

## SECOND HALF

MAINTENANCE,
SERVICE ANALYSIS &
REPLACEMENT OF AUGER,
WATER SEAL AND BEARINGS
INSTRUCTIONS



#### **MAINTENANCE**

On the new MF Flaker Series a built in remind cleaning – countdown timer is available





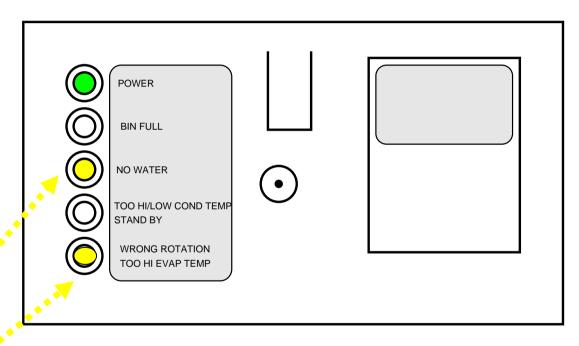
#### **MAINTENANCE**

Whenever countdown timer for remind cleaning is elapsed (6/12 months according to pcb Jumper) ice maker keep on working and on the PC Board the following LEDs will blink together

**NO WATER - YELLOW LED** 

+

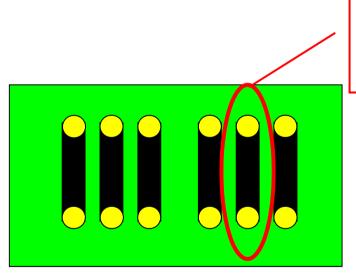
WRONG ROT./ TOO HIGH EVAP. TEMP. YELLOW LED





#### **MAINTENANCE**

Cleaning schedule - setting can be choosen through circled jumper



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



#### **MAINTENANCE**

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

Sanitizing: Every month

Cleaning: Every six months

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



#### **MAINTENANCE**

#### **TOOLS REQUIRED**

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





#### **MAINTENANCE**

#### Remove front ....



....and right panel









#### **MAINTENANCE**

Switch OFF the machine at main power switch....

.....and close the water tap on water inlet line.







#### **MAINTENANCE**

Scoop out all ice

stored into the bin

so to prevent its

contamination.





#### **MAINTENANCE**

Remove the metal clamp

and disconnect the

water tube from the

evaporator inlet of the

water reservoir





#### **MAINTENANCE**

....the water into a

bucket ....





#### **MAINTENANCE**

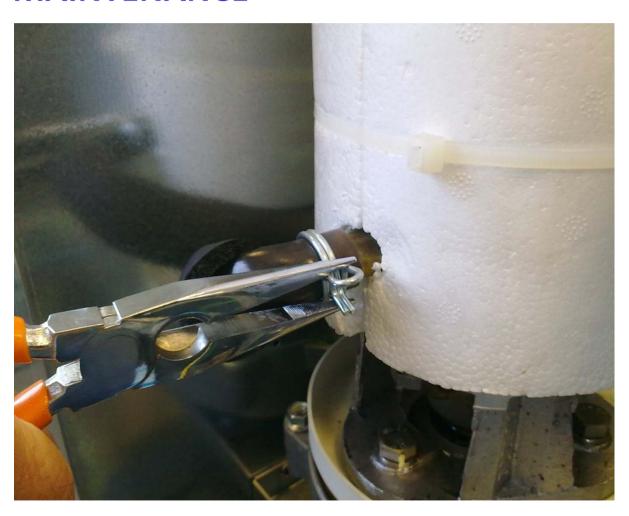
....place

again the

tube on the

evaporator

inlet port.





#### **MAINTENANCE**

Prepare the cleaning solution by diluting in a plastic bucket lukewarm water (max 40°C) with **SCOTSMAN** Ice Machine Cleaner as per the following quantities:





## MAINTENANCE

MF 26: 1,5 LITER WATER WITH 150 CC CLEANER

MF 36: 2 LITERS WATER WITH 200 CC CLEANER

MF 46/56: 4 LITERS WATER WITH 400 CC CLEANER

MF 66: 4 LITERS WATER WITH 400 CC CLEANER PER

**EVAPORATOR** 



#### **MAINTENANCE**

Remove the water reservoir cover then....

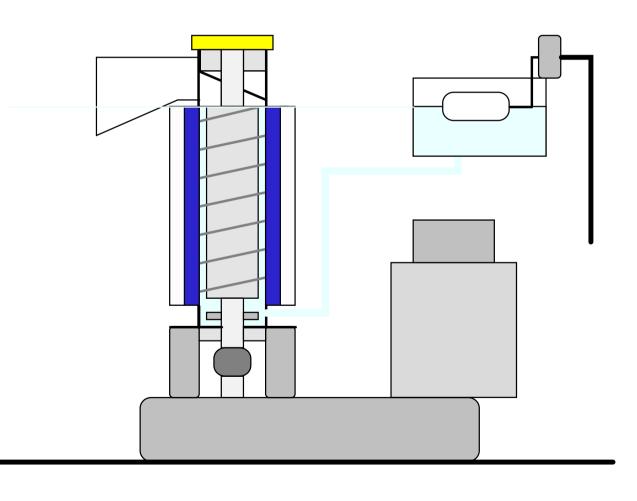
....slowly pour onto the water reservoir the cleaning solution.





#### **MAINTENANCE**

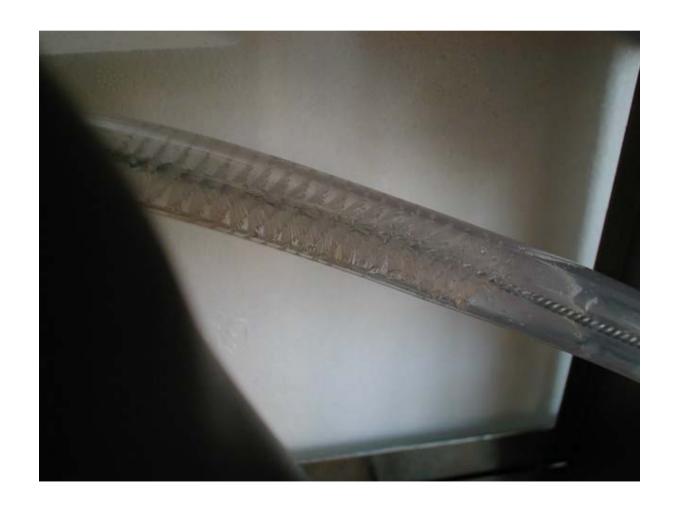
Leave the machine in **OFF** mode for approximately 20 minutes so to have the cleaning solution melting the scale into the entire water system.





#### **MAINTENANCE**

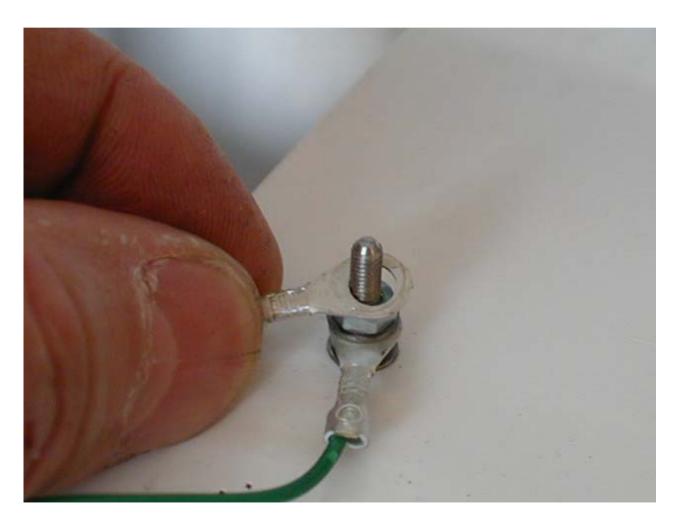
With the help of a brush dissolve the most resistant and remote scale deposits into the plastic tube connecting the water reservoir to the bottom of the freezer.





#### **MAINTENANCE**

Jump with a wire or connect together the two metal pins of the water level sensor then....





#### **MAINTENANCE**

... move
the
master
switch to
ON
position.





#### **MAINTENANCE**

Few minutes

later the

machine start

up to produce

and discharge

ice (slash) into

the storage bin.





#### **MAINTENANCE**

As soon as the level of the water into the water reservoir is going down, slowly poor the remaining cleaning solution till empty the bucket





#### **MAINTENANCE**

Once empty the bucket open the water tap so to allow new fresh water into the water reservoir and leave the machine running for approximately 10 minutes.





When sure that no more trace of cleaning solution is left into the water system poor 1 cc of Scotsman sanitizer directly into the water reservoir then....

#### **MAINTENANCE**





#### **MAINTENANCE**

....place again thewater reservoircover payingattention to removethe jumper betweenthe two metal pins.





#### **MAINTENANCE**

Scoop out the flake ice produced with cleaning/sanitizing solution.





#### **MAINTENANCE**

Wash the inside of the storage bin with sanitizing solution (1 cc sanitizer per liter of water) so to be sure no more trace of descaling/cleaning solution remains into the sump.





#### **MAINTENANCE**

Whenever cleaning
is completed push
and keep on pushed
reset button for >
20" thus to resetrestart countdown
timer





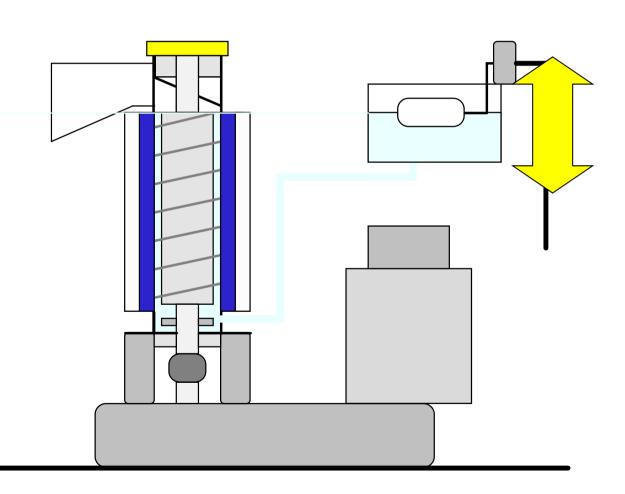
**MAINTENANCE** 

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.



#### **MAINTENANCE**

It is possible to change a little bit the quality of the flaker or super flaker ice produced by the machine by rising or lowering the water reservoir assembly.

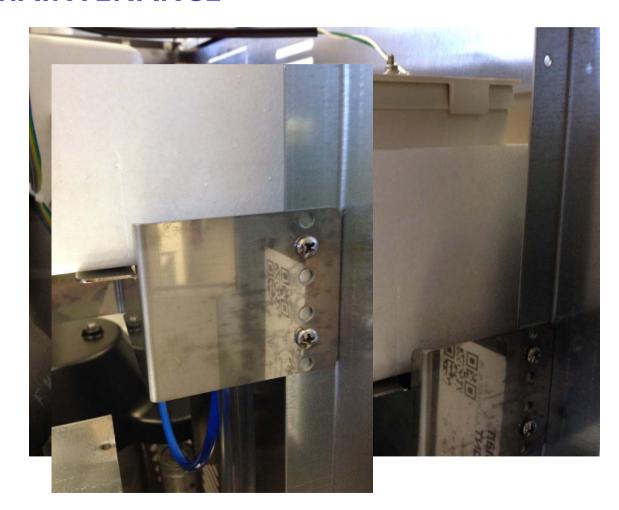




#### **MAINTENANCE**

The unit frame is equipped by five series of holes so to secure at different level the water reservoir.

Higher level is for wetter ice while lower level for drier ice.





## SERVICE ANALYSIS

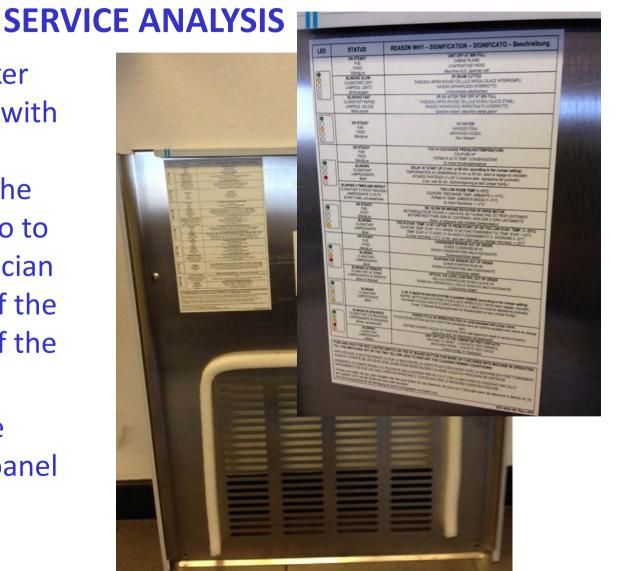


From now also the Flaker machines are supplied with a label showing the different meanings of the Leds of the PC Board so to help the Service Technician in the right diagnosis of the

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

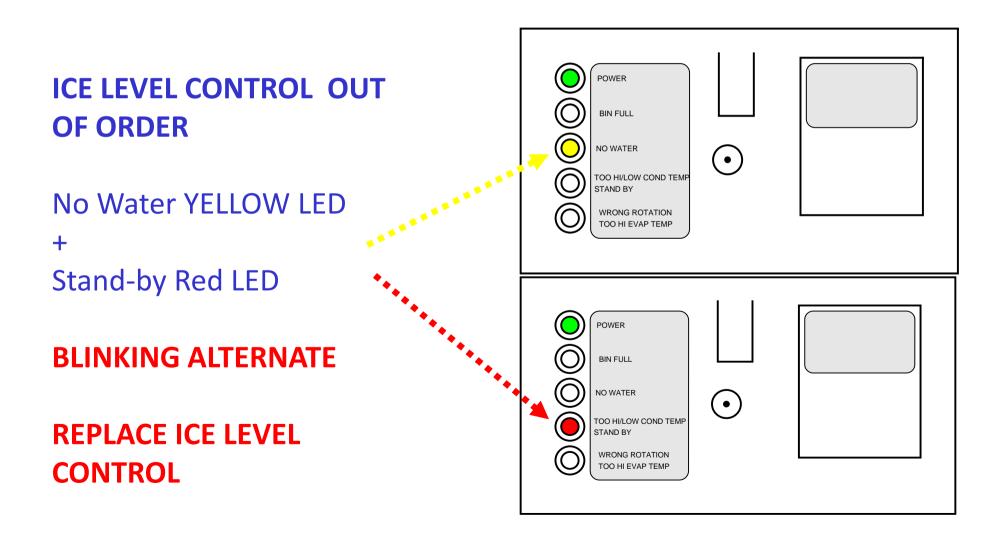
possible malfunction of the

machine.



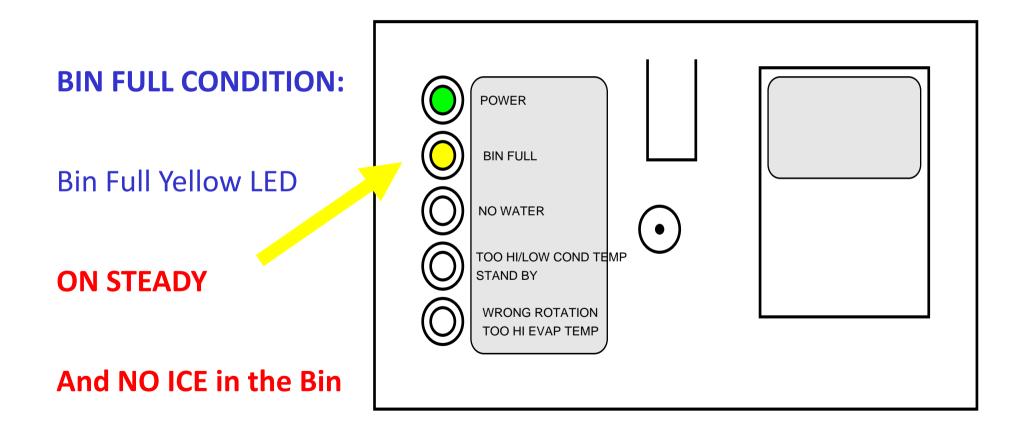


#### **SERVICE ANALYSIS**





#### **SERVICE ANALYSIS**





#### **SERVICE ANALYSIS**

Check for the correct

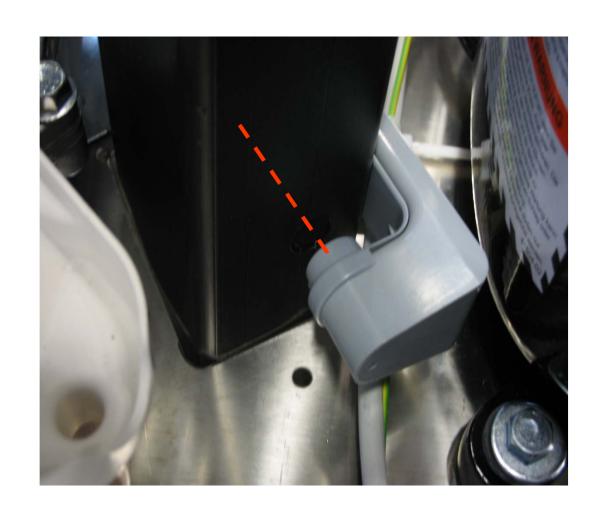
operation of the

**Optical Ice Level** 

control located on

the lower outside

part of the ice chute.

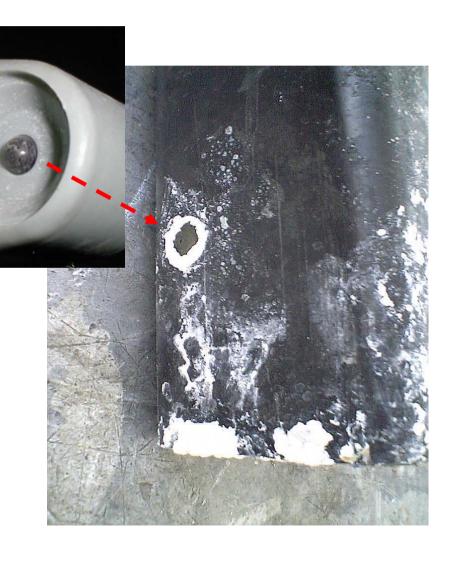


# Scotsman<sup>®</sup> Ice Systems

## **NEW MF..6 SERIES**

#### **SERVICE ANALYSIS**

The two eyes placed or the opposite side of the plastic bracket must be perfectly clean with no dust and/or scale as well as the two holes located on the opposite sides of the ice chute.





#### **SERVICE ANALYSIS**

ATTENTION. The Optical Ice Level Control can be affected by the sun light.

Avoid to leave the machine in operation directly under the sun light and/or without the service panels.



#### I/R CALIBRATION PROCEDURE INSTRUCTIONS

In case of any diagnostic ALARM due to ice level control out of order; before replacing the same and/or the PC Board try to calibrate the same as per following procedure .......



#### I/R CALIBRATION PROCEDURE INSTRUCTIONS

- Be sure that Transmitter &
   Receiver eyes of the Ice Level
   Ctrl are both cleaned up from
   any deposit of scales
- Switch OFF the machine by the Main Switch.





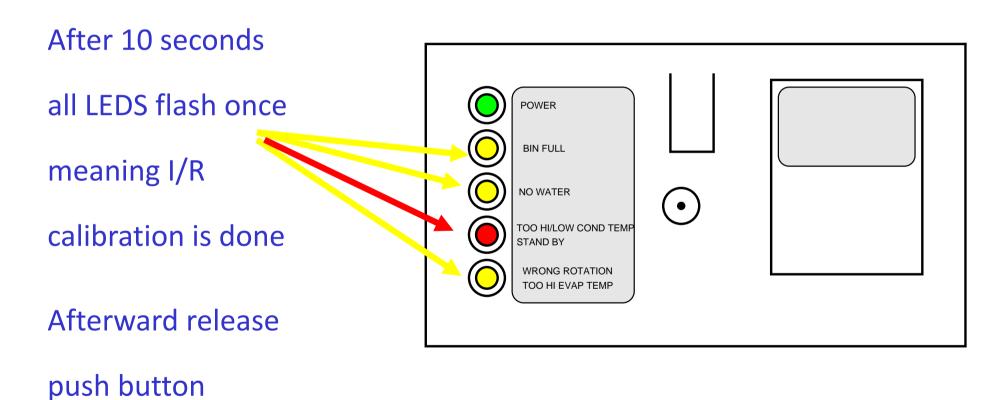
#### I/R CALIBRATION PROCEDURE INSTRUCTIONS

- Push and keep on pushing reset button
- In the meanwhile
   Switch ON the
   machine by the Main
   Switch.





#### I/R CALIBRATION PROCEDURE INSTRUCTIONS





#### I/R CALIBRATION PROCEDURE INSTRUCTIONS

Questa operazione può essere effettuata ogniqualvolta se ne presenti la necessità mentre DEVE essere sempre effettuata nel momento in cui si installa o si sostituisce una nuova scheda Elettronica o un nuovo Lettore Ottico di Livello Ghiaccio.

On MF 66 run this procedure through the bush button located on the

Interface PC Board.



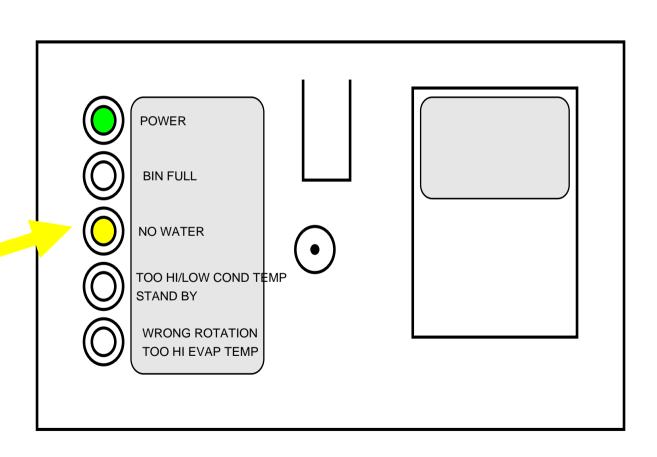


#### **SERVICE ANALYSIS**

**NO WATER ALARM:** 

No Water Yellow LED

**ON STEADY** 



# Scotsman<sup>®</sup> Ice Systems

## **NEW MF..6 SERIES**

#### **SERVICE ANALYSIS**

Check first for the

water tap on the

water supply line

• • • • •





## **SERVICE ANALYSIS**

.....for the water filter

located on the water inlet

line.....





### **SERVICE ANALYSIS**

.....for the water strainer

located inside the water

inlet fitting.....





### **SERVICE ANALYSIS**

.....for the correct cleaning of the orifice of the water reservoir.

If not clean it with a small metal pin.

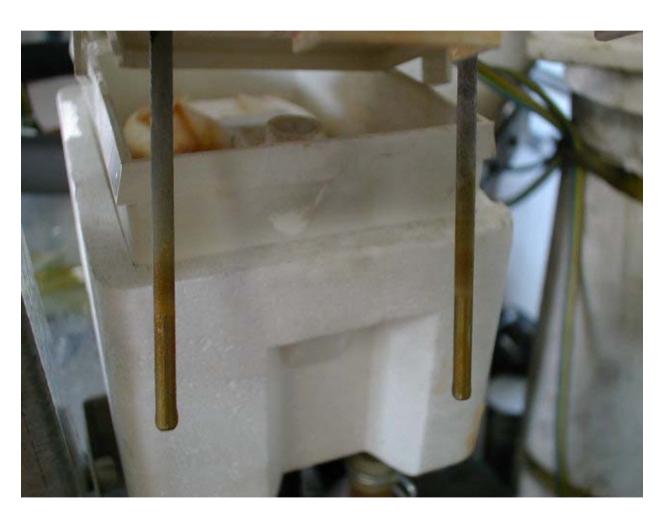


## Scotsman<sup>®</sup> Ice Systems

## **NEW MF..6 SERIES**

#### **SERVICE ANALYSIS**

In case of water into the water reservoir check for any scale deposit onto the two metal pins of the water level sensor.....

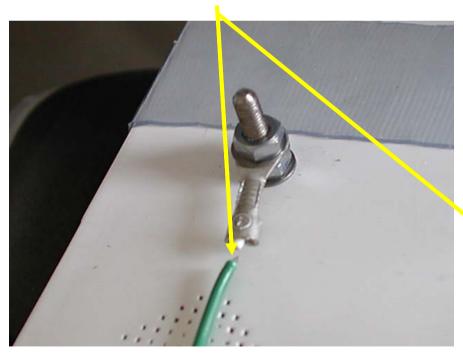




#### **SERVICE ANALYSIS**

....or for any loosing wire between the two metal pins and the PC

Board connector (red color two pins connector).







#### **SERVICE ANALYSIS**

ATTENTION. The water level sensor operate by transmitting a low voltage current through the water. If water is very soft, with a very low content of mineral salts, no current is transmitting back to the PC Board tripping OFF the machine at NO WATER LED.

A minimum of 30µS electrical conductivity water is required for correct operation of the machine.

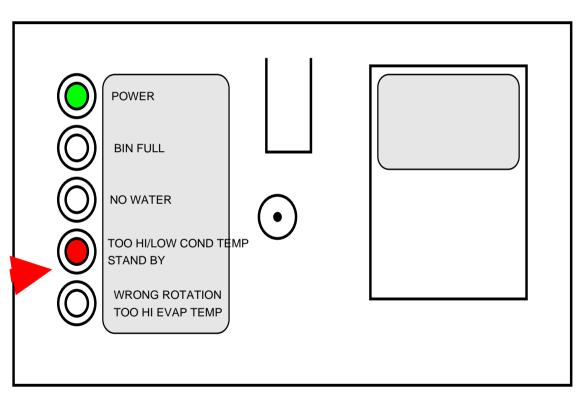


#### **SERVICE ANALYSIS**

START UP DELAY TIME 3' or 60' (ONLY on MF 66)

Too Hi/Low Cond. Temp-Stand-by RED LED

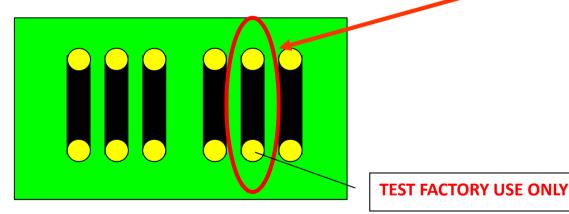
BLINKING . . .





#### **SERVICE ANALYSIS**

It is a normal situation at every re-start of the machine after the tripping of for bin full, no water, etc.) It is also possible to by-pass the delay just making a short-circuit for a while on contacts of jumper J4 (TEST.)



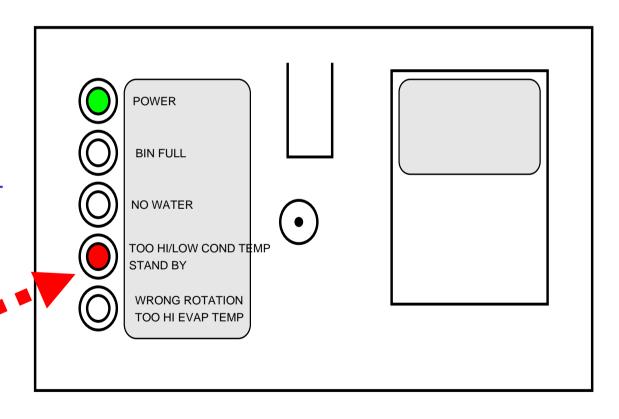


#### **SERVICE ANALYSIS**

TOO LOW AMBIENT TEMPERATURE (<+3°C)

Too Hi/Low Cond. Temp-Stand-by RED LED

BLINKS THREE TIMES AND REPEAT



# Scotsman<sup>®</sup> Ice Systems

## **NEW MF..6 SERIES**

#### **SERVICE ANALYSIS**

It is a typical winter situation.

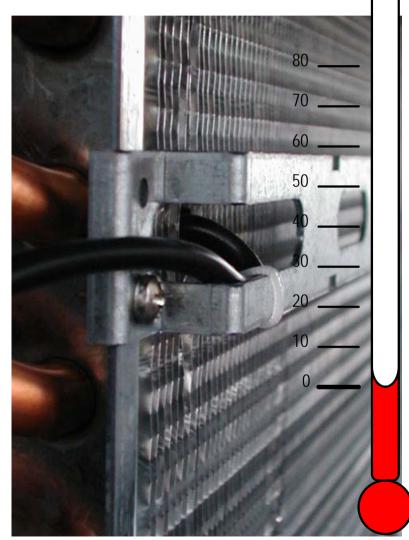
When the machine is located in a

very cold room (<+3°C) the

condenser sensor keep the

machine OFF till the temperature

rise up to more then +5°C.





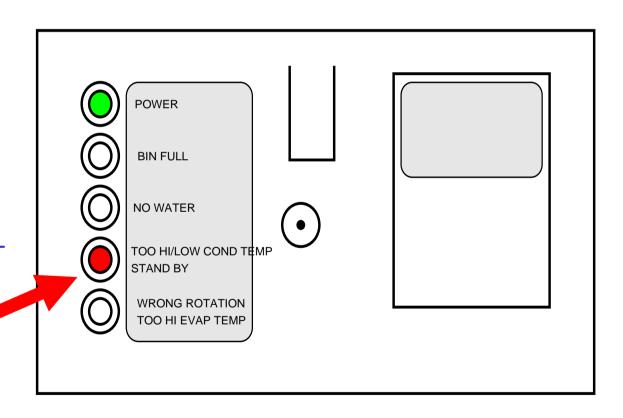
#### **SERVICE ANALYSIS**

TOO HI CONDENSIG
TEMPERATURE

(>60°C or >70°C)

Too Hi/Low Cond. Temp-Stand-by RED LED

**ON STEADY** 





#### **SERVICE ANALYSIS**

On Air Cooled Version

check first for the correct

operation of the fan motor

i.e.:

 Power out to the motor (contacts n. 2 & 4 of the terminal board)





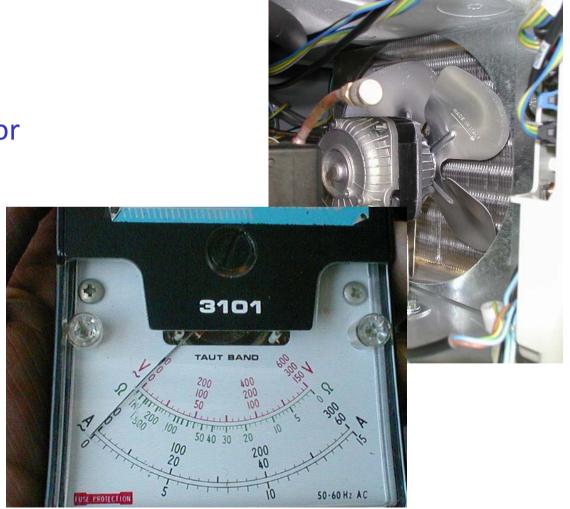
#### **SERVICE ANALYSIS**

On Air Cooled Version check first for the correct

operation of the fan motor

i.e.:

- Power to the motor
- Open winding of the motor





#### **SERVICE ANALYSIS**

On **Air Cooled Version** check first for the correct operation of the fan motor i.e.:

- Power to the motor
- Open winding of the motor
- Fan blade loose on fan motor shaft



#### **SERVICE ANALYSIS**

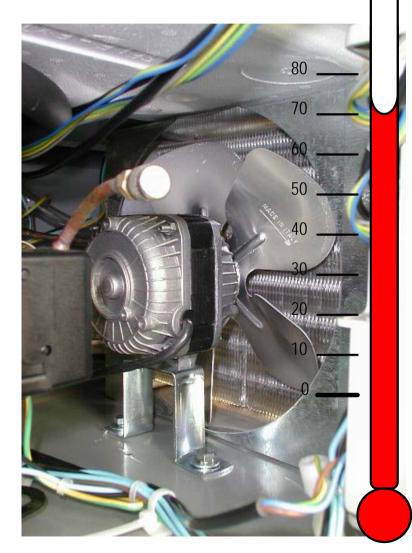
Check also for any possibility of

fan motor overheating that can

happen after a certain time

from the start up of the

machine.





#### **SERVICE ANALYSIS**

One more possibility (very rare) it is a faulty PC Board (TRIAC) that can keep energized the fan motor during the OFF period with a low voltage but higher then the minimum one need for tripping OFF the motor.

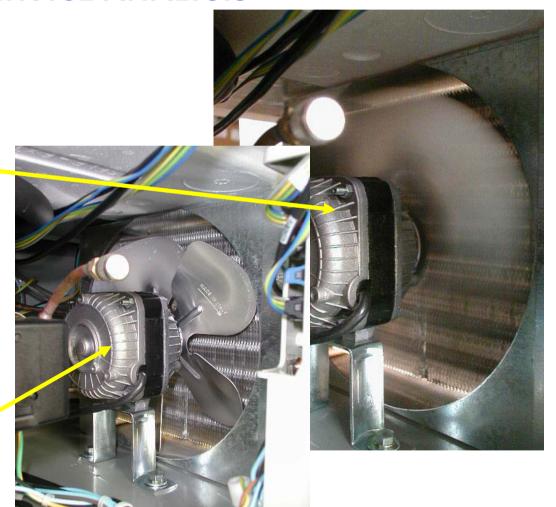




#### **SERVICE ANALYSIS**

During normal operation mode the fan motor is energized at 230 V during its ON mode and.....

.....is **not energized** at all during its **OFF mode**.





#### **SERVICE ANALYSIS**

In case the power during the OFF mode is between 140 and 170 V the fan motor is keeping running but at lower speed that can cause an overheat of the same.





#### **SERVICE ANALYSIS**

#### On Water Cooled Version

check first for the:

Water tap



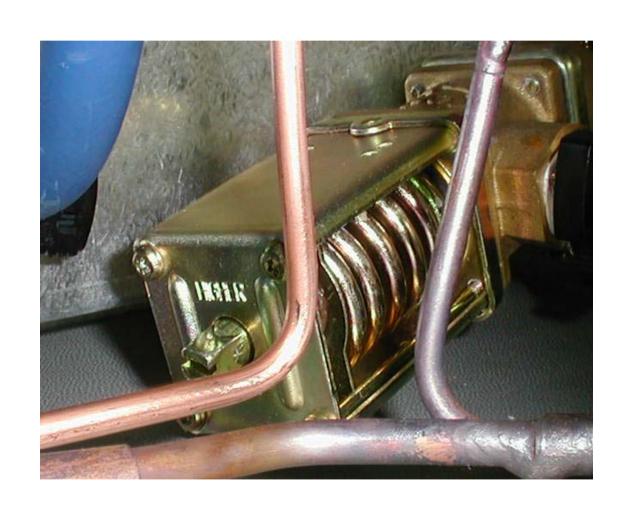


#### **SERVICE ANALYSIS**

On Water Cooled

Version check first for the:

- Water tap
- Correct operation of the water regulating valve



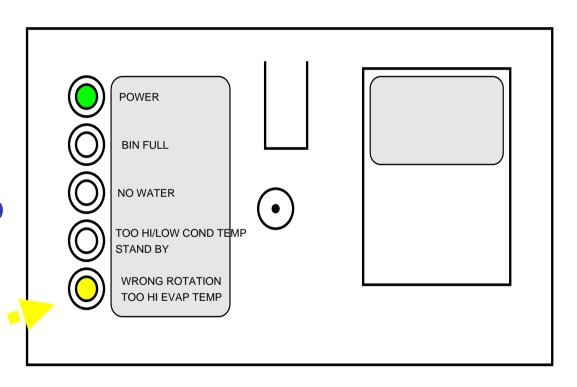


#### **SERVICE ANALYSIS**

## TOO HI EVAPORATOR TEMPERATURE

Wrong rotation/ Too Hi Evap. Temp. YELLOW LED

SLOW BLINKS AFTER 10'
OF OPERATION





#### **SERVICE ANALYSIS**

Check if ice is produced during the first ten minutes of operation; if so, the evaporator sensor is defective and must be replaced (not able to transmit the right current back to the PC Board).

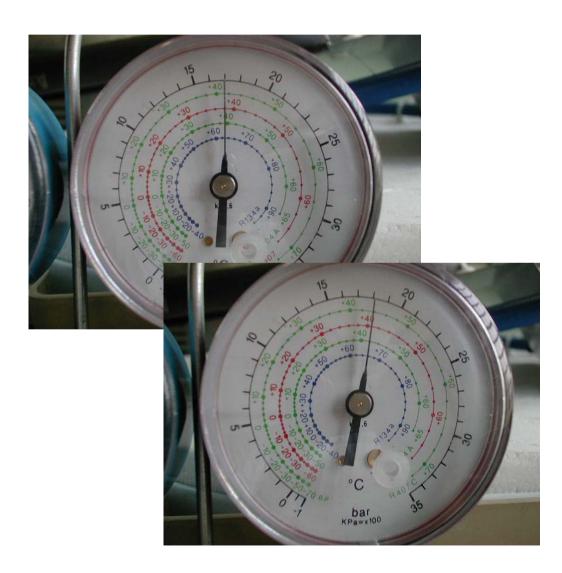




#### **SERVICE ANALYSIS**

If no ice is produced check for:

Refrigerant charge. Find the side pressure must be between 17÷18 bar
 (240÷250 PSI).....



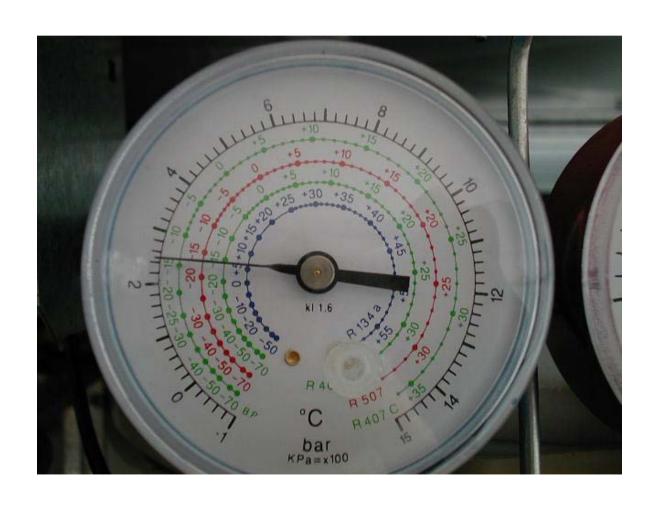


### **SERVICE ANALYSIS**

.....while suction

pressure must be 2.5

bar (35 PSI)



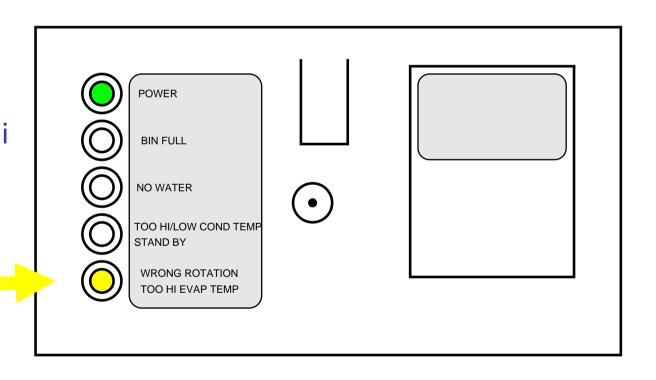


#### **SERVICE ANALYSIS**

## NO ROTATION OF DRIVE MOTOR

Wrong rotation/ Too Hi Evap. Temp. YELLOW LED

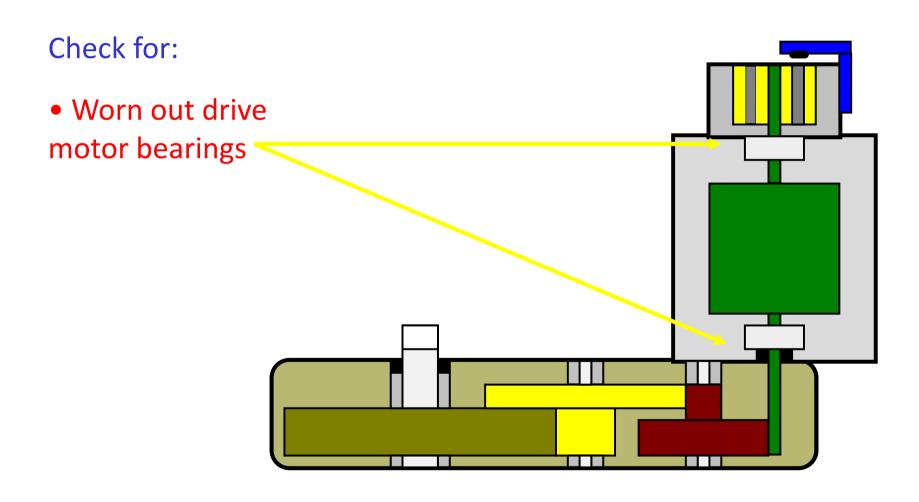
**ON STEADY** 





## **NEW MF..6 SERIES**

### **SERVICE ANALYSIS**



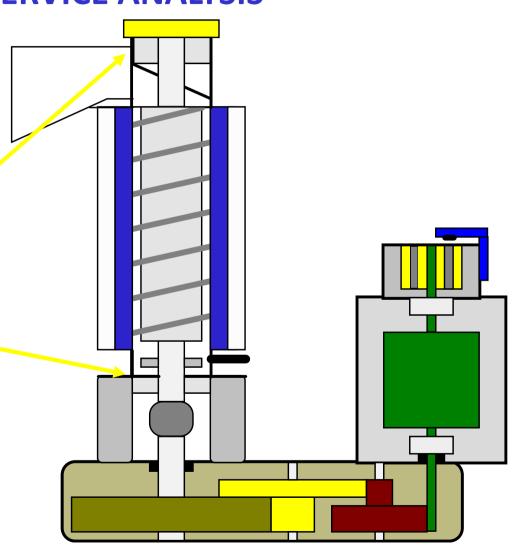


### **SERVICE ANALYSIS**

#### Check for:

Worn out drive motor bearings

Worn out freezer top or bottom bearings





## **SERVICE ANALYSIS**





#### **SERVICE ANALYSIS**

#### Check for:

Worn out drive motor bearings

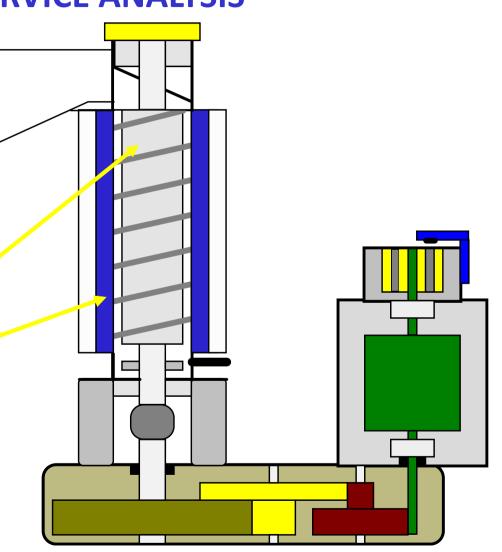
Worn out freezer

top or bottom

bearings

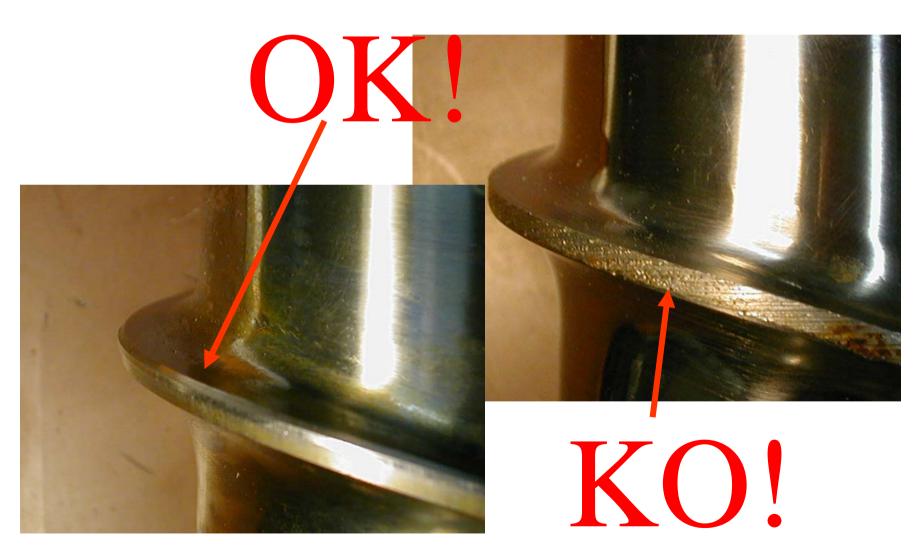
• Worn out

auger/freezer





**SERVICE ANALYSIS** 

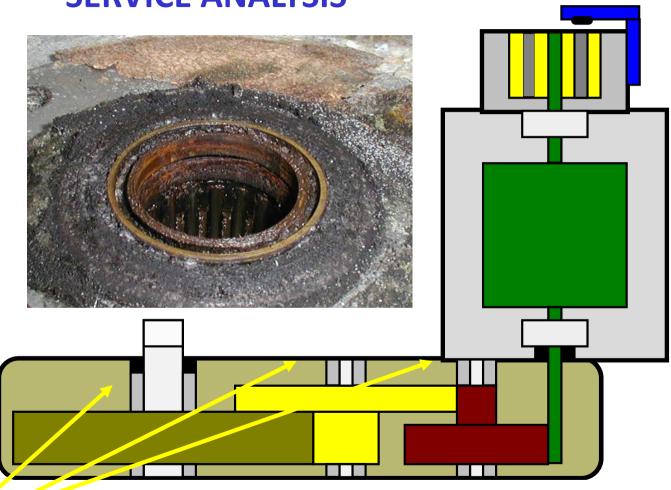




#### **SERVICE ANALYSIS**

#### Check for:

- Worn out drive motor bearings
- Worn out freezer top or bottom bearings
- Worn out auger/freezer
- Worn out gear box bearing/gears



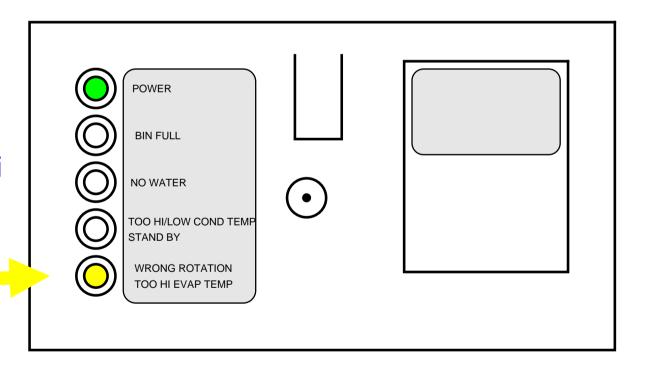


#### **SERVICE ANALYSIS**

WRONG ROTATION
OF DRIVE MOTOR
(opposite direction)

Wrong rotation/ Too Hi Evap. Temp. YELLOW LED

**ON STEADY** 

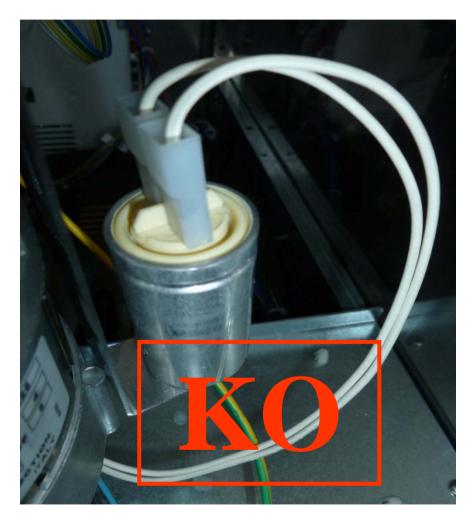




#### **SERVICE ANALYSIS**

#### Check for:

- Correct wires connection to the drive motor capacitor
- Drive motor capacitor worn-out





#### **SERVICE ANALYSIS**

#### Check for:

- Correct wires connection to the drive motor capacitor
- Drive motor capacitor unloaded
- Freeze up of the evaporator

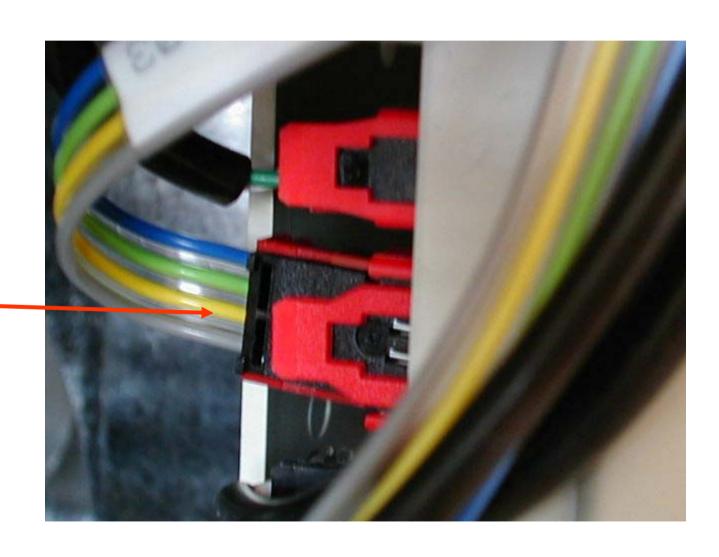




#### **SERVICE ANALYSIS**

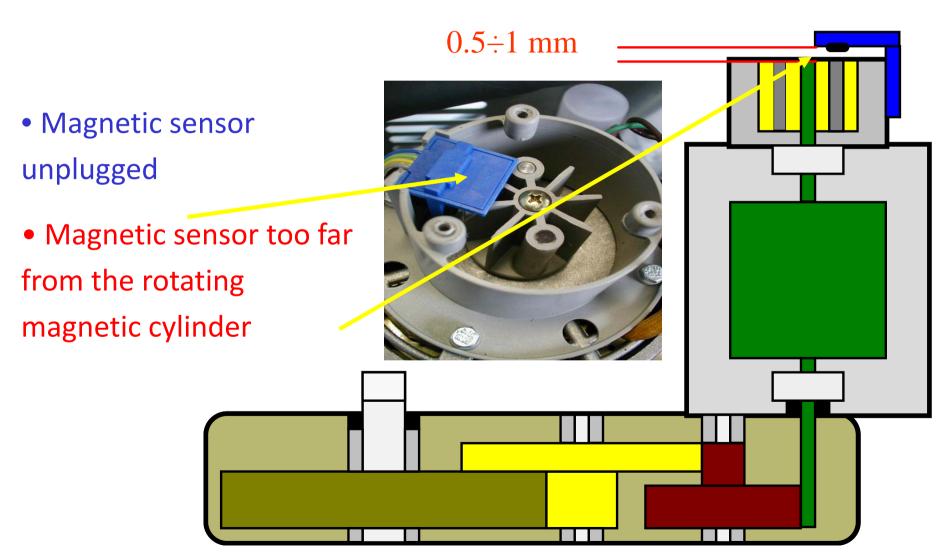
Additional reasons for the **tripping OFF at Rotation Error** are:

Magnetic sensor unplugged





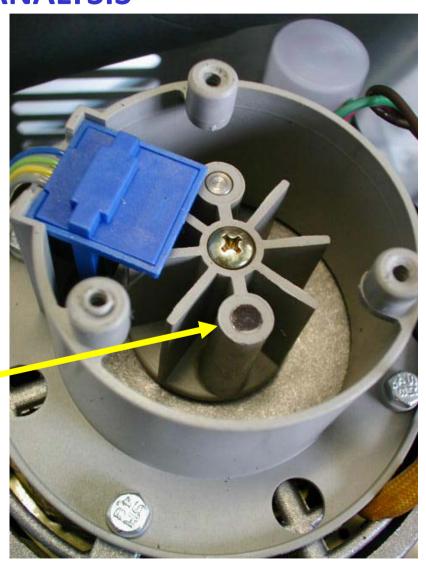
#### **SERVICE ANALYSIS**





#### **SERVICE ANALYSIS**

- Magnetic sensor unplugged
- Magnetic sensor too far from the rotating magnetic cylinder
- Magnetic cylinder partially or fully demagnetized





#### **SERVICE ANALYSIS**

## Manual reset mode

The New Flaker PC Board Trip OFF definitively the machine on ALARM after three tripping OFF for the same reason in 4 hours.

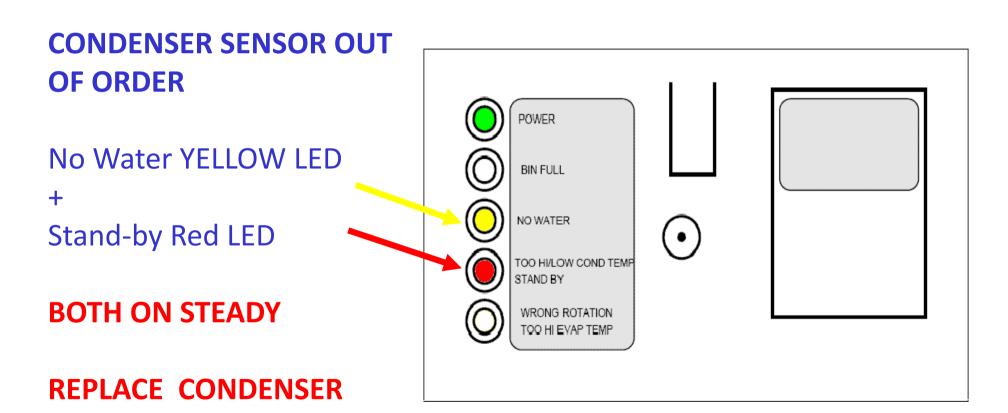
In this way the New PC Board should avoid any Tripping OFF due to possible magnetic fields and/or micro black OUT of power supply that can affect the correct operation of the Flaker machine.



**SENSOR** 

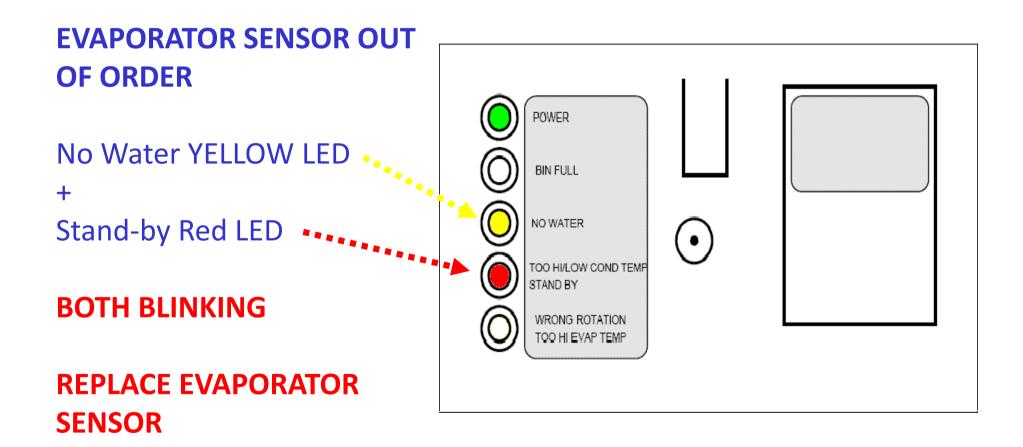
## **NEW MF..6 SERIES**

#### **SERVICE ANALYSIS**





#### **SERVICE ANALYSIS**





# REPLACEMENT OF THE AUGER, WATER SEAL AND BEARINGS



## REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Remove first the

top panel and

then .....

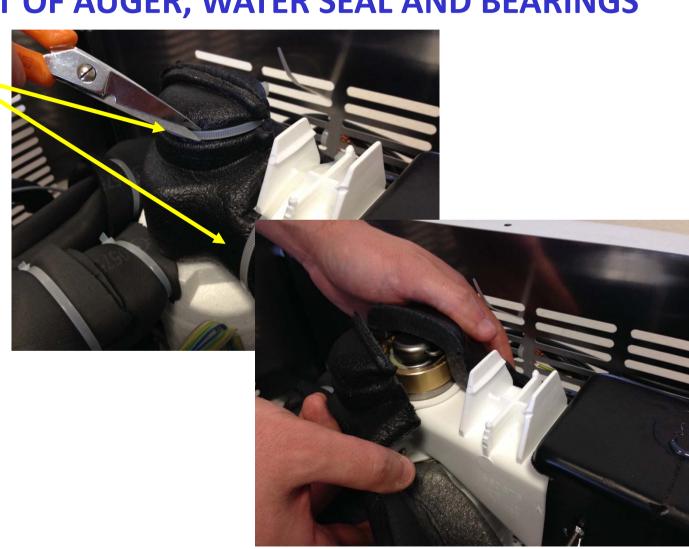




### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

.....remove ice

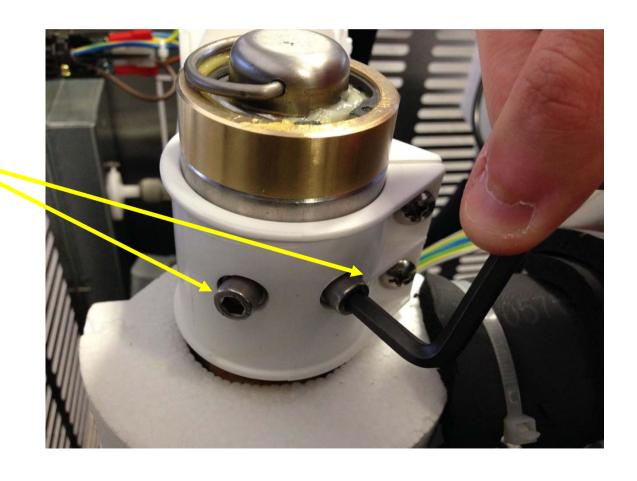
spout insulation.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Unscrew and remove the two screws securing the brass ice breaker to the evaporator.





#### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Grasp with a screw

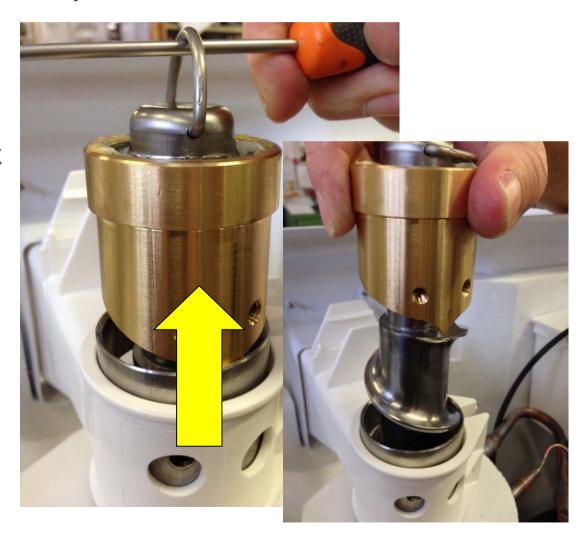
driver the wire cap hook

located at the top of the

freezer and pull out the

auger and attached ice

breaker assembly.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

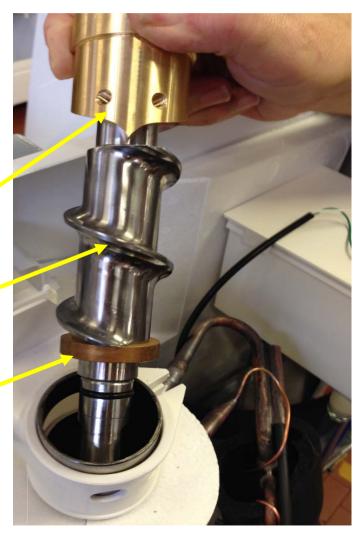
Parts pulled out from the

top of the

evaporator/worm tube

#### are:

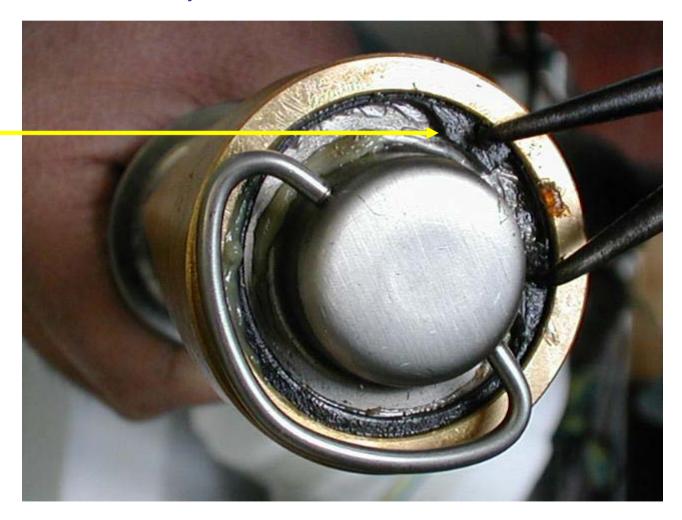
- Ice breaker assembly
- Auger
- Top Half of the water seal





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

With a clip
ring pliers
remove the
retaining ring
and the cap
from the ice
breaker.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Unloose and

remove the

screw and.....





## REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

.....remove

the ice

breaker

assembly

from the

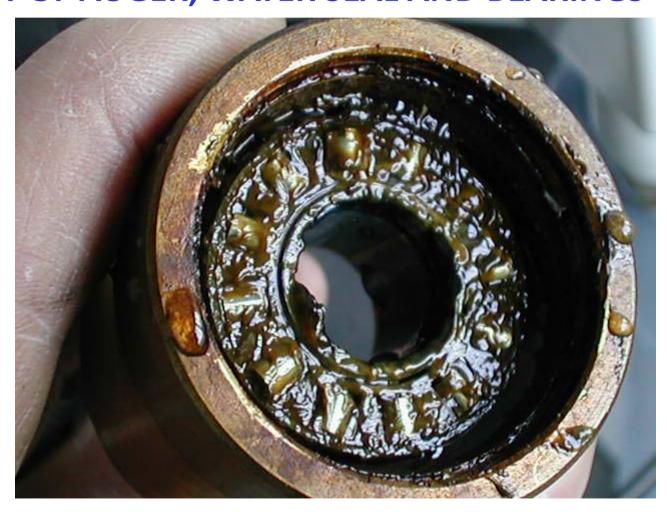
auger.





## REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Clean away the old grease from the interior of the ice breaker and inspect the conditions of the top bearing .....



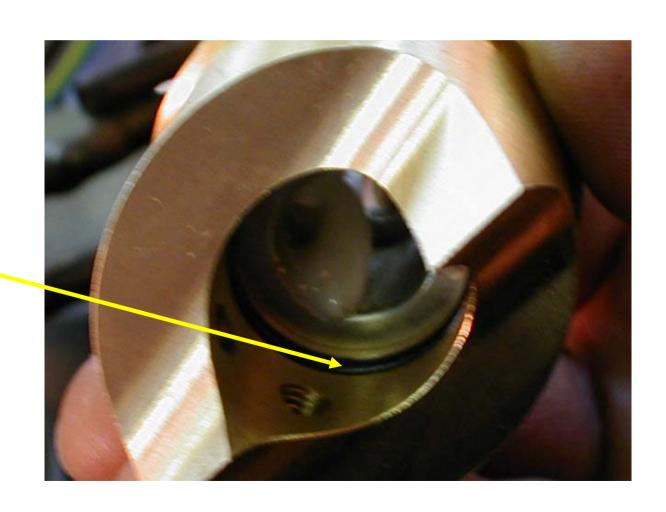


### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

..... as well as

the condition

of the O ring.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

..... And the

condition of

the O ring

located on the

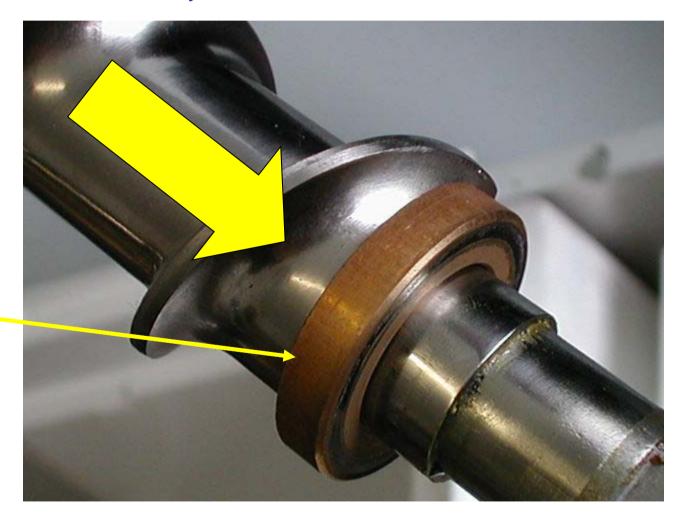
auger shaft.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

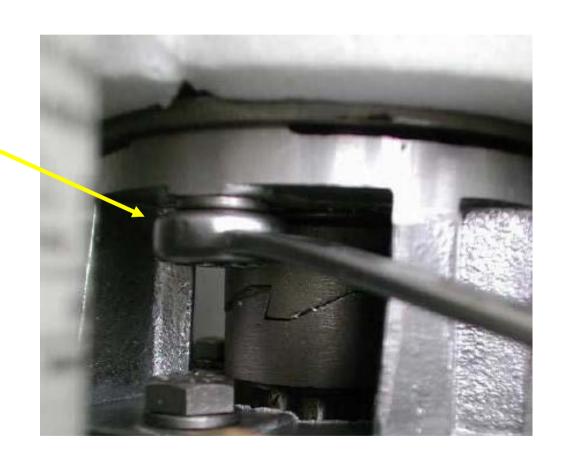
Slide off from the bottom of the auger the upper half of the water seal.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Unloose and remove the three bolts and lock-washers holding the freezer assembly to the aluminum adapter then .....

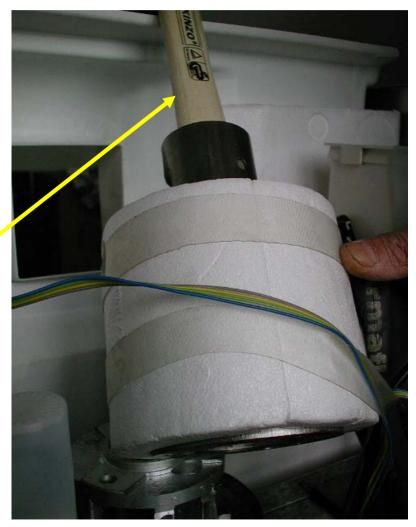




### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

..... raise the freezer assembly off the adapter and move it out so to have enough room to work.

Using a suitable wooden dowel inserted through the top of the freezer.....





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

.....tap the lower half of the water seal .....

.....and the lower bearing out the bottom of the freezer.





#### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

It is good practice to replace the water seal assembly, the bottom bearing, the ice breaker assy (including top bearing and the O ring) any time the auger is removed.

A Kit is available for this purpose containing a can of waterproof special grease.





REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

MF 46-56-66



## REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Remove first

the front and

top panel and

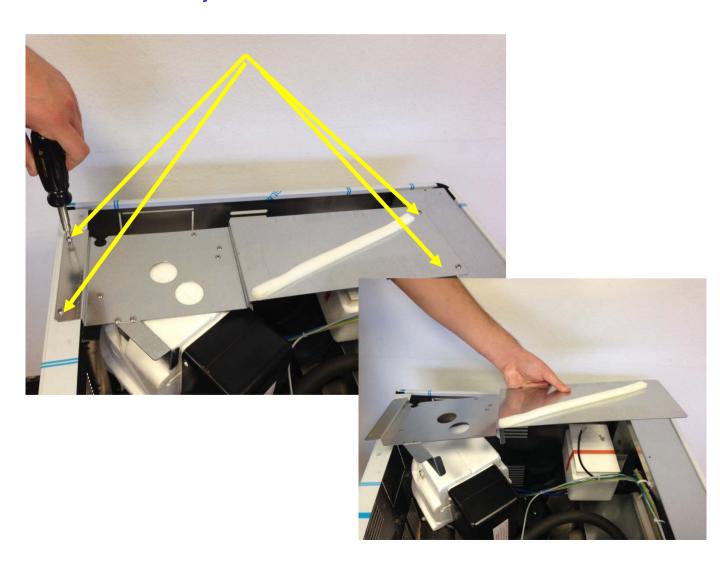
then .....





#### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

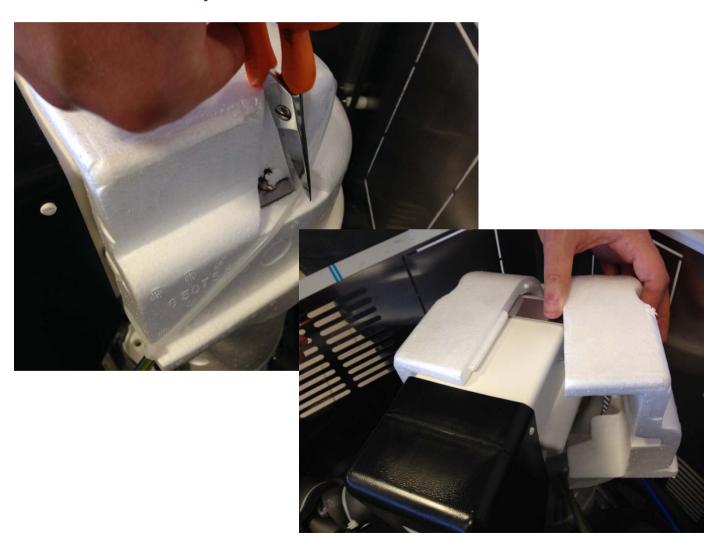
Unloose the four screws holding the metal bracket and remove it from the frame of the machine





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

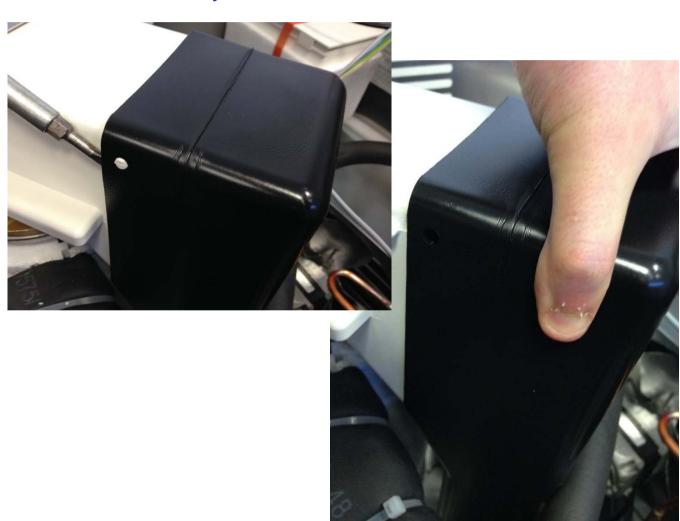
Cut the plastic clamp and remove the polystyrene ice spout insulation covers





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Remove the ice chute from the ice spout





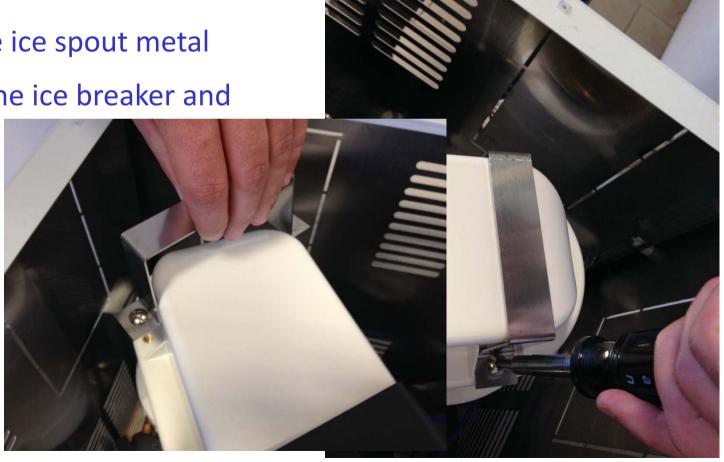
## REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

....unloose the two screws

securing the ice spout metal

bracket to the ice breaker and

remove it ...





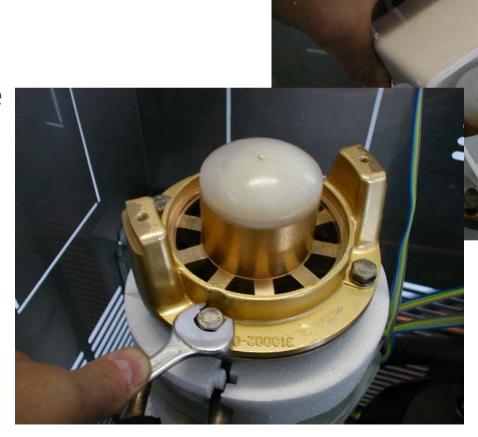
### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Remove the plastic ice spout....

....then

unloose the four bolts holding the ice breaker to the upper flange of

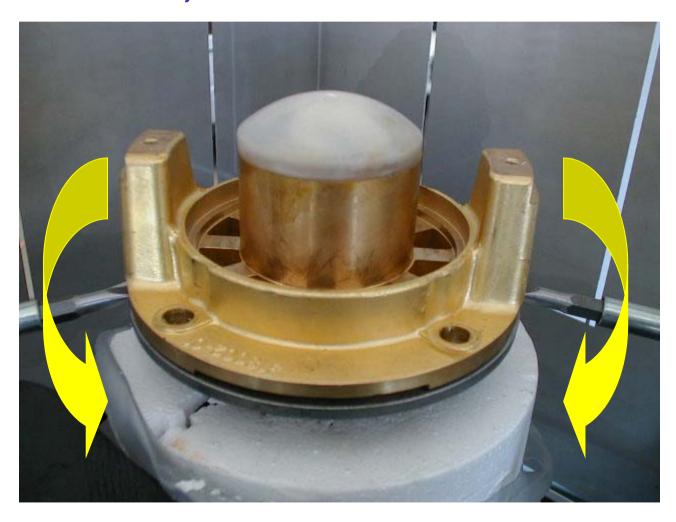
the freezer.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

With a couple of screwdrivers rise up a little bit the ice breaker and auger assembly then ....

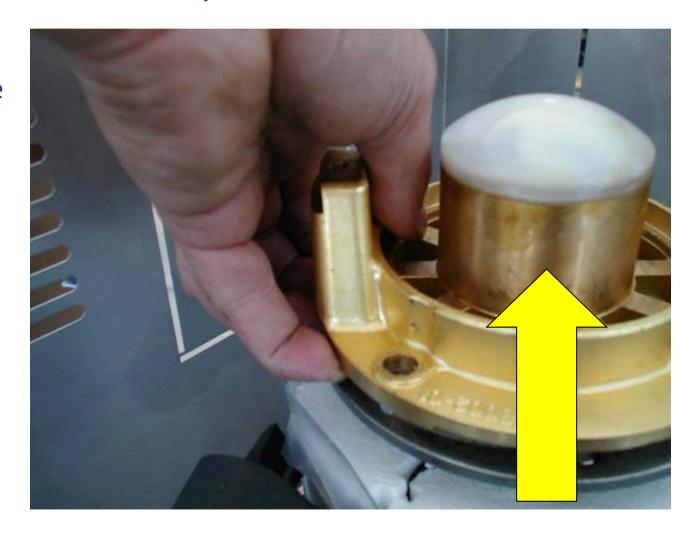




### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

.... pull out the auger and ice breaker

assembly.

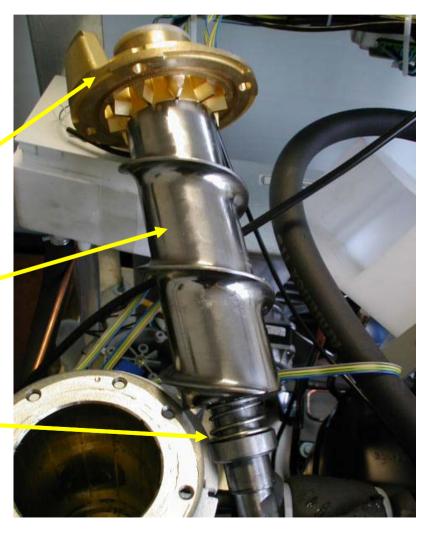




#### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Parts pulled out from the top of the evaporator/worm tube are:

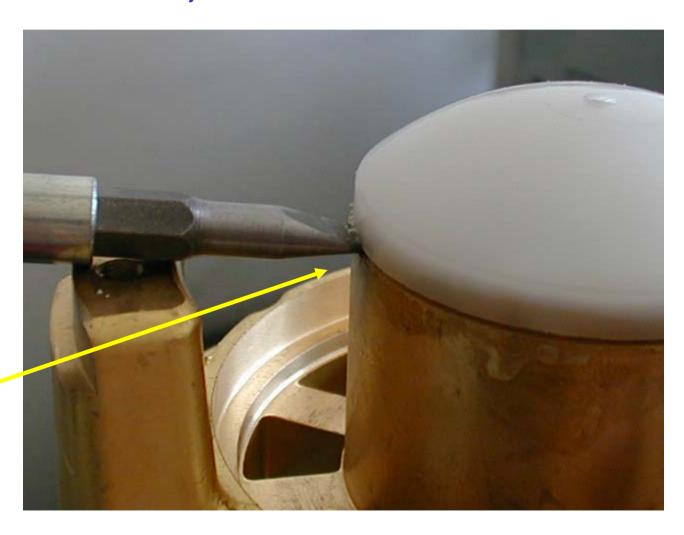
- Ice breaker assembly
- Auger
- Top half of the water seal





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

With a screwdriver remove the plastic cap from the upper side of the ice breaker.



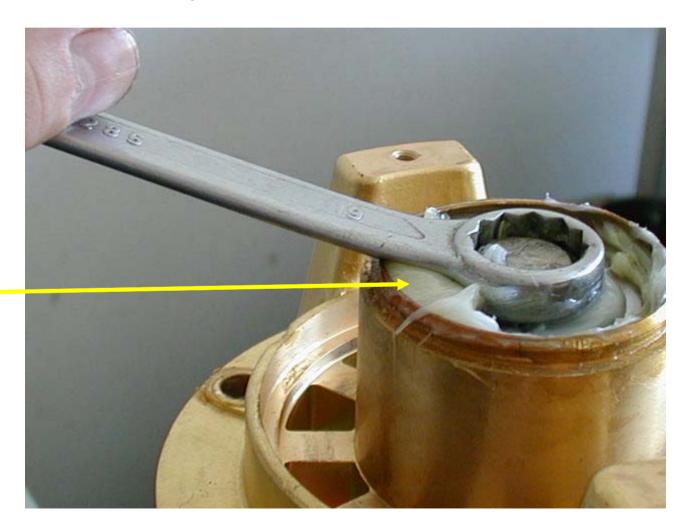


### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Unloose and

remove the

screw and.....





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

.....remove

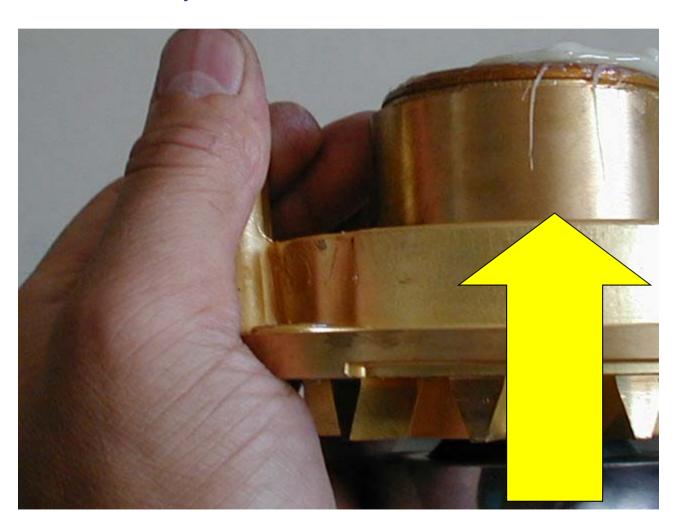
the ice

breaker

assembly

from the

auger.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Clean away the old grease from the interior of the ice breaker and inspect the conditions of the top bearing .....





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

..... as well as

the condition

of the O ring.





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Slide off from the bottom of the auger the upper half of the water seal and check the condition of the two O-rings located on the auger shaft.

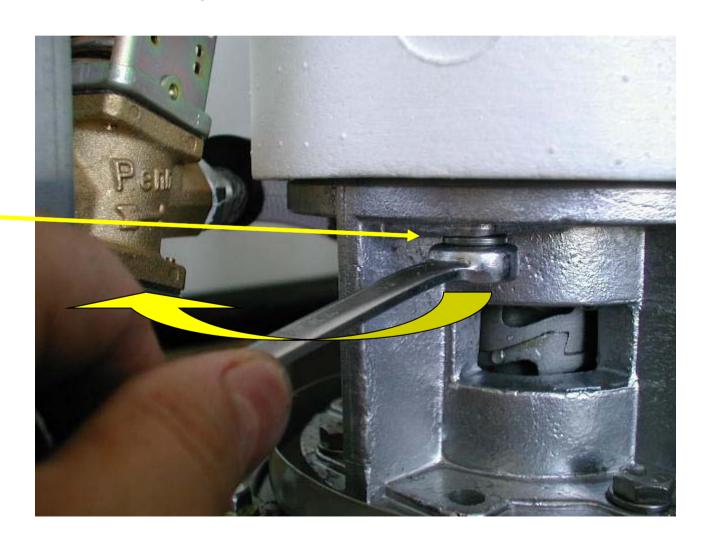




### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

Unloose and remove the four bolts and lock-washers holding the freezer assembly to the aluminum adapter then

• • • • •

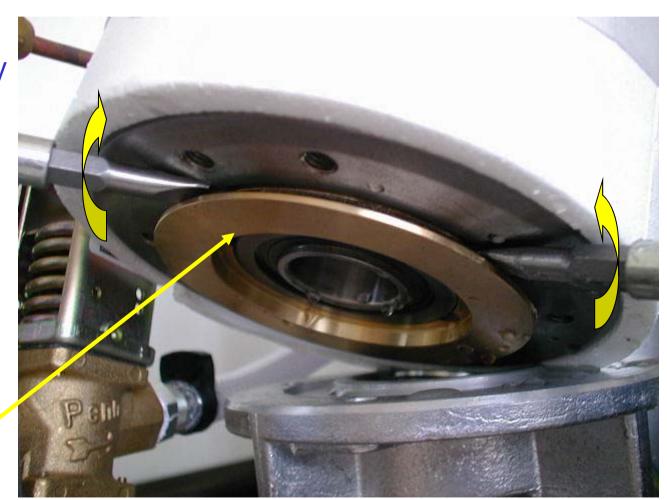




### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

raise the freezer assembly off the adapter and move it out so to have enough room to work.

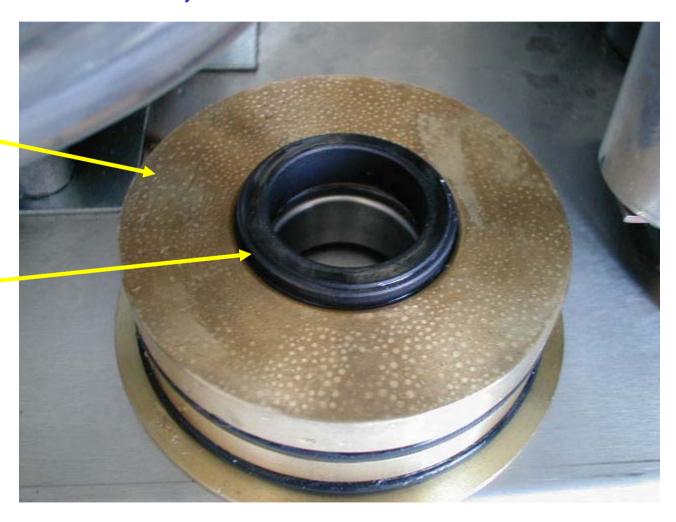
Using two flat screwdrivers remove.....





### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

..... the bottom bearing and brass housing assembly with the bottom graphit ring of water seal.





#### REPLACEMENT OF AUGER, WATER SEAL AND BEARINGS

It is good practice to replace the water seal assembly, the two top and bottom bearings and the O rings any time the auger is removed.

A Kit is available for this purpose containing a can of waterproof special grease.



