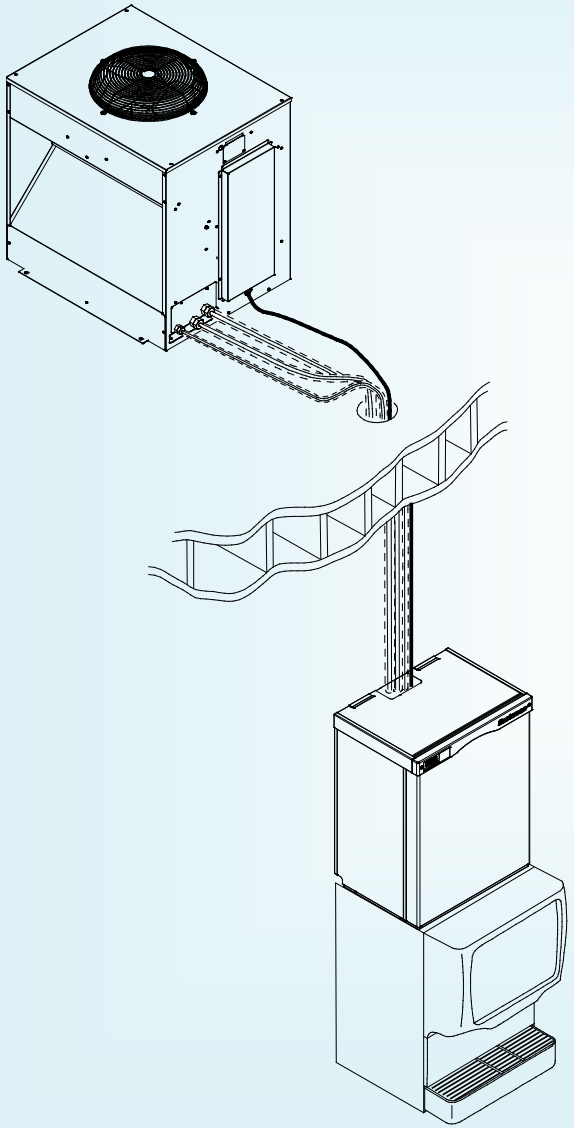


Prodigy ECC Eclipse Cuber Technical Training Includes Prodigy Plus

800
1000
1200
1400
1800

Scotsman
Ice Systems

In This Presentation

- What the ECC Eclipse is
- Components and their functions
- Installation
- Operation
- Maintenance
- Service Diagnosis

Scotsman Ice Systems

The New Eclipse System

- Two main components per system:
  - EH Head Unit - 115 volt
  - ECC condensing unit - 208-230 volt
- Several systems for different applications
  - 3 ice making heads
  - 4 condensing units
  - 5 capacity systems

Scotsman Ice Systems

What's New – Prodigy Plus

- Panels
  - Front pulls out at bottom
  - Indicator lights and switch access at bottom front
- Controller
  - Connects to lower light and switch panel
  - New part number, new service controller will work on any Prodigy cuber
  - Cleaning process one button push
    - No longer has to empty sump to add water

Scotsman Ice Systems

Scotsman
Ice Systems

ECC is a complete condensing unit

- ECC condensing unit – no condenser to assemble
- No quick connects – condensing unit has ball valves and stubs
- EH “C and D” heads have stubs, no quick connects
  - Shipped with nitrogen, stubs have plugs
  - Line sets are shortened to fit site
  - Brazed to stubs on condensing unit and head
  - Head and line sets evacuated from condensing unit ball valves
  - Ball valves opened to release charge

Scotsman Ice Systems

Prodigy Eclipse Heads - Capacity

- Platforms
  - 30” wide, 29” tall head
    - EH430 D – 1800 lb with ECC1800
    - EH430 D - 1400 lb with ECC1410
  - 30” wide, 23” tall head
    - EH330 D – 1200 lb with ECC1200
  - 22” wide head
    - EH222 D – 1000 lb with ECC1410
    - EH222 D – 800 lb with ECC0800

Scotsman Ice Systems

Ice Making Section – the Head

- Remote Low Side Heads
- EH222 D
  - 22” wide by 16.5” deep
- EH330 D, EH430 D
  - 30” wide by 24” deep
    - EH430 is 29” high
    - EH330 is 23” high

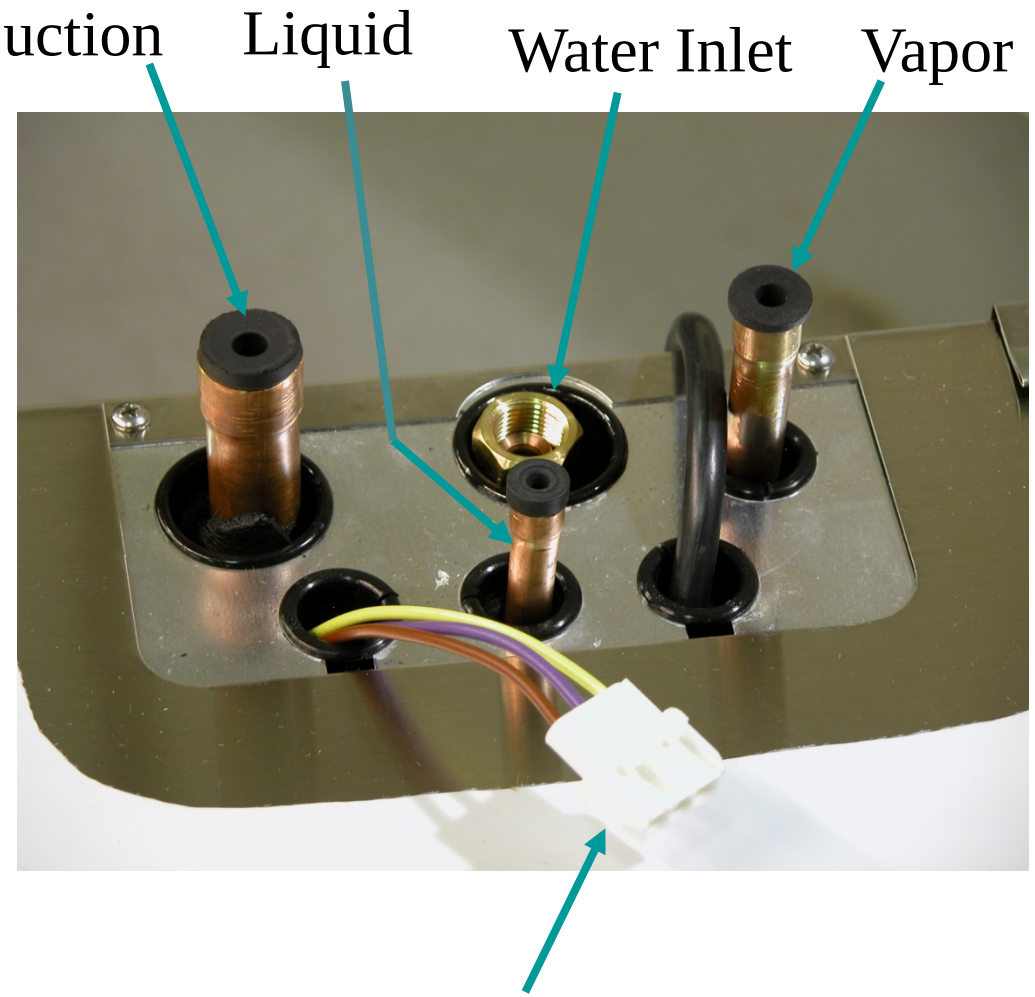
EH222

EH330, EH430

Scotsman Ice Systems

EH222 Head

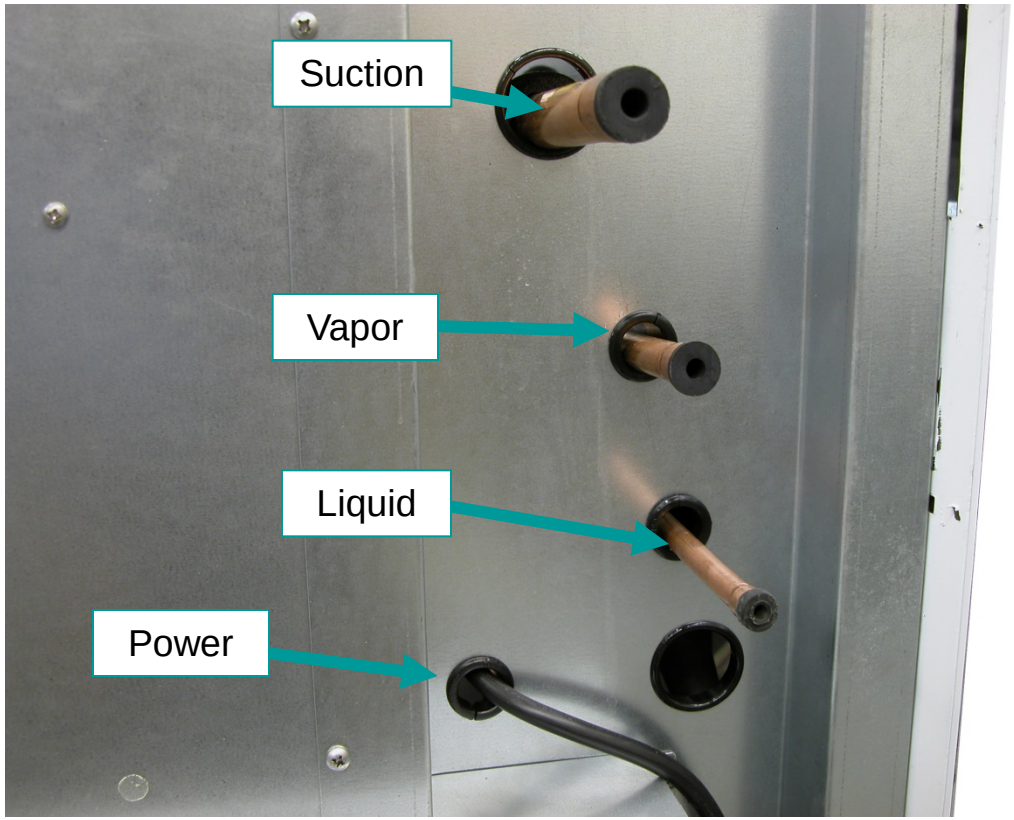
- Nitrogen charge
- Refrigerant Tube Connections
  - Vapor
  - Liquid
  - Suction
- Connections at center of the back of the top panel



Scotsman Ice Systems

EH330 C, EH430 C Heads

- Refrigerant Tube Connections
  - Vapor
  - Liquid
  - Suction
- Connections at the back of the cabinet
  - Tubing can route up or back



Scotsman Ice Systems

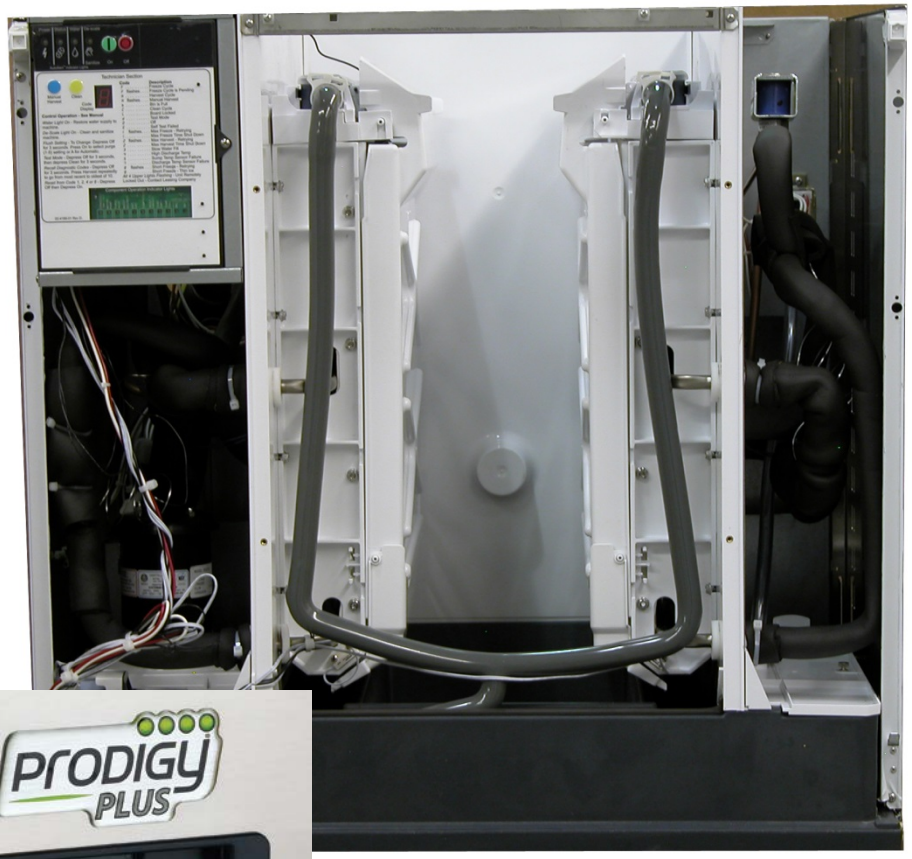
EH222 Head

- Ice making compartment
  - One evaporator – faces front
  - Controller in front curtain

Scotsman Ice Systems

EH330, EH430 Head

- Ice making compartment
  - Two evaporators – face each other
  - Two expansion valves
  - Two vapor valves
- Vari-Smart ice level control system is a field installed **option**



Scotsman
Ice Systems

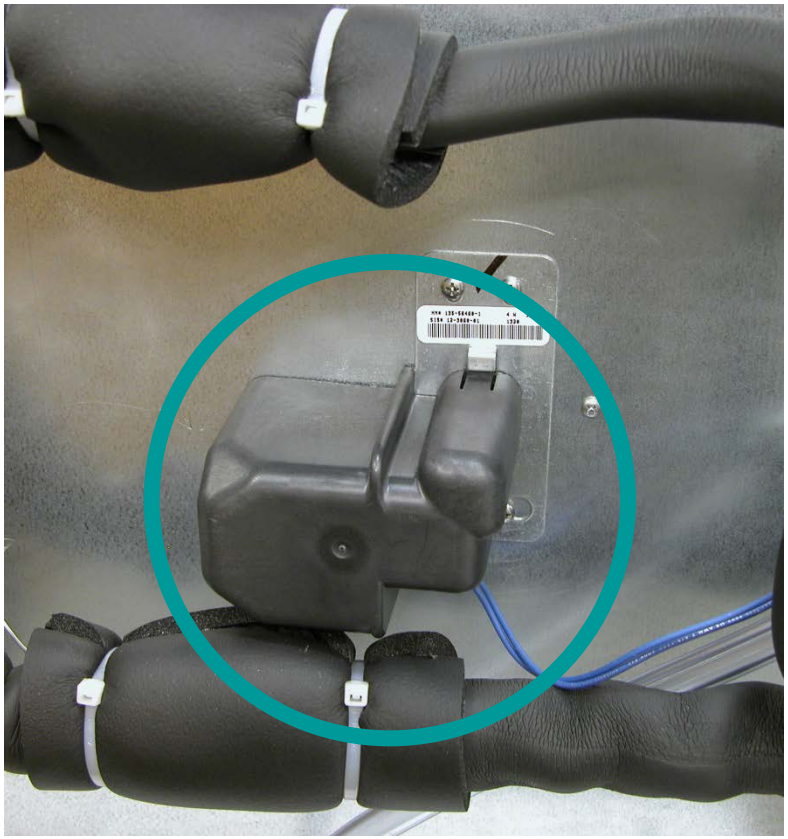
Vapor Inlet Valve – in Head

- Purpose: Opens during harvest to allow vapor to enter the evaporators
- 115 volt coil
- One per evaporator

Scotsman Ice Systems

Harvest Assist Mechanism

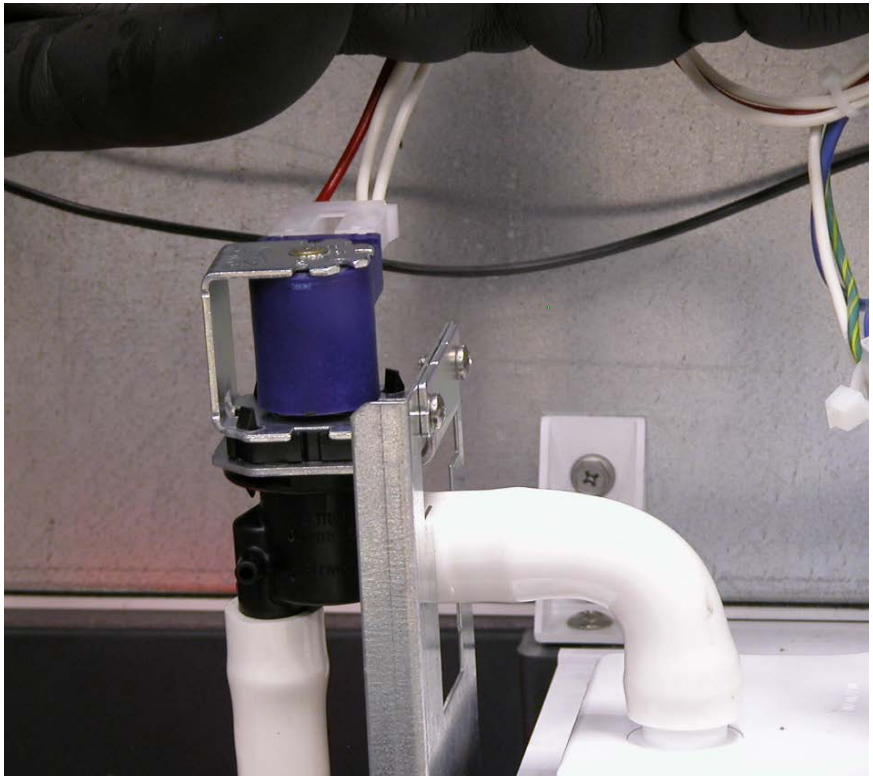
- Purpose: Adds extra force to back of ice to aid in harvest
- One per evaporator
- 115 volt motor



Scotsman Ice Systems

Purge Valve

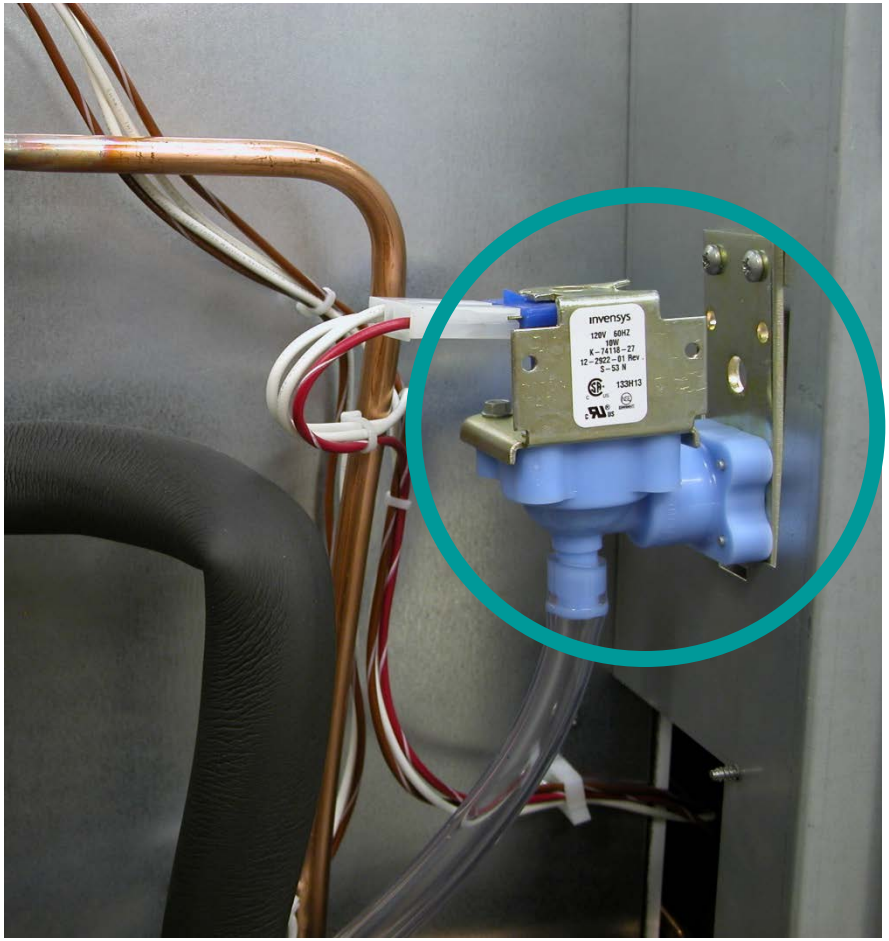
- 115 volt coil
- Opens to drain the reservoir during harvest
  - Do not use ohmmeter to check for continuity on this coil, will give false open reading



Scotsman Ice Systems

Inlet Water Solenoid Valve

- Purpose: Opens to add water and fill reservoir
  - Fills at beginning of freeze
  - Should only fill once per cycle
    - Can add water anytime the water level sensor mid probe is dry
    - 115 volt coil



Scotsman Ice Systems

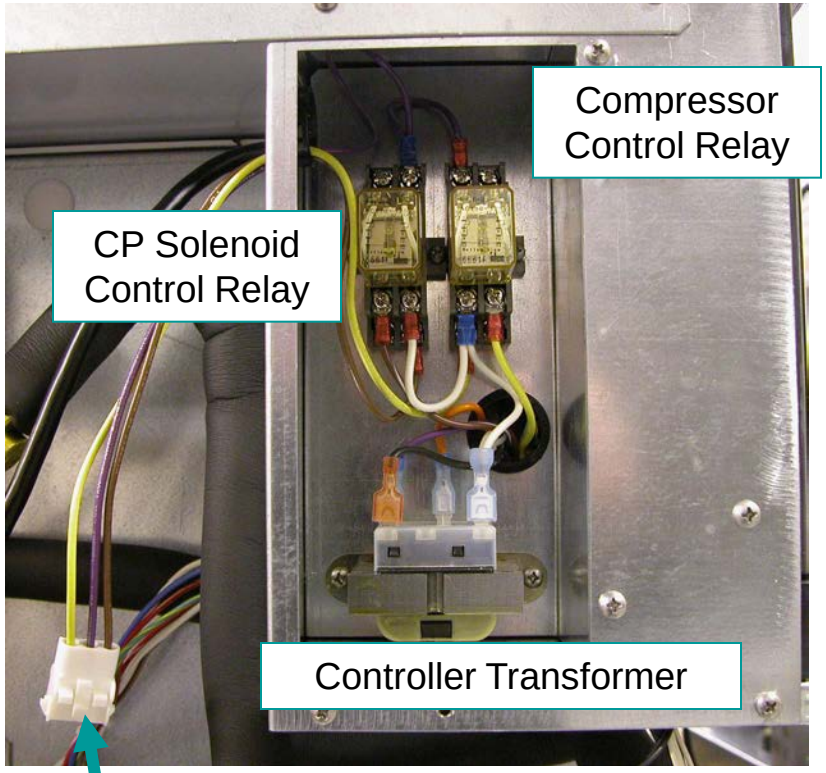
Controller

- AutoAlert external indicator lights
  - Indicate power, status, water availability and need for maintenance
- WaterSense adaptive purge control
  - Automatically selects the proper water purge level based on local water conditions

Scotsman Ice Systems

Electrical Box

- Two relays to operate the condensing unit
  - Compressor contactor
  - Solenoids
- Control wire connection nearby
  - Wire routes to compressor package
  - Controls contactor and solenoid valves



Control Wire Connection

Scotsman Ice Systems

EH222 Freezing Compartment

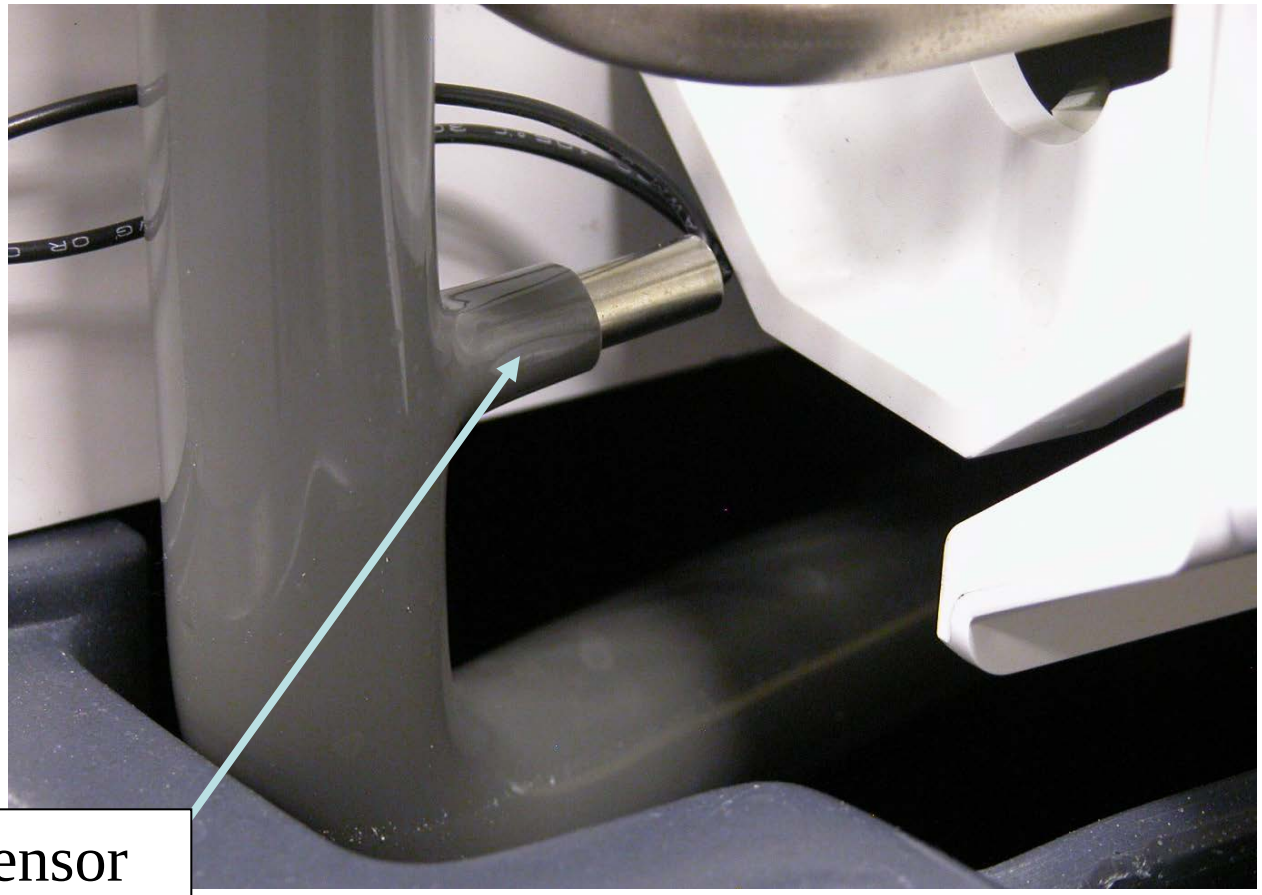
Scotsman Ice Systems

Curtain Switch

- EH222 C – located to the left of the curtain
- When curtain is open, switch is open.
  - Curtain switch indicator light on controller will be ON when open.
    - EH222 will always have one curtain switch light on.

Scotsman Ice Systems

Temperature Sensor



Scotsman
Ice Systems

Vari-Smart / KVS

- Adjustable ice level
  - Standard on EH222
  - Optional on all others

Adjustment Knob

Scotsman Ice Systems

Condensing Unit

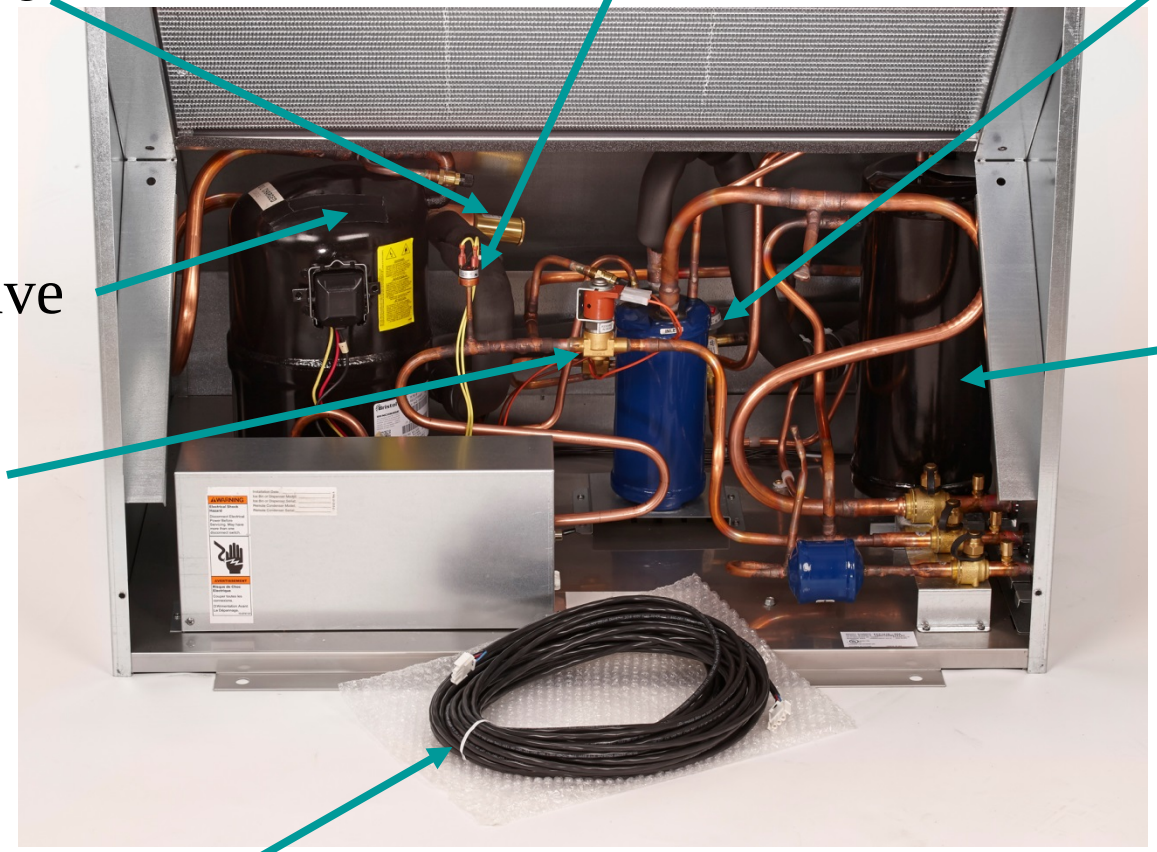
- Includes
  - Coil
  - Compressor
  - Receiver
  - Accumulator
  - Fan and motor
  - Control box w/ transformer
  - Head master
  - Bypass valve
  - Liquid inlet valve

Scotsman Ice Systems

Condensing Unit

Scotsman
Ice Systems

Condensing Unit



Scotsman Ice Systems

Crankcase Pressure Regulator

- CPR valve restricts compressor dome pressure during harvest
  - 55 to 60 PSIG
  - Pre-set - don’t adjust it!

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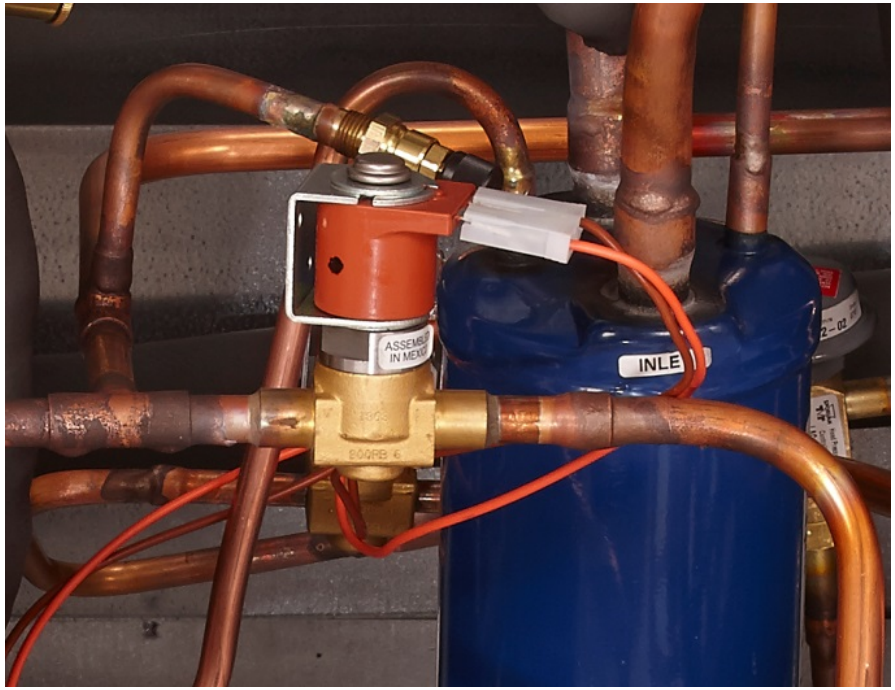
Ice Systems

Condenser Bypass Valve

- Normally Closed, opens during harvest
- Bypasses condenser coil and directs discharge gas to vapor line



Scotsman
Ice Systems

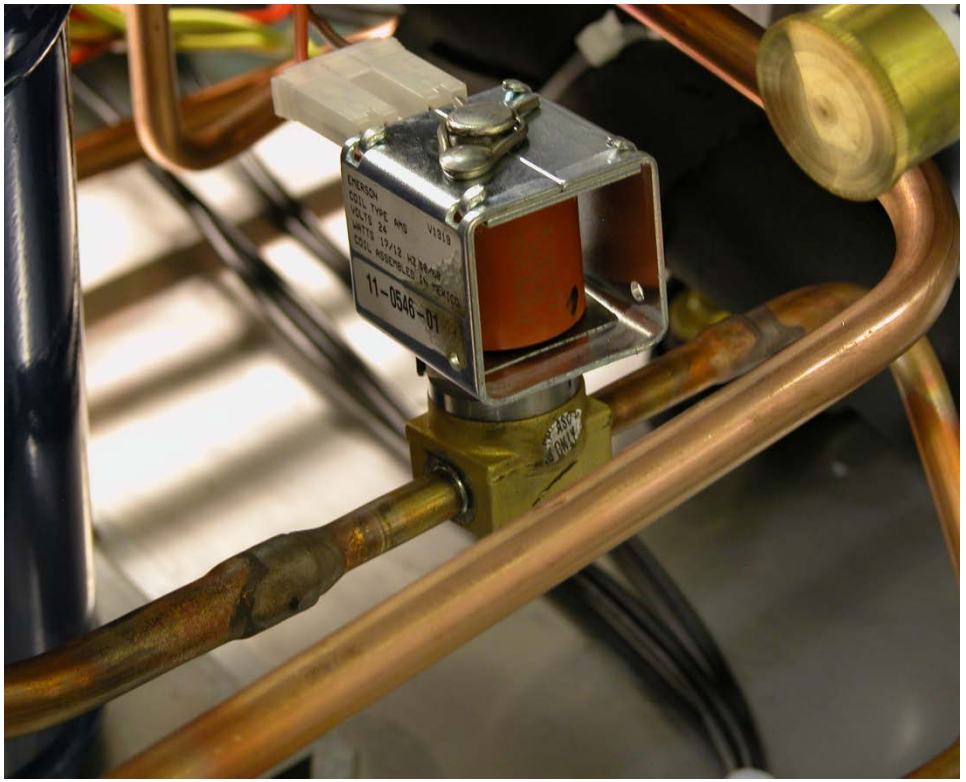
Headmaster – Discharge Pressure Control

- Maintains discharge pressure during freeze
- Active at any temp below 70°F.
  - Rated at 217 PSIG, freeze cycle pressure may be between 220 and 230 during cold ambient operation

Scotsman Ice Systems

Liquid Inlet Valve

- Normally Open, closes during harvest
- Controls liquid flow into receiver
- Isolates refrigerant in condenser during harvest
- Improves cycle time



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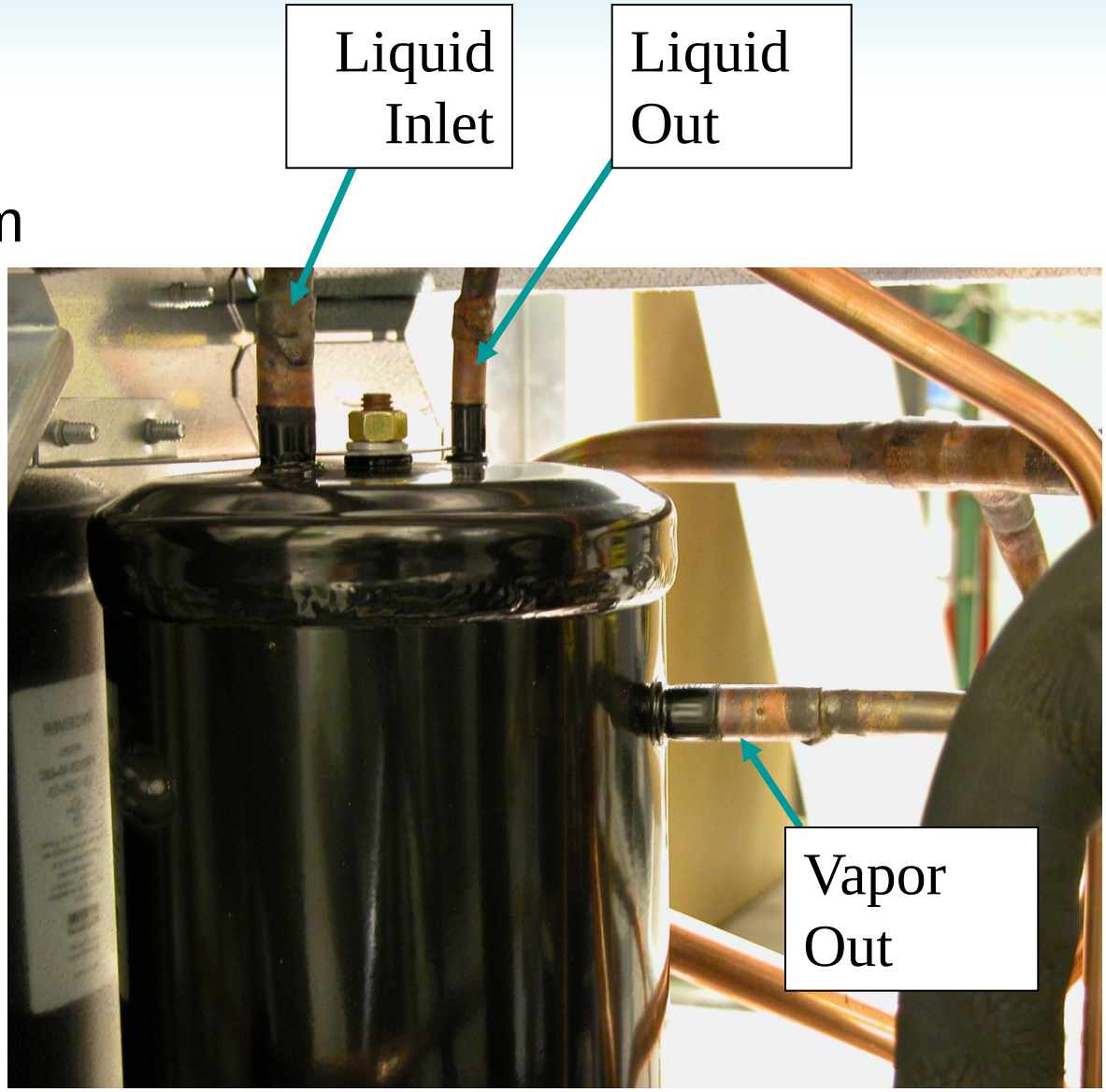
Ice Systems

Receiver

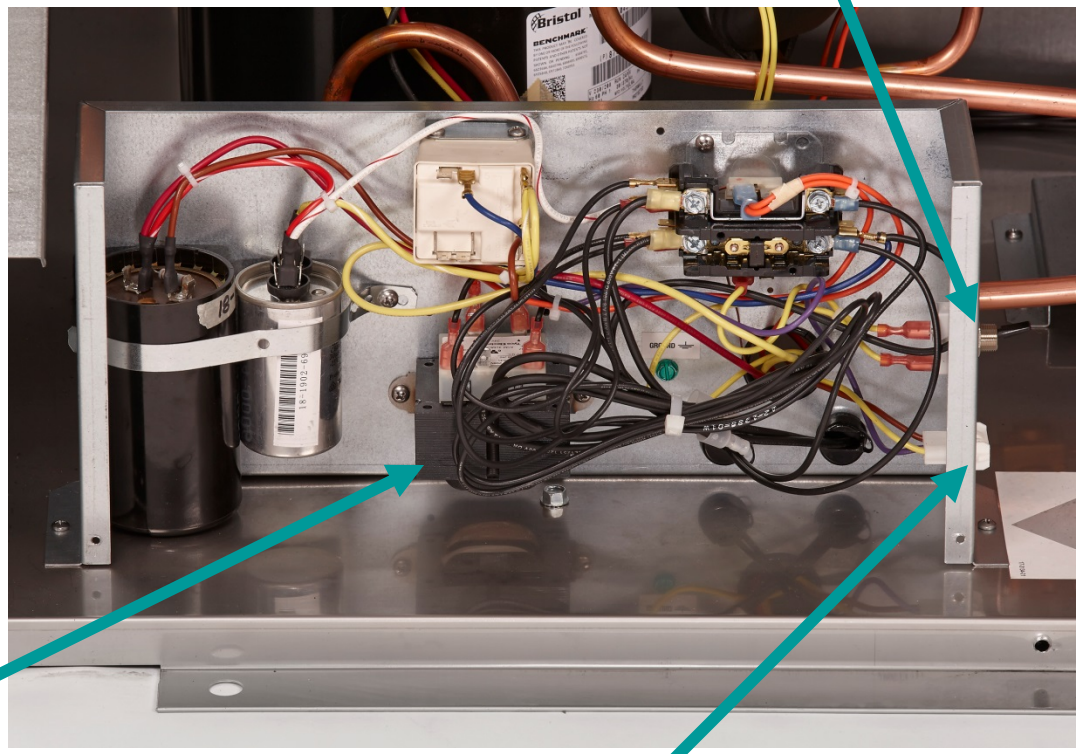
- Shipped with system charge
- Three ports
  - Liquid inlet
  - Liquid outlet
  - Vapor outlet



Scotsman Ice Systems

Electrical Box

- Transformer to power EH relays
- Toggle switch controls condensing unit
- Control Wire connection from EH to control the system
- Electrical power connected at contactor



Scotsman Ice Systems

System Installation

- Must match components to create system

Scotsman
Ice Systems

22” System Combos

- 800 -
  - EH222, ECC0800
- 1000 -
  - EH222, ECC1410

Scotsman
Ice Systems

23” tall 30” wide System Combos

- 1200 -
  - EH330, ECC1200

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Ice Systems

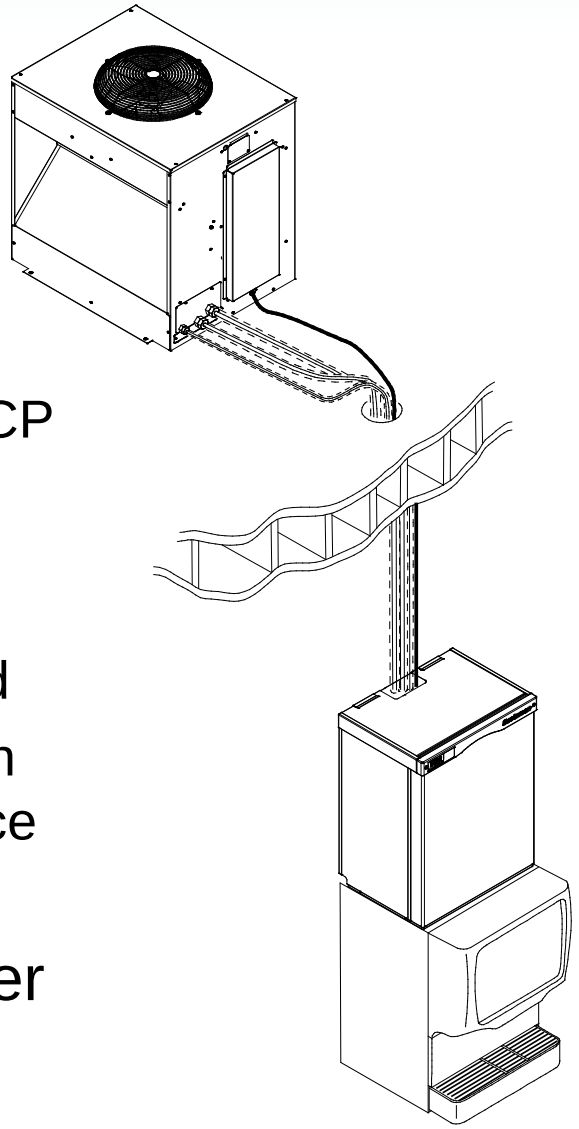
High Capacity 30” System Combos

- 1400 -
  - EH430, ECC1410
- 1800 -
  - EH430, ECC1800

Scotsman
Ice Systems

Equipment Location

- Head can be above or below condensing unit
  - Limit is 15’ above or 35’ below the CP
- Line Sets
  - 3BRTE20, 35, 50 or 75 - EH
  - No extra refrigerant charge required
  - S trap in suction tube required when condensing unit is over 20’ above ice making head
- Must have bin or dispenser adapter for the EH222 head



Scotsman Ice Systems

Line Set Installation

- Route lines in two groups
  - Liquid and Vapor
  - Suction separately for ease of routing
    - 3/4” tube requires careful handling
  - Route control wire with line set
  - Must shorten at site
    - No need to loop extra tubing

Scotsman Ice Systems

Install Head

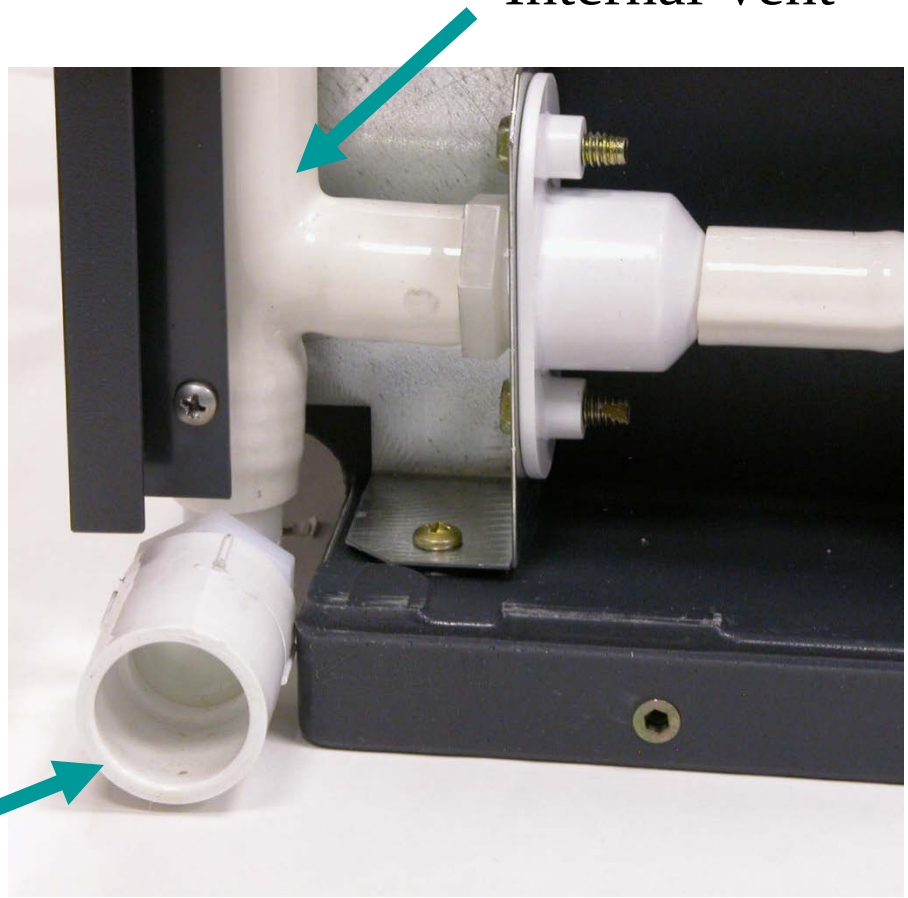
- Against wall capability
  - EH222 fully flush
  - EH330, EH430 limited by chase panel
- Drains left, right or back
- Water inlet and power inlet from the top or back
- Refrigerant line connections back or top
- 115 volt unit, cord provided

Scotsman Ice Systems

Flush Installations - EH222

- Attach water inlet
  - 3/8” union flare ships in hardware package
- Attach drain - 3/4”
  - EH222 ships with drain hose fitting attached
  - EH222 no vent required, vent is internal

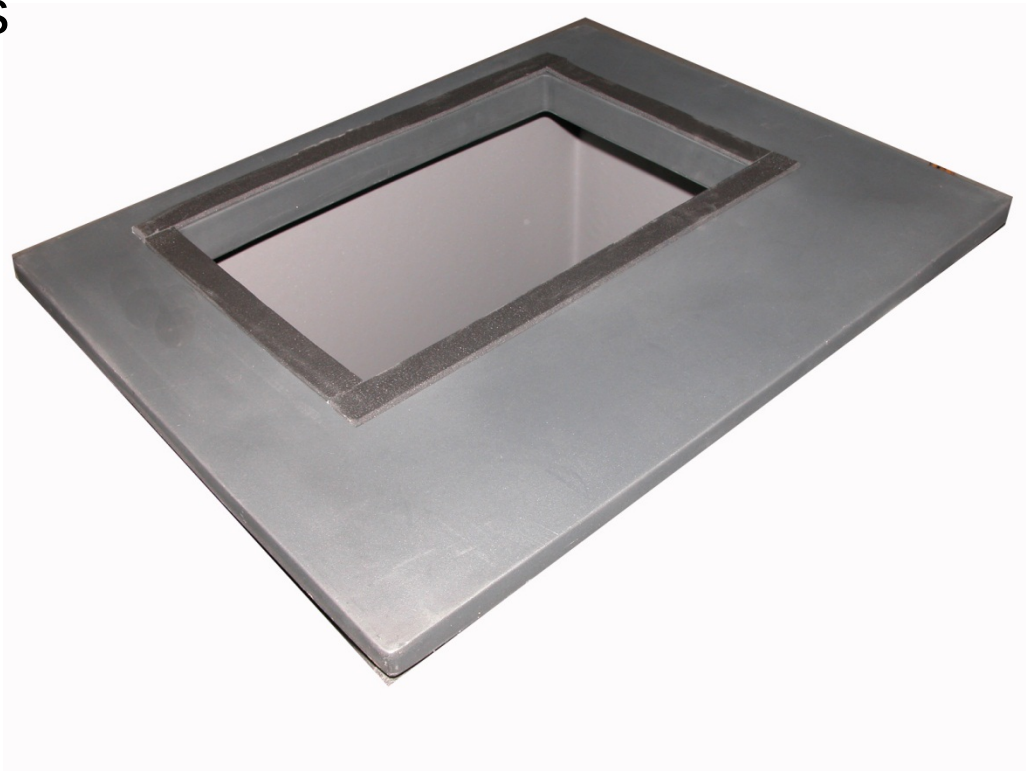
Drain Fitting Rotates to left, right or back.



Scotsman Ice Systems

EH222 - Place on Adapter

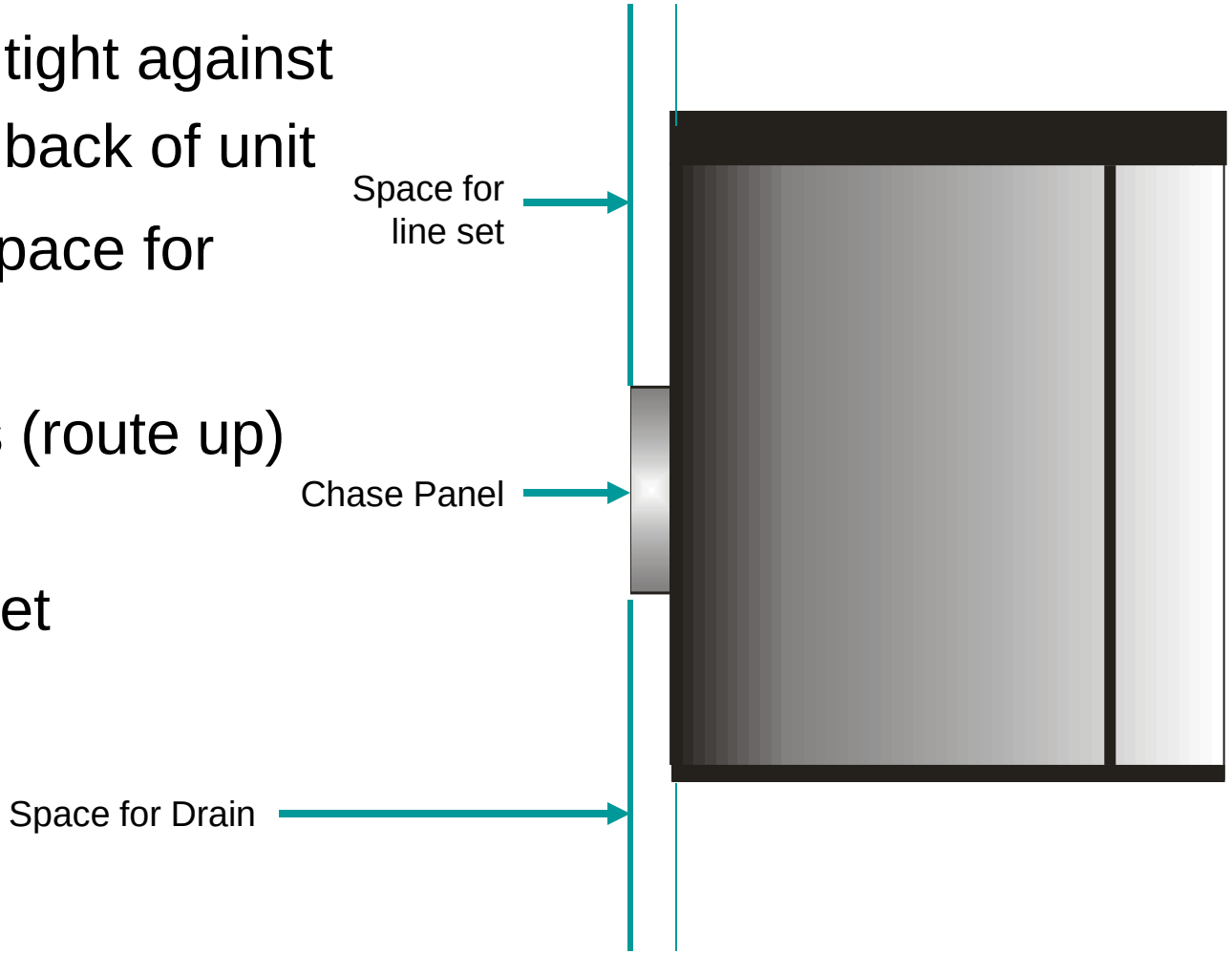
- Many different adapters
  - Gasket tape at mounting area
- Remove all panels
- Place unit
- Connect control wire



Scotsman Ice Systems

Tight Installations – EH330 or EH430

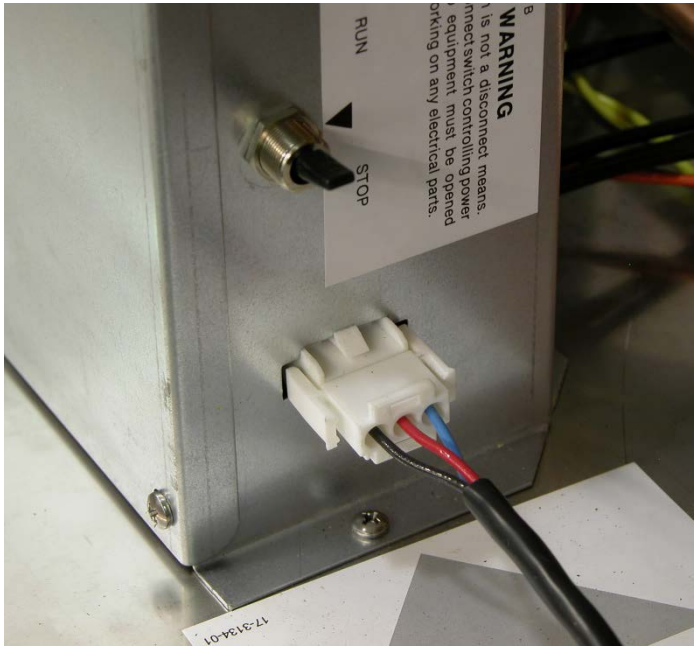
- Chase panel tight against wall – gap to back of unit
- Gap allows space for tubing
  - Line sets (route up)
  - Drains
  - Water inlet



Scotsman Ice Systems

Condensing Unit

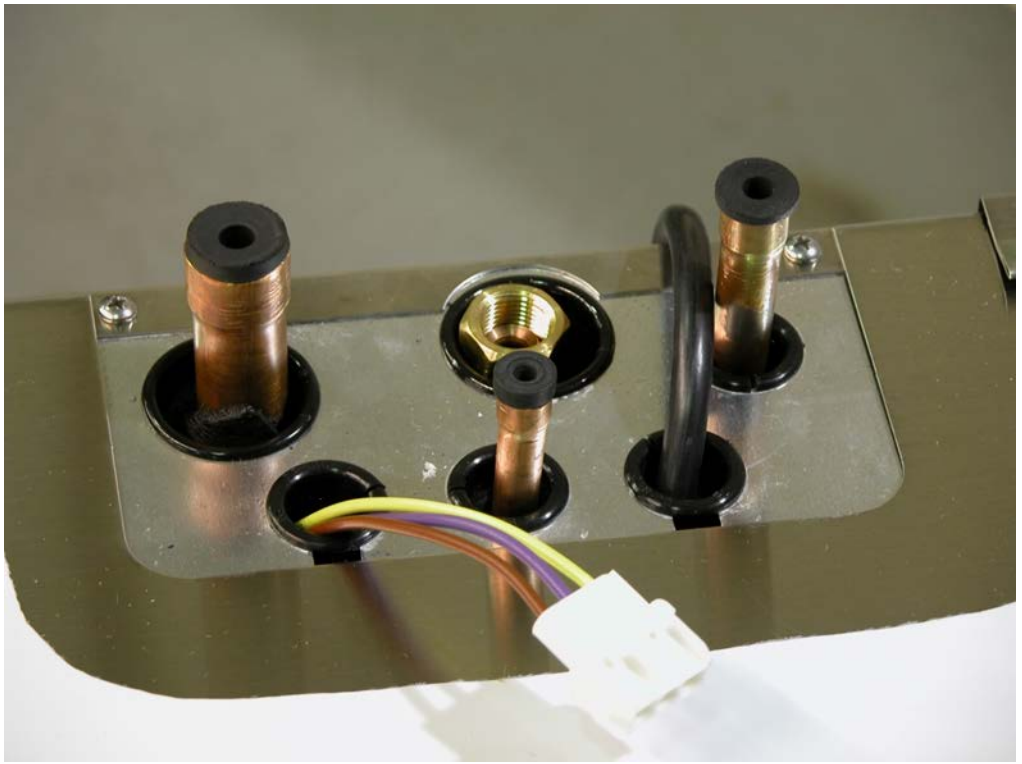
- Connect refrigerant lines
- Connect control wire
- Connect power, check voltage



Scotsman
Ice Systems

Head Connections

- Connect refrigerant lines
- Connect control wire
- Connect water and drain
- Plug in power cord



Scotsman Ice Systems

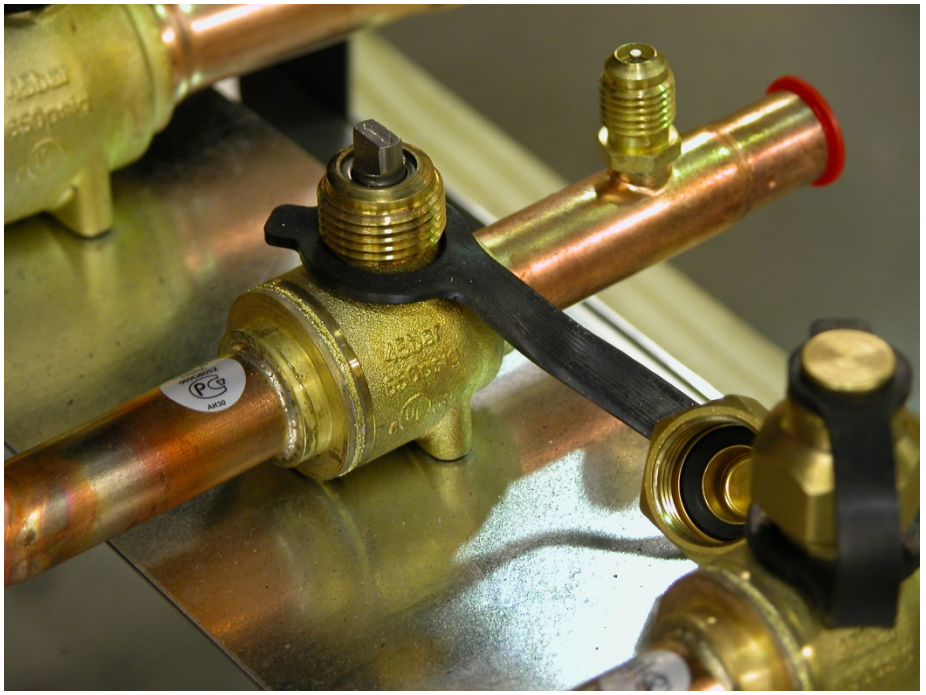
Tubing Transition

- Until inventory of prior heads, CPs and line sets are installed
- Line set modifications may be needed
  - Cut off quick connects to braze to stubs
  - Add quick connects to new line sets if head or CP has them
    - KTE6-EH has 6 quick connect fittings on stubs

Scotsman Ice Systems

Connect Tubing

- Route the refrigerant lines
- Cut to length
- Braze to condensing unit and head
- Evacuate head and lines
  - Connect manifold to access valves on ball valves
    - Remove cores for faster evacuation
- Open ball valves



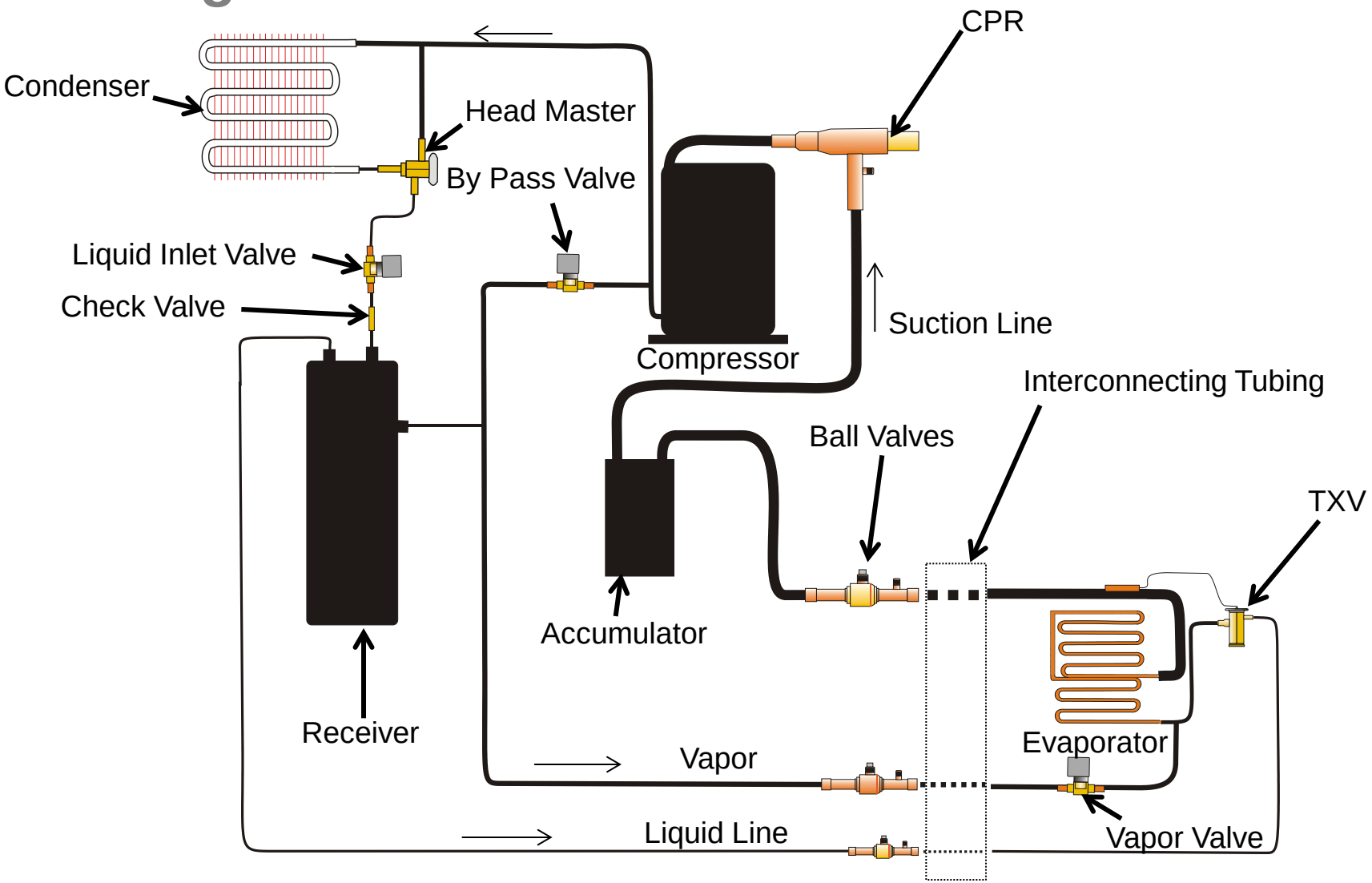
Scotsman Ice Systems

Nitrogen Purge and Evacuation

- Purge nitrogen thru system when brazing
- Purge low pressure dry nitrogen (1 PSI)
  - At Head vent ½” Vapor line
  - At CU source nitrogen to 3/8” Liquid and ½” Vapor lines
  - Evacuate sealed tubing & head from ball valve Schraders
  - Remove cores for fastest evacuation
  - All three connections at once or
  - Vapor and suction together

Scotsman Ice Systems

Refrigeration Schematic



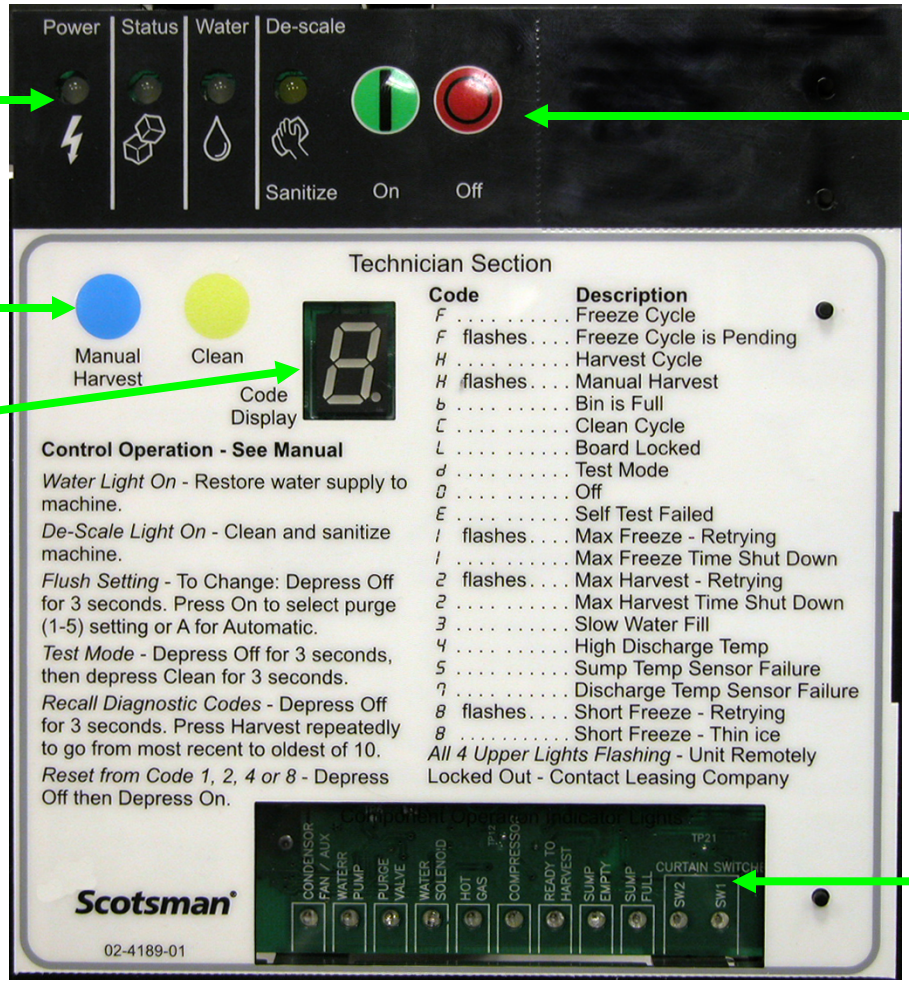
Scotsman Ice Systems

Prodigy Controller

AutoAlert Lights

Manual Harvest and Clean Switches

Code Display



On and Off Switches

Component Indicator Lights

Scotsman Ice Systems

Initial Start Up

- Check installation
  - Power
  - Water
  - Drain
  - Tube Routing
- No soak out needed
  - Plug in head unit
  - Push On to start

Scotsman
Ice Systems

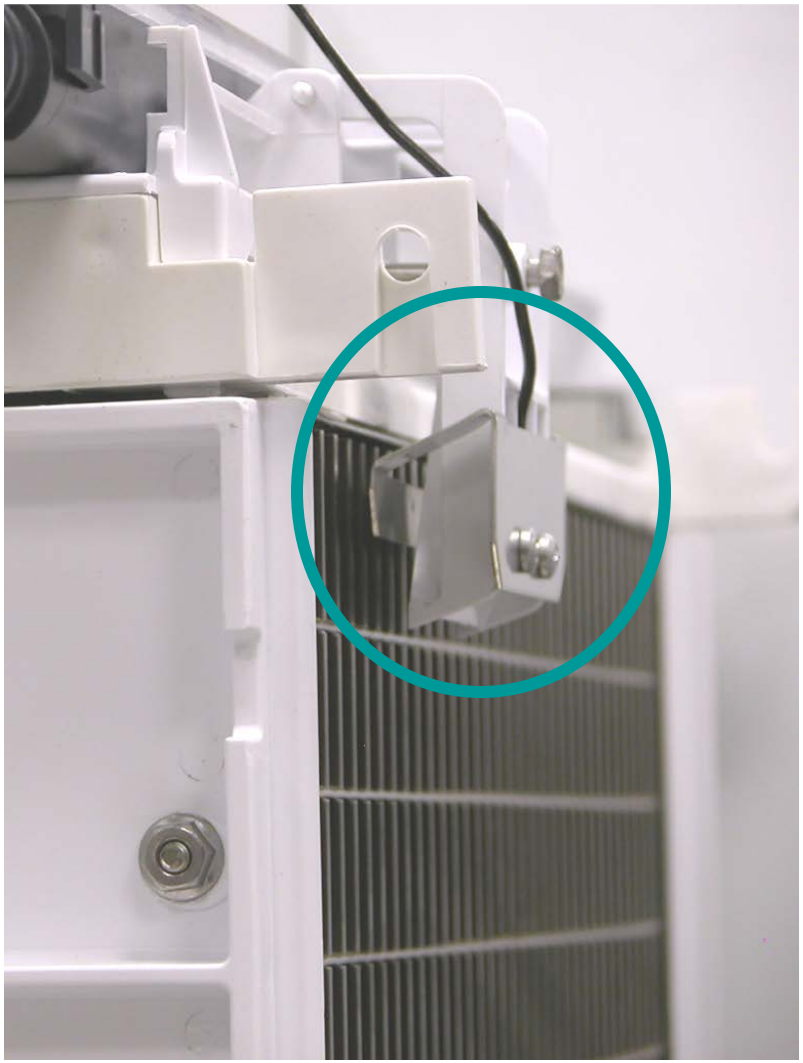
Start Up

- EH head unit
  - Drains reservoir (pump and purge valve on)
  - Fills with water
  - Switches on Pump
  - Switches on Condensing Unit
    - Compressor and fan begin to operate
- Adjustments
  - Controller is factory set to automatically adjust purge level
  - Bridge thickness is also factory set

Scotsman Ice Systems

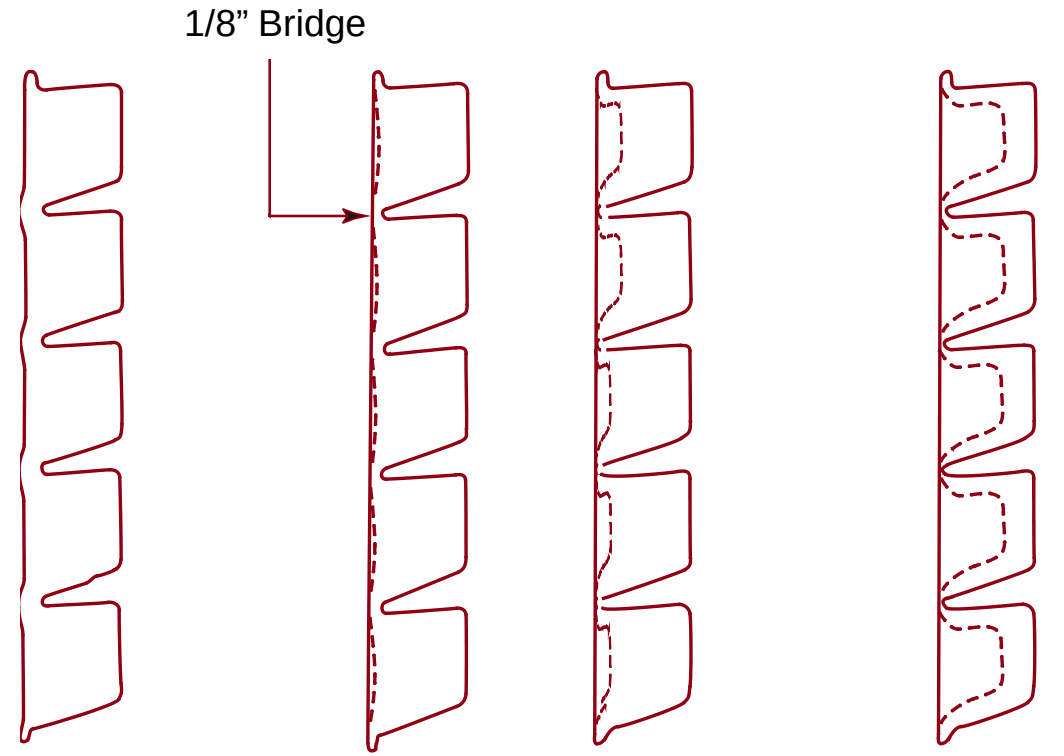
Control Details

- Ice Thickness Sensor
  - Same on all Prodigy
  - Continuity probe
  - As the ice grows during freeze, the water flowing over it gets closer to the probe.
  - When water touches it for a few seconds, the freeze cycle ends.



Scotsman Ice Systems

Ice Bridge



Scotsman
Ice Systems

Operation - Control System

- Prodigy control system
  - Water level sensor for
    - Reservoir water fill and empty
  - Ice Thickness Sensor to sense
    - End of freeze cycle
  - Curtain switch to sense
    - End of harvest
    - Bin full
  - Water temperature sensor for anti-slush process

Scotsman Ice Systems

Operation - Freeze

- Compressor: ON
- Water pump: ON
- Fan motor: ON
- Purge valve: OFF
- Inlet water solenoid: OFF
- Harvest assist: OFF
- Vapor valves: OFF
- Receiver inlet solenoid valve: OFF, but Open

Scotsman Ice Systems

Operation - Harvest

- Compressor: ON
- Water pump: ON – will switch Off
- Fan motor: ON
- Purge valve: ON – will switch Off
- Inlet water solenoid: ON – will switch Off
- Harvest assist: ON
- Vapor valves: ON
- Receiver inlet valve: ON and closed

Scotsman Ice Systems

Operation - Harvest Details

- Vapor inlet valve opens, harvest assist powered
- Condenser bypass valve opens
- Receiver inlet valve closes
- Reservoir is drained per the purge setting and refills.
  - Pump and purge valve are ON
  - Pump stops, purge valve closes
  - Reservoir refills thru inlet water solenoid valve
  - Water valve shuts off when reservoir is full
- Harvest continues until the curtain switch opens
  - EH430 and EH330 must open both curtain switches

Scotsman Ice Systems

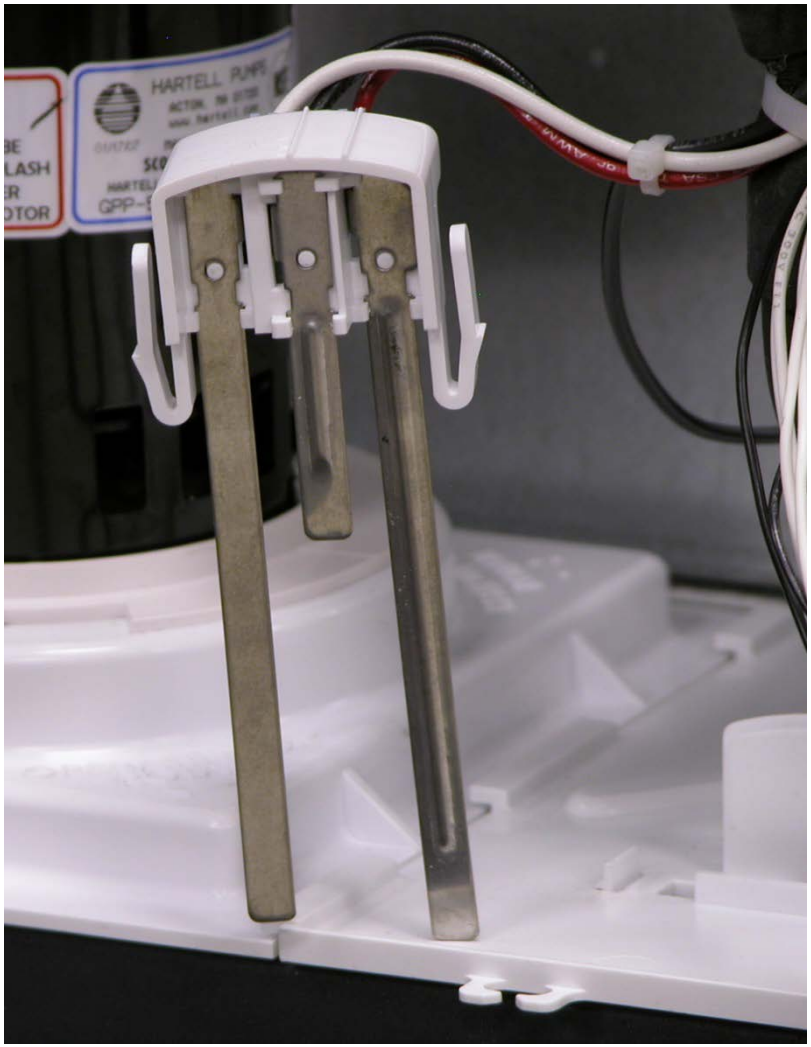
Not done yet, but it’s

BREAK TIME!

Scotsman
Ice Systems

Control Details

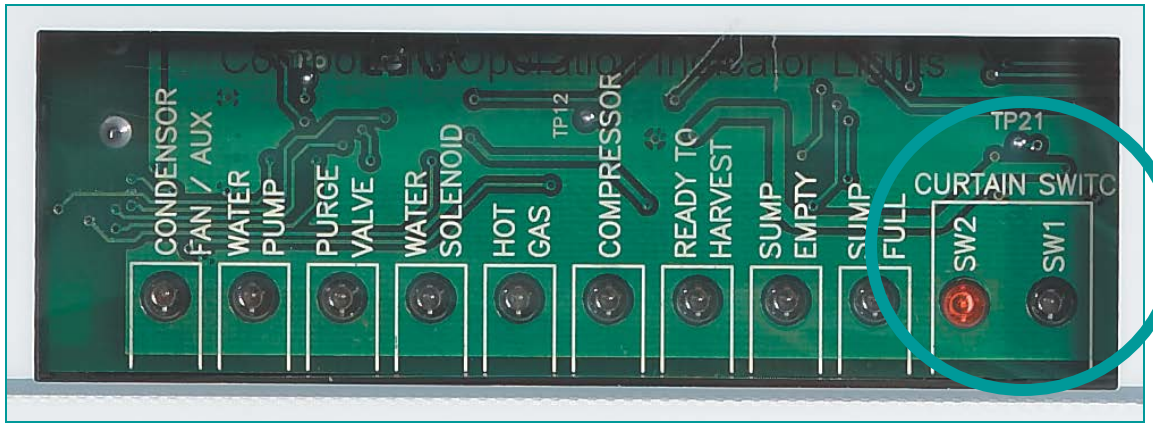
- Water level sensor
  - Three probes
    - Short
    - Mid-length
    - Long
  - Mid-length probe is dry
    - Sump empty, water refills
  - Short probe is wet
    - Sump full, water stops refilling

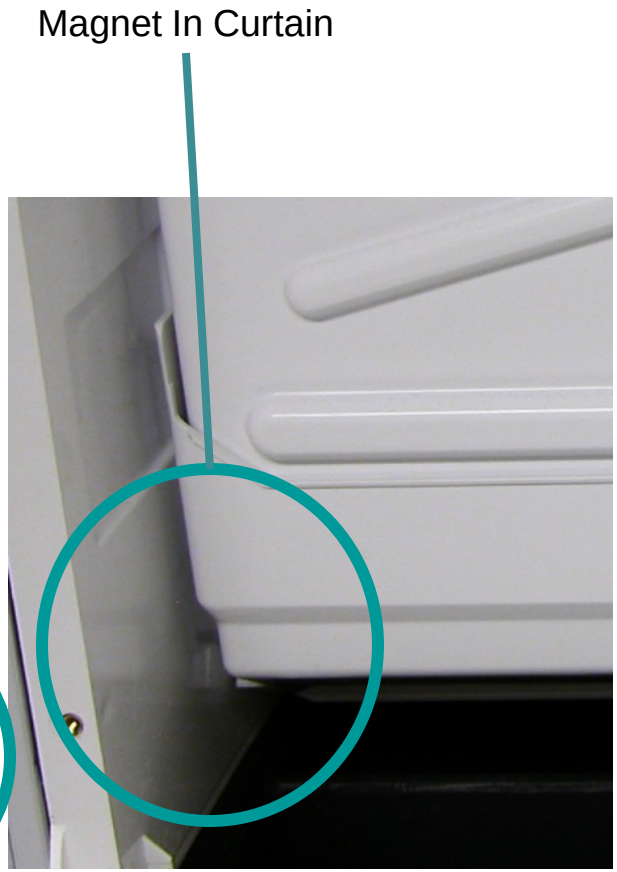


Scotsman Ice Systems

Control Details

- Curtain Switch
  - Magnetic reed switch
  - Open when curtain is open
  - Check with indicator light or ohmmeter





Scotsman Ice Systems

EH222 Operation

- Freeze Cycle Time:
- 70/50
  - 1000 - 8 to 9 minutes
  - 800 – 10 to 12 minutes
- 90/70
  - 1000 - between 10 and 11 minutes
  - 800 - between 13 and 15 minutes
- Harvest Cycle Time
  - 1000 - between 1 and 1.5 minutes
  - 800 - between 1 and 1.5 minutes

Scotsman Ice Systems

EH330 Operation

- Freeze Cycle Time:
  - 9 to 11 minutes at 70/50
  - 12 to 14 minutes at 90/70
- Harvest Cycle Time
  - 30 to 90 seconds

Scotsman Ice Systems

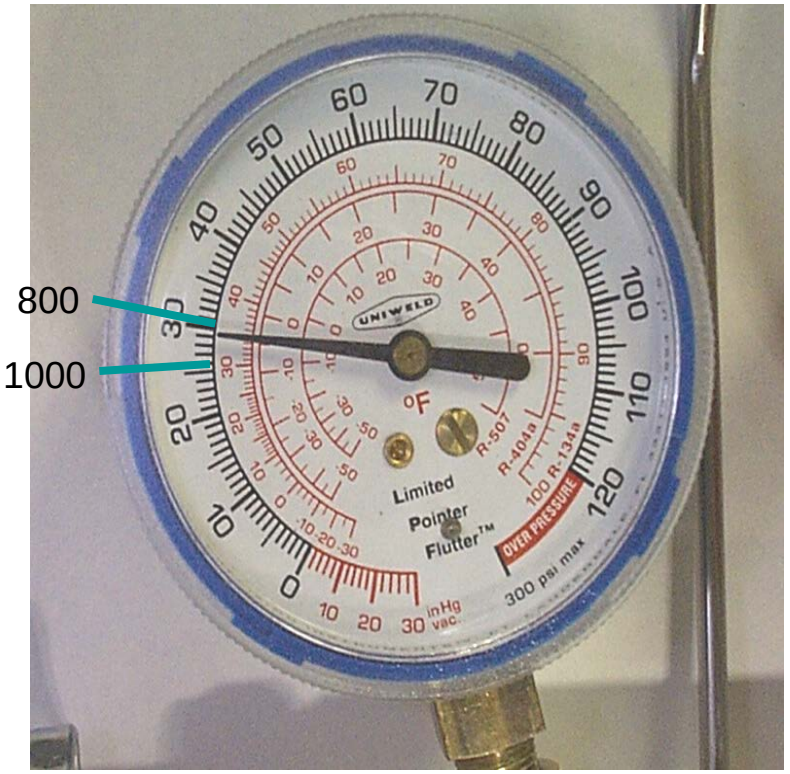
EH430 Operation

- Freeze Cycle Time:
  - 1400
    - 70/50 - 14 to 15 minutes
    - 90/70 – 16 to 17 minutes
  - 1800
    - 70/50 - 10 to 12 minutes
    - 90/70 – 12 to 14 minutes
- Harvest Cycle Time
  - between 1 and 1.5 minutes

Scotsman Ice Systems

System Pressures – EH222

- Freeze Cycle
  - Normal ranges vary by capacity and ambient
  - At 70/50:
    - 1000 lb finishes at about 28 PSIG
    - 800 lb finishes at about 30 PSIG
    - Will be slightly higher in higher ambient
  - Pressures at CP unit and head are equal during Freeze



Scotsman
Ice Systems

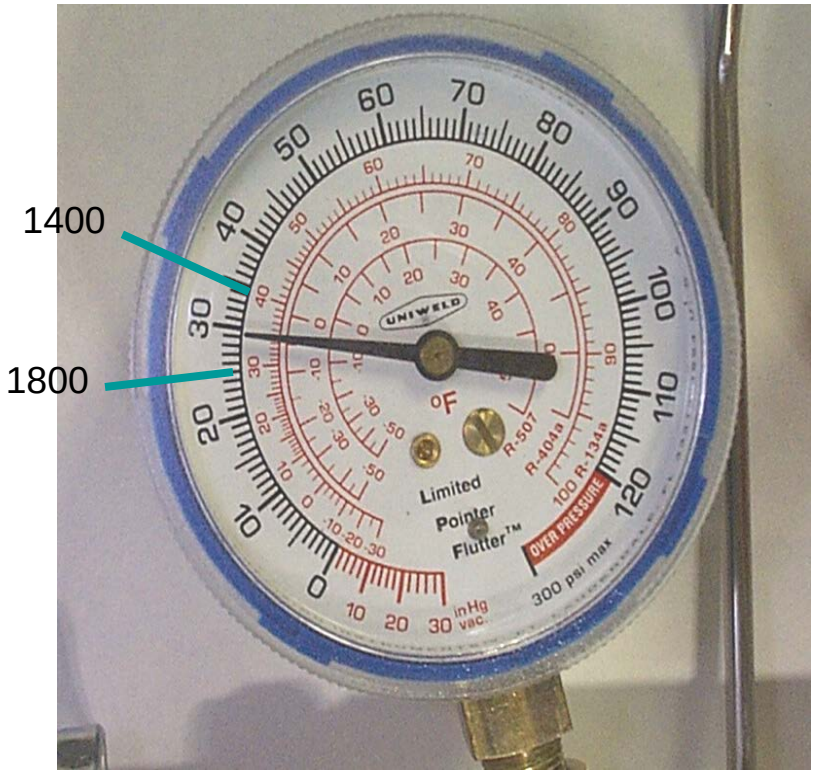
System Pressures – EH330

- Freeze Cycle
  - Normal ranges vary by ambient
  - Finishes cycle at:
    - 30 PSIG at 70/50
    - 32 PSIG at 90/70
    - 37 PSIG at 120/100
  - Pressures at CP unit and head are equal during Freeze

Scotsman
Ice Systems

System Pressures – EH430

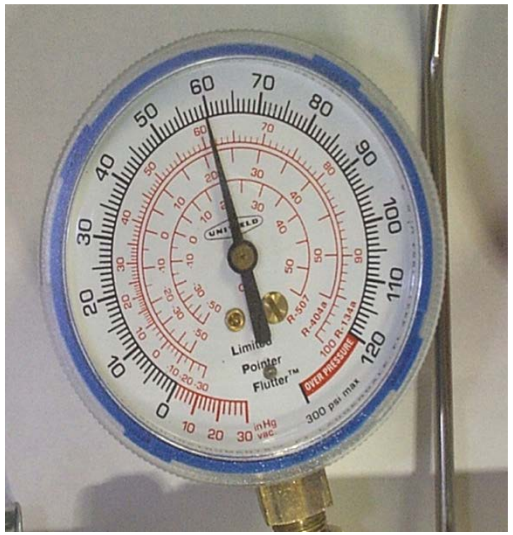
- Freeze Cycle
  - Normal ranges vary by capacity and ambient
  - At 70/50:
    - 1800 lb finishes at about 25 PSIG
    - 1400 lb finishes at about 35 PSIG
    - Will be slightly higher in higher ambient
  - Pressures at CP unit and head are equal during Freeze



Scotsman
Ice Systems

System Pressures

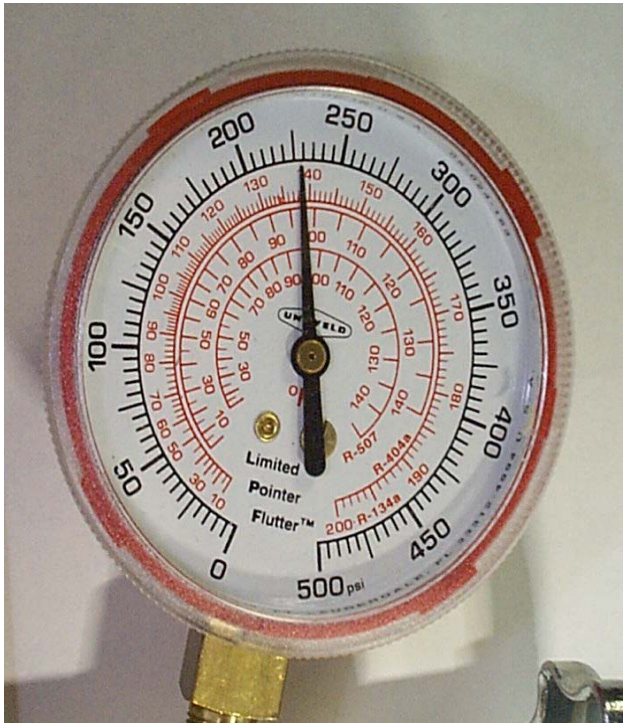
- Harvest Cycle
  - At the ice making section, low side pressure rapidly increases to 95 - 105 PSIG
    - At ball valve access
  - At the CP unit compressor access valve, dome pressure is limited by the CPR valve to 55 - 60 PSIG during harvest



Scotsman Ice Systems

System Pressures

- Condensing Unit
  - Discharge during low ambient freeze will be about 225 PSIG
    - Headmaster rated for 217, there is some variation unit to unit
  - Discharge during harvest will be about 100 PSIG
  - High Pressure Cut Out opens at 450, closes at 350 PSIG



Scotsman
Ice Systems

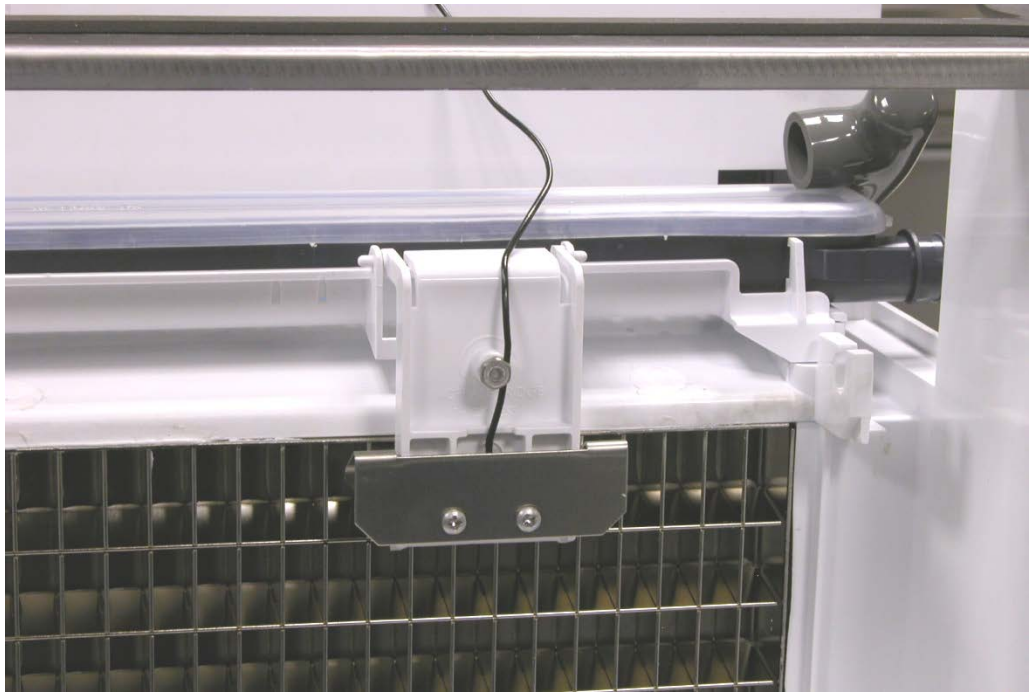
Isolate Head

- Unplug liquid line solenoid valve coil
  - Will trip on high discharge if not unplugged
- Shut off liquid & vapor ball valves
- Switch unit into Manual Harvest
- Shut suction ball valve and condensing unit OFF when suction pressure at ball valve reaches 0 PSIG
  - May need to recover residual refrigerant from head and tubing
- Be SURE to reconnect liquid line solenoid when restarting.

Scotsman Ice Systems

Maintenance

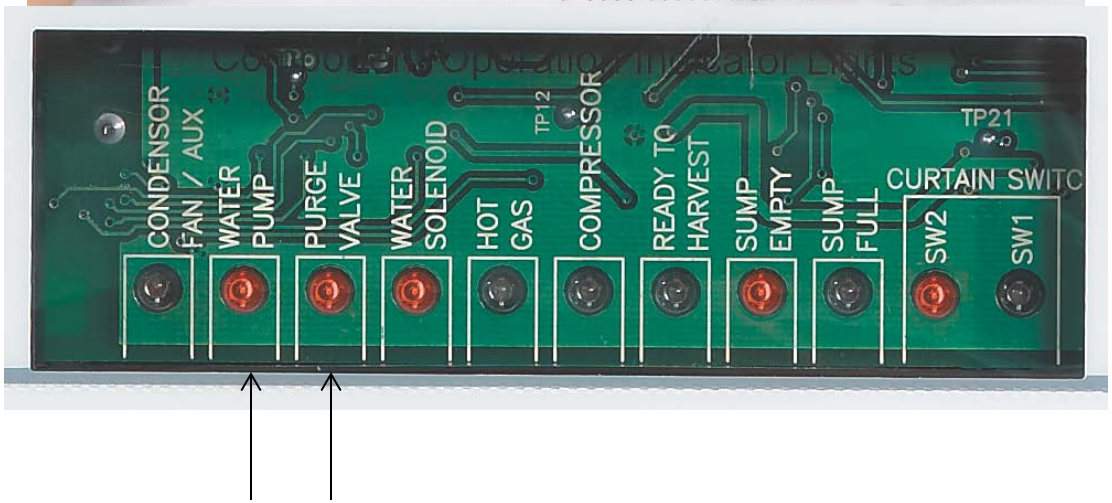
- De-lime with Scotsman Clear 1 Ice Machine Scale Remover
- Check distributor for scale build up



Scotsman Ice Systems

Cleaning Cycle

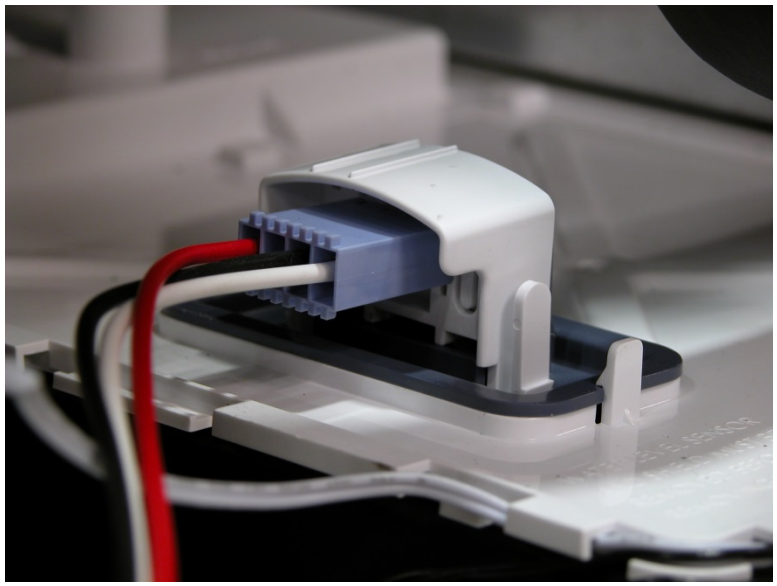
- Push Clean to start
- Add scale remover when Pump and Purge Valve lights are OFF.
- Circulate scale remover
- Push Clean again
- After 20 minutes push OFF.



Scotsman Ice Systems

Cleaning Tip

- Cleaning mode water fill
  - Water will NOT flow in if Sump Empty light is not on in the first 2 minutes of the Clean mode
  - Cause: Water sensor too low in sump,
  - Fix: Lift up slightly before starting cleaning, snap back down when complete

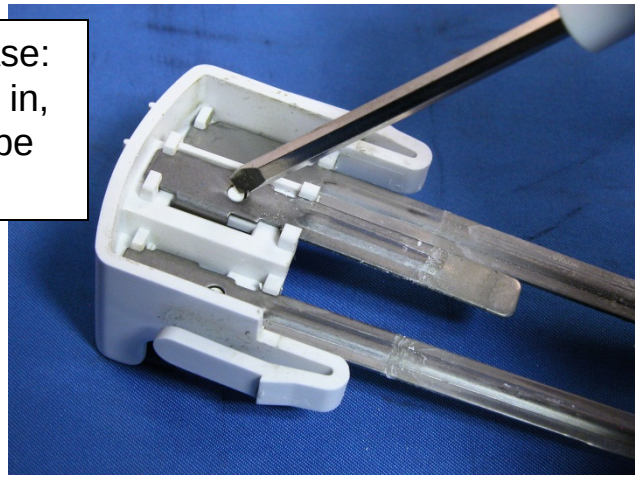


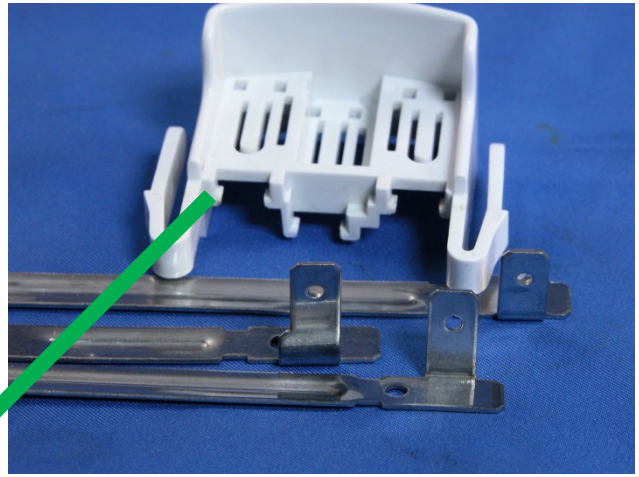
Scotsman Ice Systems

Water Level Sensor

- Sump Full light ON, but no water in reservoir - Code 2 displayed.
- Cause: dirty sensor
  - Solution: clean sensor
    - Release probes from housing
    - Clean housing thoroughly
      - Housing is the insulator

To Release: Push pin in, pull probe down





Key Area to Clean

Scotsman Ice Systems

Clean the Spillway

- Prodigy – Code 8
  - Primary cause is erratic water flow from spillway
    - Spillway surface needs scrubbing

Scotsman Ice Systems

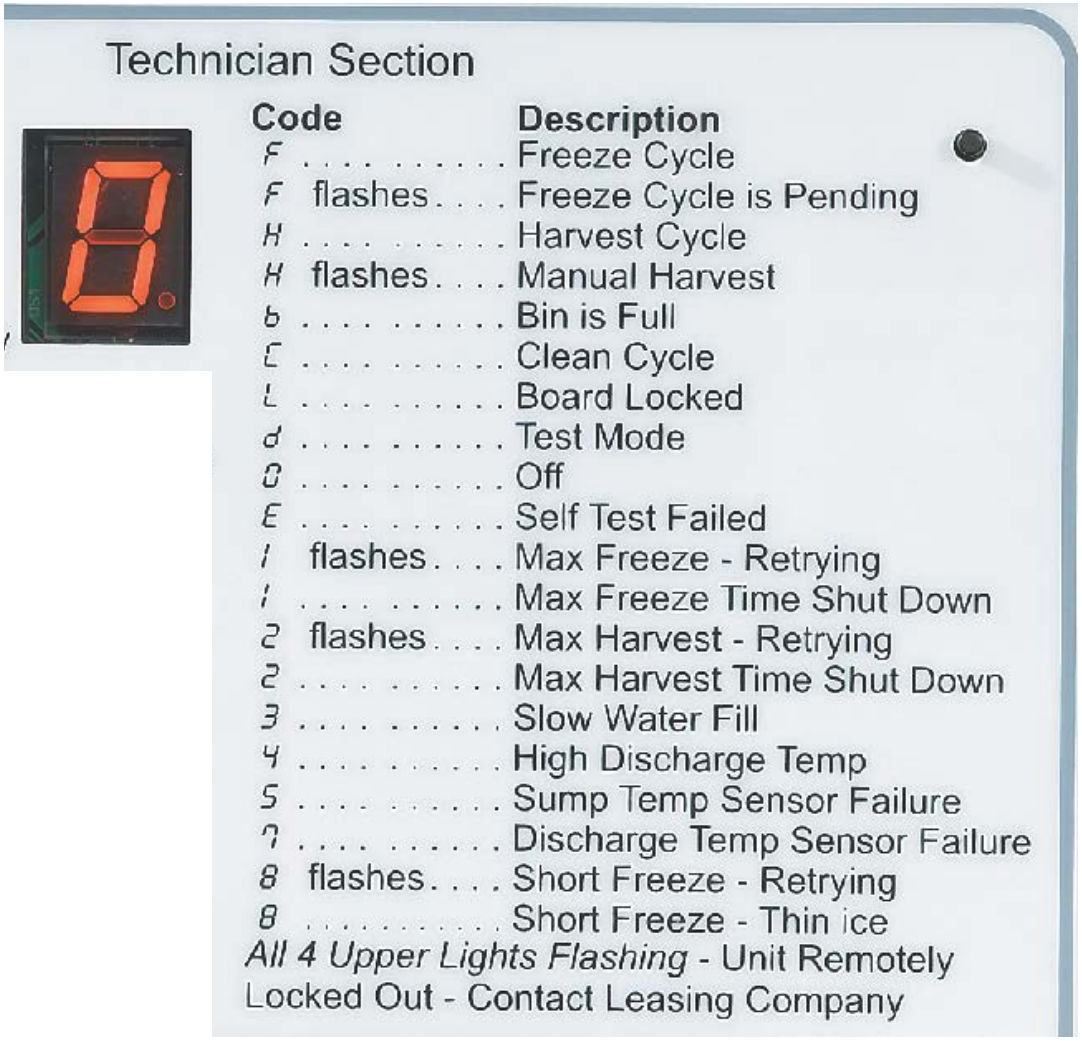
Code 8 – Water Flow Correction

- Lightly sand or scrub the spillway across the flow of water
  - Evens out water flow
  - Reduces splash onto ice thickness sensor probe

Scotsman Ice Systems

Code Display

- Letter codes show operational status
- Number codes show shut down causes



Scotsman Ice Systems

5 Controller Shut Down Causes

- Exceeds limit on maximum freeze time
  - 45 minutes (Code 1)
- Exceeds limit on maximum harvest time
  - 3.5 minutes (Code 2)
- End of freeze triggered too soon
  - Before 6 minutes into the freeze cycle (Code 8)
- Discharge temperature too high
  - Exceeds 250 degrees F. (Code 4) Not used in Eclipse
- Exceeds limit on water fill time
  - 5 minutes (Code 3)

Scotsman Ice Systems

Controller Reaction

- Maximum freeze time (Code 1)
  - Completes harvest, tries another cycle
- Maximum harvest time (Code 2)
  - Shuts down, restarts after 50 minutes
- Minimum freeze (Code 8)
  - Completes timed harvest, tries another cycle.
- Discharge temperature exceeds 250 degrees F. (Code 4) Not used in Eclipse
  - Immediate shut down
- Maximum limit on water fill time (Code 3)
  - Shuts down, attempts refill every 20 minutes

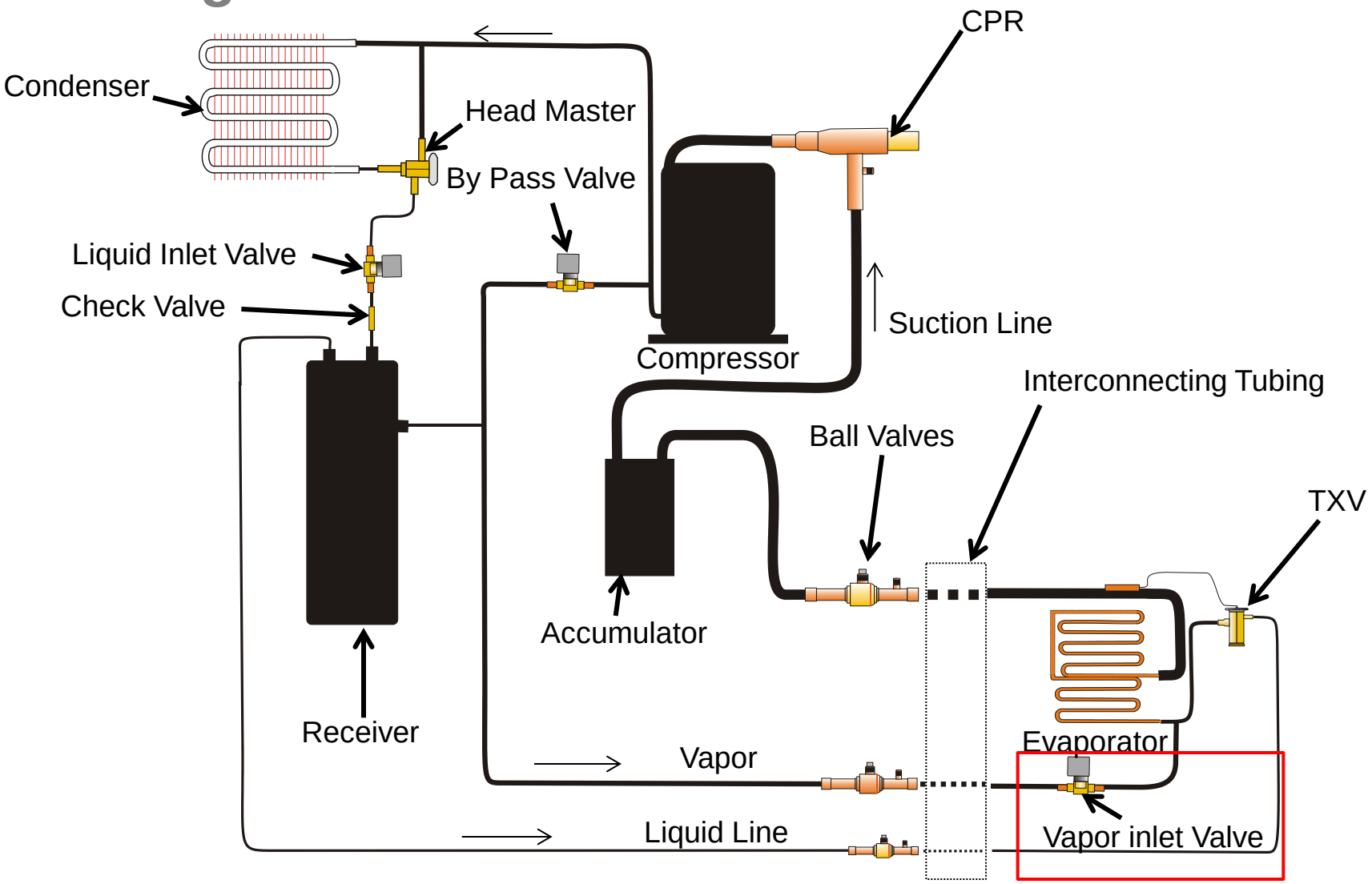
Scotsman Ice Systems

Service Diagnosis

- What happens if?
- Vapor Inlet Valve Does Not Open (in head)
  - Vapor line hot
  - Discharge pressure increases
  - Low side pressure not as high as normal - 80
  - No or partial ice release
  - Code 2

Scotsman Ice Systems

Refrigeration Schematic



Scotsman Ice Systems

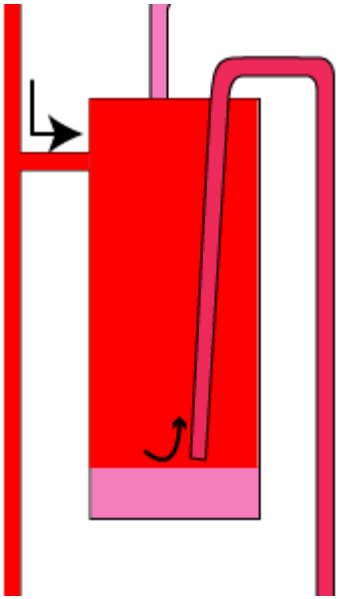
Service Diagnosis

- What happens if?
- Control wire becomes unplugged
  - Condensing unit does not operate
  - Exceeds maximum freeze time
  - Code 1

Scotsman Ice Systems

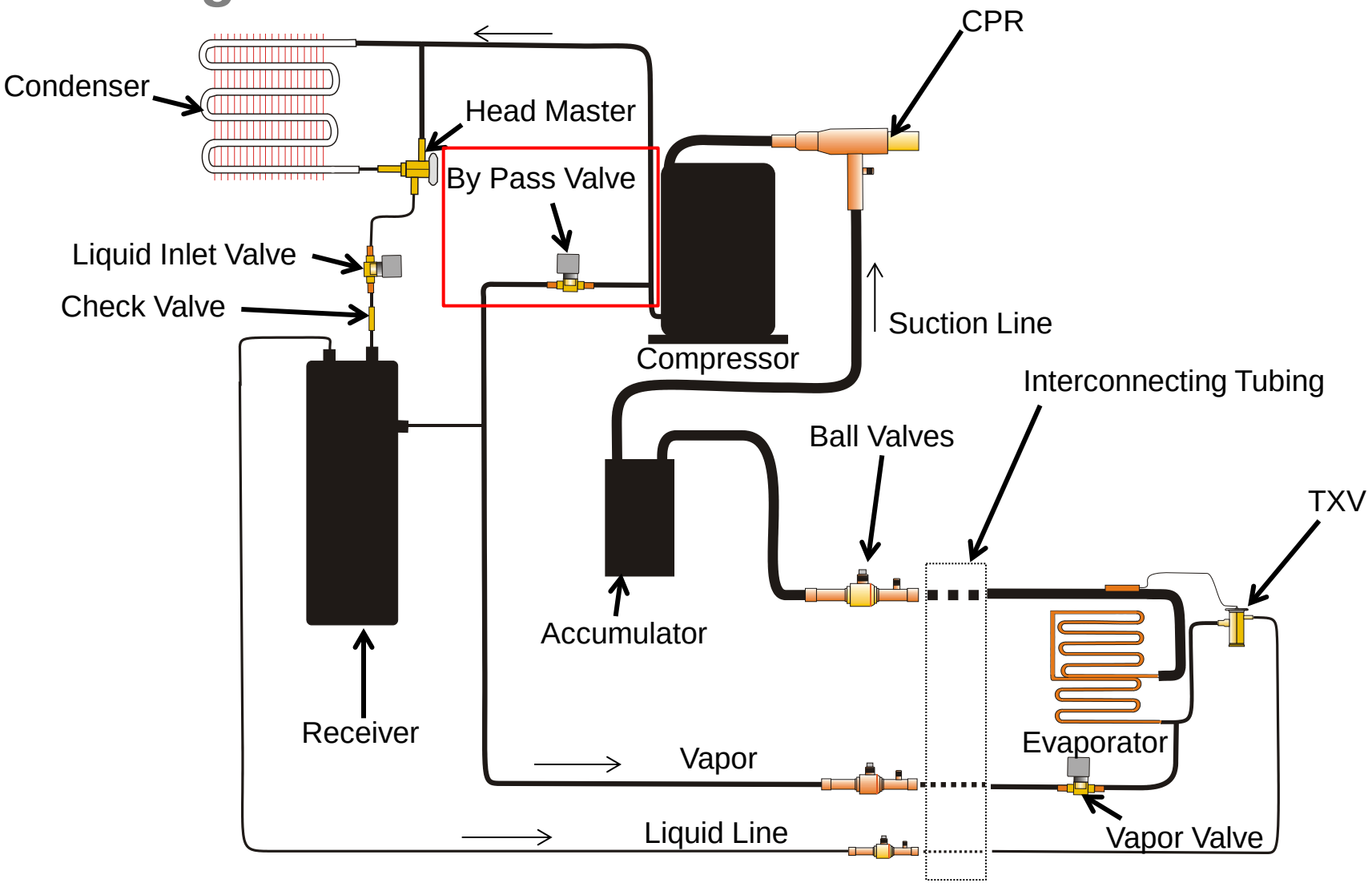
Eclipse Service Diagnosis

- What happens if?
- The condenser **bypass valve leaks thru** but head's vapor valve remains closed
  - Receiver fills with high pressure gas thru side port
  - High pressure gas in liquid line
  - Headmaster bypassing, also filling receiver
  - TXV bulb warm, valve open
  - High pressure in suction line – to compressor
  - Hot bypass valve
  - Long freeze cycle – code 1



Scotsman Ice Systems

Refrigeration Schematic



Scotsman Ice Systems

Service Diagnosis

- What happens if?
- Condenser by **pass valve does not open**
  - High pressure cut out opens and closes
  - No ice release
  - Code 2

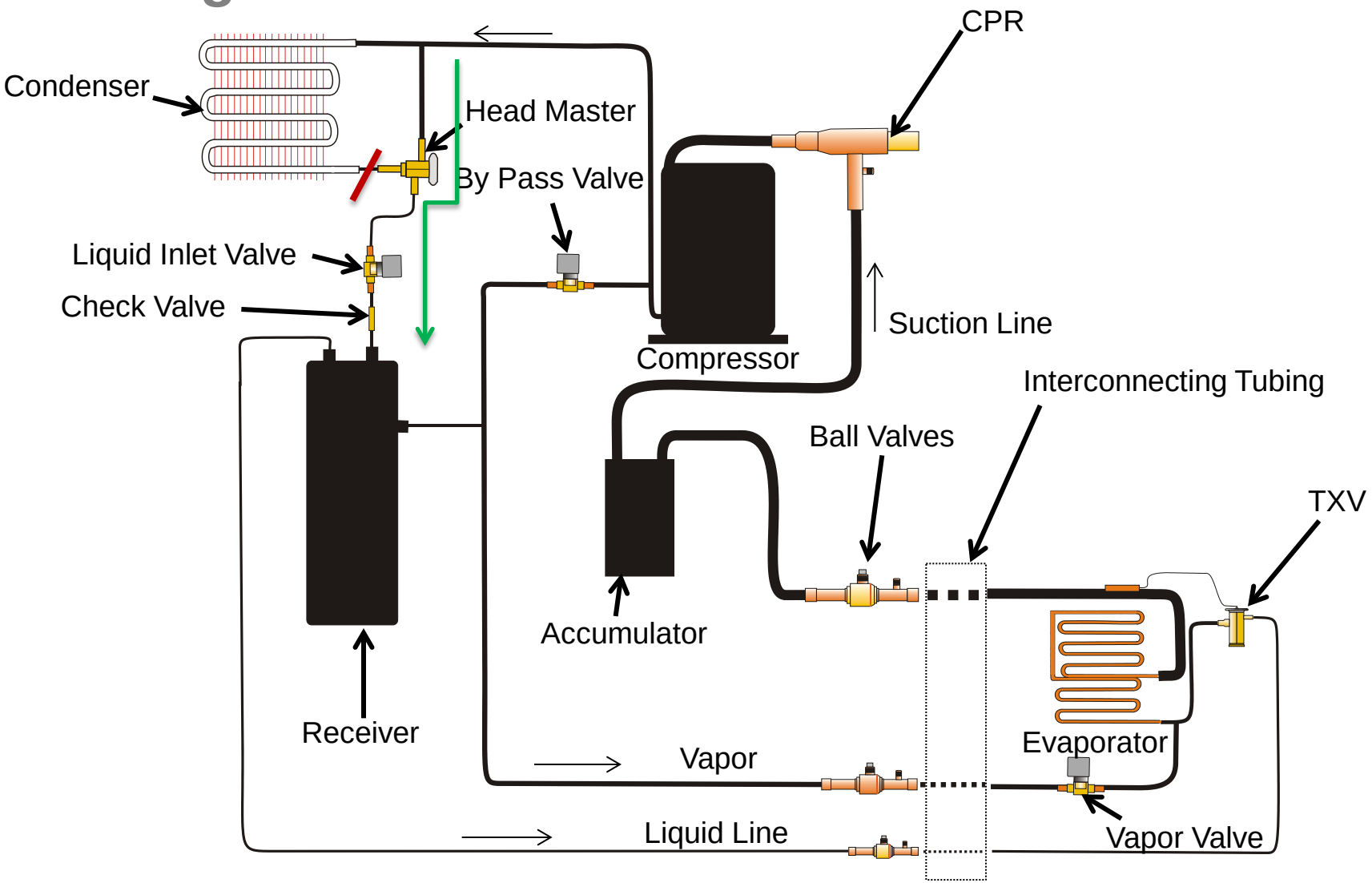
Scotsman Ice Systems

Service Diagnosis

- What happens if?
- Headmaster is stuck in bypass
  - Very little liquid flow to TXVs
  - Long freeze cycle
  - Controller shows code 1

Scotsman Ice Systems

Refrigeration Schematic



Scotsman Ice Systems

Service Diagnosis

- What happens if?
- There is a refrigerant leak
  - No change until refrigerant level drops below the operational threshold for the ambient
    - Headmaster will try to maintain minimum discharge pressure - but will be hissing as gas flows through
    - Ice formation will be poor
    - Low capacity/long freeze cycle will result
  - Add charge to confirm, if ice making resumes with normal discharge pressure there is a leak

Scotsman Ice Systems

Service Diagnosis

- What happens if?
  - TXV has high superheat?
    - Poor ice formation, ok at top of evaporator, thin in the middle
    - Similar to low refrigerant charge
  - TXV has low superheat?
    - Long freeze cycle

Scotsman Ice Systems

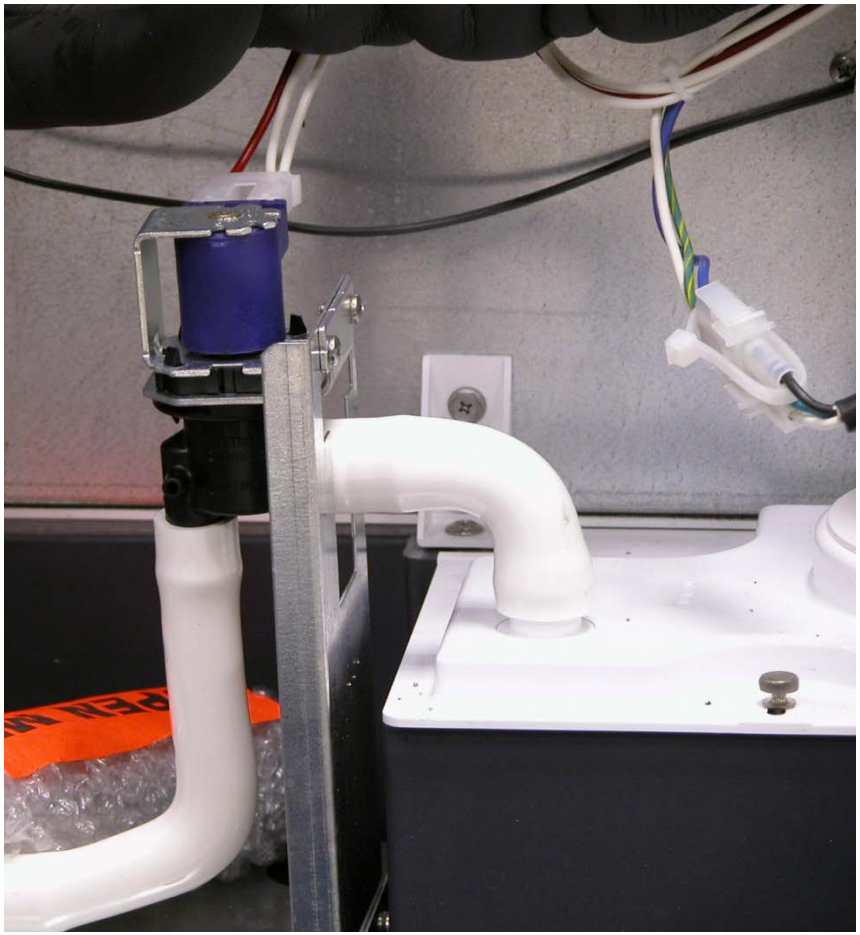
Service Diagnosis

- What happens if?
- There is no water to the ice making section
  - Water is part of the recipe for ice!
  - Controller will stop unit operation but retry filling every 20 minutes until water is restored

Scotsman Ice Systems

Service Diagnosis

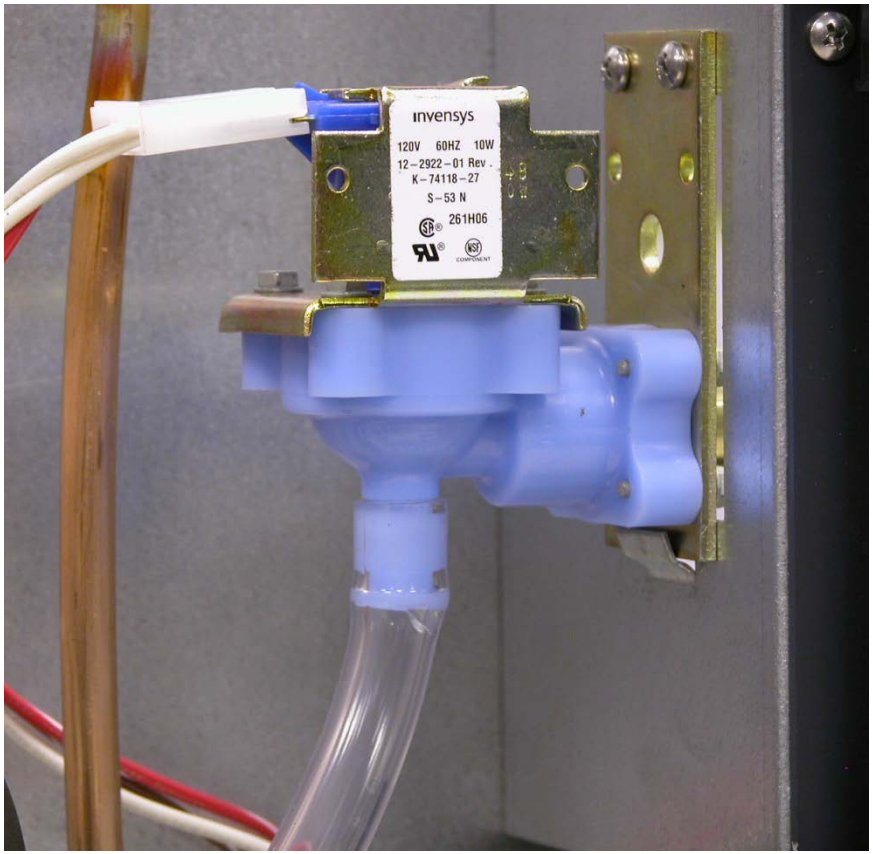
- What happens if?
- The purge valve leaks and drains the reservoir
  - Reservoir may refill during the freeze cycle
  - Thick ice at bottom of slab



Scotsman Ice Systems

Service Diagnosis

- What happens if?
- The inlet water valve leaks through
  - Keeps adding water (heat load) to reservoir
  - Result is a long freeze cycle



Scotsman Ice Systems

Control Button Processes

- Recall diagnostic code
  - Push and hold Off to shut down
  - Push and hold Off again until the display code changes
  - Push and release the Harvest button to cycle thru the last 10 diagnostic codes, from latest to oldest

Scotsman
Ice Systems

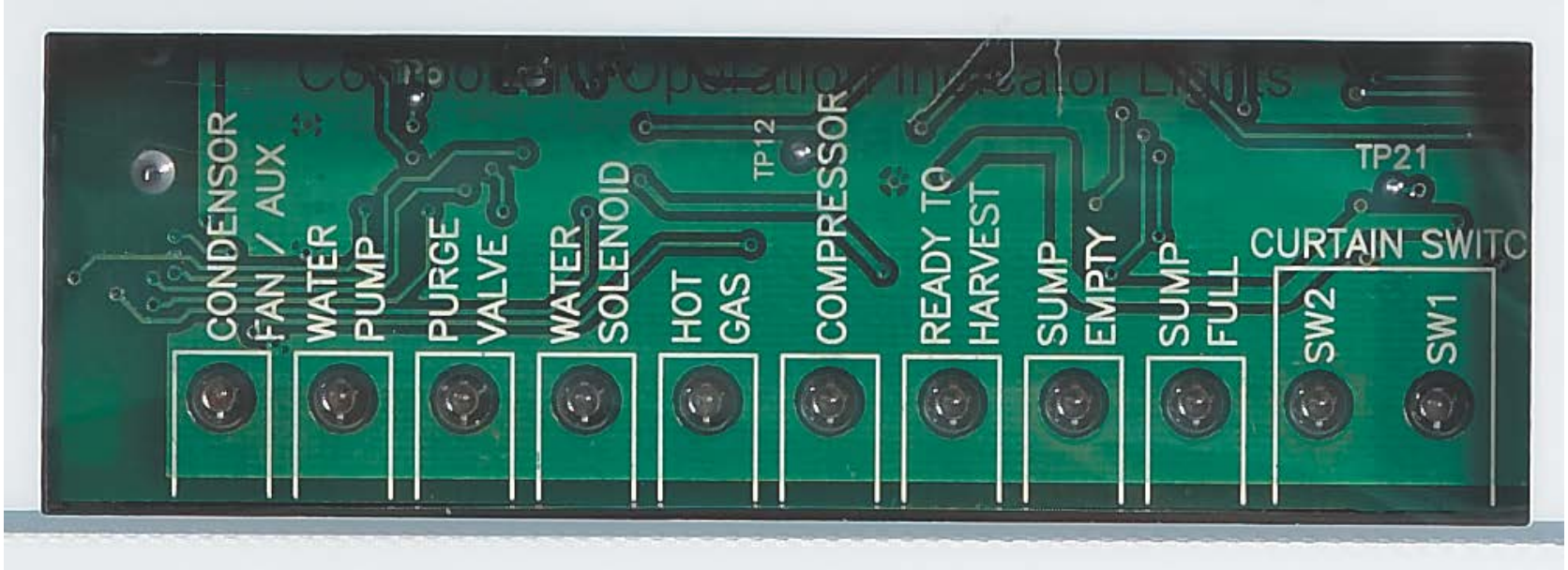
Controller Button Processes

- Clear all diagnostic codes
  - Push and hold Off to shut the machine down
  - Push and hold both the Clean and Harvest buttons for 3 seconds

Scotsman Ice Systems

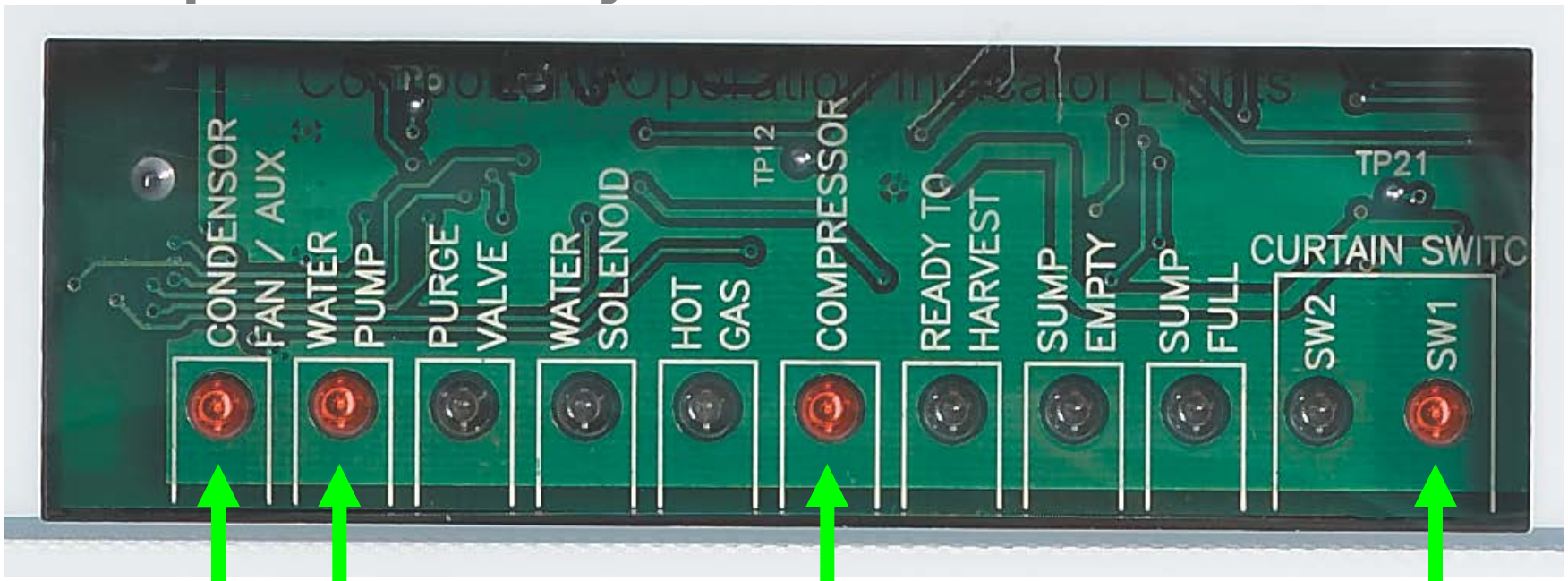
Prodigy Diagnosis

- Use the controller's component indicator lights to check if a component is operating when it should be.



Scotsman Ice Systems

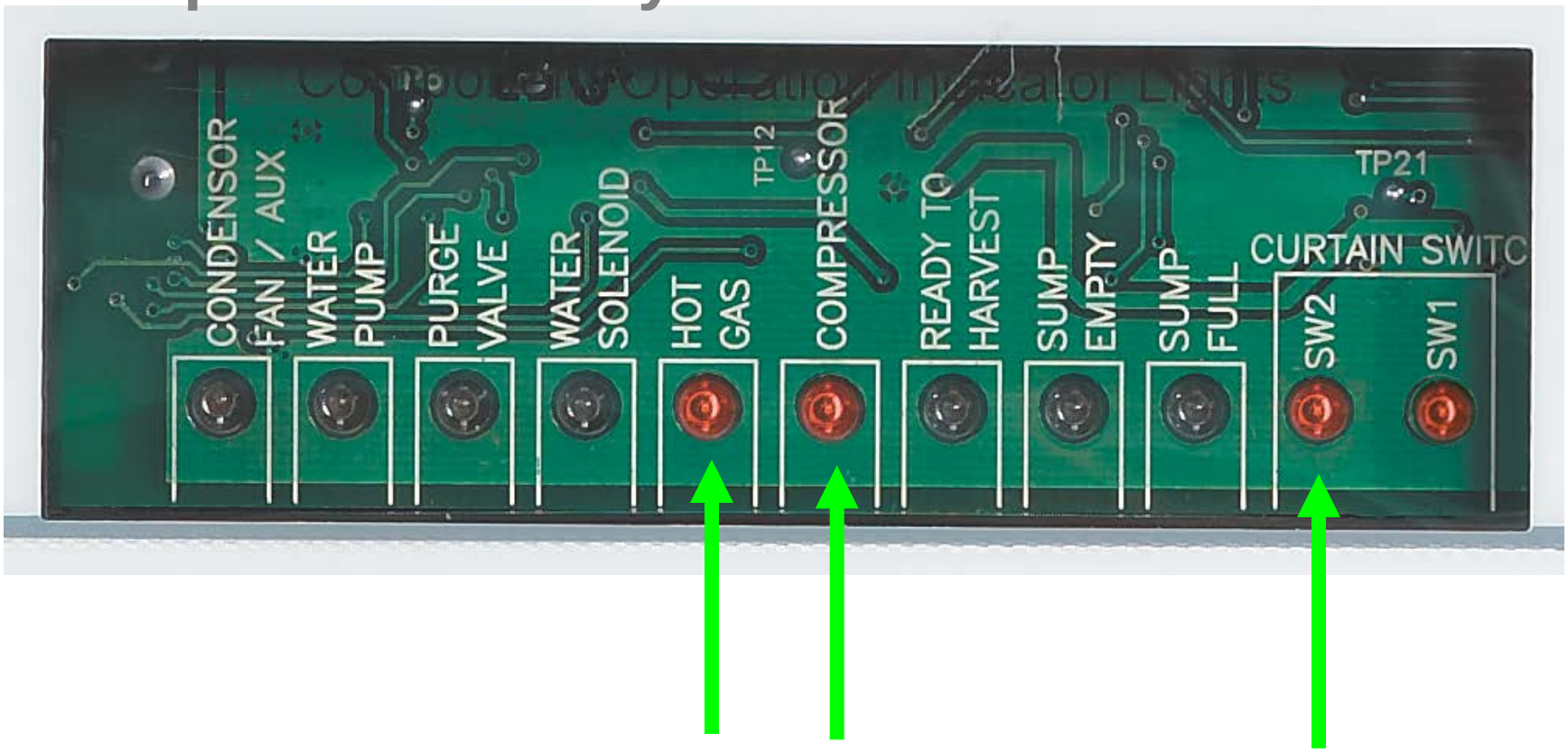
Example: Freeze Cycle



On but not used in Eclipse

Scotsman Ice Systems

Example: Harvest Cycle



Scotsman
Ice Systems

Service Diagnosis

- What happens if?
- The condenser fan stops
  - CP unit's hi pressure cut out will open
  - Maximum freeze time will be exceeded
  - Head's controller will shut system off
  - Controller will display code 1

Scotsman Ice Systems

Service Diagnosis

- What happens if?
- The CPR valve fails
  - Pressure during harvest will not be at the pre-set point
    - 55 to 60 PSIG
  - Will not hold an adjustment
  - No external symptom
- CPR setting should be checked if compressor is replaced

Scotsman Ice Systems

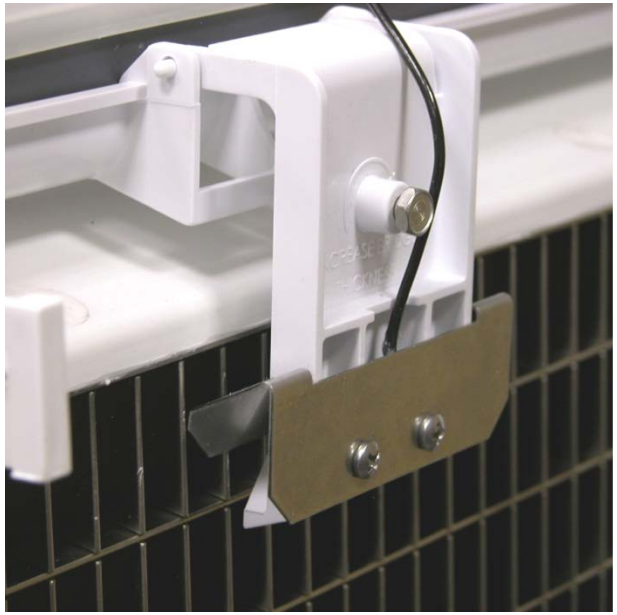
Service Diagnosis – Code 1

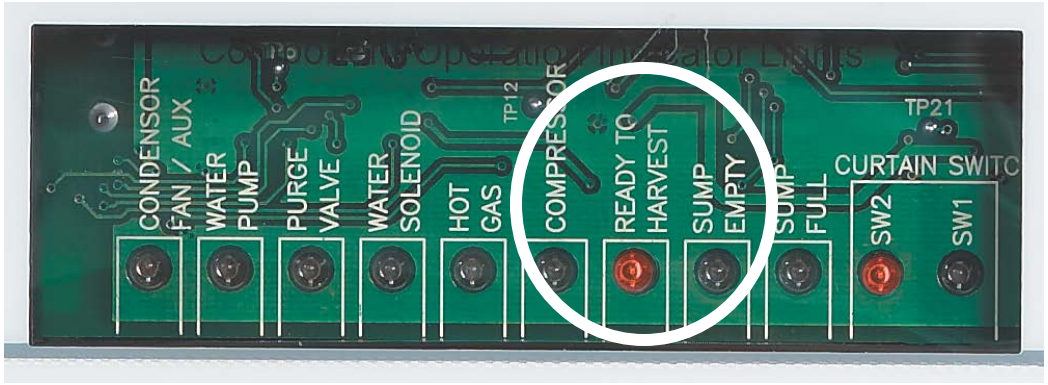
- What happened if?
- The controller displays code **1**
  - Maximum **freeze** time exceeded
    - Dirty condenser coil
    - Fan motor inoperative
      - Hi discharge pressure caused compressor to shut off
    - No water over evaporator, no ice made
    - Lack of refrigerant, no ice made

Scotsman Ice Systems

Diagnostics - Sensors

- Ice thickness sensor
  - Continuity probe
  - Check by grounding metal tip to cabinet and observing Ready To Harvest light





Scotsman Ice Systems

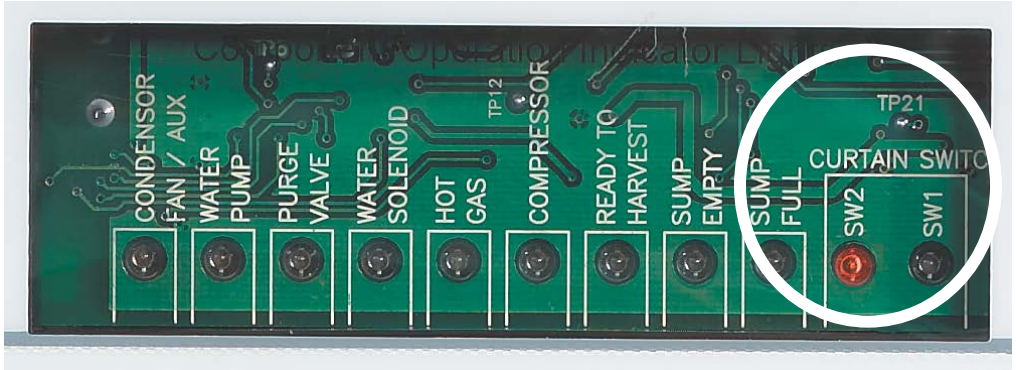
Service Diagnosis – Code 2

- What happened if?
- The controller displays code **2**
  - Maximum **harvest** time exceeded
    - Vapor valves did not open
    - Curtain did not open
      - Ice too thin
      - Ice normal at top, thick on bottom

Scotsman Ice Systems

Diagnostic - Sensors

- Curtain Switch
  - Magnetic reed switch
    - Use indicator light or ohmmeter
  - When curtain is CLOSED, light is OFF
    - Single plate models have 1 light on all the time

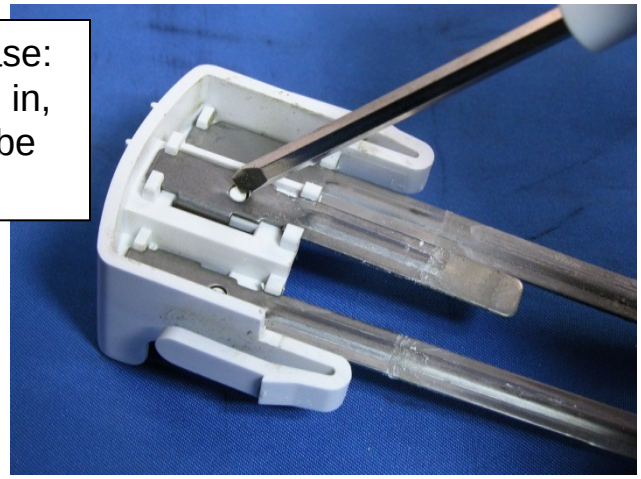


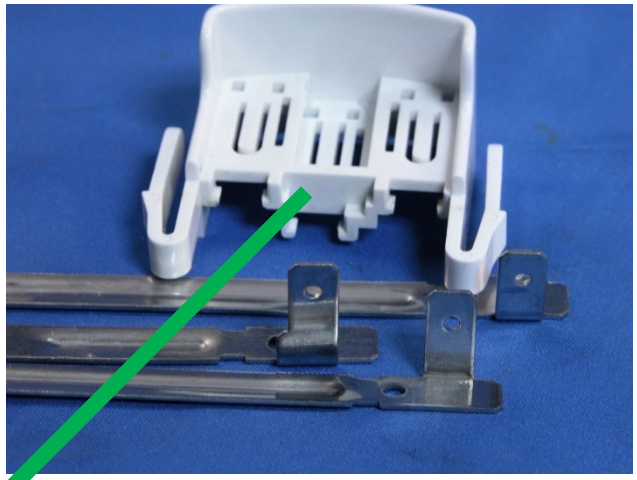
Scotsman Ice Systems

Diagnostic – Water Level Sensor Code 2

- Sump Full light ON, but no water in reservoir - Code 2 displayed.
- Cause: dirty sensor
  - Solution: clean sensor
    - Release probes from housing
    - Clean housing thoroughly
      - Housing is the insulator

To Release: Push pin in, pull probe down



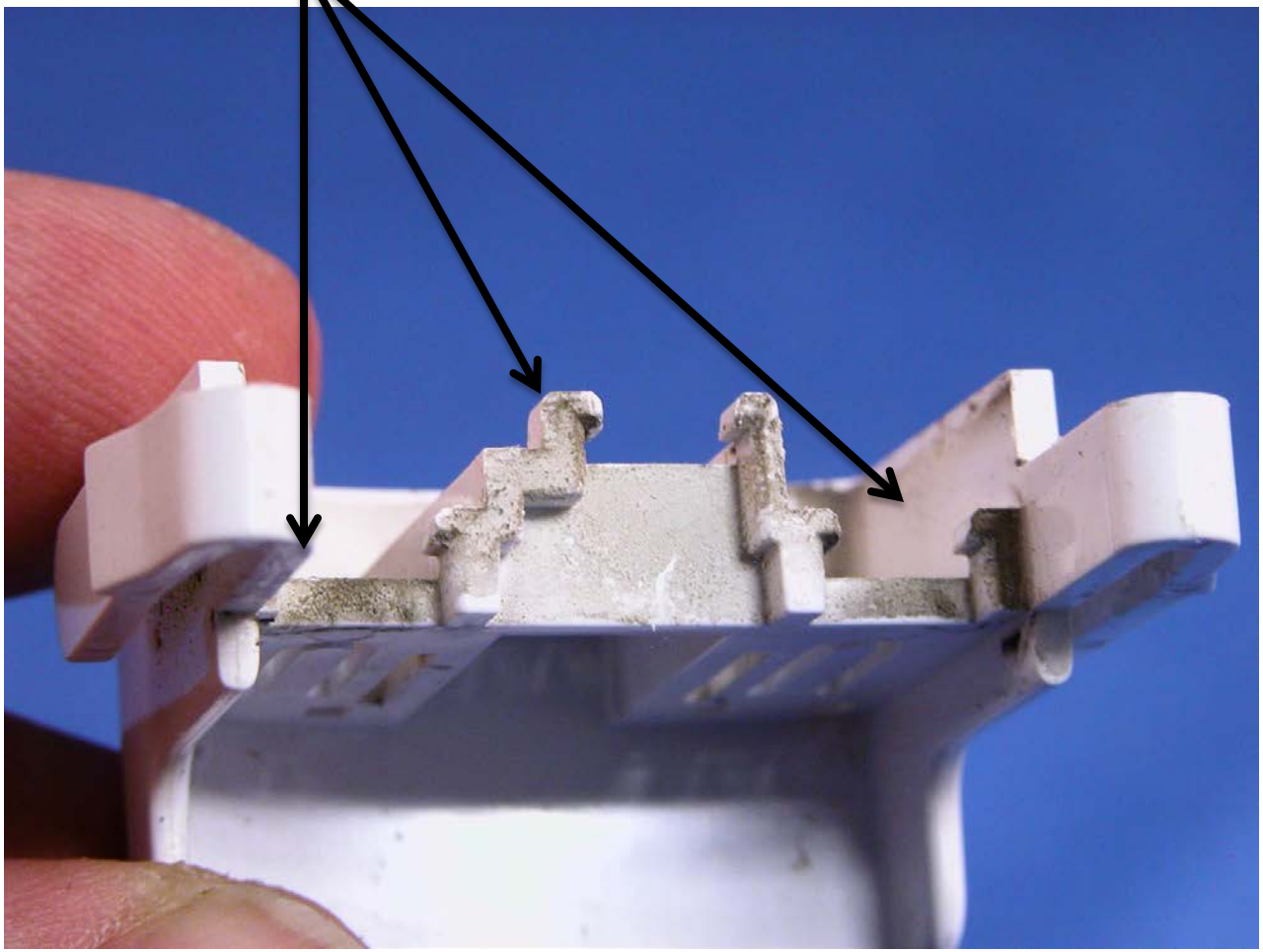


Key Area to Clean

Scotsman Ice Systems

Diagnostic – Water Level Sensor

Key Area to Clean



Scotsman Ice Systems

Late 2011: New Water Level Sensor Guard

- Water level sensor probes shielded from water splash and separated from air upflow
  - Guard surrounds probes
  - Reduces false sump full signal
    - Reduces code 1 and 2 shut downs
- Applied to all Prodigy modular cubers
- Kits available:
  - Include sensor, harness, guard and sump cover

Scotsman Ice Systems

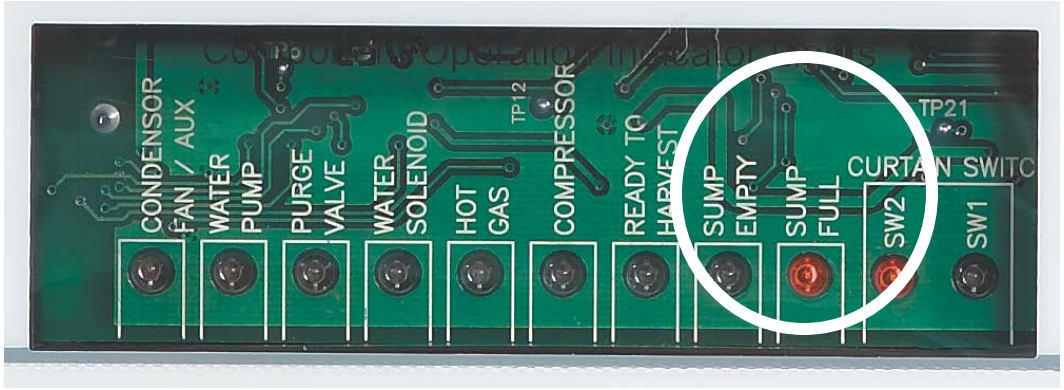
Service Diagnosis – Code 3

- What happened if?
- The controller displays code **3**
- Slow or **no water** fill
    - Possible clogged water filters
  - Low water level - leaks out
  - Water level sensor not working or harness connection poor

Scotsman Ice Systems

Diagnostic - Sensors

- Water Level Sensor
  - Continuity probe
  - Check by connecting two short probes
  - Sump full light should be On



Scotsman Ice Systems

Service Diagnosis – Code 4,5 & 7

- What happened if?
- The controller displays code 4, 5 or 7
  - This indicates that the temperature sensors are not working or not plugged in. They need to be plugged back in or replaced.
  - The ice machine will operate without the thermistors working, but it is limited in its diagnostics that way

Scotsman Ice Systems

Service Diagnosis

- What happened if?
- The controller displays code **8**
  - Freeze cycle **too short** – less than 6 minutes
    - Excess water flowing near the ice thickness sensor
    - Incomplete harvest of previous cycle

Scotsman Ice Systems

6. Short Freeze Time

- **Short freeze cycle – Code 8**
  - Primary cause is erratic water flow from spillway
    - Spillway surface needs scrubbing
    - Sagging bracket (02-4205-01) needs replacing – plastic from bracket sags into water path
  - Secondary cause is ice bridge too thin, ice harvests bottom half, top half stays on plate
  - Another cause is scale on the Ice Thickness Sensor and wire

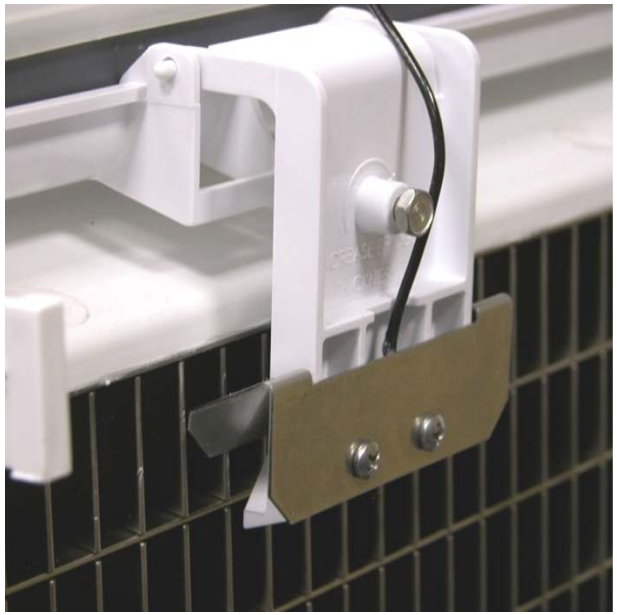
Scotsman Ice Systems

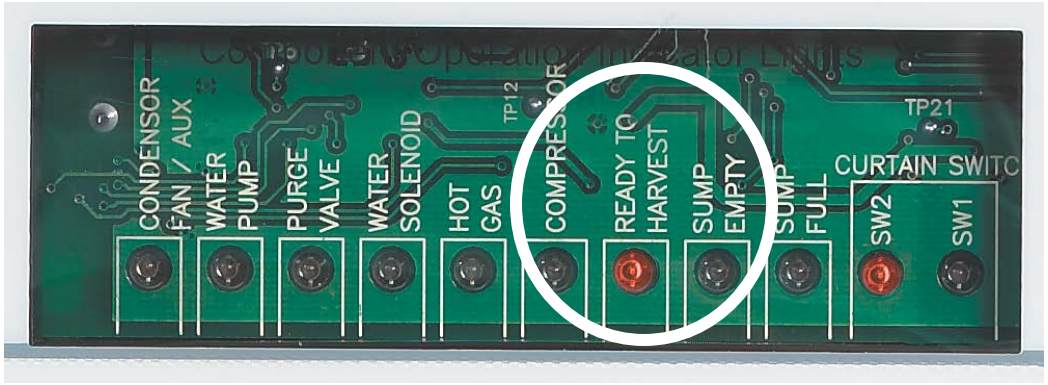
Diagnostics - Sensors

- Ice thickness sensor

Short freeze may be caused by

  - mis-adjusted ice thickness sensor ~ gap 3/ 16 – 7/32
  - Scale on the bridge thickness control





Scotsman Ice Systems

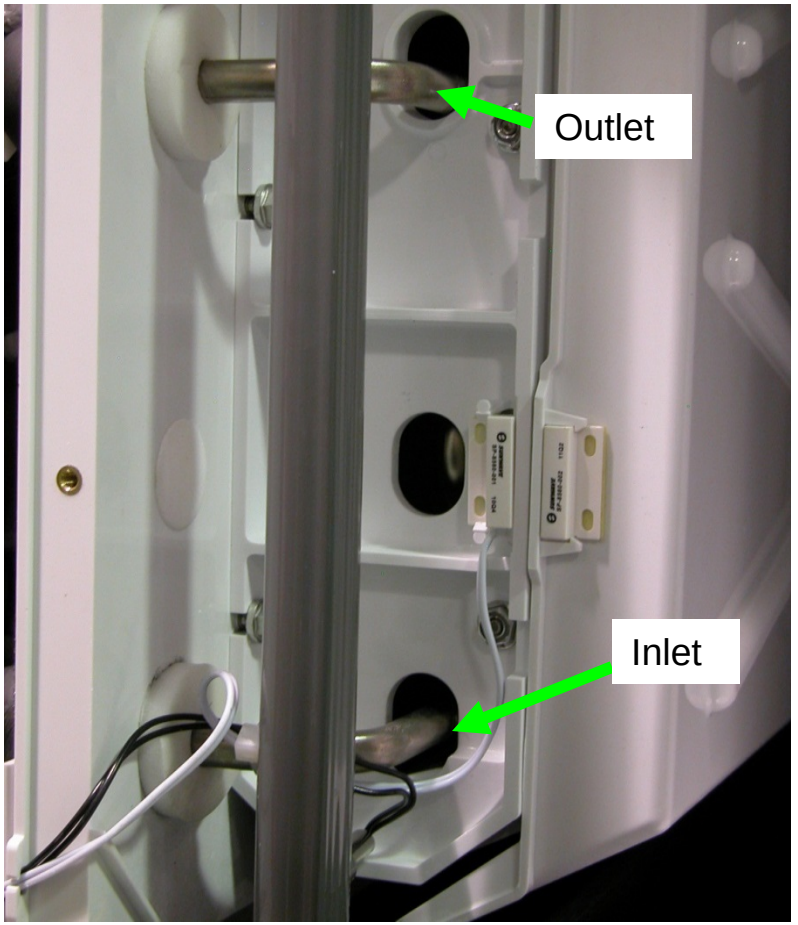
Code 8 – Water Flow Correction

- Lightly sand or scrub the spillway across the flow of water
  - Evens out water flow
  - Reduces splash onto ice thickness sensor probe

Scotsman Ice Systems

Service Notes: Refrigerant Charge

- Ice machines are critically charged
- Refrigerant leak symptoms are progressive – they change as the amount of refrigerant lost increases
  - Thinner ice at evaporator area near tube outlet
  - Longer cycle times, both freeze and harvest



Scotsman Ice Systems

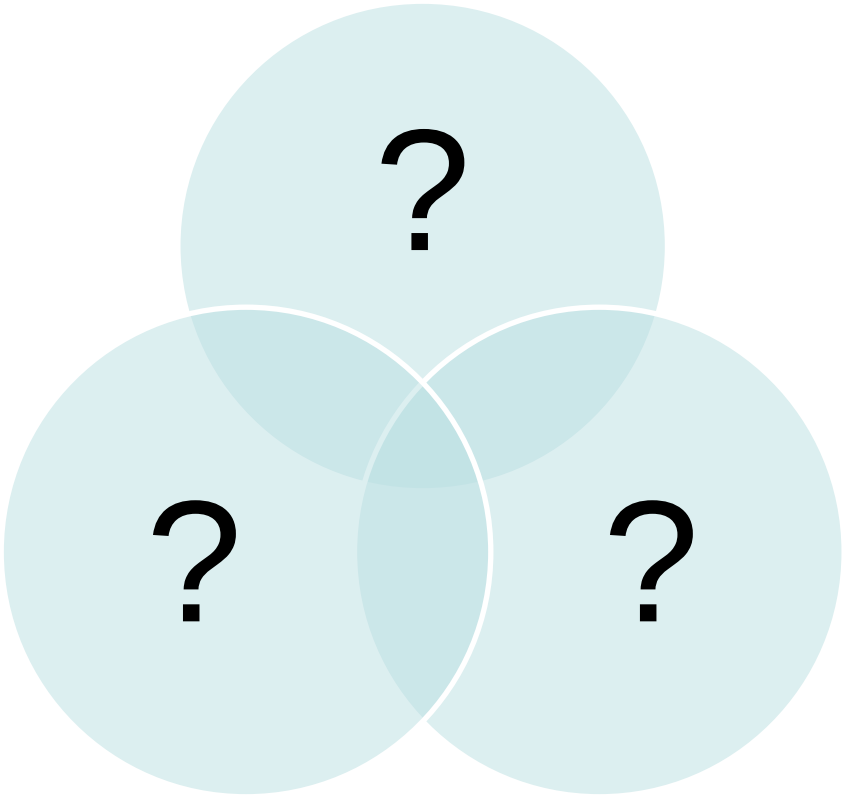
EH222 – New Curtain

Scotsman
Ice Systems

EH222 – New Curtain

Scotsman
Ice Systems

Questions?



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Ice Systems