



# HOSHIZAKI CARE TECH-TIPS

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## ***OPERATIONAL SEQUENCE***

The following is a basic explanation of how the KM series units operate from start-up. Understanding this basic sequence of operation is the key to troubleshooting service problems on the KM cuber.

(1) When the power is supplied to the bin control, the unit starts in the one minute fill cycle. During this time the water valve is energized. Water enters through the center of the evaporator to fill the reservoir. After one minute, the control board checks the float switch for a closed circuit. If the switch is closed, the harvest cycle begins. If the switch is open, the control board repeats the one minute fill cycle until the water level raises the float switch to close the circuit. This occurs at initial start-up and at the end of each harvest cycle and provides a low water safety protection with automatic reset.

(2) When the harvest cycle begins, the compressor and hot gas valve energized. The evaporator begins to warm and when it reaches 48° Fahrenheit, the thermistor, which is located at the outlet of the evaporator, signals the control board to start the harvest completion timer. The timer times out and the freeze cycle begins.

(3) The compressor remains energized, the pump motor and fan motor energize, and the

water valve and hot gas valve de-energize. The control board keeps the unit in the freeze

cycle for at least five minutes as a short cycle protection.

After five minutes the freeze cycle operation is turned over to the float switch. During the freeze cycle the pump circulates water from the reservoir through the distribution system to the outside of the evaporator plates. As the water cools, ice begins to form on the plates. The water level in the reservoir drops and when the float switch opens, the harvest cycle begins.

(4) The compressor continues to run, the hot gas valve energizes, and the pump stops for 2 seconds then reverses to remove the remaining water from the reservoir. After 10 or 20 seconds, depending on the model, the pump stops, the water valve opens and (back to 2) a normal harvest cycle occurs. The unit continues to cycle through freeze and harvest until the bin control opens to stop ice production.

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## ***REMOTE CONDENSER COILS***

If your remote condensers look a little different lately, it's because of a new enameled "oxidation protectorant" coating on the coil fins. This protective coating will help to eliminate

corrosion to the aluminum fins due to acids, solvents, salt, etc. The coated coils are black in color. This change is across the line on all URC condensers and increases the quality of our remote products.

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### ***BEARING INSPECTION***

Bearings on a flaker are considered a wear item and should be inspected periodically for excessive wear. Inspection of the bearings on a Hoshizaki Flaker or DCM is a simple process which can be completed in 15 minutes or less.

The steps for bearing inspection are as follows:

- (1) Gain access to the ice chute head by removing the top panel and spout connectors as necessary.
- (2) Remove the thumbnuts which hold the ice chute head in place and lift it up and off the evaporator (take care to place the o-ring in a safe location until you replace the head.)
- (3) Remove the stainless steel bolt holding the cutter or breaker in place and lift off to access the extruding head and auger shaft.
- (4) Replace the bolt into the auger shaft and use it to push the auger back and forth from left to right to check for excessive movement.
- (5) Pull the auger towards you and try to insert the .02 bearing gauge in between the shaft and bearing surface. If the gauge will go in between the shaft and bearing surface, it is time to install the new bearings.

Both top and bottom bearing should be replaced if the top bearing is worn. If there is no excessive movement in the auger shaft and the gauge does not fit, the bearings are okay. Replace the cutter, o-ring, ice chute head and connectors.

The instructions for replacing the worn bearings included in the Service Manual.

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### ***CFC FREE FOAM***

Great news! The complete insulation foaming process has been converted to totally eliminate the use of CFC's. Any product produced by Hoshizaki America, Inc. which uses foam insulation is now considered CFC FREE.

The change over from using CFC's as a foam blowing agent was completed in November, 1993. We are now using an HCFC as a blowing agent and will switch to HFC's as compatible materials become available. Feel free to pass this tidbit on in your next discussion about Hoshizaki products.

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### ***R-22 MODEL DESIGNATION***

The easiest way to determine if a unit utilizes R-22 refrigerant is to look at the last letter in the model designation. (Example: KM-500MAE). All "E" models utilize R-22 refrigerant. All "A", "B", or "C" models except the KM-2400SRB utilize R-502 refrigerant. The same code applies to the URC remote condensers.

On remote applications, care should be taken to match the ice maker, line set and remote condensers to assure that all three utilize the same type of refrigerant before the installation takes place. A miss-match of refrigerants will result in an expensive clean up and repair, which would not be covered by Hoshizaki's warranty.

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### ***FOOD FOR THOUGHT***

There's nothing like a little experience to upset a theory.

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### **COMING NEXT MONTH...**

1. Cuber Freeze Ups.

2. Control Board History.
3. Flaker Production Check.

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