HOSHIZAKI TECHNICAL SUPPORT
TECH -TIPS

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IM CONTROL BOARD SETTINGS

An electronic control board is used in the new IM-51BAF self-contained icemaker. This control board has 3 points for adjustment. The adjustments are factory set for proper operation under normal conditions. From time to time, these adjustments are altered from the factory settings. This article will explain the adjustments and the proper settings.

The first adjustment is the VR5 cube control or dimple adjustment. This control actually sets the temperature at which harvest occurs. It has a label that shows dimple or hole size ranging from 1 to 7.

The normal cube control setting is 5. This will allow the control board to switch to harvest when the thermistor temperature reaches –9.4°F (-23°C). A larger dimple setting (towards -8°F/-13.3°C) will harvest quicker and allow a shorter cycle and smaller cube. A smaller dimple setting (towards -10°F) will extend the cycle so that ice fills in the dimple, resulting in a fuller cube. If this adjustment is not correct, the freeze cycle time will not match the factory performance data chart.

The second adjustment VR3, sets the maximum freeze timer. This timer is a back up safety to assure that the unit does not stick in the freeze cycle for a long period. If the thermistor fails, the back up timer will automatically start the harvest at the set time. The setting range is from 5 to 60 minutes.
The correct factory setting is 45 minutes.

The last adjustment is the defrost control VR2. This setting will adjust a timer which will delay the actuator motor restart after the thermistor reaches the harvest temperature of 59ºF (15ºC). The range of adjustment is from 1 to 7 and each number represents 10 seconds of time delay. **The factory setting is 4**. This means the plate should raise 40 seconds after the evaporator reaches temperature.

These three adjustments should remain at the factory setting for proper operation of the IM51.

THERMISTOR CHECKOUT

With the addition of other products to the Hoshizaki line, the number of thermistors in our service parts inventory has increased. Some of the thermistors look very similar. This article will list the thermistors by product, function, and part number and provide details on checking them for proper operation.

The KM model uses a thermistor mounted at the evaporator outlet to check the evaporator outlet temperature. There are three different part numbers for the KM thermistor. The most common is number 429006-03. This thermistor number can be used as a universal replacement for every KM model. The lead length may be a little long for some of the small models however, you can easily gather an extra loop in the wire tie inside the control box.

A small tube of heat conductive sealant is included with each replacement KM thermistor and the

thermistor must be mounted correctly for proper operation. Follow the mounting instructions provided with the replacement thermistor or in Tech–Tips Volume 112 published December 1994.

The reach-in products include two different thermistors. While there are 2~3 different part numbers for each, they are color-coded and are not interchangeable. The cabinet thermistor has grey lead wires. It is mounted by a small ABS bracket in the evaporator compartment and controls the cabinet temperature. This thermistor connects to the K4 board connector on SSB model reach-ins. Note that the IM-51 thermistor has a grey shield over the wires and has 4 wires at the connector end. Since it looks physically different, it should not be confused with the reach-in cabinet thermistor. They are not interchangeable.

A defrost thermistor with orange leads is used to sense evaporator temperature. It connects to the K5 board connector on SSB model reach-ins. This thermistor is clipped to the inside of the evaporator coil to provide an accurate coil temperature reading to the controller board. The KM thermistor also has orange leads however, it has different tolerances, so they are not interchangeable. To distinguish between KM and reach-in thermistors, a red band is attached to the reach-in thermistor approximately 12 inches from the thermistor end.

The checkout procedure for a thermistor is simple. The following temperature/resistance chart should be used to determine if a thermistor is bad. **Use the same chart for all thermistors**. Once you verify the thermistor sensor temperature, the resistance should read within +/- 10 % of the chart amount.

THERMISTOR TEMPERATURE/RESISTANCE

Sensor Temp. ºF / ºC	Resistance K-ohms
0 / -18	14.4
10 / -12	10.6
32 / 0	6.0
50 / 10	3.9
70 / 21	2.5
90 / 32	1.6

If the thermistor is not mounted, place the sensor end in a glass of ice water to reduce the temperature. After 1~2 minutes, the thermistor temperature will stabilize at 32ºF (0ºC) and the resistance should read 6 K-ohms +/- 10%.

It is important to note that while the percentage of our thermistor failures is extremely low, experience has shown that most thermistors fail either open or shorted. You will find a KM thermistor article in Tech-Tips Volume 105 published May 1994. The symptoms of a bad KM thermistor are also included in the Component Checks section of the Tech-Spec's pocket guide.

WEB SITE UPDATE

The Hoshizaki web site www.hoshizaki.com will get a new face and new features in early October. The changes will provide more on-line access to Hoshizaki equipment and technical data. Sales and Marketing will provide improved equipment specifications and an equipment-sizing program.

From the Technical Support side, we will have PDF files for the green and purple Tech-Spec's Pocket Guide. You can review, print, or download any section or the entire manual as necessary with the help of an Adobe Acrobat reader. Also PDF files of all past Tech-Tips volumes and lists of articles by category will be available along with Service Bulletins. Simply find the one you want and print or download The complete Parts Price List will be included as well. This information along with the e-mail address, techsupport@hoshizaki.com is provided as another method to get important service information to the field technician.

Be sure to check it out in October. Happy surfing.

SERVICE TIP

We have had many questions about a Tech-Spec's pocket guide for R-404A equipment. The R-404A guide is in the works and will be published in early December. In the mean time, technical data for R-

404A equipment is available from two sources. Most R-404A models have an individual service manual available and as well as a published Service Bulletin. These are available through Tech Support or the Hoshizaki Literature Department.

COMING NEXT MONTH...

1. Adjusting Water Regulating Valves
2 IM51 Service Indicator LED.
3. Service Q & A