HOSHIZAKI TECHNICAL SUPPORT
TECH -TIPS

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NEW CONTROL BOARD

Hoshizaki Technical Support is proud to announce the most important technological advancement since the original design of the KM cuber. This advancement is a new control board manufactured by Control Products of Chanhassen, Minnesota.

Some of you have installed field test boards or seen the new board featured in our 1997 service seminars. Field test results are in and the new board, referred to as the "E" board, is now ready to go.

The "E" board incorporates new control board technology including improved solder connections, surface mounted components, and multi-layered circuitry. It is designed as a direct replacement for either "C" or Alpine applications. The "E" board is smaller than the Alpine board by 1/3rd and will fit on four of the original mounting post. This board will retrofit and add new features to any KM unit produced since mid 1988.

Several new features have been included in the "E" board to improve safety protection and speed service diagnosis. Both audible beeps and LED lights will lead the service technician to the problem.

Green "LED" lights are included beside each board relay and will light up as the relay is energized. These LED's will light in sequence as follows:

1 Minute Fill	LED 4 on.
Harvest	LED 1, 2, & 4 on.
Freeze	LED 1 on.
Pump-out	LED 1, 2, & 3 on.

A red control voltage LED is located beside the

beeper on the board. This LED will illuminate when the control voltage is within +10%, -15 % of it's rating. If a control voltage problem occurs, the unit will shut down, the red light goes out, and an audible alarm will sound. This safety will reset automatically when the control voltage returns to normal.

There are two fault LED's on the board, one marked 60 Min. and another marked 20 Min. The standard 127° F high temperature evaporator safety is also included. These are back-up safeties and will shut the unit down on a **manual** reset. The beeper will sound to designate which safety has operated. **In order to reset the manual safeties, you must depress the white reset button with the power switch "ON".** The board will maintain it's memory until it is reset.

The 60 minute timer backs up the float switch. If the float switch sticks in the up position or other faults which would cause a long freeze cycle occur, the board will automatically switch the unit to harvest after 60 minutes. If this occurs for 2 consecutive cycles the "E" board will shut the unit down, the 60 Min. LED will light, and an audible alarm of 3 beeps every 3 seconds will occur.

The 20 minute timer backs up the thermistor. If the thermistor does not signal 48° F to start the defrost completion timer or other faults which would cause a long harvest cycle occur, the "E" board will automatically switch the unit to freeze after 20 minutes.

If this occurs for 2 consecutive cycles the "E" board will shut the unit down, the 20 Min. LED will light, and an audible alarm of 2 beeps every 3 seconds will occur.

If a high temperature condition occurs, the unit will shut down to protect the evaporator compartment ABS components and an audible alarm of 1 beep every 3 seconds will occur.

A built in board relay test can be conducted by using the test switch marked "S3". With "S3" ON, the board will sequence the relays in 5 second intervals when the control switch is placed to "ICE". The LED's will light in sequence beginning with 2,3,4,&1 then start the unit in the one minute fill cycle lighting LED 4. Test switch "S3" should remain in the "OFF" position during normal unit operation.

Lastly, the black jumper which makes the Alpine board a universal replacement is changed to a switch. The switch, located between relays X3 & X4, is in the same position as the black jumper on the Alpine board. It is marked with a "C" & "ALP" position to correspond to the application it is used in. This switch operates the same as the black jumper.

Beginning in February, the universal Alpine replacement board # 2U0139-01 will sub to the new "E" board # 2A0863-01. The "E" board will include installation instructions and a label which explains the operation, safeties, and alarm features of the board. This label must be placed in a visible location on the unit when the new replacement is installed. In April, the new board will be used on the assembly line. We will integrate the "E" board into the KM product line over the course of the year to allow use of present Alpine inventories.

This board change represents our continues efforts to improve our quality products. Once you see the new board in action, I am sure you will agree Hoshizaki remains "The Best There Is."

KML PUMP OUT

All KM models produced since mid 1988 have included a pump-out cycle to remove minerals and sediment from the reservoir at the beginning of the harvest cycle. This pump-out is also included in the new KML (low profile) units. The KML pump-out operation is slightly different from the basic KM model however, it serves the same function.
The basic KM uses a reversible pump motor and a spring operated check valve to remove the mineral laden water. This water is pumped through the check valve and down the drain. At the same time, a small amount of water is also forced through the float switch housing to power flush it.

The KML has a single winding pump motor that does not reverse. Instead, when power is supplied to pin # 5 which would normally reverse the motor on a KM model, a relay is energized and the pump motor and drain valve are energized. The pump turns in the same direction as it does in the freeze cycle. The waste water is diverted out the unit drain through the drain valve.

There is no power flush of the float switch on the KML. This is not necessary because the float is located in the reservoir and does not have a connector boot to trap sediment. The pump-out adjustments remain the same on the KML model allowing cleaning flexibility in bad water areas.

SERVICE TIP

Instead of a service question this month, we offer the following helpful service tip.

The cleaning instructions for Hoshizaki ice machines are outlined in the cleaning label located on the machine. They are included in detail in the instruction booklet in the accessory bag in each unit. You will also find generic cleaning instructions in the cleaning section of your Tech-Specs pocket guide.

Remember that an annual cleaning and sanitizing following these instructions is recommended for Hoshizaki ice machines. More frequent cleaning may be required in bad water areas. A clean ice machine will

maintain proper production and perform more efficiently within specifications.

COMING NEXT MONTH...

1. R-404A Schedule
2. Choosing Water Treatment
3. Service Q & A