



HOSHIZAKI TECHNICAL SUPPORT TECH -TIPS

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DISCHARGE LINE GAS VALVE OPERATION

The KM-2400SRB3 model produces 2400 pounds of KM cubes in 24 hours of operation. It is the largest KM model and has the basic components found in all KM models along with some additional controls and safeties. The extra controls are to operate the discharge line gas valve (DLGV), which assist harvest in low ambient conditions.

The discharge gas valve circuit includes a liquid bypass control. This 2 position thermostatic control, switches according to the temperature of the liquid line. It will allow the bypass valve to operate in higher temperature conditions to provide liquid bypass cooling for the compressor. In low ambient conditions, it will supply power to the DLGV circuit for harvest assist.

The DLGV control circuit has 2 relays and a high-pressure control to allow the gas valve to operate properly. Relay X1 is considered a set up relay that will energize relay X2 when the unit is in the pump-out cycle. It is important to remember that no pump-out occurs during the 1st harvest after the 1 minute fill cycle. This means that the DLGV **will not operate** during this harvest. The power for relay X1 coil comes from the inlet water valve circuit. Relay X1 is de-energized when a pump-out occurs. It must be de-energized to supply power to the coil of relay X2.

Relay X2 is a “keep” relay and is kept energized by high-pressure switch “B”. The KM-2400 is adjusted from the factory to have a 10-second pump-out every cycle. It **must** maintain this adjustment in order for the discharge line gas valve to operate properly. When the

10-second pump-out is complete, pin #6 on the K1 board connector will energize both the inlet water valve and relay X1.

When Relay X1 and X2 are energized, power is supplied to the DLGV. This is a normally open valve. When it is energized, the DLGV will close. This allows all the hot gas from the compressor to be diverted through the hot gas valve to the evaporators. The increased volume of hot gas helps to remove the 46 pounds of ice production quickly so that maximum production can be achieved.

Once relay X2 is set up by relay X1, it will remain energized until one of 3 conditions occurs. When the normal harvest cycle is completed, the inlet water valve and relay X1 will de-energize. This will de-energize the DLGV. If a harvest cycle last longer than 6 minutes, the control board will de-energize the inlet water valve and relay X1. This will de-energize the DLGV. If a high-pressure condition of 355 psig occurs, pressure switch “B” will open to de-energize relay X2 and de-energize the DLGV.

The DLGV circuit seems complicated however, once you understand it, it makes perfect sense. You need to remember that it only operates in low ambient conditions. It is completely out of the picture in warmer conditions.

REACH-IN DIAGNOSTIC MENU

The new control board used in the SSB reach-in models includes a diagnostic menu. This menu is

accessed through the display panel on the front of the reach-in. The diagnostic menu should not be confused with the guarded access menu which

provides for changing the display from F to C, adjusting the cabinet temperature, and setting the number of defrost per day for the freezer models.

Access the diagnostic menu by de-pressing the up/down arrows and the enter button simultaneously for 3 seconds. This 9-item menu provides important diagnostic information and the ability to manually defrost the freezer models. Once the menu is accessed, you can scroll through the 9 diagnostic items by pressing the enter button. Use the up/down arrows to change the options and the reset button to reset the alarm conditions.

This feature provides important information and functions that will allow the service man to diagnose a problem quickly. The diagnostic menu provides the following 9 features:

1. When 1 is OFF, the cabinet temperature is displayed. When 1 is ON the display shows evaporator temperature for 5 minutes then reverts back to the cabinet temperature (OFF).
2. (Freezer Only) When 2 is switched on, a manual defrost is initiated after the user scrolls through the complete menu. Then, the display shows “dEF” and a standard defrost will occur. 2 reverts back to OFF when this defrost terminates. The next defrost will occur at it’s normal time. To end this defrost before termination occurs and restart the 24 hour defrost timer, turn the power switch OFF~ON.
3. When 3 is switched ON all alarm codes are reset after the user scrolls through the complete menu. Then, 3 reverts back to OFF.
4. In item 4 the two digits to the right shows the compressor run time for the last 24 hours to the nearest hour. This time updates every hour.
5. The two digits to the right of 5 shows the % of compressor run time for the last 5 cycles. Item 5 will update every cycle.
6. The two digits to the right of item 6 shows the compressor ON time for the last run cycle in minutes.
7. (Freezer Only) The two digits to the right of item 7 shows the length of the last defrost cycle in minutes.
8. On item 8, the two digits to the right represents the highest cabinet temperature recorded during The last high temperature alarm. “8 ” will display if there is no high temperature alarm.
9. The two digits to the right of item 9 will represent the lowest temperature recorded during the last low temperature alarm. “9 ” will display if there is no low temperature alarm.

To exit the diagnostic menu at any time, press and hold ENTER for 3 seconds. This will allow the menu to cycle through 9 items and return to normal operation. If the diagnostic menu is left on, it will remain on display for 10 minutes after the last keystroke. It will then automatically revert back to normal operation. The temperature readings on this menu will read the same scale as the C/F setting on the guarded access menu. Remember that the “Freezer Only” functions will show up on the refrigerator display but will have no effect.

SERVICE TIP

Here are some tips on cleaning Hoshizaki ice machines. Hoshizaki recommends Ecolab’s Lime-A-Way or Hoshizaki Scaleaway cleaner (part # SCALEAWAY) to de-lime the water system. Any cleaner however, that is recommended for ice machine use, is acceptable. The recommended % of mixture for cleaner and water is listed on the unit cleaning label. Always mix the cleaner with warm water. This helps to activate the acid cleaner.

In case of heavy scale on a KM evaporator, it is acceptable to increase the amount of cleaner versus water. This will produce a stronger cleaning solution to cut the heavy scale deposits. Since the evaporator is made of durable stainless steel, it will not be damaged by the stronger solution.

To help remove the scale from the ribs of the evaporator, Hoshizaki has a specially designed cleaning brush (part # 900019). This brush has a square nylon bristle that conforms to the ice channel. Using the brush while the cleaner is flowing down the plate will speed

the cleaning process. Both cleaner and brush are available through your local Hoshizaki distributor.

COMING NEXT MONTH...

1. KM Sequence of Operation
2. Flaker Periodic Flush
3. Service Q & A

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