



# HOSHIZAKI CARE TECH-TIPS

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## ***KM CONTROLLER INSTALL & ADJUSTMENT***

In our last issue of Tech Tips we mentioned four styles of control boards that can be found in the field. You will find that only two styles are available as service replacements. They are the "B" board (for the KM-451, KM-601, KM-631, and KM-1201) and the Alpine replacement board (for all other models).

The "B" board is a direct replacement for the "A" board and will be sent if an "A" is ordered. There is only one adjustment that can be made to the "B" board. This is the defrost completion timer, which will extend the harvest time to provide more overflow or slush at the end of harvest. This will allow for more cleaning of the reservoir or allow more time for the ice to clear from the evaporator in severe cold water conditions. The adjustment is made by changing the position of two dip switches located on the upper right hand corner of the control board. The instructions for this adjustment are printed beside the switches on the board itself. Remember, longer defrost time will increase water consumption slightly, while allowing for cleaner, more efficient operation.

The universal "Alpine" Board (part # 2U0139-01), is designed as a direct replacement for the "C" board. (The "C" board can be easily distinguished by the blue jumper connection marked K6 located beside the black float switch connection.) Simply install the board and adjust the 8 dip switches per the adjustment chart included with the instructions in the shipping box. Make sure the model number you choose on this chart matches the unit you are servicing.

There are actually two different "Alpine" boards; the replacement board mentioned above and an original "Alpine", (part # 2U0127-01), which was installed in the unit at the factory. The universal board will replace the original board with a slight modification.

If an original "Alpine" board fails, before installing the universal replacement board, cut the black wire jumper marked RO65 located between relays X3 and X4. The board is now an original "Alpine". Adjust the switches per the instruction chart and complete the change-out. The instructions explain this step. **The problem is, some techs do not read instructions.**

Now, to the adjustments. Switches 1 & 2 adjust the defrost completion timer as explained earlier. Switches 3 & 4, adjust the length of pump-out. These should be left in the factory setting since they are adjusted basically by the sump size, (10 seconds for small sumps, 20 seconds for large sumps). Switches 5 & 6 adjust the pump-out frequency. You can have a pump-out every cycle or adjust it to occur every 2, 5, or 10 cycles. Every cycle pump-out provides maximum cleaning, the other adjustments would clean less but save on water consumption.

Switches 7 & 8 are for special applications and must be in the **OFF** position for the board to operate. You should always remember the two adjustments that provide you flexibility in cleaning. They are the defrost completion timer # 1 & 2 and the pump-out frequency # 5 & 6. These switch adjustments may vary from the instruction chart. Switches 3, 4, 7, & 8 should remain at the factory setting. As always, there is one exception to the rule. The pump-out frequency (5 & 6) on the

KM-2400 must remain in the every cycle position (OFF/OFF) since the special discharge gas valve operates off this circuit.

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### ***FLAKER CUBELET CONVERSIONS***

Hoshizaki America, Inc. now has available, from the factory, selected Flaker models that are being manufactured with cubelet conversions installed. The F-650 and F-1000 are available at this time and have a -C (dash C), at the end of the model number.

These models produce ice that is similar to the DCM product. This ice is easy to chew and lasts much longer in a drink than Flaked ice. Cubelet units have a different extruding head which squeezes more water from the ice and extrudes a “pinkie finger” size piece of ice that is broken away by a special cutter. You will find that the production of a cubelet conversion unit will be slightly less than the original flaker model.

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### ***RECOVERY TIPS by David Brown***

All recovery equipment must be registered with the EPA in accordance with their rules. Since recovery equipment varies between manufacturers, specific models will not be discussed. When hooking up the refrigerant recovery equipment or the charging manifold use safe and proper refrigeration practices, to maintain “de minimis” release.

Keep in mind that the EPA permits only “de minimis” releases of refrigerant, as long as, “good faith” is used to recover as much as possible. Purging air from the hoses before connecting them, and the small amount of vapor that escapes when removing the hoses is considered “de minimis”. Venting the total charge from the unit is not!

Venting any refrigerants may result in EPA fines up to \$25,000/day and up to a \$10,000 reward for those who, “turn you in”.

Hoshizaki suggests using a recovery unit capable of recovering liquid from the ice machine, if available. This speeds the process and shortens the time taken to recover all the system charge. Liquid recovery is a definite benefit when recovering refrigerant under cold ambient conditions.

If the intent is to reintroduce the recovered refrigerant back into the system, proper filtration must be used with the recovery system. Precautions need to be taken to insure that the recovery drum is clean, dry, and does not contain any refrigerant. Evacuating the recovery drum down to 29.5” to 29.9”, for ten minutes before use, will insure a clean drum and maintain purity of the recovered refrigerant.

Some recovery systems can recover only vapor. Using this type systems can extend the time it takes to remove a large volume of refrigerant. As a suggestion, before you start vapor recovery, place the recovery drum into an ice bath and keep the drum cold. This will allow the refrigerant to migrate to the coldest point and remain in a liquid state. This will speed the vapor recovery process. With drum and system pressures equalized, start vapor recovery. This same procedure can be used with equipment having liquid recovery capability.

A word of caution, do not exceed 80% drum capacity. If the cylinder is over filled and the temperature of the cylinder increases, the pressure within the drum will increase until the drum explodes or the safety relief (pop-off) activities.

A system that has had a severe burn-out or multiple leaks, must be thoroughly cleaned and recharged with virgin refrigerant. The contaminated refrigerant should be turned in to a reclamation center for processing back to ARI 700-88 standards or disposal. When charging the ice machine be sure you are putting in the correct type, and amount of refrigerant specified by the manufacturer on the unit nameplate.

If you suspect a mix of refrigerant in a system or drum, perform a pressure test and refer to a P/T chart. If pressures do not match the P/T chart standards, the refrigerant is likely mixed or contaminated. Properly dispose of this refrigerant. Do not attempt to reuse it.

Hopefully these tips will assist you in performing the recovery process safely and efficiently.

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

1. KM Ice Quality
2. Control Board Mix-ups
3. Water System Sanitation