Scotsman®
Ice Systems

Service Manual for
Ice Maker-Dispenser Model
HID207
with R290

WARNING

R290 Refrigerant is Flammable.
Flame can cause burns or property damage
Keep away from sources of fire

Important Safety Information: Make sure to read through fully to avoid severe injury or death.

• This ice machine contains FLAMMABLE refrigerant and risk of fire or explosion. Do not use cigarettes, vapes, cellphone, near pipes or cables as it can be a source of ignition or spark.

• Ice machine must not be installed next to equipment with open ignition source (ie. open flames, an operating gas appliance, or electric heater).

• Take precautions and do not install next to anything that continuously vibrates, avoiding excessive vibrations or pulsations.

• Make sure to install in a well ventilated environment and ensure ventilation and outlets are not obstructed.

• Properly secure electrical wiring and cabling so as not subject to wearing or vibrations.

• Keep fire extinguisher on hand nearby in case of emergencies.

• WARNING: Cancer and Reproductive Harm. Visit www.P63Warnings.ca.gov for details.

• Use a Scotsman recommended technician certified to repair R290 equipment.

• Use ONLY Scotsman factory service parts. Use of non OEM parts can be dangerous because of the design changes needed to safely use R290.

Introduction

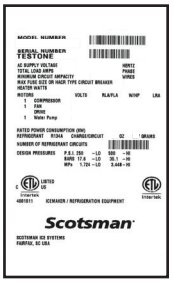
The ice maker-dispensers covered in this manual were designed by to be the finest on the market. Their design is a result of Scotsman's long experience in ice maker-dispensers.

HID207 is 16.05 inches wide and air cooled only.

Contents

Scotsman Ice Systems are designed and manufactured with the highest regard for safety and performance. They meet or exceed the standards of UL and NSF.

Their marks appear on the dataplate or serial tag, located in the inside and back. The dataplate also contains the model and serial numbers as well as electrical requirements on the back plate.



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

The ice maker-dispenser 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 Conductivity:

- Minimum: 10 microSiemens/cm

RO water may be supplied to the potable water system, but if it has less than the above conductivity, the water level sensor will not detect water and the unit will not make ice.

Deionized water will not work and isn't recommended.

Voltage - 60 Hz

- Maximum: 126 Minimum: 104

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.

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

Product Information

The product is an ice maker-dispenser. It is designed to be installed on a countertop or on a specific machine stand.

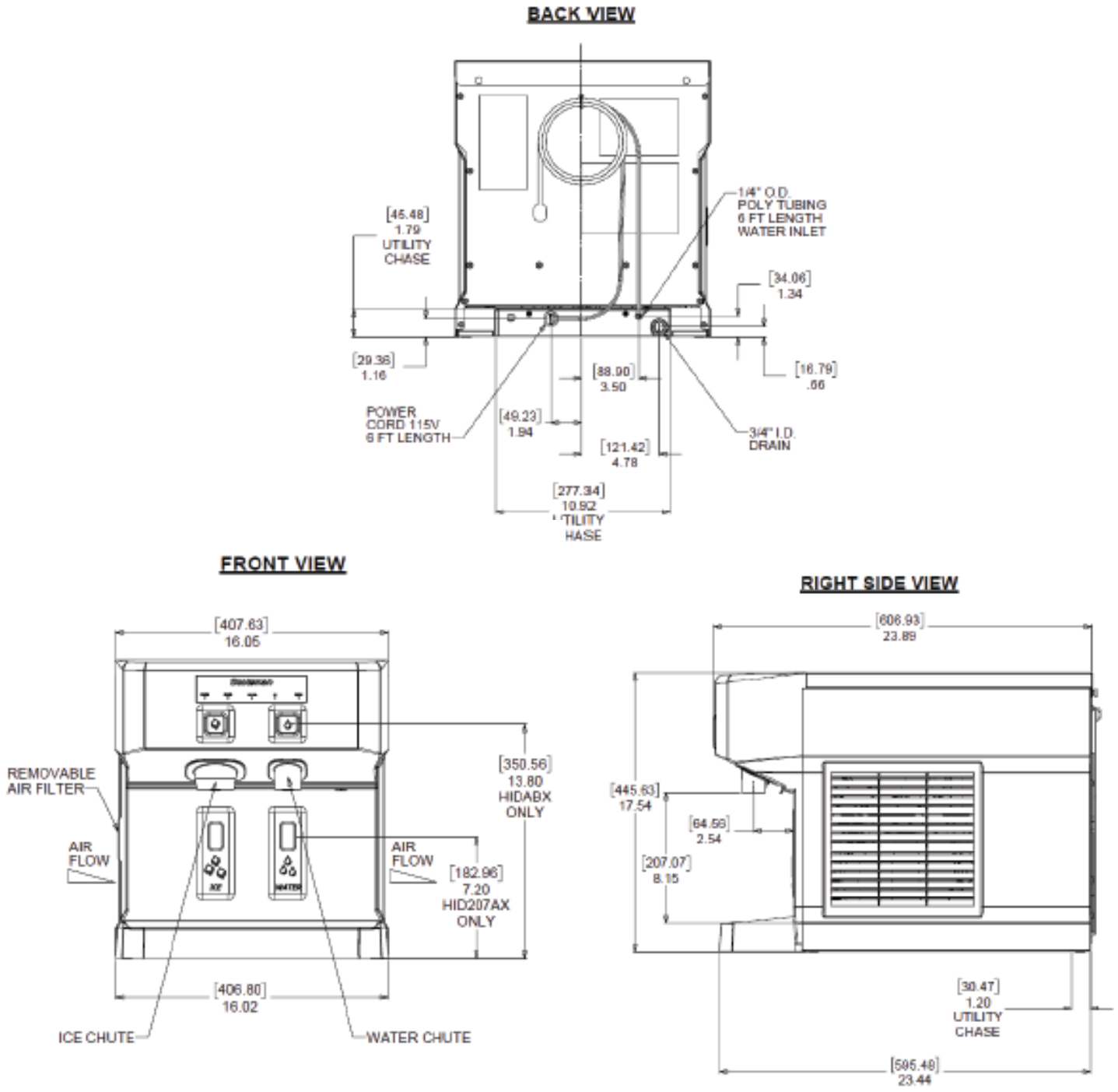
- All models require a drain. An internal drain basin separates the ice storage bin's drain from the drip tray drain.
- A backflow preventer may be required by local plumbing codes, although backflow is prevented by the included float and reservoir design.
- It is equipped with a 7.5 ft. power cord with NEMA 5-15P plug.
- Air flow is left to right and there is a cleanable air filter included.
- 4" or 10 cm legs are optional for counter models. Thread size 3/8 - 16.
- Ice or water vending is triggered by touch free sensors or buttons, depending upon the model.
- For available options and kits, see sales literature.

Scotsman Ice Systems are designed and manufactured with the highest regard for safety and performance.

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 part and/or other components not specifically approved by Scotsman.

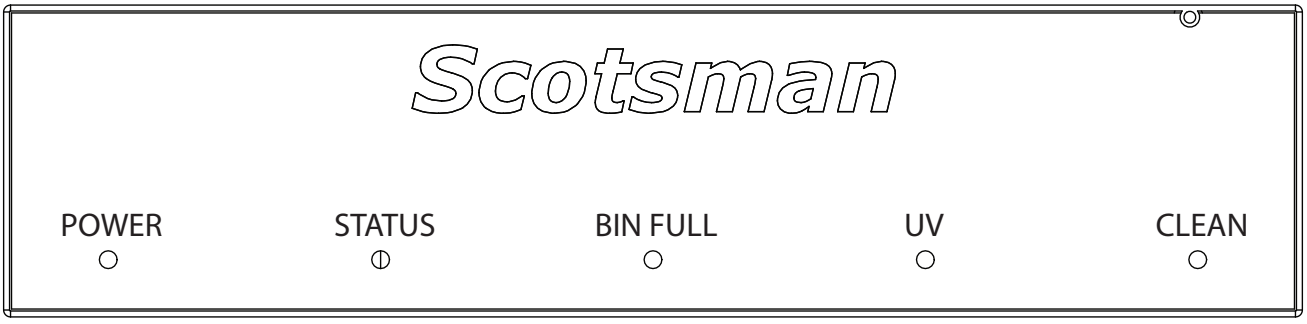
Scotsman reserves the right to make design changes and/or improvements at any time. Specifications and design are subject to change without notice.

HID207 Cabinet Drawing



HID207 Indicator Light Panel

The front of the HID207 includes an Indicator Light Panel that informs users of several important operational facts:



Power: When this light is ON, it indicates that there is power connected to the machine.

Status: This light glows green when the machine is making ice. It can glow red if a problem is sensed.

Bin Full: When this light is ON, the ice storage container or bin is full of ice and the machine is either no longer making ice or is in the process of stopping to make ice.

UV: The HID207 includes a Ultra Violet (UV) water sanitation system and indicator light. This indicator light lets the user know when the UV module is active. If the light is not glowing when water is being used, it may indicate a problem with the module.

Clean: The Clean light informs the user that the regular cleaning of this unit has not been completed.

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

Minimum clearances:

- 6 inches or 15 cm at each side
- 2 inches or 5 cm above, 10” or 25 cm more to allow auger removal when ceiling is fixed.
- 6 inches or 15 cm at the back.

Airflow Direction

Air flows air left to right. More space than the minimum at the sides will maximize performance.

The power outlet must be located within the length of the supplied power cord. If placed on a counter, the counter must be strong enough to support the weight of the unit. Space above the cabinet should be allowed for service and maintenance. If legs will be used, allow space for the total cabinet height.

Placement in a small room will require ventilation to exhaust the heat they produce. They also produce some added noise from the fan. Noise sensitive areas should consider locating the machine where the noise from ice making is not objectionable.

Nearby infrared emitters or a window that allows sunlight to shine on a dispensing sensor (only on model HID207AX) may cause the unit to dispense ice or water without a container to trigger it.

Cafeteria applications.

Note: Limited application due to small capacity.

The unit can be placed in a cafeteria line for ice and water. As some users sometimes dispense too much ice, high volume use may require the drip tray to be occasionally cleared of spilled ice.

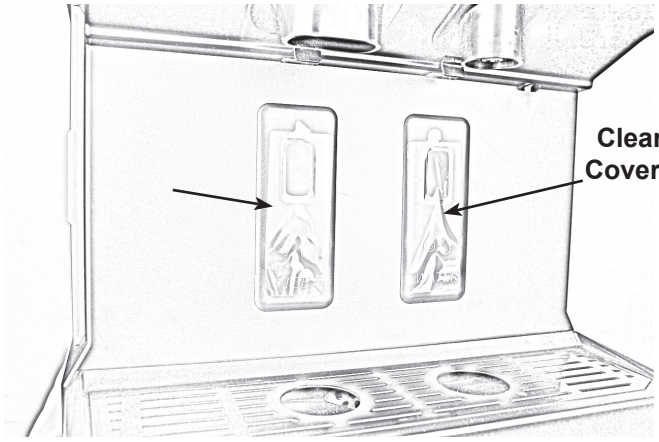
Caution

Care must be taken whenever moving or servicing the unit. The refrigerant is contained in a sealed system, but if released it may be flammable.

Uncrating

The unit is attached to a wooden skid by 3 interior hex head fasteners. Use a 7/32 inch hex wrench to unscrew them.

Remove clear protective covers from dispense sensors.



Model Information

Model	Voltage volts/Hz/phase	Dimensions (w” x d” x h”)	MCA	Condenser Type	Refrigerant (R290)	Dispense Trigger
HID207AX-1A	115/60/1	16.05 x 17.53 x 23.78	11.8	Forced air	3 Oz	Photo Eye
HID207ABX-1A	115/60/1	16.05 x 17.53 x 23.78	11.8	Forced air	3 Oz	Button

Units placed on a counter must either use legs or be sealed to the counter top with food grade sealant per local codes. To avoid disturbing the seal, complete the installation prior to sealing.

Note: Seal Chassis to Counter, do NOT Seal Drip Tray

Legs

4” legs are optional for countertop applications. (Part number:KLP24A). In order to securely fasten the legs, the rubber feet must be removed. Legs are not to be used on the HID dispenser when it is placed on a machine stand.

Note: Use only legs of 4” minimum height.

Set Up

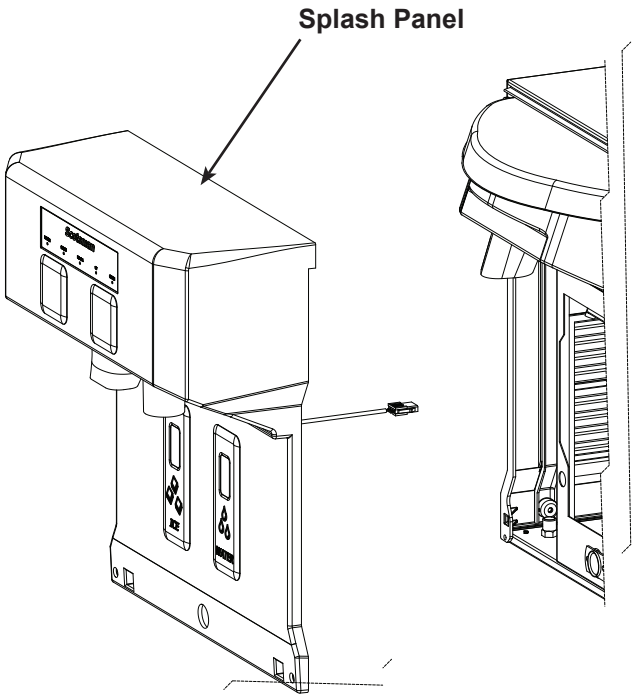
The drip tray and cup rest are shipped in place, but they can be easily removed. It is a good idea to remove the front panel and inspect for any loose or rubbing parts prior to installation.

Splash Panel Removal

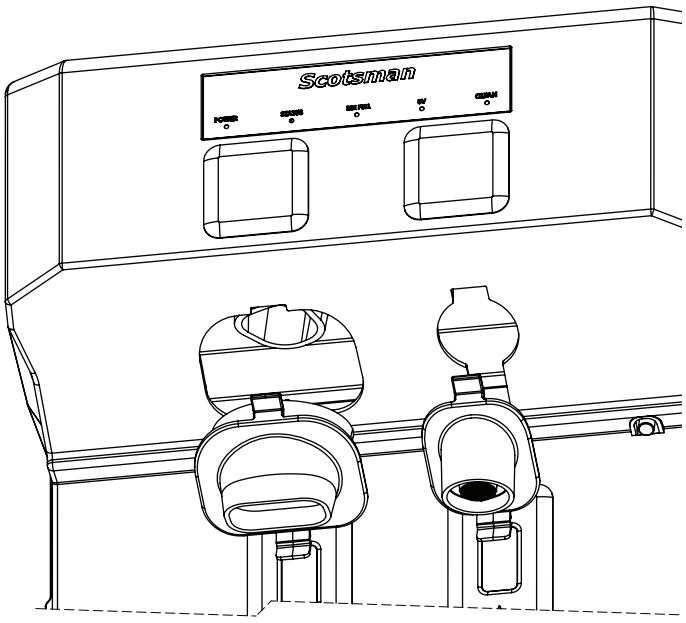
1. Pull outward on drip tray to release from unit.
2. Remove top panel.
3. Remove screws at back side of top and front of bottom of front panel.
4. Pull panel forward, unplug sensor or switch connectors. Disconnect the water hose by pushing down on the hose union fitting and pull the house out.
5. Lift splash panel off the unit.
6. Inspect for loose or rubbing parts. Correct as needed.
7. Return splash panel to its original position and secure the panel with its screws.
8. Return drip tray to its original position.

Pre-Start Inspection

1. Level the cabinet front to back and left to right.
2. Confirm there are no loose or rubbing parts.
3. Return splash panel and chutes to unit.



HID207AX Shown, HID207ABX Similar

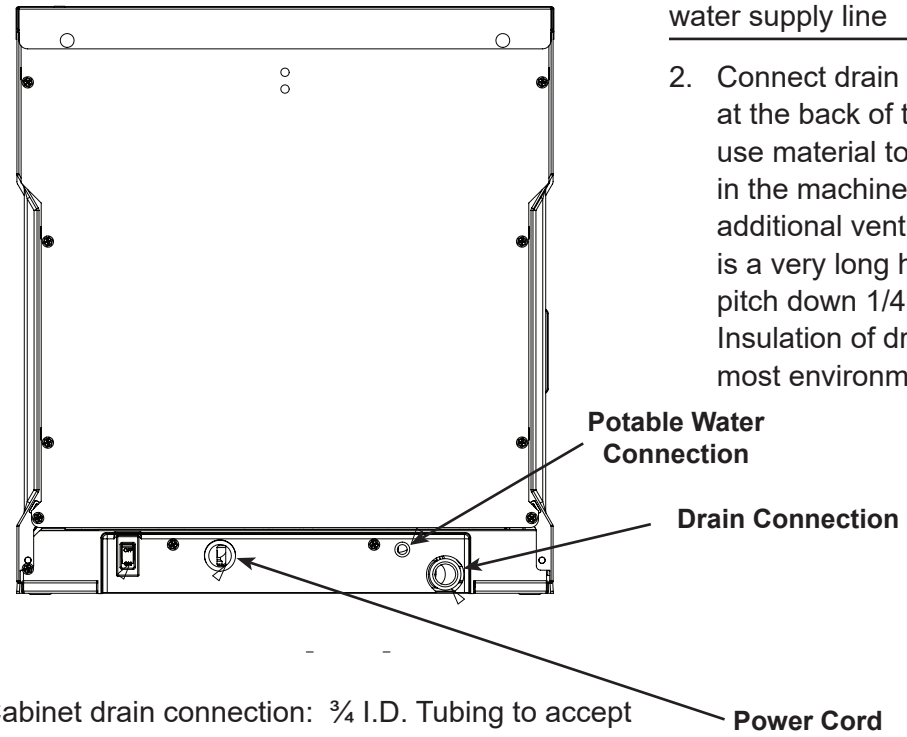


Installation should be done by an experienced ice machine installer. To locate one, call the number on the back of this manual or go to Scotsman's website www.scotsman-ice.com to identify a local distributor or service company.

The machine will require power, water and drain. Locate the water supply fitting on the lower back of the cabinet and obtain the correct fitting to connect the water supply.

Plumbing Connections:

- Potable water connection: Poly Tubing ¼ O.D. x 6 FT length



- Cabinet drain connection: ¾ I.D. Tubing to accept ¾ Barbed fitting, not included. We include 3/4 straight barbed fitting and a 90 barbed fitting. Use what best fits application

- **All models:**

1. Connect the potable water supply to the tubing at the bottom back of the unit. Water filters may be used but are not required. A hand shut off valve within sight of the machine is strongly recommended

Note that activated carbon or charcoal water filters are used for taste and odor problems but also take out any chlorine that the local water agency may have added for purification. That can require more frequent sanitization of the equipment.

Prior to hooking up water supply line, flush the line for 2 minutes in to drain or bucket; to flush debris out of water supply line

2. Connect drain tubing to the central drain fitting at the back of the cabinet. Use 3/4 inch tubing, use material to meet local codes. The drain basin in the machine will act as an internal vent, no additional vent should be required unless there is a very long horizontal run. Drain tubing must pitch down 1/4 inch per foot to the building drain. Insulation of drain tubing is recommended for most environments.

1. Plug the unit into a dedicated 15 amp outlet. The unit must be the only device on the circuit.
2. Confirm the outlet is properly grounded and is in good condition.

Note: Worn or loose connection outlets should be replaced as they can cause erratic operation of equipment.

Do not use an extension cord.

Do not cut off the ground plug on the power cord.

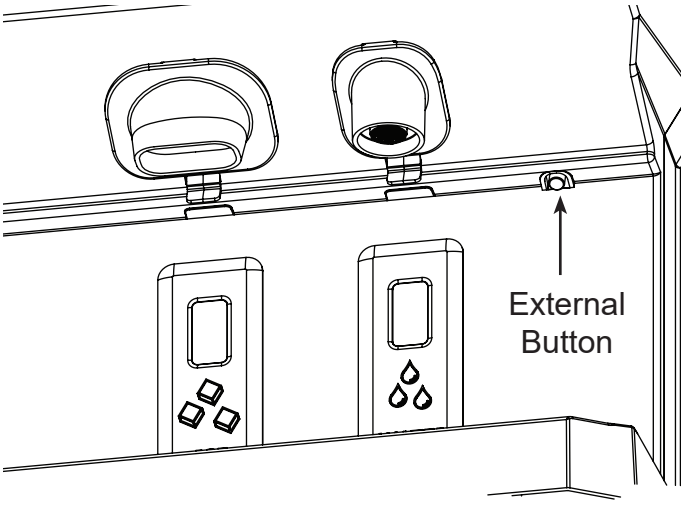
Ground fault outlets are not recommended. If ground fault is required a ground fault breaker should be used.

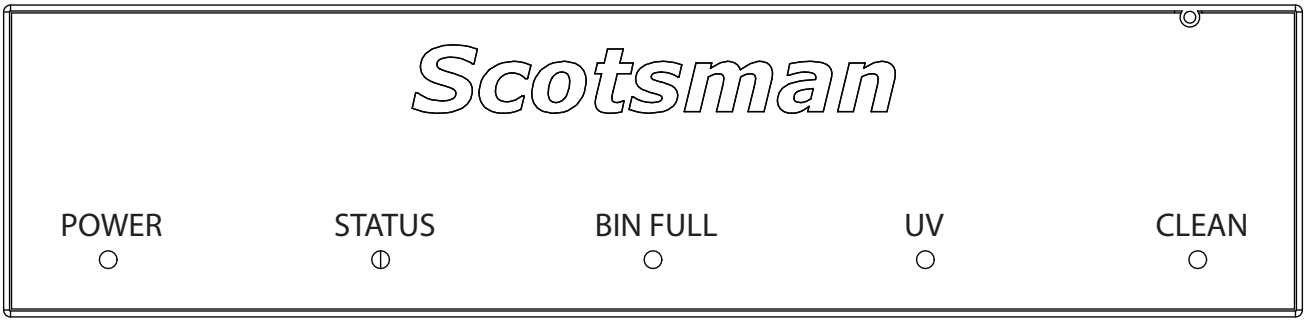
3. Use the services of a licensed electrician when needed and conform to local and national codes.
4. Position the unit in its final location.
5. Level the unit front to back and left to right.

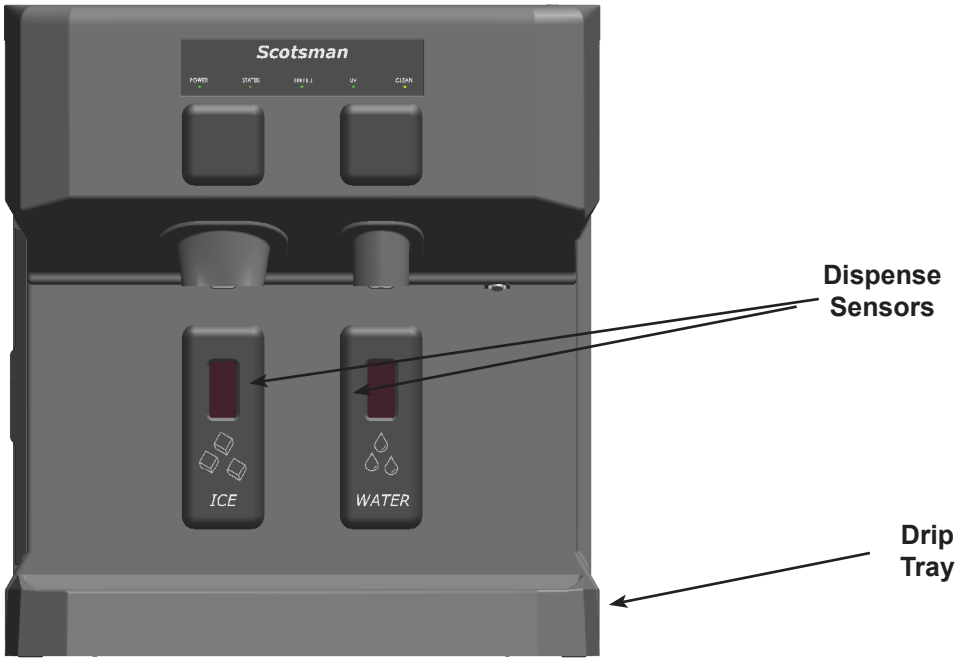
1. Remove panels: top and left side.
2. Turn water on, observe that water enters the water reservoir, fills and then shuts off. Check for leaks. Repair any leaks before going any further.
3. Plug in ice machine into it's own circuit; with no other appliances. On the Indicator Light Panel the Power light will show green.
4. Locate the External Button on the Splash Panel and hold down for 3 seconds. Then on the Indicator Light Panel, the Status light will show green and the ice making process will start. Warm air will blow out the right side.

Note: If the ice making process doesn't start, remove the right side panel, remove the Control Box cover and check for any errors being displayed. See page 15 for details.

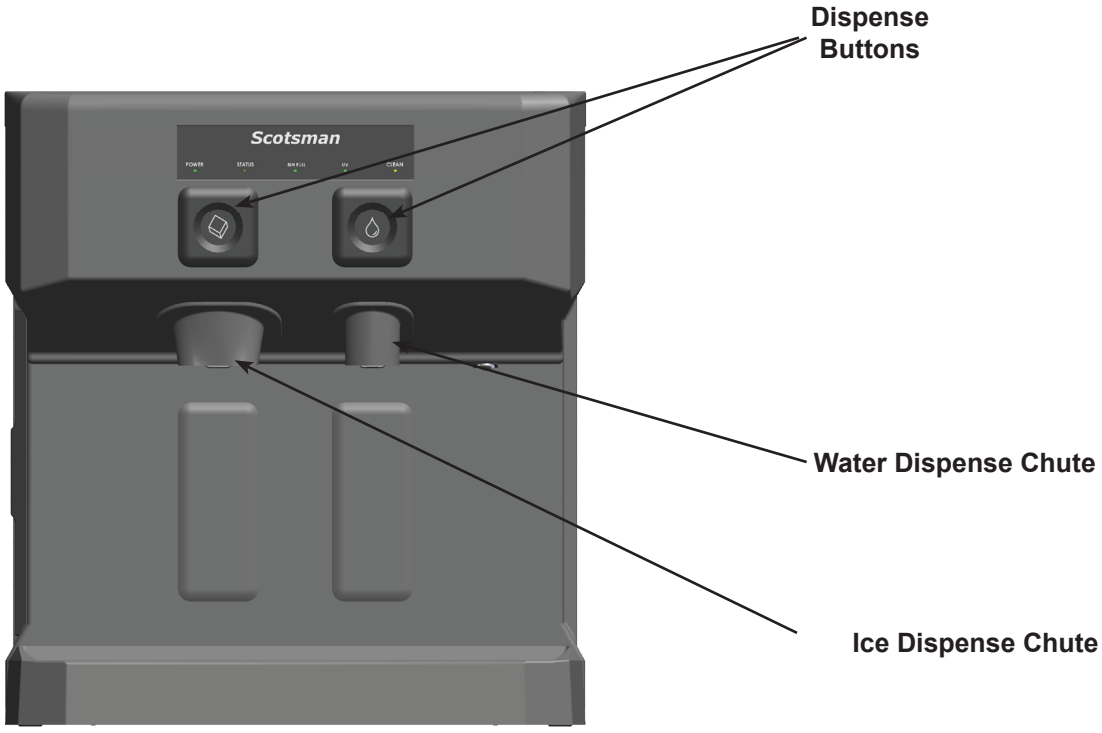
5. Within minutes ice will begin to fall into the dispensing bin. Check ice dispensing by holding a container in front of the Touch Free ice sensor (just below the ice delivery spout) or push the ice vend button on model HID207ABX. The ice will dispense and ice should flow from the spout when a container is present, and stop dispensing when the container is removed.
6. Check water dispensing by holding a container in front of the Touch Free water sensor or push the water dispense button on model HID207ABX. Water will flow when a container is present, or but when button is pushed, and stop when it is removed, or button let go.
7. Press and hold the External Button for 3 seconds to stop the ice making process.
8. Wait about a minute for the ice making process to finish, then unplug or disconnect electrical power.
9. Remove bin insulation and cover. Scoop out any ice in the bin and sanitize the interior of the ice storage bin by wiping it with a locally approved sanitizer or a mixture of 2 oz of locally approved sanitizer and 1.25 gal of 95-115 degrees water, allow to air dry.
10. Replace all covers and panels.
11. Reconnect electrical power.
12. Press and hold the External Button for 3 seconds to start the ice making process.
13. Give the owner/user the user manual, instruct him/her in the operation and maintenance requirements of the unit. Make sure they know who to call for service.
14. Have the customer 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) or scan the QR code behind Drip Tray.



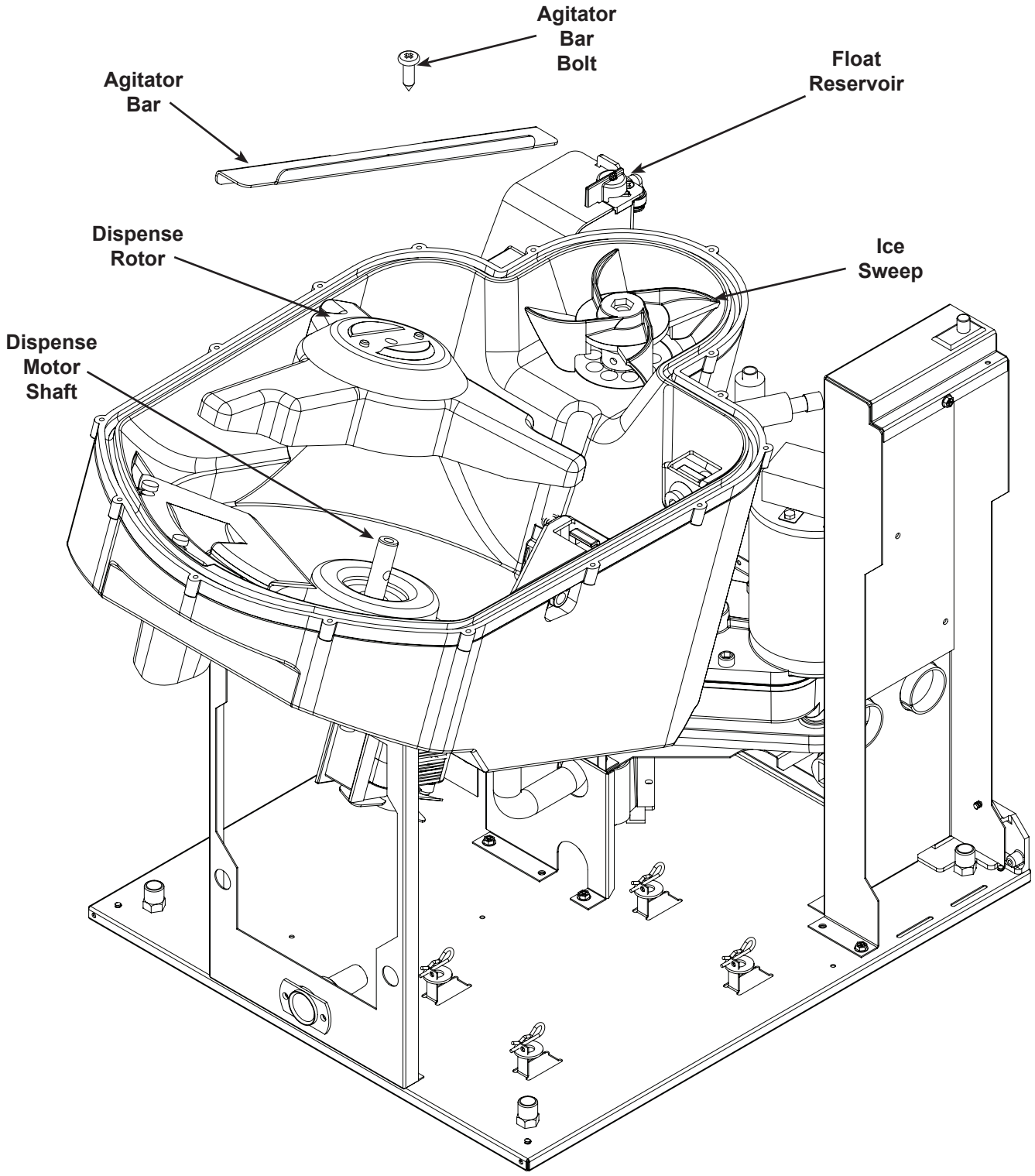




HID207AX-1A



HID207ABX-1A


Agitator
Bar
Bolt
Agitator
Bar
Float
Reservoir
Dispense
Rotor
Ice
Sweep
Dispense
Motor
Shaft

During ice making soft ice is compressed thru an excruter and then broken off into irregular lengths. It will not be clear and, because of melting, when dispensed it will not be uniform in size or shape.

Dispensing takes place when the Touch Free sensor's infrared beam bounces back to the sensor from a container placed directly in front of it or when the dispense button is pushed on model HID207ABX.

If the container is in front of the Touch Free sensor on the left side, the ice dispensing rotor will rotate and sweep ice over the ice dispensing chute. Ice will continue to discharge out this chute as long as the rotor is turning. It stops when the rotor stops.

If the user does not remove the container, ice will be dispensed for 24 seconds and then stop.

If the container is in front of the Touch Free sensor on the right side, the inlet water valve will open and water will flow into the container.

If the user does not remove the container water will be dispensed for 20 seconds and then stop.

Note: Water may dispense cloudy and then clear up in the glass. That is normal due to air in the water and is not an indicator of any malfunction.

Other notes:

- An occasional drip may be seen from the ice dispense chute. This is normal and is from ice melting inside the chute. A continuous stream of water from the ice chute indicates a restricted bin drain.
- For touch free models: Clear containers (glass or plastic) may not always activate the dispense sensors. Retry with an opaque container.
- For push button models: Wet fingers and temporarily cause erratic button operation: which includes temporary continuous dispensing.
- The drip tray is not a sink and cannot tolerate garbage. Coffee and soda should not be discarded into it. Debris like stirring straws that are discarded into the drip tray will likely cause a drain back up and need to be removed as soon as they are found.
- Both dispensing and ice making are disabled when the unit is switched off at the controller.
- Dispensed water is not cooled.
- All models: A chute light is illuminated when ice or water dispense is activated.

Splash panel wipe-off

Wiping the splash panel could result in unintended dispensing. To avoid that, a disable button has been provided. It is recessed into the bottom of the chute panel. Push and release it to disable dispensing for 60 seconds.

Available Ice

The user can expect that, when the bin full light is on, about 7 pounds of ice is available for dispensing.

Noise

This is a commercial ice machine. It contains a powerful compressor, heavy duty gear reducer and a fan that moves a lot of air. 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.

All models use the same control system.

The electronic controller operates the compressor (with fan motor), auger drive motor, dispense drive motor and inlet water solenoid valve. It monitors:

- Reservoir water availability
- Storage bin ice level
- Auger amps
- Call for ice dispense
- Call for water dispense
- Dispense enable / disable
- Any installed control options

Many of these are used to insure that the machine does not damage itself during use. For example, it is critical that it not attempt to make ice without water, so if the water sensor is dry, the machine will not make ice.

Switches - there are four switches:

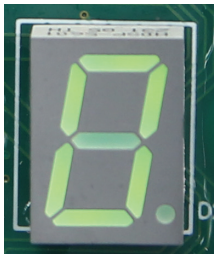
- **Dispense water** - to test water dispensing
- **Dispense ice** - to test ice dispensing
- **On/Off** - to switch the machine on or off. Holding it in to shut off will stop ice making immediately.
- **Clean** - to engage the clean mode
- **External Button**- Press and release will disable touch free sensor for 2 minutes, if equipped
  - » Press and hold for 3 seconds will turn unit off/ on. If turning off, the auger will continue to run for a minute
  - » Press and hold for 6 seconds unit will immediately shut off without auger delay

Indicators - there are nine LEDs:

- **Power** - Glows when controller has power
- **Status** - Glows green when in ice making mode.
- **Time to Clean** - Glows when it is time to clean the machine
- **Water Dispense Sensed** - glows when the water dispense sensor has been triggered*
- **Ice Dispensed Sensed** - glows when the ice dispense sensor has been triggered*
- **Water Dispense** - glows when the inlet water solenoid valve has been powered*
- **Water Dispense Sensed** - glows when the water dispense sensor has been triggered*
- **Ice Dispensed Sensed** - glows when the ice dispense sensor has been triggered*
- **Ice Dispense** - glows when the ice dispense motor has been powered*
- **Auger** - glows when the auger motor is on
- **Compressor** - glows when the compressor is on

* If blinking the water or ice dispensing time limit has been met.

There is also a code display, the codes are:



- 0 - - - for off
- F - - - for ice making
- b - - - for bin full
- E - - - for controller error
- C - - - for clean mode
- d - - - for test mode
- 2 - - - for high auger motor amps
- 3 - - - for no water sensed

If a number code is triggered, the controller will stop ice making. A blinking code means it is a temporary condition. Example: A blinking F occurs during the ice making restart process; it stops blinking when the compressor starts.

The controller will automatically restart from a water interruption or power interruption or when a refrigerant pressure switch has automatically reset.

To reset the control when it has been manually locked out, Push and release the On/Off button to shut it Off and then Push and release it again to switch it On.

Note: The compressor will not restart for 2 minutes from the time it was shut off.

There are five areas of maintenance:

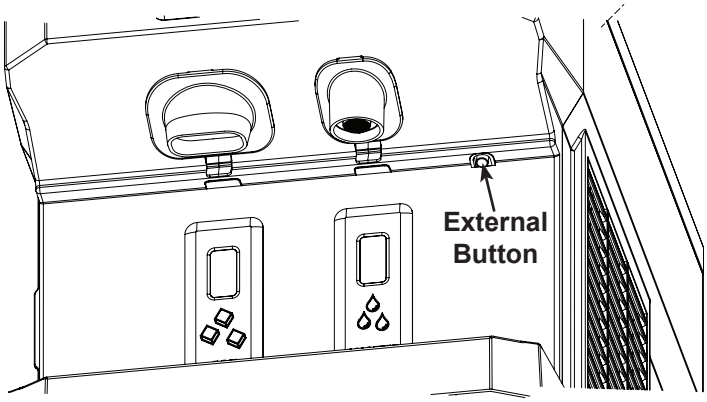
1. Drip tray, chutes and drain system
2. Air cooled condenser filter and condenser
3. Ice dispense bin and rotor
4. Photo eye ice level control
5. Ice making water system

Drip Tray

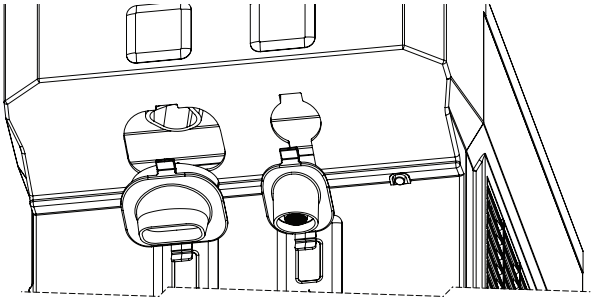
It is important to keep the drip tray clean of trash. Remove any as soon as it is noticed. Pour hot water into the tray on a regular basis to keep the drain open.

Over time the drip tray and cup rest may become coated with scale or dirt. It can be removed to be scrubbed at a wash sink.

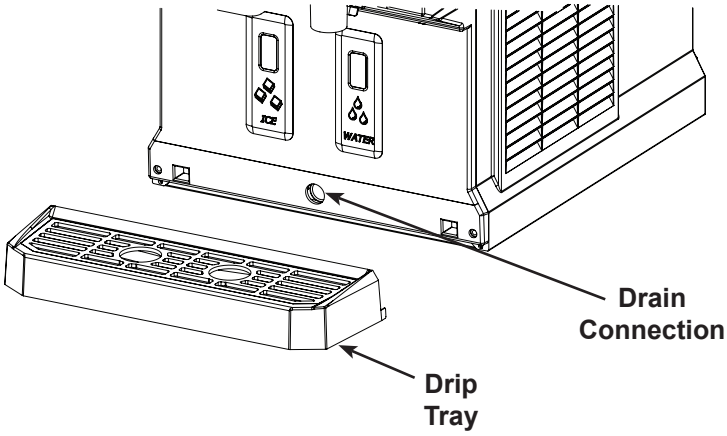
1. Press and hold External Button for 3 seconds to stop ice making process.



2. Un-snap dispense chutes and pull down to remove. Disconnect the water hose by pushing down on the hose union fitting and pull the house out.



3. Pull the drip tray forward to disconnect it from the drain.
4. Plug the drain fitting with a cloth to keep it from leaking while the drip tray is being cleaned.



5. Wash out the drip tray strainer, and dispense chutes. Use ice machine scale remover if needed to dissolve scale.
6. Reverse to reassemble. Be sure drip tray is pushed back fully into place; along with strainer and cup rest. Insert chutes until they snap into place.
7. Press and hold the External Button switch for 3 seconds to restart ice making process.

Note for External Button:

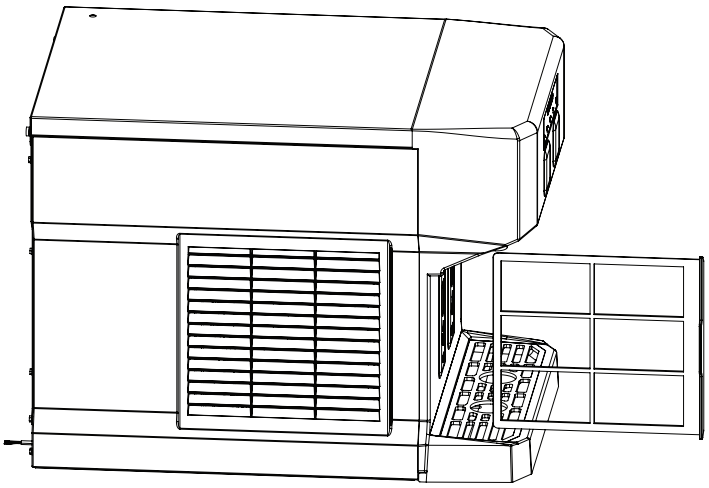
- Press and release will automatically stop vending and cease sensors, iff applicable.
- Press and hold for 3 seconds will turn on or off; allowing the auger a moment to finish the cycle.
- Press and hold for 6 seconds will immediately shut off the ice machine.

Air filter

The air filter on the left side of the cabinet will capture significant dust and lint during operation. As the dirt builds up it begins to restrict air flow and causes the refrigeration system to work longer to make ice. Clean the air filter regularly.

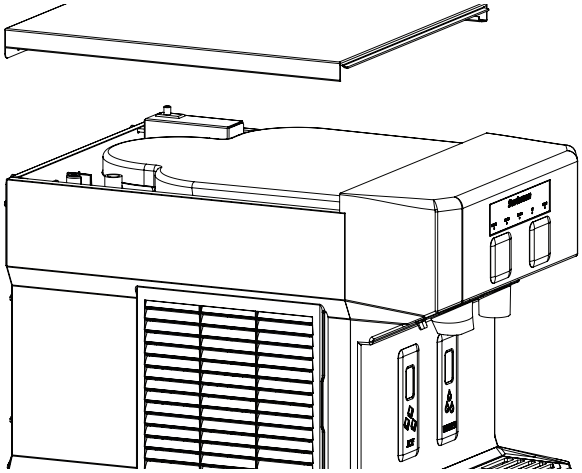
To remove, pull it forward from the louvers. Do not leave it out for extended periods of time.

To clean, wash it at a utility sink. Return it to the unit when clean.

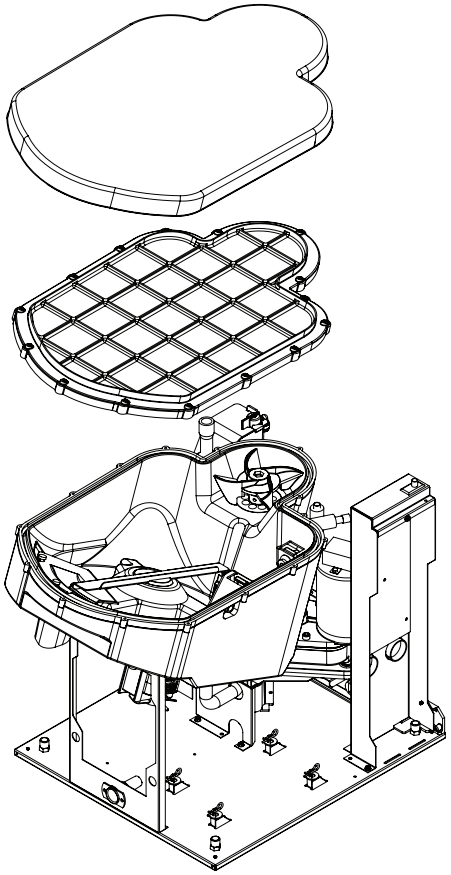


Condenser.

The condenser fins may need cleaning too. Remove the left side panel and brush any lint and dirt off the surface of the condenser. Vacuum any remaining dirt. Do not damage the fins of the condenser during cleaning.



Remove Top Panel



Remove Bin Cover

The ice storage bin and rotor must be cleaned and sanitized on a regular basis, at a minimum when the ice making system is cleaned. Hand tools and hand protection like rubber gloves are recommended for this procedure.

Note: Some steps overlap with the procedure on the next page. This procedure can be independent of the ice making system cleaning or can be part of it.

Bin Cleaning Procedure

1. Vend or melt out all ice.
2. Unplug from electrical power.
3. Remove top panel.
4. Remove splash panel.

⚠CAUTION

Moving parts hazard.

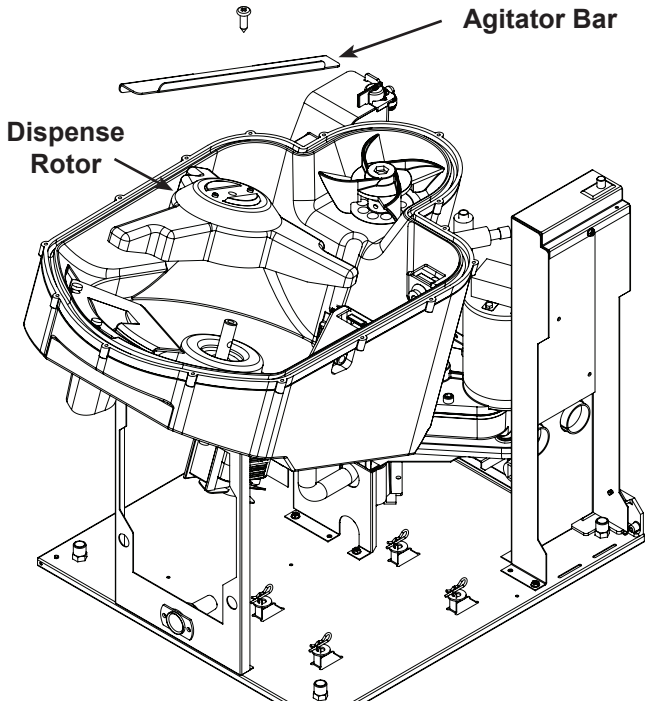
Risk of personal injury.

Disconnect electrical power before proceeding.

5. Disconnect ice level control at harness.
6. Remove phillips head screws holding ice storage bin cover to ice storage bin, set aside.
7. Remove ice storage bin cover, set aside.
8. Remove bolt securing agitator bar and agitator bar, set aside.
9. Lift up and remove dispense rotor, set aside.

Note: Slowly add only 16 oz or 1/2 liter water to the bin at a time, as excess water will drain out the spout.

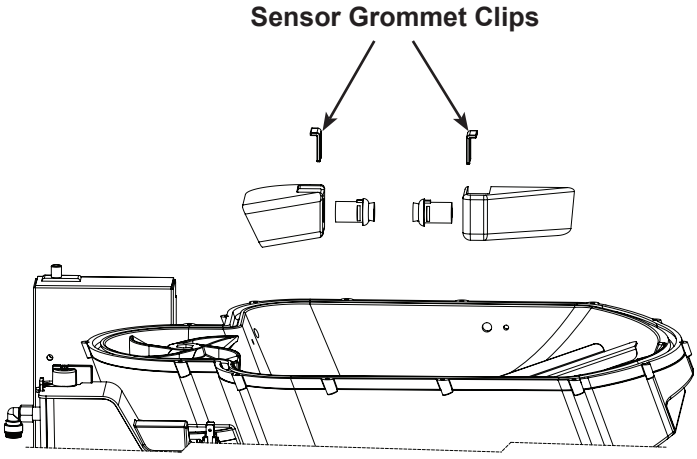
10. Mix a solution of ice machine scale remover, such as Scotsman Clear 1 and potable water per the directions supplied with the scale remover.
11. Use a clean cloth and wash all the interior surfaces of the bin and the bin cover, agitator bar, chute cover and dispense rotor with the ice machine scale remover solution. Rinse with clear water.

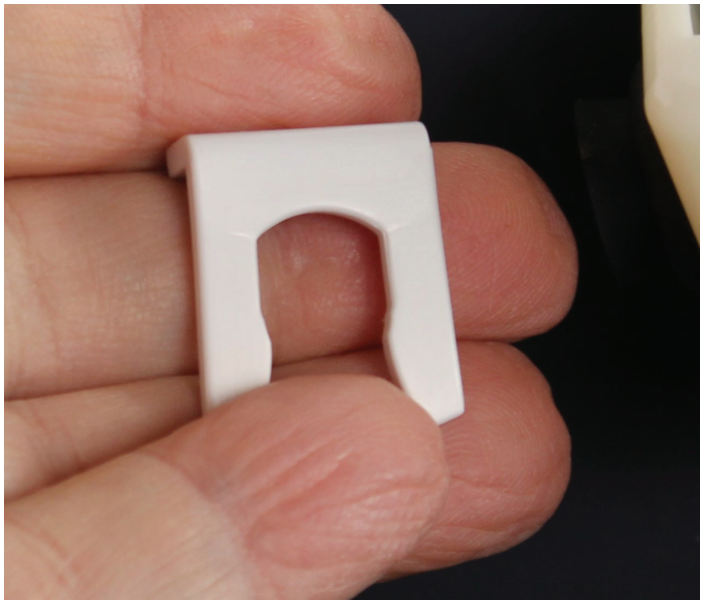


12. Mix a 2 gallon or 7.5 liter solution of locally approved sanitizer. A possible sanitizer solution could be a mixture of 4 oz/118ml of locally approved sanitizer and 2.5 gallons of warm (90^0F/32^0C to 110^0F/43^0C) potable water.
13. Use a new clean cloth and wash all the interior surfaces of the bin and the bin cover, agitator bar, and dispense rotor with the sanitizer solution.
14. See page 22 to continue with cleaning steps.

Clean if the controller indicates bin full and there is no ice between the sensors.

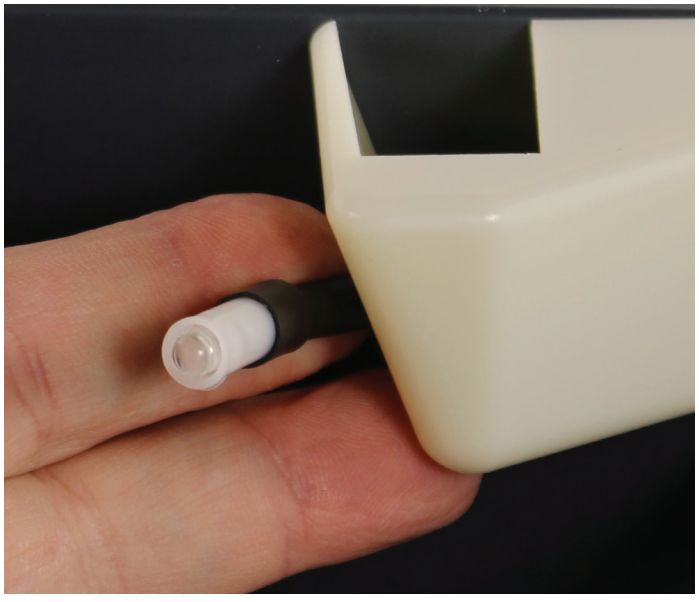
1. Shut machine off.
2. Remove top panel.
3. Remove splash panel.
4. Disconnect ice level controls at connector.
5. Remove 15 phillips head screws and ice storage bin cover.
6. Pull each sensor grommet clip up and off. See detail.





Detail of Grommet Clip

7. Push grommets out of bin top.
8. Pull each sensor out of its rubber grommet. Pull on the part closest to the grommet, not the wire. See Detail.
9. Wipe the sensor lenses clean with a soft, clean cloth. Caution - do not scratch the lens. If there is mineral scale on the lens, ice machine scale remover will be needed to wipe them clean.
10. Return each sensor to a grommet, push it in until it snaps into place.
11. Reverse the rest of the steps to reassemble.



Detail of Lens

Maintenance and Cleaning - Dispensing Bin Components

The ice storage bin and rotor must be cleaned and sanitized on a regular basis, at a minimum when the ice making system is cleaned. Hand tools and hand protection like rubber gloves are recommended for this procedure.

Note: Some steps overlap with the procedure on the next page. This procedure can be independent of the ice making system cleaning or can be part of it.

Bin Cleaning Procedure

1. Vend or melt out all ice.

2. Unplug from electrical power.

3. Remove top panel

4. Remove splash panel.

5. Disconnect ice level controls at harness.

6. Remove phillips head screws holding ice storage bin cover to ice storage bin, set aside.

7. Remove ice storage bin cover, set aside.

8. Remove bolt securing agitator bar and agitator bar, set aside.

9. Lift up and remove dispense rotor, set aside.

Note: Slowly add only 16 oz or 1/2 liter water to the bin at a time, as excess water will drain out the spout.

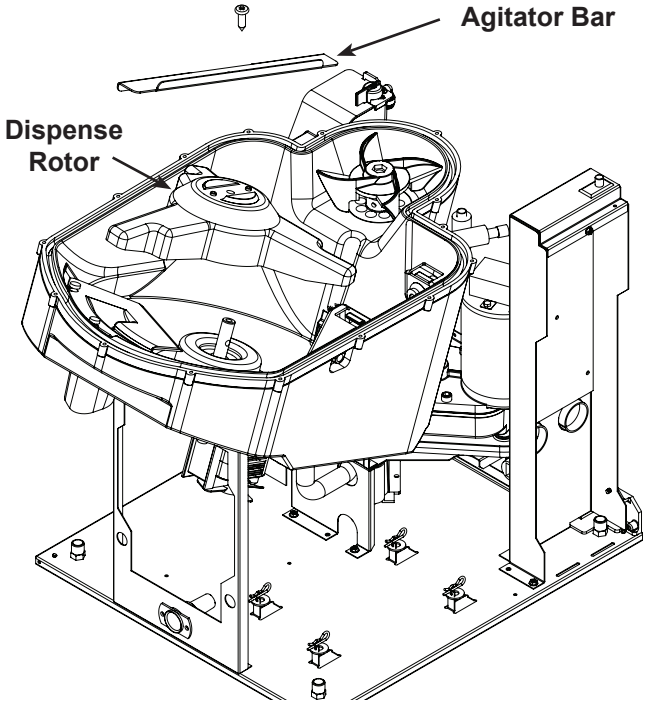
10. Mix a solution of ice machine scale remover, such as Scotsman Clear 1 and potable water per the directions supplied with the scale remover.

11. Use a clean cloth and wash all the interior surfaces of the bin and the bin cover, agitator bar, chute cover and dispense rotor with the ice machine scale remover solution. Rinse with clear water.

12. Mix a 2 gallon or 7.5 liter solution of locally approved sanitizer. A possible sanitizer solution could be a mixture of 4 oz/118ml of locally approved sanitizer and 2.5 gallons of warm (90^0F/32^0C to 110^0F/43^0C) potable water.

13. Use a new clean cloth and wash all the interior surfaces of the bin and the bin cover, agitator bar, and dispense rotor with the sanitizer solution.

14. See next page to continue with cleaning steps.



Ice Making and Ice Dispensing System Cleaning Instructions

Hand tools, cleaning supplies and hand protection are recommended for this procedure.

Frequency: Recommended minimum time between cleanings is 6 months. To aid in determining if the machine has not been cleaned in 6 months, a Time To Clean light will glow after 6 months of power up time. Cleaning the machine with the following process will reset that light and the timer that controls it. More frequent cleanings may be required based on the mineral content of the water, run time and potential airborne contamination.

1. Remove the top panel for reservoir access.

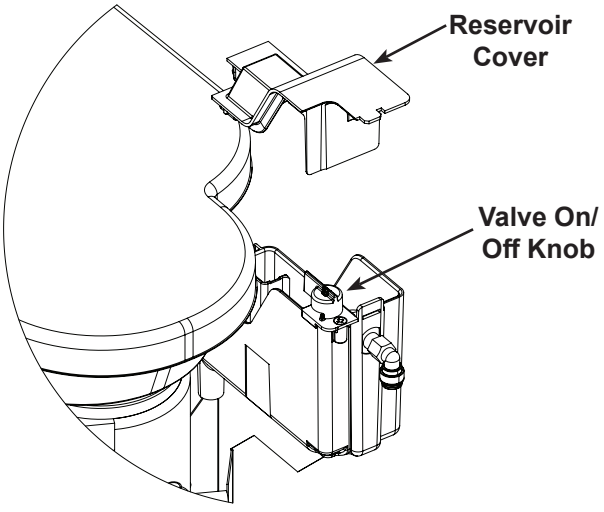
Note: If the unit must be pulled out to remove the panel and access the water reservoir, be sure that the water supply, drain and power remain connected

2. Dispense and discard all of the ice.

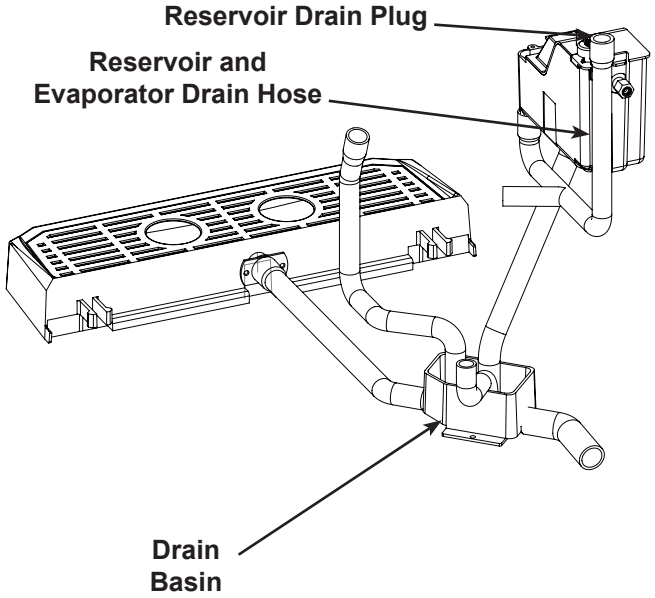
Note: If ice is not removed, or eyes are blocked, the machine will not shut off while in Clean mode.

3. Remove all panels for control access.
4. Remove control box cover.
5. Press and hold the Off button until the machine shuts off.
6. Locate float valve on/off knob. Rotate to shut water supply OFF.
7. Push tab on front edge of reservoir cover and remove the cover.

Note: Adjacent wires are low voltage and are not hazardous.



8. Locate reservoir drain and pull its drain plug out to drain the reservoir and evaporator. When draining is complete, return the plug to its original position.



9. Mix a solution of Clear 1 scale remover with water: 2.5 ounces of Clear 1 with 1 quart (32 oz) of warm (90^0F/32^0C to 110^0F/43^0C) potable water.

⚠CAUTION

Scotsman Ice Machine Cleaner contains acids. These compounds may cause burns.
If swallowed, DO NOT induce vomiting. Give large amounts of water or milk. Call Physician immediately. In case of external contact, flush with water.
KEEP OUT OF THE REACH OF CHILDREN

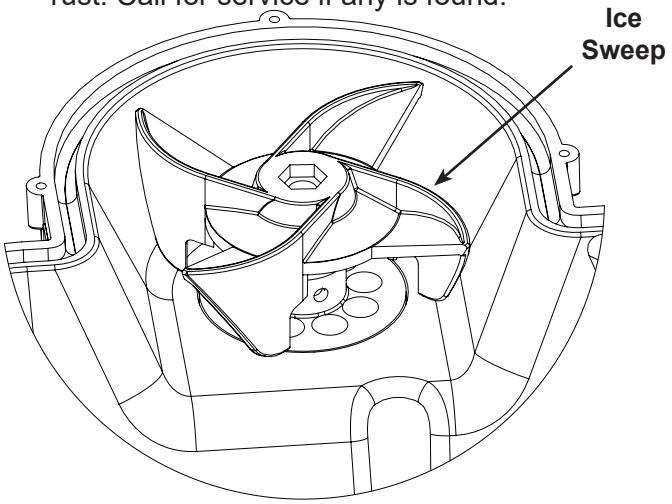
Note: Take care not to spill any scale remover on any nearby surface. Immediately wipe any spill with baking soda and water.

10. Fill the reservoir with the scale remover solution. That will be about 8 ounces.
11. Remove bin cover insulation, unscrew the screws securing the dispense bin cover and remove the cover.

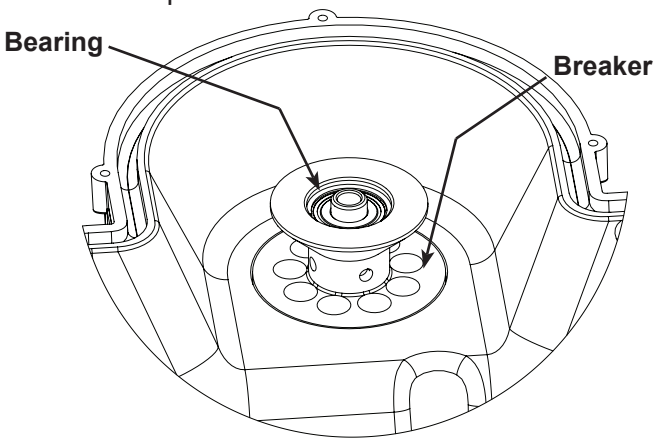
Ice Making and Ice Dispensing System Cleaning Instructions Cont'd

12. Unscrew (rotate CCW) and remove the ice sweep.

13. This is a greaseless bearing. Black oxidation may be present which is normal; check for any and wipe way. Inspect the bearing seal for wear and rust. Call for service if any is found.



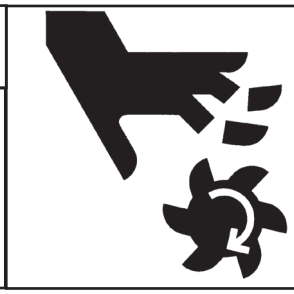
14. Wash the ice sweep and lower part of the breaker with the scale remover solution. Remove as much scale as possible.



⚠CAUTION

Moving parts hazard.

Risk of personal injury.



Caution: Be SURE no scale remover contacts the bearing.

15. Return the ice sweep to its original position.

16. Press and release the Clean button. The Time to Clean light will blink on and off.

17. After 40 minutes (20 of no ice making and 20 making ice) the ice machine and all the control panel lights will shut off.

18. After ice making starts, continuously add scale remover solution to the reservoir to keep it about half full.

19. When all remaining solution is used, rotate the float valve knob to the ON position. Ice will continue to be made.

20. Rotate float valve lever to Off and pull the drain plug again to drain the system, then replace it.

21. Pour a gallon of hot (95°F. – 115°F.) water into the ice storage bin to flush out the drain and melt all ice that was made during the cleaning process. Be sure all ice is melted.

Note: Only add 16 oz or 1/2 liter water to the bin at a time, as excess water will drain out the spout.

22. Rotate float valve knob to the ON position.

23. Push and release the On button to restart ice making.

24. Operate the machine for 15 minutes and then pour water onto the ice in the bin until it has all been melted.

Note: Only add 16 oz or 1/2 liter water to the bin at a time, as excess water will drain out the spout.

25. Rotate the float valve knob to the off position.

26. Locate reservoir drain and pull its drain plug out to drain the reservoir and evaporator. When draining is complete, return the plug to its original position.

27. Rotate the float valve to the ON position and allow the reservoir to fill up with water. Cleaning out any traces left of scale remover.

28. Once the reservoir is full, rotate the float valve to the off position and pull its drain plug out to drain the reservoir and evaporator. When draining is complete, return the plug to its original position.

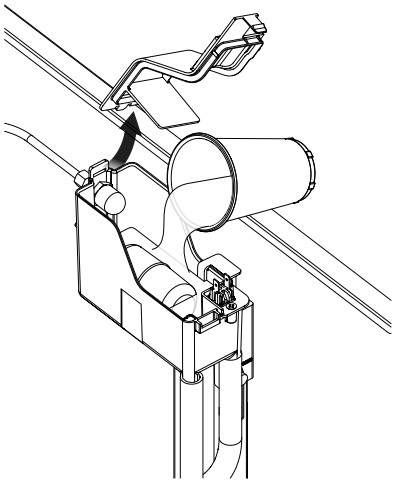
29. To continue, see the Sanitizing section for next steps.

Perform after scale removal to complete the Water System Cleaning process.

1. Create a solution of sanitizer.

Note: If the unit must be pulled out to remove the panel and access the water reservoir, be sure that the water supply, drain and power remain connected

2.]Mix 4 oz/118ml of locally approved sanitizer and 2.5 gal/9.5L of (90^0F/32^0C to 110^0F/43^0C) potable water to create a 200 ppm solution.
3. If not already turned off, rotate the reservoir's water shut off knob to shut the water supply OFF. If water reservoir cover has been placed on reservoir, remove it.
4. Pour the sanitizing solution into the reservoir until it is full to but not over the overflow point (about 8 oz) and wait 2 minutes.
5. Press the On button to turn the ice machine ON.
6. Operate the machine for at least 15 minutes, adding sanitizer to the reservoir as needed to keep it at least half full, and then push and release the Off button to shut it OFF.



7. If not yet removed, remove bin cover insulation, unscrew the screws securing the dispense bin cover and remove the cover.
8. Remove the ice sweep.
9. Wash the reservoir cover, ice sweep, breaker and the inside of the ice chute with the sanitizer solution.

Caution: Do not allow sanitizer to contact the bearing.

⚠CAUTION

Moving parts hazard.

Risk of personal injury.

10. Return the ice sweep and reservoir cover to their normal positions.
11. Drain the solution from the system by pulling the reservoir's drain plug.
12. Return plug when drained.
13. Rinse bin liner with clean water. Be sure all ice has been melted.

Note: Only add 16 oz or 1/2 liter water to the bin at a time, as excess water will drain out the spout.

14. Remove agitator bar and dispense rotor.
15. Remove ice and water dispense chutes.
16. Thoroughly wash dispense reservoir, reservoir cover, chutes agitator bar, dispense rotor and all bin interior surface areas including bin cover and any other areas that may contact the ice with the sanitizer solution.
17. Rinse with clean water.
18. Return dispense chutes, agitator bar and dispense rotor to their original positions.
19. Rotate water shut off knob to turn the water supply ON.
20. Push and release the On button to restart ice making.
21. Return the dispense bin cover to the machine and secure with the original screws, being careful not to overtighten them.
22. Return all panels to their normal positions and secure with the original screws.

The auger in the ice making system is centered by bearings at the top and bottom. It is also sealed from leaking by a water seal at the bottom.

The bearings are permanently lubricated and need no maintenance. The can be visually checked for obvious wear or damage but there is no need to add lubrication.

Auger motor bearings and the gear reducer are also permanently lubricated and need no maintenance.

The bottom of the ice making system should be checked for water leaks. Water draining from the bottom is an indication of a water seal leak. Immediate repair is required when a water seal leak is discovered.

Inspecting these components should take place a minimum of every 6 months. The ideal time is when the machine is being cleaned.

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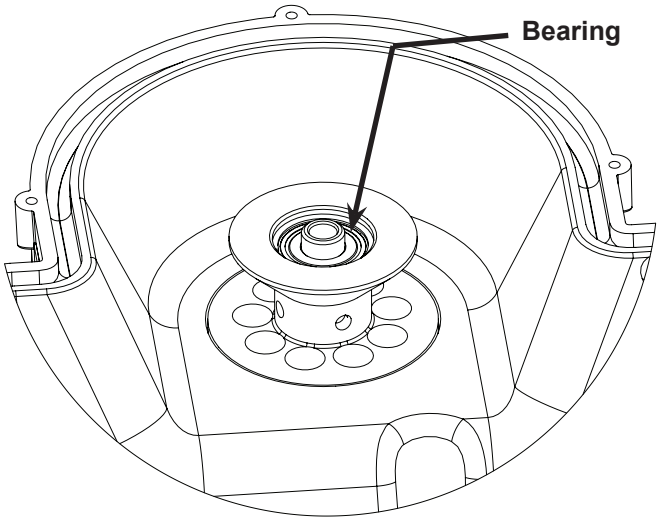
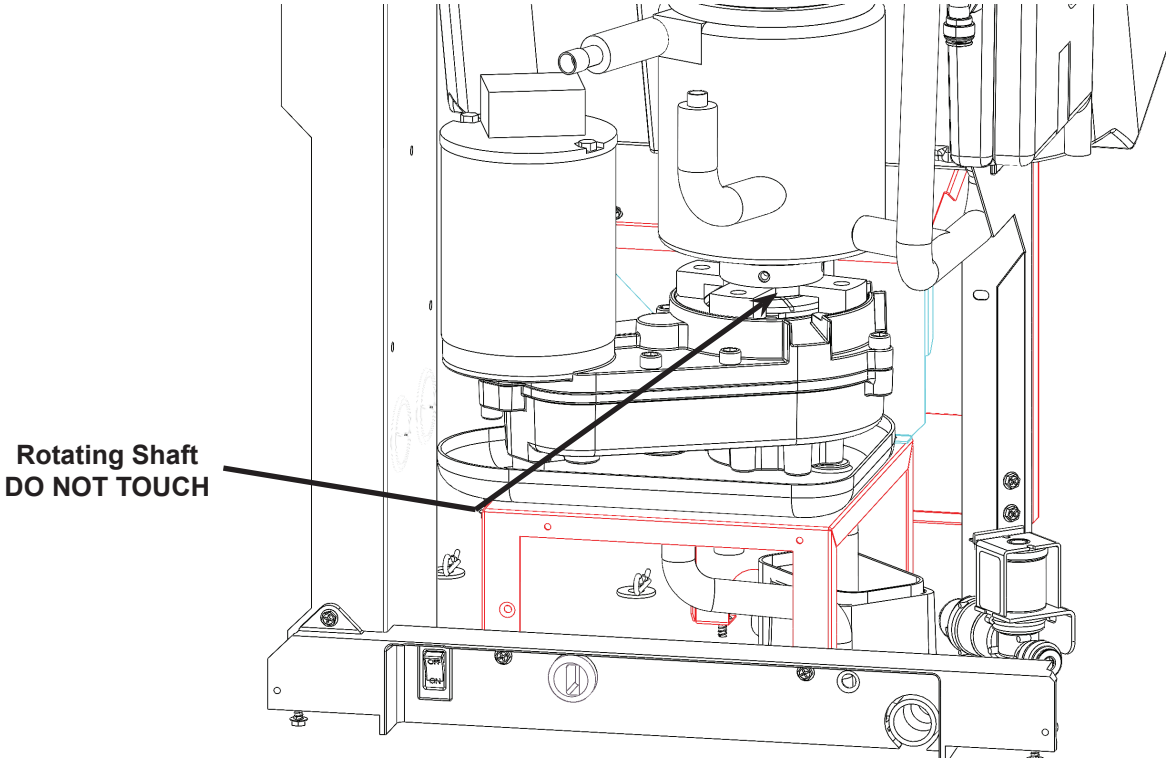


⚠CAUTION

Moving parts hazard.

Risk of personal injury.

Do NOT touch the rotating shaft at any time.



UV Device

The UV or ultraviolet device is an electrically powered (line voltage) module that the water to make ice or be dispensed flows through.

The UV indicator light on the splash panel will glow green when water is flowing thru the UV device, either from water dispensing or from ice making.

Decommissioning

Only use a qualified technician who is familiar with R290 refrigerant for decommissioning as special tools and containers are required for removal, transportation, and disposal of highly flammable propane.

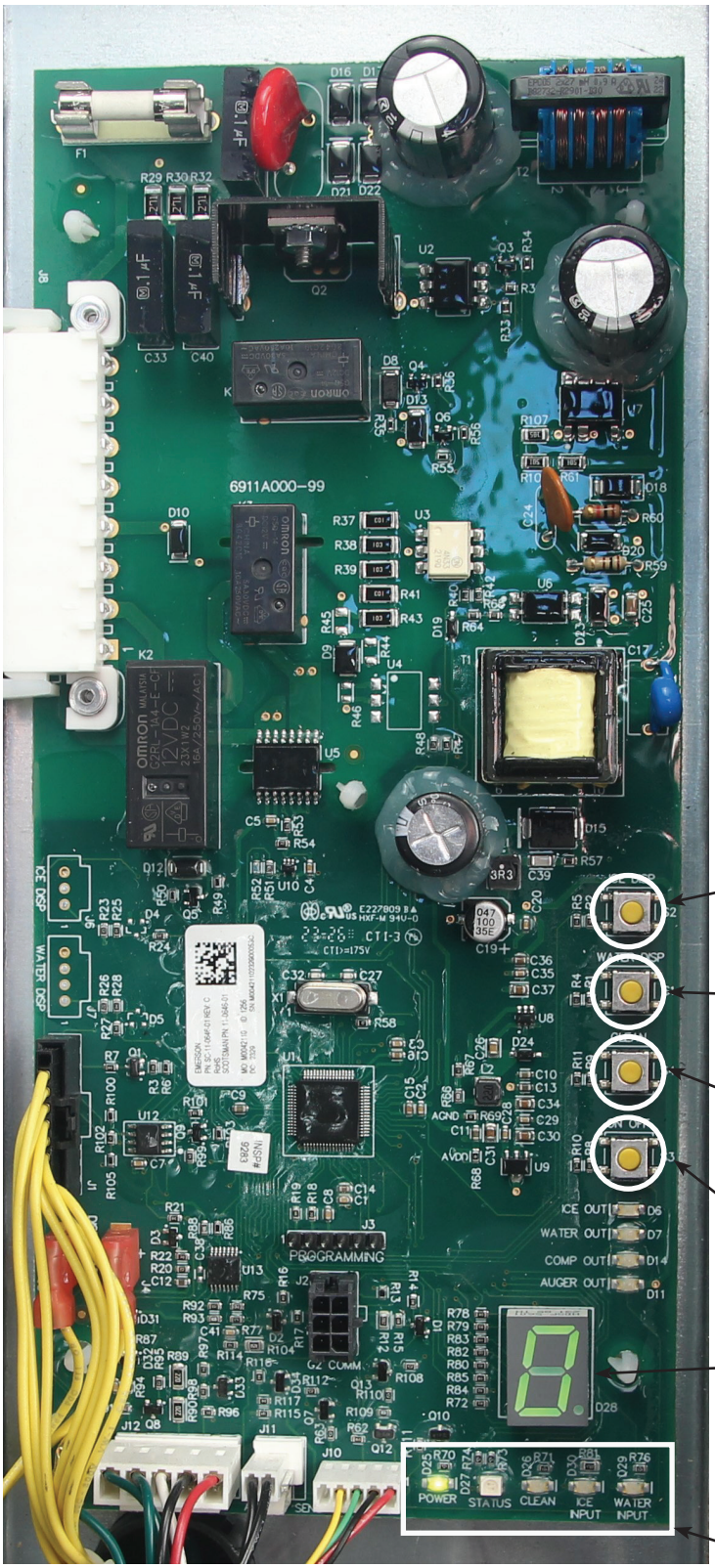
Utilize good operating practices to maintain safety are advised and follow local, state, and federal guidelines for proper disposal.

- Before attempting the procedure ensure that all necessary tools and mechanical equipment are available.
- All protective gear is to be used the whole time and have recovery equipment and cylinders readily available.
- All containers used for recovery must have proper labels showing they can be used for R290 refrigerant.
- Before starting refrigerant recovery, place refrigerants on scales. Do not over fill containers more than 80% of volume and do not exceed working pressure of container.
- Before using recovery machine, make sure it is in satisfactory working order and that electrical components are properly sealed to prevent any type of ignition.
- Recovered refrigerant shall not be charged into another refrigerating system or mixed to another container.
- When moving refrigerant from a system use good practice; that all refrigerants are removed safely.
- All recovered refrigerant must be returned to refrigerant supplier for proper disposal.
- If compressor or compressor oils are removed ensure it has been removed to an acceptable level so the flammable refrigerant does not remain in the lubricant.

Symptom	Possible Cause	Probable Correction
No ice is dispensed	No ice in bin	Unit in Off mode, push Dispense Disable Switch to restart.
		No water to unit. Restore water supply.
		No power to unit, power light is off. Restore power.
		Ice level control sensing full bin falsely. Bin full light on, but bin is not full. Clean ice level control sensors.
	Dispense motor not turning	Remove top and right panels. Remove control box cover. Check controller indicator lights. Hold container in front of sensor, does the Ice Dispense Sensed light glow? If no, sensor is not detecting the container. If yes, does the Ice Dispense light glow? If yes, push Dispense Ice button. Does the motor activate? If yes, go to next row. If no, check for voltage at motor. If no voltage, replace controller. If voltage at motor, replace motor.
	Dispense motor working, but ice in bin not moving	Agitator or rotor not turning, remove all ice and inspect for damage to agitator and rotor.
No water is dispensed	No water to unit.	Restore water.
	Water valve not opening	Remove top and right panels. Remove control box cover. Hold container in front of sensor, does the Water Dispense Sensed light glow? If no, sensor is not detecting the container. If yes, does the Water Dispense light glow? If yes, push Dispense Water button. Does the water valve activate? If no, check for voltage at valve. If no voltage, replace controller. If voltage at valve, replace valve.
Water drips from spout	May be normal	A few drops per minute is normal.
	Bin drain may be plugged.	Check bin drain tube at basin.
Dispensed water is cloudy, but clears up in a few minutes	Air in the water	This is normal and can vary depending upon how much air is in the water. May be improved by lowering water pressure to the unit.
Water leak near front	Drip tray not in position	Confirm drip tray is pushed all the way back and touching the base.
Water filling drip tray	Main drain plugged	Remove the cup holder and check the filter beneath it; remove any debris around the filter. If water is still not draining, gently insert a bottle brush into the Drain Connection and use a back and forth motion to clear the drain.
		Remove splash panel and inspect basin for standing water. Clear drain to and from basin.

Symptom	Possible Cause	Probable Correction
No ice in bin	Auger motor not operating	Open windings. Check motor windings and replace if open.
		Gear reducer seized, replace gear reducer.
		Auger bearings seized, replace bearings and seal
		No power to auger motor, Auger out light is ON. Replace controller.
		Code 2 in controller.
	Compressor not operating	Compressor hot and overheated, check start relay and start capacitor
		No power to compressor. Compressor out light is ON. Replace controller.
		Compressor at room temperature, will not start. Check windings. If open, replace compressor. If not open, check/replace start relay and start capacitor.
	Compressor operating, auger turning, no ice is made	Check refrigeration system, TXV may be set to too much superheat or the system is low on refrigerant.
Excessive noise	Tubing contact	Check for tubes rattling and panels not tight
	Fan blade out of balance	Replace fan blade
	Compressor noisy	Replace compressor
Dispense motor not turning	No voltage to it	Check dispense light, if on there should be voltage. If none, replace motor.
	Wrong voltage motor	Check motor label, install correct motor.
Dispense motor working, but ice in bin not moving	Broken ice agitator	Replace and check for mechanical cause for breakage
	Broken drive pin	Replace and check for worn hole in dispense motor shaft
Too much ice in drip tray	Users are taking ice and dumping it	Glass size too small, use larger glass.
Water leak near front	Drip tray not in position, hard to push all the way in	Add small amount of food grade lube to the drip tray drain stub or o-ring in drain fitting.
Glass does not trigger dispense light	Glass is too clear	Confirm by testing dispense with hand behind glass.

Code or Light Action	Probable Cause	Suggested Action
0	Unit manually switched off	If desired, switch unit on.
F	Freeze mode	None, unit is making ice.
b	Bin sensors sense bin full	Check if bin is full.
E	Corrupted memory	Replace controller
C	Clean mode	Continue clean mode
d	Test mode	None, allow unit to finish test mode.
2	Auger motor stalled or operating slowly	Clean ice making system and retry.
3	No water in reservoir	Restore water. If there is water, is it too pure? Are sensor wires connected?
Water dispense sensed light blinking	Container positioned in front of water dispense sensor for more than 24 seconds	Normal, controller has a time limit for dispensing. Remove container.
Water dispense light blinking		
Ice dispense sensed light blinking	Container positioned in front of ice dispense sensor for more than 20 seconds.	
Ice dispense light blinking		
Status light is on green	Unit is in ice making mode	Normal, may not be making ice if bin is full
Time to Clean light is on	Unit has not been cleaned for at least 6 months	Clean unit
Water Dispensed Sensed light is on	A container is in front of the sensor	Normal during water dispensing
Ice Dispensed Sensed light is on	A container is in front of the sensor	Normal during ice dispensing
Water Dispense light is on	Water solenoid has been activated	Normal during water dispensing
Ice Dispense light is on	Bin drive motor has been activated	Normal during ice dispensing
Auger out light is on	Auger motor is active	Normal when making ice
Compressor out light is on	Compressor is active	Normal when making ice

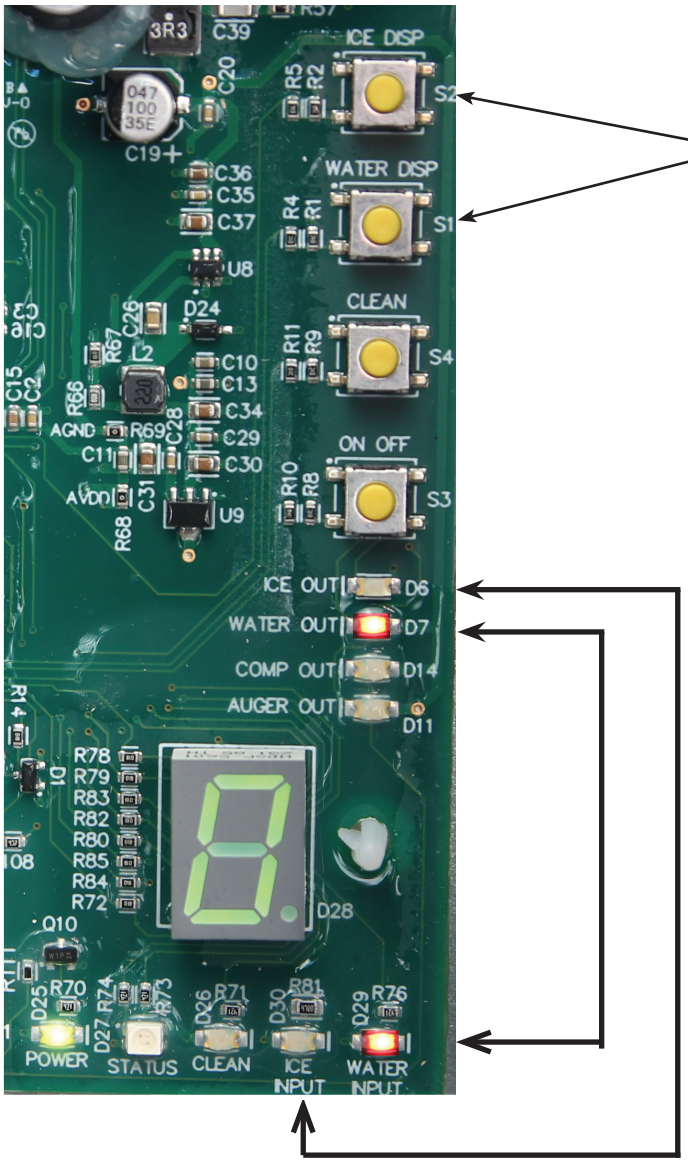


The controller's components include an on board transformer, four switches, nine lights and a code display.

When power is connected all lights flash on and a 0 will be shown in the code display..

Code Display

Input Indicator Lights



The dispense sensor indicators allow easy diagnosis of the Ice and Water sensors.

The ice or water dispense switches can also be used to test the system.

Normal activation of the ice dispense sensor will turn on both the ice input and ice output lights on the controller.

If the ice input light fails to glow, the sensor has failed.

If the ice input light glows but the ice output light does not, then the controller has failed.

If both lights are on, the dispense drive motor should have power to it.

Normal activation of the water dispense sensor will turn on both the water input and water output lights on the controller.

If the water input light fails to glow, the sensor has failed.

If the water input light glows but the water output light does not, then the controller has failed.

If both lights are on, the water inlet solenoid should have power to it.

Water System

The water system consists of a water inlet tube, float valve, UV device, inlet water solenoid, water reservoir, evaporator inlet, overflow drain, condensate drain, bin drain and common drain fitting.

The float valve maintains a constant water level in the evaporator. It is contained in a reservoir tank, which also contains the water sensor probes.

Its outlet goes to the evaporator and to a plug. The evaporator and reservoir may be drained by disconnecting the tube from the plug.

As ice is made and forced up the evaporator, the auger is being pushed down. That thrust is supported by the bearings in the gear reducer. Those bearings also provide alignment for the bottom of the auger, keeping it centered in the evaporator tube. The top bearing provides auger alignment at the top.

Water is kept from leaking out the bottom of the evaporator by the water seal. The water seal is the type of seal called a face seal, with the outside diameter of a stationary half pressed against the inside of the evaporator tube and a rotating half attached to the bottom of the auger. The sealing action takes place where the faces of the two halves rub together.

Water is the raw ingredient of ice and it enters this machine through the fitting in the back. That leads to the UV device, the inlet water solenoid valve and to the float valve and reservoir. When the float is not supported by water, the float arm is down and the attached float valve is open. As water enters the reservoir, it also flows into the reservoir's outlet tubing which leads to the evaporator water inlet, filling the evaporator. The float rises as the water level is increased until it has lifted high enough to force the water valve to close, stopping the flow of water. When the machine is making ice, the water level will drop slightly and water will flow into the reservoir through the partially open float valve. It will flow in continually as ice is made.

Water quality. Nearly all water supplies contain some impurities or minerals. When ice is made those minerals can remain behind in the ice machine and coat its surfaces with a hard, stone like substance known as scale. This scale must occasionally be removed by scale remover. Scale remover is a food grade acid that will dissolve the scale so it can be washed away.

Note: it is important to ALWAYS dilute the scale remover when using it on this machine. Never use undiluted scale remover.

Some water treatment devices make very clean water, Reverse Osmosis is one of those and this machine may be used with RO water as long as the conductivity is greater than 10 microsiemens/cm. Use of de-ionized water is not recommended and will void the warranty.

This is a continuous flow ice machine. When the control system senses that the storage bin's ice level is low, it turns on the compressor, fan motor and auger drive motor.

During ice making the refrigeration system takes heat from the evaporator. The evaporator is a vertical refrigerated stainless steel tube containing water and a slowly rotating auger. When the water gets to the freezing point, ice begins to form. That ice is very soft and is pushed up the evaporator tube by the auger. As ice is made more warm water enters at the bottom. The soft, mushy ice is forced up to the top of the evaporator's tube where it is forced through tapered holes. As the ice is pushed through the holes excess water is squeezed out. The ice comes out of the holes shaped as a rod of ice. The rods of ice are broken off by being pushed against the tapered flange above the holes, forming the irregular lengths of nugget ice. The ice sweep, rotating with the auger, moves the ice to the ice chute where it falls by gravity into the storage bin.

At initial start up there is no ice in the ice storage bin, so there is nothing blocking the infrared sensors that are used to control the on or off mode of the machine. Connecting power or a push of the on button triggers the controller to begin ice making. Status light will be green.

Water Monitored

The controller continually checks for water using the continuity sensor in the reservoir. Electrical continuity is measured between the sensor's two probes. Water in the reservoir will be in contact with the probes and provide an electrical path between them. If that sensor indicates there is water the controller connects power to the compressor, fan motor and auger drive motor.

Auger Drive Monitored

The auger drive motor's current is continually checked by the controller. Either very high or very low current will trigger a shut down sequence. If correct, the auger drive, fan motor and compressor will start.

The compressor forces refrigerant to circulate causing the evaporator to become very cold, which takes heat from the water inside the evaporator's tube. That refrigerated space also contains the slowly rotating auger. Eventually enough heat is removed from the water to cause ice crystals to form. When enough ice crystals have formed the auger moves them vertically up the tube and the soft, wet ice is forced through the slots in the ice breaker. The limited area of the slots causes the soft ice to be forced together, forming either flaked or nugget ice, depending upon the design of the breaker. As ice exits the breaker or extruder, more water flows from the reservoir into the bottom of the evaporator tube.

Water replenishment by gravity fed water is the key element in this ice making process. It provides a continuous heat load to the refrigeration system so that, as ice is made, an equal amount of water re-enters the system, keeping the system in balance. A flaker then, is a unique refrigeration system in that it is steady-state. Once the machine has begun to make ice the evaporator's temperature does not change as the replenished water keeps adding heat.

Ice

The ice sweep pushes the ice away from the breaker and to the ice chute, where it slides down or pushed into the insulated bin. The bin is not refrigerated. There is a drain at the bin's floor to let melt water out. As it is made, ice will pyramid under the chute. As the dispenser is used, ice will be pushed to the right side and form a pile that increases to the point that the top of the pile blocks the infrared light between the ice sensor's emitter and receiver, which signals the controller to stop making ice. The ice level at the first shut off may be less than later when the bin temperature has stabilized. Ice storage bin capacities are calculated by the bin's internal volume, so the amount of available ice may not equal the calculated quantity unless ice is distributed to the sides during use.

The shut off process begins when the controller opens the compressor relay, cutting the power to the compressor. The auger motor continues to operate to clear the evaporator tube of any ice that was in it. Then it is shut off. In normal operation when the ice is used or melts enough to expose the emitted infrared light to the sensor's receiver, and the compressor has been off for the preset amount of time, ice making will restart.

Sound

The normal sounds of this machine are the compressor, fan blade, and auger drive motor. Occasionally there may be a slight crunching sound as ice is forced thru the extruder or breaker. A loud moaning noise could occur if ice is not sliding vertically up the evaporator tube. If it revolves with the auger, it will remain under refrigeration too long, and could even freeze to the evaporator wall. Then it becomes like chipped ice, which causes the gear reducer to be overloaded as it pushes the extra hard ice thru the extruder. That is known as a rotating freeze. The most likely cause of a rotating freeze is internal scale build up, especially on the auger.

Refrigeration Components

- Compressor
- Access valves: None.
- Metering Device: TXV - for R290
- Condenser - air cooled only
- Fan Motor - shaded pole only for R290
- Pressure controls: None.
- Temperature sensors: None.

Refrigeration System Pressures: Note No access valves

Model	Charge R290 oz	Discharge PSIG 70/50	Suction PSIG 70/50	Discharge PSIG 90/70	Suction PSIG 90/70
HID207AX-1A	3	175	23	230	28
HID207ABX-1A	3	175	23	230	28

Auger Drive

Output speed - 10 RPM, CCW

Amps

Note: The amps listed on the dataplate for most components are calculated and real world amps will be somewhat different.

Overall machine amp draw

Model	70/50	90/70
HID207AX-1A	3	2.5
HID207ABX-1A	3	2.5

Model	Normal Suction Line Temperature at Compressor in degrees F
HID207AX-1A	63 - 65
HID207ABX-1A	63 - 65

Refrigeration service should only be attempted by a trained trade professional certified to work on R290 systems.

Here are some critical service items.

This list does not qualify anyone to service the unit. It is a reminder and checklist for the service tech. Keep these in mind for **R290 service**:

- Wire nuts are NOT to be used when changing an electrical part.
- The process tubes are to be used for service access.
- Cut out (with tubing cutter) refrigeration components that are to be replaced. Do NOT un-braze.
- Because R290 can be vented into the air during service, the venting MUST be in an area free from flame or spark. It must be near an open window or door.
- A sign noting service of a system containing propane must be attached to the unit during refrigeration service.
- A combustible gas leak detector must be used to inform anyone in the area when propane is present in the air.

Other Information:

Purging: Purge with dry nitrogen before and during brazing. Be sure vented gases are not near a flame or spark.

WARNING

R290 Refrigerant is Flammable.
Flame can cause burns or property damage
Keep away from sources of fire

Evacuation: It is critical that a refrigeration system be leak free and internally dry. A thorough evacuation with a good vacuum pump with a micron gauge attached is the only way to ensure that the system is dry and ready for a charge of refrigerant.

Charging: The system is critically charged and the proper type and amount MUST be weighed in.

Replacement Parts. Use ONLY OEM parts from Scotsman. Do not substitute R290 expansion valves, fan motors and other parts.

Control

- On/Off Bin Full / Bin Empty - photo electric “eyes” control ice making. Infrared light from the emitter is received by the detector and the make ice signal is provided to the controller. When the infrared light is blocked by ice, the make ice signal is removed and the controller stops ice making.

- After a power interruption the unit will automatically restart in the mode it was in before the interruption. However, two minutes must pass before it will restart.

- Any auger motor failure triggers an immediate shut down. The controller will auto restart three times from an auger error before shutting down and requiring a manual reset.

- An open Water Sensor (dry probes) will stop the machine. Because water can be restored at any time, whenever both Water Sensor probes are wet again AND the compressor has been off for at least two minutes, ice making will restart.

- The compressor will not restart until it has been off for at least 2 minutes.

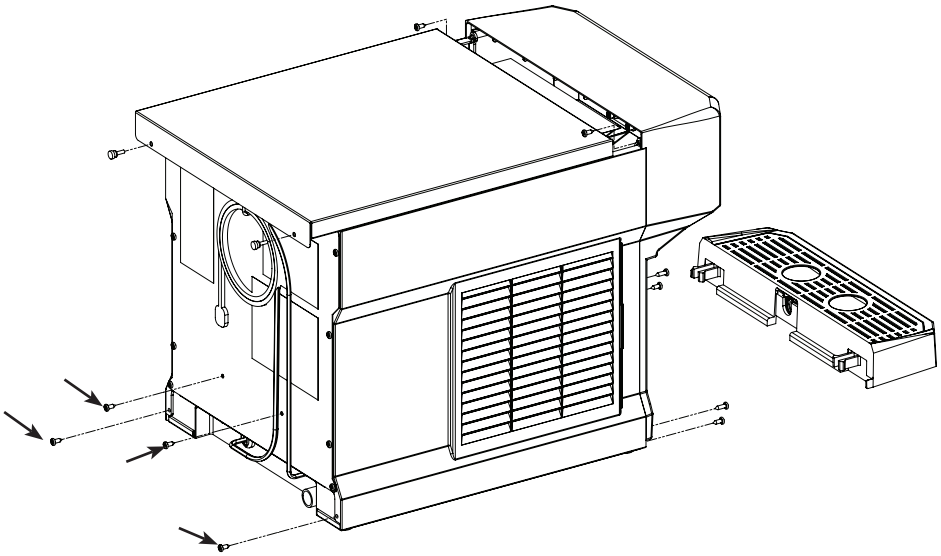
- The Time to Clean indicator light glows when 6 months of power up time have elapsed. When it is on it does NOT stop ice making. It is cleared and reset when the Cleaning process has been completed.

- The Cleaning process, described in detail in the Maintenance section, is initiated by pressing the Clean button. The auger motor will be operating during the entire Clean mode, the compressor starts automatically to make ice with the scale remover solution. The scale is dissolved by the action of the scale remover solution and the auger’s motion.

- Manual reset: Switch power off and on.

Most components require the machine to be removed from a built-in situation:

- Auger motor – top panel, splash panel, back panel
- Ice sensor – top panel, splash panel
- Top bearing – top panel, splash panel
- Auger - top panel, splash panel,
- Ice sweep – top panel, splash panel
- Water reservoir or float - top panel, left panel



To Remove Panels as a Unit

1. Disconnect drip tray from unit
2. Remove two thumbscrews at the back and take the top panel off.
3. Remove four screws (see arrows) holding back to cabinet.
4. Remove two screws at top of splash panel (back side)
5. Remove two screws at bottom front of splash panel.
6. Disconnect wire harness from splash panel.
7. Release water hose from splash panel and set splash panel aside.
8. Lift side and back panels off unit.

Evaporator / Auger / Water Seal / Gear Reducer Service Access

Replacement of the evaporator, water seal or gear reducer will require that the refrigerant be recovered or vented properly, and the suction line and evaporator refrigerant inlet be disconnected from the evaporator.

Replacement of the auger requires replacement of the water seal, which then requires that the suction line and evaporator inlet be disconnected from the evaporator.

The refrigeration system is steady-state. When in operation and stabilized, it will maintain nearly constant discharge and suction pressures.

Items that can affect that are:

- Irregular water flow
- Erratic thermostatic expansion valve
- Changes in room air temperature

Normally use of refrigeration gages is unnecessary. If the unit is making ice properly, it is highly likely that all is normal. Refrain from attaching gages, and then only use very short hoses to avoid changing the amount of refrigerant charge.

The compressor gets its power from the controller. It must be working or the compressor will be off.

Compressor Starting

The compressor uses a current relay to provide starting power.

Current relay: The contacts of this relay are normally open and temporarily close to start the compressor.

Compressor starts but current too high, overheats. If the relay contacts do not open, there will be current to the start winding. Replace the relay.

Compressor does not start. Relay contacts open, check for continuity. Replace relay if open.

Compressor Testing

Because the compressor is the hermetic type, the available testing methods are limited. Some items that can be measured are winding resistance and amp draw.

If the compressor does not start with proper voltage to it and a check with an amp meter shows it does not draw any current, it is likely it has an open winding or overload. Those can be checked using a multimeter.

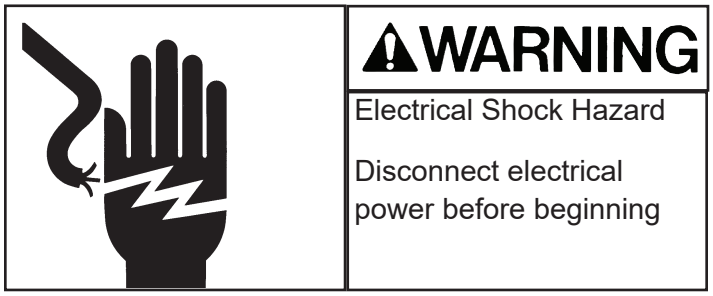
If the compressor is hot the overload may be open. An open overload is an indication of a worn compressor, defective starting components or high superheat.

If the overload is open and the compressor is not hot, the overload itself could be the problem. Overloads also open due to high current and a shorted winding could cause that. Check for shorted or grounded windings with a multimeter.

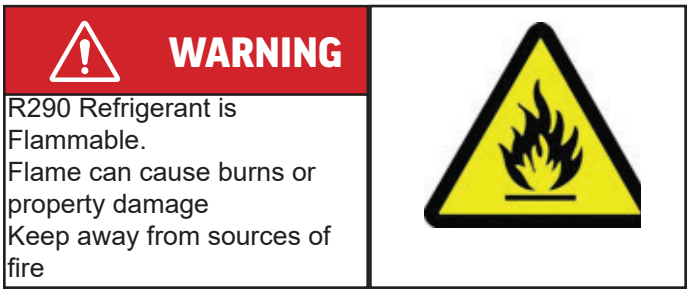
The compressor is refrigerant cooled, so high superheat can be caused by lack of refrigeration, possibly from low charge

Note: Always check electrical information on new compressor to be sure it is the correct voltage and phase.

1. Disconnect electrical power.



2. Remove right panel.
3. Remove splash panel.
4. Disconnect wires from compressor terminals.
5. Add access valves.

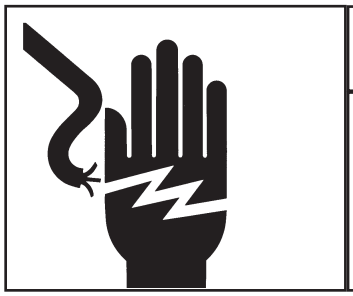


6. Recover refrigerant or properly vent refrigerant from the unit.
7. Remove hair pins holding compressor to chassis.
8. Disconnect by cutting suction, discharge and process tubes from compressor.
9. Remove compressor from unit.
10. Install new compressor in unit.
11. Purge with dry nitrogen. Be sure to vent discharge gases away from flame or spark.
12. Reconnect suction, discharge and process tubes using the proper techniques of the refrigeration trade.
13. Remove and replace the dryer.
14. Attach a vacuum pump with micron gage to the system and evacuate it to 300 microns.
15. Reattach electrical wires to compressor terminals.
16. Weigh in the nameplate charge.

Access can be improved by removing the dispense bin and dispense drive motor.

Replace Fan Motor

1. Unplug or disconnect electrical power.



⚠WARNING

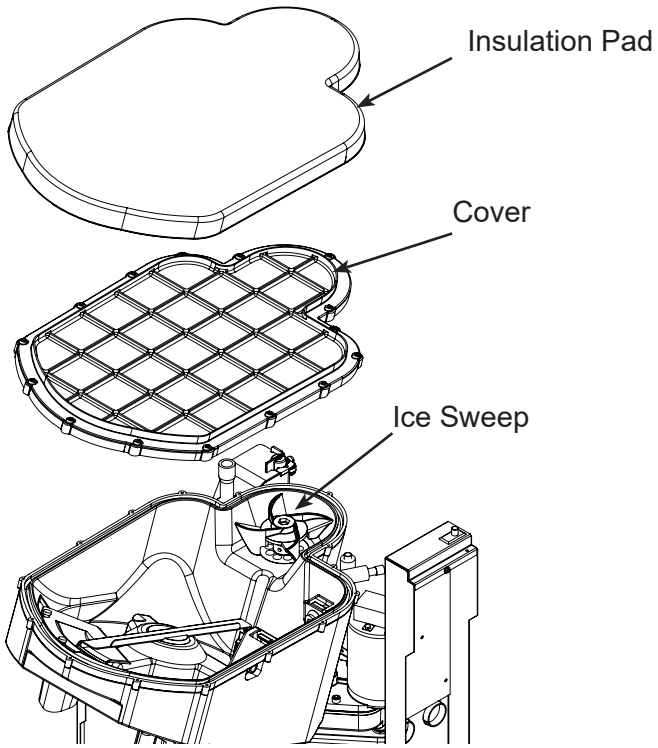
Electrical Shock Hazard

Disconnect electrical power before beginning

2. Remove splash, top and right side panels.
3. Reach behind motor and disconnect electrical quick connect by squeezing the catch arms together.
4. Remove four screws holding fan motor to condenser shroud.
5. Remove fan motor and blade from unit.
6. Separate fan motor from mounting brackets.
7. Separate fan motor from blade.
8. Reverse steps to reassemble.

Replace Dispense Drive Motor

1. Unplug or disconnect electrical power.
2. Remove top side and splash panels.
3. Remove dispense bin pad and cover.
4. Remove or melt any ice in bin.



5. Remove ice sweep. Keep bolt and washer for reassembly.
6. Unscrew bolt holding dispense rotor to drive shaft.
7. Lift rotor off the shaft and pull the drive pin out.
8. Locate two black knob bolts under dispense bin, at the sides of the dispense drive motor. Remove those bolts.
9. Pull the drain hose from the dispense bin.
10. Lift the dispense bin off of the unit chassis.

Note: It is a tight fit to the ice breaker.

11. Disconnect electrical connection to dispense drive motor.
12. Remove screws holding dispense drive motor to chassis and remove the dispense drive motor.

Photo-Eye Bin Control

The sensors consist of an emitter and a receiver. The emitter shines infrared light in a certain pattern at the receiver. The receiver's signal is checked by the controller to confirm proper reception. If confirmed, the controller starts or continues the ice making process.

Remove top panel for wire inspection.

False bin full: If the bin is not full and ice is not being made, all loads are off, Power light is on, status light is blinking:

1. Check for loose connection at the harness to the photo eye sensors.
2. Check for broken wire at sensor.
3. Check for something blocking the sensors, which can include scale buildup.

Note: There is no back up for the bin control. If it fails to shut the machine off, the bin will overfill.

If no cause can be found, replace the photo eye set.

Replace Photo-Eye Bin Control

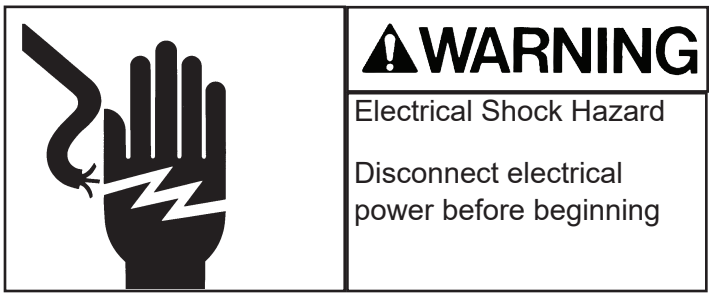
They will be replaced as a set.

1. Remove top panel and right side panel.
2. Disconnect photo eye bin controls from the quick connect at the top back of the machine.
3. Pull and remove both retaining clips holding sensor holders to bracket.
4. Push sensor holders out until free of the bracket.
5. Separate each photo eye sensor from its holder by pulling them apart.
6. Install new sensor into each holder. Push in until the rubber from the sensor meets the rubber sensor holder.
7. Return sensor holders to their mounts and insert retaining clips.
8. Reconnect sensors to harness.
9. Return top and right side panels to their normal positions.

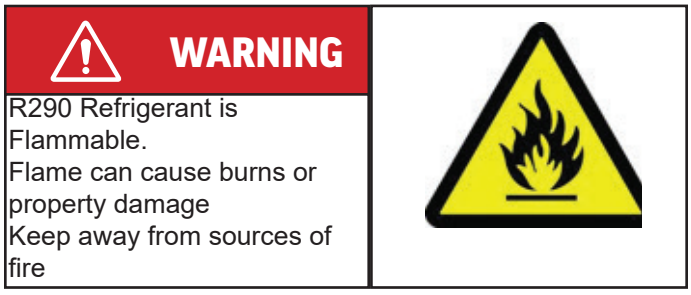
Removal

Remove or melt out all ice.

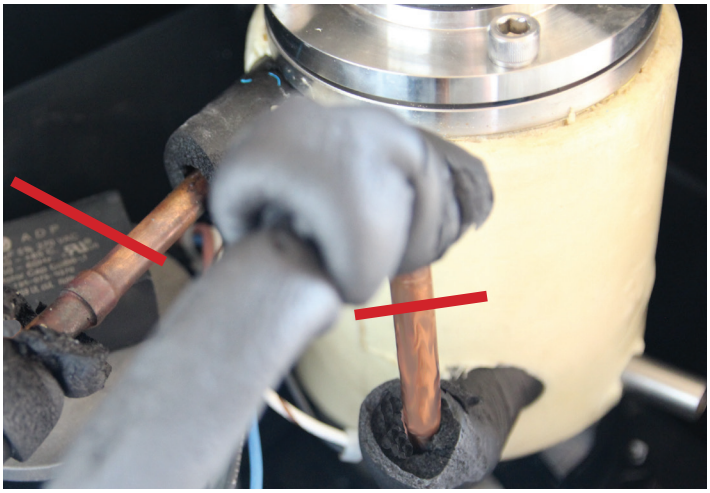
1. Disconnect electrical power to unit.



2. Remove back and top panels.
3. Shut water off to unit.
4. Drain the evaporator and disconnect water inlet.
5. Disconnect water inlet and outlet from reservoir, and remove the reservoir.
6. Attach access valves to the refrigeration system and recover or properly vent the refrigerant.



7. Cut suction line in the recommended spot.



8. Cut evaporator inlet at the recommended spot.
9. Disconnect wires to auger motor.
10. Remove ice sweep.
11. Remove four phillips head screws holding gear reducer mounting plate to unit.
12. Lift gear reducer assembly from unit.
13. Remove four socket head screws holding breaker to evaporator.
14. Lift breaker off evaporator.
15. Lift auger out of evaporator.
16. Remove four socket head screws holding evaporator to gear reducer.
17. Lift evaporator off the gear reducer.
18. Remove three 1/4 hex socket head screws securing pan to gear reducer.
19. Separate gear reducer from pan (bolted from below).

Gear Reducer

The gear reducer is a sealed component. No gears or shaft bearings are available.

A properly operating gear reducer will operate quietly and draw a consistent amount of amps. It will not leak lubricant. Oil discharge is a strong indicator of water infiltration and is cause for replacement.

High amp draw could be caused by scale build up in the evaporator. Clean it first, then check amp draw. Confirm the top bearing is not seized or rough.

A motor that rotates but the output shaft does not turn indicates a stripped gear and is cause for the gear reducer section to be replaced.

Replacement of Gear Reducer

1. Attach new gear reducer to mounting plate.
2. Install new water seal into evaporator and onto auger. See water seal detailed instructions.
3. Attach evaporator to gear reducer.
4. Install auger into evaporator.
5. Attach breaker onto evaporator.
6. Place gear reducer and evaporator assembly into the unit, and secure it with the original screws.
7. Purge with dry nitrogen. Be sure to properly vent gases from spark and flame.

WARNING	
R290 Refrigerant is Flammable. Flame can cause burns or property damage Keep away from sources of fire	

8. Braze suction line together.
9. Braze evaporator inlet together.
10. Evacuate the refrigeration system to 300 microns.
11. Weigh in the nameplate charge.
12. Reattach the water inlet.
13. Return ice dispense bin to unit.
14. Attach the ice sweep to the auger.
15. Switch the water supply on.
16. Reconnect electrical power.
17. Restart unit, monitor operation.
18. Return back on top panels to their original positions and secure with the original screws.

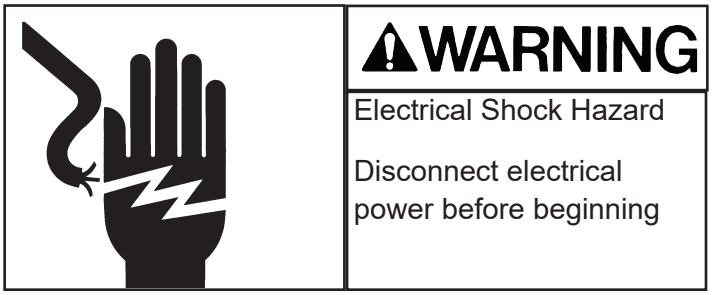
Evaporator Construction

The evaporator is made up of a stainless steel tube, wrapped with a coil of copper and then heavily insulated. There is no refrigerant path to the water inside of the evaporator. The inside of the tube is polished and rifled with vertical grooves that help guide the ice straight up the tube.

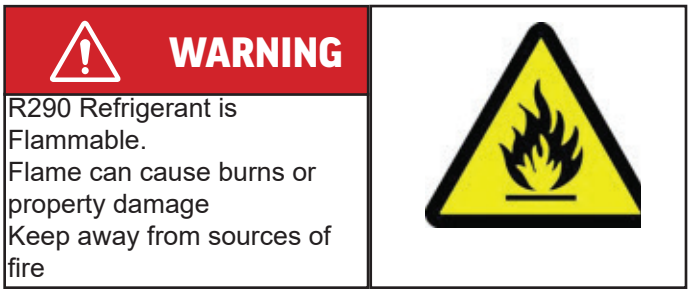
It is normal for mineral scale from the water to form on the inside of the evaporator tube. That scale must be removed by use of ice machine scale remover using the process described in Maintenance. Heavy scale build up will require the process to be repeated. The inside of the evaporator tube may be sanded vertically to remove tough build up. Do NOT hone or clean with a wire brush on a drill, as horizontal marks on the inside of the evaporator will restrict the flow of ice.

A damaged evaporator must be replaced.

1. Disconnect electrical power



2. Go thru all steps to remove the gear reducer.



3. Lift the evaporator up and off the retainer. The stationary half of the water seal will be in the bottom of the tube. The rotating half is on the auger.
4. Confirm auger is un-damaged. If damaged, obtain a new auger.
5. Remove and discard old water seal.
6. Install new water seal onto auger and in bottom of evaporator
7. Attach new evaporator to adapter and gear reducer.
8. Place evaporator and gear reducer assembly into unit.
9. Secure assembly to unit.
10. Reconnect suction and evaporator inlet lines.
11. Replace the dryer and evacuate the system to at least 300 microns.
12. Weigh in the nameplate charge.
13. Reinstall auger.
14. Replace top bearing.

Auger

The auger must be clean and undamaged to work properly.

Remove it from the evaporator to confirm.

Note: A wet auger will appear clean - dry it to check for scale.

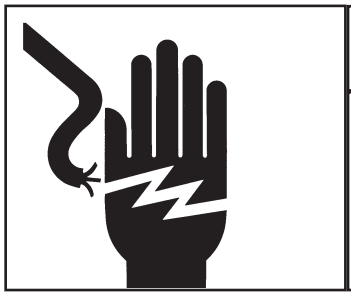
Damaged auger flight edges are not repairable and the auger must be then be replaced..

A reversed motor code (1) is a strong symptom of a motor that should be replaced.

Removal

Suggested tools include a 1/4 inch drive ratchet set.

1. Disconnect electrical power.



⚠WARNING

Electrical Shock Hazard

Disconnect electrical power before beginning

2. Remove top panel.
3. Close float valve or shut water off to unit.
4. Drain reservoir and evaporator.
5. Remove top and splash panels.
6. Remove insulation pad.
7. Remove dispense bin cover.
8. Unscrew ice sweep.
9. Remove the four socket head bolts at the top of the evaporator.
10. Return ice sweep and attach to auger.
11. Lift up on ice sweep to remove auger and breaker together.

To Remove the Ice Dispense Bin

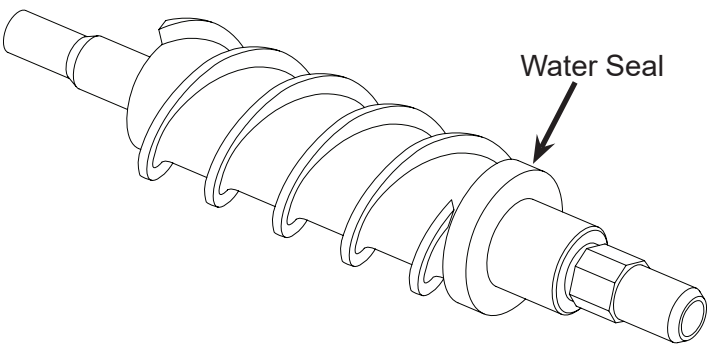
1. Unplug or disconnect electrical power.
2. Remove top side and splash panels.
3. Remove dispense bin pad and cover.
4. Remove or melt any ice in bin.
5. Remove ice sweep. Keep bolt and washer for reassembly.
6. Unscrew bolt holding dispense rotor to drive shaft.
7. Lift rotor off the shaft and pull the drive pin out.
8. Locate two black knob bolts under dispense bin, at the sides of the dispense drive motor. Remove those bolts.
9. Pull the drain hose from the dispense bin.
10. Lift the dispense bin off of the unit chassis.

Replacement

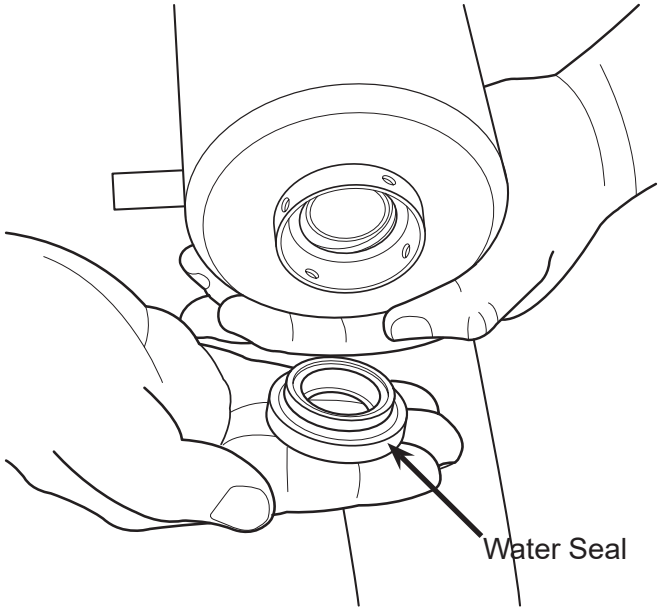
1. Install new water seal into evaporator and onto auger. See water seal detailed instructions.
2. Install auger into evaporator.
3. Return Ice dispense bin to unit.
4. Attach breaker onto evaporator.
5. Attach the ice sweep to the auger.
6. Switch the water supply on.
7. Reconnect electrical power.
8. Restart unit, monitor operation.
9. Return back on top panels to their original positions and secure with the original screws.

Water Seal Detailed Instructions.

1. Go thru steps to remove the ice dispense bin.
2. Remove the 4 allen head screws at the bottom of the evaporator.
3. Lift the evaporator up and off the mounting adapter just enough to access the bottom.
4. Push the water seal inside the evaporator up on one side until it twists, grab it and pull it out.
5. Remove the rotating half from the bottom of the auger.
6. Clean the auger shoulder and add a very thin bead of food grade sealant to the bottom of the auger.



7. Carefully push the new rotating half of the water seal up against the sealant as far as it will go. It should seat tightly and straightly against the auger shoulder. Do not put fingerprints on the sealing surface.
8. Wet the outside edge of the stationary half of the water seal and insert it into the bottom of the evaporator about 1.25 inches.



9. Slip the evaporator onto the mounting adapter, the adapter will push the water seal up into the correct position.
10. Secure the evaporator to the adapter with the original socket head screws. Be sure they are tight.

Top Bearing:

1. Go thru the process of removing the breaker.
2. Remove the clip holding the bearing.
3. Tap out the old bearing.
4. Use the old bearing as something to tap on and drive the new bearing into the breaker.
5. Reinstall the clip.

Auger Inspection

The auger must be clean and undamaged to work properly.

Remove it from the evaporator to confirm.

Note: A wet auger will appear clean - dry it to check for scale.

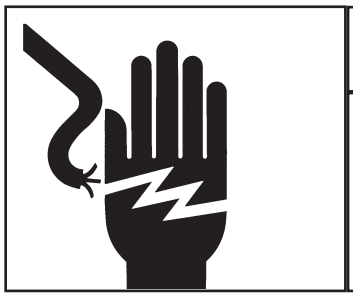
Damaged auger flight edges are not repairable and the auger must be then be replaced..

A reversed motor code (1) is a strong symptom of a motor that should be replaced.

Removal

Suggested tools include a 1/4 inch drive ratchet set.

1. Disconnect electrical power.



⚠WARNING

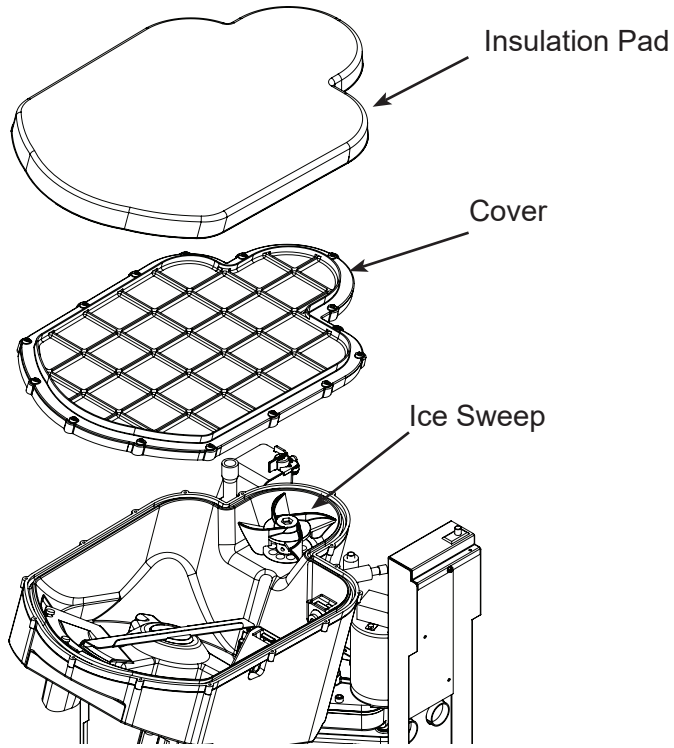
Electrical Shock Hazard

Disconnect electrical power before beginning

2. Remove top panel.
3. Close float valve or shut water off to unit.
4. Drain reservoir and evaporator.
5. Remove top panel.
6. Go thru steps 4 - 10 of “Replace Dispense Drive Motor” in the next column.
7. Remove the four socket head bolts at the top of the evaporator.
8. Return ice sweep and attach to auger.
9. Lift up on ice sweep to remove auger. and breaker together.

Replace Dispense Drive Motor

1. Unplug or disconnect electrical power.
2. Remove top side and splash panels.
3. Remove dispense bin pad and cover.



4. Remove or melt any ice in bin.
5. Remove ice sweep. Keep bolt and washer for reassembly.
6. Unscrew bolt holding dispense rotor to drive shaft.
7. Lift rotor off the shaft and pull the drive pin out.
8. Locate two black knob bolts under dispense bin, at the sides of the dispense drive motor. Remove those bolts.
9. Pull the drain hose from the dispense bin.
10. Lift the dispense bin off of the unit chassis.

Note: It is a tight fit to the ice breaker.

11. Disconnect electrical connection to dispense drive motor.
12. Remove screws holding dispense drive motor to chassis and remove the dispense drive motor.

No ice, **status light OFF, power light ON** – check water supply. Restore water supply to unit if shut off. Remove front panel and check water indicator light, if ON, the unit is not sensing water.

Note: Unit will automatically restart when the water supply is restored.

Note: Unit will NOT operate if connected to an ultra pure water supply. Conductivity must be above the listed limit (see page 3).

No ice – check power supply. If there are no lights on the control panel there is no power to the controller. Confirm unit is plugged into a working outlet of the correct voltage.

Note: Unit will automatically restart when power is restored. If unit has NOT been in operation, the on-off button must be pressed to start operation.

No ice, bin full light ON - check for false bin full caused by mineral scale on the optical sensors, located at the top of the ice chute. Status light green with no ice being made is a sign of false bin full.

Carefully clean the optical sensors of accumulated scale. Do not scrape with a sharp object.

No ice dispensed, bin full light ON, bin is full and ice dispense light is ON when container is present at ice station. Call for service.

No water dispensed, power light ON, water dispense light ON when container present at water station. Check water supply and water filter if used for restriction. Restore water pressure.

Slow production – check condenser for dirt, clean condenser.

Slow production – check temperature of cabinet, if the room is hot or air flow restricted, production will be slow.

All indicator lights are blinking: Call for service.

Drip Tray Not Draining:

• Remove the cup holder, then check the filter beneath that, and remove any debris around the filter.

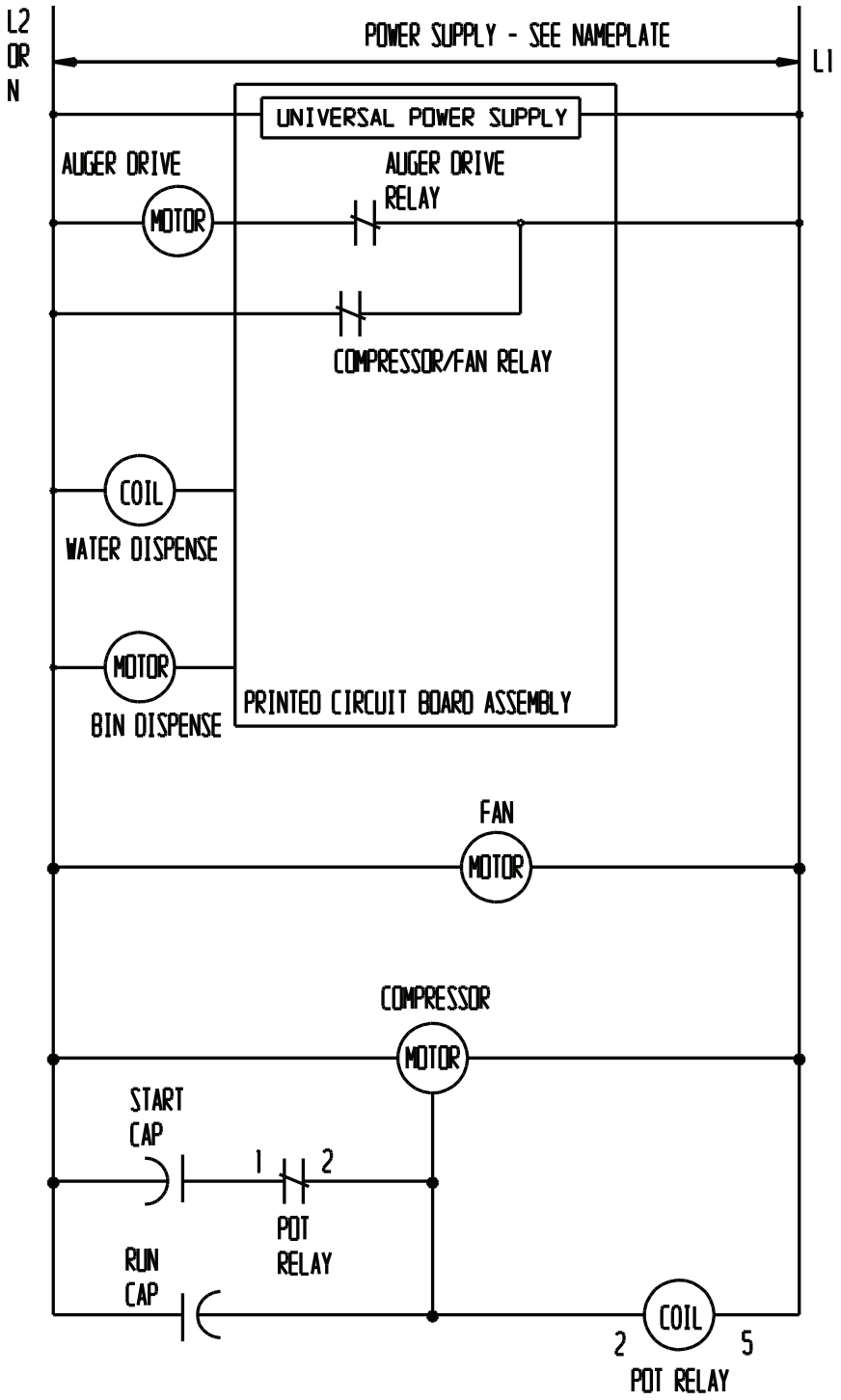
• If water starts to flow down return filter and cup holder to their positions.

• If water is still not draining, gently inserting a bottle brush in to the Drain Connection using a back and forth motion, until drainage issue is cleared.

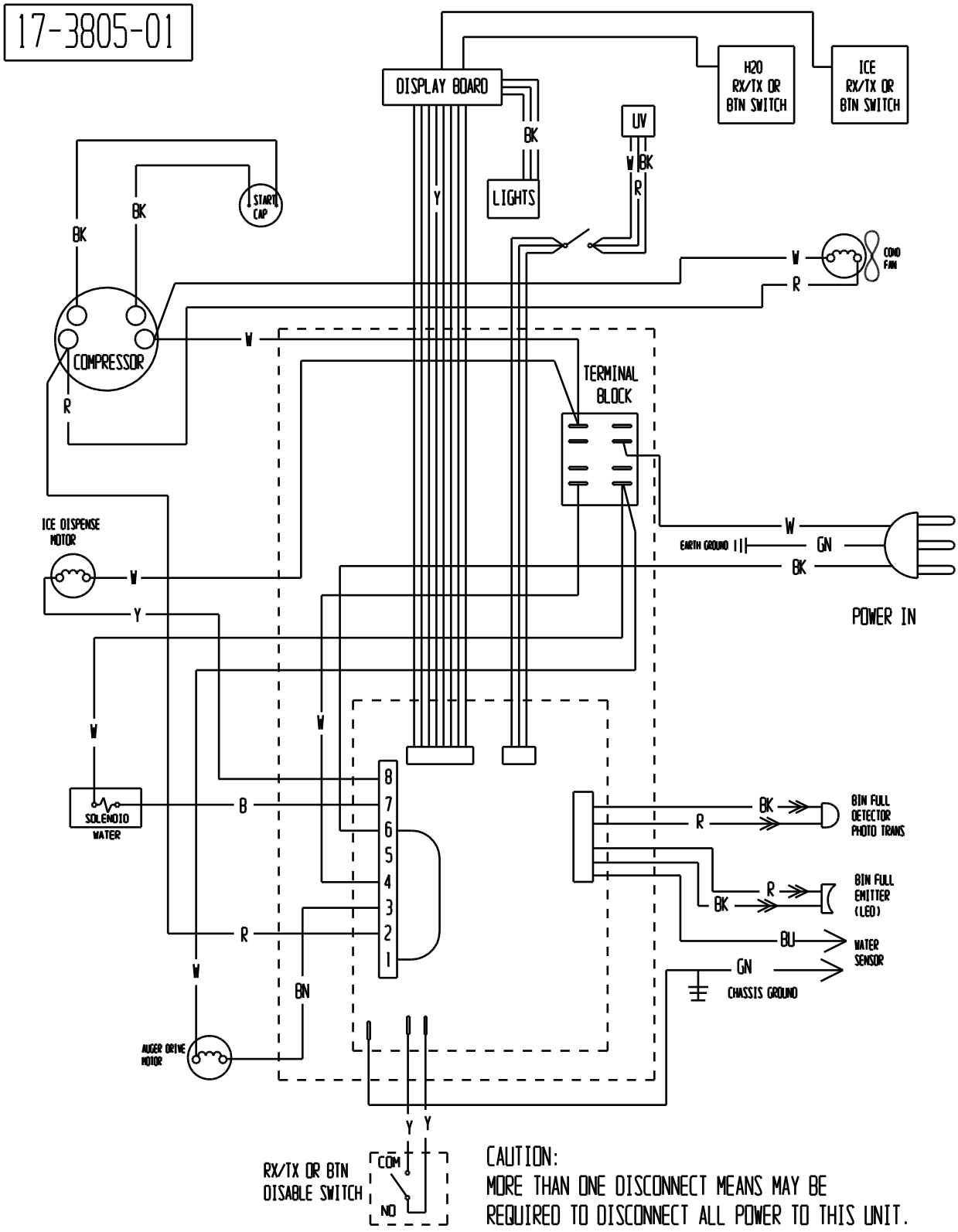
• Gently pour sanitizer* solution directly in to the Drip Tray in order thoroughly sanitize the drain system.

Note: To prevent future clogs be sure to sanitize the Drip Tray regularly and ensure to pour only water in to the Drip Tray (ie. no coffee, soda, etc.)

*Sanitizer- Mix a 1 gallon of locally approved sanitizer (such as NuCalgon) and slowly pour in to the Drain Connection to help prevent future drainage issues. Certain environments may require more frequent sanitizing.



ALL CONTROLS SHOWN IN ICE MAKING MODE
WITH ALL DISPENSING SYSTEMS IN OPERATION


17-3805-01
DISPLAY BOARD
H2O RX/TX OR BTN SWITCH
ICE RX/TX OR BTN SWITCH
UV
LIGHTS
START CAP
COMPRESSOR
COND FAN
TERMINAL BLOCK
ICE DISPENSE MOTOR
EARTH GROUND
POWER IN
SOLENOID WATER
AUGER DRIVE MOTOR
BIN FULL DETECTOR PHOTO TRANS
BIN FULL EMITTER (LED)
WATER SENSOR
CHASSIS GROUND
RX/TX OR BTN DISABLE SWITCH
COM
NO
CAUTION:
MORE THAN ONE DISCONNECT MEANS MAY BE
REQUIRED TO DISCONNECT ALL POWER TO THIS UNIT.

SCOTSMAN ICE SYSTEMS

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Vernon Hills, IL 60061

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