

# Technical Service Training

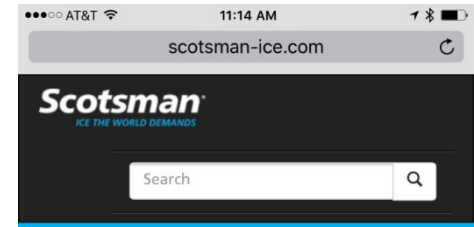
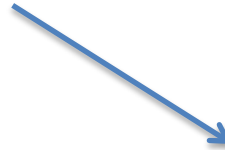
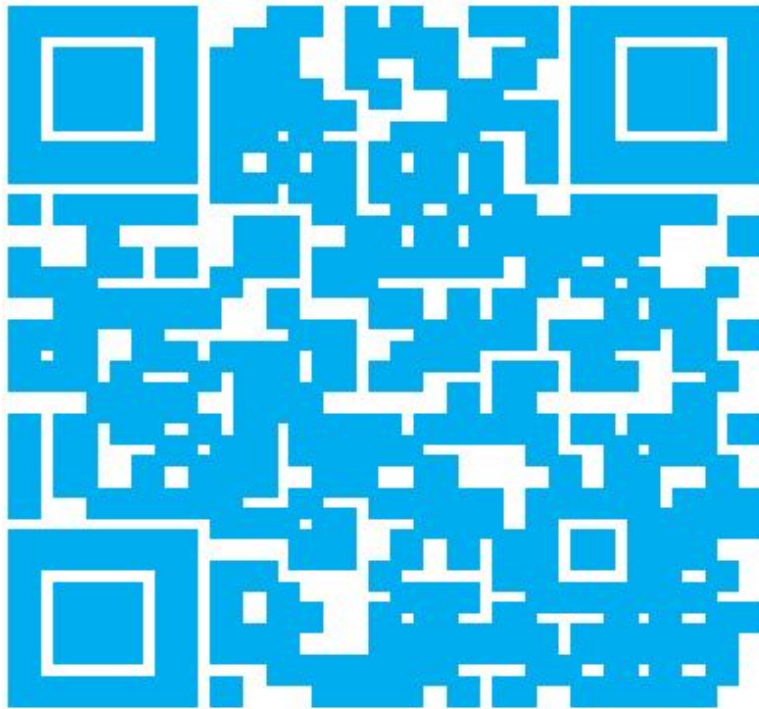
UC2024 and UC2724

**Scotsman**<sup>®</sup>

# Service Support

## Technical Service 1-800-533-6006

Check out our mobile ready website



### Service Information Menu

PARTS BREAKDOWN

SERVICE MANUALS

USER MANUALS

CLEANING & MAINTENANCE

TECHNICAL & DIAGNOSTIC TOOLS

INSTRUCTIONS

BULLETINS



[www.scotsman-ice.com/service](http://www.scotsman-ice.com/service)

**Scotsman**



# Technical Service Virtual Business Card

---



**Scotsman**



# Training Agenda

- Introduction
- Installation
- Operation
- Maintenance
- Diagnostics
- Taking the unit apart



**Scotsman**



# UC2024 and UC2724

- Cubed Ice Making
  - 24 inches wide
  - 39 inches high including legs
  - Air or Water Cooled
  - Airflow in and out of the front



**Scotsman**



# Component Location



**sman**

# Component Location



**Scotsman**

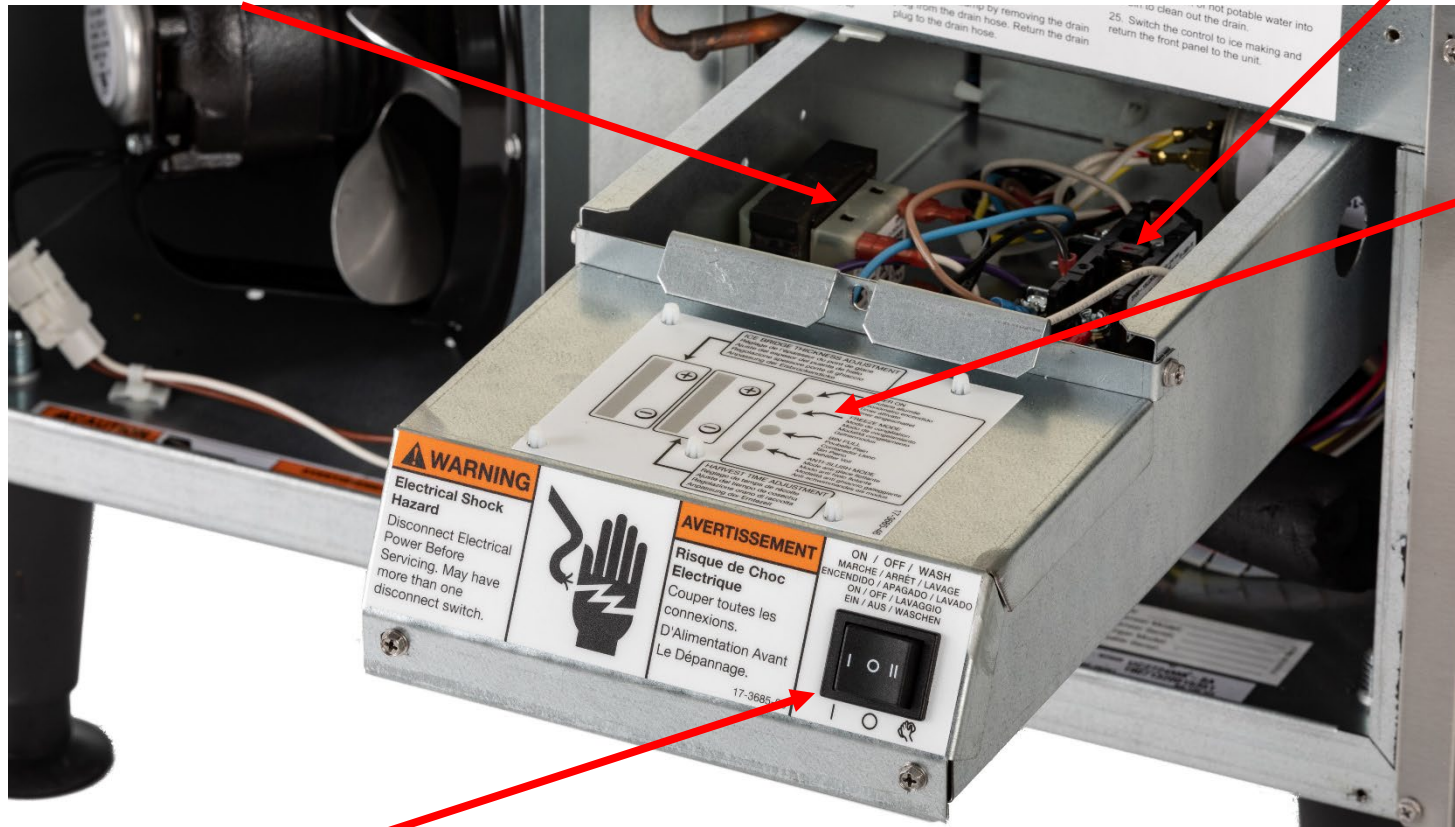


# Component Location

Transformer

Slide Out Electrical Box

Contactor



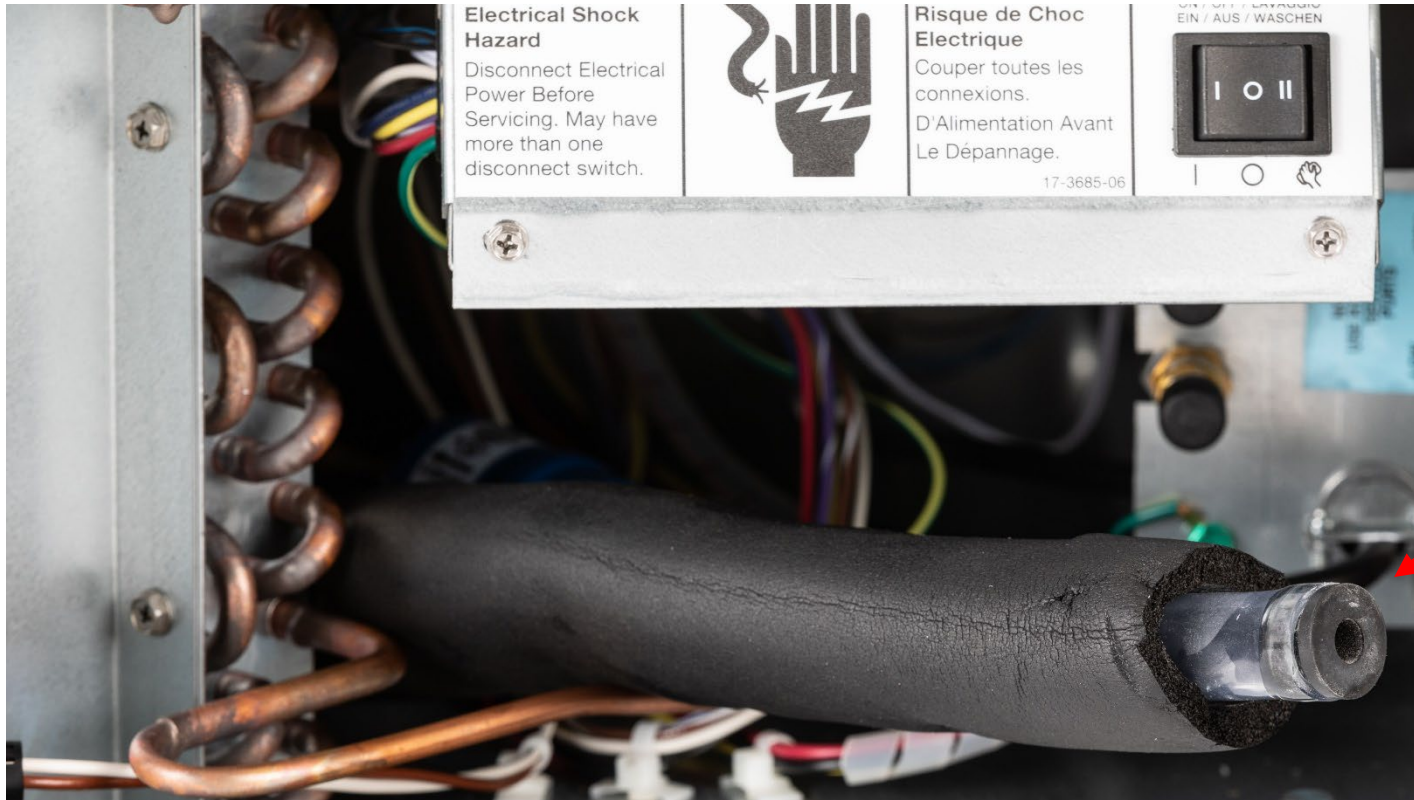
Controller  
Lights and  
Buttons

Master Switch

**Scotsman**



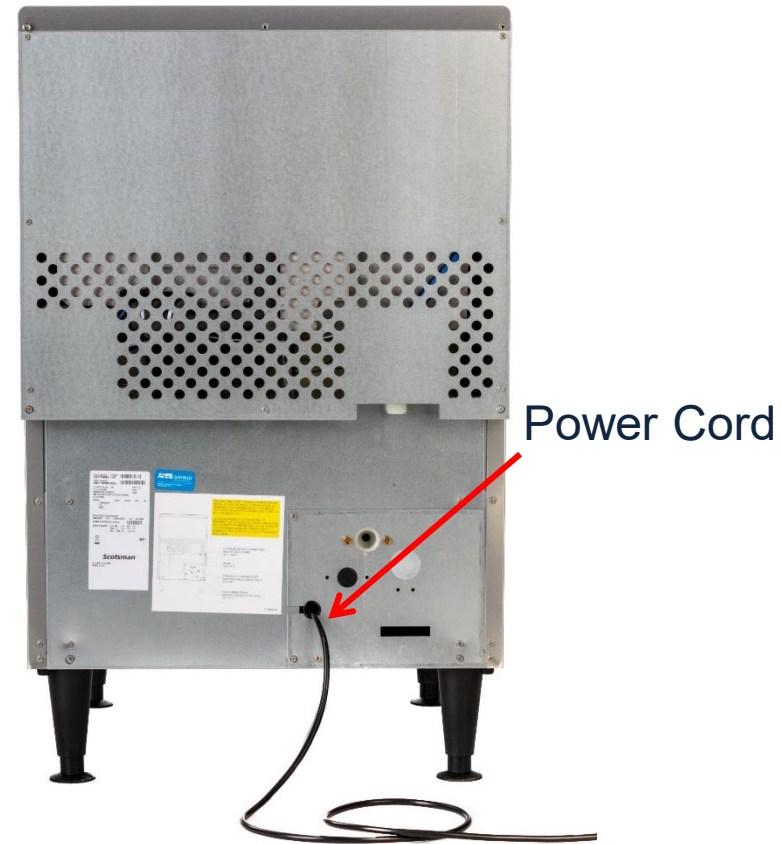
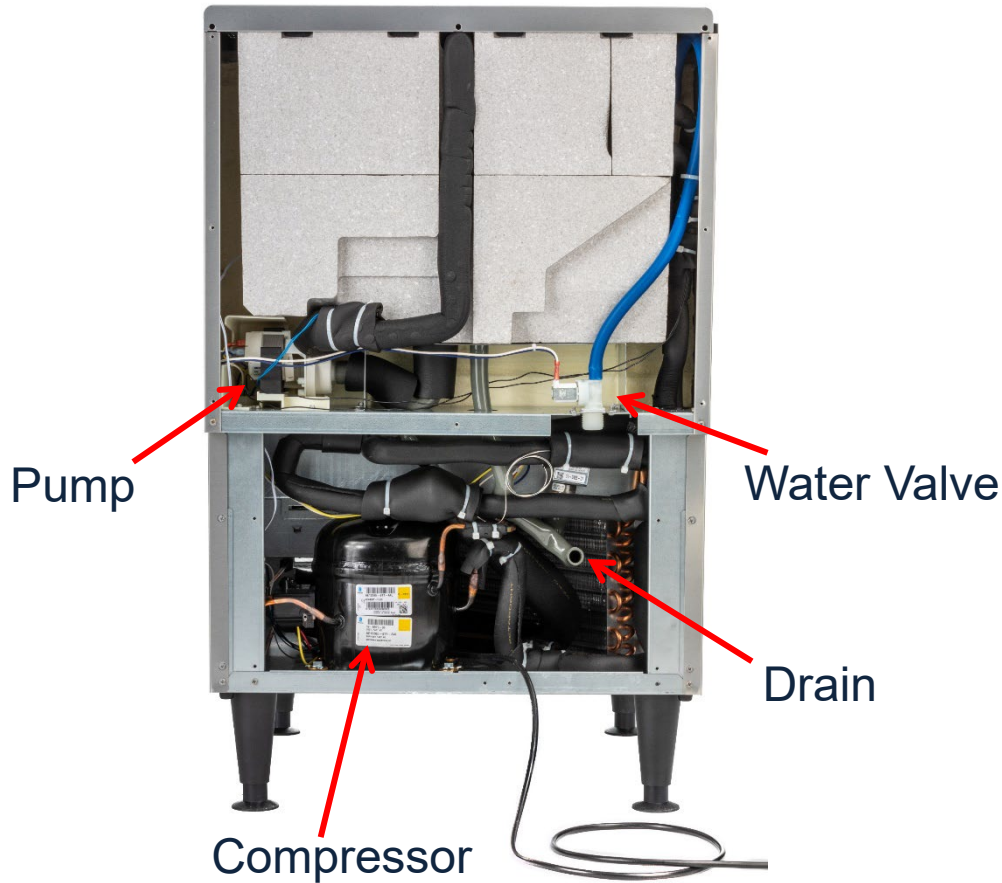
# Component Location



**Scotsman**

# Component Location

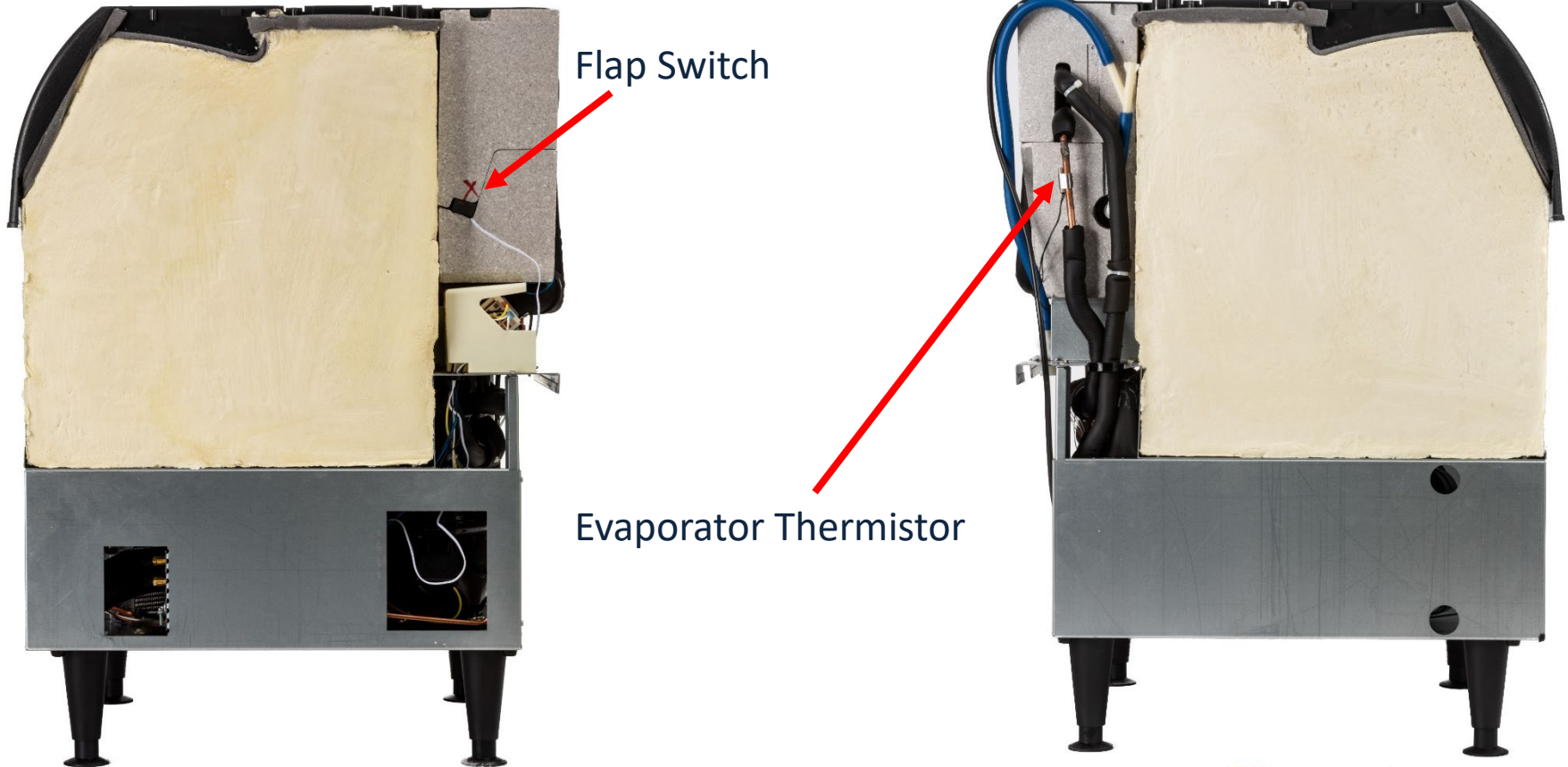
## Back Panel Area



**Scotsman**

# Component Location

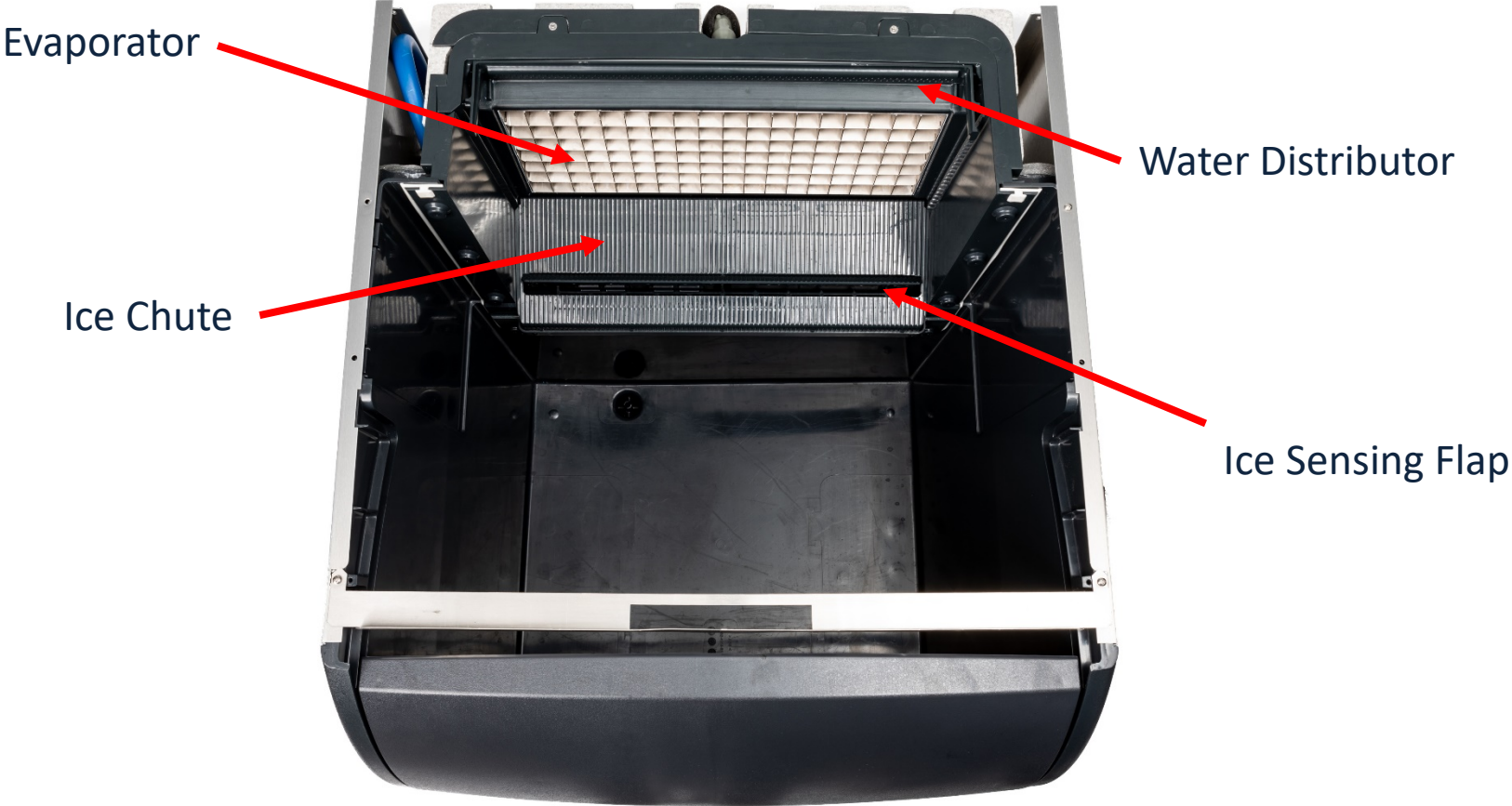
## Side Views



**Scotsman**



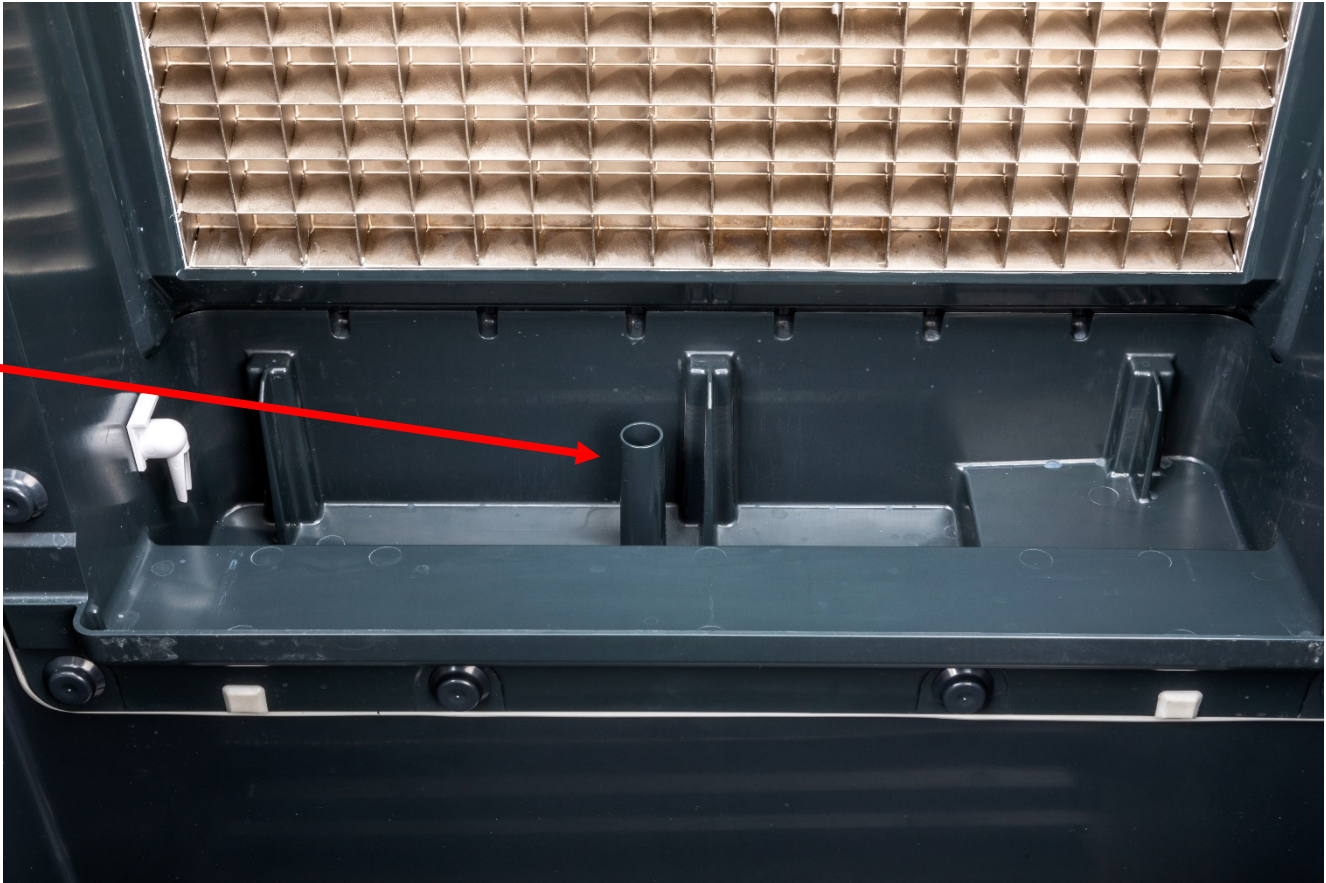
# Component Location



**Scotsman**



# Component Location



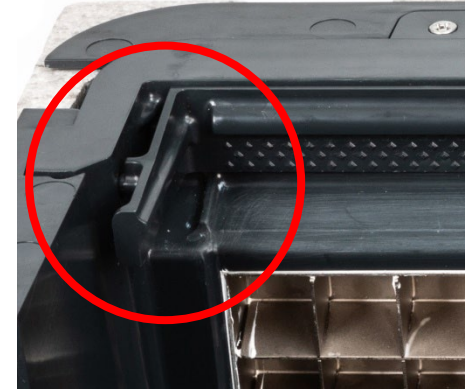
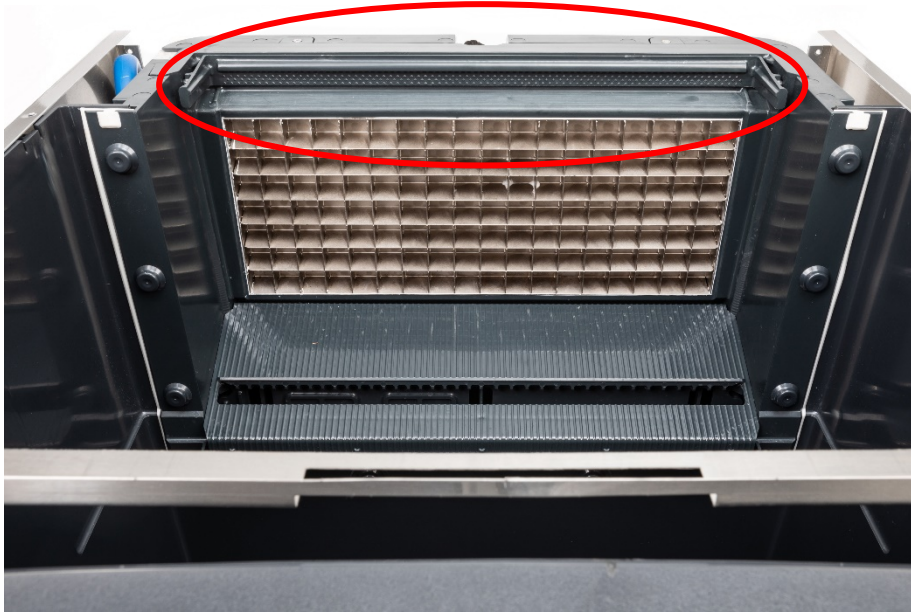
Overflow Standpipe

**Scotsman**



# Component Location

Water Distributor



Snaps In / Out



Back View of  
Distributor / Spray Bar

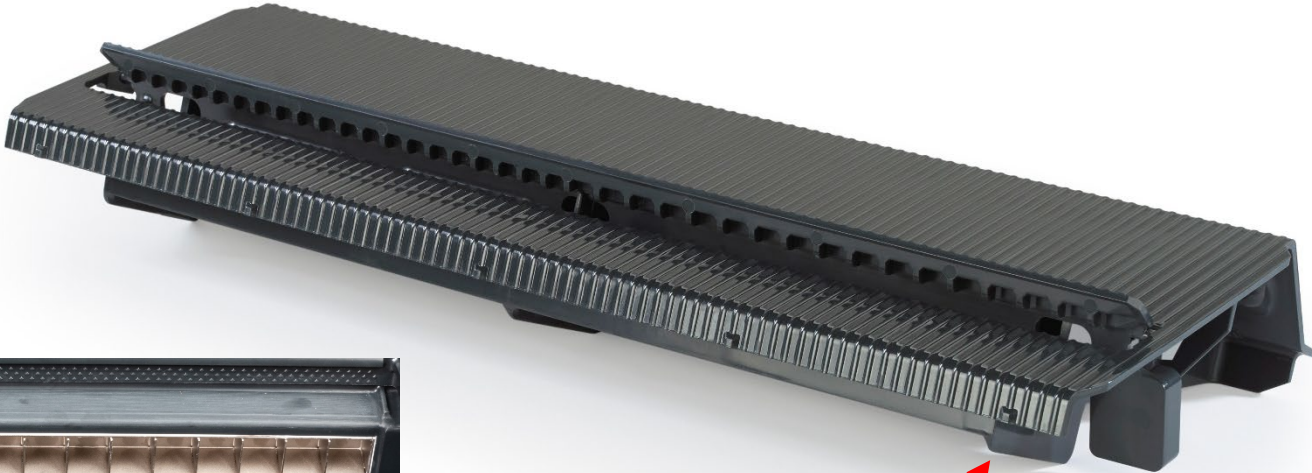
**Scotsman**





# Component Location

Ice Chute



Ice Chute



**Scotsman**



# Component Location

Ice Sensing Flap

Flap Open (Freeze)

Magnet

Flap Closed  
(Harvest or Bin Full)

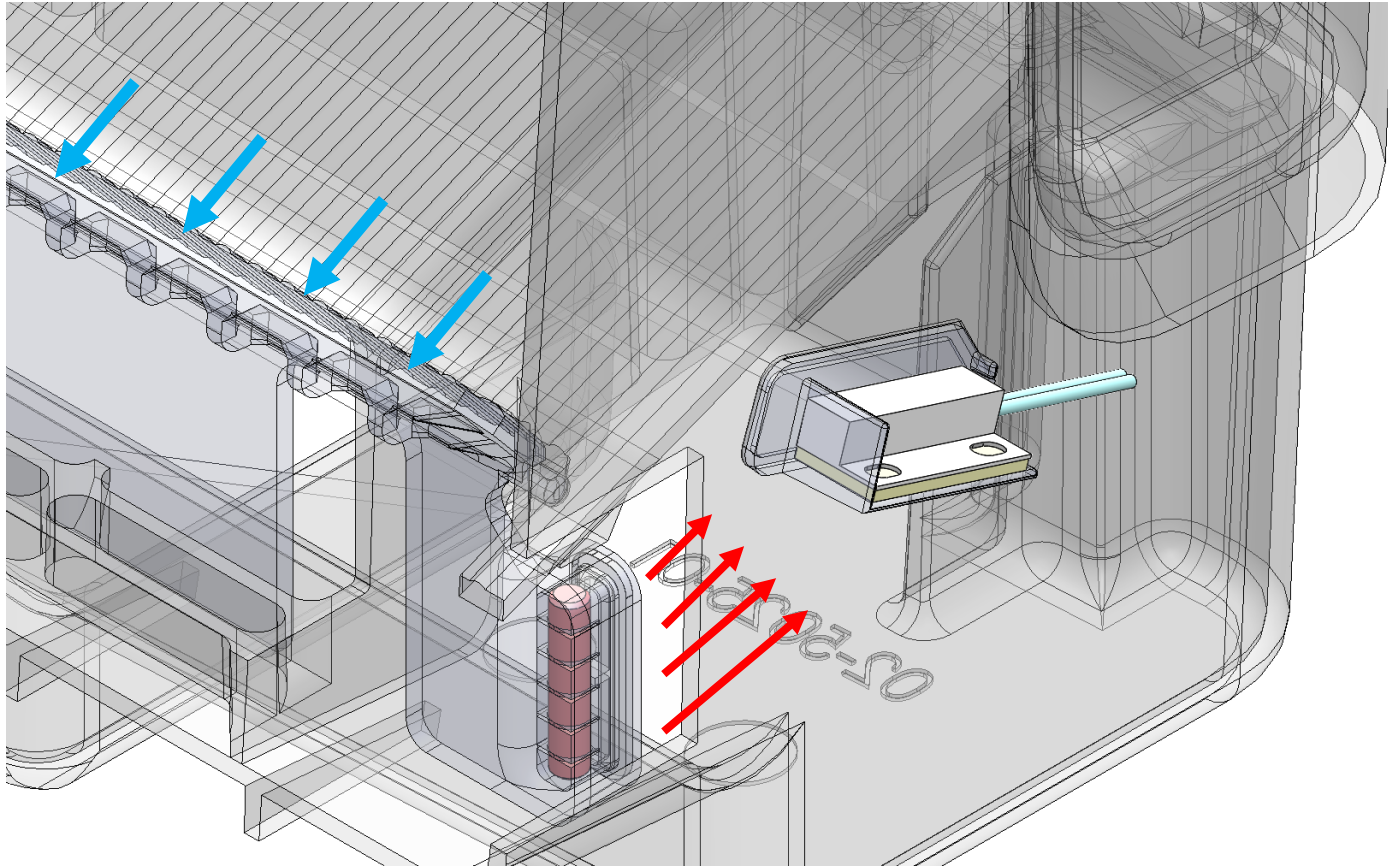
**Scotsman**





# Component Location

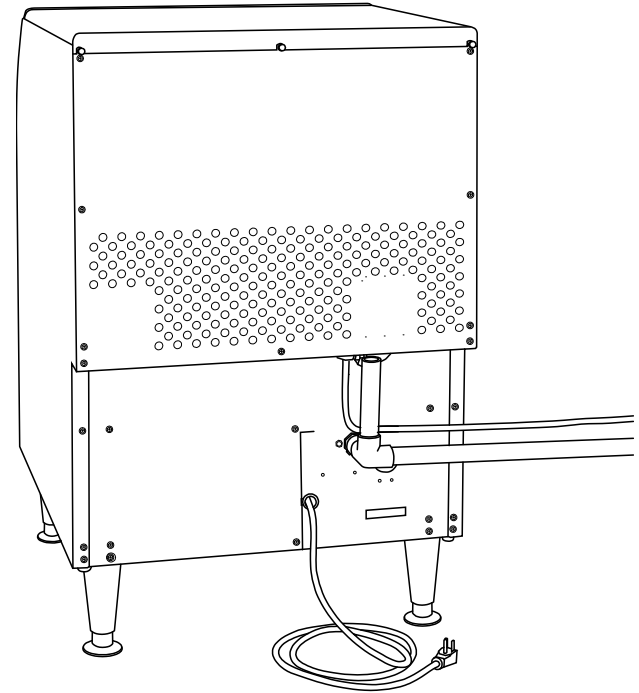
## Ice Sensing Flap and Switch



**Scotsman**

# Installation - Utilities

- Recessed area
  - Power cord
    - 5-15P plug
  - Water fitting
    - 3/8" FPT inlet on 60Hz
    - Remember to flush the line!
  - Drain fitting
    - 3/4" FPT
    - Vent horizontal runs



**Scotsman**

# Water Filtration and Treatment

---

- Taste and Odor Filters
  - Use if water has objectionable taste
  - This type contains activated carbon
  - T&O Filters remove chlorine
    - Chlorine frequently added by water treatment plant to kill bacteria
- Risk of increased bacteria growth by using a Taste and Odor filter
  - Other types available

**Scotsman**



# Installation

---

- Place in planned location
  - Must have water, drain and power nearby
- Level the unit
  - Use the included legs
    - Leg thread is 5/8 – 11
  - Or seal the cabinet to the floor
    - Rubber bumpers on the bottom reduces floor damage

**Scotsman**





# Pre-Start Check

---

- Remove front panel
- Remove shipping block under fan motor bracket
- Check for any other shipping materials

**Scotsman**



# Installation – Start up

---

- Turn on water supply
  - Confirm no leaks
- Connect power, move master switch to ON
  - Anti-Slush light blinks for 90 seconds
  - After that, the unit will move to Harvest mode for 90 seconds
    - Water flows in
    - Compressor turns on
    - Hot gas valve opens
- Freeze begins- pump and fan turns ON
  - Water and hot gas valves turn OFF

**Scotsman**



# Installation – Start up

---

- Check bin control for shut off
  - Move flap to closed and then open
  - See the Bin Full light blink
- Pour water in bin, check draining
- Return front panel to unit

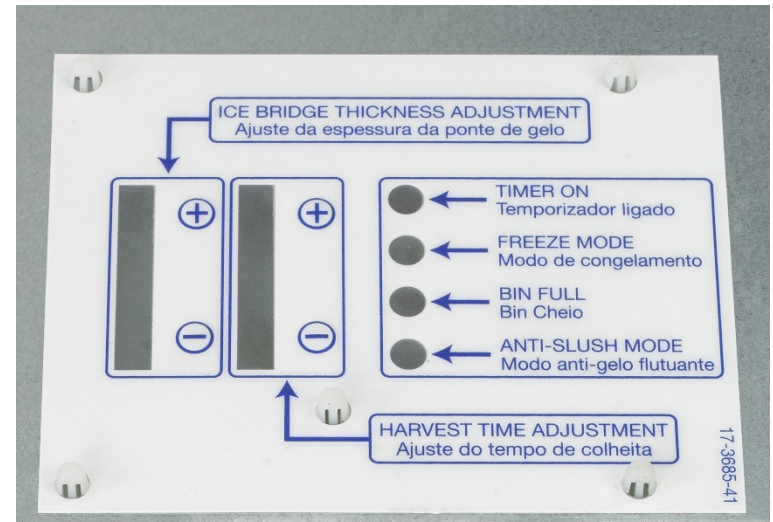
**Scotsman**





# Controller

- Four Status Lights
  - Timer
  - Freeze
  - Bin Full
  - Anti-Slush
- Ice Bridge Thickness Degree Lights
  - More lights = Thicker Ice



**Scotsman**

# Ice Thickness Degree Lights

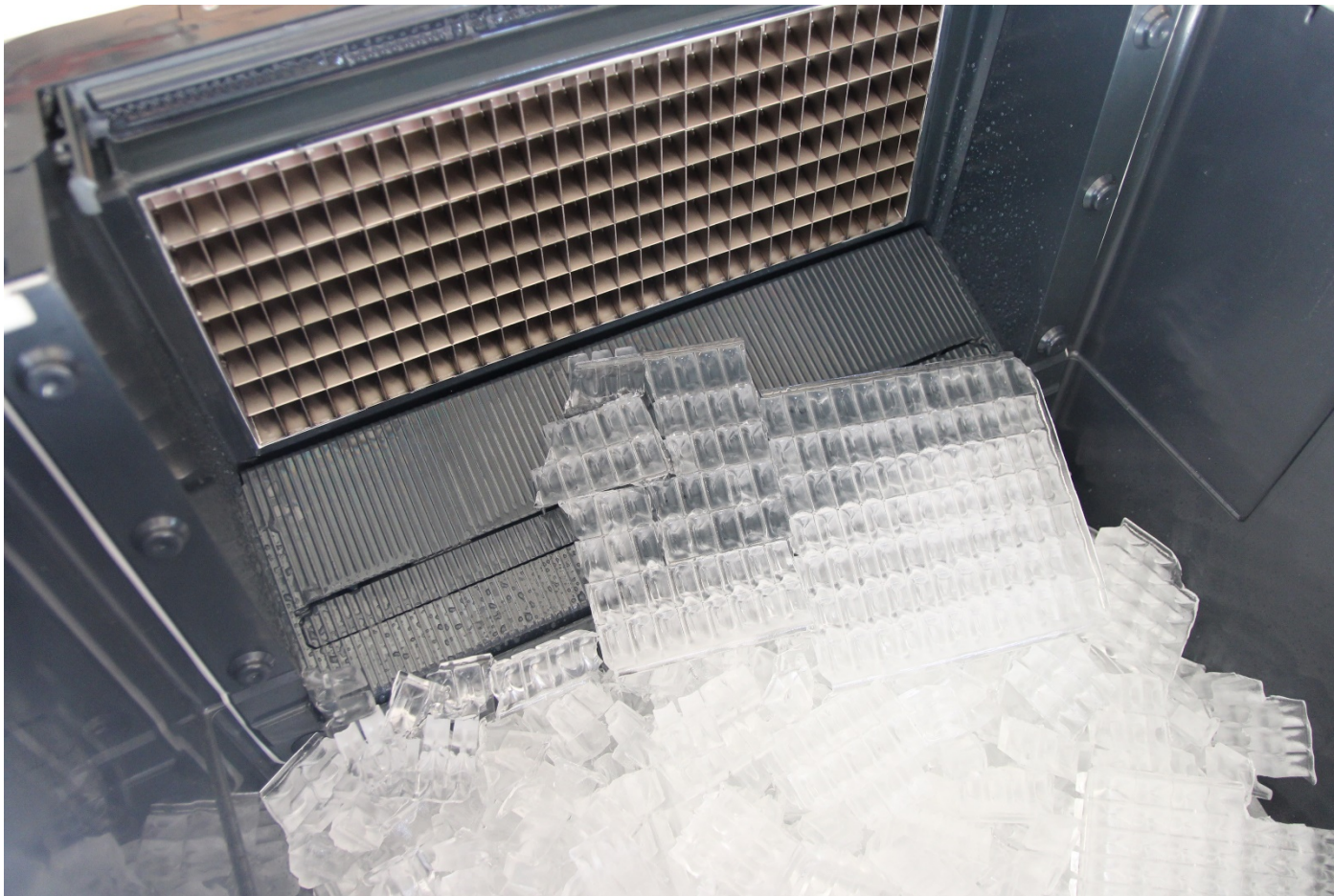
---

- 10 settings on 5 lights
- 1 blinking is minimum, 5 steady is maximum
  - Steady light = 2
  - Blinking light = 1
- Examples
  - 3 lights on steady = 6
  - 3 lights steady, 1 blinking = 7
- Adjust before timer light is on or wait till next cycle

**Scotsman**



# Normal Bin Full



**Scotsman**





# UC2024 Operation

## R-134a (PSIG)

Conditions	Suction, just before harvest (minutes)	Max Discharge in harvest (seconds)	Cycle Time (minutes)	Freeze Cycle (minutes)	Harvest Cycle (seconds)
70/50	6 - 7	48	15 - 16	14 - 15	50
90/70	6 - 7	60	19 - 20	18 - 19	35

## Model Compressor Amps

UC2024	6 – 6.5
--------	---------

Data is for **new, clean** machines

**Scotsman**



# UC2724 Operation

## R-134a (PSIG)

Conditions	Suction, just before harvest (minutes)	Max Discharge in harvest (seconds)	Cycle Time (minutes)	Freeze Cycle (minutes)	Harvest Cycle (seconds)
70/50	3 - 4	52 - 54	13 - 14	12 - 13	50
90/70	4 - 5	65 - 68	17 - 18	16 - 17	40

## Model Compressor Amps

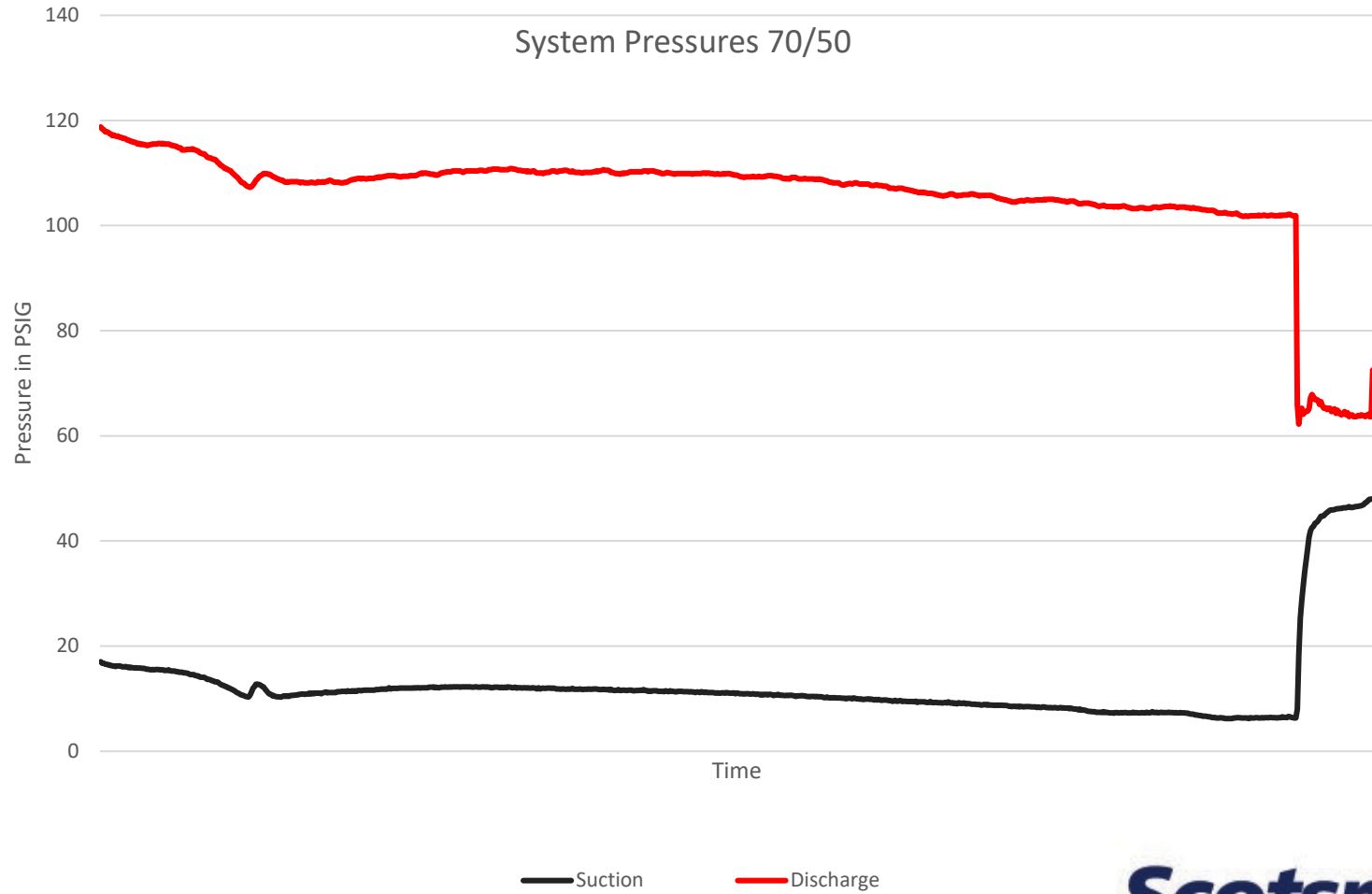
UC2024	6 – 6.5
--------	---------

Data is for **new, clean** machines

**Scotsman**



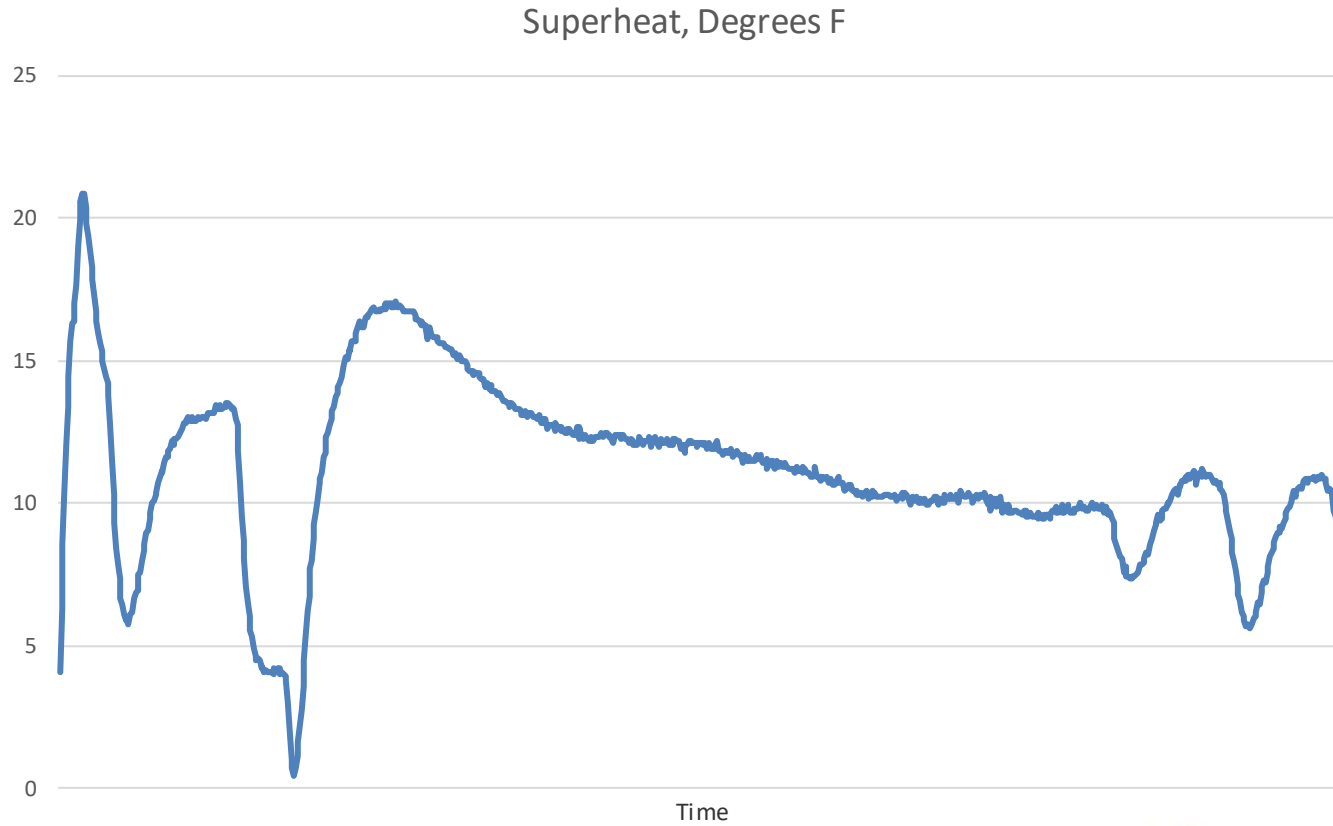
# Example Cycle



**Scotsman**



# Example Superheat



**Scotsman**

# Maintenance

- Flush out drain
- Clean Filter - Pull air filter out
  - Wash off, dry and return
  - Also in water cooled
    - For appearance only



**Scotsman**

# Water System Maintenance

---

- Scale Removal
- Sanitizing

**Scotsman**





# Scale Removal

---

- Remove front panel
- Move master switch to OFF
- Discard ice
- Drain sump

**Scotsman**



# Scale Removal

- Drain water system
  - Pull sump drain hose plug
  - Reconnect hose plug when done



**Scotsman**

# Scale Removal

- Mix a solution of 5 oz or 150 cc of Scotsman Clear 1 Scale Remover and 2.5 quarts or 2.4 liters of clean, warm potable water.
- Do NOT mix any stronger!

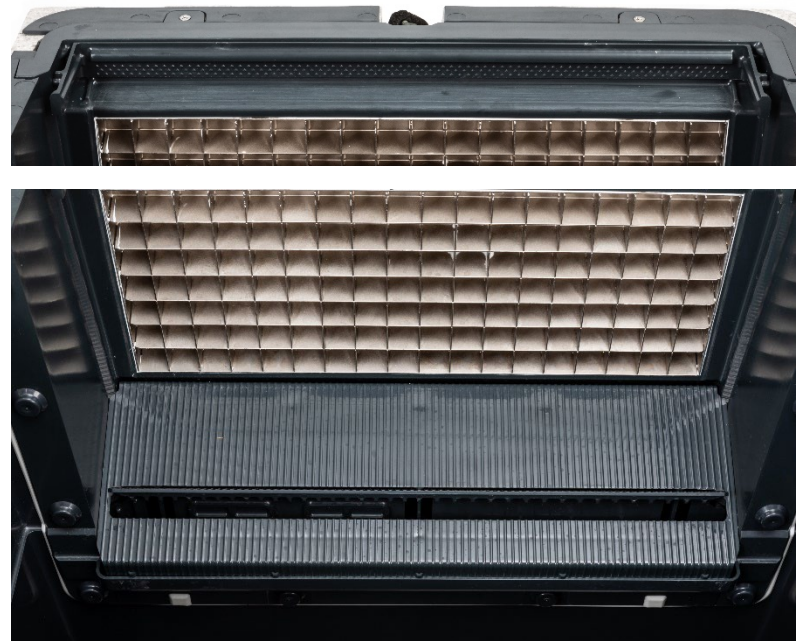


**Scotsman**



# Scale Removal

- Remove water distributor and ice chute from unit.
- Wash them with the scale remover solution and return them to the unit.



**Scotsman**

# Scale Removal

- Pour the scale remover mixture into the sump



**Scotsman**

# Scale Removal

- Move the master switch to Wash
- Operate the unit in the Wash mode for 20 minutes or more
- Move the master switch to OFF



**Scotsman**

# Scale Removal

- Drain water system
  - Pull sump drain hose plug
  - Reconnect hose plug when done



**Scotsman**



# Scale Removal

---

- Check water distributor for any remaining scale, repeat cleaning if needed.
- Wash the bin with scale remover solution.
- Flush the bin drain with hot water.

**Scotsman**



# Sanitization

---

- Use locally approved sanitizer.
  - Mix 2 to 2.5 gallons of solution per directions of the sanitizer
  - Pour sanitizer solution into sump until full
  - Move master switch to Wash
  - Operate the unit in Wash for 10 minutes
  - Move the master switch to OFF

**Scotsman**



# Sanitization

- Drain water system
  - Pull sump drain hose plug
  - Reconnect hose plug when done



**Scotsman**

# Sanitization

---

- Move master switch to ON to restart ice making
- Make a batch of ice
- Pour hot water into bin to melt ice until ice is gone
- Reattach all panels

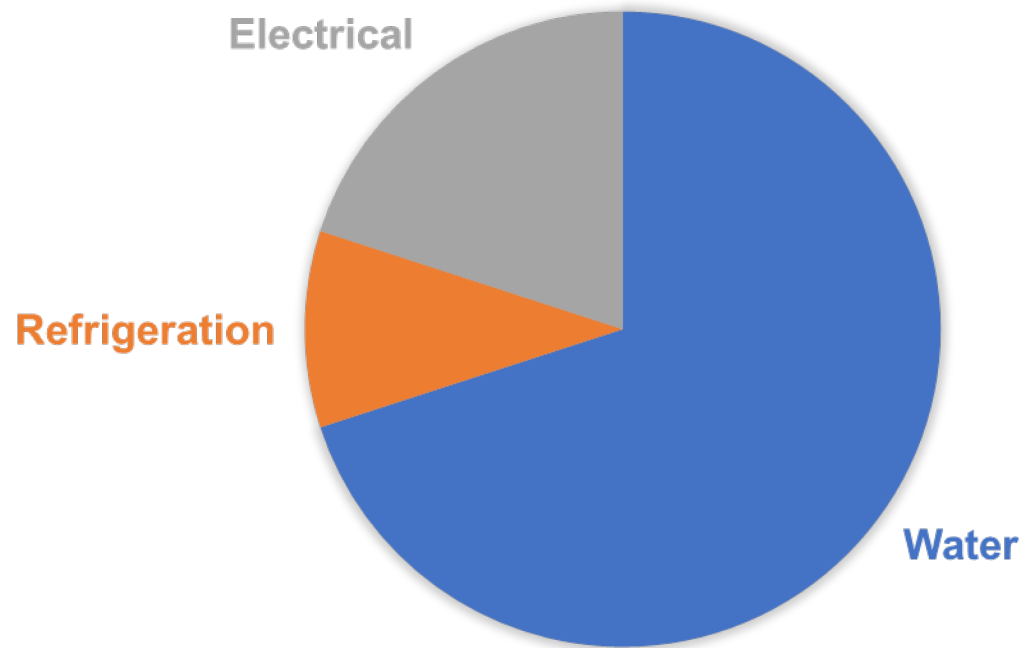
**Scotsman**





# Sources of Ice Machine Service

## RECIPE FOR ICE



**Scotsman**

# Diagnostics

---

- No Ice
  - No water in sump
- Check for
  - Plugged water filter
  - Inlet water solenoid valve not opening

**Scotsman**



# Diagnostics

---

- No Ice
  - All components operating
- Check for
  - Inlet water valve leaks through
  - Hot gas valve leaks through
    - Water is warm

**Scotsman**



# Diagnostics

---

- No Ice
  - In freeze, anti-slush light is OFF
  - Water in sump
  - No water over evaporator
- Water is part of the recipe!
  - Check pump
    - Move master switch to Wash
    - Check for water over plate, if none, check voltage at pump
    - If water over plate, replace controller

**Scotsman**





# Diagnostics

---

- No Ice
  - Bin full light is ON: False bin full
- Check for
  - Flap in closed position
  - Flap switch stuck closed
    - Note: Labeled curtain switch in wiring diagram

**Scotsman**



# Diagnostics

---

- Makes ice, but much too large or too small
- Check for
  - Cube size set to incorrect size
  - Thermistor failure
    - Operating on timed cycles
    - Indicated by all cube size and harvest time lights are flashing

**Scotsman**



# Diagnostics

---

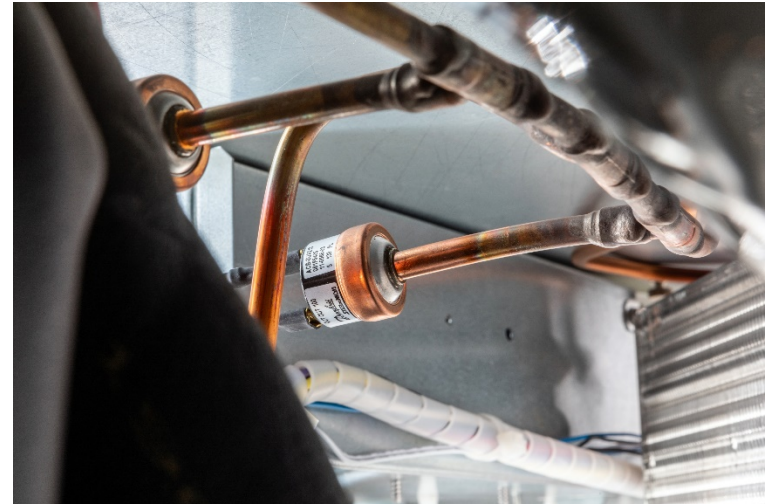
- No ice in bin
  - Makes ice, but does not release from plate
- Check for
  - Ice bridge too large
  - Hot gas valve not opening
  - Evaporator plate damaged

**Scotsman**



# Diagnostics

- No ice
  - Air cooled fan not turning
- Check for
  - Open windings on fan motor
  - Seized fan motor
  - Fan pressure control not closing
    - opens at 100 PSIG, auto reset closed at 150



**Scotsman**



# Diagnostics

---

- No ice
  - Unit in ice making mode (freeze light is ON) but contactor is not pulled in
- Check for
  - Open contactor coil
  - No power to contactor from controller
  - High pressure cut out open
    - Opens at 400, auto reset closed at 300

**Scotsman**



# Diagnostics

---

- No ice
  - Compressor off, pump forcing water over evaporator
- Check for
  - Overheating
    - Low charge
    - High superheat
  - Contactor coil open
  - Compressor not starting
    - Start relay or PTCR
    - Start capacitor
    - Motor windings

**Scotsman**



# Test Mode

- To use test mode (pump will be off in Test Mode):
  - Place both thermistor probes in 32<sup>o</sup>F. water.
  - Push and hold the left plus (+) button and the lower right minus (-) button for at least 5 seconds. Then release them. The yellow LED will light up for 3 seconds.
  - Push and release the left plus (+) button. The yellow light will switch on if the evaporator thermistor resistance is correct.
  - Push it again and if the water thermistor resistance is correct, the yellow light will switch on.
  - Push and release the right plus (+) button. The blue light will switch on.
  - Push it again and the red light will switch on.
  - Push and hold the right minus (-) button. The green lights will switch on one at a time as long as the button is pushed in. Release when completed.
  - Push and release the right minus (-) button. The yellow light will switch on, indicating correct system memory.
- Disconnect electrical power to end test mode

**Scotsman**



# Taking the Unit Apart

- Remove front panel
- Drain water system



**Scotsman**



# Taking the Unit Apart

- Remove top panel
  - Three thumb screws at back
  - Push panel back slightly
  - Lift up and off



**Scotsman**

# Taking the Unit Apart

---

- Bin is not removable
- Removing left, right and back panels helps with access
- Water inlet solenoid valve is at the back
- Hot gas valve is at the back
- TXV is at the back

**Scotsman**



# Taking the Unit Apart

- Flap/Curtain switch is under the right side panel



**Scotsman**

# Taking the Unit Apart

- Water thermistor is at the back
- Water pump is at the back
- Evaporator thermistor is under the left panel



**Scotsman**



# Taking the Unit Apart

- Water pump



**Scotsman**

# Taking the Unit Apart

- Evaporator



**Scotsman**



# Taking the Unit Apart

- Compressor
  - Behind lower back panel



**scotsman**

# Taking the Unit Apart

- Fan
  - Removable from the front and with the left panel off
  - Access holes for easy access to back screws



**Scotsman**



# Technical Service: 1-800-533-6006

www.Scotsman-ice.com

The screenshot shows the Scotsman website's navigation menu with 'SERVICE - SUPPORT' highlighted. The main content area features a 'SERVICE & SUPPORT' banner with the text 'A global system, focused on your operation's success.' Below this is a 'SCOTSMAN SERVICE INFORMATION' section with a gear icon and the text 'Your complete resource for all things Service, Parts, Manuals, Bulletins, ...'. At the bottom, there are three service categories: 'WARRANTY REGISTRATION AND VERIFICATION', 'LOCATE SERVICE DEALER', and 'TRAINING PROGRAMS'. A blue box contains contact information: 'TECHNICAL SERVICE: 1-800-533-6006' and 'CUSTOMER SERVICE: 1-800-SCOTSMAN'. A red 'SERVICE NOTICE' is also visible. A black arrow points from the gear icon to the right.

The screenshot shows the 'Service Information Menu' on the Scotsman website. It features a search bar at the top and a list of menu items: 'PARTS BREAKDOWN', 'SERVICE MANUALS', 'USER MANUALS', 'CLEANING & MAINTENANCE', 'TECHNICAL & DIAGNOSTIC TOOLS', 'INSTRUCTIONS', 'BULLETINS', 'SPEC SHEETS', 'SAFETY DATA SHEETS', and 'MISCELLANEOUS'. The Scotsman logo is at the bottom right.

**Scotsman**

Questions?

**Scotsman**<sup>®</sup>