



# **INSTRUCTION MANUAL**

## **UF 253 E**

**AFFIX  
PLATE WITH  
SPECIFICATIONS**

*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 characterizing **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:

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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 start-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:

- **Part list:** a list of spare parts which is delivered together with the machine for its maintenance.
- **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, adequately sized to the absorption power shown on machine identification plate and with a contact opening of 3 mm at least.

- 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.

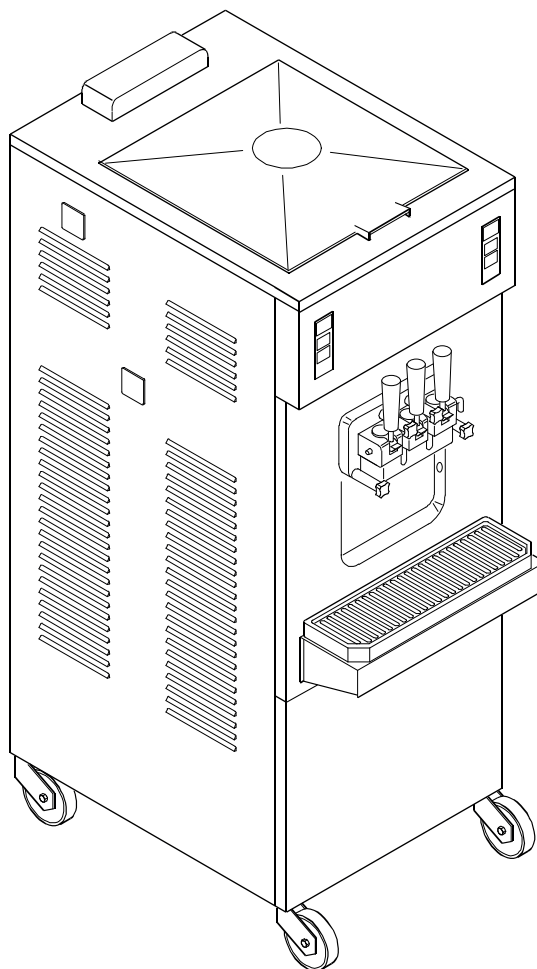
Floor machine to immediately produce and distribute soft express ice cream in two flavours + mixed.

**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



### 1.2.3 Technical features

MODEL	Hopper capacity Qts	Flavors	Electrical supply **			Dimensions in			Beater Motor	Net Weight lbs
			Volt	Ph.	Cycles	Width	Depth	Height	Hp	
UF 253 E	18 + 18	2 + mixed	208-230	3	60	22	34,1	61	1.5	705

\*\* Other power supplies are available.

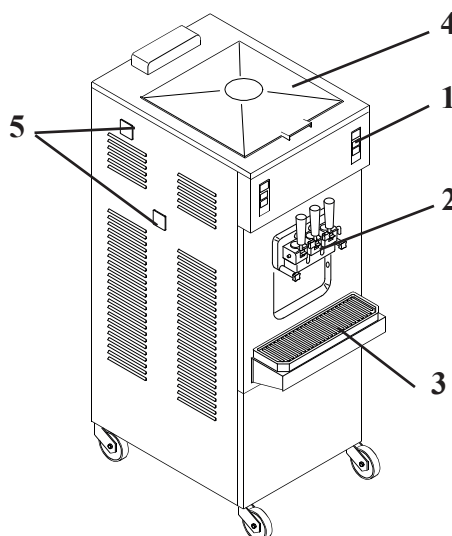
All specifications mentioned must be considered approximate; Carpigiani reserves the right to modify, without notice, all parts deemed necessary.

This unit may be manufactured in other electrical characteristics and may have additional regulatory agency approvals, please consult the local Carpigiani Distributor. Check name plate for exact electrical data. \* Room temperature 68°F (20°C).

### 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%
- Air min. temperature °C: .....10°C / 50°F
- Air max. temperature °C: .....43°C / 109.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

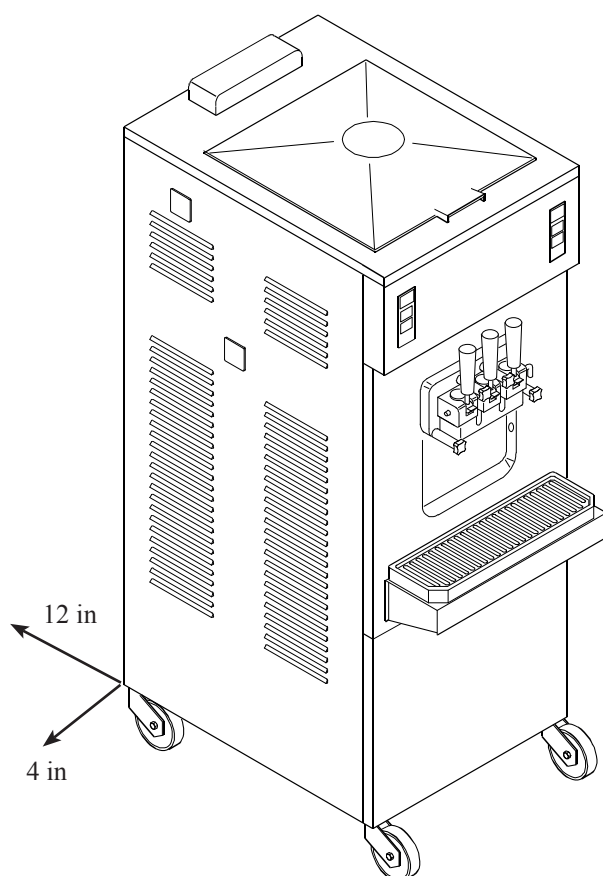
The machine must be positioned at right angles on a horizontal bearing surface (max. tilt: 2°). The machine must be installed in such a way that air can freely circulate all around. Enough room must be left free around the machine, in order to enable the operator to act without constraint and also to 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 4 inches of clearance on both sides and 12 inches of clearance on the rear of the machine**

#### NOTE

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



### 2.2 MACHINES WITH AIR-COOLED CONDENSER

Machines with air-cooled condenser must have adequate spacing on both sides and rear of the machine. You should have a minimum of 4 inches of clearance on both sides and 12 inches of clearance on the rear of the machine. This will ensure an adequate airflow is maintained.

#### NOTE

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





## 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. The opening distance of contacts must be at least 3 mm.

Check that the trip level of the differential circuit breaker is  $\leq 30\text{mA}$ .

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.**

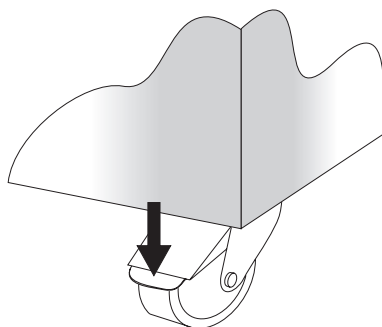
### 2.4.1 Replacing the power cable

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 POSITIONING THE MACHINE

The machine is fitted with wheels to ease its positioning. The wheels feature mechanical lock mechanisms which, once engaged, prevent the machine from moving and shifting to a different position. The machine must be positioned perpendicularly on a horizontal bearing surface.



## 2.6 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.



## 2.7 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.







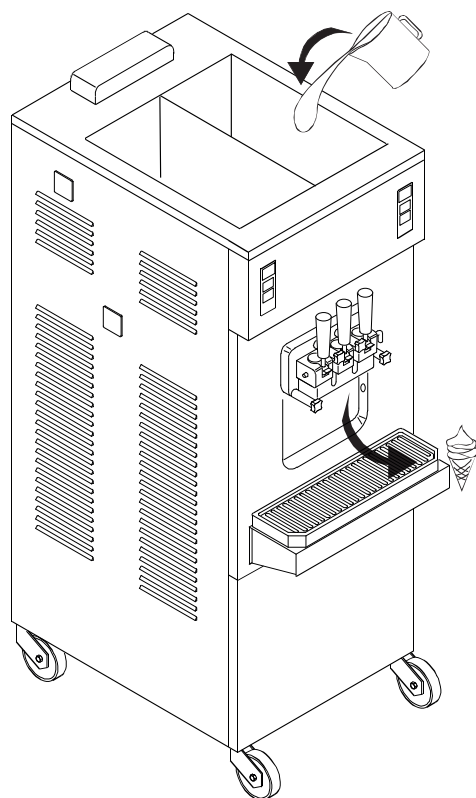
### 3. INSTRUCTIONS FOR USE

#### 3.1 MACHINE CONFIGURATION

The machine consists of a motor to drive the beater, and a water or air cooling system with condenser.

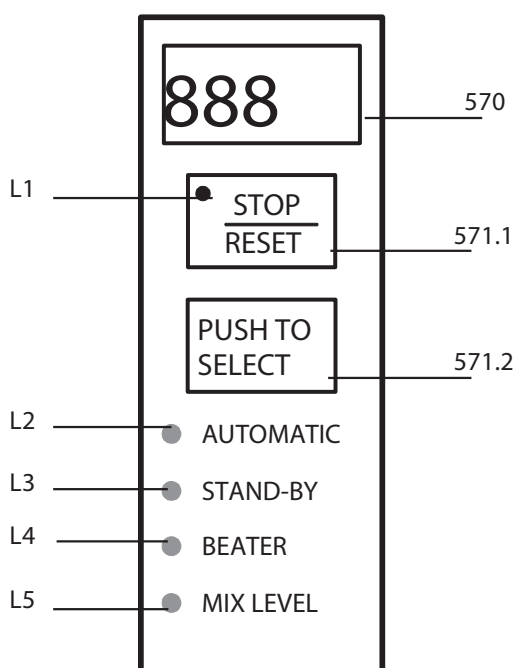
**Soft ice cream is prepared by filling the hopper with cold mix (39°F) and starting the automatic production cycle, until the ideal ice cream consistency set by CARPIGIANI is reached.**

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 TOUCH PAD

This machine is equipped with two independent electronic touch control pads. Each electronic touch pad operates one side of the freezer.



### Indicator Lights – L1 through L4

These indicators illuminate to show the selected machine function. When illuminated, the machine is in that respective mode.

### Indicator Light – L5

This light will illuminate when the mix tank is low or out of mix. It is also possible to activate a low mix level beeper in the programming mode.

### Monitor – Position 570

This numerical monitor will display the cylinder product consistency while the machine is freezing product in the automatic mode. When not freezing the product in the cylinder, it will display mix tank temperature in ALL modes.

### Stop / Reset – Position 571.1

When in this mode, the indicator light L1 will be lit and the machine functions off. From this mode you can access the programming mode or switch to operating modes.

### Push to Select – Position 571.2

By pressing this button you can select any of the following machine modes:

- Automatic
- Stand-by
- Beater

The indicator light will illuminate corresponding to the mode selected with the touch pad.

### Automatic Mode

When placed in this mode the indicator light L2 will illuminate and the machine will start the freezing process in the cylinder. During this freezing process, a number indicating the cylinder consistency will be displayed (monitor #570, the lower the number, softer the product). The machine will continue to freeze the product in the cylinder (numbers will increase) until the preset HOT number value is achieved. After achieving the preset cylinder consistency number (HOT) the machine will then start cooling the mix tank and display mix tank temperature.

### Stand-By Mode

When placed in this mode the indicator light L3 will illuminate. This mode is used during prolonged idle periods. The mix temperature in both cylinder and mix storage tank is maintained below 40 degrees F by the electronic temperature probes. Product should not be served while in this mode as it will be too soft. The Monitor (#570) will only display the temperature in the mix tank while in this mode.

**NOTE:** *If the mix level in the tank is below 1/2 full, a warmer than actual temperature will be displayed on the Monitor #570. The actual mix temperature will remain at a safe temperature below 40 degrees F.*

### Beater Mode

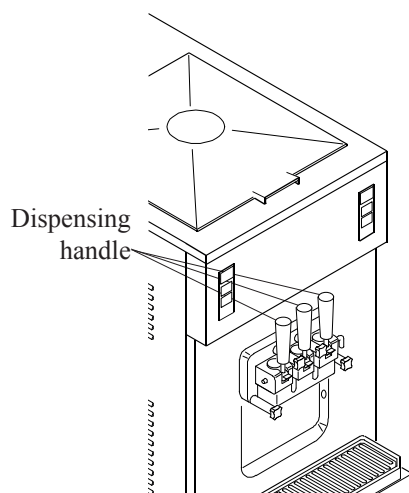
When placed in this mode the indicator light L4 will illuminate. This mode is used during the start-up (pump fed), cleaning and sanitizing of the machine. While in this mode the ONLY the beater / auger drive motor will operate. This mode has a built in safety device which will automatically switch the machine to the stop mode after 15 minutes of operation. This safety prevents an operator from inadvertently leaving the freezer in this mode for extended periods of time, which could damage the freezer.

### Mix Tank Low Level Indicator

When low on mix in the mix storage tank, the indicator light L5 will illuminate. This will indicate that more mix is needed to operate the freezer. Each mix tank has a maximum capacity of 18 quarts each. **DO NOT** attempt to operate the freezer while low on mix or your freezer may be damaged. It is also possible to activate a beeper to sound when mix is low in the Automatic and Stand-By modes. This is done through the programming mode.

## 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 - PUMP

The mix injection pump runs whenever the beater drive motor is turning. To regulate the amount of mix being injected into the cylinder, pivot the pump suction tube either to the right (less mix/ more air) or to the left (more mix/ less air).

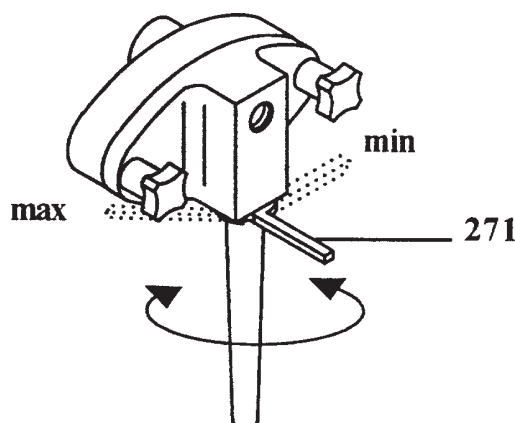
The air intake is through the front two holes of the pump cover. Since the two air inlet holes are fixed, the air intake is constant. To adjust your overrun (yield) you must regulate the amount of mix being pumped into the cylinders. The mix pump suction tube will change the orifice size on the tube to allow either more or less mix to be pumped into the cylinder.

You will also have to adjust your pump suction tube during daily operation to either a larger (Left) or smaller (Right) orifice setting depending on your draw rate and product viscosity.

For heavy draw rates and / or thick viscosity mixes, a setting of center, one, two, or three positions to the left of center will be necessary in order to operate the machine properly.

For light draw rates and / or thin viscosity mixes, a setting of center, one, or two positions to the right of center will be necessary.

The “Normal” operating position for the suction tubes on this freezer is either one position to the left, center, or one position to the right.



### 3.5 GRAVITY-FED MACHINE - GRAVITY FEED TUBE

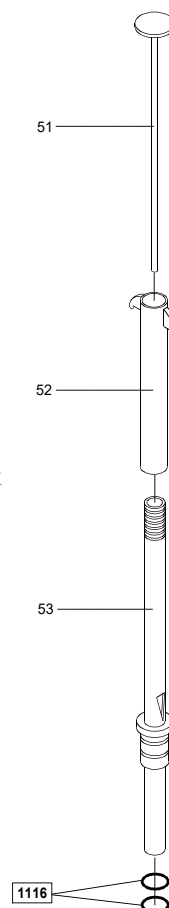
The gravity feed tube consists of two tubes, one sliding inside the other, and a center splash guard. The inner tube blends the flow of air and mix into the freezing cylinder. Air enters through the top of the tube, mix through the bottom.

The outer tube is actually a regulating valve. Lifting or closing this outer tube changes the hole opening size on the inner tube which allows more or less mix to enter the freezing cylinder. Since the air inlet hole size does not change, the air inlet is constant.

You can vary the overrun (yield) by allowing more or less mix to enter the cylinder by changing. You do this by opening or closing the outer regulator sleeve setting on the inner feed tube.

The inner splash guard keeps mix from splashing the underside of the mix tank cover as well as eliminate clogging of the feed tube.

The draw rate, portion size, and mix viscosity will determine the final regulating sleeve setting. Our standard setting is 2 to 3 notches up from the bottom. Open the outer tube to increase the mix amount. Close the outer tube to decrease the mix amount. Adjust for your specific application



## 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.

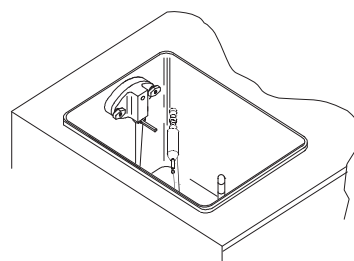
## 3.7 MACHINE START-UP

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

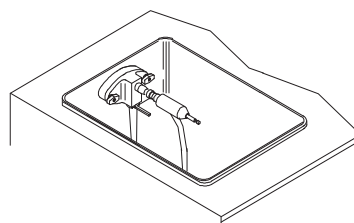
### 3.7.1 Pump-fed machines

Remove the hopper cover and place it on a sanitized cloth.

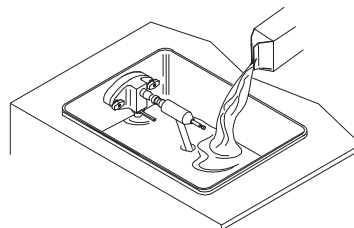
With your clean, sanitized hands, install the feeding elbows into the cylinder feed holes. Next slide the elbow connecting tube into the pump cover hole.



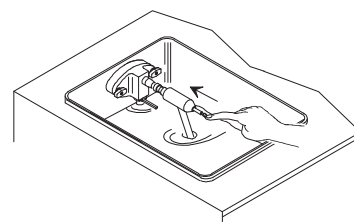
Holding the connecting tube inside the pump cover hole, slide the feeding elbow away from the pump. This will seat the tube and elbow to prevent the tube from sliding out when under pressure.



Fill each mix tank with fresh liquid mix. Each mix tank has a maximum capacity of 18 quarts. The minimum recommended mix quantity is 6 quarts.



With the mix tanks filled with liquid mix and the elbows connected to the pumps, you can now prime the cylinders. To prime the cylinders, press the “Select” button on the touch pad, selecting the “Beater” only mode. Allow the machine to run for approximately one minute then press the “Stop” button.



Carefully push the plastic bleed plunger, which extends from the front of the feeding elbow. This will allow the air to escape from the cylinder.

When all of the pressure is released, press the “Select” button and switch to the “Beater” only mode for one minute. After one minute, press the “Stop” button and carefully push the plastic bleed plunger, which extends from the front of the feeding elbow.

Repeat this process until a steady stream of mix only is flowing from the bleed hole on the feeding elbow.

You may now start the freezing process by pressing the “Select” button (#571.2) and selecting the Automatic mode.

The initial freeze time is approximately 4-7 minutes. Do not dispense product until the machine has cycled off. The draw rate, portion size, and mix viscosity will determine the final regulator tube setting. Adjust for your specific application.

### WARNING

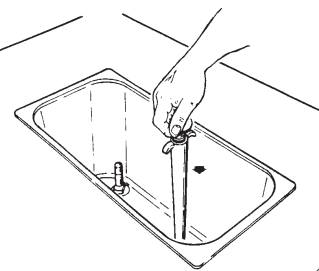
Once the mix is poured in the hopper, the suitable lid must be used so as to keep it at the correct temperature and to minimize the risk of contamination



### 3.7.2 Gravity-fed machines

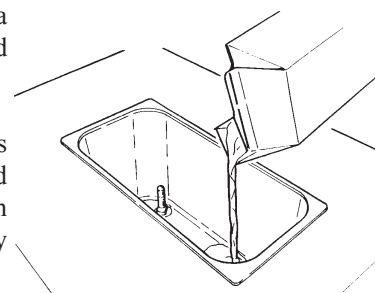
Remove the hopper cover and place it on a sanitized cloth.

With your clean, sanitized hands, remove the splash guard and outer regulating sleeve from the gravity feed tubes. Install only the center feed tube into the cylinder feed hole. Reinstall the splash guard on both tubes



Fill each mix tank with fresh liquid mix. Each mix tank has a maximum capacity of 18 quarts. The minimum recommended mix quantity is 6 quarts.

Allow the cylinders to fill with mix. When the air bubbles stop coming out of the gravity feed tube, the mix has filled the cylinder to its maximum capacity. Remove the splash guard and install the outer regulating sleeve onto the gravity feed tube.



Set to the closed position (bottom) and replace the splash guard.

You may now start the freezing process by pressing the “Select” button (#571.2) and selecting the Automatic mode.

The initial freeze time is approximately 4-7 minutes. Do not dispense product until the machine has cycled off. Before dispensing product you must also open the outer regulating sleeve on the feed tube. The draw rate, portion size, and mix viscosity will determine the final regulating sleeve setting. Our standard setting is 2 or 3 notches up from the bottom. Adjust for your specific application.

## 3.8 PRODUCTION



The machine will automatically stop the freezing process after achieving the pre-set “consistency” value (number displayed on the touch pad monitor). This will indicate that the product is ready to be served. At this time the compressor will continue to run and automatically switch to cooling the mix storage tanks.

To serve product, simply place a cup, container, or cone under the dispensing spout and slowly pull the dispensing handle down. At this time the beater / auger drive motor should start and product start coming out. As the product begins to flow, move the container in a circular fashion to create a tapering tower if frozen product.

When the desired portion has been dispensed, close the handle and pull the container with product straight down to add a peak

Dispense the product without exceeding the freezers production capacity. If you do not exceed this pace and are careful to refill the machine with fresh mix, you can be sure you will rarely have to pause in selling product, even during peak times. A standard draw rate is  $\frac{3}{4}$  to 1 ounce of product dispensed per second. The larger the portion size, the slower it should be drawn.

### 3.8.1 Stand-By Mode

During long pauses between servings, press the “Push to Select” button (#571.2) and select the “Stand-By” mode of operation. In this mode, you will significantly reduce the energy consumption of the freezer. When placed in this mode the indicator light L3 will illuminate. The mix temperature in both cylinders and mix storage tanks are maintained below 40 degrees F by the electronic temperature probes. Product should not be served while in this mode as it will be too soft. The Monitor (#570) will only display the temperature in the mix tank while in this mode.

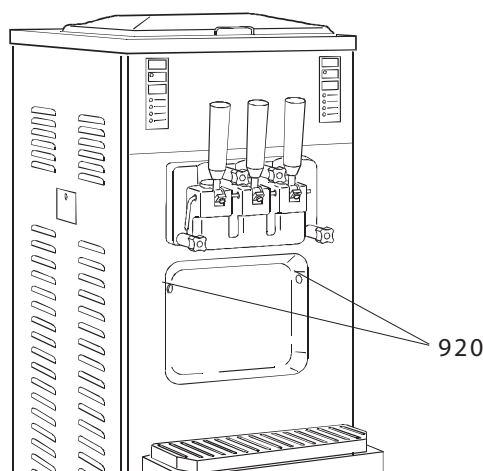
When you want to begin serving product again, press the “Push to Select” button (#571.2) and select the “Automatic” mode. Allow the machine to cycle off on the consistency control before serving product.

## 4. SAFETY AND CONTROL DEVICES

### 4.1 MACHINE SAFETY SYSTEMS

#### Photo Sensor Switches

In the Automatic mode the Photo Sensor Switches (Position #920) activate the beater / auger motors to dispense product. To activate the photo sensor switches, simply place your hand with a cone or cup under the dispensing head, pull the dispensing handle and dispense product. NOTE: You must activate the photo sensor switch, starting the beater drive motor prior to dispensing product.



#### Dispensing Head Safety Switch

This machine is equipped with a dispensing head safety switch. With the dispensing head removed, the machine will not operate and Alarm 9 (AL9) will appear on the front touch pad monitor.

#### Beater Motor Overload Protector - (Left/Right)

Monitors the current draw of the beater drive motor. If the motor draws excessive amperage, the overload will trip and Alarm 1 (RtA) will be displayed on the touch pad monitor.

#### Main Transformer

This transformer reduces the incoming line voltage to 24 volts for the primary control circuit.

#### Electronic Control Boards – (Left / Right)

These boards control and monitor ALL functions of the machine.

#### Safety Fuse

This fuse protects the high voltage side of the main transformer in the event of a short circuit. If tripped, all of the machines controls and touch pads will be inoperative.

#### Current Monitoring Transformer – (Left / Right)

These transformers monitor the current draw of the beater drive motors.

#### Secondary Transformer

This transformer reduces the voltage from 24 volts to 11 volts for the electronic control circuit.

#### Refrigeration Solenoid Valves

These valves are located behind the front panel. These valves are used to control the flow of refrigerant to the cylinders or mix storage tanks. These valves are designated with EVC for each cylinder and EVV for the mix storage tank.

#### High Pressure Safety Switch

In the event of restricted airflow (Air Cooled) or restricted water flow (Water Cooled), this switch will turn off the compressor contactor.

While tripped, the beater motors will continue to run until the refrigerant pressure is reduced enough to reset the safety switch. After resetting, both the compressor and motor(s) will resume running.





## 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 oxidation 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 the disposable gloves and replacing them when required.
- To wash the parts use a non-aggressive cleaning solution and the brushes supplied, previously sanitized.
- Wash (manually) the parts in water (max 140°F), using a non-aggressive detergent and the supplied cleaning brushes.
- To rinse them use drinkable water (bacteriologically pure).
- For the disinfection, keep the disassembled parts in lukewarm sanitized water for the time indicated on the label of the product used, use the supplied cleaning brushes to forcefully brush all components and the holes present on the components, then rinse them using drinkable water (bacteriologically pure).
- At the end of the washing, and before repositioning each component, dry everything with a soft and clean cloth, suitable for food contact, to avoid any type of humidity rich in mineral salts and chlorine from building up on the metal surfaces and leaving 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 PERIODIC CLEANING TIME

Cleaning and sanitizing schedules for your freezer are determined by your local Health Department and / or Department of Agriculture and must be followed accordingly. Check with your local organization prior to determining your cleaning schedule.

After determining your schedule, proceed as follows:



## 5.6 DRAINING AND CLEANING

### 5.6.1 Pump Fed Machines



With frozen mix in the cylinders, select the Beater mode on the front touch pad by pressing the Push to Select button (#571.2) until pilot light #L4 illuminates. Allow the machine to operate in the beater mode for 4 to 5 minutes. This will soften the product and allow for easier product removal.

Place a pail under the dispensing head, holding it up against the bottom of the head as high as possible and slowly pull the two end dispensing handles. This will allow the mix to drain from the machine.

After the frozen product is removed and liquid mix is dispensing from the machine, press the Stop / Reset button (#571.1) on the touch pad. Placing the machine in the OFF mode, close both of the dispensing handles. Slowly push in on the pressure relief plungers to remove any remaining pressure from the cylinders.

Remove the feeding elbow assemblies from each mix tank by first sliding the connecting tube away from the pump cover, Then turn the elbow assembly slightly and pull the assembly straight up and out of the mix tanks.

Remove the mix pump assemblies from each mix tank by rotating each pump clockwise until the hook stud disengages from the rear pump hub.

After disengaging the hook stud, pull the pump assembly straight forward and out of the mix storage tanks. Please ensure that the mix pump drive shaft and seal must also be removed at this time.

After removing the parts from the mix storage tanks, fill each mix tank with luke warm water and a cleaning/sanitizing solution.

Press the Push to Select button on the front touch pad (#571.2), and carefully select the Beater mode. Allow the machine to run for 1 – 2 minutes then push the Stop / Reset button (#571.1) on the touch pad. Drain all of the water and cleaning/sanitizing solution from the machine. Repeat this process until the water drained is clear.

Prior to draining the last time, brush clean all surfaces of the mix storage tanks with the cleaning brushes provided with the freezer.

Drain the remaining water and cleaning/sanitizing solution from the freezer.

## 5.6.2 Gravity Fed Machines

With frozen mix in the machine, select the Beater mode on the front touch pad by pressing the Push to Select button (#571.2) until pilot light #L4 illuminates. Allow the machine to operate in the beater mode for 4 to 5 minutes. This will soften the product and allow for easier product removal.

Remove the gravity feed tube assemblies from each mix tank by pulling straight up and out of each tank.

With the machine still in the Beater mode, place a pail under the dispensing head. Slowly pull the two end handles and allow all of the product to drain from the machine.

After the product has drained, press the Stop / Reset button (#571.1) on the front touch pad. This will turn the machine to the OFF mode.

Fill each mix tank with luke warm water and a cleaning/sanitizing solution.

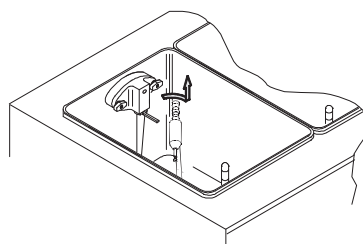
Press the Push to Select button on the front touch pad (#571.2), and carefully select the Beater mode. Allow the machine to run for 1 – 2 minutes then push the Stop / Reset button (#571.1) on the touch pad. Drain all of the water and cleaning/sanitizing solution from the machine. Repeat this process until the water drained is clear.

Prior to draining the last time, brush clean all surfaces of the mix storage tanks with the cleaning brushes provided with the freezer.

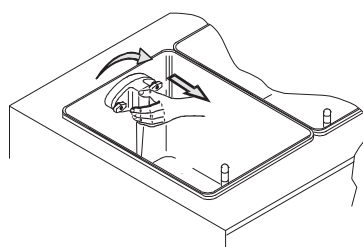
Drain the remaining water and cleaning/sanitizing solution from the freezer.

## 5.7 PUMP-FED MACHINES - DISASSEMBLING PUMP

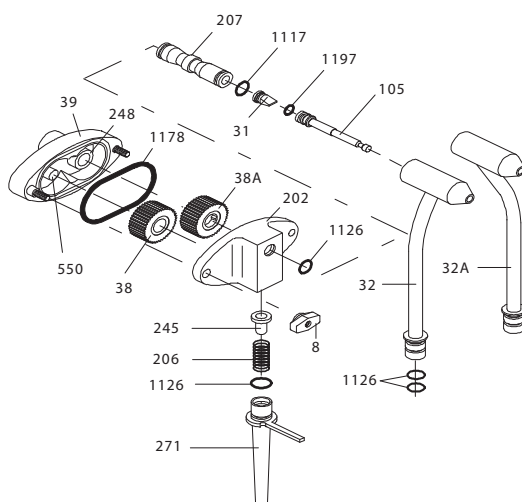
Proceed with the disassembly of the mix injection pumps located in each mix storage tank. First slide the connecting tube forward away from the mix pump faceplate. This should free the feeding elbow assembly from the pump assembly. Pull the feed elbow assemblies straight up and out of each mix storage tank.



Next remove each mix pump assembly by rotating clockwise until the hook stud on the rear of the pump disengages from the pump hub. After disengaging, slide the pump away from the rear of the machine and out of the mix storage tank.



Disassemble the mix pump assemblies as pictured below (one per side). When disassembling the orings from the other components, use only the oring removal tool provided in the spare parts tool kit. Using other tools to remove the orings from their grooves can result in damaging both the oring and component.



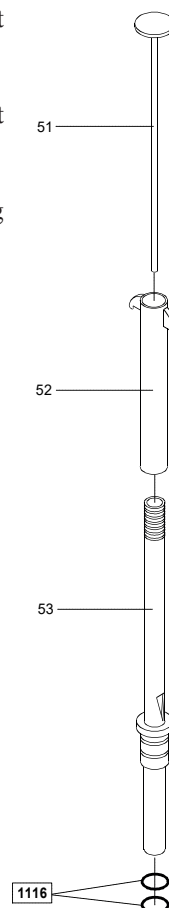


## 5.8 GRAVITY-FED MACHINES - DISASSEMBLING GRAVITY FEED TUBE

Once removed, the gravity feed tubes must be disassembled. To disassemble, first remove the splash guard from the center of the tube.

Next remove the outer regulating sleeve from the center tube by pulling straight off.

Finally remove the orings on the end of the center tube using **ONLY** the oring removal tool included in your spare parts kit.



## 5.9 DISASSEMBLING THE DISPENSING HEAD



Loosen and remove the four dispensing head- retaining knobs (8A). The knobs are removed by turning counter clockwise until loose.

Remove the dispensing head by pulling straight out and away from the machine.

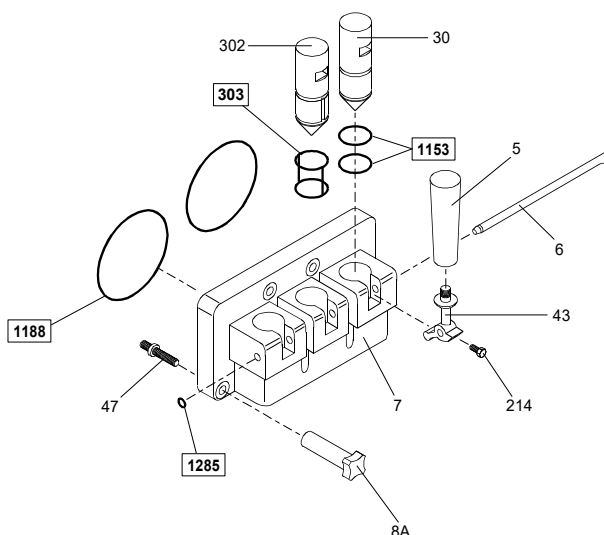
Disassemble the dispensing head by first opening all of the dispensing handles (5).

Pull the handle-retaining rod out far enough to allow the handle to disengage.

Return the retaining rod to its original position. Using the metal rod as a base, lever the piston (30 and 302) from the dispensing head with the handle.

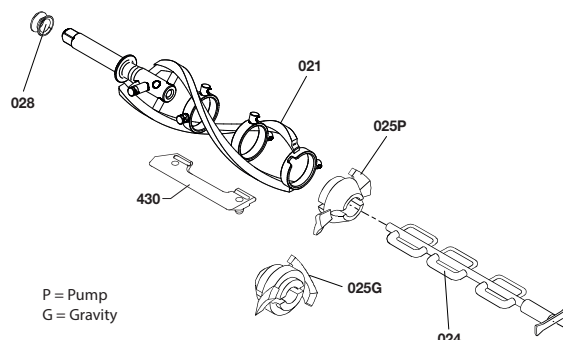
Using the oring removal tool, remove the orings (303 and 1153) from each of the pistons.

Turn the dispensing head over and remove the two large orings (1188) from the rear of the dispensing head.



## 5.10 DISASSEMBLING BEATER

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



## 5.11 WASHING AND SANITISING COMPONENTS

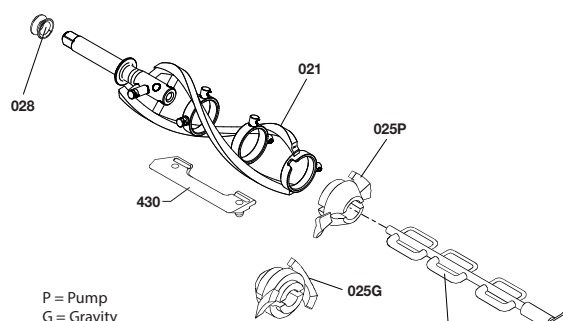
1. Remove larger residues by hand.
2. Remove finer residues with a jet of water
3. Prepare a solution of water and cleaning/sanitizing product following the instructions indicated on the label of the product used, soak the parts to clean in the cleaning/sanitizing solution.
4. Use the supplied cleaning 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.**



## 5.12 REASSEMBLING THE BEATER

1. Fit the 3 beater blades (#430) on beater.
2. Fit beater terminal (#25P or 25G) 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.





### 5.13 REASSEMBLING THE PUMP

Install the small oring (1197) onto the pressure relief plunger (105) and lightly lubricate the oring.

**NOTE: Oring (1126) is slightly smaller than the other orings used on this assembly. Locate these orings first and install.**

Assemble the connecting tube (207) with the check valve (31) and orings (1126) and (1117). Lightly lubricate the check valve before installing into the connecting tube. Lightly lubricate both orings.

Install the two orings (1126) into the bottom grooves of the feeding elbows (32) then lightly lubricate.

Install the assembled pressure relief plunger into the feed elbows, small end first. Next install the assembled connecting tube into the mix feed elbow, check valve first. The feeding elbows are now completely assembled and can be placed into the bottom of the mix storage tanks.

To assemble the mix pumps, first locate the pump gears (38&38A) and pump body (39). Lightly lubricate the top, bottom, and inside bore of the gears. Install the gear into the appropriate gear well. Install and lubricate oring (1178) into the pump body (39).

**NOTE: DO NOT lubricate the gear teeth since this is removed when the pump starts running.**

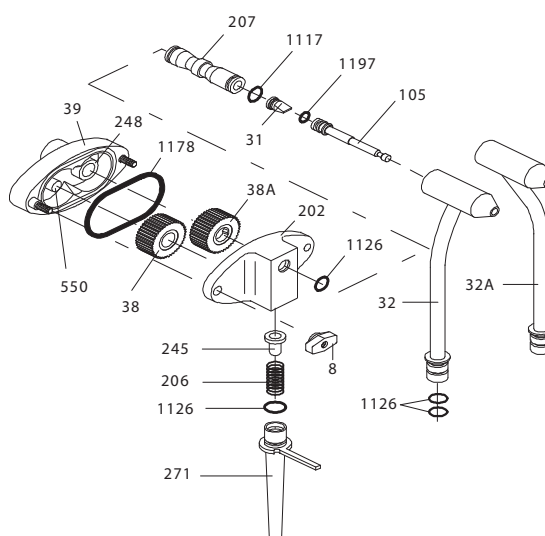
Install the mix pump drive shaft seal into the rear of the mix pump body. Lightly lubricate the inside of the shaft seal then install the drive shaft into the pump seal engaging it into the drive gear.

Install the pump body assembly into the rear hub inside of each mix storage tank. Slide the drive shaft into the rear hub and rotate the pump until the hook stud engages the pin on the rear hub. At this point, you must ensure that the drive shaft is engaged into the rear drive coupling by turning the drive gear until it completely engages.

Assemble the plastic suction tube (271) by installing the oring (1126) into the groove and lightly lubricate. Next lightly lubricate the base (flat part) of the relief valve (245) and install into the well of the mix pump cover (202).

Install the spring (206) onto the relief valve in the pump well. Install the suction tube with lubricated oring into the pump cover well engaging the spring into the suction tube recess. To lock the suction tube onto the pump cover, rotate, the tube until the adjustment lever is pointed away from the pump cover (6 o'clock position).

You are now ready to install the pump cover with suction tube onto the pump body assembly, which is installed on the rear pump hub in the mix storage tank. To install the cover, first ensure that the oring (1178) is installed into the pump body (#39). Next, affix the pump cover onto the pump body using the two metal retaining knobs (8).



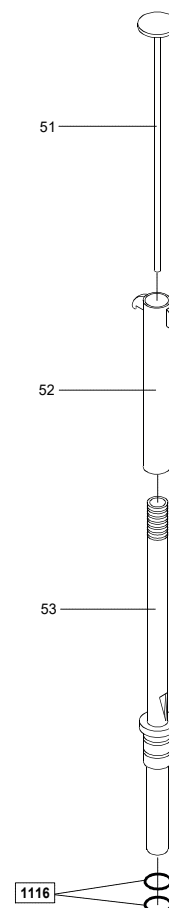
## 5.14 REASSEMBLING GRAVITY FEED TUBE

Slide the two orings onto the center gravity feed tube oring grooves.

Slide the outer regulating sleeve onto the center feed tube. Make sure that the two finger hooks are at the top of the feed tube (farthest away from the orings at the bottom).

Insert the splash guards into the top hole of the gravity feed tube.

Lightly lubricate both orings on each tube with the sanitary lubricant. When finished, place a feed tube uninstalled at the bottom of each mix tank.



## 5.15 REASSEMBLING THE DISPENSING HEAD

Assembling orings onto the end pistons.

Install the center piston oring onto the center piston.

Once the orings have been installed onto the three pistons, place a bead of lubricant between the orings.

Spread the lubricant to lightly coat the piston surface between and including the orings. This will ensure free movement of the pistons and dispensing handles.

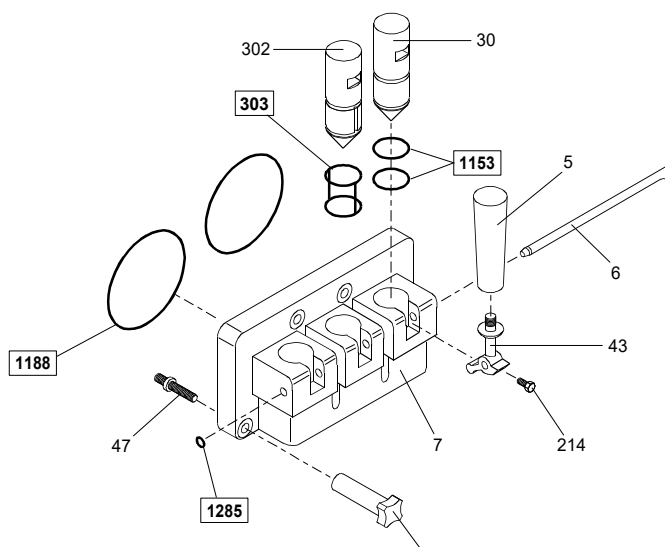
Insert the center piston into the center chamber of the dispensing head. The center piston is identified with the one piece "H" type oring. When installing, align the square handle recess with the rectangular cut out of the head. Repeat this process with both end pistons.

Turn over the dispensing head and insert the two large orings into the grooves in the dispensing head. Lightly lubricate the outside of these orings.

Install the dispensing handles onto the head by placing the rounded side of the metal cam into the piston notch. Insert the metal retaining rod into the dispensing head and piston cams. When all three handles are installed, affix the small oring into the metal retaining rods oring groove.

You are now ready to install the dispensing head assembly onto the front of the freezer.

Finger tighten the four metal dispensing head- retaining knobs.







## 5.16 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 and the surface of the pumps.
3. Push the “Push to Select” button on the front touch pad (#571.2) until the beater mode is selected. Allow the machine to run in the beater mode for approximately 30 seconds.
4. Press the “Stop – Reset” button (#571.1) and place the machine in the OFF / Stop mode. Allow the sanitizer to remain in contact with all of the product surfaces for the time specified by the manufacturer.
5. Pour some detergent/sanitising solution in a pail.
6. Dip a brush in the pail of detergent/sanitising solution and brush clean the lid. Repeat the operation twice.
7. Wipe the exterior of machine with a clean sanitising towel. Repeat the operation twice.
8. Place an empty pail under the front lid and pull the spigot handles.
9. Allow all of the detergent/sanitising solution to drain. If the sanitising solution does not flow out completely, keep the spigot handles down and Push the “Push to Select” button on the front touch pad (#571.2) until the beater mode is selected, let the machine run for 5 seconds so that the last solution residues flow out, then push the “Stop – Reset” button (#571.1).
10. Rinse with plenty of drinking water.

### WARNING

**Do not keep the machine running in "Beater" 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.**

## 5.17 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.

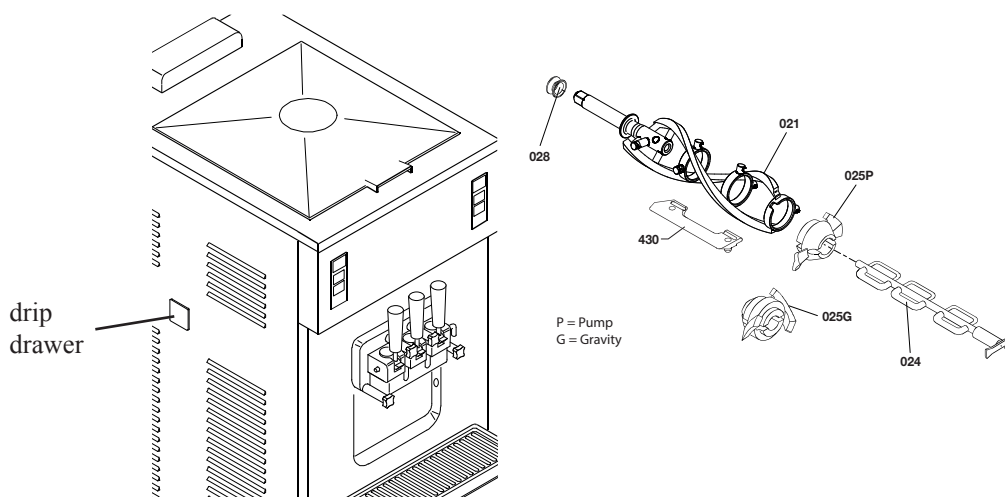
Replace seals as follows:

- 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.

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#### WARNING

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

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## 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

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#### WARNING!

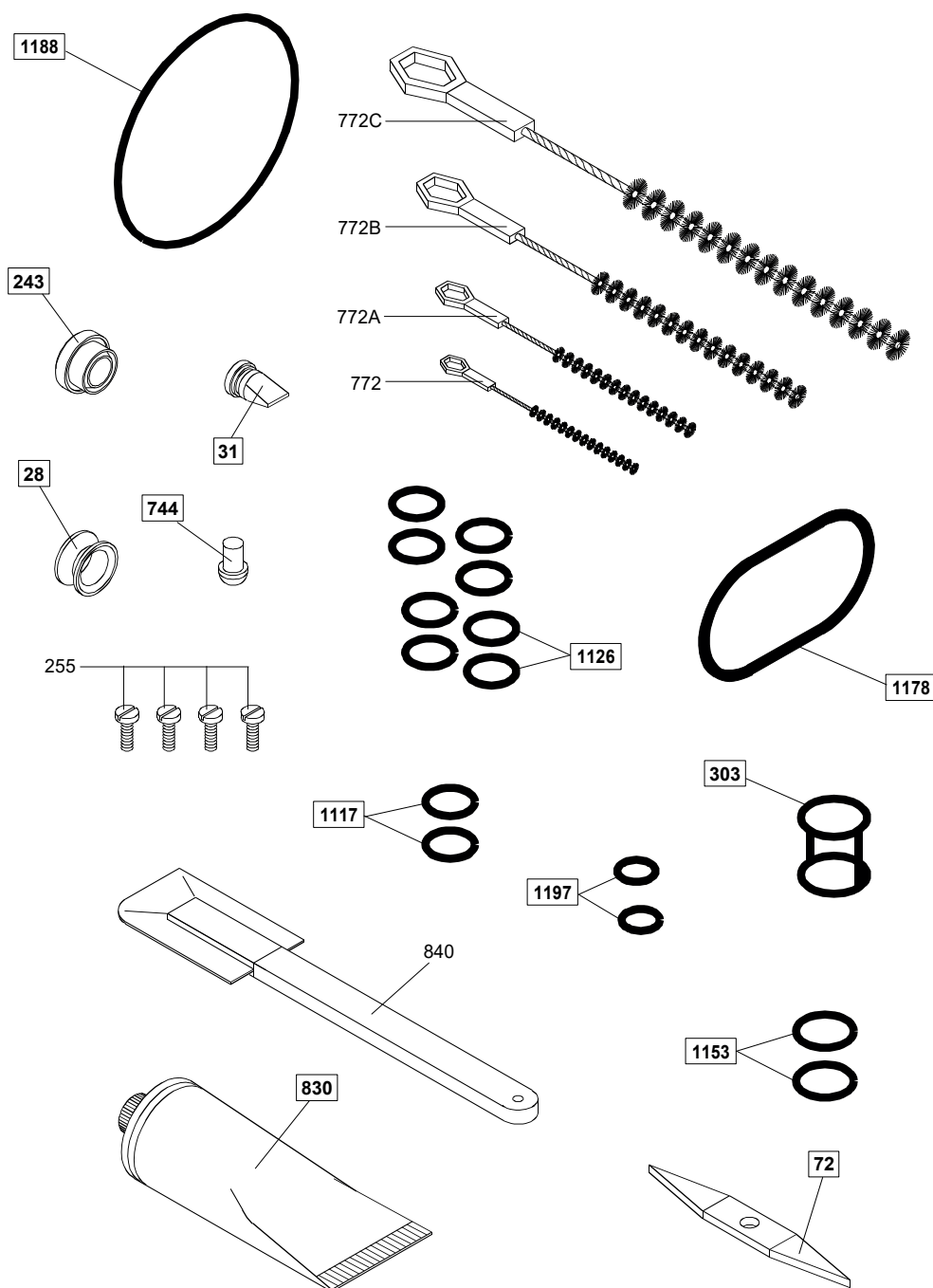
**When using compressed air, use personal protections in order to avoid accidents; put on protective glasses**

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**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



### 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



#### Pos. Description

- 28 Beater seal
- 31 Valve
- 72 O-ring extractor
- 243 Pump seal
- 255 Screws
- 303 O-ring
- 744 Rubber stopper
- 772 Swab

#### Pos. Description

- 830 Food-grade lubricant tube
- 840 Cleaning spatula
- 1117 O-ring
- 1126 O-ring
- 1153 O-ring
- 1178 O-ring
- 1188 O-ring
- 1197 O-ring



## 7. TROUBLESHOOTING GUIDE

FAULT	CAUSE	PROCEDURE TO FOLLOW
<b>Compressor starts and then stops after a few seconds</b>	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
<b>Mix or ice cream come out above or below piston though spigot is closed</b>	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.
<b>Mix coming out of drip drawer</b>	1. Seal missing or worn-out.	1. Stop the machine and install seal if missing. If worn-out, replace it with a new one.
<b>Piston hard to operate</b>	1. Dry sugar on piston.	1. Stop the machine and wash thoroughly and grease piston and O-ring with food-grade grease.
<b>Ice cream comes out from front lid</b>	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.
<b>Low ice cream overrun</b>	1. "R" pump not properly adjusted	1. Change regulator (Pos. 271).