

## FLAKER/DCM SEQUENCE OF OPERATION

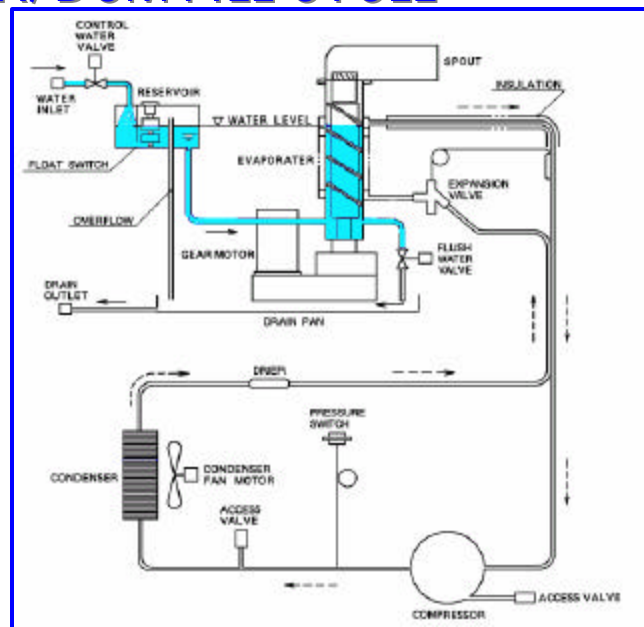


H O S H I Z A K I A M E R I C A

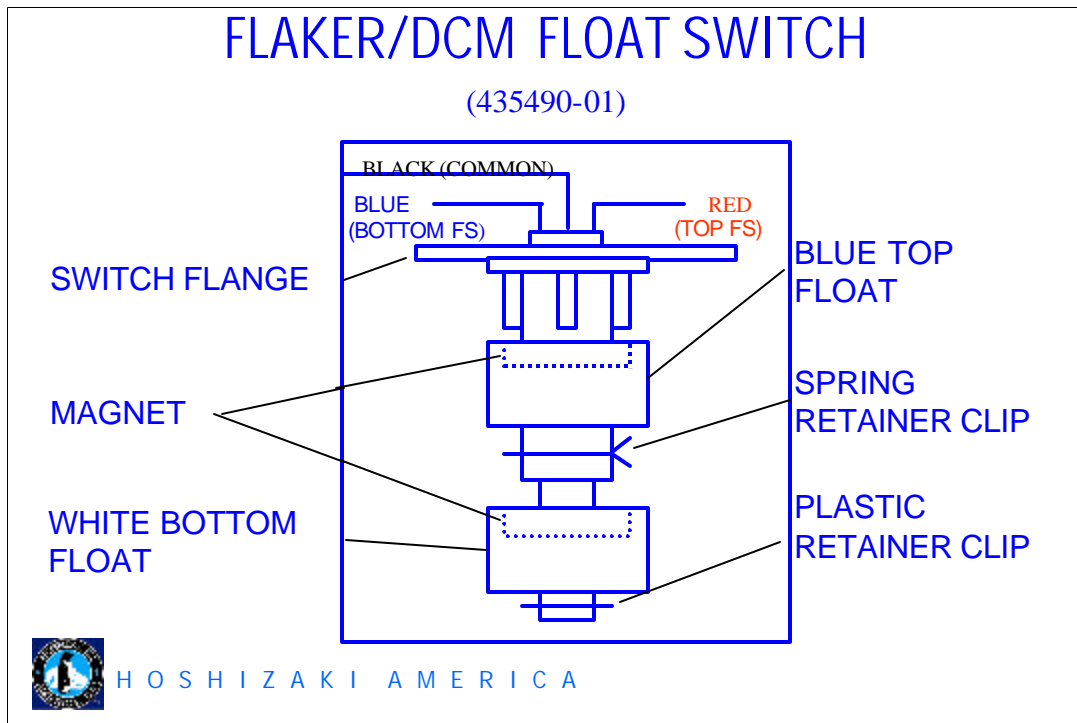
The Flaker and DCM series of ice machines use a completely different ice making process than the cuber style of icemaker. The Flaker has a continuous ice making process that does not incorporate a harvest cycle it will simply continue constant ice production until the unit the bin control is satisfied . The unit will bring water on as needed to keep the reservoir and evaporator full. In the next few slides we will discuss the details of the operating sequence for the Flaker and DCM products.

## FLAKER/DCM FILL CYCLE

- Water inlet valve opens.
- Fills Evaporator and reservoir.
- Water level controlled by float switches.



The reservoir in a Hoshizaki auger type icemaker 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 unit will start in fill anytime after power has been interrupted or the bin control closes. Also during normal operation the unit will energize the water valve when both float switches are open to maintain adequate water level.



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.

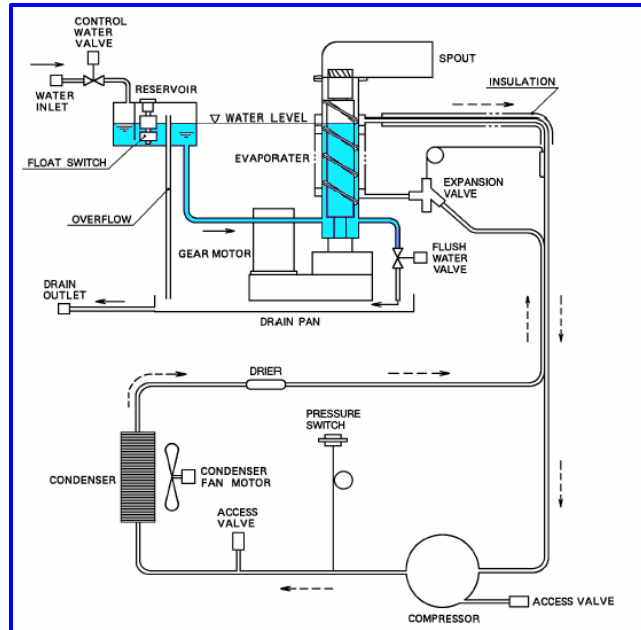
As ice is made and extruded from the evaporator cylinder, the water level in the reservoir drops. When the level drops, the top float drops, the contacts are open (this is considered a latching circuit). Opening these contacts allows the bottom float switch to control the voltage to the coil of the water control relay in the control circuit. As the water level continues to drop, the bottom float will drop, opening its contacts 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. When the water supply is available, the reservoir refills. As the reservoir level rises, these two switches change jobs. The bottom float is now the latching circuit and the top float re-energizes the water control relay. This de-energizes the water inlet valve as well as closes the additional circuit on the relay stopping the safety timer. At this point the unit is ready to energize the gear motor provided the bin control is closed, calling for ice. (See next slide). Note: When the unit is in normal operation the gear motor and ice making continues.

If no water is available, i.e. the filter is clogged or the water supply is turned off, the unit cycles down at the end of 90 seconds and the water valve remains energized. When the water supply is restored, the reservoir fills and the top float switch closes to re-energize the water control relay and automatically restart the unit. This system provides a consistent water level in the reservoir and an automatic reset low water safety protection.

# FLAKER/DCM GEAR MOTOR START

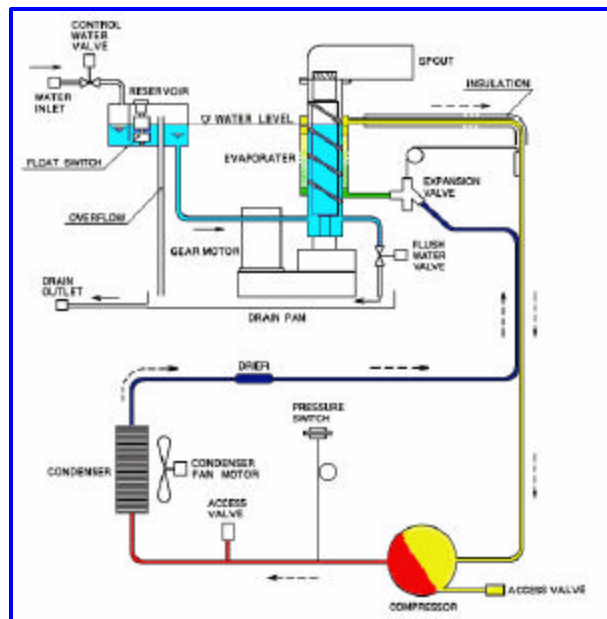
- Gear motor energizes for 60 seconds.
- Clears evaporator of any remaining ice.
- Offers short cycle protection.



After the unit fills and the float switches are closed. The control of the unit is turned over to the bin control. If the bin control is calling for ice (closed) the unit will energize the gear motor. (The condenser fan will be energized on "M" model units. By running the gear motor without the compressor at the beginning of the cycle the unit will clear itself of any ice that may have been left from a previous cycle.

## FLAKER/DCM COMPRESSOR START

- Compressor starts.
- Ice production will begin in two or three minutes.
- Water valve energizes when float switches open, to maintain water level.



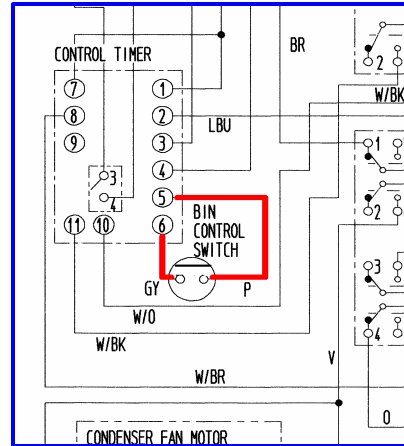
After 60 seconds the unit will energize the compressor. The refrigerant will begin to cool the evaporator and within approximately two to three minutes ice will begin to be extruded from the top of the evaporator and move toward the drop chute and into the storage bin. The unit will continue to produce ice with water being supplied to the unit as needed until the bin control is satisfied, the unit goes in to the flush cycle or the unit is turned off.

This 60 second delay provides short cycle protection for compressor as well as allowing the removal of any ice left from a previous cycle.

## FLAKER/DCM SHUT DOWN

- DCM & “B” Model flakers sequence down starting with compressor (Bin control is wired in series with terminals 3 & 4).

- “M” series units shut down 6 seconds after bin control opens



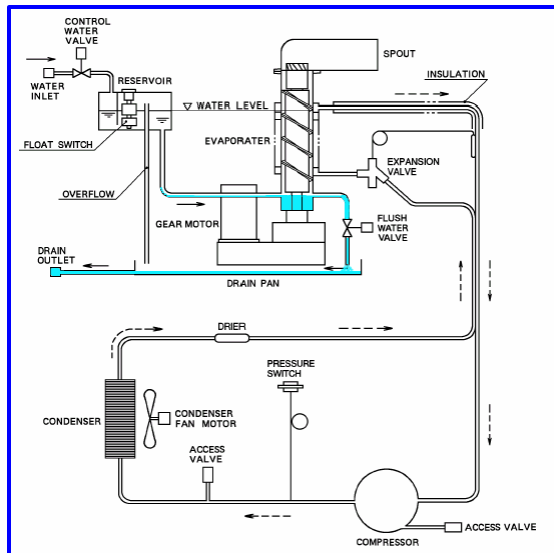
H O S H I Z A K I A M E R I C A

The Flaker and DCM series use a mechanical “flapper” style bin control (Except the DCM 200 series). This control uses a magnetic proximity switch to shut the unit down after the unit has filled the bin, the ice will build up and push the bin control flapper over to open the bin control switch. This will shut the entire unit down within 6 seconds on “M” model Flakers.

“B” model flakers and DCM products will sequence down. This sequencing will start 90 seconds after the bin control opens. The compressor will shut down first and 60 seconds later the gear motor. In some cases the condenser fan will shut down with the compressor and others.

## FLAKER/DCM FLUSH CYCLE

- Manual: 90 sec. after switch is activated.
- Automatically: Every 12 hours for 20 minutes.



The flaker series ice machines incorporate an automatic flush system. This flush system is controlled by a mechanical timer and shuts the machine down every 12-hours for 20 minutes. (Except on later DCM-500 and 750 models an electronic timer is incorporated on the control board.) When the unit has shut down a flush valve will energize through a flush relay and allow all the water to drain out of the evaporator and reservoir. The additional amount of time the unit is off allows the ice remaining on top of the evaporator to melt and wash down the evaporator walls. This flush allows any sediment or debris that has built up in the evaporator to be removed and greatly extends the life of the bearings as well as keeps the unit cleaner for a longer period of time.

A “FLUSH-ICE” switch is also provided to operate the flush relay. This allows the water system to drain for maintenance and cleaning.

We hope that this gives you a good understanding of the operation for the Flaker and DCM series units. If you have any questions concerning this or any other technical information please send e-mail to [techsupport@hoshizaki.com](mailto:techsupport@hoshizaki.com) or call the Technical Support Department at 1-800-233-1940.