INSTRUCTION MANUAL

193 SP USA

AFFIX

PLATE WITH

SPECIFICATIONS

Code IC193-016647_03

We wish to thank you for the preference granted to us by purchasing one of CARPIGIANI machines.
To the best guarantee, since 1993 ***Carpigiani*** *has submitted its own Quality System to the certification according to the international Standard ISO 9001.*
Nowadays its production has got UNI-EN-ISO 9001 Certified Quality System.

CARPIGIANI

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FOREWORD

INSTRUCTION HANDBOOK

Editing this handbook, it was taken into due account European Community directions on safety standards as well as on free circulation of industrial products within E.C.

PURPOSE

This handbook was conceived taking machine users' needs into due account.
Topics relevant to a correct use of the machine have been analyzed in order to keep unchanged in the long run quality features charachterizing **CARPIGIANI** machines all over the world.
A significant part of this handbook refers to the conditions necessary to the machine use and to the necessary procedure during cleanout as well as routine and special maintenance.
Nevertheless, this handbook cannot meet all demands in details. In case of doubts or missing information, please apply to:

CARPIGIANI Via Emilia, 45 - 40011 Anzola dell'Emilia (Bologna) - Italy
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HANDBOOK STRUCTURE

This handbook is divided in sections, chapters and subchapters in order to be consulted more easily.

Section
A section is the part of the handbook identifying a specific topic related to a machine part.
Chapter
A chapter is that part of a section describing an assembly or concept relevant to a machine part.
Subchapter
It is that part of a chapter detailing the specific component of a machine part.

It is necessary that each person involved in the machine operation reads and clearly understands those parts of the handbook of his/her own concern, and particularly:

- The Operator must read the chapters concerning the machine star-up and the operation of machine components.
- A skilled technician involved in the installation, maintenance, repair, etc., of the machine must read all parts of this handbook.

ADDITIONAL DOCUMENTATION

Along with an instruction manual, each machine is supplied also with additional documentation:

- **Wiring diagram**: a diagram of wiring connections is placed in the machine.
- **Installation sheet:** To be completed by the installer. Return a copy to the customer, the dealer and the manufacturer in order to activate the machine warranty

Before using the machine read carefully the instruction handbook.
Pay attention to the safety instructions.

CONVENTIONAL SYMBOLS

CAUTION: ELECTRIC SHOCK HAZARD
The staff involved is warned that the non-observance of safety rules in carrying out the operation described may cause an electric shock.

CAUTION: DANGER FROM HIGH TEMPERATURES
This warns the staff involved that failure to abide by safety rules in carrying out the operation described involves the risk of burns and scalds.

CAUTION: MOVING PARTS
This warns the personnel involved about the presence of moving parts and the hazards of injuries if the safety norms are not complied with.

CAUTION CRUSHING HAZARD
This warns the staff involved that failure to abide by safety rules in carrying out the operation described involves the risk of suffering crushed fingers or hands.

CAUTION: GENERAL HAZARD
The staff involved is warned that the operation described may cause injury if not performed following safety rules.

NOTE
It points out significant information for the personnel involved.

WARNINGS
This warns the personnel involved that the non-observance of warning may cause loss of data and damage to the machine.

PERSONAL PROTECTION DEVICES
This symbol on the side means that the operator must use personal protection against an implicit risk of accident.

QUALIFICATION OF THE PERSONNEL SYMBOLS

The personnel allowed to operate the machine can be differentiated by the level of preparation and responsibility in:

MACHINE OPERATOR
Unqualified personnel, without any specific technical abilities, capable of carrying out simple jobs, such as: operating the machine using the commands available on the keypad, the loading and unloading of products used during production, the loading of any consumable materials, basic maintenance operations, (cleaning, simple blockages, inspections of the instrumentation, etc.).

SKILLED ENGINEER
He/she is a skilled engineer, capable of operating the machine under normal conditions; he/she is able to carry out interventions on mechanical parts and all adjustments, as well as maintenance and repairs. He/she is qualified for interventions on electrical and refrigeration components.

CARPIGIANI ENGINEER
He/she is a skilled engineer the manufacturer assigned to field interventions for complex jobs under particular conditions or in accordance with agreements made with the machine's owner.

SAFETY

When using industrial equipment and plants, one must be aware of the fact that moving parts (rotary motion), high voltage components, as well as parts subject to high temperatures may cause serious damage to persons and things.
The persons in charge of safety must ensure that:

- any incorrect use or handling is avoided;
- the safety devices are neither removed nor tampered with;
- the machine is regularly serviced;
- only original spare parts are used, especially in the case of safety-related components (e.g.: protection microswitches, thermostats).
- suitable personal protective equipment is worn;
- high care is taken during hot product cycling.

To achieve the above, the following is necessary:

- at the work station an instruction manual relevant to the machine should be available;
- such documentation must be carefully read and requirements must consequently be met;
- only adequately skilled personnel should be assigned to electrical equipment and machineries; this appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety;
- Make sure that no technician will ever carry out interventions outside his own knowledge and responsibility sphere;
- Children should be supervised to ensure that they do not play with the appliance.

IMPORTANT!
Make sure that the personnel do not perform operations out of their range of knowledge and responsibility (refer to “Qualification of the personnel symbols”).

NOTE:
According to the standard in force, a QUALIFIED ENGINEER is a person who, thanks to:
- training, experience and education,
- knowledge of rules, prescriptions and interventions on accident prevention,
- knowledge of machine operating conditions,
It is able to realize and avoid any danger and has also been allowed by the person in charge of plant safety to carry out all kinds of interventions.

WARNINGS

The machine must be installed in compliance with current installation regulations.
When installing the machine, insert a differential magnetothermal protection switch on all poles of the line (see par. 2.4).

- Never perform operations on the machine using your hands, during both production and cleaning. Before carrying out any maintenance operation, make sure that the machine is in “**STOP**” position and that the main switch has been cut out.
- It is forbidden to wash the machine by means of a jet of pressurized water.
- It is forbidden to remove panels in order to reach the machine internal parts before disconnecting the machine from the power supply.
- The place of installation must not be exposed to water sprays, high moisture, heat or steam sources.
- Do not store explosive substances or spray cans inside the machine, nor aerosol cans containing flammable propellant.
- **CARPIGIANI** is not responsible for any accident that might happen during operation, cleaning and/or servicing of its machines if this warning has not been fully complied with.

1. GENERAL INFORMATION

1.1 GENERAL INFORMATION

1.1.1 Manufacturer identification data

The machine has an identification plate carrying manufacturer data, machine type and serial number assigned when it is manufactured.
A copy of the machine identification plate is found on first page of this handbook.

Model No.
Serial No. Fac.ID.
Volts Phase Hz
Max Breaker Fuse Size
Minimum Circuit Ampacity
Total Load

	DESIGN PRE	OPERATING PRE
HIGH SIDE, PSIG		
LOW SIDE, PSIG		

REFRIGERANT AMOUNT (OZ)
REFRIGERANT

	QTY	VOLT	HP	FLA/RLA	LRA	
COMPRESSOR						
BEATER (HIGH)						
BEATER (LOW)						
FAN MOTOR						

1.1.2 Information on maintenance service

All ordinary maintenance operations are described in section "Maintenance" of this manual; any additional operation requiring technical intervention on the machine must be agreed upon with the manufacturer, who will also examine the possibility of sending one of its own engineers for the intervention.

1.1.3 Information for users

- The machine manufacturer can be contacted for any explanation and information about the machine operation or any modifications aimed at improving the machine's efficiency.
- In case of need, please call the local distributor, or the manufacturer if no distributor is available.
- The manufacturer’s service department is available for any information about operation, and requests of spare parts and service.

1.2 INFORMATION ABOUT THE MACHINE

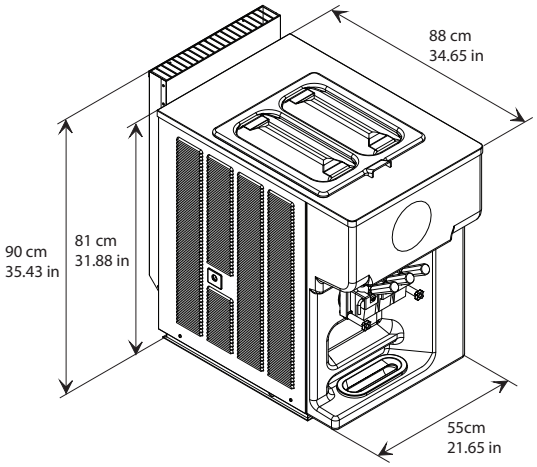
1.2.1 General information

Machines installed on the counter intended for indoor use only and for commercial purposes such as ice cream and pastry workshops.
Counter-top machine to immediately produce and distribute soft express ice cream in two flavours + mixed.
CARPIGIANI recommends to always use high quality mix for ice cream production in order to please even the most demanding customers. Any saving made to the detriment of quality will surely turn into a much bigger loss than the saving itself.

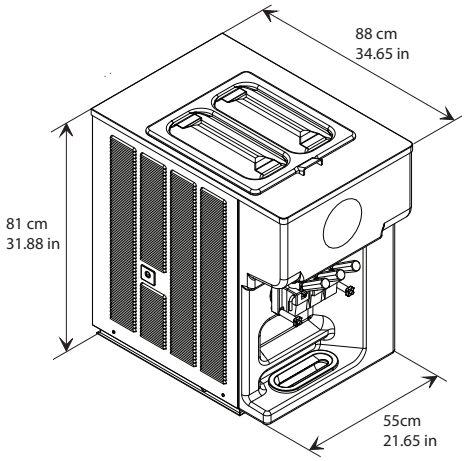
Bearing in mind the above statements, please take into consideration the following suggestions:

- Make your mixes yourselves from high quality natural ingredients or buy them from reliable companies.
- Follow closely instructions given by your mix supplier for the preparation of the mixes.
- Do not alter your supplier's recipes, by adding, for instance, more water or sugar than recommended.
- Taste ice cream before serving it and start selling only if entirely satisfactory.
- Make sure your staff always keeps the machine clean.
- Have your machine serviced always by companies authorised by **CARPIGIANI**.

1.2.2 Machine layout



Air-cooled unit



Water-cooled unit

1.2.3 Technical features

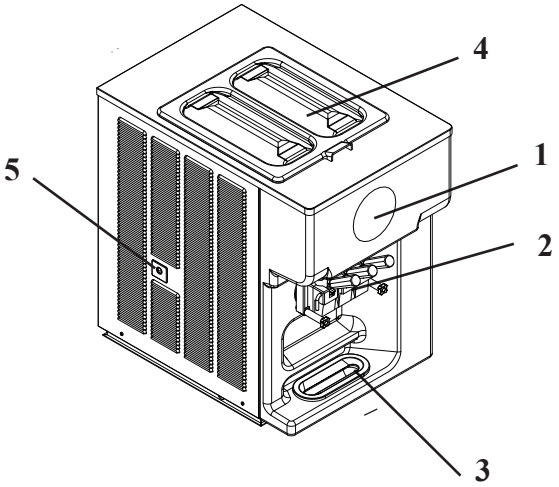
MODEL	Hopper capacity Qts	Flavors	Electrical supply **			Installed power	Net Wight kg/lbs
			Volt	Ph.	Cycles	kW Hp	
193 SP USA	12 + 12	2 + mixed	208-230	3	60	4.24 5.6	210/462

* The hourly production and the mix quantity for each ice cream can vary, according to the temperature and the type of mix used and the increase in volume (overrun) desired.

** Other power supplies are available.

1.2.4 Machine unit location

Key:
1. Control panel
2. Freezing cylinder front lid
3. Shelf
4. Mix hopper cover
5. Drip drawers



1.3 INTENDED USE

The machine must be used solely for the purpose described in chapter 1.2.1, “General information” within the functional limits described below.

- Voltage: .....±10%
- Min. environment temperature.....10°C (50°F)
- Max. environment temperature: .....40°C (104°F)
- Water min. temperature .....10°C / 50°F
- Water max. temperature.....30°C / 86°F
- Water min. pressure .....0,1 MPa (1 bar) - 14 PSI
- Water max. pressure.....0,5 MPa (5 bar) - 72 PSI
- Max air relative humidity: 85%

The machine must not be used for any purpose other than the one it has been originally designed for.

1.4 NOISE

The equivalent continuous A-weighted sound pressure level in a workplace for water-cooled as well as air-cooled machines is less than 70 dB(A).

1.5 MACHINE STORAGE

The machine must be stored in a dry and damp-free place.
Before storing the machine, wrap it in a cloth in order to protect it against dust and other substances.

1.6 DISPOSAL OF PACKAGE MATERIALS

When opening the crate, divide packaging materials by type and dispose of them according to laws in force in machine installation country.

1.7 WEEE (Waste Electrical and Electronic Equipment)

In conformity with the European Directives 2006/66/EC, on batteries and accumulators and waste batteries and accumulators, and 2002/96/EC, also known as WEEE, the presence of the symbol on the side of the product or packaging means that the product must not be disposed of with normal urban waste. Instead, it is the user’s responsibility to dispose of this product by returning it to a collection point designated for the recycling of electrical and electronic equipment waste. Separate collection of this waste helps to optimise the recovery and recycling of any reclaimable materials and also reduces the impact on human health and the environment.
For more information concerning the correct disposal of this product, please contact your local authority or the retailer where this product was purchased.

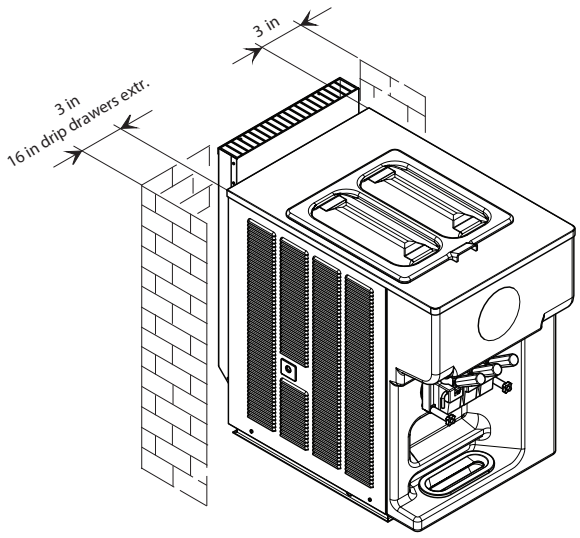
2. INSTALLATION

2.1 ROOM NECESSARY FOR MACHINE USE

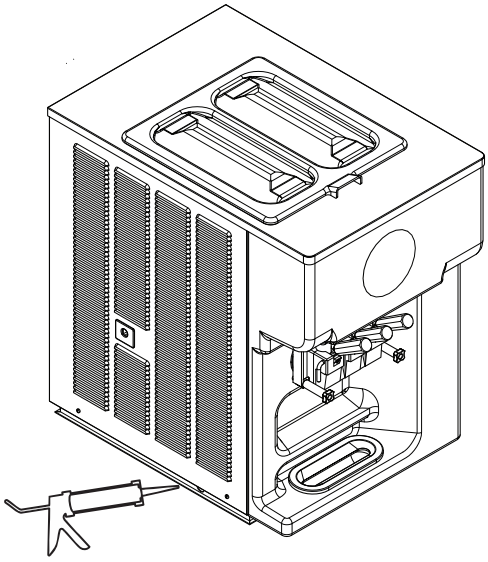
The machine must be positioned at right angles on a horizontal bearing surface (max. tilt: 2°).
The machine must be installed in such a way that air can freely circulate all around.
Enough room must be left free around the machine, in order to enable the operator to act without constraint and also to immediately leave working area, if necessary. There must be a lateral space of nearly 16 in to remove the drip drawers.

WARNING
MACHINES WITH AIR-COOLED CONDENSER must be installed at least 3 in away from any wall in order to allow free air circulation around the condenser.

NOTE
An insufficient air circulation affects operation and output capacity of the machine.



For machines without legs: For proper sanitary operation, its necessary to seal the machine to the counter to prevent liquid spillage on adjacent surfaces of the countertop from passing underneath the machine.
Place the machine on a solid, supportive surface, clean it thoroughly, and apply (NSF approved) silicone sealant around the entire perimeter between the machine and the counter, leaving a small ~1cm gap at the rear side of the machine.



2.2 MACHINES WITH AIR-COOLED CONDENSER

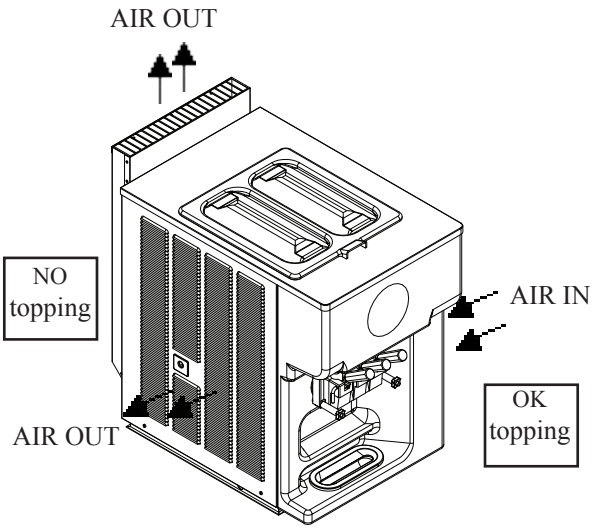
Machines with air-cooled condenser must be installed at least 3 in away from any wall in order to allow free air circulation around the condenser.

NOTE
An insufficient air circulation affects operation and output capacity of the machine.

2.2.1 Air flow

The ***CARPIGIANI 193 SP*** machine is provided with an internal fan which takes fresh air from the right panel of the machine and exhausts the heated air through the left panel and through the stack on the rear of the machine.

WARNING
Do not place topping containers, syrup containers or other products in front of the left panel of the machine because the hot air flow increases the temperature of the products or may melt them.



2.3 MACHINES WITH WATER-COOLED CONDENSER

The machine must be connected to the water supply respecting the applicable national requirements; moreover the water mains pressure must not exceed 0.5 MPa (5 bar - 72 psi). The connection pipes are provided by the installer and must comply with IEC61770. Used pipes cannot be reused. Machines fitted with a water-cooled condenser need to be connected to running water supply or to a cooling tower. Water must have a pressure ranging between 0.1 MPa and 0.5 MPa (1-5 bar 14-72 PSI), and a flow rate at least equal to the estimated hourly consumption.
Connect inlet pipe marked by plate "Water Inlet" to water supply installing a shut-off valve, and outlet pipe marked by plate "Water Outlet" to a drain pipe, installing a shut-off valve.

2.3.1 Water valve adjustment

WARNING
If water valve needs to be reset, this operation will have to be carried out by skilled personnel, only. Valve adjustment must be carried out in such a way that no water flows when machine is off and lukewarm water flows when machine is on.

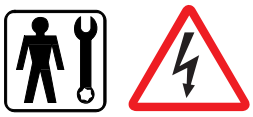
NOTE:
Water consumption increases if temperature of entering water is above 68°F.

WARNING:
Do not leave the machine in a room with temperature below 32°F without draining water from the condenser.

2.4 ELECTRIC CONNECTION

The power supply system must comply with the national regulations in force in the place of installation and provided with an efficient ground connection.
The manufacturer is not responsible for any malfunction or for injury to persons and/or damage to property resulting from connection to a non-compliant electrical system.
The appliance must be installed according to the current regulations for electrical installation, by competent and qualified technical personnel meeting the technical and professional requirements provided for by the legislation in force in the country of installation.
Before connecting the machine to the mains, check that the mains characteristics meet those of the machine specified in the identification plate applied to the machine itself.
Check that the power supply network is provided with a disconnection device, in compliance with the installation rules, ensuring complete disconnection from the mains for each pole (differential circuit breaker), in the conditions of overvoltage category III (IEC 60335-1, ref. 7.12.2). The opening distance of contacts must be at least 3 mm.
Check that the trip level of the differential circuit breaker is ≤ 30mA.
The machine is supplied with power cable; in case of three-phase machine with neutral, the blue conductor of the power supply cable must be connected to the system neutral.

WARNING
The machine is fitted with an electric supply cable including a yellow/green cable, which MUST be connected to an appropriate grounding of the electric system.



2.4.1 Replacing the power cable

If the machine power cable is damaged, replace it immediately with a cable with the same features. Replacement must be carried out by qualified personnel only.

2.5 TOP-UPS

The motor on the machine features life lubrication; therefore, it is not necessary to replace or top up its lubricant. The amount of gas necessary to the freezing system is filled by **CARPIGIANI** during post-production testing of the machine. A new machine should not require any top-ups or replacement. If gas top-up or replacement is necessary, the operation must be carried out exclusively by qualified technical personnel able to establish the cause leading to such need.

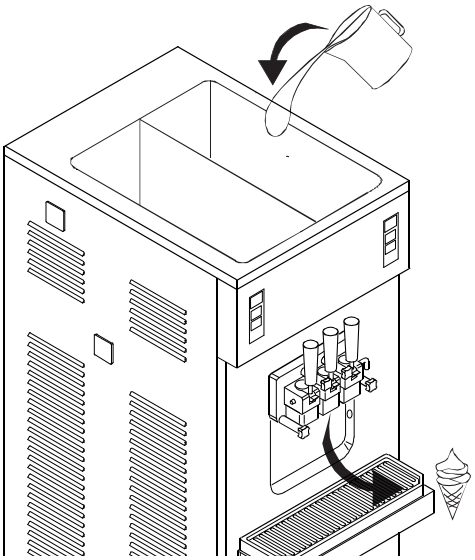
2.6 MACHINE TESTING

The machine is tested after production at **CARPIGIANI**'s premises; the requested operational and production functions are inspected and verified. Machine test at the end user's premises must be carried out by authorised technical personnel or by a **CARPIGIANI** engineer. Once the machine has been positioned and connected to its supply lines, it is possible to carry out the operations required for machine functional check and operating test.

3. INSTRUCTIONS FOR USE

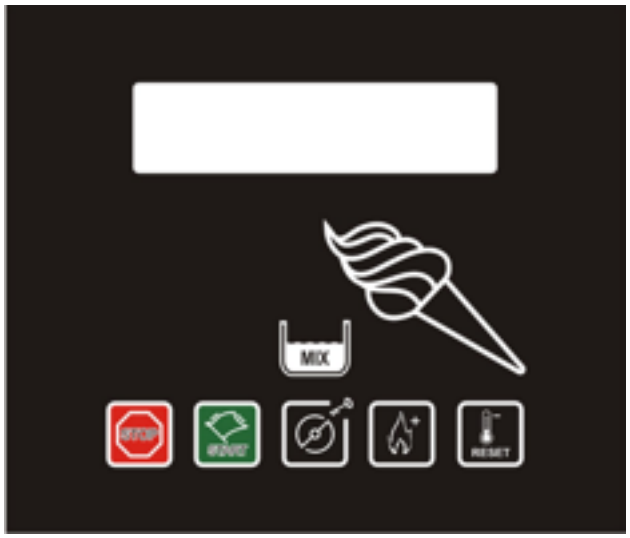
3.1 MACHINE CONFIGURATION

The machine consists of a motor to drive the beater, and a water or air cooling system with condenser.
Soft ice cream is prepared by filling the hopper with cold mix (39°F) and starting the automatic production cycle, until the ideal ice cream consistency set by CARPIGIANI is reached. Thanks to the pump, the mix enters the freezing cylinder already mixed with air; ice cream is produced only when it needs to be served. The spigot handle allows a single portion of soft ice cream to be distributed. At the same time, the same amount of mix moves from the top hopper into the freezing cylinder.



3.2 ELECTRONIC CONTROL KEYBOARD AND BUTTON FUNCTIONS

Details of the panel are shown in the picture below.



Display
On turning the machine on and during its operation, a series of messages are displayed on the screen.

Led indicators
A led indicator lights up when the function corresponding to the symbol onto it is activated.

STOP key
In this function, your machine is off and relevant (backlit) led is on. From Stop position you can enter any machine function. To change function, IT IS always NECESSARY to first go back to STOP. On the display:

10:33:21 Fri

If you leave the machine in Stop when mix is above the level sensor, the message “Why in STOP ??” will be displayed after 30” so as to alert the user to set the machine to Production or Storage mode.

PRODUCTION key
The Production function can only be entered if the mix has not reached the low level. The product is cooled in the cylinder till its programmed consistency is reached (HOT).

As soon as you enter Production, you also enter a menu through which you can set the type of product you wish to serve from each of the two sides, i.e., SoftIce (custard), WaterIce (fruit) or Yogurt; the following is then displayed:

SoftIce SoftIce

This window shows the type of product served from each of the two sides:
SoftIce (left) = side 1 produces SoftIce
SoftIce (right) = side 2 produces SoftIce

What has been illustrated is the first page of the menu; by pressing and holding the Production key you access the following combinations, specifically:

SoftIce WaterIce (Custard in side 1 and Fruit on side 2)
SoftIce Yogurt (Custard in side 1 and Yoghurt in side 2)
WaterIce SoftIce (Fruit in side 1 and Custard in side 2)
WaterIce WaterIce (Fruit in side 1 and Fruit in side 2)
WaterIce Yogurt (Fruit in side 1 and Yoghurt in side 2)
Yogurt SoftIce (Yoghurt in side 1 and Custard in side 2)
Yogurt WaterIce (Yoghurt in side 1 and Custard in side 2)
Yogurt Yogurt (Yoghurt in side 1 and Yoghurt in side 2)

If one side is disabled the only option allowed and displayed in the menu is the choice of the type of product in the active side.

Once the desired combination is displayed, wait for 3 seconds (without disturbing any key) and the machine will automatically enter the selected type of production, and load the relevant settings.

Now system will automatically enter Production mode and the following will be displayed:

Ready! TEV 39°F W-3

The first line indicates whether ice cream is ready to be dispensed (Ready!) or not yet (Do not Serve!).
If the message is Do not Serve!, it means that ice cream has not yet reached its programmed consistency and you shall consequently wait.
The second line indicates the hopper temperature and the number of days to next machine wash. The example above shows there are 3 days to next wash. By pressing Production you pass to the various “windows” or screens hereafter described:

Hopper 🡻 57°F 🡻 59°F 🡻 55°F

The first line (top) of this window shows the Hopper temperature:
🡻 = on, when cooling the hopper 57°F=temperature in the hopper (TEV)
The second line shows the temperature of the two Cylinders:
🡻 left = on, when cooling cylinder 1 59°F=temperature in cylinder 1 (TEC1)
🡻 right = on, when cooling cylinder 2 55°F=temperature in cylinder 2 (TEC2)

Hot=085 Hot=085 Set=100 Set=100

The first line (top) of this window shows the following:
HOT=085: reading of current consistency in the cylinders of both sides
The second line shows the following:
Set=100: Set HOT for both sides (left side 1, right side 2)

Today’s Cones 12345

This window shows the Cones of the day (starting 0:00 to 23.59):
12345 = number of cones dispensed in the day

Total Cones 0923456780

This window shows the no. of total Cones:
0923456780 = number of total cones dispensed.

TC1 +013 TC2 +013
TE1 -012 TE2 -012

This window shows the sensors (neither °C nor °F are displayed):
TEC = Cylinder Thermostat (1 = side 1, 2 = side 2)
TE = Evaporator Thermostat (1 = side 1, 2 = side 2)

TEV+014 TGV-022
HOT MC +030

This window shows TEV and TGV probes on the first line : TEV = hopper thermostat; TGV = hopper ice thermostat

The second line shows compressor motor absorption (HOT MC). See steps T31 and T32.

By pressing Production again, you go back to the initial screen.

CLEANING key
Press Cleaning once and the following is displayed:

TC1 +014 TC2-010
Beat.+Pump ON

Both beater and pumps are activated for 30 seconds or until STOP is pressed.

Press Cleaning a second time and the following is displayed:

TC1 +014 TC2-010
Pump ON

Only pumps remain active, whereas the beater is disabled.

Press Cleaning a third time and the following is displayed

TC1 +014 TC2-010
Beater ON

The beater is activated and the pumps are disabled.

Press Cleaning a fourth time and the following is displayed:

TC1 +014 TC2-010
Beat.+Heat.

The beater remains active and the cylinder heating is enabled until reaching the set temperature.

This machine has an automatic system commanding the wash of parts in contact with food products every 3 days. This system, called "WASH", inhibits the production at the end of the 3rd day.

KEYBOARD LOCK Function
In order to clean the keyboard with a clean cloth, it is recommended to lock the keys on the board as follows:

Press the key  for 3 seconds, the check lamp will blink to indicate that the keyboard is now locked. You can clean it, now, with no risks. To unlock, press again for 3 seconds and the check lamp will switch off.

STORAGE key
By pressing the Storage key, the product is conveyed into the hoppers and into the cylinders at a temperature of 39°F.

PASTEURIZATION key

This program will never start if the mix in one of the hoppers has reached the low level. If the lowest level in the right-hand hopper is not covered, the display shows "MIX OUT 2", if the lowest level in the left-hand hopper is not covered, the display shows "MIX OUT 1", if both are not covered, the display shows just "MIX OUT 1"; the led MIX lights and an acoustic signal will play continuously. The pasteurization process takes place every day at 2:00 (if programmed).

AUTOMATIC PASTEURIZATION CYCLE: while the machine is in production mode and the mix is over the mean level, the automatic heat treatment cycle will automatically start at a certain time (as a rue, at 2,00).

During the Pasteurization cycle, the mix in the hopper and in the cylinder is heated till 149°F are reached, it is then held at this temperature for 30 minutes and, last, cooled down to 39°F.

At the end of the cycle, the display shows the message "Pasto End" as well as the date and time of operation end. The machine will then automatically pass to the STORAGE function.

For icecream to be served, press STOP and soon after PROD.

Manual start of the Pasteurization process (if the step "Pasto Start Time" has not been set) requires you to press the Pasteurization key and hold it 5 seconds down.

NOTE:

Once it has started, the pasteurization cycle cannot be stopped. The complete cycle takes about 2 hours. During the heat treatment and Pause, the mix inside the machine is very hot, so neither try to take it out, nor to disassemble the machine.

WARNING

Neither serve ice cream, nor disassemble the machine during the heat treatment because the product is very hot and under pressure.

Level

If the mix in left hopper falls below the minimum level, "Mix Out 1" displays steadily on the first line, if the mix in right hopper falls below the minimum level, "Mix Out 2" displays steadily on the first line, finally if both levels fall below the minimum level, only "Mix Out" displays steadily on the first line .

In all these cases the low level hopper led on the keyboard lights up MIX and the buzzer beeps continuously.

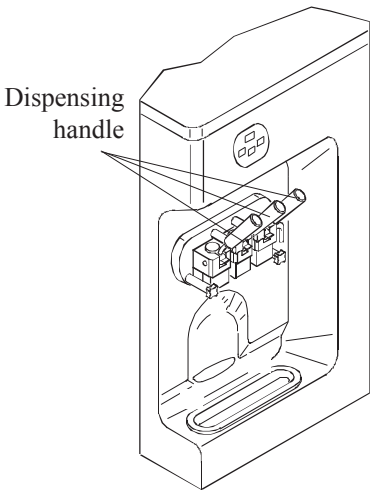
The second line displays the number of cones that can be drawn (Last Cones) before the machine automatically sets to Storage.

NOTE:

When the "Mix Out!" message is on, it is not possible to enter the following Production or Pasteurization pages.

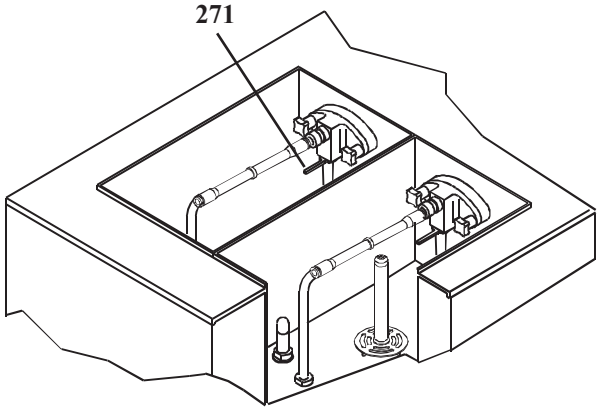
3.3 SPIGOT HANDLE

In order to dispense the product, place a cup or a cone under the spout and slowly pull down the dispensing handle. As soon as the product comes out, twist the cup or the cone to form a cone-shaped serving. When the portion has reached the desired size, close the dispensing handle and quickly pull the cone or the cup down in order to sharpen the tip.



3.4 PUMP FEED MACHINE - “R” PUMP

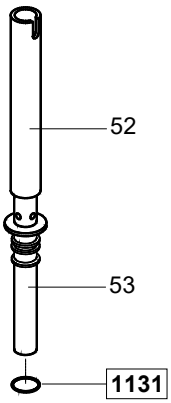
“R” pump allows, by changing position of regulator pos. 271, to vary proportions between air and mix conveyed to the freezing cylinder; so, within certain limits, it allows overrun adjustment depending on the mix used.
“R” pump regulator should be set to the middle position.
If, after dispensing a significant number of cones, ice cream is too heavy and wet, you may move R pump regulator a notch at a time towards the right. If ice cream comes out of spigot mixed with air bubbles, then turn R pump regulator a notch at a time towards the left.



3.5 GRAVITY-FED MACHINE - FEEDING NEEDLE

How to obtain and how to keep top quality performance in time.

1. Maintain a high mix level inside the hopper (more than half of the hopper). During production and storage, mix temperature inside the hopper is 39°F.
2. During the day, the mix must be periodically stirred by use of a plastic spatula to avoid separation, particularly when product has not been dispensed for a long time and the machine has been in "storage" mode for a long time.
3. A fluid mix without particles must be used. A thick mix with big particles could close the slot of the feeding needle thus blocking mix from entering the cylinder.
4. Keep the feeding needle slider (pos. 52) in a position as to allow for a smooth mix flow from the hopper. By rotating the slider slot to the hole with smaller diameter, the quantity of mix to the hopper will decrease, and vice versa.
5. Set the feeding needle in such a way that inlet hole is turned towards the middle of the hopper.
6. Never exceed production limits declared by Carpigiani in par 1.2.3, and dispense cones and cups in the most regular way. If limits in production capacity as specified by Carpigiani are exceeded the machine could stop. In this case the alarm signal "ICE" is displayed. If this occurs, reset the machine as follows.
   - stop the machine (STOP position)
   - remove the feeding needle to enable the mix to quickly drop into the cylinder
   - set machine in the "cleaning" position for a few minutes
   - make sure that the product coming out from the spigot body is liquid
   - reposition the feeding needle making sure the slider is sufficiently open
   - restart the machine setting it in "PRODUCTION" mode. Do not start dispensing product until the production cycle is completed.



3.6 PRELIMINARY OPERATIONS, WASHING AND SANITISING

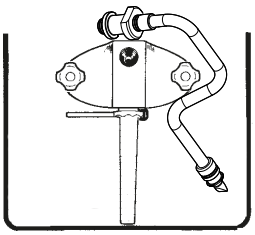
Before starting the machine for the first time, it is necessary to thoroughly clean its parts and sanitise all parts coming into contact with the mix. See section 5.

3.7 MACHINE START-UP

After installing the machine according to the instructions given in the chapter **INSTALLATION**, and after carefully cleaning and sanitizing the machine, proceed as follows:

3.7.1 Pump-fed machines

Remove the hopper cover and place it on a sanitized cloth. Remove the pressure pipe from the bottom of the hopper and place it on the pump body.

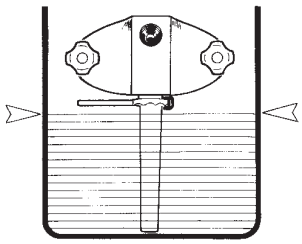


Prime Hopper:

- Take one bag of mix from the refrigerator.
  NB.: Mix to be poured at a temperature of 39-41°F.
- With the dispensing lever open, pour mix into the hopper allowing it to drain into the cylinder.
- When a small amount of full strength mix (not mix and sanitizing solution) is flowing from the spigot door, close the spigot door lever.

Connecting the pressure pipe:

- Keep pouring the mix until the cylinder has been filled (bubbles shall be visible in the hopper while filling); with clean and sanitized hands, take the pressure pipe and insert it in the bottom of the hopper.
- Turn pressure pipe clockwise towards pump, and connect it to pump; turn connecting pipe (pos. 207) to lock it in place. Mix inside hopper shall never reach the pump (see the picture);
- Place hopper cover back.
- Select production function.



WARNING

Once the mix is poured in the hopper, the suitable lid must be used so as to keep it at the correct temperature and to minimize the risk of contamination

3.7.2 Gravity-fed machines

Remove the hopper cover and place it on a sanitized cloth. Remove the feeding needle from the hopper bottom and place it on a sanitized cloth.

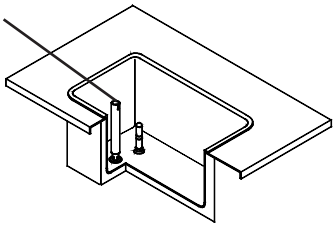
Prime Hopper:

- Take one bag of mix from the refrigerator.
  NB.: Mix to be poured at a temperature of 39-41°F.
- Lower the dispensing lever and start pouring mix in the hopper to allow it to drain also into the cylinder.
- When a small amount of full strength mix (not sanitizing) is flowing from the spigot door, move the lever to its original position and close the spigot door lever.

Connect the feeding needle:

- Keep pouring the mix until the cylinder has been filled (bubbles shall be visible in the hopper while filling); with clean and sanitized hands, remove the feeding needle from the sanitized cloth and insert it in the hopper bottom. The level of mix in the hopper must never exceed the height of the feeding needle (see figure);
- Place hopper cover back
- Select production function

Feeding needle



3.8 PRODUCTION

Dispense ice cream without exceeding maximum production rate, as shown in the table on page 10; if you keep within this production rate and refill the machine with fresh mix, the machine will never stop functioning, even during rush hours.
When the first line of the display reads "Mix Out 1", this means that the minimum level of left-hand hopper is uncovered and therefore, that it is essential to add mix because the machine will dispense a maximum of 5 more cones before entering Storage mode automatically. If the minimum level is uncovered in the right-hand hopper, the first line of the display will read "Mix Out 2". If both levels are uncovered, the display will read "Mix Out".

In all of these cases, the LED 

will switch on and an acoustic signal will sound continuously. The second line of the display will show the number of cones that can still be dispensed.
Out of business hours, keep machine set at STORAGE by pressing the STOP key and the STORAGE key. You will also save a lot of electricity because the compressor runs only when necessary in order to store the product at the right temperature. On reopening the shop, just set the machine at PRODUCTION and the machine will be ready within a few minutes.
If, after a power failure, the machine has not been working for a long time, it is indispensable to check the product temperature before starting service again; if it is above 43°F, empty, wash and sanitise the machine, then refill it with fresh mix at 39°F.
The PRODUCTION function features 9 options for different product combinations in both hoppers. These options can be selected by pressing the PRODUCTION key (holding the key down for 3 seconds) several times after entering the function, within 30 seconds. Functions list:

Left side	Right side
SOFTICE	SOFTICE
SOFTICE	WATERICE
SOFTICE	YOGURT
WATERICE	SOFTICE
WATERICE	WATERICE
WATERICE	YOGURT
YOGURT	SOFTICE
YOGURT	WATERICE
YOGURT	YOGURT

3.9 PASTEURIZATION

This machine is pre-set to the daily automatic execution of both tanks and cylinders mix Pasteurization.
Product inside the tank must anyway be over the half of tank capacity (level covered).
The machine automatically executed heating and cooling programs and then stores the product at +39°F.
This Pasteurization can anyway be executed manually: to this purpose, it is necessary to first press STOP and then act on the SELECTION key till the PASTEURIZATION led will switch on.
In the event of a black-out during the pasteurization cycle, the machine will automatically carry out the program. On reopening your shop, press STOP and then select the production function; within a few minutes ice cream will reach its right consistency to be served.
In the event of extended power failure, it is utmost necessary that, before dispensing ice cream again, the temperature of the mix inside the tank is checked, so as to pasteurize the mix in case it is beyond 43°F. If the power failure lasts several hours, it is then necessary to clean the machine and refill with fresh mix.

3.9 OPEN PROCEDURE

Once the heat-treatment cycle has been completed, if no malfunction has occurred, the message “end” appears on the display. This indicates that the heat-treatment process has been correctly completed without interruptions.
Press “STOP” button.

WARNING
If the heat-treatment cycle was not correctly completed, an alarm code will be displayed on the screen. THE MIX HAS NOT BEEN correctly PASTEURIZED.
Call for service if necessary. After the alarm problem has been corrected, set the machine to PRODUCTION by pushing SELECTION button to restart heat cycle.

3.9.1 Sanitize the door area

- Prepare a water and cleaning/sanitizing solution following the instructions shown on the label of the product being utilized.
- Soak a brush in the sanitizing solution and brush ice cream outfeed hole and the whole area around the spigot door several times.
- Spray the sanitizing solution on the ice cream outfeed hole and the whole area around the spigot door.
- Wash, rinse and sanitize drip tray, drip drawer and hopper cover.
- Wipe the exterior of the machine and the hopper area with a clean sanitized towel.

3.9.2 Start the machine

Press the PRODUCTION button. The led light is on. Within a few minutes the product is ready to be served

3.10 CLOSE PROCEDURE

3.10.1 Sanitize the door area

- Prepare a water and cleaning/sanitizing solution following the instructions shown on the label of the product being utilized.
- For machines with unscrewable nozzles, using the suitable supplied tool, unscrew the spigot door nozzles unit, remove them from the spigot door and pull the O-Rings out.
- Soak a brush in the sanitizing solution and brush ice cream outfeed hole and the whole area around the spigot door several times.
- If present, reassemble the nozzles on the door.
- Spray the sanitizing solution on the ice cream outfeed hole and the whole area around the spigot door.
- Wash, rinse and sanitize drip tray, drip drawer and hopper cover.
- Wipe the exterior of the machine and the hopper area with a clean sanitized towel.

3.10.2 Prepare the machine for the overnight heat treatment cycle

- Verify the mix level; refill mix as required. The level LED on the control panel must be OFF. DO NOT FILL ABOVE THE THE FEEDING NEEDLE HEIGHT.
- Make sure that the machine remains in “PRODUCTION” mode LED is ON.

3.12 USER PROGRAMMING

To enter in User Programming, press STOP and RESET key at the same time till the message "MANAGER MENU" is displayed, then release.

Press Stop to enter in the next step Increment  or Decrement 

when you want to change the value. See programming table.

t

In order to leave the programming mode, do not touch any key for 15 seconds, or just press PRODUCTION or CLEANING. The machine will now return to STOP.

Step	Display ITA	Display ENG	Min	Max	Default
U01	Ore	Hours	00	23	
U02	Minuti	Minutes	00	59	
U03	Giorno Settimana	Day of Week	SUN	SAT	
U04	Giorno del Mese	Day of Month	01	31	
U05	Mese	Month	01	12	
U06	Anno	Year	2000	2099	
U07	Linguaggio	Language	ITA	DEU	ENG
U08	Ora avvio distribuzione	Start prod time	00	23 + NO	08
U09	Ora avvio pastorizzazione	Start pasto time	00	23 + NO	02
U10	Abilita beep liv.	Lev. beep enable	NO	YES	YES
U11	Lato attivo	Active side	01	03	03
U12	Disp. 12 ore	12 Hour Clock	No	Yes	No
U13	Conserv.autom	Autom. Storage	No	Yes	No
U14	Prodotto Lato Sx	Left Side Prod.	SoftIce	Yogurt	SoftIce
U15	Prodotto Lato Dx	Right Side Prod.	SoftIce	Yogurt	SoftIce
U16	HOT 1	HOT 1	000	120	100
U17	HOT 2	HOT 2	000	120	100
U18	HOT 1 Frutta	HOT 1 Fruit	050	080	060
U19	HOT 2 Frutta	HOT 2 Fruit	050	080	060
U20	HOT 1 Yogurt	HOT 1 Yogurt	000	120	080
U21	HOT 1 Yogurt	HOT 1 Yogurt	000	120	080
U22	Extra Agitaz.Vas	Extra Hop.Agit.	No	Yes	No

U08 Start Prod. Time
Time setting of the automatic Distribution start. If set to NO, the automatic Distribution will be disabled.

U09 Start Pasto-Stor
Setting of the time at which automatic Pasteurization will start if U13 -Autom.Storage is set to No or at which automatic Storage will start if U13 -Autom.Storage is set to Yes.
If set to no, both automatic Pasteurization and automatic Storage are disabled.

U10 Lev. Beep Enable
If set to YES, an intermittent beep will be emitted when the product is below the medium level, except in Stop mode, where it remains OFF even if enabled.

U11 Active Side
Three settings are available (1, 2 or 3). Set the active side:
1= LH; 2= RH; 3= both

U12 Disp. 12 Hour Clock
Yes = enables display of 12-hour time format
No = displays 24-hour time format

U13 - Autom.stor.
Non pasteurizing machine: step not used.
Storage time is set in step U09.
Pasteurizing machine:
if U13=no, Pasteurization starts at the time set in step U09
if U13=yes, Storage starts at the time set in step U09

U14 - Left Side Product
Identifies the type of product on the left side: Custard, Fruit or Yoghurt.

U15 - Right Side Product
Identifies the type of product on the right side: Custard, Fruit or Yoghurt.

U16 HOT 1
Side 1 (left) HOT value. Indicates the reference value when step U14 is set on Custard.
Increasing this number also ice cream hardness and beater motor absorption value will increase.

U17 HOT 2
Side 2 (right) HOT value. See previous step.

U18 - HOT 1 Fruit
HOT value in case of Fruit production in side 1 (step U14 set on Fruit).
Increasing this number also ice cream hardness and beater motor absorption value will increase.

U19 - HOT 2 Fruit
HOT value in case of Fruit production in side 2 (step U15 set on Fruit).
Increasing this number also ice cream hardness and beater motor absorption value will increase.

U20 - HOT 1 Yoghurt
HOT value in case of Yoghurt production in side 1 (step U14 set on Yoghurt).
Increasing this number also ice cream hardness and beater motor absorption value will increase.

U21 - HOT 2 Yoghurt
HOT value in case of Yoghurt production in side 2 (step U15 set on Yoghurt).
Increasing this number also ice cream hardness and beater motor absorption value will increase.

U22 - Extra Hop. Agit.
When set on Yes, it enables hopper periodical beating.

4. SAFETY DEVICES

4.1 ALARMS

The machine is provided with a self-CHECK device to indicate possible troubles.
The display shows the type of Alarm occurred. An acoustic signal will also warn the operator.
Press RESET in order to delete the alarm from display.
Use the table below for troubleshooting.
The machine can be used in Production mode also when a non-critical alarm has taken place; while if the alarm is a critical one, the machine will not allow you to enter production and it is necessary to press STOP and not to use the machine until repaired. Alarms are listed in the table below:

ALARM	DESCRIPTION
All. Sonda Vasca **Al. Hopper Probe** **(TEV1)**	Left hopper probe fault. Since the alarm is critical the machine Stops during Production, Storage, and Pasteurization.
All. Sonda Vasca2 **Al. Hopper Probe** **(TEV2)**	Right hopper probe fault. Since the alarm is critical the machine Stops during Production, Storage, and Pasteurization.
All. Sonda Cil.1 **Al. Cyl. 1 Probe** **(TEC1)**	Cylinder 1 probe fault. This is a critical alarm: consequently, the machine sets at Stop, from the Storage and Pasteurization modes; it stays in the same function when in production mode, because consistency is controlled.
All. Sonda Cil.2 **Al. Cyl. 2 Probe** **(TEC2)**	Cylinder 2 probe fault. This is a critical alarm: consequently, the machine sets at Stop, from the Storage and Pasteurization modes; it stays in the same function when in production mode, because consistency is controlled.
All.Sonda Gh.Vas **Al. IceHop.Probe** **(TGV)**	Hopper evaporator probe fault. This alarm does not cause the machine to stop (it keeps on running in the current function).
All.Sonda Evap.1 **Al. Evap. 1 Probe** **(TE1)**	Cylinder 1 evaporator sensor alarm. This alarm does not cause the machine to stop (it keeps on running in the current function).
All.Sonda Evap.2 **Al. Evap. 2 Probe** **(TE2)**	Cylinder 2 evaporator sensor alarm. This alarm does not cause the machine to stop (it keeps on running in the current function).
Al. Scambio Term. **Al. Heat. Exchange** **(DELTA TGV-TEV)**	In Pasteurization Heating mode, if the TGV temperature becomes > than the TEV value programmed in step DELTA TGV-TEV, "Al. Heat.Exchange" is displayed and the machine sets to Stop mode. Check the drive belt or verify that the agitator is properly positioned. Warning: this alarm is not active if one of the two TEV or TGV probes is inhibited.
Attendi **(Non Servire !)** **Wait!** **(Do Not Serve !)**	In Production, every time consistency value is below the one programmed in step Hot Block, cone red led lights up to indicate wait for ready ice cream and “Wait” is displayed. If, in such a case, you try to dispense cones, all units stop (MA, MC, EVFC and MP) and an intermittent beep will be emitted until the photocell is no longer busy. As soon as it is released, both MA and MC re-start in order to bring ice cream to its proper consistency.
All.Pist. aperti Piston opened	"Piston opened" alarm (active only with T79=Yes) indicates an open or missing piston in the spigot door. To reset the alarm, close pistons with spigot door assembled, to acknowledge the actual presence of pistons. The alarm may reoccur after an IMS or a power failure. This alarm prevents access to any function.
Autosetup Forced	Indicates that programming table forced Autosetup was performed during switch-on. The message is displayed for 5 seconds and stored in the events log. Check programming table parameters.
Autosetup Manual	Indicates that programming table Autosetup was performed by pressing the Reset/Storage key during switch-on. The message is displayed for 5 seconds and stored in the events log.

ALARM	DESCRIPTION
Chiudi Leva SX/ DX/Cent Close L/R/Mid Handle	In Production it warns that MIR has been engaged for more than 15". In this case it is necessary to dispense a cone by pulling the relevant lever (left, right or middle) all the way down and reposition it in the closed position. If when the machine switches to Production, MIR is already engaged, the signal is activated immediately.
Ghiaccio Cil 1-2 x10 Ice Cylinder1-2 x10 (ICE)	Cylinder defrost read by TE1 - TE2 probes. In Production, if one of the two TE falls below the value set in step Ice Cylinder, the machine sets to HOT reached position and stores the Ice Cylinder 1 x10 alarm or the Ice Cylinder 2 x10 alarm among the events (storage is carried out every 10 alarms logged). This alarm may be due to insufficient mix feeding into the cylinder. Check the efficiency of the pump. When the cylinder temperature raises again, the alarm is reset. If, instead, the alarm is displayed in Stop mode, it is necessary to check/ replace the relevant TE probe, because the readable temperature end of scale is read by the CPU.
Invertire Fase Switch Phases!	It is necessary to invert the 2 phases on the three-phase cable so that the beater turns in the correct direction. The alarm is reset by pressing the Reset key (after having inverted the 2 phases). This condition is tested for only 1 minute after the machine is turned on.
L -nn g W -nn g (Wash)	In Production, “TEV 39°F W -nn” is displayed, meaning that there are still nn days to the machine wash. A forced washing may be required if the machine is left in Stop mode for 24 hours with mix above the minimum level.
Mancata tensione Power On	Power supply resumed after power supply failure. Blackout table is checked if the machine was in Pasteurization or Production mode. The event is logged in any function and stored in the events.
Mix Esaurita 1 - 2 Mix Out Left - Right	The display indicates Mix Out when the mix is below the level sensor. When the mix is low and in Production a number of cones equal to or higher than the value set in step Last Cones will be distributed, not only will Mix Out be displayed, but also the machine will remain in Production with outputs Off in consistency reached status (the cylinders are maintained with TEC and the hopper with TEV).
Modalità Provv. Temporary Mode	This message is displayed at the end of pasteurization if, during heating, the Overload Beat. alarm occurs or the Set HOT value has been reached repeatedly. See the paragraph relevant to Pasteurization.
MWG OK MWG OK	For the machines featuring the TEOREMA teleservice system, upon machine installation, in STOP function, press the increase key for 10” in order to check the connection to the teleservice control unit. Message “MWG OK” indicates successful operation. This check can be repeated every time the data transmission check between TC control unit and teleservice control unit, also known as MWG control unit, proves to be necessary and operator must make sure to turn machine power off and back on before carrying out this test.
NO MWG NO MWG	It indicates that the aforementioned test has been unsuccessfully performed.
Pastorizzare ! Pasto needed !	When the machine is in Stop mode with low level sensor covered for more than 60 minutes TEV temperature is checked. If one of TEVs (TEV1 or TEV2) is equal to or higher than 59°F, Pasteurization is necessary. In this situation, when Production is pressed the machine will automatically start Pasteurization unless the spigot has been opened and closed. In this case, the test TEV ≥ 59°F is inhibited for 60 minutes and Production is accepted. In all cases, if TEV1 and TEV2 are lower than 59°F then all functions are allowed, without time limits.

Perchè in STOP? **Why in STOP ??**	If the machine is left in the Stop position with mix above the minimum level, after 30 seconds the flashing message “Why in STOP?” will be displayed and an intermittent beep will be emitted. This alerts the operator to select either Production, Pasteurization, or Storage mode. The above mentioned message will be deleted by entering in Production, having low mix level, or pressing Reset (Stor.) key. To have the message back on the display, enter again in Production, Storage or Pasteurization.
Portello Aperto **Spigot Opened** **(IMS)**	Magnetic Safety Switch. If opened for 10 seconds, it resets the Wash message. Opening the IMS also resets the Pasteurization flag, so if the machine was Pasteurizing, by opening and closing the spigot the operator can access Production directly.
Pressostato **Pressure Switch** **(PR)**	Pressure switch triggered. The machine Stops: - if it is triggered for the third time within 1 hour - if the pressure switch contact remains open for two consecutive minutes If the machine was in Pasteurization, the Pasteurization must be repeated. Check the flow of the cooling water.
Term.Sicur.Cil.1 **Safety Therm.C.1** **(TESC1)**	Cylinder 1 safety thermostat triggered. The alarm is triggered only during cylinder heating in Pasteurization, with TEC1 > 68°F Machine sets to Stop mode. - For PSP only -
Term.Sicur.Cil.2 **Safety Therm.C.2** **(TESC2)**	Cylinder 2 safety thermostat triggered. The alarm is triggered only during cylinder heating in Pasteurization, with TEC2 > 68°F Machine sets to Stop mode. - For PSP only –
Term.Sicur.Vasca **Safety Therm.Hop** **(TESV)**	Hopper safety thermostat triggered. Machine sets to Stop mode. - For PSP only –
Termico Agitat.1 **Overload Beat. 1** **(PTMA1)**	Thermal cutout (bimetallic) for beater motor of cylinder 1 triggered (see also the description of step T66, below). Machine sets to Storage mode. With thermal cutout tripped the cylinder heating and cooling solenoid valves are disabled.
Termico Agitat.2 **Overload Beat. 2** **(PTMA2)**	Thermal cutout (bimetallic) for beater motor of cylinder 2 triggered (see also the description of step T67, below). Machine sets to Storage mode. With thermal cutout tripped the cylinder heating and cooling solenoid valves are disabled.
Termico Compres. **Overload Compres** **(PTMC)**	Overload Compressor Motor. Machine sets to Stop mode.
Timeout Prd.1 - 2 **Timeout Prd.1 - 2**	During Production the amount of time for which the beater motor runs is closely monitored. If the beater motor stays ON for 10 minutes (Timeout Prd.) and Hot is not reached, the machine switches to "HOT reached" mode and a "Timeout Prd." alarm is saved in the events log. The timer is reset at MIR and when MA is turned on. Check the quantity of mix in the cylinder, the hopper pump and the refrigeration apparatus.

NOTE:
Alarms “Safety Therm.C.” “Overload Beat.” "Al. Cyl.Probe” “Al. Evap. Probe” “Ice Cylinder” “Timeout Prd” “No more Cones” concern each individual side and are disabled if the relevant side is not active.

4.2 NO POWER SUPPLY

If there is a blackout when machine is in Cleaning mode, it will go to Stop when the power comes back on.

If the machine was in Pasteurization heating phase or pause, when power returns the machine will continue with the function it was performing when power went off. The display will show the message Mancata Tensione - Power On.

If the machine was in Pasteurization Cooling phase, when the power returns the machine will check the TEV temperature and the duration of the blackout. If the length of time is greater than the duration indicated in the table, the machine will completely repeat the Pasteurization cycle, memorizing the alarm “Mancata Tensione” or “Power On” in the event log.
Instead, if the time is lower than that indicated in the table below, the machine will return to the function that was in progress at the time of the blackout.

TEV Temperature	Time
154°F ÷ 122°F	30 minutes
120°F ÷ 59°F	10 minutes
57°F ÷ 50°F	20 minutes
48°F ÷ 39°F	2 Hour Clock

If the machine was in Production or Storage mode, when power comes back on, the machine checks the TEV temperature (considering the higher between TEV1 and TEV2) and if it is below a level set by the manufacturer then the machine sets to the same function as before, showing the “Power On” alarm on the display. If TEV is greater than this value and the time exceeds the values in the table above, the Pasteurization cycle will be repeated.

5. CLEANING, DISASSEMBLY AND REASSEMBLY OF PARTS IN CONTACT WITH THE PRODUCT

5.1 GENERAL INFORMATION

Cleaning and sanitisation are operations that must be carried out habitually and with maximum care at the end of each production run to guarantee the production quality and respect the necessary hygienic norms.
Giving dirt the time to dry out can greatly increase the risk of rings, marks and damage to surfaces. Removing dirt is much easier if it is done immediately after use because there is the risk that some elements containing acid and saline substances can corrode the surfaces. A prolonged soaking is not recommended.

5.2 WASHING CONDITIONS

- Avoid using solvents, alcohol or detergents that could damage the component parts, the machine or pollute the functional production parts.
- When manually washing never utilise powder or abrasive products, abrasive sponges or pointed tools. There is a risk of dulling the surfaces, removing or deteriorating the protective film that is present on the surface and scoring the surface.
- Never use metal scouring pads or synthetic abrasives that could cause oxidisation or make the surfaces vulnerable to attack.
- Avoid using detergents that contain chlorine and its composites. The use of these detergents such as bleach, ammonia, hydrochloric acid and decalcifiers can attack the composition of the steel, marking and oxidising it irreparably and causing damage to the parts made from plastic materials.
- Do not use dishwashers and their detergent products.

5.3 TIPS

- Perform all washing and refitting operations using disposable gloves and replacing them when required.
- Use a non-aggressive detergent solution to wash the parts.
- Manually wash the parts in water (max 140°F) using a non-aggressive detergent and the cleaning brushes supplied as standard.
- Use drinking water (bacteriologically pure) to rinse the parts.
- To sanitize leave the disassembled parts in sanitized tepid water for 10-15 minutes (use the sanitizing product following the instructions of the manufacturer; the type and concentration of sanitizing agent shall comply with 40 CFR §180.940 for example Kay-5 sanitizer) and rinse them before reassembling.
- When the washing procedure has been completed and before the reassembly of each component dry thoroughly with a clean and soft cloth that is suitable for coming into contact with foodstuffs, to avoid leaving any humidity rich in mineral salts and chlorine that could attack the metal surfaces and leave opaque traces.
- Place the components on a clean and sanitized tray to air-dry.

Carpigiani recommends the use of a cleaning/sanitising solution to wash the machine.
The use of a cleaning/sanitising solution optimises the washing and sanitising procedures in that it eliminates two phases of the procedure (a rinse and a washing phase). Basically, the use of a cleaning/sanitising solution saves time by facilitating and simplifying washing/sanitising procedures.

WARNING

Every time the machine is washed and the parts that come into contact with the ice cream mix are disassembled, it is essential to carry out a visual inspection of all the parts made in thermosetting, plastic, elastomer-based and silicon-based materials and metal such as sliding shoes, pump gears, beaters, etc.).
All parts must be integral and not worn, without cracks or splits, or opaque if originally polished/transparent.
Carpigiani declines all responsibility for any damage caused by imperfections and/or undetected breakages and not promptly solved by the replacement with original spare parts. The manufacturer is available for consultation and for any specific requests made by the customer.

5.4 HOW TO USE CLEANING/SANITISING SOLUTION

Prepare a solution of water and sanitising detergent following the instructions shown on the label of the product being utilised.

Washing/sanitizing by soaking

- Remove larger residues by hand
- Remove finer residues with water jets
- Soak the assembled parts to clean in the solution
- Use the supplied cleaning brushes to forcefully brush all components and the relevant holes.
- Allow the solution to work for the time indicated on the label of the product used
- Rinse the parts with care, using plenty of drinkable water

5.5 DAILY CLEANING

Refer to the opening procedures (par. 3.9) and closing procedures (par. 3.10).

5.6 PROGRAMMED CLEANING TIME

- The machine is provided with an automatic system which calls for washing of the parts in contact with the product for example every 3 days.
- This system, identified as “WASH”, disables the production function at the end of the 3rd day after the latest cleaning. On the display, the message “**WASH TODAY**” appears.
- In Production mode, the display indicates the number of days to machine next cleaning.

WARNING

Cleaning and sanitisation must be carried out at the programmed date indicated on the display (for example every 3 days), as a habit and with utmost care, in order to guarantee quality of production and the compliance with health rules.

5.7 DRAINING AND CLEANING

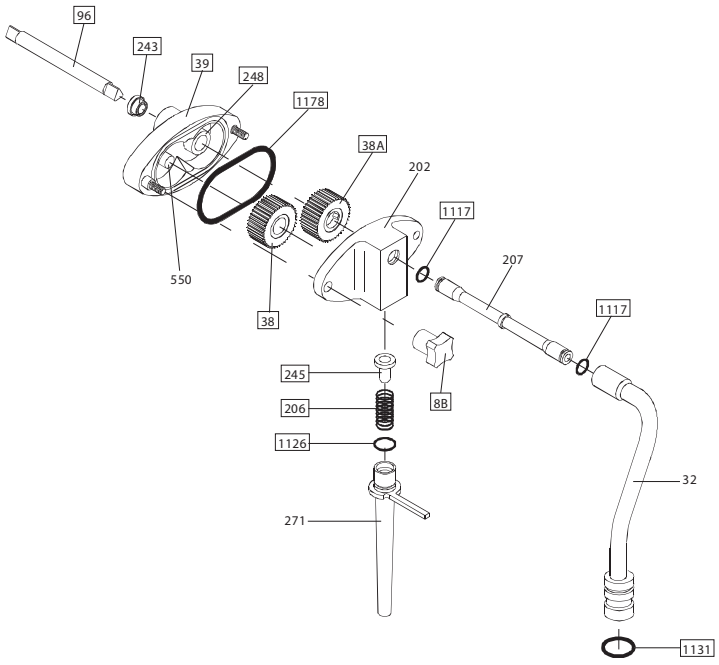
1. Place an empty pail under the spout.
2. Press the STOP button.
3. Pull the spigot handles and completely drain the ice cream to empty the cylinders.
4. Select CLEANING function .
5. When the product coming out becomes liquid, push STOP button and leave the handles down.
6. Remove hopper cover. Remove the hopper beater leaving it inside the hopper.
7. Disconnect pressure pipe from pump by turning it by 90° and sliding it out from its seat inside hopper. Wait for the product to be completely drained from hopper. In case of gravity machines see paragraph 5.10.
8. Wait for the liquid mix to fully come out and bring the dispensing levers in closing position. Fill the hoppers with 10 liters of clean water. Clean the hopper walls and the level sensor with the supplied brushes. Clean the pump and the pressure pipe with a smaller brush.
9. Place an empty pail under spout. Open the spigot handles and let the water drain out.
10. Rinse with warm water until the solution runs clear.
11. Select CLEANING function and let the machine run for 10 seconds.
12. Press the STOP button, place a pail beneath the spigot, lower the spigot handles and drain all the water from the machine.

5.8 REMOVING THE MIX BEATER AND PUMP

13. Remove the pumps by turning them 45° clockwise and pulling backwards.
14. Extract the hopper beaters from the hoppers.

5.9 PUMP-FED MACHINES - DISASSEMBLING PUMP AND COMPRESSION PIPE

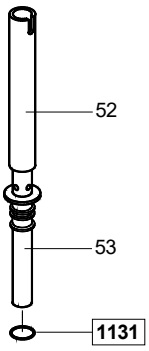
1. Take the connection pipes (pos. 207) out from the pumps and compression pipes pos. 32). Turn RH and LH compression pipes 90° anticlockwise and lift them while taking them out from their seats inside the hoppers. Remove O-rings (1117 and 1131).
2. Remove air regulators (pos. 271) by turning them anticlockwise and pulling downwards.
3. Remove spring (pos. 206) and valve (pos. 245). With the extractor provided, remove O-ring (pos. 1126).
4. Unscrew the two knobs (pos. 8B) in order to separate cover (pos. 202) and pump body (pos. 39).
5. Hit the pump body in order to remove its gears (pos. 38 and 38A). With the extractor, remove O-ring (pos. 1178).



5.10 GRAVITY-FED MACHINES - DISASSEMBLING FEEDING NEEDLE

To disassemble the feeding needle

- remove its slider (pos. 52)
- take the feeding needle out of the hopper
- remove OR from the needle (pos. 1131)

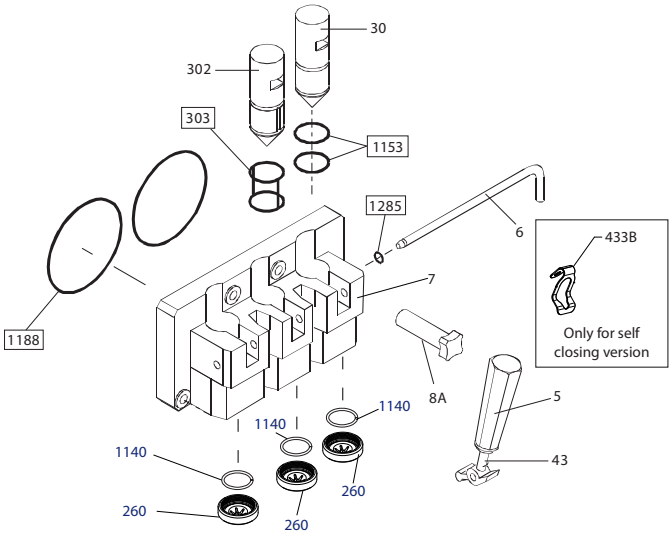


5.11 DISASSEMBLING FRONT LID

CAUTION

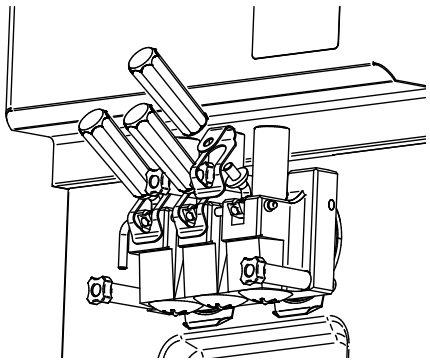
Before disassembling the front lid, make sure that tanks and cylinders are completely drained.

1. Remove the two retaining knobs (pos. 8A) and pull the door assembly towards you sliding it off the two front panel studs.
2. Pull the dispensing handle (pos. 5) so the pistons (pos. 30 and 302) raise in their housing.
3. Remove the pivot pin o-ring (pos. 1285) and the pivot pin (pos. 6) out releasing the dispensing handle (pos. 5)
4. Using the dispensing handle pull the piston (pos. 30 and 302) out completely.
5. Using the o-ring extractor, remove the o-rings (pos. 1153, 303 and 1188).
6. If present, unscrew the nozzles (260) and, using the OR extractor, remove the O-rings (1140).



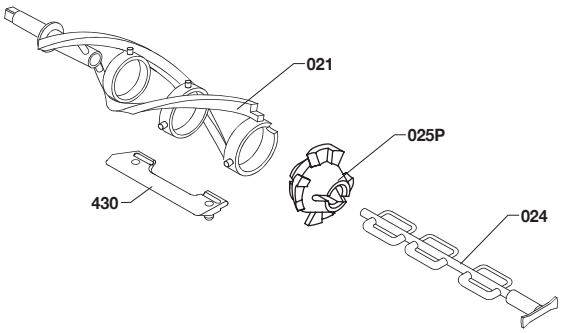
5.11.1 Removal of self-closing spring (for preset machines)

For machines equipped with Self-Closing spring, remove the spring (see picture).



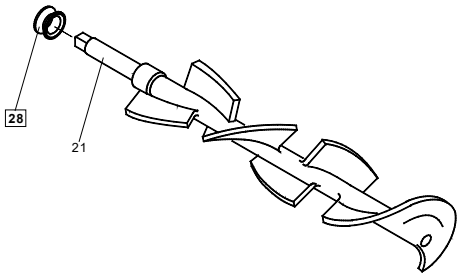
5.12 PUMP-FED MACHINES - DISASSEMBLING BEATER

1. Remove beater (pos. 21) from cylinder.
2. Remove seal (pos. 28) from beater shaft.
3. Remove terminal (pos. 25P) and idler (pos. 24).
4. Remove the 3 beater blades (pos. 430).



5.13 GRAVITY-FED MACHINES - DISASSEMBLING BEATER

1. Draw the beater out from the cylinder taking care to avoid hitting the cylinder walls.
2. Slide the beater seal (pos. 28) out of the beater shaft**.**



WARNING

Like all moving parts, the complete beater is also subject to wear and tear. For this reason, we recommend checking the amount of wear of parts in direct contact with one another (beater/beater idler and beater/cylinder walls) on a regular basis during scheduled cleaning operations and in any case, every six months of machine operation. In particular, make sure that the wear on the bushing on the beater idler is no more than 2 mm, as indicated by the marking on the bushing itself. If there is more than 2 mm wear, it is necessary to replace the beater idler.

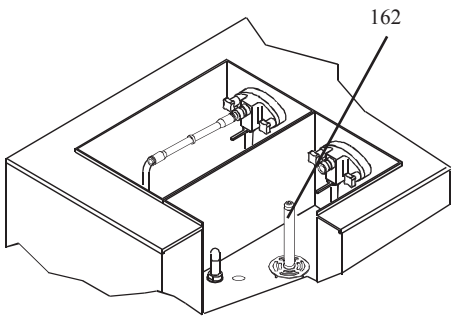
5.14 WASHING AND SANITISING COMPONENTS

1. Remove larger residues by hand.
2. Remove finer residues with a jet of water
3. Prepare a solution of water and cleaning/sanitizing product following the instructions indicated on the label of the product used, soak the parts to clean in the cleaning/sanitizing solution.
4. Use the supplied cleaning brushes to forcefully brush all components and the relevant holes.
5. Allow the cleaning/sanitizing solution to work for the time indicated on the label of the product used.
6. Rinse the parts with care, using plenty of clean drinking water.
7. Place the components on a clean tray to air-dry.
8. Make sure the machine is in STOP mode.
9. Soak a brush in the cleaning/sanitizing solution and clean the housing holes of pumps and pressure pipes.
10. Spray the cleaning/sanitizing solution on the whole internal surface of the cylinders and on the hopper walls.
11. Soak a brush in the cleaning/sanitizing solution and clean cylinders and hoppers.

Repeat the operations 9, 10 and 11 several times.

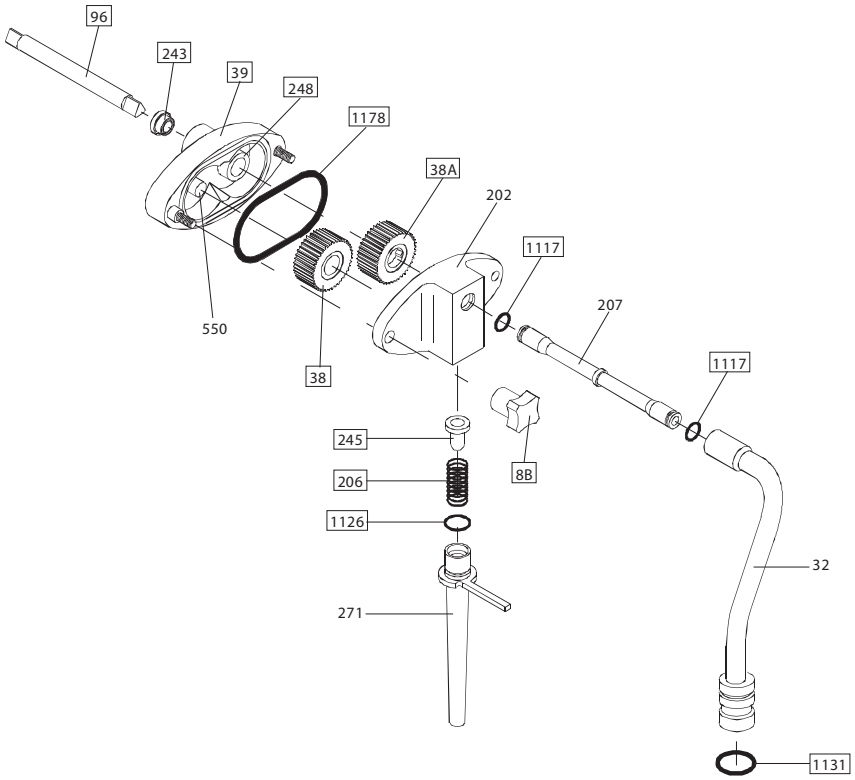
5.15 REASSEMBLING THE HOPPER BEATER

Place the beaters (pos. 162) back in their seat.



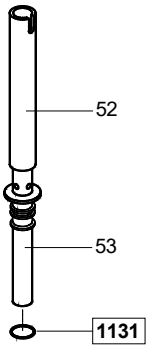
5.16 PUMP-FED MACHINES - REASSEMBLING THE PUMP AND COMPRESSION PIPES

1. Lubricate and place the O-ring (pos. 1117) back on the connection pipes.
2. Lubricate and place the O-rings (pos. 1126 and 1131) back on the compression pipes (pos. 32).
3. Insert the connection pipes (pos. 207) in the compression pipes (pos. 32) and leave them in the sanitising solution.
4. Lubricate and install the O-ring (pos. 1178).
5. Lubricate the gears (pos. 38 and 38A) and insert them into the pump body. **Do not lubricate the teeth of the pump gears.**
6. Lubricate and place the O-ring (pos. 1126) on the inlet pipe (pos. 271).
7. Insert the valve (pos. 245) and spring (pos. 206) in their pump cover housing (pos. 202).
8. Insert the air regulator (pos. 271) in the pump cover: push and turn it clockwise.
9. Assemble the pump cover (pos. 202) with the air regulator as shown and turn the two knobs (pos. 8) tightly. Install the mix pump in the hopper with the locking hook on the right, turning the pump anticlockwise until it locks in place.

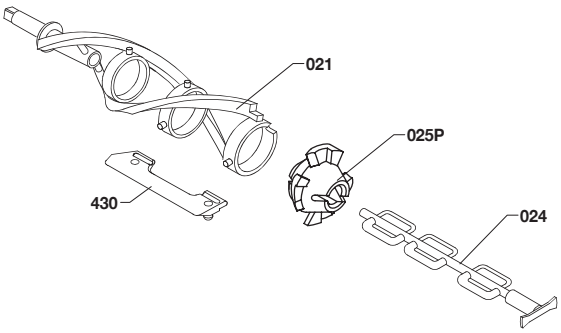


5.17 Gravity-fed machines - REASSEMBLING FEEDING NEEDLE

1. Lubricate the O-ring (pos. 1131)
2. Reassemble the feeding needle
3. Insert the feeding needle on the hopper bottom without installing it.



5.18 PUMP-FED MACHINES - REASSEMBLING THE BEATER

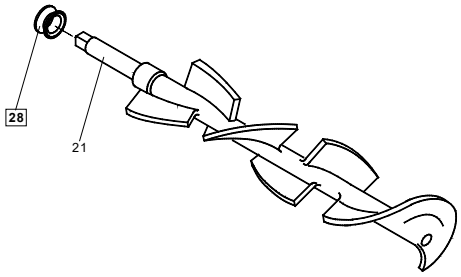


1. Fit the 3 beater blades (#430) on beater.
2. Fit beater terminal (#25P) on beater.
3. Fit beater terminal (#24) inside beater rear seat, using the terminal. Then push it to its position.
4. Lubricate beater seal (#28) sides, and slide it on beater shaft.
5. Fit beater inside cylinder. Push it and turn it clockwise until it locks inside rear hub. Otherwise the dispensing spigot door could be assembled incorrectly and mix could come out causing serious damage.

WARNING

Like all moving parts, the complete beater is also subject to wear and tear. For this reason, we recommend checking the amount of wear of parts in direct contact with one another (beater/beater idler and beater/cylinder walls) on a regular basis during scheduled cleaning operations and in any case, every six months of machine operation. In particular, make sure that the wear on the bushing on the beater idler is no more than 2 mm, as indicated by the marking on the bushing itself. If there is more than 2 mm wear, it is necessary to replace the beater idler.

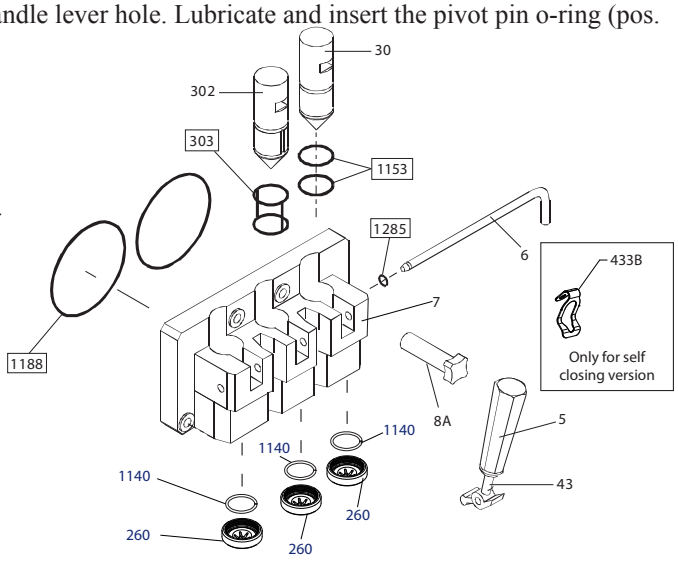
5.19 GRAVITY-FED MACHINES - REASSEMBLING THE BEATER



1. Lubricate the seal (pos. 28) and slide it onto the beater.
2. Insert the idler (pos. 24) in the beater body in the proper way.
3. Insert the beater assembly into the cylinder. Push while turning it clockwise until it engages in its drive shaft, otherwise the lid cannot be closed and mix could flow out of the cylinder resulting in serious damage**.**

5.20 REASSEMBLING FRONT LID

1. Lubricate and slide the piston o-rings (pos. 1153 and 303) into their seats.
2. Insert the pistons (pos. 30 and 302), pointed end down, in the dispensing head (pos. 7) making sure that the piston square notch lines up with the rectangular opening on the spigot front.
3. Position the dispensing handle (pos. 5) on the lid (pos. 7) and insert the pivot pin (pos. 6) in its housing through the handle lever hole. Lubricate and insert the pivot pin o-ring (pos. 1285). Lubricate and slide the large front lid o-ring (pos. 1188) into its seat.
4. If present, insert the O-rings (1140) into the nozzles (260) and screw on the door.
5. Insert the front lid assembly onto the two front panel studs and fasten it with the two knobs (pos. 8A) hand tight.



5.20.1 Refitting of self-closing spring (for preset machines)

To refit the self-closing spring, insert the spring between the knob and the piston control, screw the knob without tightening it (see fig. 1), insert it all in the spigot door and insert the pin. At this point screw the knobs in tightly on the piston control.

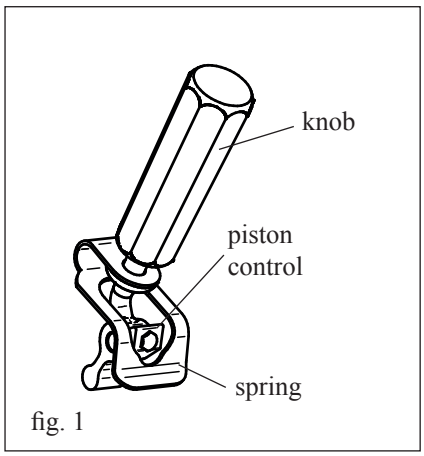


fig. 1

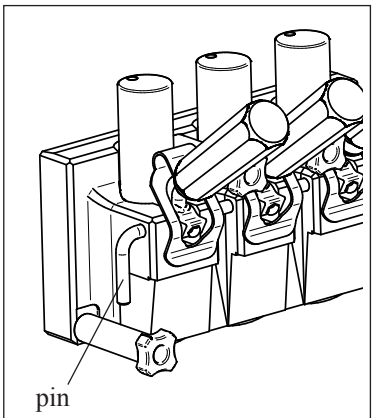


fig. 2

5.21 SANITISING THE WHOLE MACHINE

The machine must be sanitised before use. Proceed as follows:

1. Fill the hoppers with detergent/sanitising solution, prepared according to the instructions on the used product label, up to the maximum level and allow the solution to flow into the cylinders. Leave it stay for the time specified by the manufacturer.
2. Using the brushes supplied, clean the mix level sensors, the hopper walls, the surface of the pumps and the hopper beaters.
3. Select CLEANING function and let the machine run for about 10 seconds. Press the STOP button. Cylinders and pumps are now filled with sanitising solution.
4. Pour some detergent/sanitising solution in a pail.
5. Dip a brush in the pail of detergent/sanitising solution and brush clean the lid. Repeat the operation twice.
6. Wipe the exterior of machine with a clean sanitising towel. Repeat the operation twice.
7. Place an empty pail under the front lid and pull the spigot handles.
8. Allow all of the detergent/sanitising solution to drain. If the sanitising solution does not flow out completely, keep the spigot handles down and select CLEANING function, let the machine run for 5 seconds so that the last solution residues flow out, then push STOP.
9. Rinse with plenty of drinking water.

WARNING
Do not keep the machine running in "CLEANING" mode for a long time and with cylinders full of sanitising solution or empty cylinders since the beater would wear out.

WARNING
Do not touch sanitised parts with hands, napkins, or else.

WARNING
Before starting again with ice cream production, rinse thoroughly with just water, in order to remove any residue of sanitising solution.

5.22 PRIMING THE MIX PUMP

See paragraph 3.7 Machine start-up

6. MAINTENANCE

6.1 SERVICE TYPE

WARNING

Any servicing operation requiring the opening of machine panels must be carried out with machine set to stop and disconnected from main switch!
Do not clean and lubricate moving parts!
"Repairs to the wiring, mechanical, air supply or cooling systems, or to parts of same must be carried out by qualified personnel with permission to do so and if necessary, according to the routine and extraordinary maintenance schedules as envisaged by the customer with reference to specific intervention methods, according to the intended use of the machine".

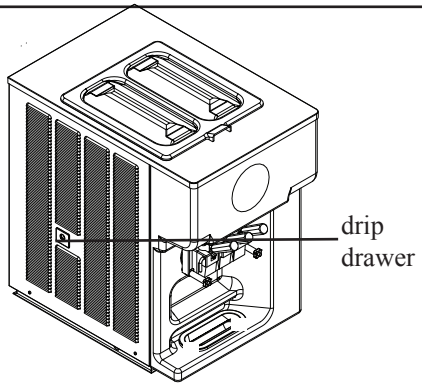
Operations necessary to proper machine running are such that most of servicing is completed during the machine production cycle.

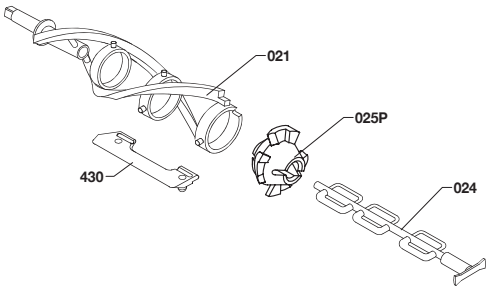
Herebelow you can find a list of routine servicing operations:

- **Cleaning and replacement of seal**
  Should you ever find that some product drips from drip drawer, it means that seals (pos. 28) have lost their tightness; when disassembling the beater, it is consequently necessary to check them and, according to the machine working period, to replace and alternate them with the seals included in the machine accessory kit.
  If the seals show no defects, they can be used again after washing them, when at room temperature they have regained their original shape.
  Replace seals as follows:
  - Draw the beater assembly out.
  - Remove seal from its seat
  - Lubricate the new seal and mount it
  - Before putting the replaced seal away, clean and lubricate it so as to reach its elasticity again.

WARNING

If you continue to work after noting traces of product in the drip drawer, you further accentuate the leakage of the seal; this can lead to a malfunction of the machine serious enough to halt production.





WARNING

Like all moving parts, the complete beater is also subject to wear and tear. For this reason, we recommend checking the amount of wear of parts in direct contact with one another (beater/beater idler and beater/cylinder walls) on a regular basis during scheduled cleaning operations and in any case, every six months of machine operation. In particular, make sure that the wear on the bushing on the beater idler is no more than 2 mm, as indicated by the marking on the bushing itself. If there is more than 2 mm wear, it is necessary to replace the beater idler.

- **Cleaning of beater assembly, cleaning of pump, cleaning and sanitisation of the all machine**
  According to procedures described in section 5 of this manual.
- **Cleaning of panels**
  To be carried out daily with neutral soap, seeing to it that cleansing solution never reaches the inside of beater assembly.

WARNING

Never use abrasive sponges to clean machine and its parts, as this might scratch their surfaces.

6.2 WATER COOLING

In machines with water-cooled condenser, water must be drained from the condenser at the end of the selling season in order to avoid problems in the event that the machine is stored in rooms where temperature may fall under 32°F.
After closing water inlet pipe, disconnect the drain pipe from its seat and let the water flow out from the circuit.

6.3 AIR COOLING

Clean the condenser periodically, in order to remove dust and impurities that may hinder air circulation. Use a brush with long bristles or a jet of compressed air

WARNING!

When using compressed air, use personal protections in order to avoid accidents; put on protective glasses

NEVER USE SHARP METAL OBJECTS TO CARRY OUT THIS OPERATION. THE CORRECT OPERATION OF A REFRIGERATION SYSTEM MOSTLY DEPENDS ON HOW CLEAN THE CONDENSER IS.

6.4 ORDERING SPARE PARTS

If one or several parts are worn or broken, refer to your dealer to order all necessary spare parts.

ATTENTION

Before using spare parts and/or supplied parts intended to come into contact with the product on the machine, it is absolutely necessary to clean and sanitize them as indicated in sec. 5 of this manual

For proper cleaning, use the accessories supplied with the machine and replace them periodically, based on the frequency of use, and in any case whenever they are worn and/or deteriorated.
Replacement with original parts is recommended.

7. TROUBLESHOOTING GUIDE

FAULT	CAUSE	PROCEDURE TO FOLLOW
Compressor starts and then stops after a few seconds	1. If machine is water-cooled: water is not circulating. 2. If machine is air-cooled: air is not circulating.	1. Open water inlet cock and check that pipe is not squashed nor bent. 2. Check that machine clearance is at least 80 mm from wall. 3. Call for service if necessary
Mix or ice cream come out above or below piston though spigot is closed	1. Piston without O-ring or O-ring is worn-out.	1. Stop the machine and insert or replace O-ring with a new one if worn-out.
Mix coming out of drip drawer	1. Seal missing or worn-out.	1. Stop the machine and install seal if missing. If worn-out, replace it with a new one.
Piston hard to operate	1. Dry sugar on piston.	1. Stop the machine and wash thoroughly and grease piston and O-ring with food-grade grease.
Ice cream comes out from front lid	1. OR missing or not properly fit. 2. Front lid knobs not tightened evenly.	1. Stop the machine, check and fix. 2. Stop the machine. Loosen knobs and tighten them again.
Low ice cream overrun	1. ”R” pump not properly adjusted	1. Change regulator (Pos. 271).