DCE33 Ice Machine Technical Training
• Gravity Drain or
• Drain Pump models
• Reversible Door
• Air in and out the front
• Water
  – 1/4” OD copper tubing
• Power
  – 115/60/1 cord connected
• Drain
  – Gravity or pump
• Space
  – 15 & 1/4” wide
DCE33 Installation

- Air Cooled
  - Route drain tubing
  - Route water supply
Gravity Drain installation is critical
- Connect internally to bin drain
- Route flexible tubing out the back
- Route with downward pitch to drain receptacle - no dips, no upward slopes, no traps.
  - Use rigid tubing if possible
  - Vent the drain tubing
  - Must have air-gap at end
• Magnetic drive drain pump
• Tubing included
  – Do NOT kink!
• Can pump up to one story
• Field convertible
Water Cannot Collect in a Downward Sloping Straight Tube

Water CAN collect in a Downward Sloping Flexible Tube

Trapped water restricts draining!
Reversing Door

- Remove door
- Switch hinges top to bottom, left to right
- Return door to cabinet
DCE33 Initial Start Up

- Check installation
- Remove control box cover
- Rotate timer CW to Harvest
- Rotate bin control to “Operating Range”
- After second batch, check cube size
  - Adjust cube size if needed
Cubes too large or too small:

- Adjust cube size control.
- CW makes cubes larger
- CCW makes cubes smaller
Cube Size: Only 1 Correct Size

- Too Big
- Just Right!
- Too Small
Front View, without cabinet.

- Spray Jets
- Inlet Water Valve
- Cube Size Control
- Curtain
- Reservoir
- Overflow Drain Hose
- Bin
- Bin Stat
- Condenser
- Enodis
- Scotsman
Left Side View

Drain Pump
Discharge

Hot Gas Valve

Drain to Pump

Drain
Pump
Motor

Hose to
Pump
Switch
Spray Area

- Jet Base
- Jet Cap
- Spinner
- Spray Jet
- Cube
- Deflector
• Clear, thin plastic sheet
  – Flip up to access jets
• Hangs from plastic frame
• Frame is attached with 4 screws
• Must not be curled or torn
• Water flows in during harvest
• Harvest cycle is timed
  – Pump is off
  – Fan is off
  – Compressor is ON
  – Hot gas and Water valves are ON
• When the timer cam pushes in the switch button, the freeze cycle starts.
• At the beginning of freeze
  – Fan is ON
  – Pump is ON
  – Compressor is ON
  – Timer is OFF
  – Hot gas and water valves are OFF
Cube Size Control

- Reverse acting thermostat
  - Senses evaporator temperature
  - Closes upon temperature fall
  - Connects power to timer motor
  - Timer cam rotates to finish the cycle
Cube Size Thermostat

Beginning Freeze

Timed Freeze
Beginning Freeze

Power Supply

Bin Thermo

Timer Switch

Water Pump

Fan Motor

Water Valve

Hot Gas Valve

Cube Size Thermo

Timer Motor
• Timer Controls end of Freeze cycle and Harvest cycle
• Shown in Harvest Position
• Clockwise ONLY!
Cube Size Adjustment

- **Cube Size**
  - Thermostat controls timer motor

- **Rotate Adjustment**
  - Screw Clockwise to make LARGER cubes
    - Delays start of timer motor
• Bin Thermostat
- Frequency depends upon conditions
- Water System Cleaning
  - Spray Jets
  - Curtain Inspection
- Water System & Bin Sanitizing
- Air Cooled Condenser Cleaning
Water System Cleaning

- Switch Unit OFF
- Discard old ice
- Pour 4 ounces of Scotsman Ice Machine Cleaner into Reservoir
- Switch Unit ON
- Operate for 2 hours
- Rinse bin with hot water
• All Orifices must be open
• Remove jet cap to confirm
  – Do NOT rotate base!
• Mix Sanitizer
  – One ounce of household bleach to Two gallons of potable water will produce a sanitizing solution
  – Spray or wash all interior surfaces of the bin and door with the sanitizing solution
  – Pour excess down the bin drain
  – Allow to air dry
• Cubes are mal-formed
  – Check spray jets
  – Check curtain
  – Check water fill
    • Water supply
    • Inlet Water Valve
    • Water Filters (if used)
• Cubes are mal-formed
  – Water may be leaking out of reservoir
    • Check pump hoses
    • Check curtain
• Low Capacity
  – Normal capacity takes about 24 to 36 hours to fill up & shut off after start up
    • If slow, check cube count
      – Should be 8 full cubes
    • Check cycle time
      – Should be about 1/2 hour
        » If long, check condenser or
        » Inlet water valve might be leaking through
  • Check bin for proper draining
    – Accumulating water will melt ice
• Makes too much noise
  – Check fan blade for shroud contact
  – Check pump fan for foil contact (loose foil)
    • Foil no longer used
  – Check back panel for loose screws
  – Check pump for tight bearings
• Does not make ice - nothing working
  – Bin thermostat open
  – Pump model pressure switch open
  • Water backed up and pump not running
• Pump and fan on, compressor not
  – Check compressor and start relay
• Compressor, fan and pump on, water spraying, no ice
  – Cube size thermostat not closing
    • Too much heat load from water leaking through inlet water valve
    • Can’t reject heat due to dirty condenser
    • Thermostat failed
• Makes partial cubes
  – Spray jet dirty
  – Water level low
  – Water trapped on top of evaporator
    • Weep hole restricted
  – Low charge because of a refrigerant leak
• R-134a system
  – Uses Tecumseh compressor (1/8 HP)
  – Hot gas bypass to defrost evaporator during harvest
  – 5 ounce charge
  – Do not connect high side gauge - too much charge will go into the hose!
  – Suction at the end of freeze is about 5 PSIG
• Compact ice machine
• Can be built in
• Pump or Gravity Drain model
  – Drain pump is magnetic drive - no leaks!
• Reversible Door
• 8 cubes per cycle
• Makes commercial quality ice