HOSHIZAKI CARE TECH-TIPS

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CLEANUP AFTER BURNOUT by Duncan Sheridan

"The compressor did not burn out, it did not smell bad when I opened the system" said the serviceman when he talked to the distributor to order a replacement compressor. It's true, a bad burnout generally has an acidic odor, but not always. To determine if the burnout is severe, the acid content and color of the oil will give a more accurate picture.

A system burnout must be cleaned up properly. Most of the contaminated oil is removed with the bad compressor when it is replaced. Some of it however, remains in the system. A heavily contaminated system may require that the refrigeration lines be cut and the system purged with nitrogen . This would assist in removing the majority of the contaminants.

The Filter-drier cleaning method is the method of choice for compressor burn-out clean up. In this method, a properly sized "burnout-cleanup" type suction line drier is added to the system. This temporary drier remains in the system and removes acids and contaminants during the cleanup process.

A few precautions should be observed. Critical charge systems require an additional refrigerant charge if an oversize liquid line drier is used. There is no additional refrigerant charge needed when using suction line driers. Pressure drop across the suction line drier however, should be monitored. After two hours of operation check the system. A severe system burnout can contain enough soot and contaminants to restrict the refrigeration flow quickly. You should return to check the pressures and oil for acid within 48 hours of operation. There are products and test kits available to assist in the sampling of oil and testing for acid. If the oil is still discolored and has a bad odor or tests to be acidic,

the compressor oil should be changed.

Changing the oil may require removal of the hermetic compressor. After removal, carefully invert the compressor to drain the oil. There are also pump type oil removal tools available. Be sure to measure the oil removed from the compressor and refill with the same amount and type of clean fresh oil.

Allow the system to operate for an additional 48 to 96 hours and re-check. If the oil checks OK, replace the liquid line filter-drier with one of the normally recommended sizes. Remove the suction line drier from the system. Charge the system and check the operation. Caution: Always wear safety glasses and rubber gloves when performing burnout clean up and handle the contaminated materials properly.

FLAKER WATER FILL SYSTEM

The reservoir in a Hoshizaki auger type ice maker feeds water by gravity flow to the evaporator cylinder. The level of water in the reservoir is maintained by the operation of a dual float switch assembly. This dual float has two functions, to operate the inlet water valve solenoid for fill, and to provide low water safety shutdown.

The dual float switch assembly is made up of two reed switches inside of a sealed shaft. The reed switch

contacts are operated by individual magnets attached inside of the two separate floats.

As ice is made and extruded from the evaporator cylinder, the water level in the reservoir drops. When the level drops, the top float opens the top switch contacts (considered a latching circuit). Opening these contacts allows the bottom float switch control of the water control relay in the control circuit. As the water level continues to drop, the bottom float contacts open to de-energize the water control relay.

De-energizing the water control relay closes a circuit to supply 24 volts to the inlet water valve solenoid. This allows water to fill the reservoir. It also opens a circuit to the timer board which starts a 90 second low water safety shutdown timer.

When the water supply is available, the reservoir refills. As the reservoir level rises, these two switches swap jobs. The bottom float is now the latching circuit and the top float re-energizes the water control relay. This will stop the safety timer and shut off the water flow.

If no water is available, i.e. the filter is stopped up or the water supply is turned off, the unit cycles down and the water valve remains energized. When the water supply is restored, the reservoir fills and the top float switch re-energizes the water control relay to automatically restart the unit. This system provides a consistent water level in the reservoir and an automatic reset low water safety protection.

The dual float switch has three wires. The black wire is common, the red is for the top switch and the blue is for the bottom. Check the top switch by ohming out the black and red wires. When the top float is up this switch should be closed. Check the bottom switch by ohming out the black and blue wires. Raise the bottom float and the contacts should close. If either switch fails, the assembly should be replaced.

Since the float switch is mounted into the water reservoir, it is susceptible to scale build-up. The amount of scale build-up will depend on the local water quality. Scale on the switch shaft can cause the floats to stick. This will effect the unit operation. In this case, the float switch should be cleaned and checked.

The float switch is held in place on the top cover by a twist lock bracket. To remove it, twist the switch flange and lift. Soak the switch assembly in ice machine cleaner. While it is not necessary to do so, some servicers remove the floats from the shaft during cleaning. If you remove them, note that the blue float is on top. Also it is important to clearly mark the top of the floats so that they can be replaced correctly. The magnet is always on the top of the float. Installing the floats upside down will effect the timing of the float switch operation. Once clean, rinse and wipe the cleaner off and check the switch with a good quality ohm meter.

See Service Bulletin number SB96-0003 for a detailed drawing of the dual float switch assembly.

KM BIN CONTROL EXTENSION

Effective on models produced in June 1996, A new stainless steel bin control extension bracket has been added as a standard accessory for all KM / S models.

The extension bracket is designed to be used with non-Hoshizaki bin applications, on all KM-2000 & 2400's and whenever units are stacked. Using the bracket extension lowers the bin control bulbs and shifts the bulb location so that proper operation of the bin control can occur.

Two problems have been solved by adding this extension. 1. On non-Hoshizaki bins, there may not be a baffle to direct the ice pyramid towards the bin control bulbs. Adding the extension redirects the ice pyramid improving bulb contact.

2. When units are stacked, the standard bracket may not allow enough space between the ice pyramid and the bottom of the lower unit for the ice drop weight of two units to flow into the bin. This drop weight could equal either 62 lbs. or up to 92 lbs. depending on the models and application.

Both situations result in ice backing up into the evaporator and a possible freeze up condition. Lowering the bulb placement with this extension eliminates the ice back-up. If you have an application that needs an extension bracket contact your local Hoshizaki distributor. Hoshizaki will provide extension part number 3A0408-01 at no charge.

COMING NEXT MONTH...

1. DCM Auger removal
2. Cleaning Water Cooled Condensers
3. Ice Machine Sanitizing