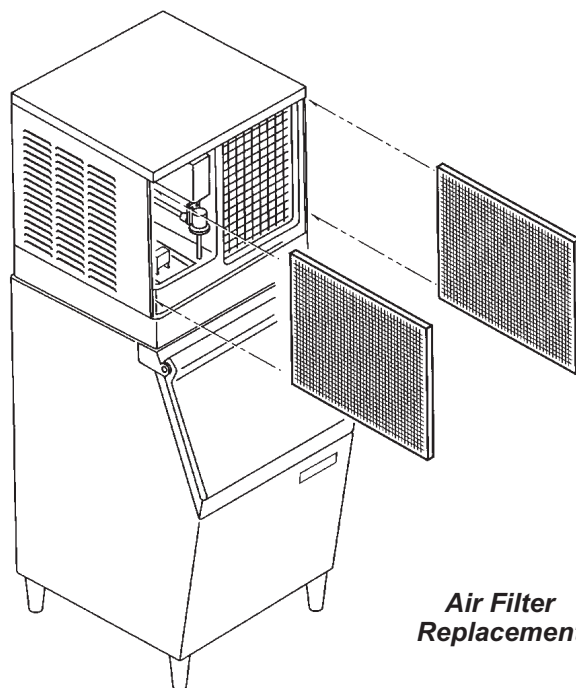
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Additional Maintenance: Bin Controls, Condenser

The bin controls use a system of infrared emitting and receiving components to sense the build up of ice in the bin. They are located at the bottom of the ice outlet port. They must be free of mineral build up to function properly. To check:

1. Remove front panel.
2. Push and release the off button.
3. Remove top and right side panels.
4. Remove the evaporator cover (on models with one)
5. Remove the cube deflector.
6. Pull up to remove the cascading shield (on models with one)

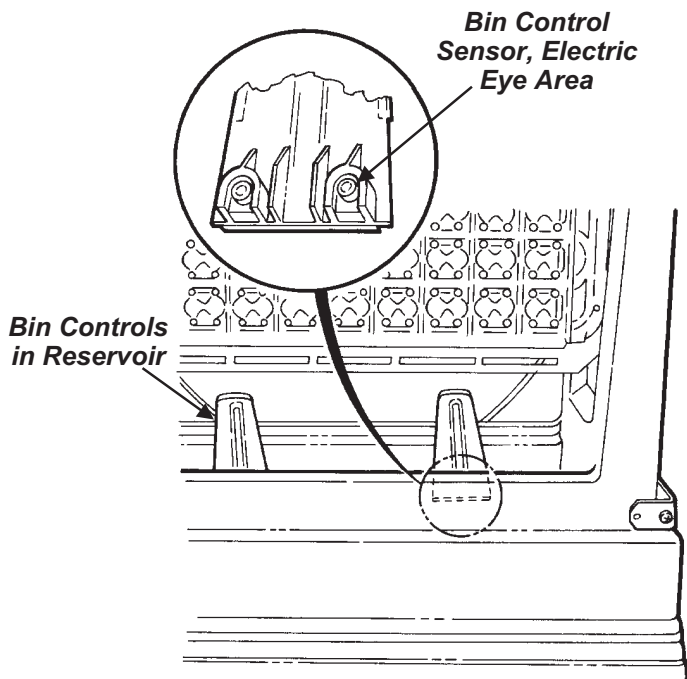
Air Filter Replacement



Air Filter Replacement

To Clean the Air Cooled Condenser

Contact a refrigeration service technician if the air cooled condenser coil needs to be cleaned.



Cleaning of Bin Controls

7. Push into the freezing compartment the electric eye brackets.
8. Examine the bottom of the brackets, there are two sensors in each bracket, check that they are clear of mineral build up. They may be wiped clean with ice machine cleaner to assist in removal of the build up. Be sure to drain the reservoir or go thru a Clean cycle to remove residual cleaner.

Note: Do NOT use abrasive materials or cleaner on the bin sensor lenses. A soft toothbrush is an effective tool for cleaning these sensors.

Before Calling for Service

Check the following:

1. Has the water supply to the ice machine or building been shut off? If it has, the ice machine will automatically restart within 25 minutes after water begins to flow to it.
2. Has power been shut off to the ice machine? If yes, the ice machine will automatically restart when power is restored.

To Manually Reset the machine:

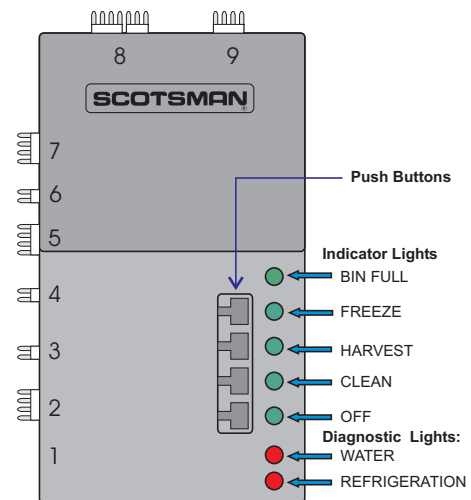
1. Remove the front panel.
2. Locate the AutoIQ Controller. If a red diagnostic light is glowing, note which one and its blink rate. Then push and release the off button.
3. Push and release the Freeze button.
4. The machine should begin to operate. If there is a lack of water it will shut off again soon.

5. Return the front panel to its normal position.

If the machine shuts down again, call for service.

To Shut the Machine Off:

1. Remove the front panel.
2. Locate the controller.
3. Push and hold the Off button for 3 seconds or until the machine stops.





SCOTSMAN ICE SYSTEMS

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