
Scotsman®
Ice Systems
NEW MXG SERIES
SECOND HALF

Scotsman®
Ice Systems

NEW MXG SERIES

MAINTENANCE

Scotsman Ice Systems

NEW MXG SERIES

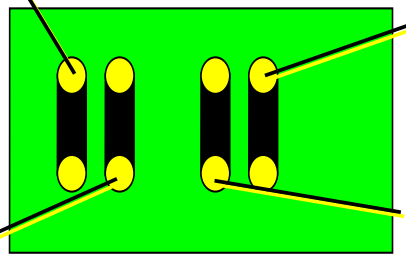
MAINTENANCE

MXG series are equipped by a special built in countdown timer which advise about elapsed time which remind for cleaning. The time between cleaning/de-scaling can be changed according with PC Board

WATER SYSTEM CLEANING REMIND
JUMP IN - 6 MONTHS
JUMP OUT - 12 MONTHS

RAPPEL NETTOYAGE SYSTEME HYDRAULIQUE
CONTACT FERME' - 6 MOIS
CONTACT OUVERTE - 12 MOIS

RICHIAMO PULIZIA SISTEMA IDRICO
CONTATTO CHIUSO - 6 MESI
CONTATTO APERTO - 12 MESI



TEST

AC/EC MODELS
JUMP IN – AC SERIES
JUMP OUT - EC SERIES

MODELES AC/EC
CONTACT FERME' - SERIES AC
CONTACT OUVERTE - SERIES EC

MODELLI AC/EC
CONTATTO CHIUSO - SERIE AC
CONTATTO APERTO - SERIE EC

START UP DELAY
JUMP IN - 0 MIN.
JUMP OUT - 60 MIN.

RETARD AU DEMARRAGE
CONTACT FERME' - 0 MIN
CONTACT OUVERTE - 60 MIN

RITARDO ALLA PARTENZA
CONTATTO CHIUSO - 0 MIN
CONTATTO APERTO - 60 MIN.

Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

The most important program on the maintenance of the cubers is the cleaning/sanitizing to be done on regular base, as detailed here below:

- **Sanitizing:** **Every month**

- **Cleaning:** **Every six**

or when cleaning remind board signals it.

On next slides will be shown the procedure for cleaning and sanitizing.

Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

TOOLS REQUIRED

- Medium Phillips Screwdriver
- Medium Flat Screwdriver
- Pair of safety gloves
- Bucket
- Different types of brush
- Approved Cleaner/Sanitizer

Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Wait till the end of the defrost/harvest cycle then Switch OFF the machine

Remove all frame panels

Scotsman® Ice Systems

NEW MXG SERIES

MAINTENANCE

Scoop out all ice cubes stored into the bin so to prevent its contamination then...

….flush out the water from the sump reservoir by bending down the drain tube.

Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Prepare the cleaning solution by diluting in a plastic bucket three liters of lukewarm water (max 40ºC) with 300 ml of **SCOTSMAN Ice Machine Cleaner**.

Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Remove the evaporator cover then….

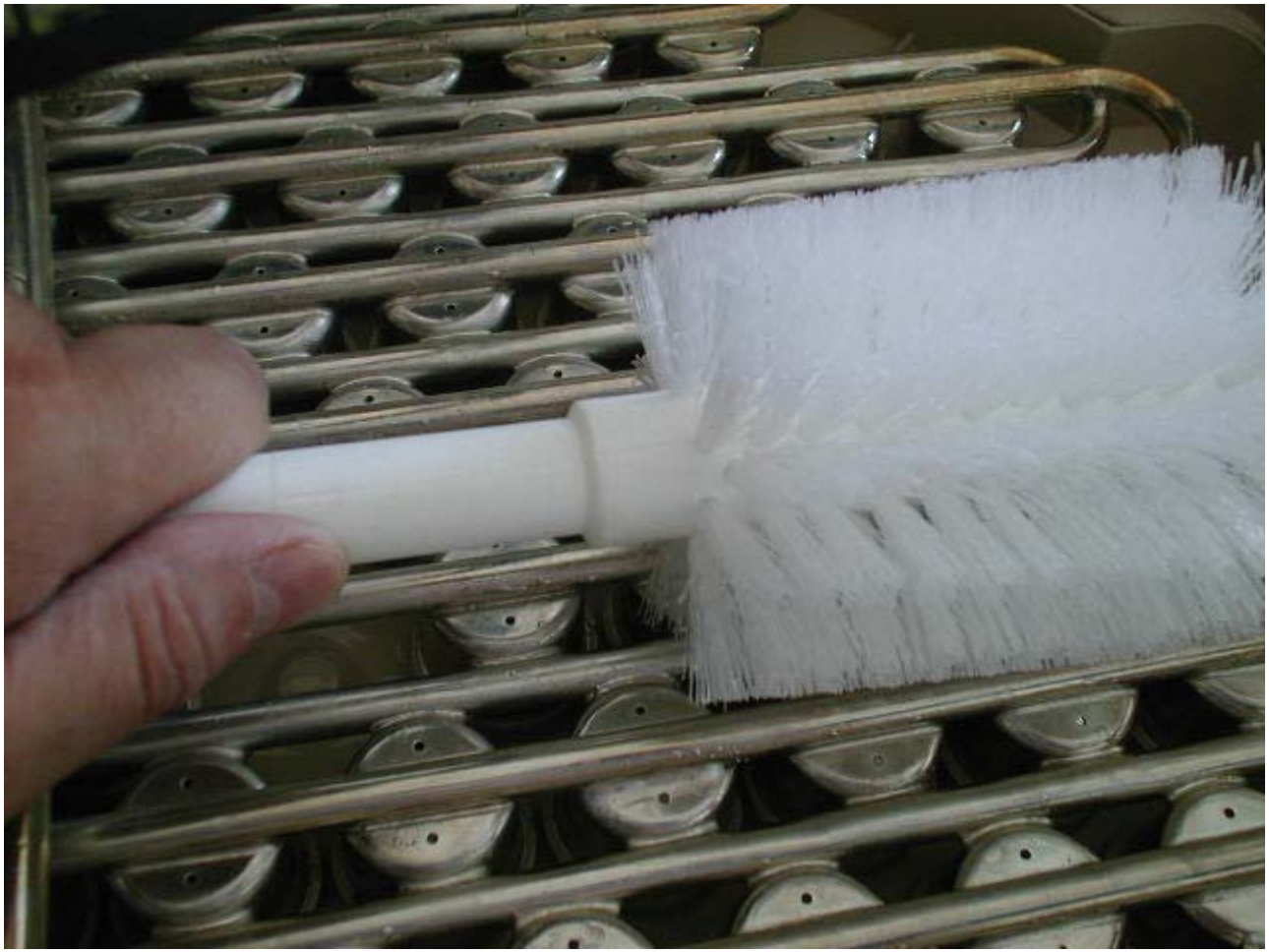
….slowly pour onto the evaporator the cleaning solution.

Scotsman® Ice Systems

NEW MXG SERIES

MAINTENANCE

With the help of a brush dissolve the most resistant and remote scale deposits in the plastic platen.



Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Switch ON the machine at Master Switch.

Scotsman Ice Systems

NEW MXG SERIES

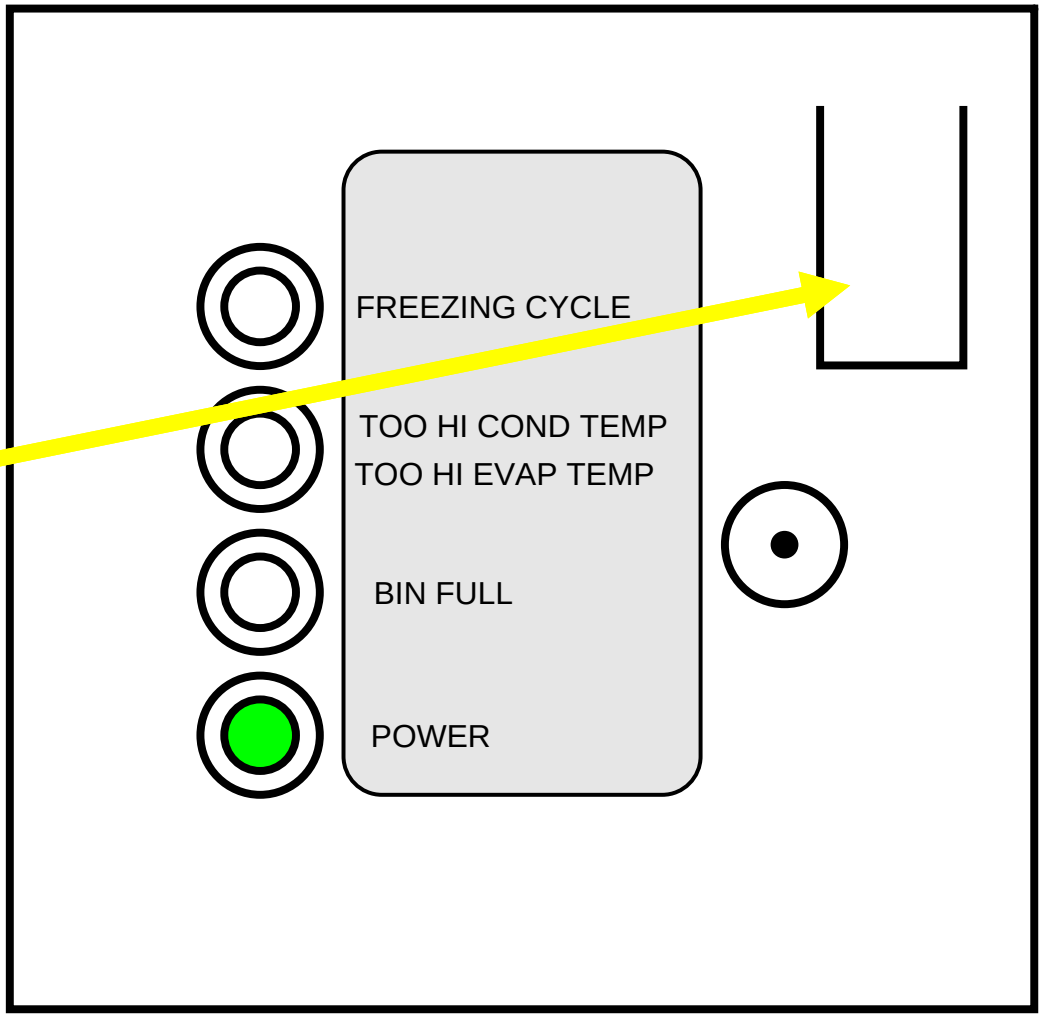
MAINTENANCE

During the Water

Filling Phase push

the Re-Set button

between 2 and 5”.

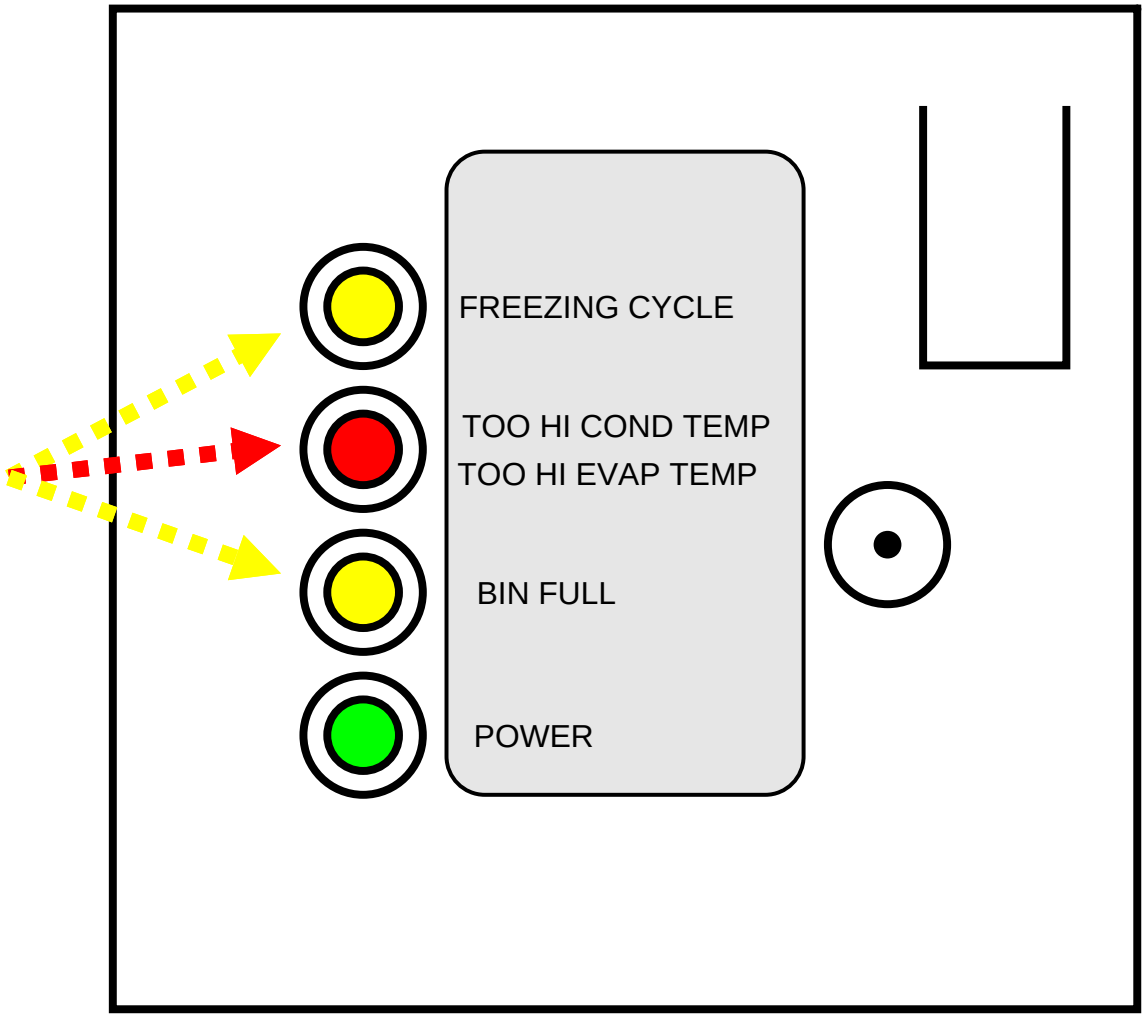


Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

The machine enter in Cleaning Mode with the first three LED blinking.

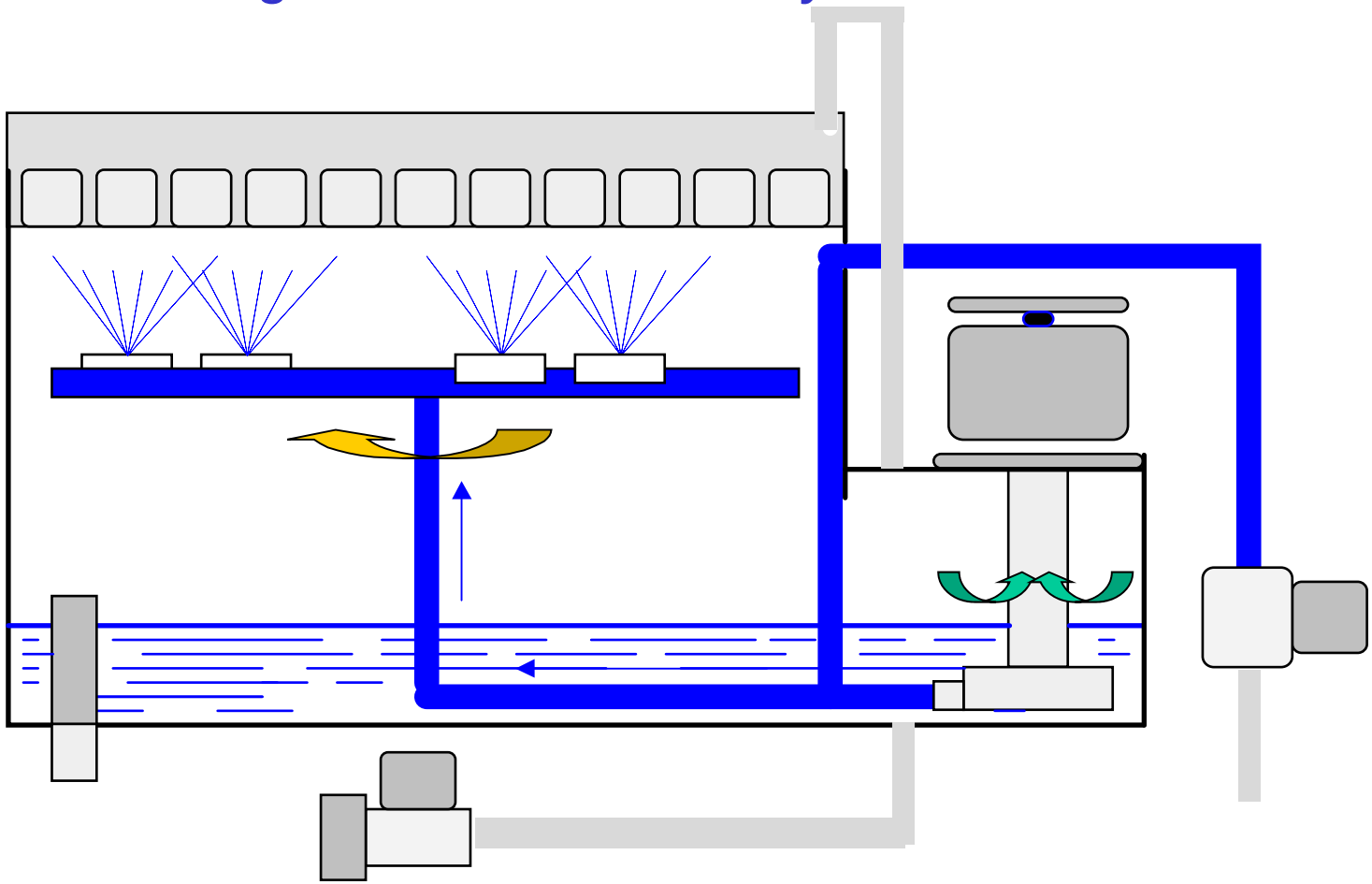


Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

With the water pump in operation the cleaning solution in kept in circulation through the entire water system.

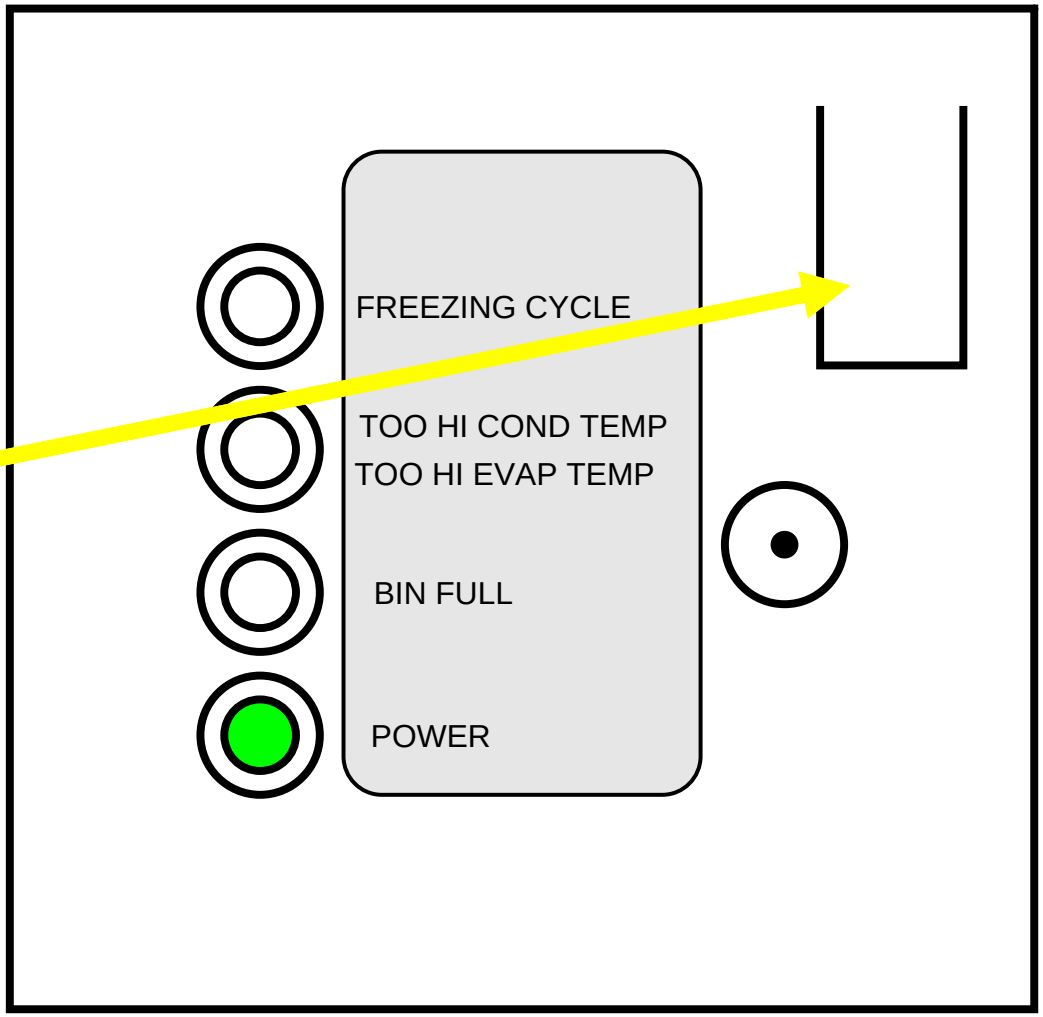


Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Let the unit remain in the cleaning mode for about 20 minutes then push again the Re-Set button between 2 and 5”, to move back the machine in the Water Filling Phase.



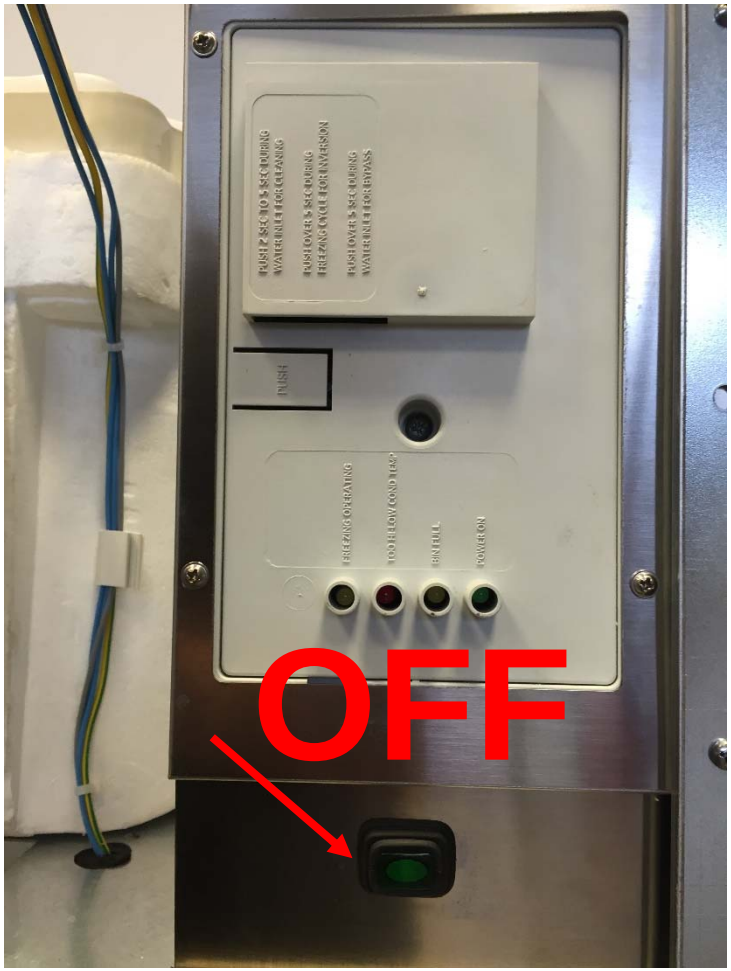
Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Switch OFF the

ice maker



Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Flush out the cleaning solution from the sump by bending down the drain tube ….

… pour onto the evaporator cavity three liters of fresh water to rinse the molds and the platen.

Scotsman Ice Systems

NEW MXG SERIES

MAINTENANCE

Switch ON again the machine and push the PC Board Push Button between 2 & 5”.

The water pump is again in operation to circulate the water so to rinse the water system

Do it twice so to be sure no more trace of descaling/ cleaning solution remains into the sump.

Scotsman® Ice Systems

NEW MXG SERIES

MAINTENANCE

Pour on the upper side of the evaporator 2 liters of fresh water with 10-15 drops of **Scotsman Antialgae Solution** then….

…. turn again the machine in cleaning mode for 10 minutes so to sanitize all the water system.

NOTE. Do not mix delimer with sanitizing solution to avoid the generation of a very aggressive acid.

Scotsman® Ice Systems

NEW MXG SERIES

MAINTENANCE

Place again the evaporator cover and the service panels previously removed.

At completion of the freezing and harvest cycle make sure of proper texture and clearness of the ice cubes and that they do not have any acid taste.

ATTENTION. In case the ice cubes are cloudy-white and have acid taste, melt them immediately by pouring on them some warm water so to prevent that anybody can use them.

Scotsman®
Ice Systems

NEW MXG SERIES

MAINTENANCE

Wipe clean and rinse the inner surface of the storage bin.

REMEMBER. To prevent the accumulation of undesirable bacteria it is necessary to sanitize the interior of the storage bin with a sanitizing solution every week.

Scotsman®
Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

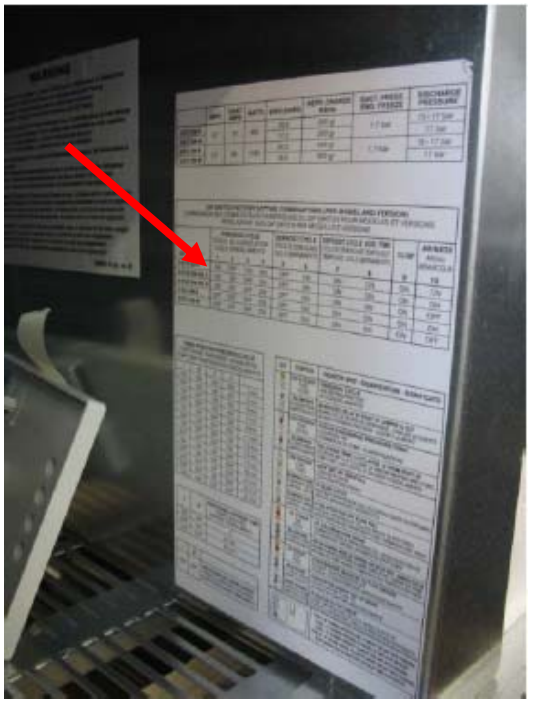
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

All the machines of the AC Series are now supplied with a label showing the different meanings of the LEDs so to help the Service Technician in the right diagnosis of the possible malfunction of the machine.

The label is stick on the back side of the front panel



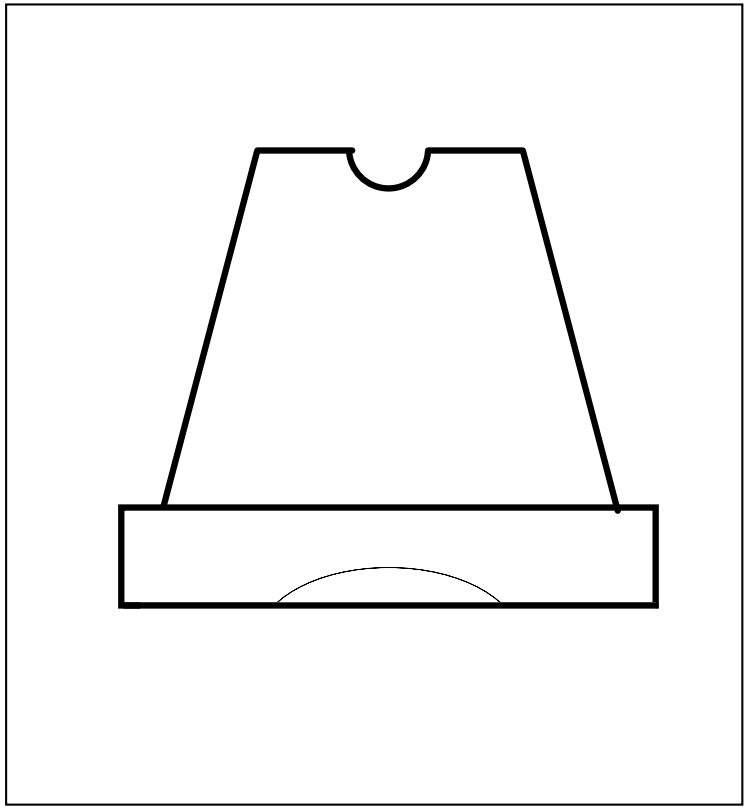
Scotsman®
Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

This is a **Scotsman Ice Cube.**

It must be clear, solid with a small depression on its bottom rim of about 3-4 mm.



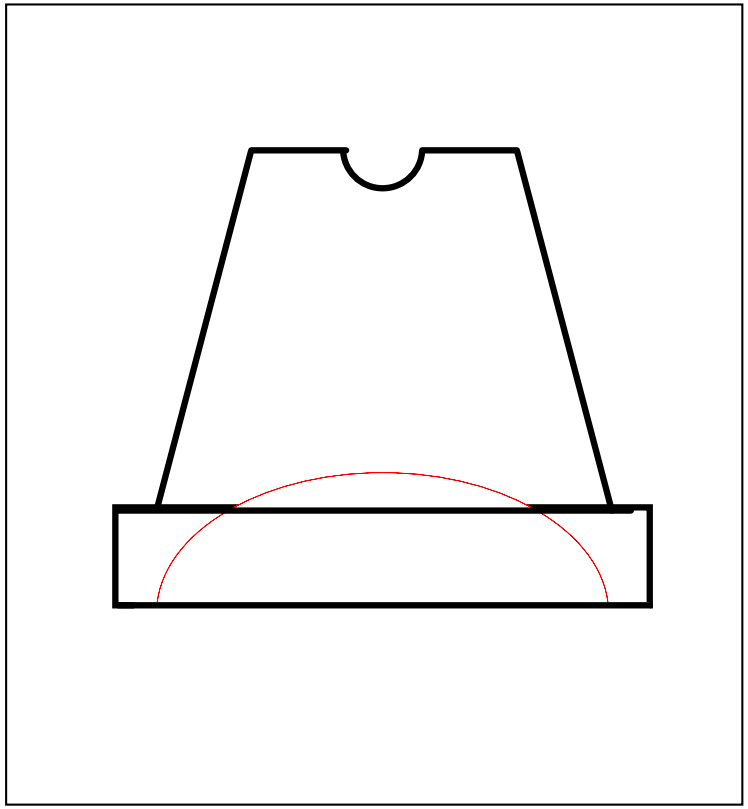
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

This ice cube is clear, solid but it has a deep depression on its bottom rim due to a too short freezing cycle.

It is necessary to extend the length of the freezing cycle by changing the setting of DIP SWITCH 1, 2, 3 and 4. …..

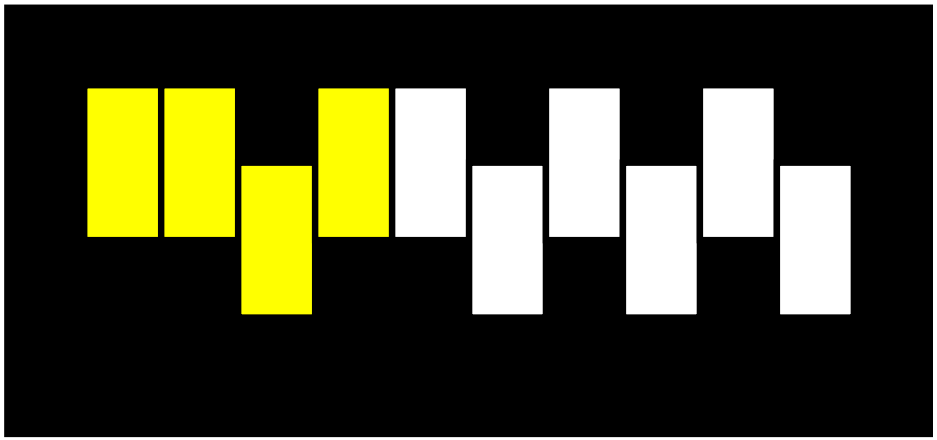


Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Check first the combination of the DIP SWICH 1, 2, 3 and 4.



Check on the chart the relating length of the freezing cycle controlled by the PC Board Timer.

1	2	3	4		Ta min.
OFF	OFF	ON	ON		7
ON	ON	OFF	ON		9
OFF	ON	OFF	ON		11
ON	OFF	OFF	ON		13

Scotsman Ice Systems

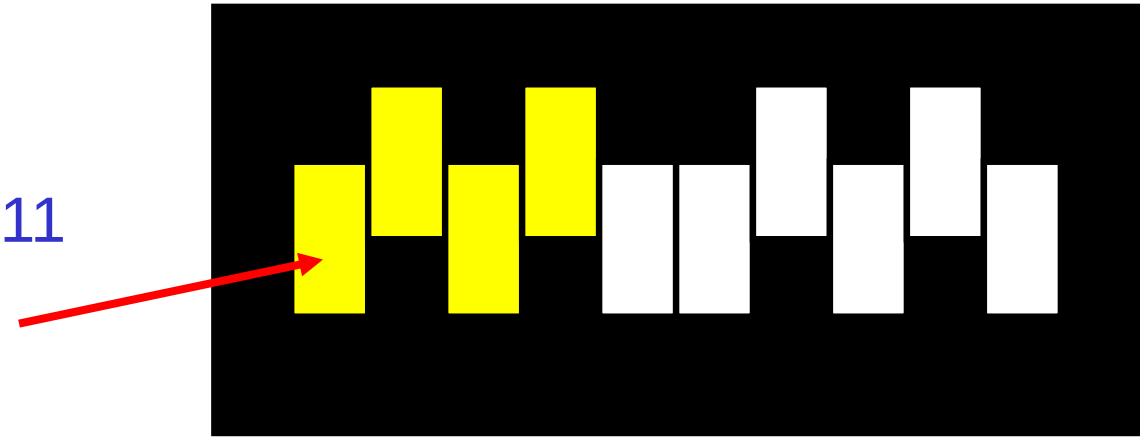
NEW MXG SERIES

SERVICE ANALYSIS

For a longer freezing cycle change the combination of the DIP SWITCH from 9 to 11 minutes.

1	2	3	4		Ta min.
OFF	OFF	ON	ON		7
ON	ON	OFF	ON		9
OFF	ON	OFF	ON		11
ON	OFF	OFF	ON		13

New combination for 11 minutes Time Ta is:



OFF-ON-OFF-ON

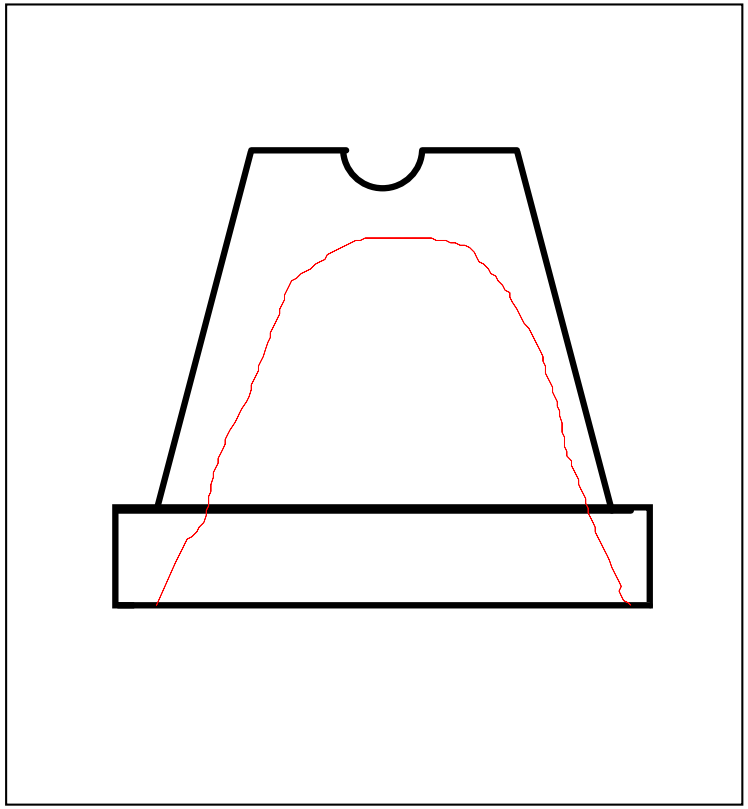
Scotsman®
Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

This ice cube is clear, solid but it is very thin with a very big depression on its bottom rim due to a very short freezing cycle.

In this situation may be the PC Board by-passed the first two portions of the freezing cycle - Time $T_1 + T_2$ - due to a inoperative evaporator sensor.



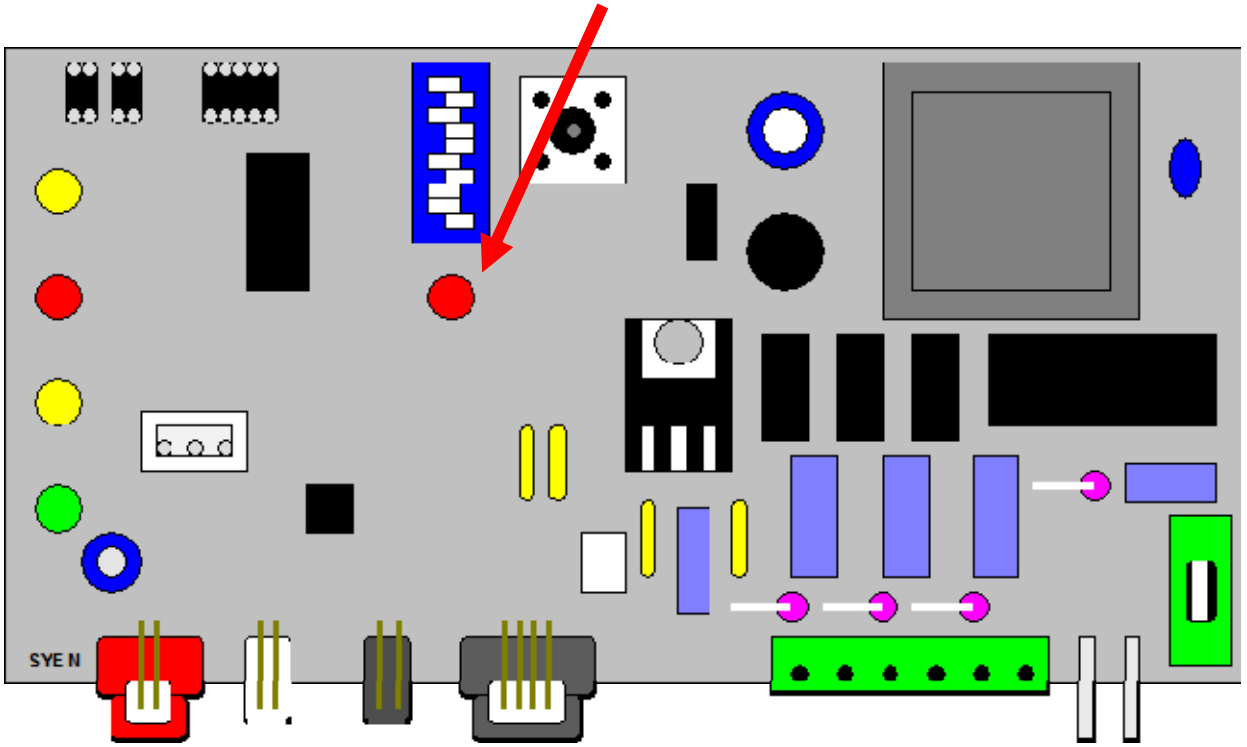
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Looking the PC Board the Red LEDs -15ºC is probably lighted ON immediately at start up of freezing cycle.

The solution is to replace the evaporator sensor with a new one.



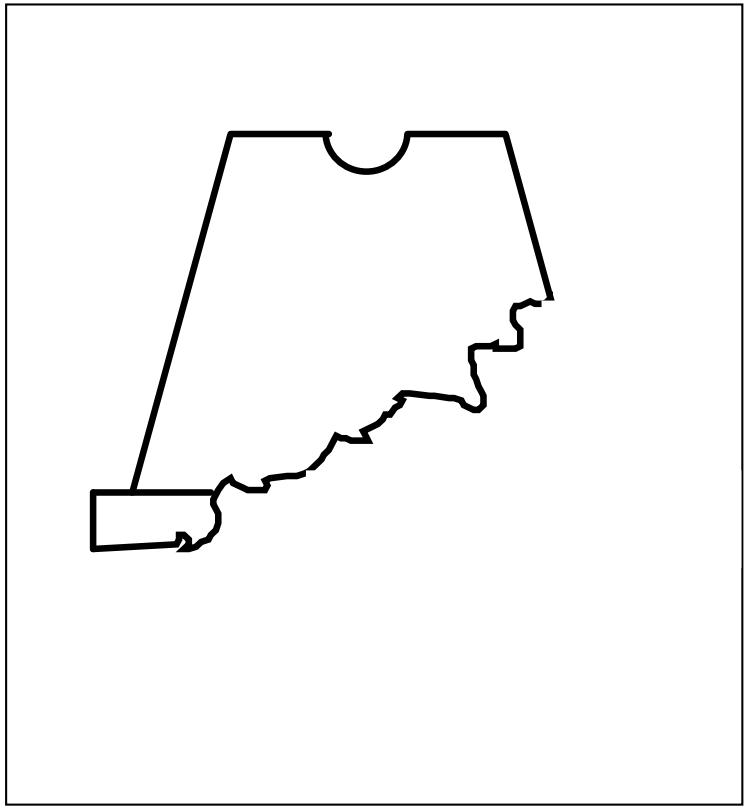
Scotsman®
Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

This is a typical ice cube clear on its upper left side and white and corroded on its bottom right side.

The reason is that the water doesn’t reach in correctly the inside of some of the tin cooper molds.

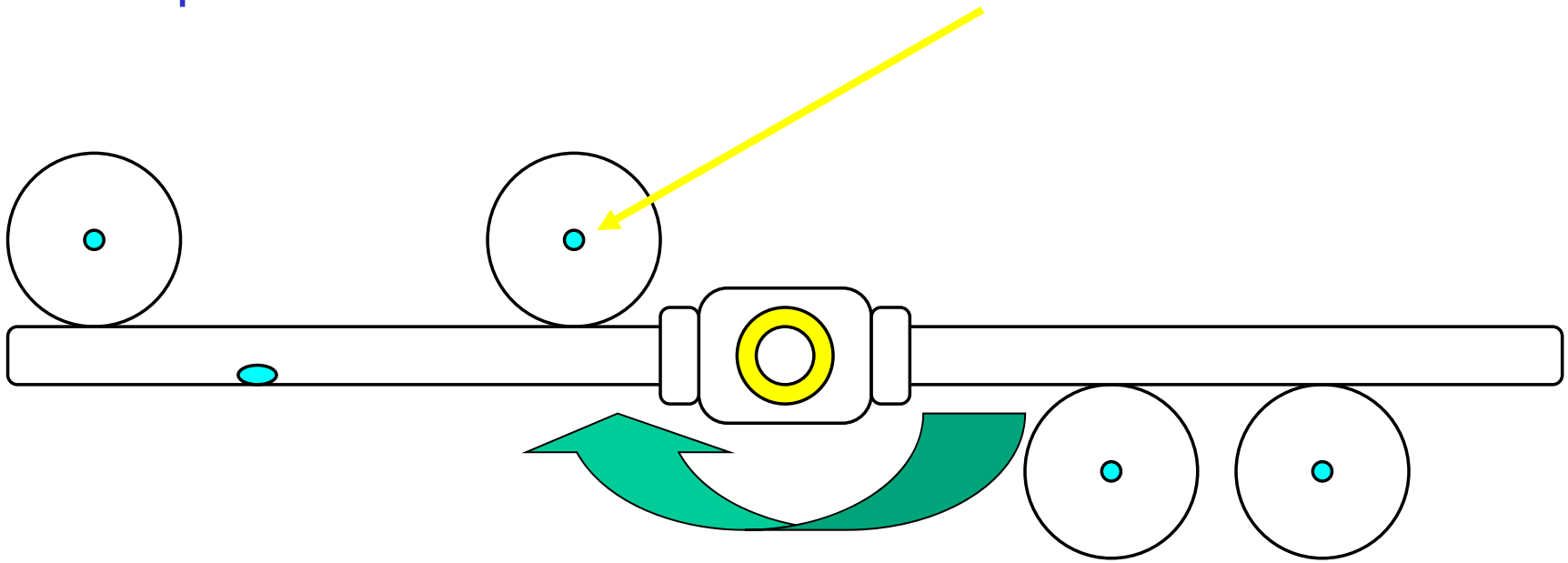


Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Probably one or more of the spray jets of the spray bar are partially looked by scale/dirt and the water is no longer sprayed as a complete inverted water cone.

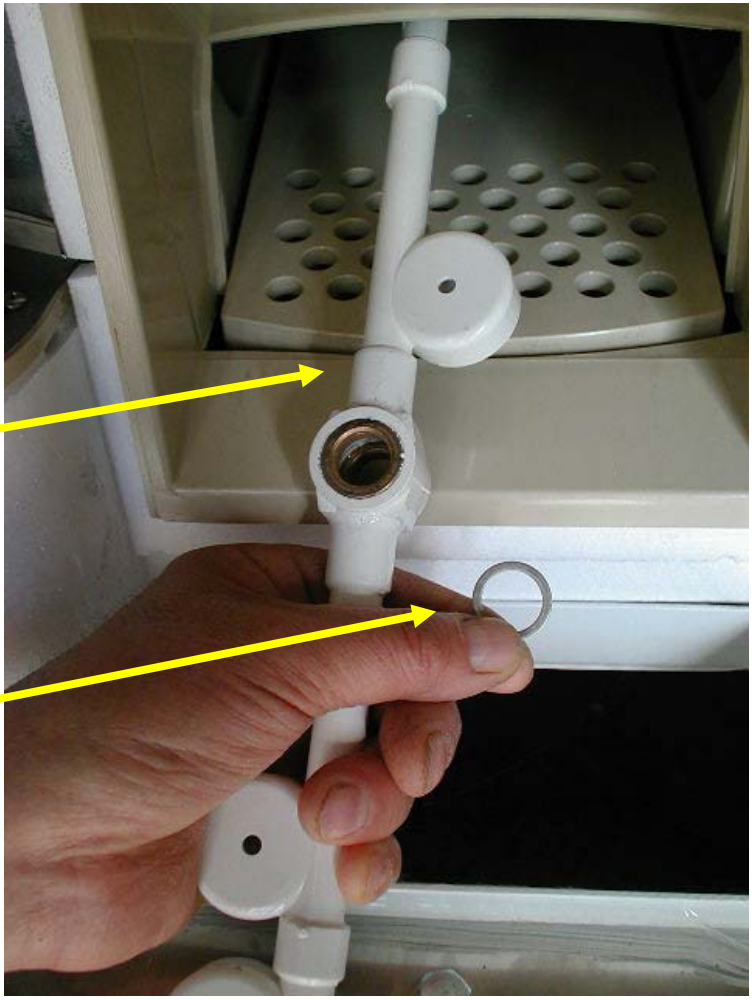


Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

To overcame the problem it is necessary first to remove from the inside of the evaporator chamber/sump the spray bar and its S.S. trust washer….



Scotsman® Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

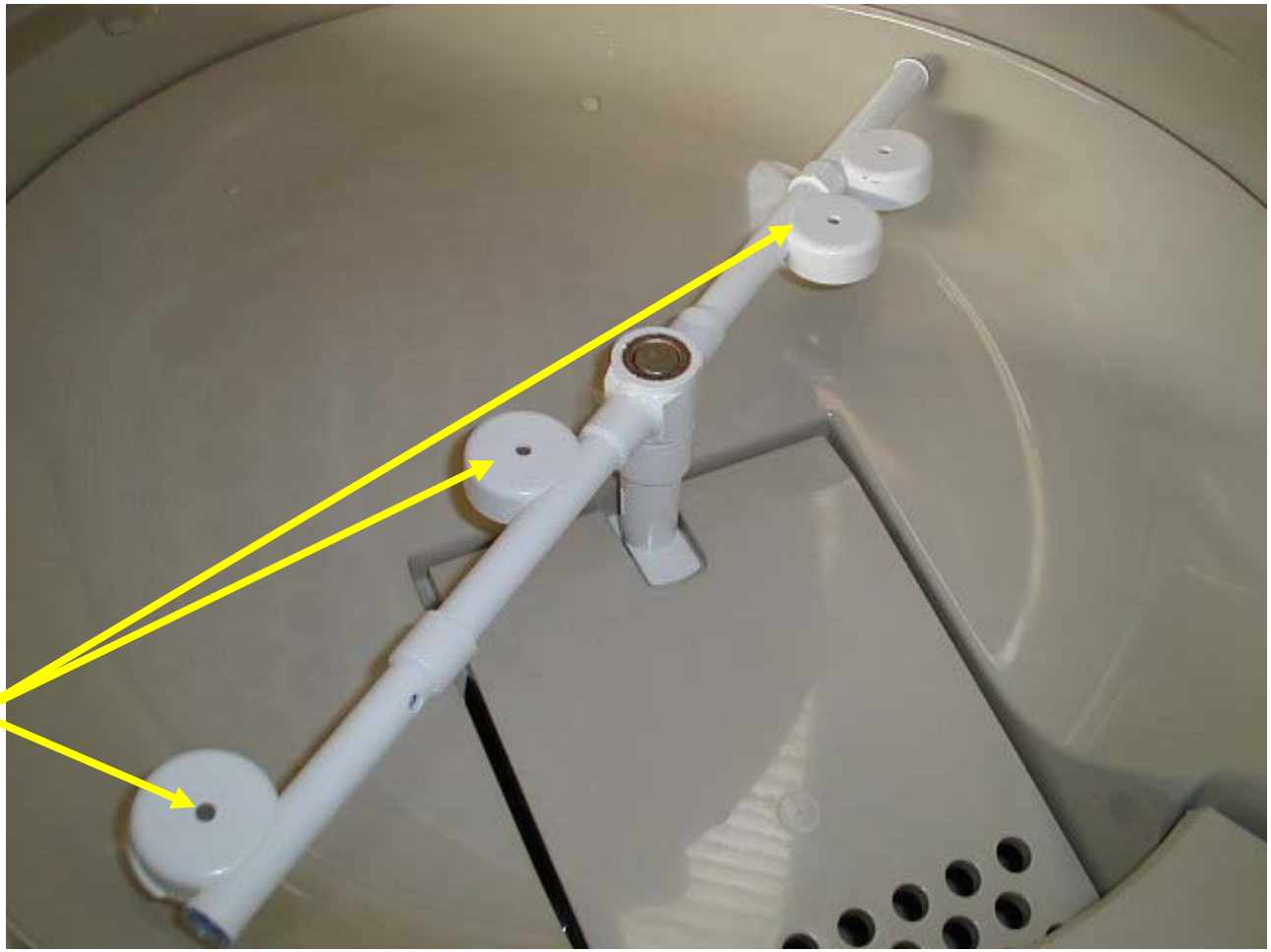
….then dump into a cleaning/de-scaling solution to remove any possible scale formation from the inside…

Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Re-fit first the trust washer and the spray bar paying attention that the jet holes face up.



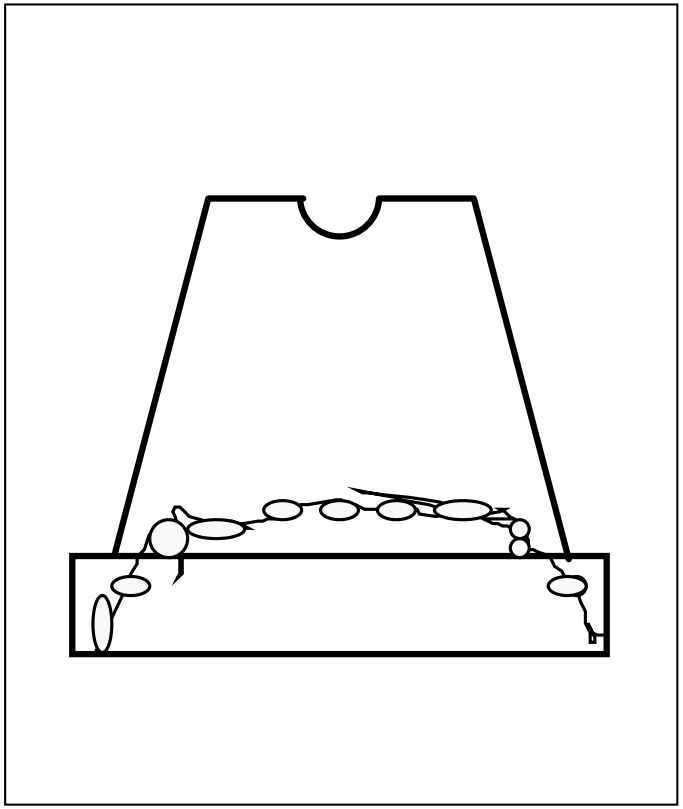
Scotsman® Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

This is a typical ice cube; clear on its upper side and white and corroded on its bottom side.

The water is sprayed in the correct way and under the right pressure only during the first portion of the freezing cycle while on the second half the level of the water in the sump is not enough to assure the proper spray of the water pump (cavitation).



Scotsman®
Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Scotsman® Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

The reason is the too low water level into the sump during the harvest cycle that could be related to:

- **Too low water inlet pressure**

Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- **Clogged water filter**

Scotsman® Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

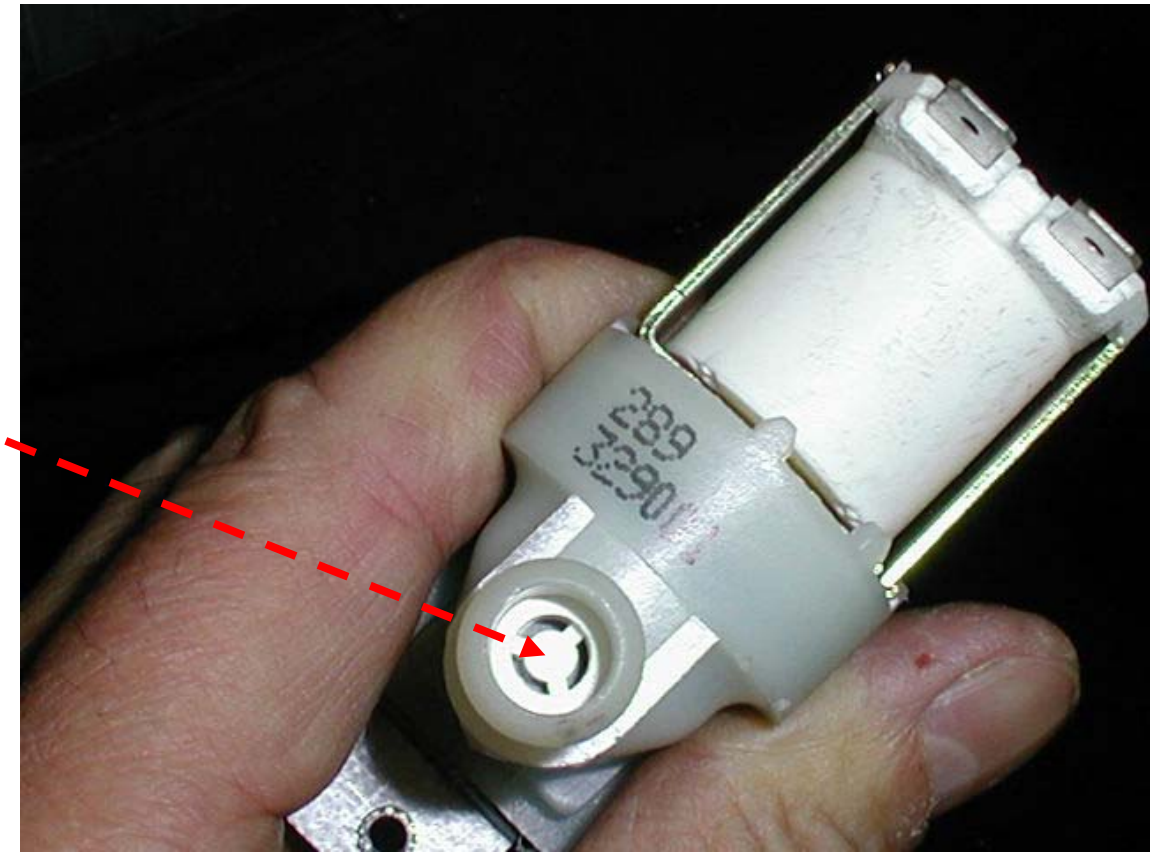
- Clogged water inlet strainer

Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- Clogged water flow control

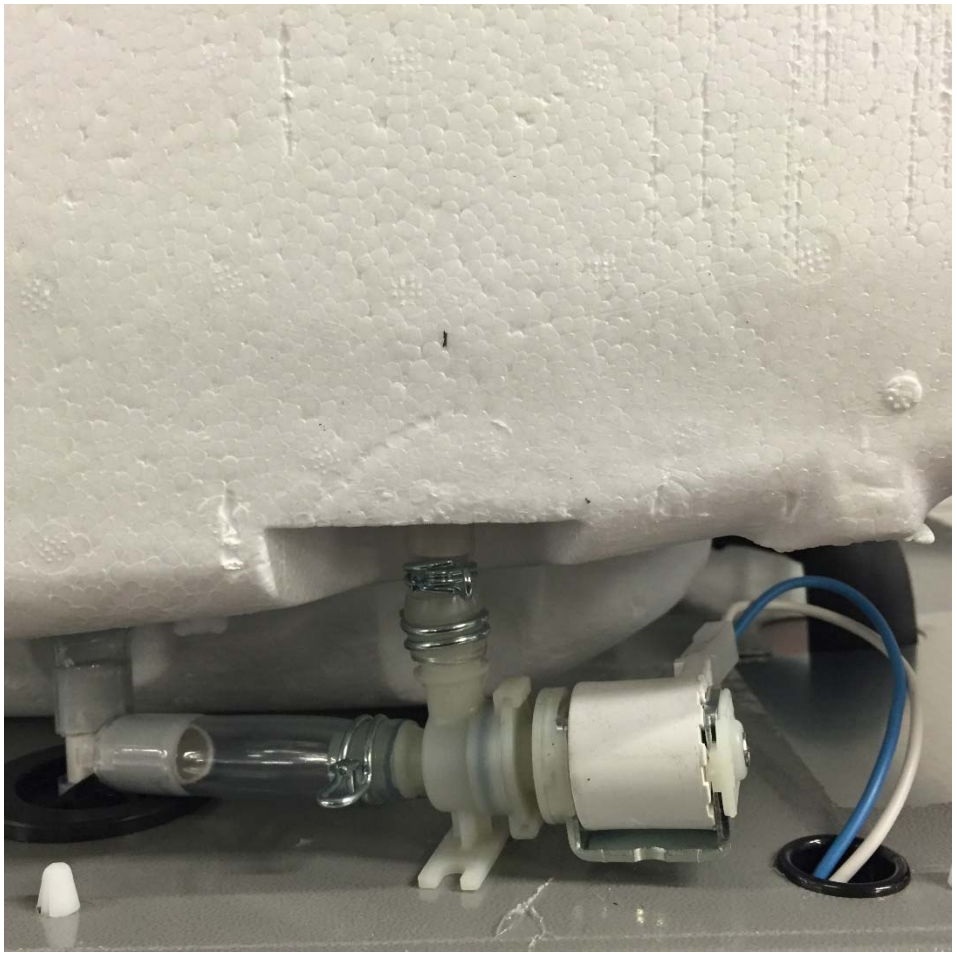


Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- Water leak through the water drain valve



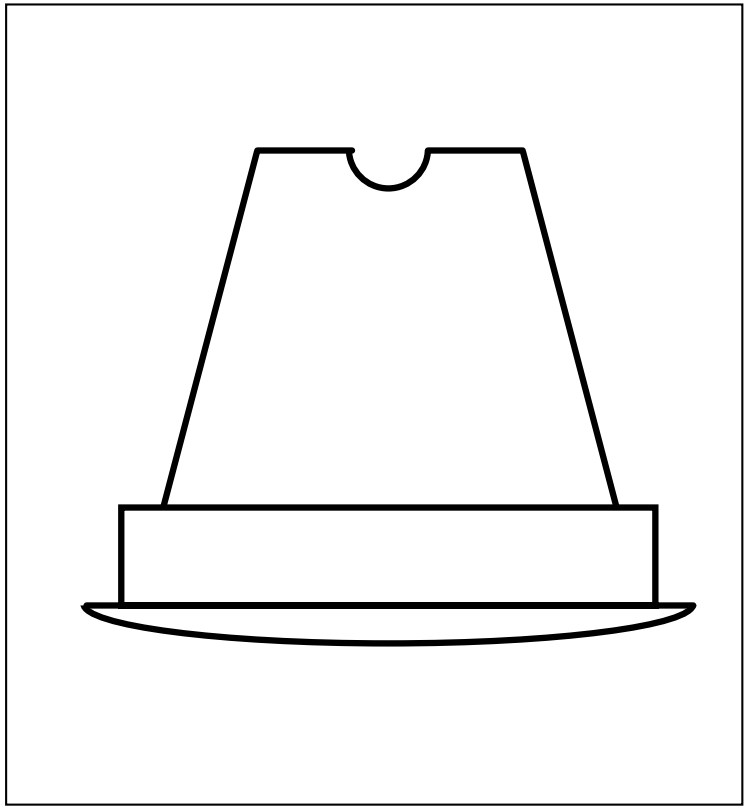
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

This ice cube is clear, solid but it is oversized.

It is necessary to reduce the length of the freezing cycle by changing the setting of DIP SWITCH 1, 2, 3 and 4.



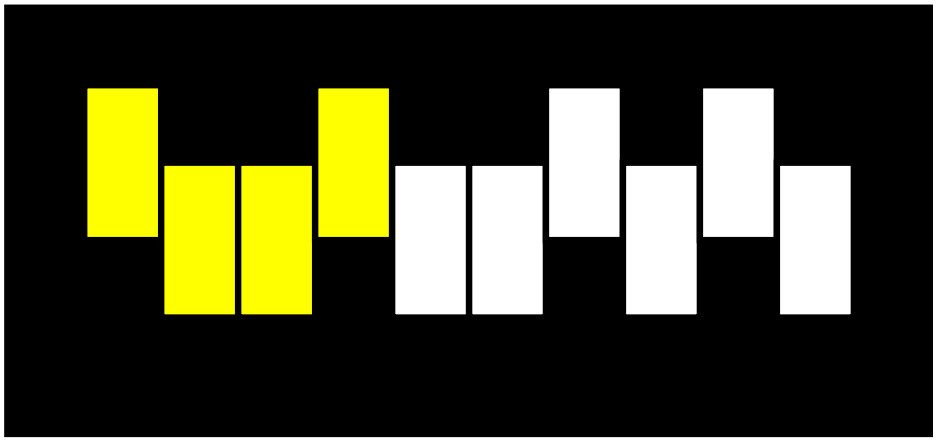
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Check first the combination of the DIP SWICH 1, 2, 3 and 4.

Check on the chart the relating length of the freezing cycle controlled by the PC Board Timer.



1	2	3	4		Ta min.
OFF	OFF	ON	ON		7
ON	ON	OFF	ON		9
OFF	ON	OFF	ON		11
ON	OFF	OFF	ON		13

Scotsman Ice Systems

NEW MXG SERIES

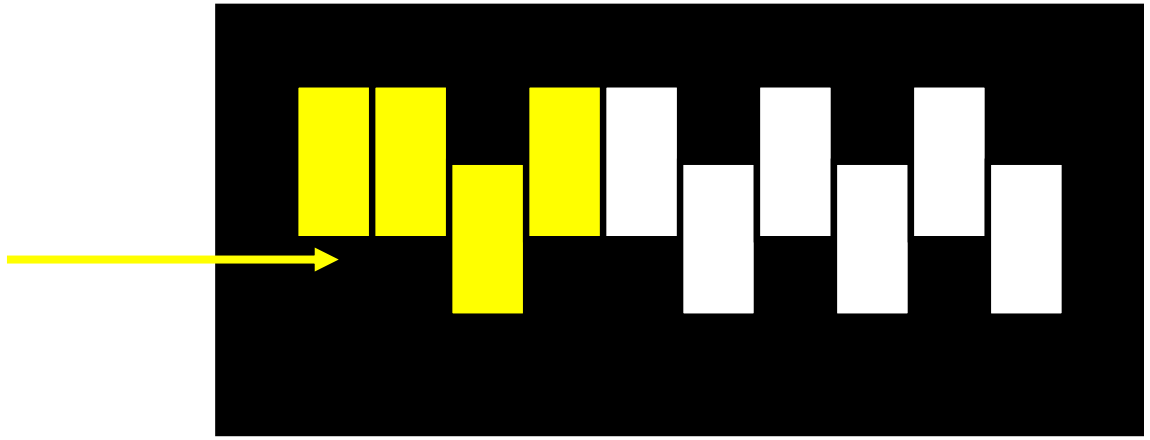
SERVICE ANALYSIS

For a shorter freezing cycle change the combination of the DIP SWITCH from 13 to 9 minutes.

1	2	3	4		Ta min.
OFF	OFF	ON	ON		7
ON	ON	OFF	ON		9
OFF	ON	OFF	ON		11
ON	OFF	OFF	ON		13

New combination for 9 minutes Time Ta is:

ON-ON-OFF-ON



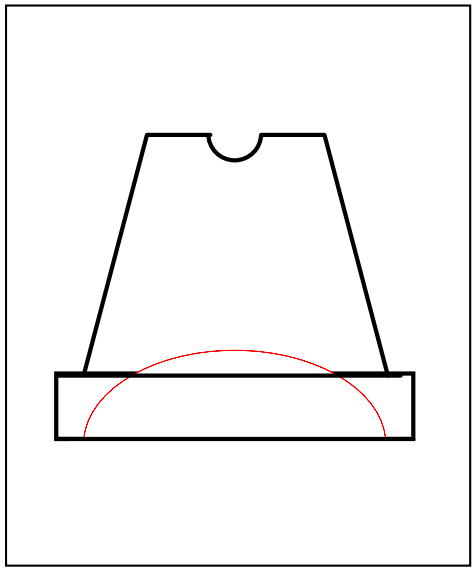
Scotsman Ice Systems

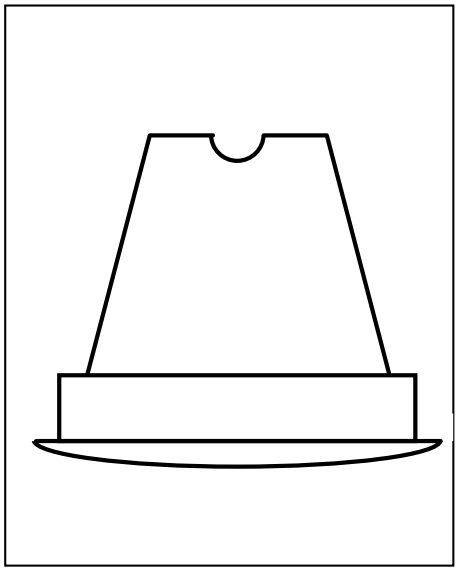
NEW MXG SERIES

SERVICE ANALYSIS

These ice cubes are both clear, solid but some are oversized and some other are undersized.

If so the possible reason is an incorrect charge of refrigerant in the system (too low).



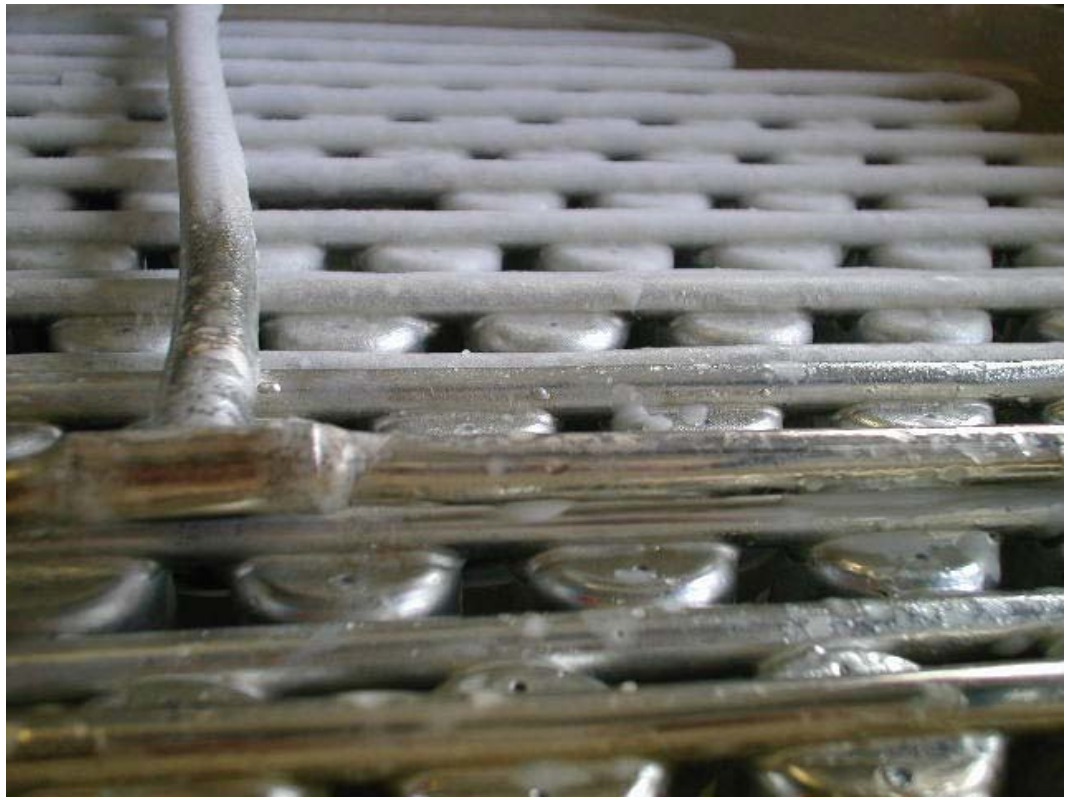


Scotsman® Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Looking the upper side of the evaporator after 15-20 minutes in the freeze the serpentine is properly frosted mainly on the first portion of the same (inlet of refrigerant) while on the second portion (outlet) the frost is very thin (no exchange of heat between refrigerant - already in vapor state - and sprayed water).



Scotsman®
Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Freeze Cycle (21°C amb/15°C water)

MODEL	VOLTAGE	CUBE SIZE	REF. CHARGE (R404a - gr.)	OPERATING PRESSURE (bar) at 21°C amb. / 15°C water	
				suction (beg./end freez.)	discharge
MXG 328 A	230/50/1	S	710	3,6 / 1,85	15 - 16,5
		M	610	3,1 /1,6	14,5 - 16,5
		L	610	3 / 1,5	15 - 16,5
MXG 328 W	230/50/1	M	480	3,7 / 1,9	17
MXG 428-438 A	230/50/1	S	690	2,6 / 1,2	16,5 - 21
		M	630	2,6 / 1,1	14,5 - 16,5
		L	580	2 / 0,9	15 - 17
MXG 638 A	230/50/1	S	950	2,8 / 1,5	14 - 15,5
		M	770	2,7 / 1,1	13,5 - 16,5
		L	800	2,2 / 1	13 - 15
	400/50/3	M	870	2,6 / 1,1	13 - 15
MXG 638 W	230/50/1	M	650	2,8 / 1,5	17
MXG 938 A	400/50/3	M	2300	1,5 / 0,7	13,5 - 16,5

Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

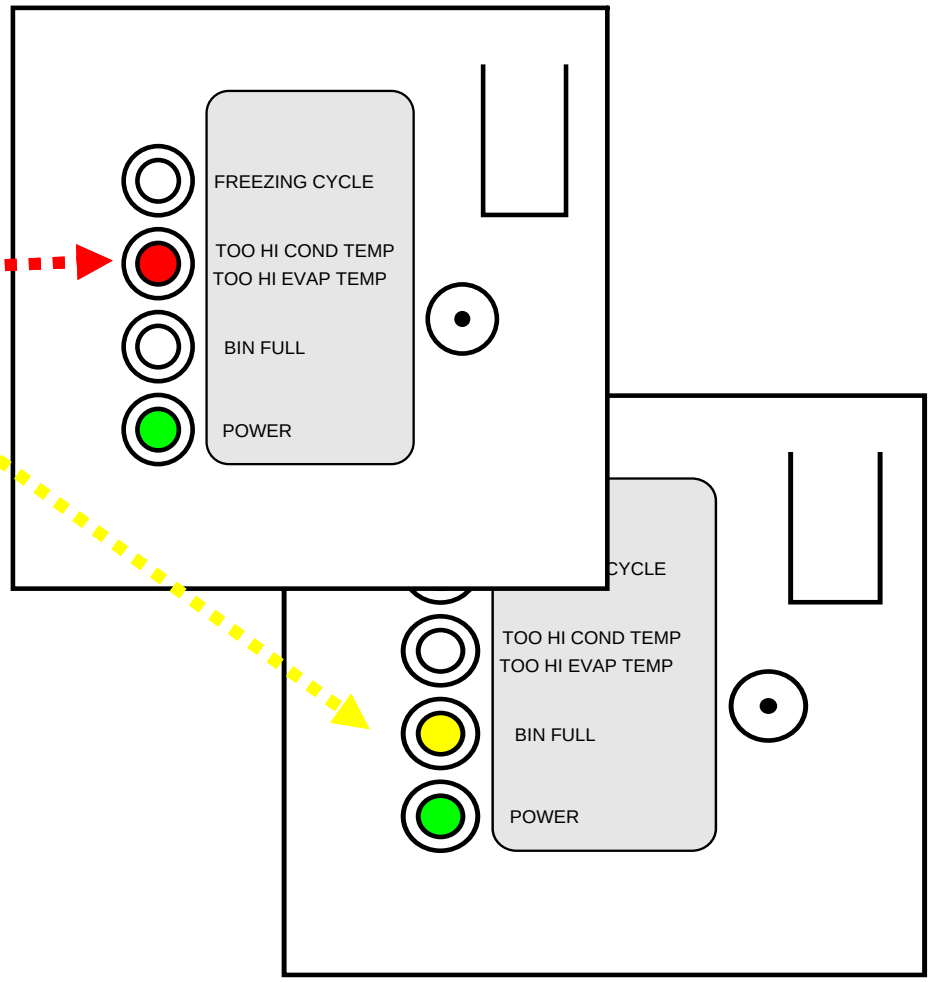
ICE LEVEL SENSOR OUT OF ORDER

Whenever yellow and red

LED blink alternately ice

level control is out of order

and must be replaced



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

ICE LEVEL SENSOR OUT OF ORDER

This new Electronic PC Board is no longer equipped with the trimmer used to adjust the I/R beam. The PC Board can now perform the I/R calibration/adjustment through the following procedure:

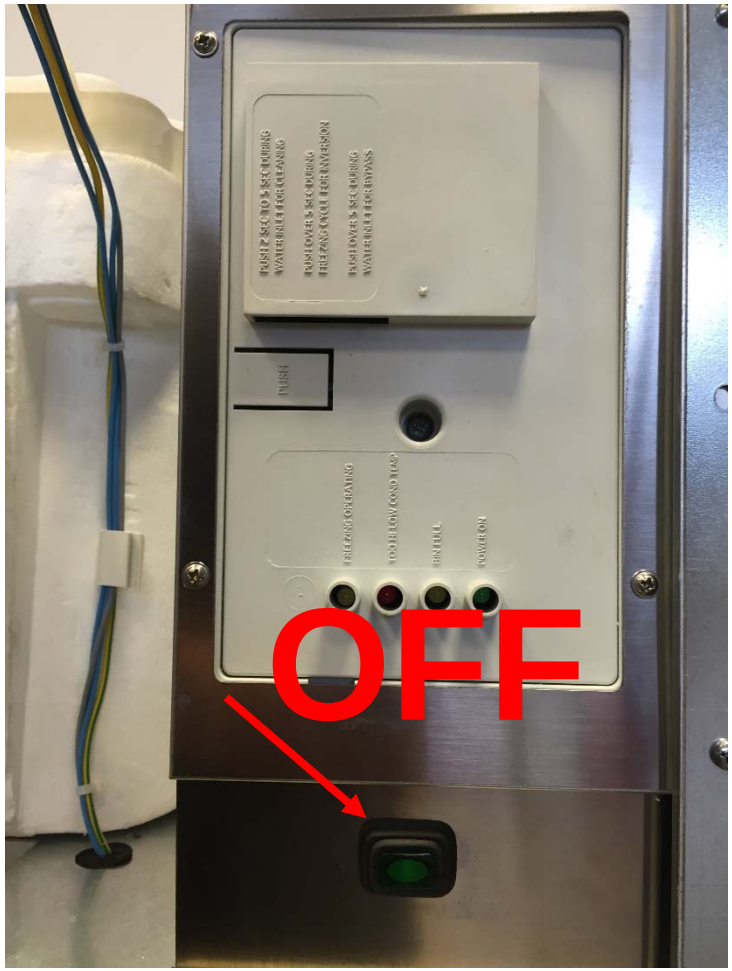
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

ICE LEVEL SENSOR OUT OF ORDER

- Be assured that either ice level sensor lenses tx & rx are cleaned without any scale
- Turn the unit OFF by main switch.



Scotsman Ice Systems

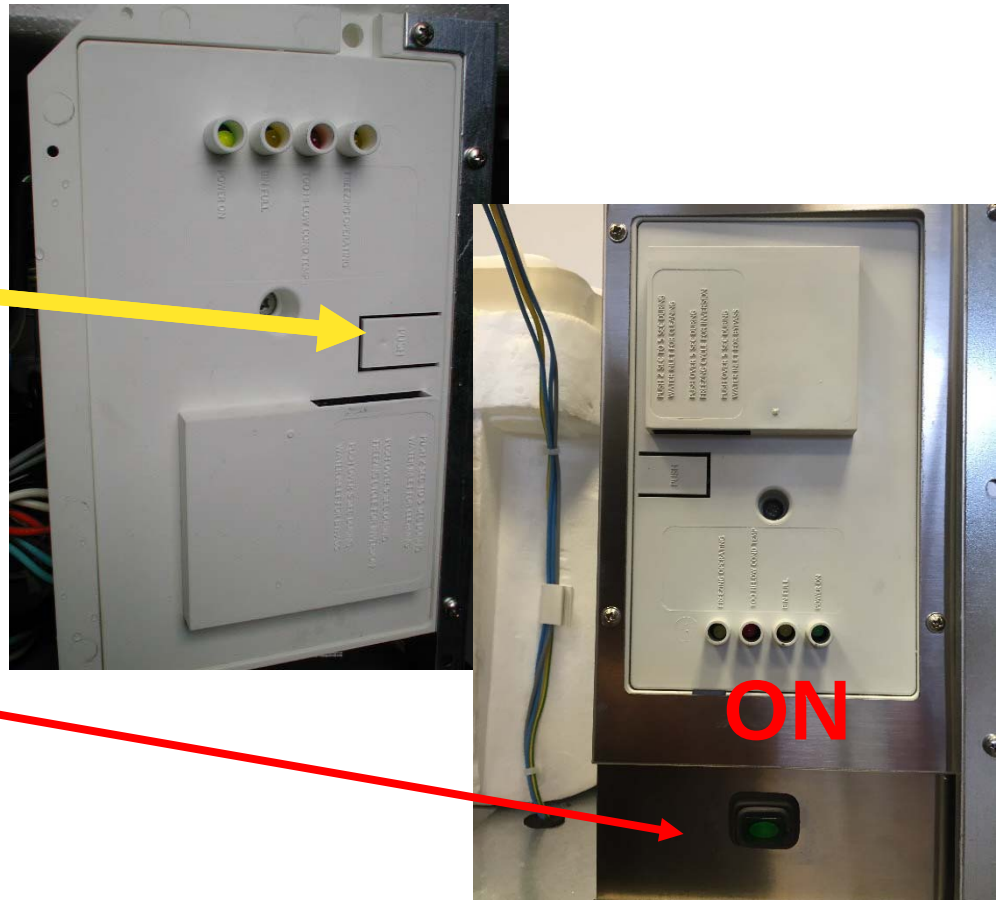
NEW MXG SERIES

SERVICE ANALYSIS

ICE LEVEL SENSOR OUT OF ORDER

- Push and keep on pushing reset button.

- While keeping reset button pushing turn the unit ON by green switch



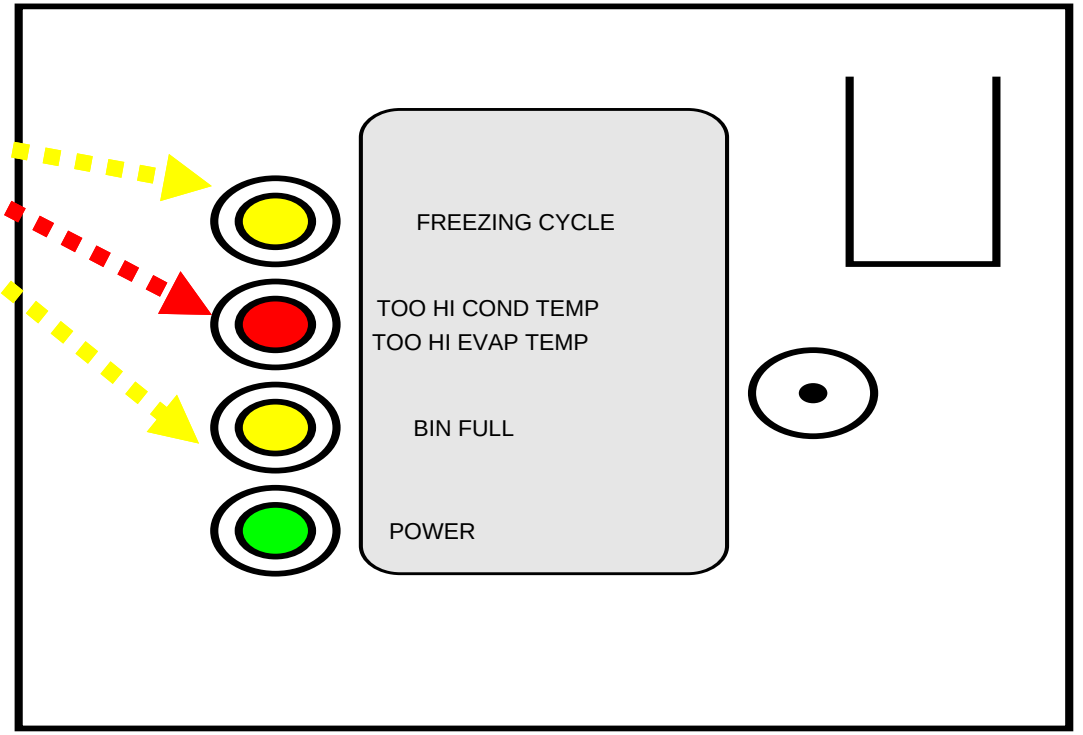
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

ICE LEVEL SENSOR OUT OF ORDER

- Wait few second then all thise LEDs will flash at once
- Release reset button, calibration is done



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

ICE LEVEL SENSOR OUT OF ORDER

This calibration should take place whenever needed or required anyhow MUST be followed anytime pcb and / or ice level sensor is replaced

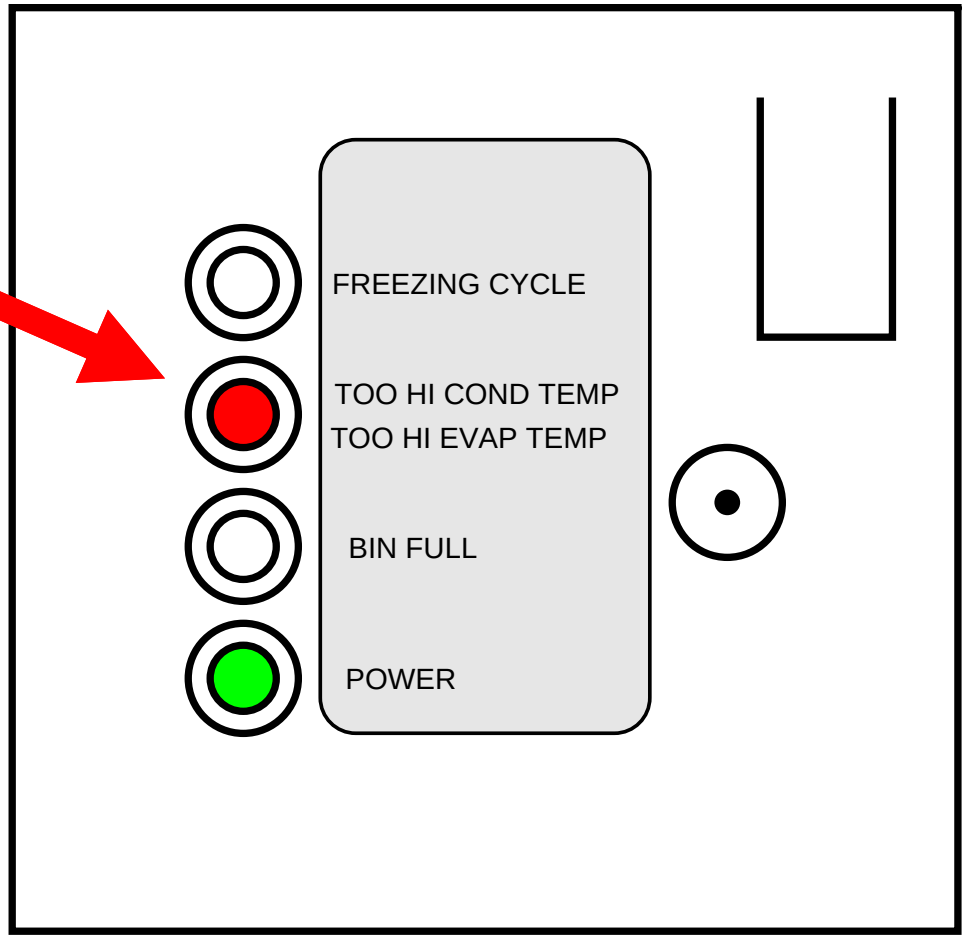
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

The unit is OFF with the Red LED of PC Board **ON steady**

The reason is a too high condensing temperature **(>70ºC** on air cooled version or **>60ºC** on water cooled version) caused by…..



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- Fan Motor (air cooled version) inoperative

Scotsman® Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

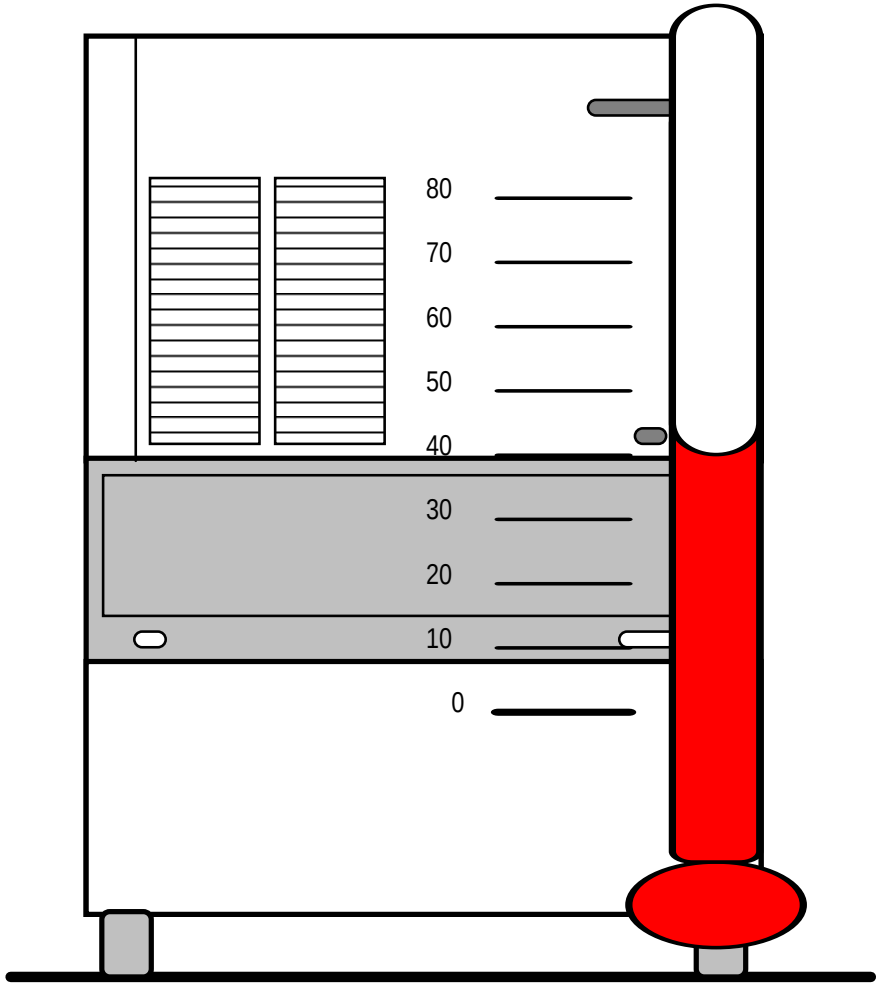
- Dirty condenser

Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- Too high room temperature



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- No water to water cooled condenser

Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

- Condenser sensor inoperative

Scotsman Ice Systems

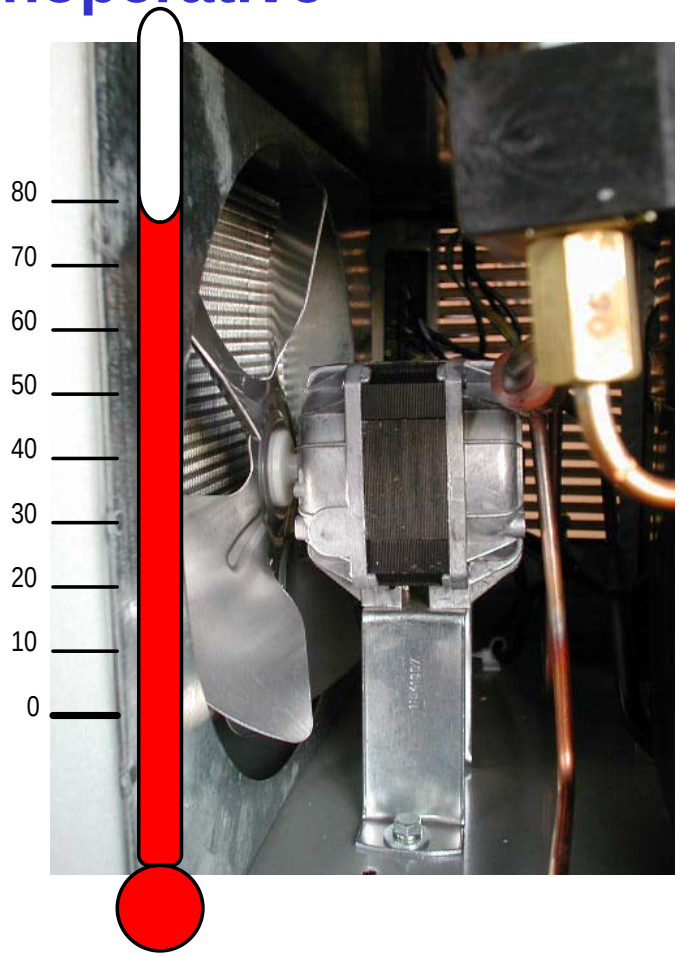
NEW MXG SERIES

SERVICE ANALYSIS

Fan motor (air cooled version) inoperative

Check during freezing cycle for:

- **Overheating of the fan motor during its operation**



Scotsman Ice Systems

NEW MXG SERIES

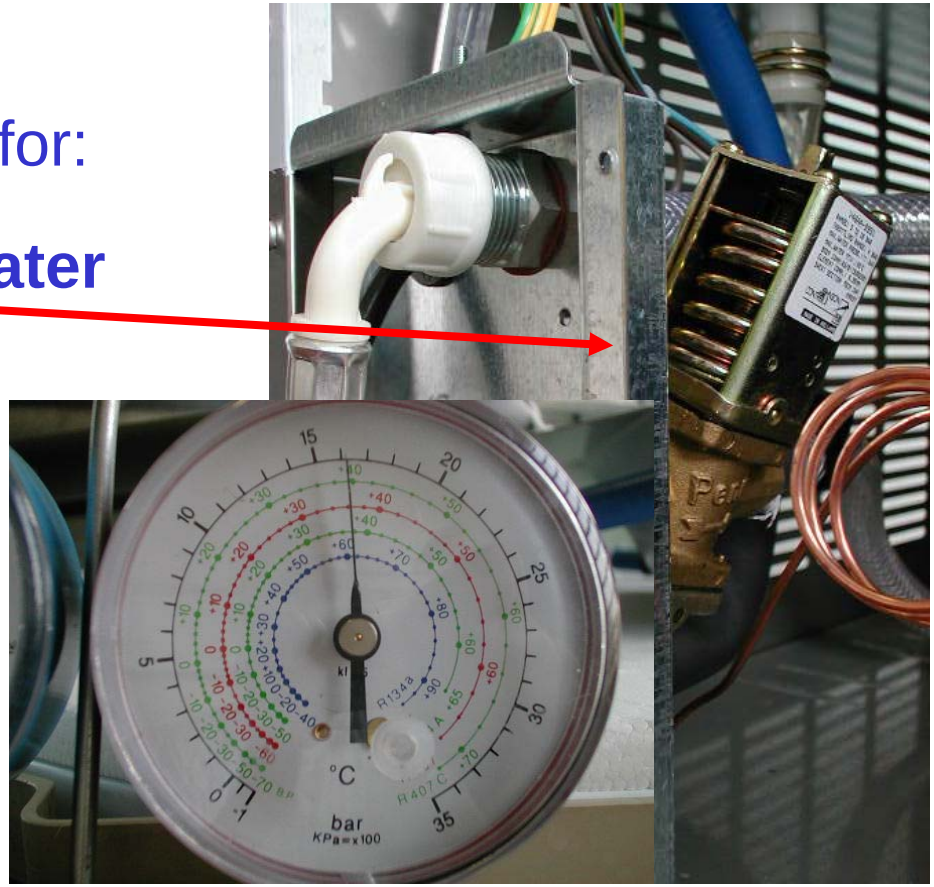
SERVICE ANALYSIS

No water to the water cooled condenser (water cooled version)

Check during freezing cycle for:

Correct operation of the water regulating valve

Set-up at 17 bar



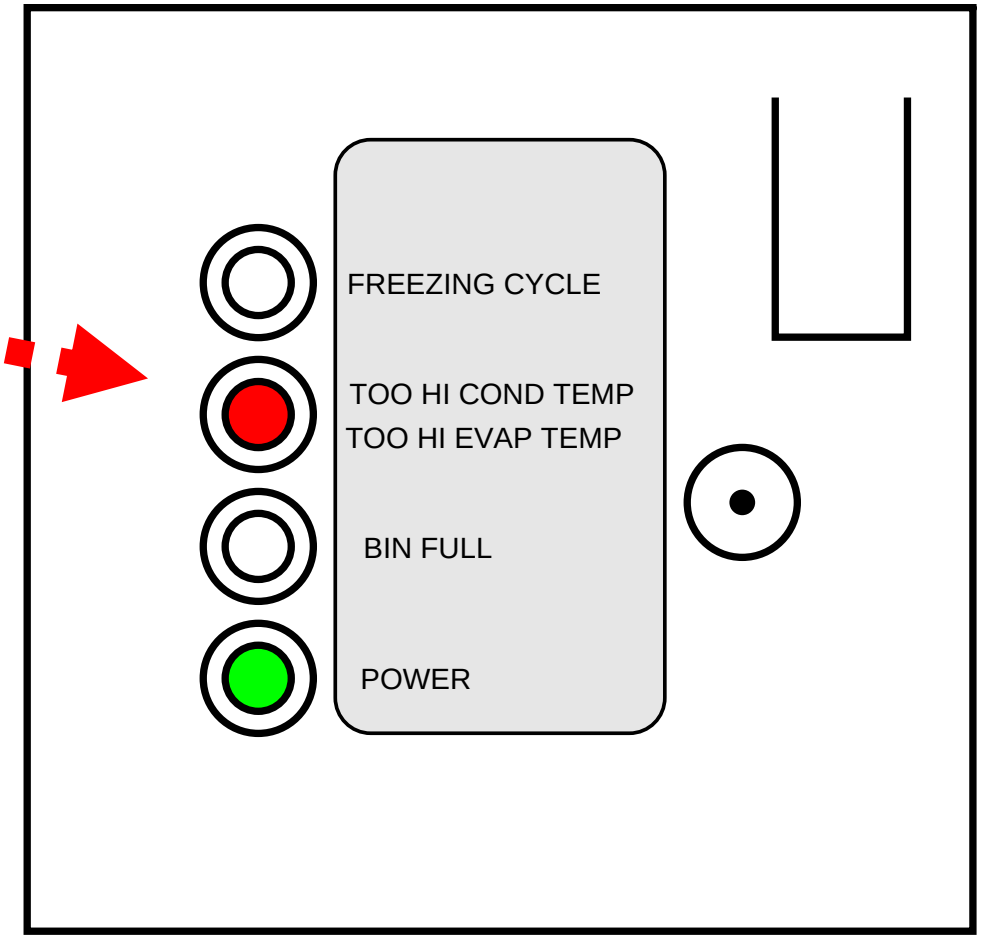
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

The unit is OFF with the Red LED of PC Board **blinking.**

The reason is a too high evaporating temperature after 15 minutes from the beginning of the freezing cycle



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

The possible reasons are:

- No power out from the PC Board to electrical components
- No power out to compressor
- Compressor not working
- Compressor looses its efficiency
- Short or no refrigerant in the system
- Leaking of refrigerant through the hot gas valve
- Leaking of water through the water inlet valve

Scotsman Ice Systems

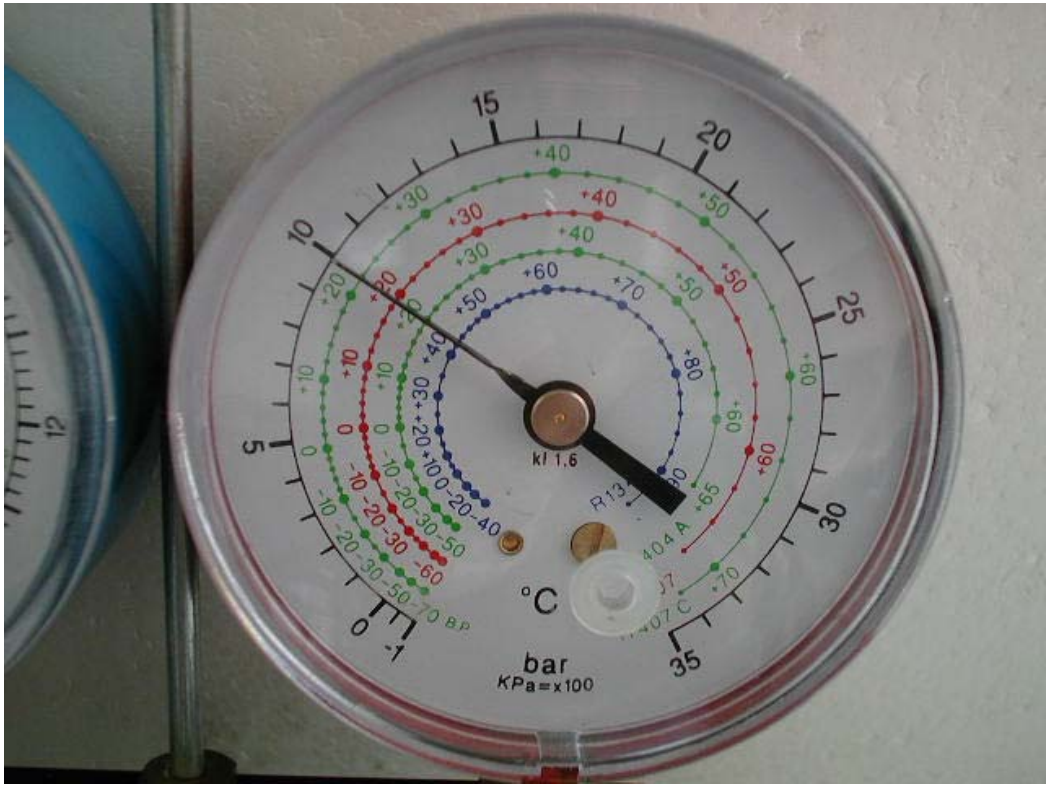
NEW MXG SERIES

SERVICE ANALYSIS

Compressor looses its efficiency:

Check during freezing cycle for:

- **Too low Discharge pressure of refrigerant system**



Scotsman Ice Systems

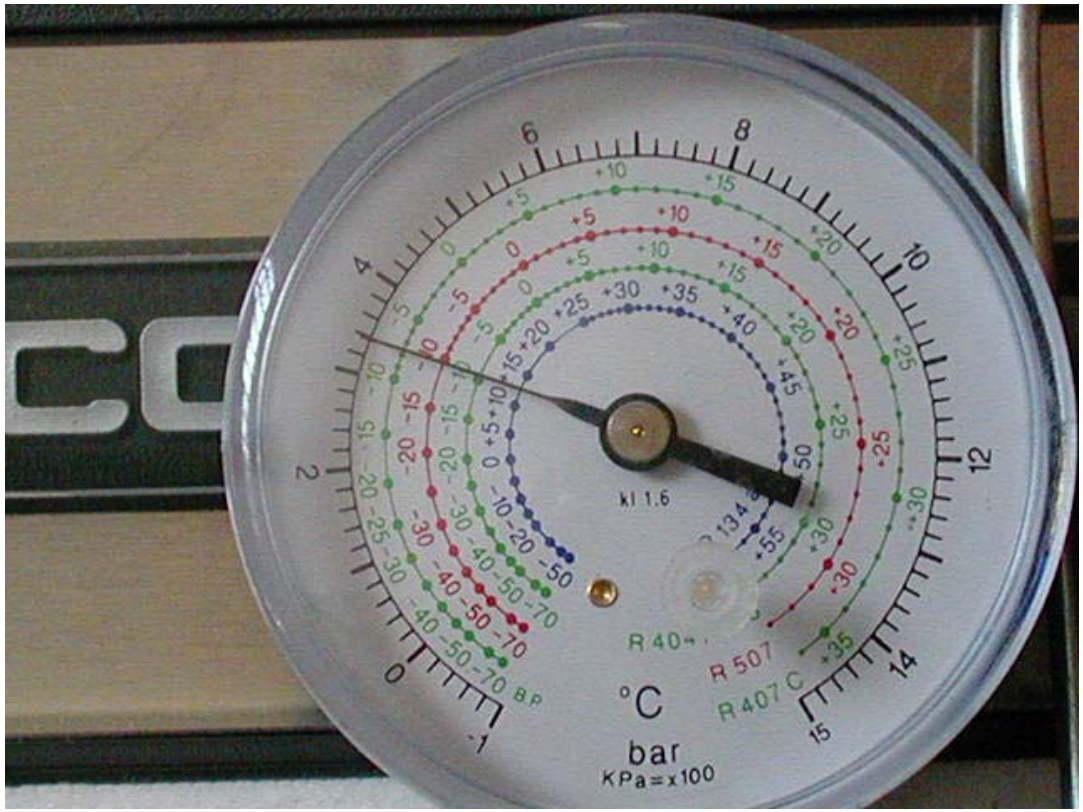
NEW MXG SERIES

SERVICE ANALYSIS

Compressor looses its efficiency:

Check during freezing cycle for:

- **Too hi Suction pressure of refrigerant system**



Scotsman Ice Systems

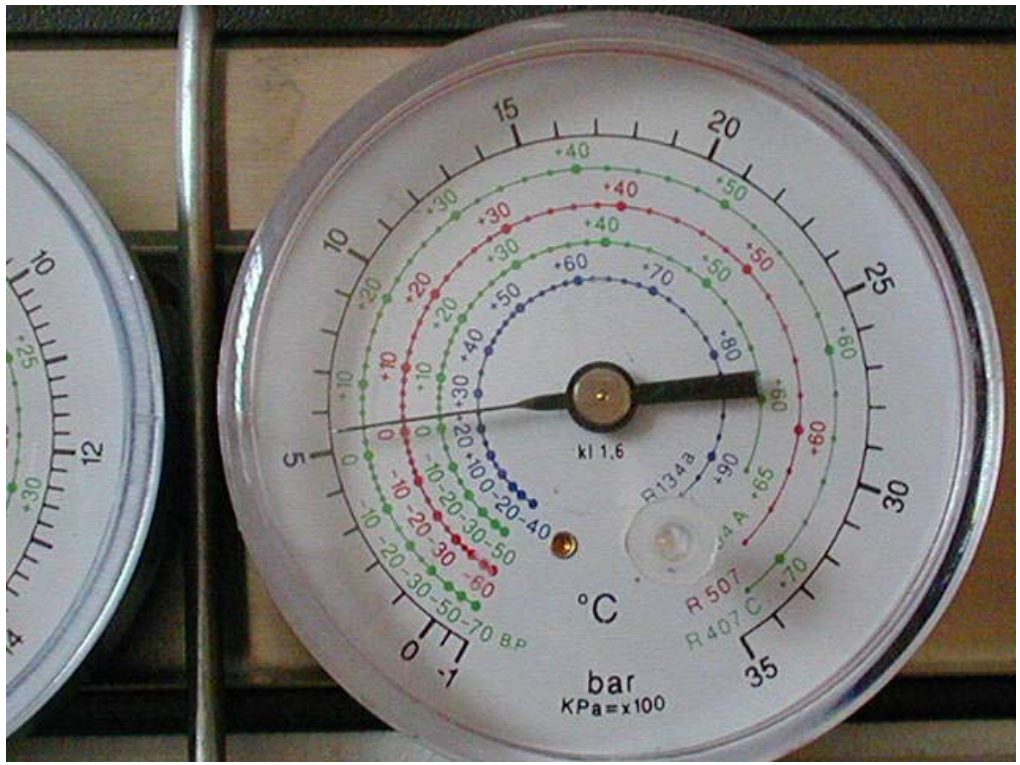
NEW MXG SERIES

SERVICE ANALYSIS

Short or no refrigerant in the system

Check during freezing cycle for:

- **Too low Discharge pressure of refrigerant system**



Scotsman Ice Systems

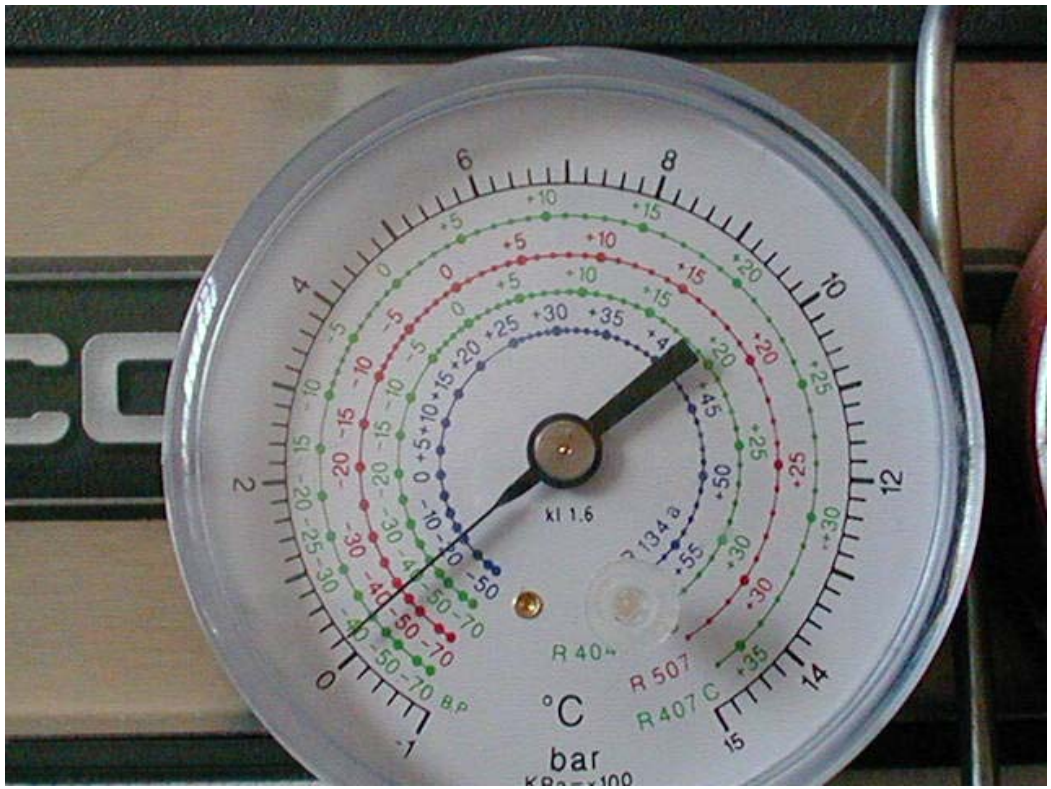
NEW MXG SERIES

SERVICE ANALYSIS

Short or no refrigerant in the system

Check during freezing cycle for:

- **Too low Suction pressure of refrigerant system**



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Short or no refrigerant in the system

Check during freezing cycle for:

- **Proper frost of the evaporator serpentine**

Scotsman Ice Systems

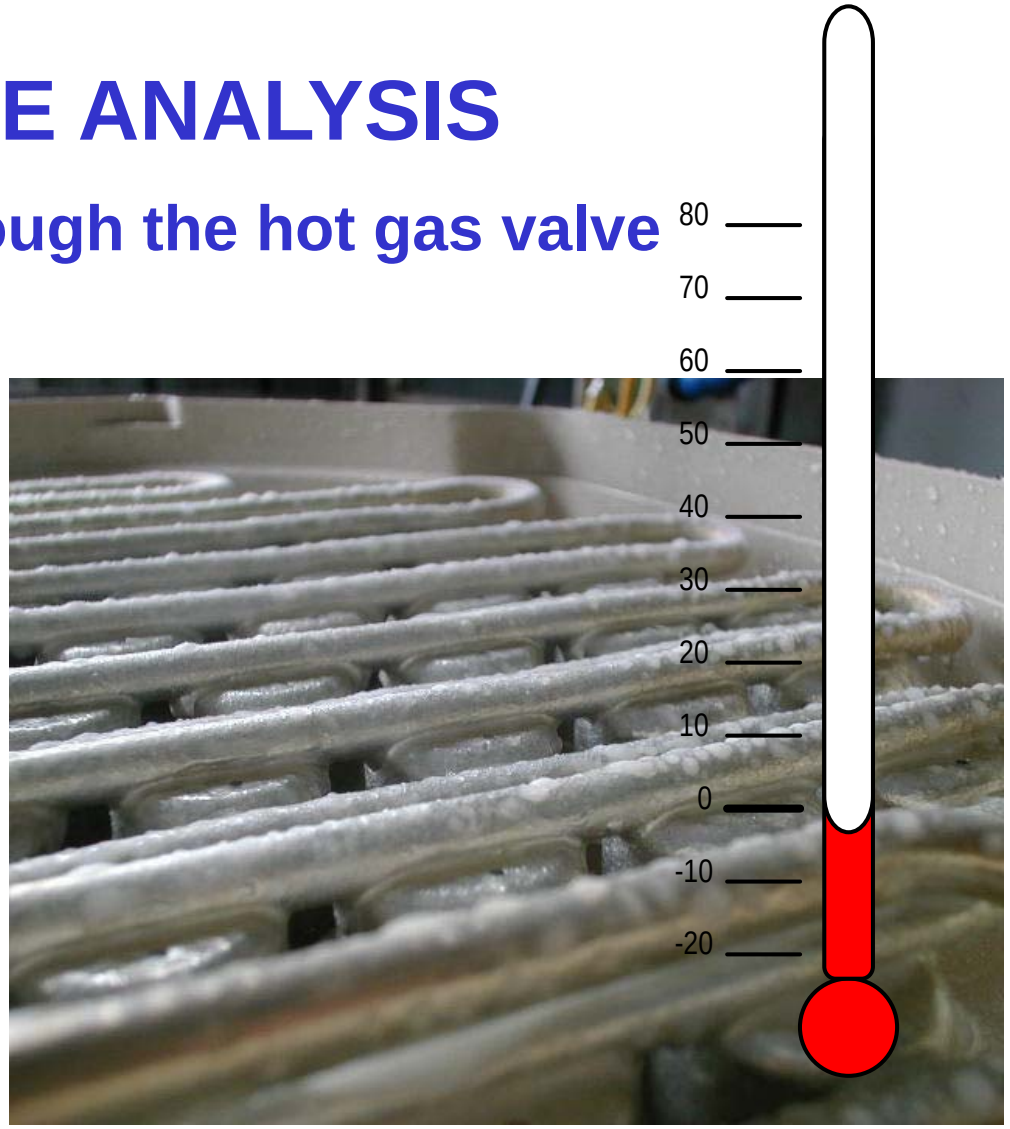
NEW MXG SERIES

SERVICE ANALYSIS

Leaking of refrigerant through the hot gas valve

Check during freezing cycle for:

- **Too hi temperature of evaporator serpentine**



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Leaking of refrigerant through the hot gas valve

Check during freezing cycle for:

- **Very poor frost of the evaporator serpentine**

Scotsman Ice Systems

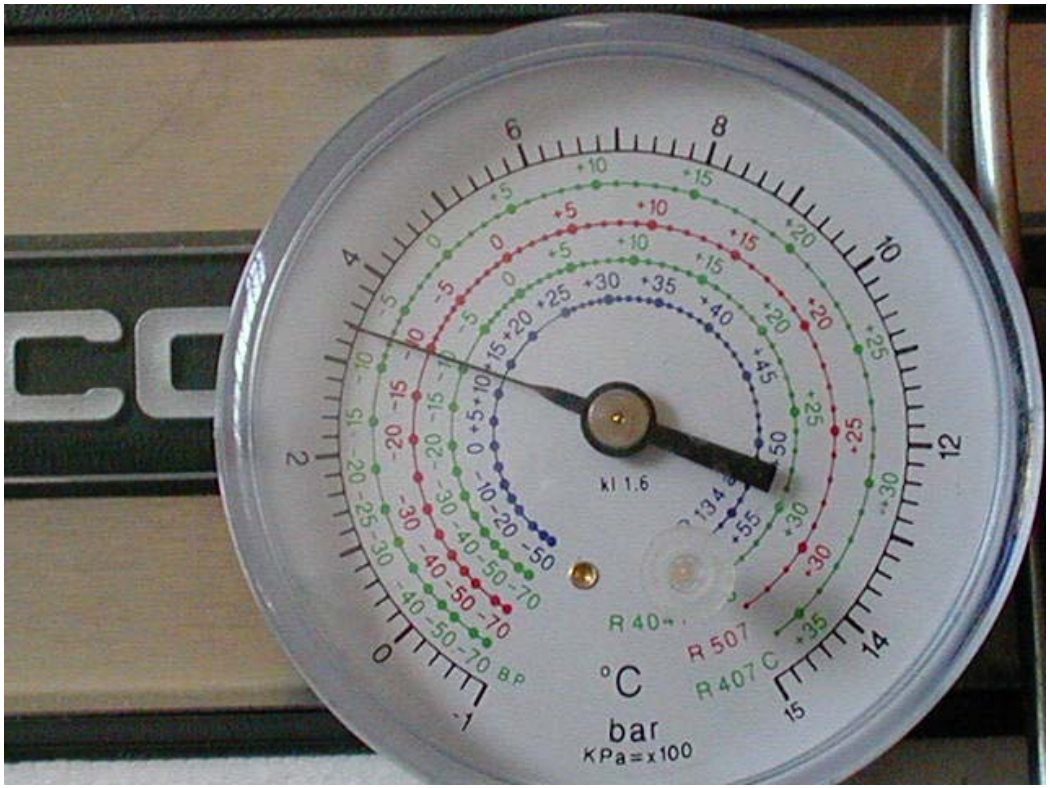
NEW MXG SERIES

SERVICE ANALYSIS

Leaking of refrigerant through the hot gas valve

Check during freezing cycle for:

- **Too high Suction pressure**



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

Leaking of water through the water inlet valve

Check during freezing cycle for:

- **Water flowing through the water inlet tube**

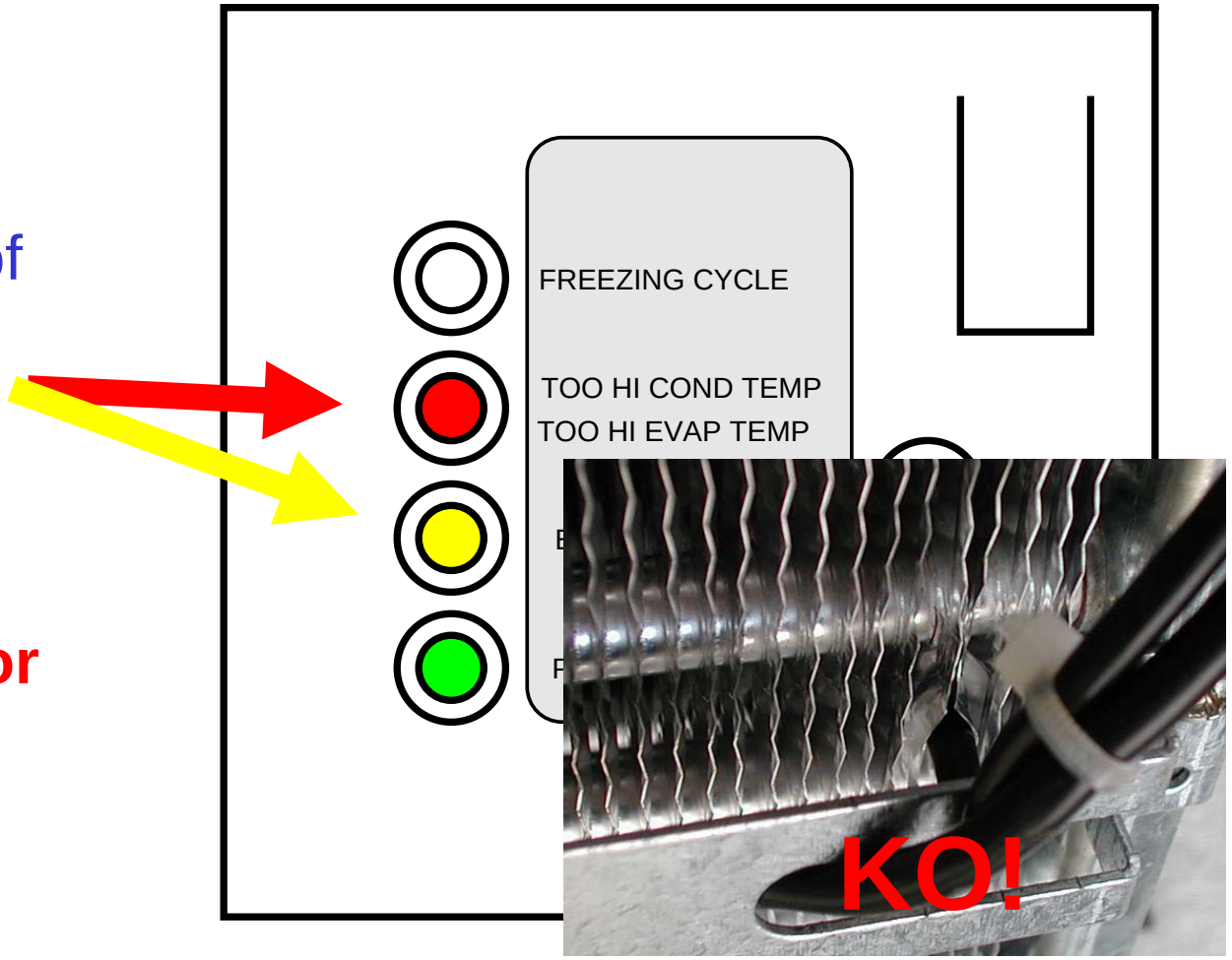
Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

The unit is OFF with both the Red and Yellow LEDs of PC Board **ON steady.**

The reason is the **Condenser Sensor OUT OF ORDER.**



Scotsman Ice Systems

NEW MXG SERIES

SERVICE ANALYSIS

The unit is OFF

with both the Red

and Yellow LEDs of

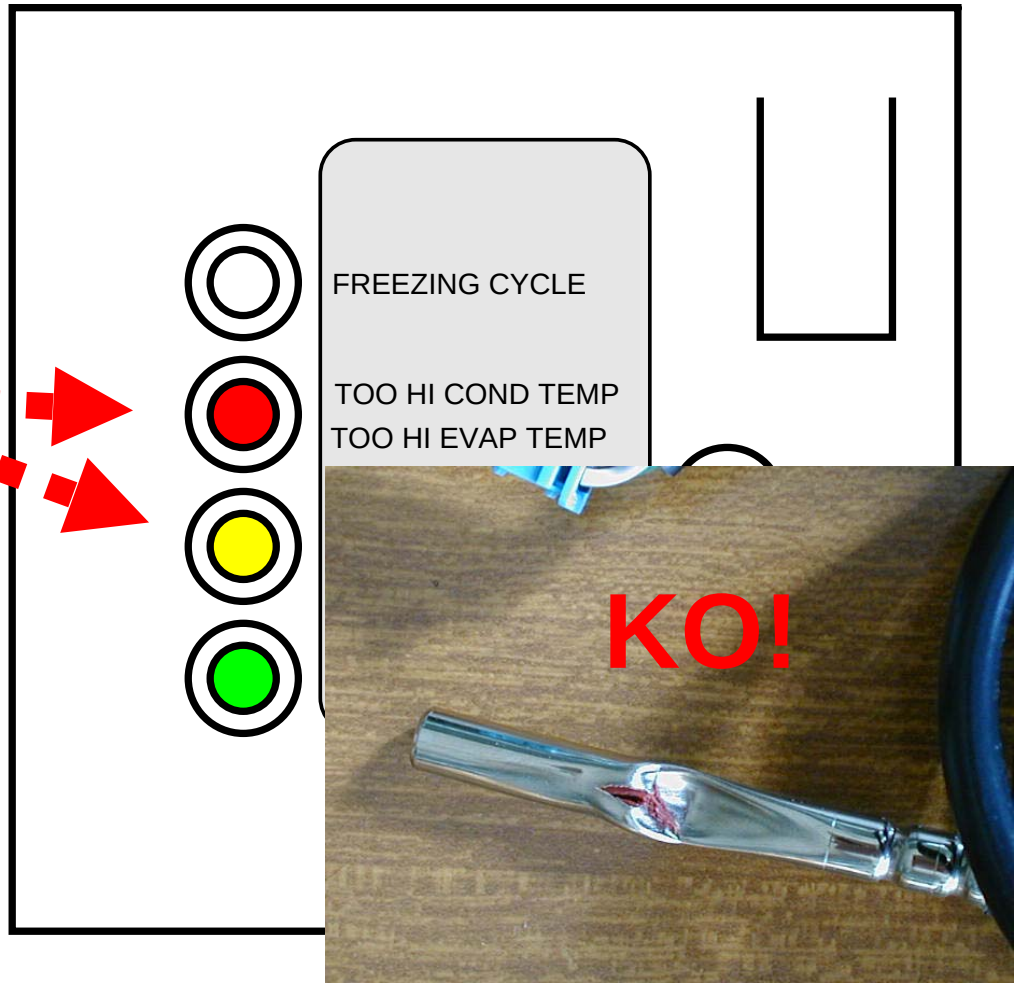
PC Board

blinking.

The reason is the

Evaporator Sensor

OUT OF ORDER.



Scotsman®
Ice Systems

NEW MXG SERIES