



# HOSHIZAKI CARE TECH-TIPS

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## ***CLEANING THE KM FLOAT SWITCH***

The float switch on the KM unit serves two major functions in the operational sequence. This simple switch, provides an automatic reset, low water safety protection. It also, signals the control board to initiate the harvest cycle when a full batch of ice is formed on the evaporator plates.

Since the float switch is located in the water reservoir system, it is susceptible to scale or calcium build-up. KM series cubers include a built -in power flush for the float switch housing. This flushes scale and sediment back into the reservoir through the boot connector. The sediment can then be removed by the overflow at the end of the harvest cycle.

The float switch power flush occurs during the pump-out cycle. Whenever necessary, it can be adjusted to occur either every cycle, or every 2th, 5th, or 10th cycle. In most cases, the factory setting for this adjustment is every 10th cycle. This adjustment provides cleaning flexibility. To make the pump-out adjustment, use control board dip switches # 5 & 6. With these switches in the ON OFF position the pump-out will occur every cycle providing maximum cleaning for the float switch and reservoir.

In bad water areas, it is common to collect heavier deposits in the bottom of the float boot connector. A crust of scale may form in the boot and connector tube. If you find that scale is collecting you should drain the water system, remove the boot and thoroughly clean the sediment and scale from the boot, connector tube and the hole leading to the reservoir. Make sure to rinse the

remaining scale flakes from the reservoir so that it does not cause additional problems.

If the float, housing, and shaft are scaled up you can clean them by soaking them in ice machine cleaner. Either turn the float upside down, plug the stand pipe holes and pour in the cleaner or fill a container and stand the float switch in it for a while.

Once the float is clean and rinsed, check the operation with an ohm meter. Remember, when the float is up the switch should be closed. When the float is down the switch should be open. Obviously you should replace a defective float switch however, a thorough cleaning will usually correct a sticky float switch problem.

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## ***ALPINE BOARD DIP SWITCH NUMBER 7 & 8***

Dip switches number 7 & 8 on the Alpine control board are special application switches. The instructions state that **these two switches should remain in the OFF position when the unit is in operation.** Failure to have 7 & 8 in the correct position will result in several different scenarios.

(I will take time to explain these scenarios only to make you aware of the symptoms if either switch is accidentally left on.)

Dip switch # 7 is connected to the red K- 4 connector. This is a special control circuit which will not allow the bin control to shut the unit down in the middle of a freeze cycle. This connector is used only in a bagger application. This is the only application in which K-4 should be connected. You should never place a

jumper across K - 4 and try to operate the unit as erratic operation will occur.

If # 7 is turned to the on position the unit will start up and maintain normal operation as long as K-4 is not connected. If a jumper is placed on K-4 and # 7 is ON, the unit will not start.

Dip switch # 8 is the board check-out switch. It is used when conducting the detailed board check-out procedure provided in the individual KM service manual. If # 8 is switched to the ON position with a full reservoir (float switch closed), the unit will remain in the 1 minute fill cycle. It will react the same as a low water safety situation. If the reservoir is empty (float switch open) the unit will not start.

If both # 7 & 8 are ON the unit will not start. There may be other scenarios which could occur. The important thing to remember is, double check both 7 & 8 to assure they are in the normal OFF position.

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### **SERVICE Q & A**

**Question:** The customer complains that the bin is never full. Where do I start ?

**Answer: by Keith Johnson:** This problem is common to any service technician who has serviced an ice machine before. It can be caused by various reasons or situations. First, you must determine if the machine shutting off prematurely or just not producing enough ice.

If the unit is not running when you arrive on the job site check for incoming power and water. Turn the power off and back on again to check for a machine “locking out” on high temperature safety. If the suction line temperature exceeds 127°F, the machine will stop operation and will not reset itself. This situation can be caused by a number of problems. Hot water bleeding into the cold water circuit during the evening hours, or a machine sticking in harvest too long. This should be easy to diagnose because the machine requires manual reset to start.

Next check for an open bin control with a voltmeter. Check if the bin control is broken, out of calibration or operating intermittently due to sticking contacts?

You may also have a refrigeration problem such as an under charged situation or an expansion valve misfeeding. This will require checking system pressures and comparing them to factory data provided in the Tech-Spec’s pocket guide. Now that you know the refrigeration and electrical system are operating normally, you must determine how much ice this machine is actually producing.

On this call, a trained service technician must never assume that the ice machine or bin is properly sized. To determine how much ice the unit is producing perform a simple production check as follows:

1. Time a cycle from the start of one freeze cycle to the start of another freeze cycle.
2. Divide 1440 (total number of minutes in twenty four hours) by total cycle time. This would give you the total number of cycles in a twenty four hour period.
3. Catch and weigh this batch of ice. This is a little more difficult on larger units, I’ve found a bus pan or a five gallon bucket works well and are usually readily available (better ask first!).
4. Multiply the batch weight by total cycles in twenty four hours to determined your total twenty four hour production.

Next, compare this production to a production chart and determine if the machine is producing the proper amount of ice under your operating conditions. You will find this information on the performance data charts provided in the Tech-Spec’s pocket guides. If production is within ten percent, bottom line is the machine is doing all it can do. Your customer may be using more ice than the machine can produce, thus the bin is never full. The customer may state that they had more ice in the bin in the past, this is where the investigation comes into play. You must determine if the customers volume of business increased, or if the machine or bin is actually to small for this application.

Ask questions, collect data and investigate. Resolving this problem requires being a little like Sherlock Holmes investigating the case of the dreaded “bin never full”.

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

1. Flaker Parts Changes
2. Symptoms Of A Sticking KM Float Switch
3. Service Q & A

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