CL 4
FILLING MACHINE

OPERATION MANUAL
AND SPARE PARTS CATALOGUE

We hope that the information contained in this manual will be of help to you. It is based on concrete data and is correct to the best of our knowledge.
Read the contents of this manual carefully, including the warnings and suggestions. Also read the sales conditions, including those that restrict the warranty.

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CHAPTER 1

MACHINE IDENTIFICATION DATA

1.1 INTRODUCTION

Thank you for choosing a machine manufactured by Tetra Laval Food S.p.A.
We recommend you read this manual carefully as it is indispensable for the installation, checking and maintenance operations required to keep your machine in perfect working order.
The machine contains tables, drawings and layouts which will help you familiarise yourself with all parts of the machine.
We will be pleased to receive your suggestions should you find that any explanation has been omitted or is not exhaustive. We will take them into the greatest consideration in an effort to improve the manual.

1.2 IDENTIFICATION PLATE

For maintenance and overhaul operations not covered by this manual and for all technical problems, our Service Department is at your complete disposal to provide information and to coordinate the necessary action.
When calling our Service Department, please quote the data shown on the identification plate affixed to the machine and shown in Fig. 1.1.

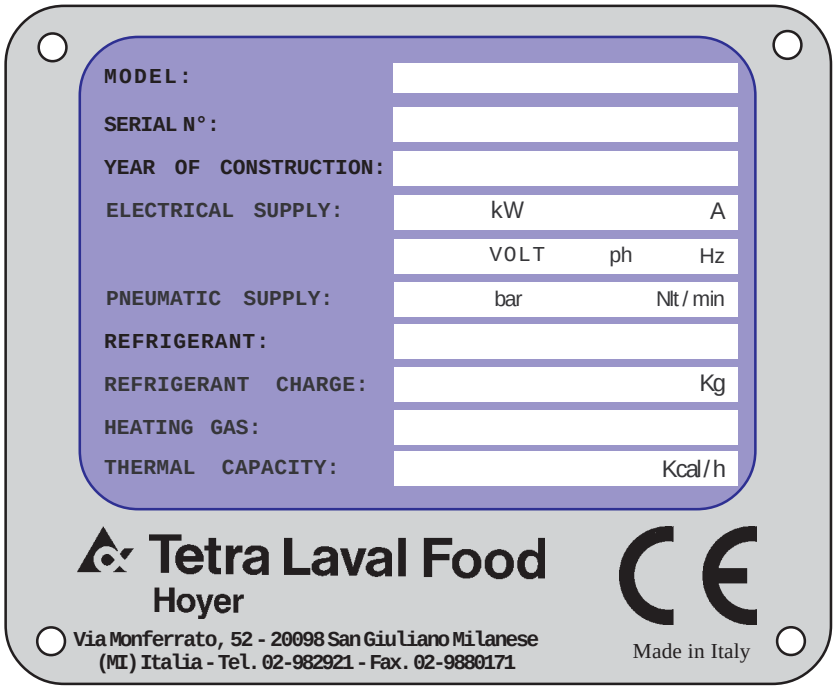

Fig. 1.1 - Identification Plate

1.3 SERVICE CENTRES

For any need or problem requiring our help, please contact one of the following centres authorised to carry out technical assistance under warranty or maintenance to machines manufactured by Tetra Laval Food S.p.A.

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Tetra Laval Food Hoyer Inc.
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CHAPTER 2

GENERAL

2.1 PRELIMINARY OBSERVATIONS

- The illustrations and drawings of the machine are intended purely for general reference and are not necessarily accurate in every detail;
- the machine dimensions and specifications given in this manual are not binding and may be changed without advance warning;
- the drawings and all other documents provided with this machine remain the property of Tetra Laval Food Hoyer S.p.A. and may not be passed on to third parties without written authorisation from Tetra Laval Food Hoyer S.p.A.
- The manual includes instructions covering all accessories mounted on the standard machine.
- Please refer to the sections regarding the accessories you have purchased.
- **The machine is covered by warranty as specified in the purchase contract. During the warranty period, any repair work not authorised by Tetra Laval Food Hoyer will automatically invalidate the warranty.**

2.2 GENERAL SAFETY PRECAUTIONS

- THESE SAFETY PRECAUTIONS HAVE BEEN DRAWN UP IN YOUR INTERESTS. Follow the guidelines strictly in order to reduce the risk of accident both to you and to others.
- Do NOT attempt to move, install or operate the machine without having read and understood this manual. If in doubt, ask your superior;
- ensure that all guards and safety covers are in position BEFORE starting the machine;
- NEVER leave tools, mechanical parts or other extraneous material on or inside the machine;
- press the emergency button in the event of a product blockage.
  NEVER PUT YOUR HANDS INSIDE THE MACHINE WHILE IT IS RUNNING;
- take great care even when the main switch is in the "OFF" position, since the power supply cables are still live;
- turn off the air supply before disconnecting any pneumatic part of the machine;
- make sure that all guards and protective covers are correctly installed BEFORE restarting the production cycle after maintenance or repair operations;
- always work with the greatest care and remember that you are responsible for your own safety and for that of your colleagues;
- when moving or lifting the machine, ensure that relevant standards for these operations are followed.

2.3 WARNINGS AND SPECIAL NOTICES 

- The personnel operating this machine must be aware of and observe strictly the general safety precautions. Failure to observe the precautions may result in injury to personnel or damage to machine components.
- Maintenance must be carried out with the machine turned off. The main switch must be in the "OFF" position, the air valve must be closed and a "work in progress" notice must be fixed to the machine.
- The user must ensure that all the instructions contained in the manual are followed strictly.
- High temperatures are reached inside the machine. After turning off the electric power supply, wait for the machine to cool to room temperature before carrying out work on it.
- Any tampering with the safety system for any reason is at the user's own risk and shall be his responsibility.
- Never attempt to turn off the safety switches or make them inoperative.
- The safety of machines used in conjunction with the CL-4, if not supplied directly by Tetra Laval Food Hoyer S.p.A., is the customer's responsibility.
- The pressure, speed, temperature and voltage limits as well as all other indications given are indispensable for the correct running of the machine and must always be observed by the customer.
- For the pneumatic components, dehumidified compressed air must be used at the right pressure and in the prescribed quantities, without any trace of oil.
- The environmental conditions of the installation site must also be taken into consideration.
- The national laws which govern the use of these kinds of machine must also be respected.

2.4 ENVIRONMENTAL WORKING RESTRICTIONS

The machine is authorized to run within the following environmental restrictions:

- Temperature : from 4°C to 40°C
- Umidity : from 20% to 95%.

NOTE

Our company declines all responsibility for damage caused by failure to heed the above warnings.

CHAPTER 3.0

MACHINE DESCRIPTION

AND

TECHNICAL DATA

3.1 Machine Description

All types of **CL** Filling Machines have the following basic structure:

1 - Stainless steel frame with detachable covers and adjustable legs.

2 - Power drive performed by the main electric motor via a mechanical reducer with continously adjustable speed.
Main shaft along the machine to drive the double cam lifting systems for the accurate motion of the machine equipment.
Index gear box for the stepwise feed of the containers along the machine.

3 - Set of lamellas with product holders (one for each lane) individually designed to fit the containers that actually have to be used.
The lamellas are supported by two rails that hold two stainless steel chain loops driven by cog wheels and the index gear box mentioned above.

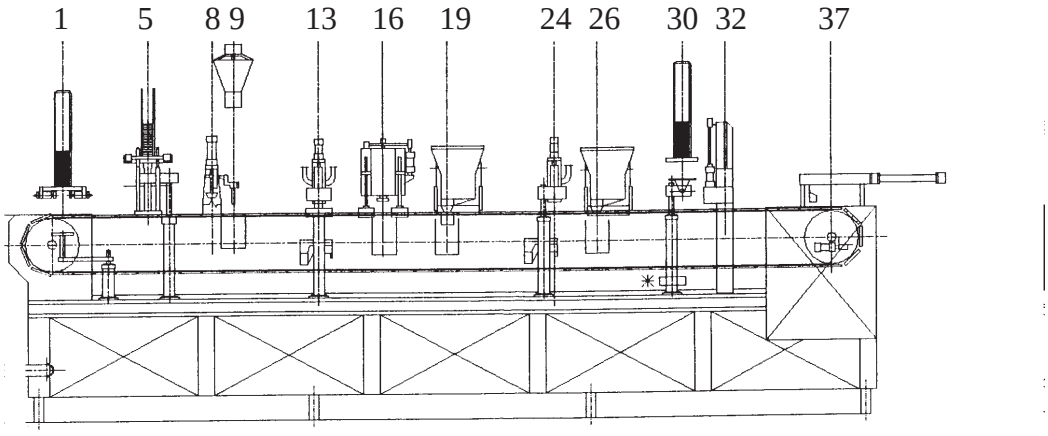
4 - Vacuum pump with direct coupled electric motor. (optional)

5 - Vacuum and pneumatic plant complete with valves and components.

6 - Panel with switches and programmer to control the CL functions.

7 - A set of spare parts.

FIG.3.1



1 -CUP DISPENSER
5 -CONE DISPENSER
8 -CONE CALIBRATION UNIT
9 -CHOCOLATE SPRAY
9 -CHEWINGUM DISPENSER
13 -DOSER TWO FLAVOUR
16 CHOCOLATE TOPPING UNIT
26 -DRY INGREDIENTS DISPENSER
30 -LID DISPENSER
32 -LID PRESSING
37 -CUP/CONE EJECTION

3.2 Operation

3.2.1 Operation Principle

The empty containers, cups, or coupled cones (the wafer cone already inserted inside the paper cone) are dropped into the seats on the conveyor, which has a stepwise forward motion, and transported to the filling equipment placed above the conveyor itself. When the cups have been filled and the lids fitted they are extracted.
Note: Cups, cones and other containers can be filled with ice cream or other products of a similar viscosity.

3.2.2 Working Phase

- Piles of empty cups are placed manually in the cup dispenser magazines and piles of lids are placed manually in the lid dispenser magazines.
- During normal operation of the **CL**, the lamellas, fitted with seats for cups, are moved forward stepwise. At a specific point of time during each standstill period, one empty cup per lane is released from the magazine and inserted in his seat on the conveyor.
- A supplementary, vacuum downtake equipment ensures correct positioning of the cups in the cup seat.
- The above stepwise forward motion of the conveyor is actuated by a special gear box.
- When a row of empty cups have been conveyed to the filling equipment, the cups are filled with single or multi-flavour of ice cream.
- When the row of filled cups has reached the lid dispenser station, a lid is released from each of the lid magazines and placed on top of the relevant cup. The lids are then pressed downward whereby the cups are sealed.
- At the end of the conveyor, each row of filled and sealed cups will be lifted out of the cup seats by means of a lifting device and estracted by an ejection device.
- The **CL** and the equipment fitted on the **CL** are driven mechanically; however same secondary and auxiliary functions are controlled by means of compressed air cylinders.

  Note: According to the products to be filled and the relevant equipment, the **CL** supplied to your company may differ from the machine described above.
  For further information, see the dimension drawing. Likewise, Tetra Laval Food Hoyer S.p.A. recommend your staff to inspect the **CL** and its equipment.

3.3 Technical data

Overall dimensions

Length (A)	5650 mm
Width (B)	1550 mm
Height	2200 mm

Shipping data

Net weight	3000 Kg
Gross weight	4000 Kg

Voltage

Voltage: 3-phase. Local voltage and frequency.
Controls: 24 V a.c.

Electric requirement

Chain drive	3 kW
Auxiliaries transformer	2.5 kW

Production speed

stroke/min	50

Compressed air

Connection	Inside pipe diameter min. 3/4"
Consumption	Approx. 660 Nlt/min. (Standard machine)
Pressure	Min. 6 bars (gauge pressure)

Others

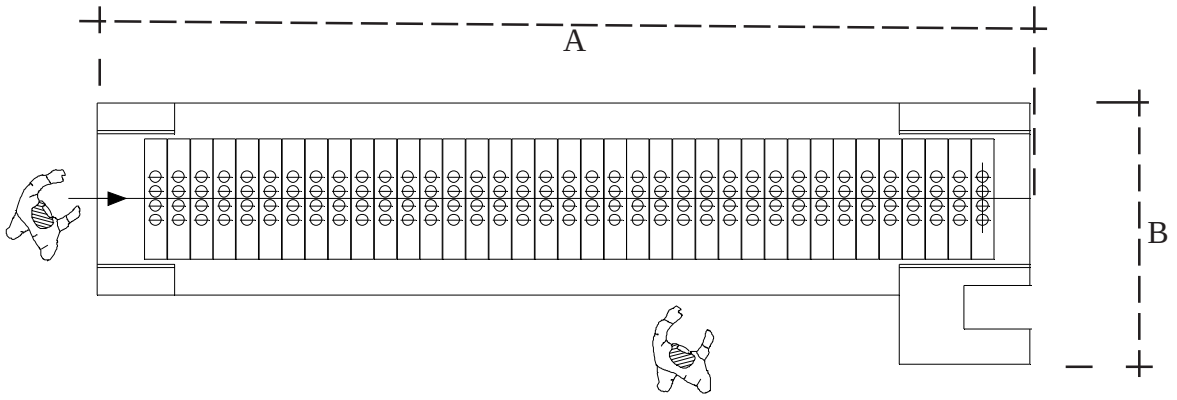
Vacuum	min. ¾" inside pipe diameter
Ice cream pipe	min. 1 ½" inside pipe diameter

Magazine capacities

	Approx. per lane
Cups	50
Cones	30
Lids	300

Runner number 2

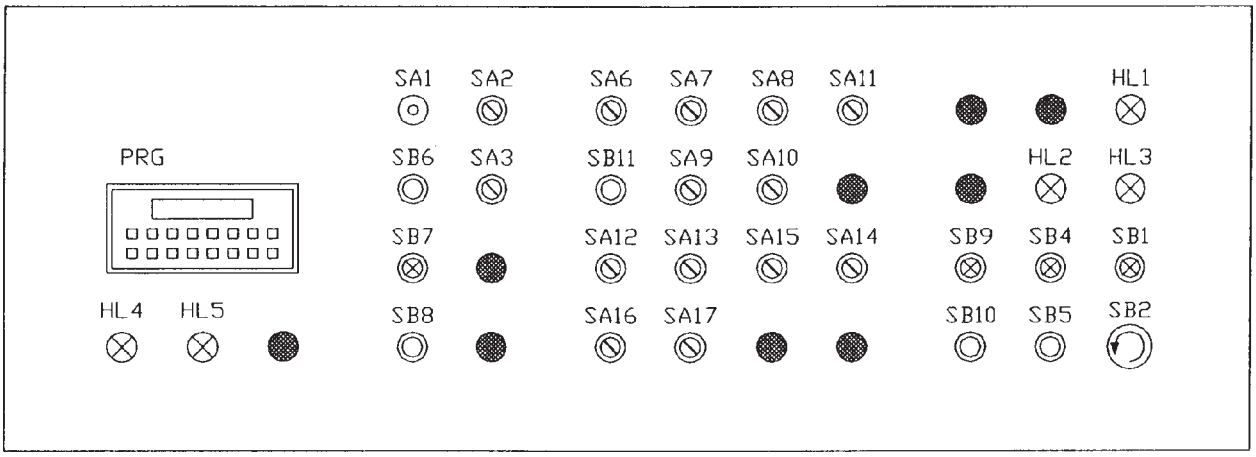
FIG.3.2



3.4 Control Panel

The functions of the CL can be controlled manually by means of switches on the keyboard of the control panel. In the case of fully automatic operation, the functions are controlled by the built-in programmer wich can be set for the desired production process.
As for further information on the programmer and its programming - see programmer manual.

FIG.3.3



PRG-Programmer

SA1-Chain speed
Allows the speed to be regulated manually.

HL1-Power on
Indicator light. Lights up when the power is switched on.

HL2-Low air pressure
Indicator light. Lights up when the pressure decreases to 3.5 bar.

HL3-Ready
Indicator light. Lights up when the machine is ready.

HL4-Overload cutout
Indicator light. Lights up when overload cutouts are tripped.

HL5-Lubrication alarm
Indicator light. Lights up when the lubrication system is in alarm. (e. g. low oil level)

SA2-Chocolate tank heater
Selector light. Inserts the heater to heat the chocolate.

SA3-Topping tank heater
Selector light. Inserts the heater to heat the chocolate.

SA6-Cup dispensing station
Selector light. Inserts the cup feeder.

SA7-Cone dispensing station
Selector light. Inserts the cone feeder.

SA8-Chocolate sprayer
Selector light. Inserts the chocolate sprayer.

SA9-Filler
Selector light. Inserts the filler.

SA10-Twister

SA11-Chewingum dispenser

SA12-Topping

SA13-Dry ingredients dispenser 1

SA14-Dry ingredients dispenser 2

SA15-Decoration

SA16-Lid dispensing station
Selector light. Inserts the lidding unit operating head.

SA17-Lid pressing station
Selector light. Inserts the lid pressing operating head.

SB1-Reset
When switching ON the machine or pushing the Emergency stop is necessary to push the Reset button.

SB2-Emergency stop
Stops the machine. To re-start the machine turn clockwise and release.

SB4-Air ON
Button light. Allows to supply compressed air to the operating head.

SB5-Air OFF
Button. Cuts the compressed air to the operating head.

SB6-Jog
Jog button. Allows intermittent operation of the machine.

SB7-Chain drive start
Button light . Starts the chain drive.

SB8-Chain drive stop
Button . Stops the chain drive.

SB9/10-Vacuum pump start/stop

SB11-By-pass cut-out
Allows to cut out the by-pass.

3.5 Programmer (see programmer manual)

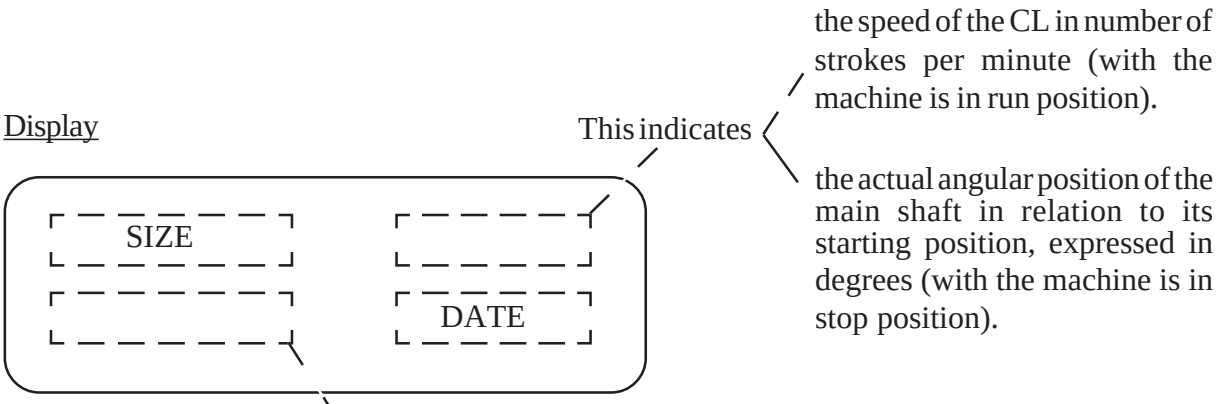
The CL is equipped with a programmer which can be programmed to control the operating functions of the various production sequences.

The programmer is built-in the control panel on whose front plate a numerical keyboard with digital display is fitted.

Moreover, all keys necessary for controlling the operating function are fitted on the front plate, as well.

A total of 12 sizes can be entered into the programmer with the designations 01, 02, ... , 12, respectively. The relevant size number can be displayed at the upper left position.

The necessary input signals from the CL are passed to the programmer by an encoder, which passes signals about the actual angular position of the shaft in relation to a specified starting position.



This indicates the number of rows produced of the cup/cone/bulk in question.
Note:when multiplying the number indicated with the number of lanes of the machine (CL-2 two lanes , CL-4 four lanes , CL-6 six lanes), you find the number of units produced of the cup/cone/bulk.

3.6 Drive motor/ indexing mechanism

The main motor (Fig.3.4, par.1) of the CL is an electric motor, with infinitely variable speed drive.

The transmission ration can be changed by means of a small electric motor mounted on the outside of the gearbox.

Moreover, a magnetic brake (optional) is fitted on the gearbox.

-The drive of the main motor is transmitted via pulley (Fig.3.4, par.2) to safety joint (Fig.3.4, par.3),that is fitted directly on the gearbox (Fig.3.4, par.4).
-The gearbox transmits the motion via pulley (Fig.3.4, par.5 or Fig.3.5, par.2) to another gearbox (Fig.3.5, par.1) fitted on the indexing mechanism (Fig.3.5, par.3), which stepwise moves the conveyor belt.

During normal operation, the main shaft rotates continuously at a constant speed of rotation.

The continuous rotary motion will be transmitted by a special indexing mechanism so that the output shaft of this mechanism rotates stepwise (identical direction of rotation). As the output shaft is connected to the drive shaft of the conveyor, the motion of the conveyor will likewise be stepwise.

FIG.3.5

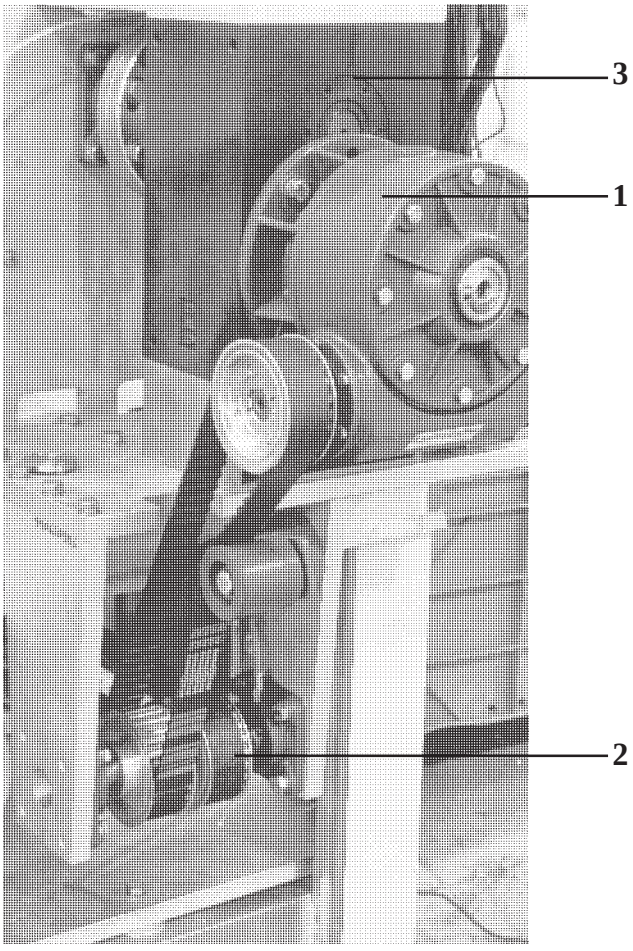
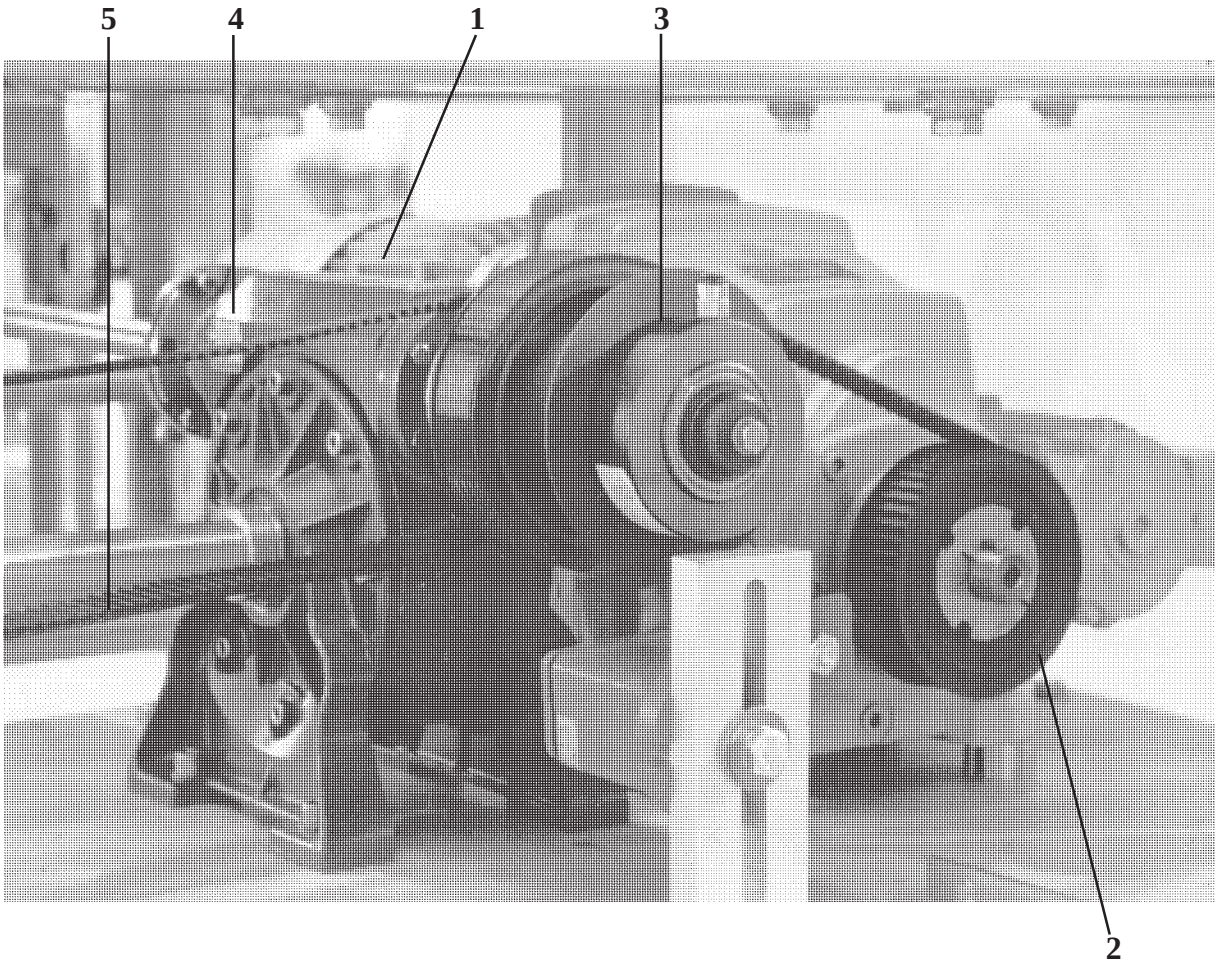


FIG.3.4



3.7 Conveyor belt

The above drive shaft of the conveyor is provided with two drain wheels each of which is in mesh with an endless conveyor chain (Fig.3.6, par.1).

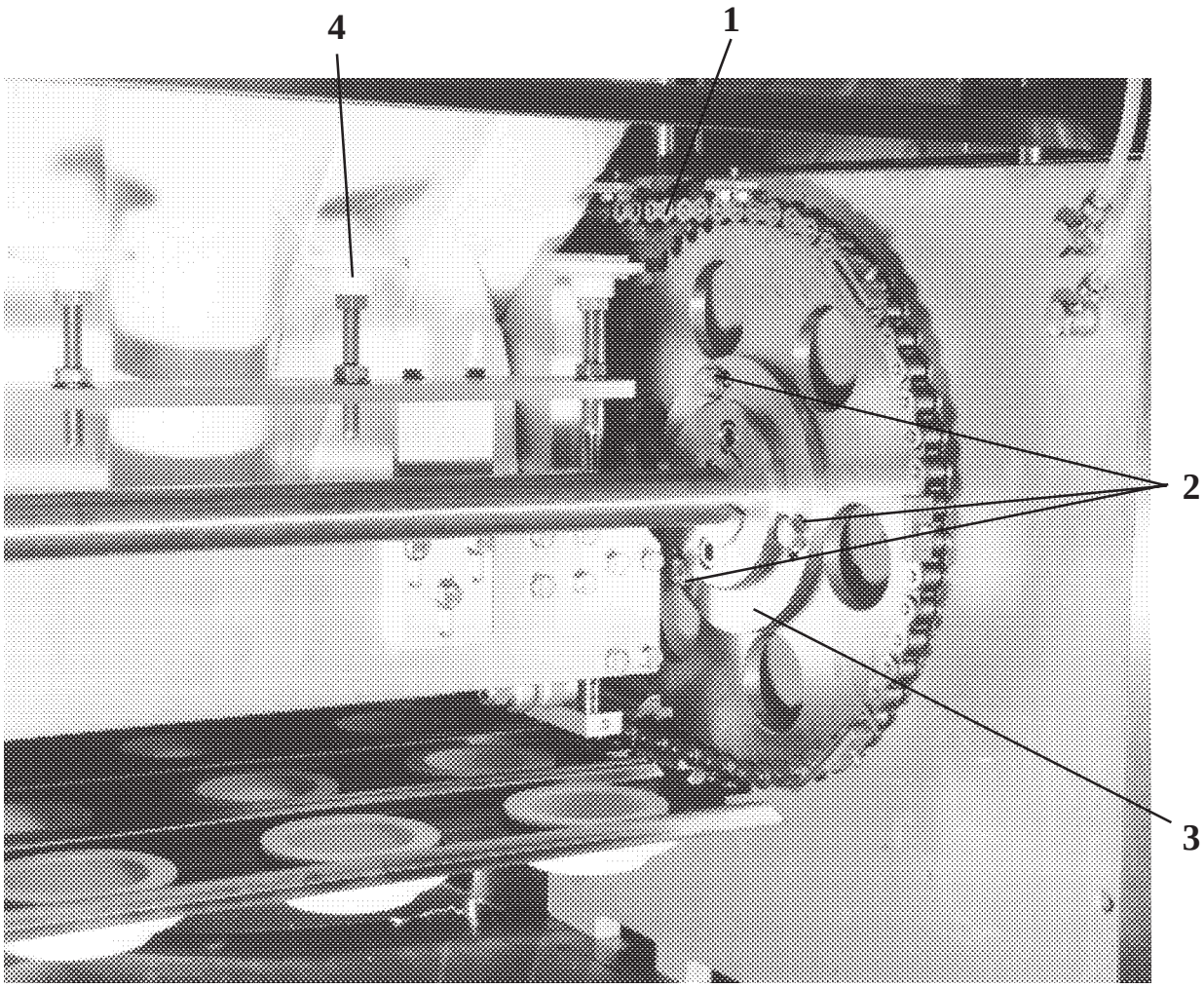
At the opposite end of the CL, the conveyor chains fitted with lamellas with seats for cups/cones mesh with two chain wheels rotating freely on a stationary shaft.

Each stepwise conveying movement is started and terminated while the main shaft rotates 150°.

The starting time is indicated by 0° on the programmer counter. The lamellas with cups/cones are transported 1 step forward for each main shaft revolution. Consequently, the conveyor stands still during the remaining 210° of each main shaft revolution.

Access to the chain wheel is only possible after the cover has been removed.

FIG.3.6



3.8 Spare Parts supplied with the Machine

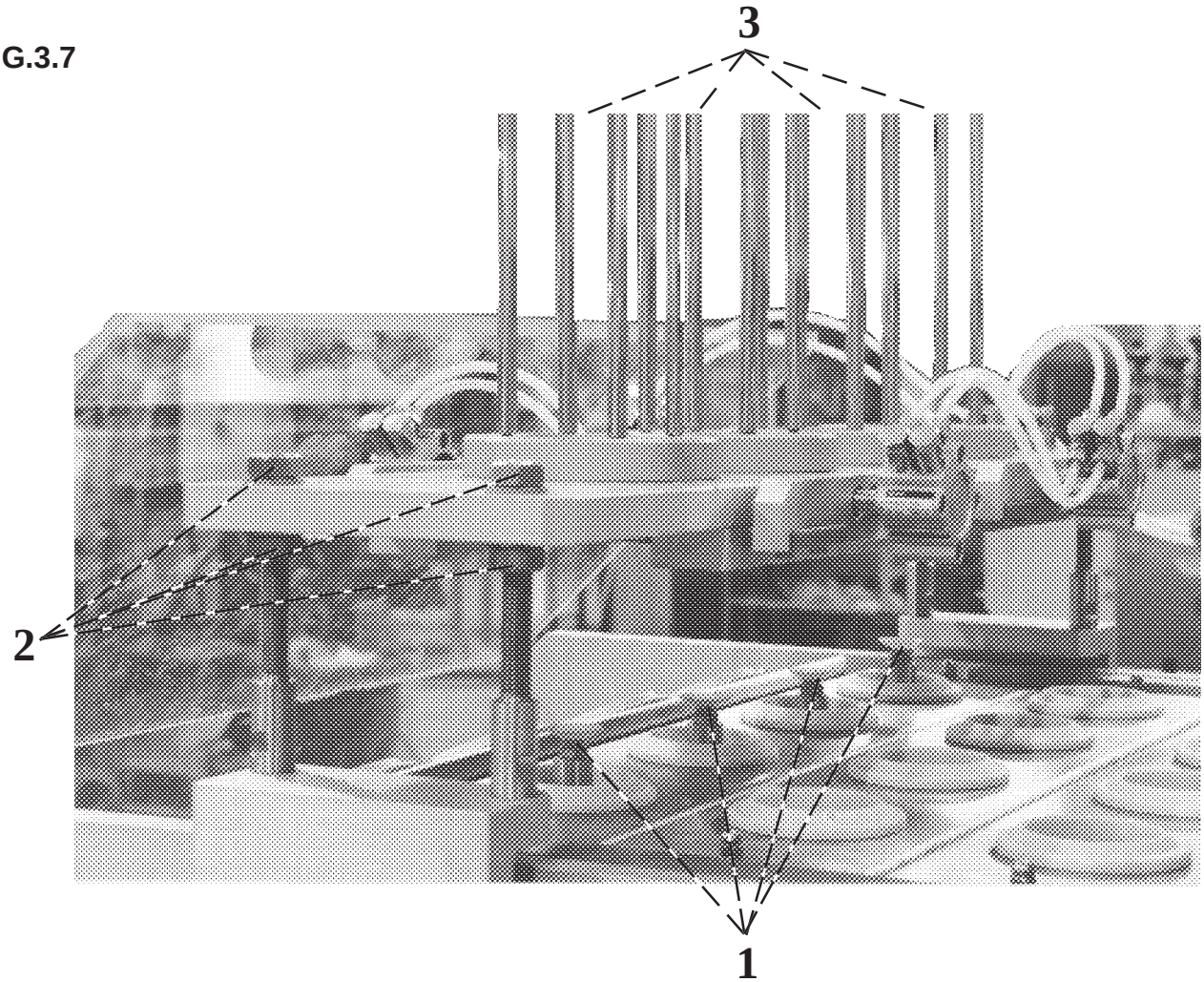
CODE	DESCRIPTION	QTY
017040915	LAMP BA9S 30v	10
018020577	GASKET CLAMP 1 1/2"	16
018020578	GASKET CLAMP 2"	8
336069740	SCRAPER	10
336019710	BELT CST 30058M944	1
336019999	BELT 16-T10/1320	1
336019713	BELT IA CST 30058M1072	1
336019711	BELT CST 300S8M1600	1
336019527	BELT CD 225L050	1
011045990	SUCKER VAS-40-1/4	4
011045999	SUCKER VAS-30-1/8	4
333004090	COIL MSFG 24vdc	1
336067042	GASKET OR 3081	8
336067091	GASKET OR 4150	4
336067049	GASKET OR 3106	4
336067075	GASKET OR 4075	4
336067100	GASKET OR 153	8
336069037	GASKET	4
336067092	GASKET OR 144	8
336067036	GASKET OR 119	4
336067051	GASKET OR 3118	4
018065812	OIL MOBIL VACTRA 2	20kg
016070913	PIPE RILSAN 6x1 WHITE	10m
016070957	PIPE RILSAN 8x1 WHITE	10m
540204086	DOSER CAP	4
336071274	CORTECO	4

3.9 Stations Description

3.9.1 Cup dispensing station

This station starts the cycle and consists essentially of :
Cup dispensers (3), which are fastened to a plate adjustable by means of hesagon and counter nut (2); jaws which are actuated by the relevant cylinders and of the cup suckers (1).
The station operates as follows:As soon as the tray-chain stops, the suckers rise and attain the maximum height at a few millimeters from the cup bottom; the distance of the sucker from the cup bottom is crucial because when the jaws open, the two rows of cups lower until they comes in contact with the suckers. The jaws close again and if the distance from the cup bottom is correct they hold the whole row of bulks, except the first one, which is taked by the sucker and put into the hole of the tray below.
Otherwise if the distance from the cup bottom is not correct, the jaws could close between the second and third cup instead of between the first and second, thus two cups could be placed in the same tray. It may also happen that the jaws close under the first cup, thus preventing the sucker from taking and placing the cup into the tray .
For this reason the height of the cup feeder must be adjusted before the production start.
Turn relevant illuminated selector to start the cup feeder.
The operation of the cup feeder is governed by the cams of the programmer.

FIG.3.7

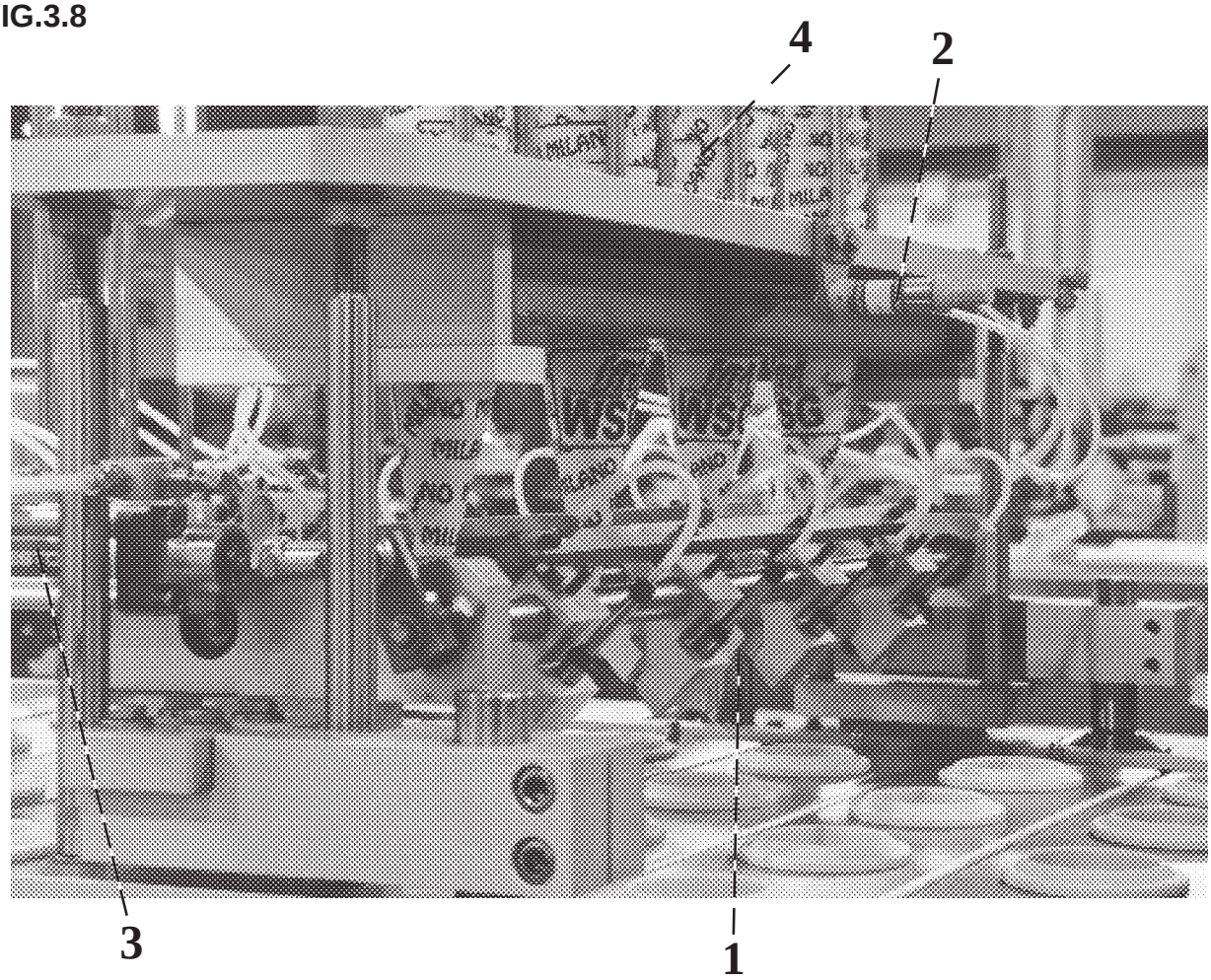


3.9.2 Cone dispensing station

The cone feeder consists essentially of:
Vertical dispensers (4) containing the cones; two jaws governed by pneumatic cylinders (2); blocks with pins (1) governed by pneumatic cylinders (3).
The station operates as follows:
- The jaws open and free the rows of cones, which lowers until the bottom cone is positioned into the closed blocks. Then they close to hold the rows while the blocks lower.
- The pneumatic cylinders insert the pins in the cone placed in the closed blocks.
- As soon as the tray-chain stops, the blocks lower taking along the cones. Then the pins and the blocks open and the cones are put in the ring of the tray below,
- the mobile base rises and the blocks close again. Everything is ready for a new cycle.

Note: turn the relevant illuminated selector to start cone feeding.
The operation of cone feeder is governed by cams of the programmer.

FIG.3.8



3.9.3 Cone sizing and Chocolate sprayer unit

The cone sizing and chocolate sprayer station consists of :
The sizing units (1) and sprayers (2) which, while lowering, open and prepare the mouth of the cone, then covering the waffle with chocolate to impermeabilize it.
The station is governed by pneumatic cylinder (5)

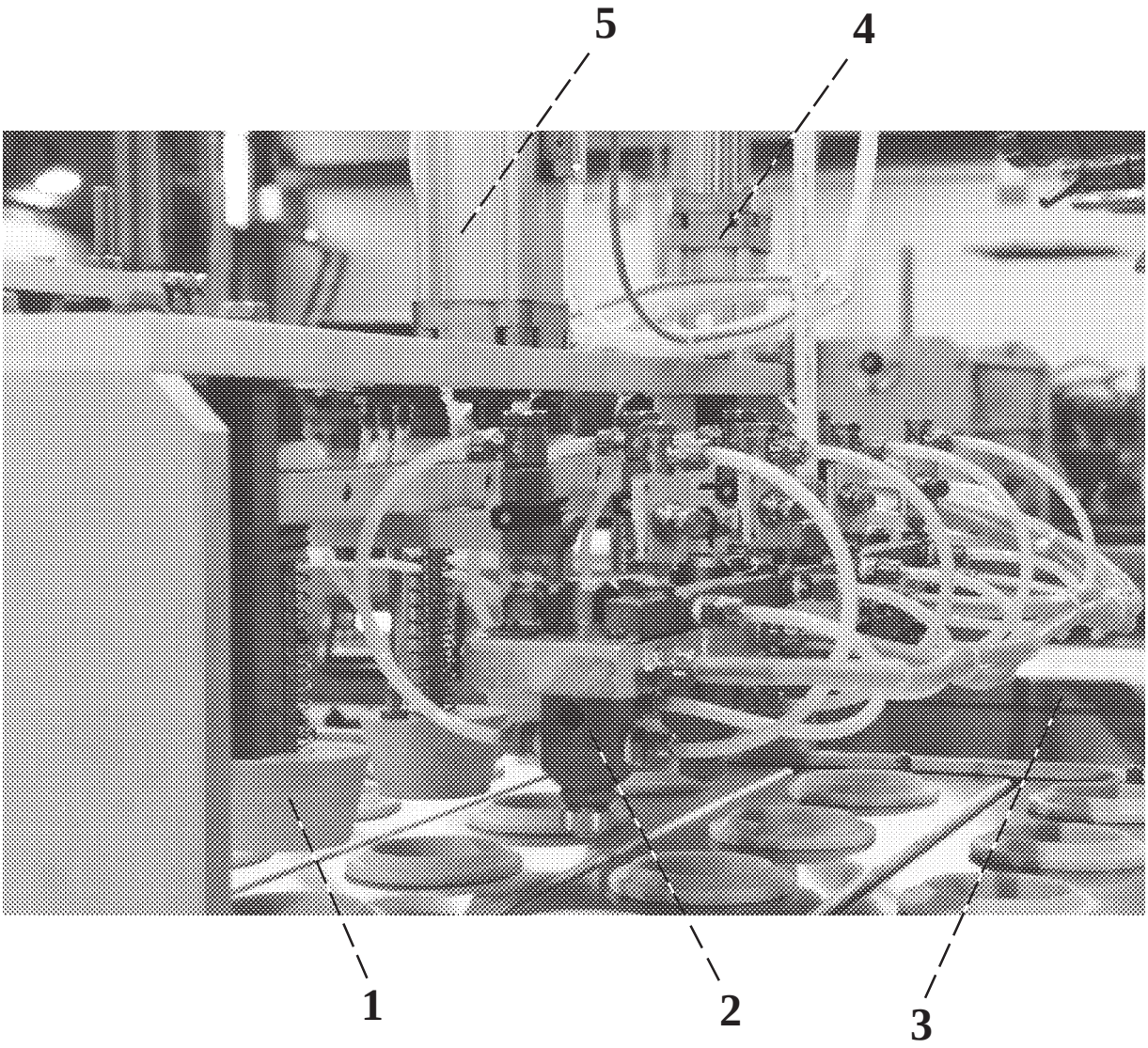
The station operates as follows:
- As soon as the tray-chain has stopped, the sizing and sprayer unit lowers,
- the sprayer shutter opens so that the chocolate coming from the tank (3) by means of the pump (4) can flow out; at the same time the compressed air (adjustable) is fed to the sprayer so as to have the chocolate sprayed.
- The sprayer shutter closes again.
- The sizing and chocolate sprayer unit rises again.
- Everything is ready for a new cycle.

Turn relevant illuminated selector to start the sizing and sprayer unit.
The operation of the sizing and sprayer unit is controlled by cams of the programmer.

3.9.4 Chocolate tank with pump

Both chocolate spraying and chocolate topping require chocolate to be liquid, and should therefore have a temperature of 35 °C (approx.).
In order to have chocolate at the correct temperature, the CL is equipped with a tank which is fitted with thermostat, jacket and electric heating element.
Press the relative pushbutton for applying voltage to the heating element.
When voltage is applied to the heating element, the chocolate pump starts. At the same time the thermostat is activated and the temperature regulator for the sprayer heating element is allowed to work.
The chocolate pump is actuated by a pneumatic cylinder governed by a timer located in the control board and works non-stop as long as the pushbutton of chocolate heating is activated.
The thermostat displays the chocolate temperature and enables to modify the selected temperature.
The sprayer temperature regulator enables to keep the chocolate sprayer warm, in order to prevent the chocolate to solidify at the start or during production breaks.

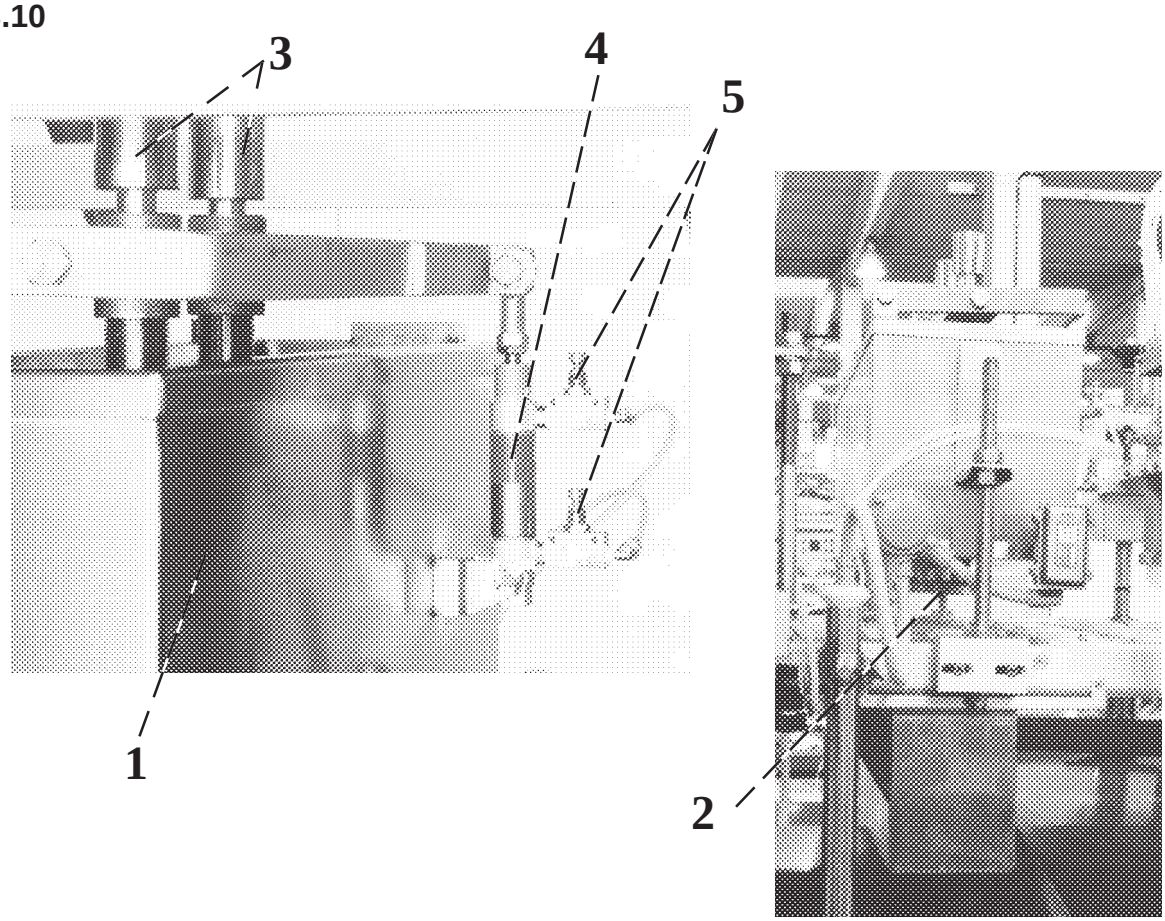
FIG.3.9



3.9.5 Chocolate topping

The station of chocolate topping consists of:
Chocolate tank (1); chocolate dispensing plate (2) and the shaft for topping tank (3) which is actuated by the pneumatic cylinder (4).
The station operates as follows:
as soon as the tray-chain stops, the pneumatic cylinder lifts the shaft which thus let the chocolate flow from the seats. Then the chocolate, through the dosing plate, gets onto the ice cream of the cone below in a regular and uniformly distributed way.
Subsequently the cylinder lowers the nozzle in the seat thus closing the passage of the chocolate.
It is possible to increase or reduce the quantity of metered chocolate by ;
-operating on the programmer (longer times correspond to a bigger quantity, while shorter times correspond to a smaller metered quantity);
-by means of the regulators (5) which are located on the pneumatic cylinder, (slowing down the upstroke speed and increasing the downstroke speed, the metered chocolate quantity is reduced, and viceversa it increases).
Turn relevant illuminated selector to start the topping.
The operation of the chocolate topping is governed by cam of the electronic programmer.

FIG.3.10



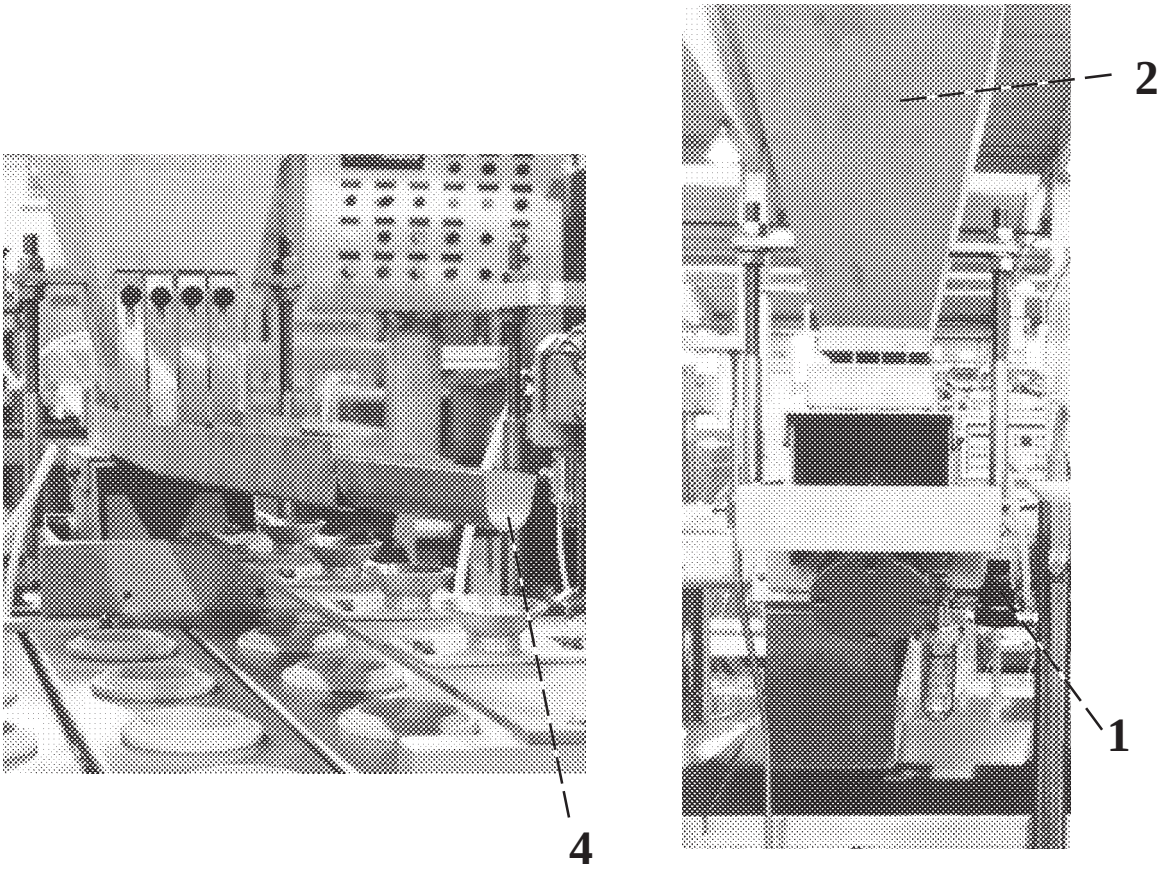
3.9.6 Dry ingredients dispenser

The dry ingredients dispenser consists of a hopper for the dry ingredients (2), a chute (4) to send the crumbs to center of the cone, a shaker (1) actuated by electricity by means of a regulator.

The station operates as follows:
as soon as the tray-chain stops, the shaker is activated and with its vibration lets the dry ingredients fall from the hopper and then through the chute onto the cone.
It is possible to adjust the quantity of dry ingredients in three ways:
a) The programmer; by increasing or reducing the operating times, the quantity of hazelnut increases or decreases.
b) The pressure regulator; by increasing or reducing the pressure, the quantity of hazelnut increases or decreases.
c) The gate mounted between the hopper and the chute; by lifting or lowering it the quantity of hazelnut increases or decreases.

Turn relevant illuminated selector to start the dry ingredients dispenser.
The operation of the dry ingredients dispenser is governed by cam of the electronic programmer.

FIG.3.11



3.9.7 Filler

The ice cream filler consists of a timer filler (13) secured to a mobile base (14), actuated by the pneumatic cylinder (11).
The station operates as follows:
as soon as the tray-chain stops, the fillers lowers until it enters the cone, then they open filling the pre-set ice cream quantity and close just before rising.
For proper operation of the fillers, the continuous freezer linked to the machine must dispense ice cream in a constant way.
At the beginning of production it is necessary to run the unit for some minutes and discharge the ice cream flowing from the filler until the required hardness and overrun are attained.
At the end of production remove the fillers from the mobile base, dismantle them completeley, wash them thoroughly and assemble again everything for the following production run.
It is possible to obtain a twin-flavour ice cream simply connecting two freezers producing two different flavours of ice cream to the two inlets of the fillers.
Nota: it is also possible to meter rippled ice cream utilizing the special nozzle and the special pilot boss (optional).

Turn relevant illuminated selecto to operate the filler.
The operation of the ice cream filler is governed by the cams of the electronic programmer.

FIG.3.12

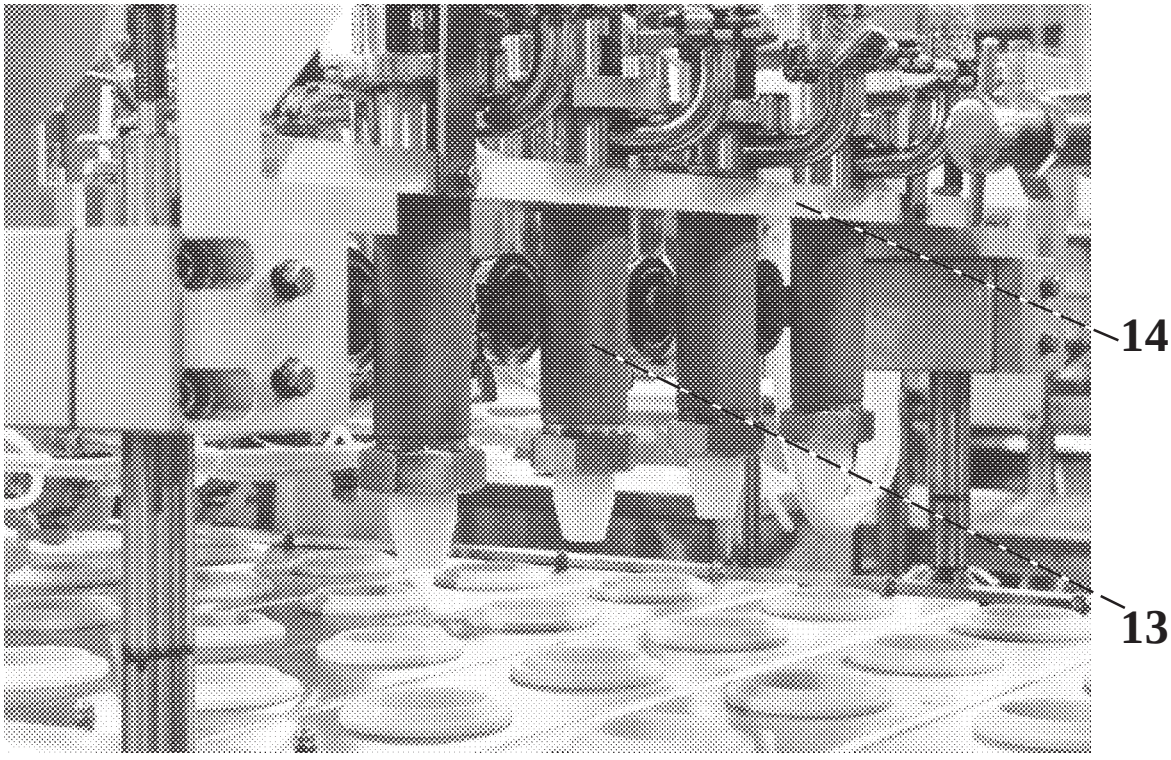
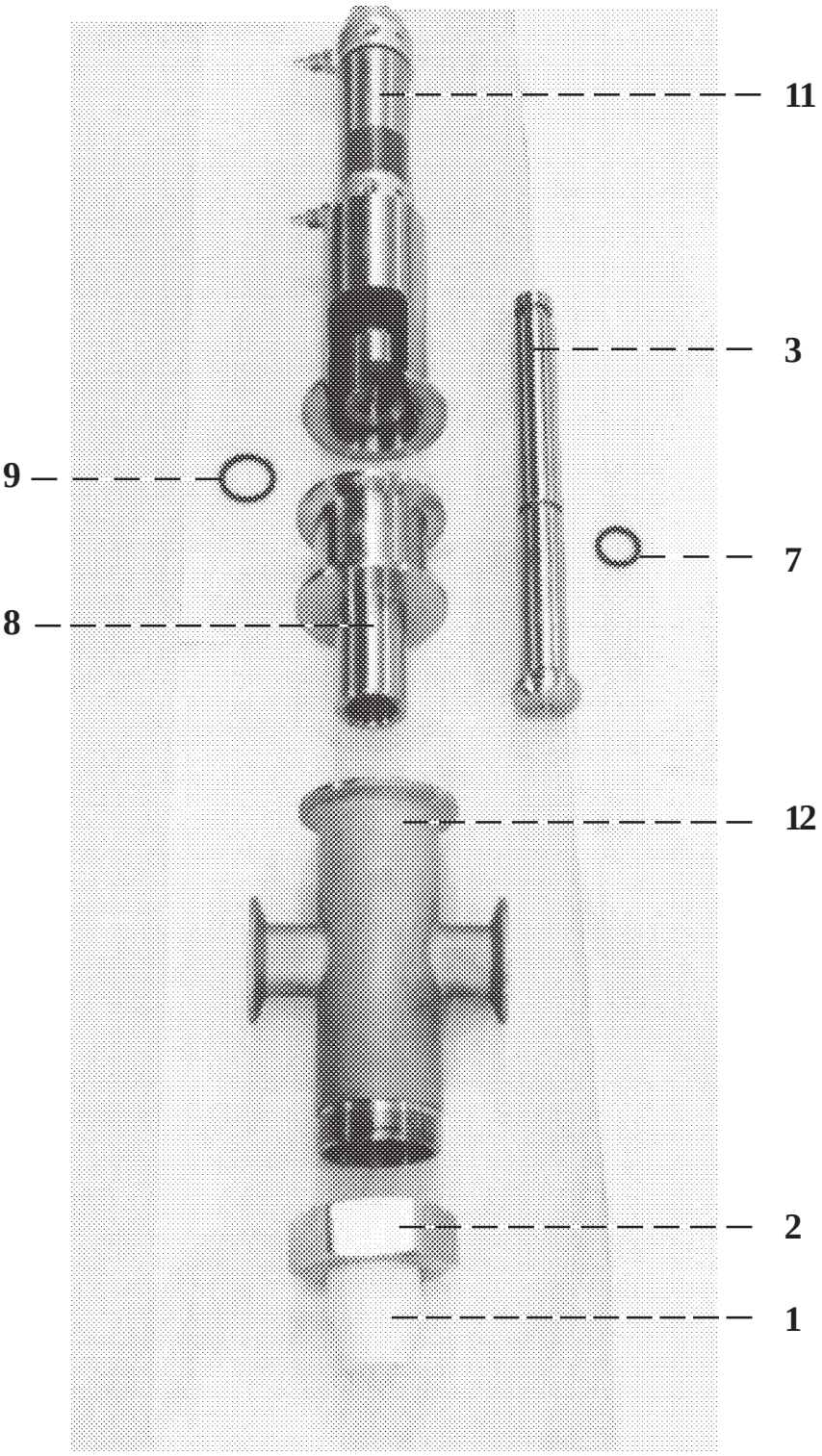


FIG.3.13



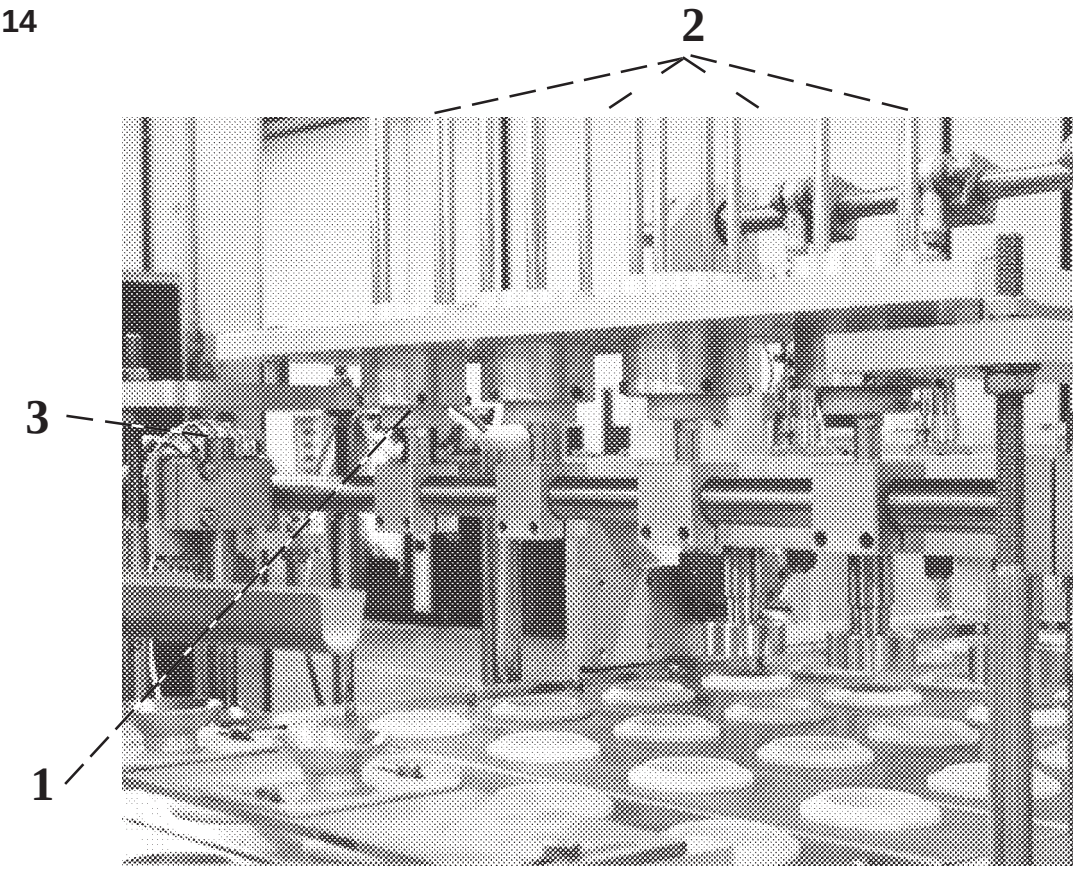
1 - FILLER HEAD
2 - FITTING FOR FILLER HEAD
3 - SHUTTER
7 - SHUTTER O-RING
8 - PILOT BOSS
9 - PILOT BOSS O-RING
11 - PNEUMATIC CYLINDER
12 - FILLER BODY

3.9.8 Lid dispensing station

The lidding unit consists of ; suckers (1) for lid sucking; vertical dispensers for lids (2), a rotating piston (3) for rotating the sucker.
The station operates as follows:
as soon as the tray-chain stops, the lid-sucking phase has started, as well as the rotation of suckers to insert the lids onto the containers. If the lid dispenser is empty, the vacuostat notices an insufficient degree of vacuum and stops the rotation of suckers.

Once the suckers have placed the lid onto the container, the vacuum is cut off . A blow at the same time helps the lid to detach, then the suckers continue the upstroke until they have returned to original position in contact with the lids in the dispenser.
The vacuum is obtained by means of the vacuum pump and is governed by the cams of the electronic programmer.
Turn relevant illuminated selector to start the lidding unit.
The operation of the lidding unit is governed by the cams of the electronic programmer.

FIG.3.14

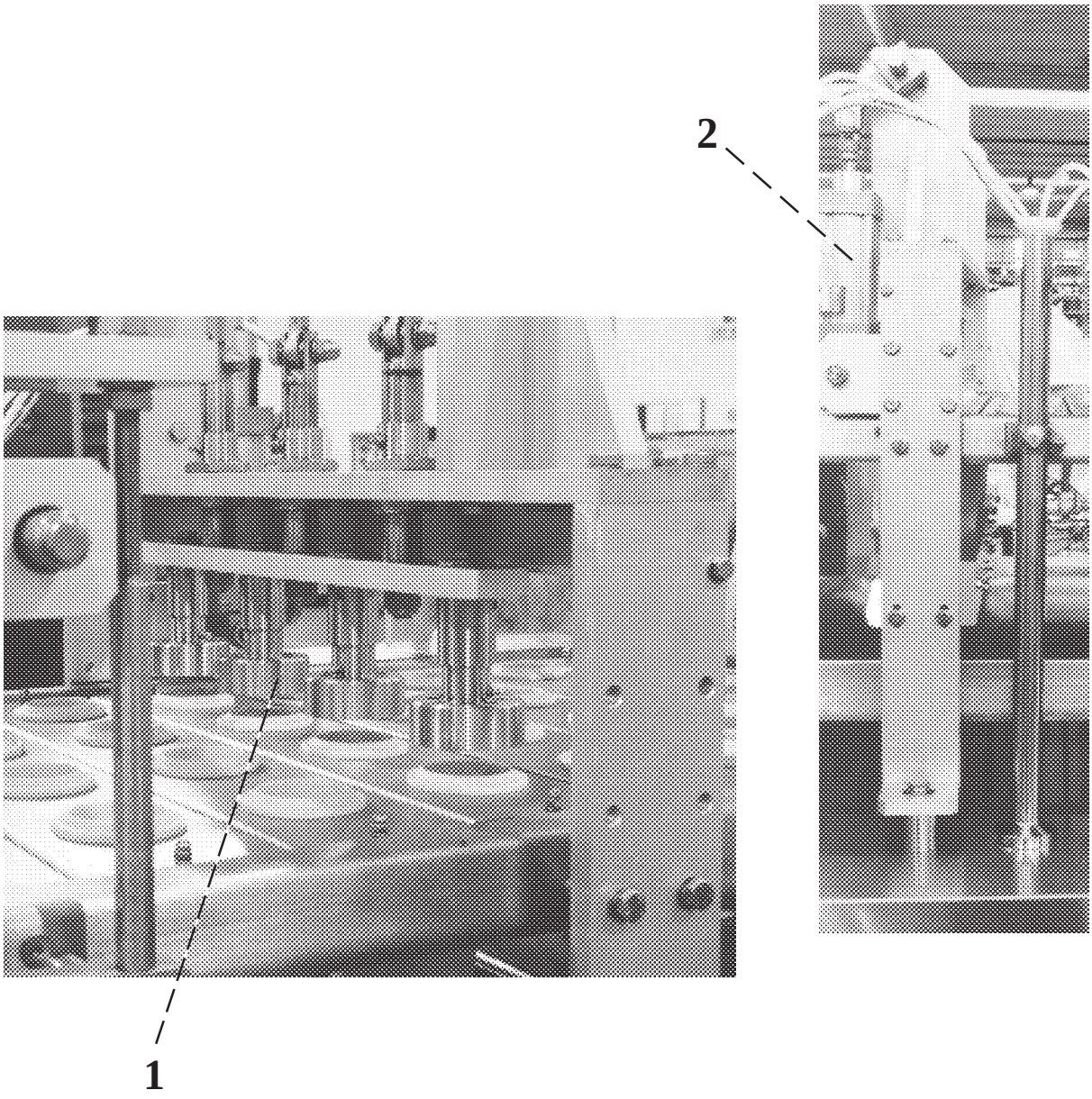


3.9.9 Lid pressing station

After the lidding unit we have the pressing device.
It consists of the plungers (1), and a pneumatic cylinder (2).

The operation is limited to the downstroke and upstroke by means of the pneumatic cylinder.
Turn relevant illuminated selector to start the pressing device.
The operation of the pressing device is governed by the cam of the electronic programmer.

FIG.3.15

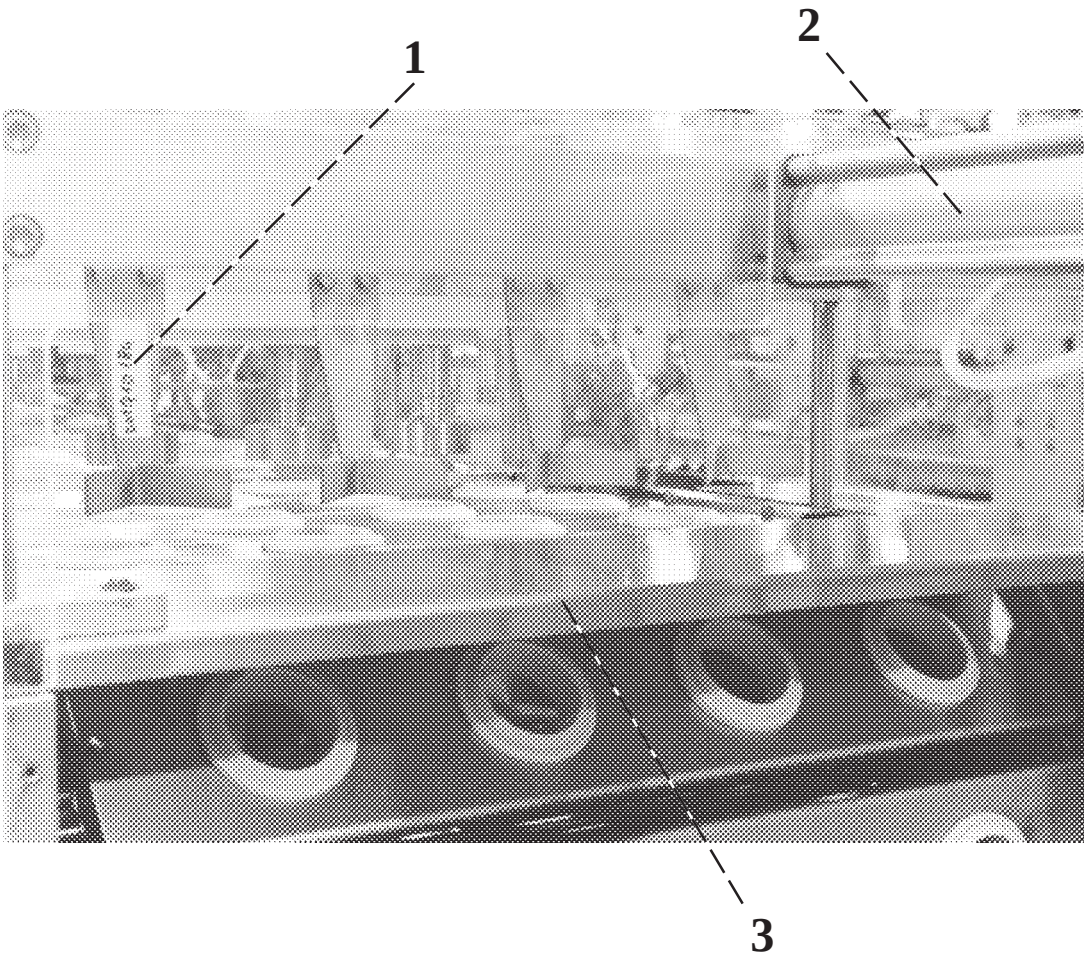


3.9.10 Ejection station

This station ends the cycle with the ejection of the finished product, it is essentially consists of:
-ejection plungers (Fig.5, 4),
-pullers (1) guided by a pneumatic cylinder (2)
-unloading chute (3).
The station operates as follows: as soon as the tray- chain stops, the ejection plungers lift the cups and take them completely out of the tray. Then the pullers start and remove the cup from the ejection plungers and bring them onto the ejection chute.
The mechanical motion of ejection plungers is obtained by means of a set of levers.

The operation of the ejection unit is partly mechanic and partly pneumatic and is governed by the cam of the electronic programmer and by proximity.

FIG.3.16



CHAPTER 4.0

INSTALLATION

4.1 Unpacking and Delivery checks

Standard CL as well as equipment to be exported are shipped in special packing material, generally crates. Uncrating should take place near the location. Transport of the crated machine can easily take place by means of a truck lift owing to the special design of the base plate of the crate.

When the crate with the machine is received, proceed with the unpacking as follows:

- Remove nails from top cover. Remove sides. Becareful not to drop the wooden spacer blocks, placed between the sides of the crate.
- Remove the spare parts box and other components from the machine.
- Unstrap the wooden blocks, which keep the machine blocked during the shipping.
- Remove the cellophane protecting cover.

The machine should be unpacked upon receipt and the following checks should be carried out:

- Make sure that the machine has not been damaged during shipment.
- If there is any damage, notify our freight agent and possibly also the insurance company. Do not proceed with the installation until the insurance company and/or the freight agent have consented.
- Check that all the covers and panels have been secured properly and that there are no loose parts.
- Visually check all the electrical components to make sure that they are intact and have not been physically damaged.
- If all parts have been received and if there is no damage, proceed with the installation.

4.2 Positioning and installation

Lift the machine by means of the lifter and position it in the working area.
Once the CL has been positioned, the legs should be adjusted to level the machine both longwise and widewise.
Mount the equipment, which has been dismounted for shipment, in accordance with the dimensional sketch and the other drawings.

4.2.1 Power connection

Connect the electric system of the CL to the power supply plant of the factory in accordance with local regulations.
Power connections should be made by skilled electricians on the customers own account and risk.
Check the main voltage to be in accordance with the machine voltage.
The entire electric system of the CL is built into the machine and all internal wirings have been connected and checked by specialists at Tetra Laval Food Hoyer S.p.A.
Use for the installation a suitable cable to be connected to the clearly marked terminals of the CL control panel.
Connect the cable to the power supply plant of the factory via a main switch and fuses.

4.2.2 Compressed air connections

Connect the CL to the internal compressed air system of the factory by means of snap-on connectors.
The required working pressure in the internal system is min. 6 bar.
If the air pressure in the internal system of the machine drops to approx. 3,5 bar, the machine should be stopped automatically by a pressure switch.
For compressed air consumption and diameter of the supply line of the CL see technical data.

4.2.3 Ice cream pipe connection

The ice cream pipe between the continuous freezer and the CL should be a stainless steel pipe with the same inside diameter of the outlet pipe of the freezer.
If concurrent filling of cups/cones with 2 or 3-flavour of ice cream is desired, 2 or 3 freezers must be used, each with its own outlet pipe (i. e. one freezer for each flavour of ice cream). Connect them to the ice cream manifold on the machine.

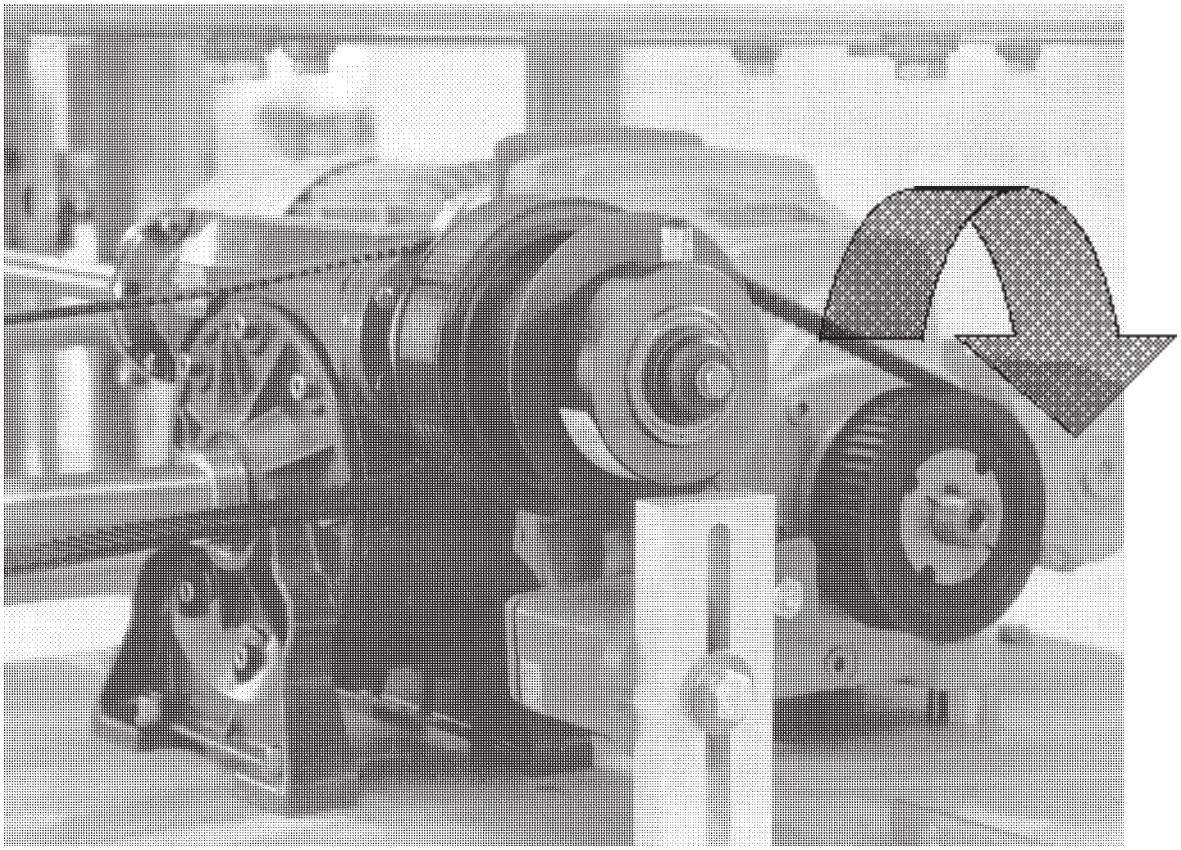
4.3 Operational Check

CHECK MECHANICAL OPERATION OF THE MACHINE AS FOLLOWS:

- Close all covers.
- Release Emergency stop button.
- Turn ON main switch.
- Turn ON air supply.
- Check rotation direction of the motor:

  The correct rotation direction is indicated by the arrow.
  Push illuminated button (SB7) to check. Push button (SB8) to stop.

FIG.4.1



CHAPTER 5.0

SETTING PROCEDURES

AND

PRODUCT CHANGE

5.1 Change-over to new product type

If the CL is provided with equipment and accessories for the filling of more than one size and type of cup/ cones, it will be necessary to exchange specific parts of the equipment.

The conveyor lamellas and the cup seats can be changed easily and quickly according to the different product formats. All filling equipment is designed to guarantee maximum hygiene.

In order to change format from cones to cups, change the lids in the lid dispenser magazine, the lid press and the ejection plate on which the lifting device is attached.
It is also necessary to fit the lamellas with the correct seats for the product to be made.

In case of programmer-controlled operation, the processing sequences of each product type will have to be stored in the programmer memory. A change-over to one of the other product types will necessitate a change-over to the relevant program in the programmer.

Note: If substantial changes have been made in the user program, these changes will have to be stored prior to change-over.

5.2 Adjustments

5.2.1 Tightening of conveyor chains

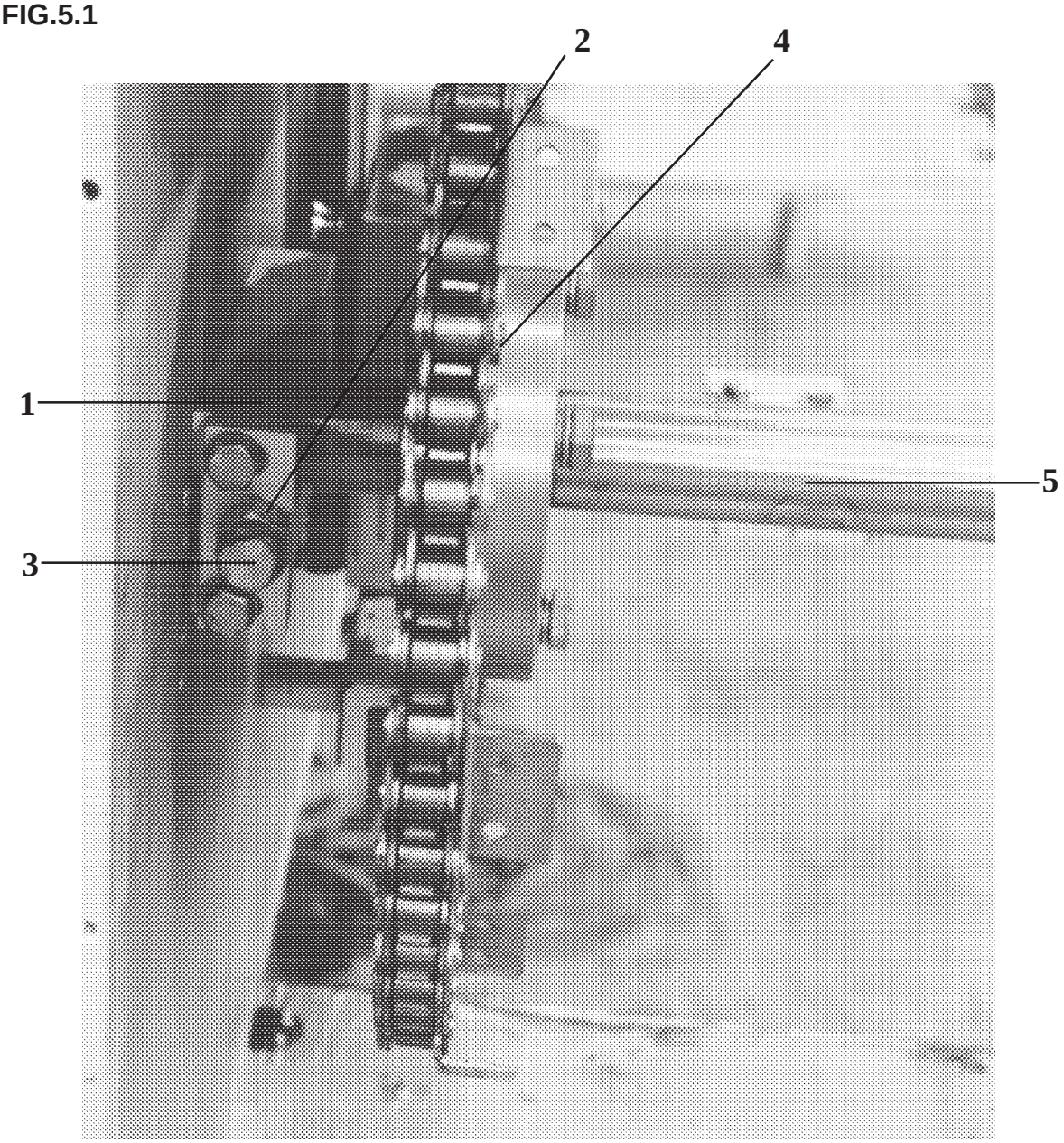
1. Tighten the chain by means of two chain adjusters (1) placed between the two chain wheels (4) that are fitted on the end of the driven shaft (5).

2. Loosen the xesagon lock nuts (2).

3. Tighten the adjustable screws (3) until an adequate chain tension has been obtained.
Note:tighten in the same way the two adjustable screws.

4. Retighten the above screws and check that the two chain wheels are aligned.

FIG.5.1



5.2.2 Tightening of conveyor

Adjustment procedure:

1. Check the conveyor chains for proper tension and tighten, if necessary.

2. Loosen the three screws (Fig.3.6, par.2) on the flange (Fig.3.6, par.3).

3. Turn manually the chain wheel until the ejection is aligned (Fig.5.2), i. e. with ejectors out of the cup seats.

4. Screw again the three screws (Fig.3.6, par.2).

5. Supply compressed air.

6. Switch on the power for the CL by means of the main switch.

7. Cut off all the station by means of the relevant selector switches.

8. After having attained the minimum speed via the speed-variator, keep the Jog push-button pressed until the lamella stops in aligned position with the ejection. (Fig.5.2)

9. If "000" reads on the display of the programmer,the "zero" point is set.

10. If "000" doesn't read on the display, then operate as follows on the encoder:

-unscrew the encoder joint (Fig.5.3, par.1)

-turn manually the joint until reads "000" on programmer

-screw again the joint

-now the machine is ready.

FIG.5.2

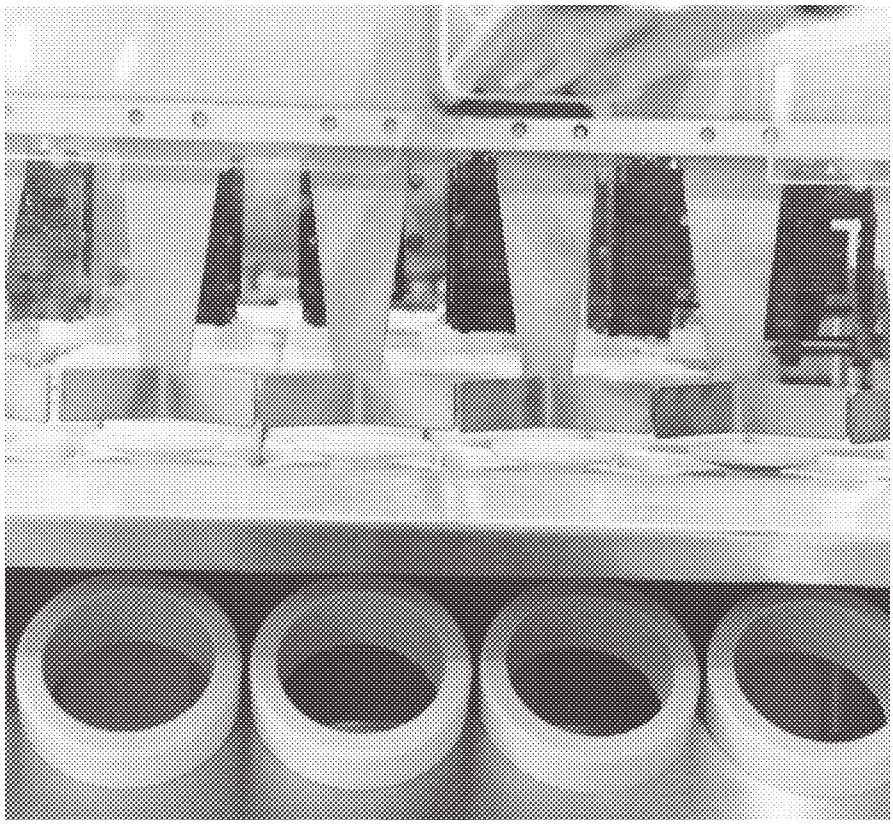
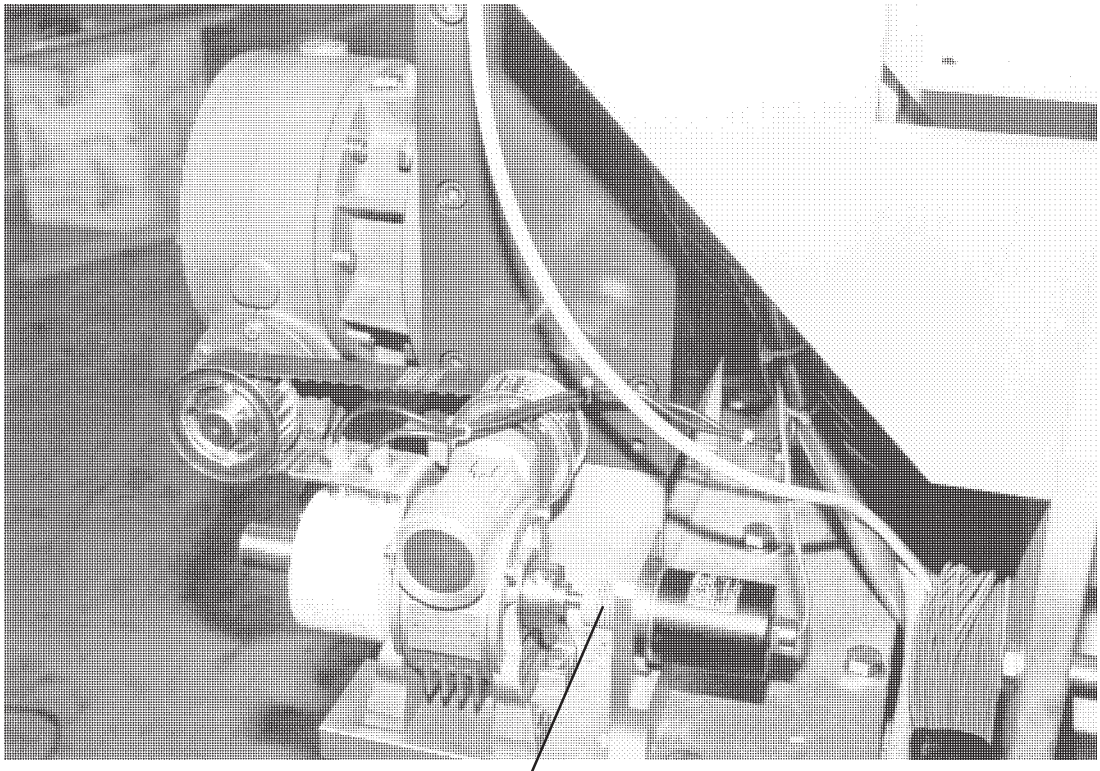


FIG.5.3



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CHAPTER 6

OPERATING PROCEDURES

6.1 PRELIMINARY CHECKS TO OPERATION

It is a general condition that the CL is equipped with a vacuum pump.

1. The CL has been located correctly.
2. The CL has been adjusted.
3. The CL has been lubricated (see Lubrication instruction).
4. The CL has been cleaned (see Cleaning instruction).
5. The freezer is ready for production.
6. The materials to be used in production are ready for production in sufficient quantities.

6.2 PREPARATION TO START-UP

It is a general condition that the CL programmer has been programmed to control the desired operational functions of the CL in the production process.

1. Switch on the power for the CL by means of the main switch.

2. Insert compressed air system by key SB4.

3. Read out the air pressure in the compressed air system on the manometer, on the pressure control valve (fitted inside the machine). (6 bar).

4. Check the oil level in the air lubricator.

5. Verify the correct functioning of the emergency stop buttons.

6. Start the vacuum pump.

7. Fill the various cup/cone and lid magazines.

8. Check the functioning of the cup/cone dispenser, lid dispenser, and lifting device/ejection device.

   - Start the main motor SB7.
   - Start the cup/cone dispenser SA6/SA7.
   - Start the lid dispenser SA16. When the first row of cups/cones has reached the station immediately before the lid dispenser.
   - Check whether the lidded cups/cones are lifted or ejected correctly at the conveyor end.
   - If any abnormalities are found, remedy the fault at once.
   - When all operational function are satisfactory, stop the CL by depressing key SB8, and stop the vacuum pump. Remove all cups/cones from the conveyor belt.

9. Connect the U-shaped pipe(s) on top of the CL and the outlet branches of the continuous freezers(s).
   Moreover, mount a discharge hose on the by-pass valve. (optional)

6.3 START (MANUAL)

1 - Start the continuous freezer(s) (see the manuals supplied for the freezer(s)).

2 - Adjust each freezer to supply the quantity of ice cream required for the filling process. The required ice cream quantity is calculated beforehand .

3 - Turn on key SA9 for the filler.

4 - When the freezer(s) have been adjusted and the ice cream has reached a correct viscosity. Turn the three-way taps to filling position.
The ice cream is now discharged and flows towards the U-shaped pipe and out through the by-pass valve. Thus the ice cream filling piping is cooled down.

5 - Start the main motor while the piping is cooled down in the way described above.

6 - Read out the actual speed of the CL on the programmer.

7 - Adjust the speed of the CL by means of knob, to a somewhat higher setting than the desired production speed.

8 - Start the vacuum pump (vacuum pump is optional).

9 - Start the cup/cone dispenser by turning on relevant start key (SA6/SA7).

10 - If the CL is provided with other types of equipment, e. g. a station for inside chocolate spraying of confectioned cones, fitted between cup/cone dispenser and filler. Start this equipment at the correct point of time.

11 - When the first row of empty cups/cones has reached a position a few stations before the filler. Stop the main motor. A lamella with empty seats will now be in position right beneath the nozzles of the filler.

12 - When the piping has been sufficiently cooled down, depress the stop key for by-pass valve SB11 of the filler.
The ice cream will now flow out through the filling nozzles, pass the lamella seat openings, and be collected on the drip tray.

13 - Check the ice cream viscosity and, if necessary, adjust the continuous freezer(s).

14 - Start the filler by means of relevant start key.

15 - Start the main motor by depressing its start key.

16 - If the CL is provided with types of equipment fitted between filler and lid dispenser, start this equipment at the correct point of time.

17 - Start the lid dispenser by turning on relevant start key for the dispensing of lids on the cups/cones of the first row reaching the dispenser.

18 - If the CL is provided with types of equipment fitted after the lid dispenser, start this equipment a certain period of time before the cup/cone row reaches the dispenser.

19 - Check whether all cups/cones of a row have been filled with equal ice cream quantities.
If not, adjust the hose clamps of the distribution hoses until the ice cream quantities are equal.

20 - Measure the quantity of ice cream filled into each cup/cone.
As mentioned in point 7 above, the speed of the CL was adjusted to a somewhat higher setting than the desired production speed. Consequently, the cups/cones are probably filled with too small ice cream quantities.
Reduce the speed by knob, and the cups/cones will gradually be filled with the correct, desired ice cream quantities.

6.4 STOP (MANUAL)

1 - Stop the cup/cone dispenser by depressing relevant stop key.

2 - If the CL is provided with types of equipment fitted between cup/cone dispenser and filler, stop this equipment by depressing relevant stop key(s) when the last row has passed the equipment.

3 - Immediately after the last row of cups/ cones has been filled with ice cream, stop the filler by depressing relevant stop key.

4 - Stop the continuous freezer(s) by depressing their relevant stop buttons.

5 - If the CL is provided with types of equipment fitted between filling and lid dispenser, stop this equipment when the last row has passed the equipment.

6 - Stop the lid dispenser when the last cup/cone row has been lidded.

7 - If the CL is provided with types of equipment fitted after the lid dispenser, stop this equipment when the last row of cups/cones has passed the equipment.

8 - When the last row of cups/cones has been removed from the lamella conveyor, either by a lifting device or an ejection device, stop the main motor of the CL.

9 - Stop the vacuum pump.

10 - Disconnect compressed air.

11 - Switch off the power for the CL by means fo the main switch.

Note: If the CL is equipped with an electrically heated chocolate tank, do not cut out the power for the CL as the power for the heating elements of the tank are thereby cut as well. Thus solidification of the chocolate left-over in the chocolate tank is avoided.

6.5 EMERGENCY STOP

If there is a risk of damage to the machinery or of personal injure to the operators, the CL should be stopped immediately in one of the following ways:

1. By depressing one of the red emergency stop buttons or both. One of the buttons is fitted on the control panel, the other is positioned on top of the CL at the opposite end.

2. By depressing the stop key for the main motor of the CL.

Note: Do not use the emergency stop button unless a dangerous situation arises!

When an emergency stop button has been activated, do not forget manually to reactivate the stand-by key for heat. Likewise, do not forget to stop the continuous freezers by activating their respective “Instant stop” buttons.

CHAPTER 7.0

CLEANING

AND

MAINTENANCE

7.1 Cleaning

For the sake of hygiene, it is very important that the CL is cleaned immediately after daily production.

Cleaning procedure:

1. Remove all cups, cones and lids from the magazines of the CL.

2. First flush the supply lines for ice cream with pure cold water.

   Note: If your factory has a local, closed CIP system, this system can by used for the flushing of the supply line with a detergent. Connect the discharge pipe of the by-pass valve to the return pipe of the CIP system to allow the detergent to return to the tank of the system.
   The detergent which is pumped through the filling nozzles at intervals can be collected for example in a bucket placed beneath the drip tray.

   Then rinse out the supply lines with pure hot water and steam sterilize.

3. The distribution system for ice cream can be completely disassembled for cleaning. However, this is normally not required.

4. If the CL is provided with a time elapse filler, remove the locking ring at the extreme end of the bar and pull out the filling drum for inspection.

5. Clean the demounted components of the filler and steam sterilize.

6. If the CL is equipped with an extrusion filler, it is recommended that the cleaned filling nozzles are kept cool, for example in a hardening tunnel.

7. Clean the stainless steel sheetings of the CL, the conveyor chains, and the lamellas by using the following procedure:

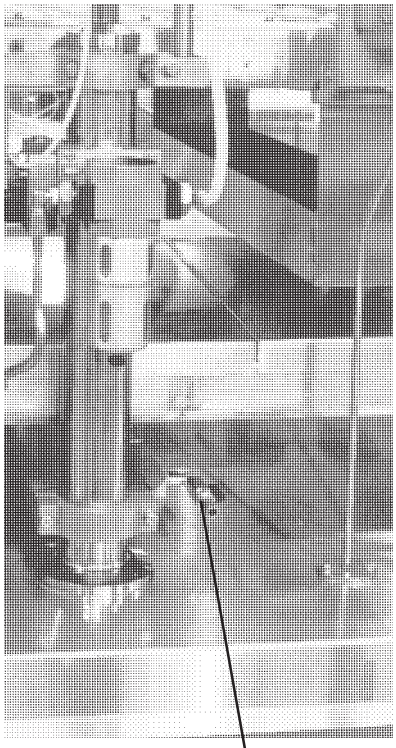
   -Connect a rubber pipe to the hose adapter (Fig.7.1).

   -Rinse with pure cold water while the main motor is running.

   -Rinse with a solution of hot water and the detergent normally used by your company.

   -While rinsing with this solution, the main motor must be stopped or allowed to run very slowly.

FIG.7.1



-Start the main motor at expedient intervals by relevant key.

-The conveyor chains move a pre-programmed number of stations forward and the main motor stops. After several such stepwise conveying movements, the whole conveyor system will have been cleaned.

-Wipe dry the conveyor system as carefully as possible by using the stepwise procedure described above.

-Steam sterilize the conveyor chains, lamellas, and lamella seats while the main motor is running.

8. Stop the main motor.

7.2 After cleaning

After the cleaning, proceed as follows:

1. Open the drain tap of the vacuum tank to empty it for water that may have been collected in the tank.

2. Open the drain tap of the compressed air tank to empty it for water that may have been collected in the tank.

Note: Do not forget to close the two drain taps after the draining.

7.3 Maintenance, Generally

The CL has been designed with a view to limiting and simplifying the daily, weekly and monthly maintenance as much as possible.
This has been achieved by the use of lifetime lubricated bearings to the greatest possible extent which will considerably reduce the need for lubrication.

Moreover, no components of the CL will normally require replacement before after approx. 4000 operating hours, provided that the maintenance instructions are carefully observed.
It is advisable to keep a report book for the CL and enter all production abnormalities, if any, their causes and remedies as well as dates and initials of the operators involved.

7.3.1 During the commissioning period

During the first period after start-up of the CL, i. e. approx. 3 months at 40 hours of operation a week, all operational functions should be observed very carefully and the following things should be given attention.

1. As required
   - adjust the mechanical and compressed air vacuum functions.
   - cleaning of the filter in the compressed air system.
2. Daily
   - check all functions, i. a. the pipe systems for leakages.
3. After 1 or 2 months of operation
   - check all screws and nuts to see if they are tightened.

7.3.2 During the operation period

The following check list is based upon 8 hours of operation a day. 2 or 3 shift operation with a correspondingly increased number of operational hours a day will proportionally reduce the intervals stated.

1. Daily
   - clean the CL (see section “Cleaning”).
2. Weekly
   - check the oil level in the “Stöber” gear and refill, if necessary.
   - clean filter in the vacuum line for the suction discs of the lid/ cup dispenser.
   - lubricated the CL in accordance with the lubricating instructions.

3. Monthly
   - clean the filter of the vacuum pump.
   - lubricate the CL in accordance with the lubrication instructions.

4. Every 6 months
   - clean filter in the compressed air line.
   - check and, if necessary, adjust all mechanical, electrical and pneumatic functions of the machine.

7.3.3 After downperiods

If the CL has not been in operation for a period of a month or more, the following things should be carried out:

- check all functions (mechanical, pneumatic and electrical) and adjust, if necessary.
- check the oil level in the “Stöber” gear and refill, if necessary.
- lubricate the CL in accordance with the lubrication instructions.

7.4 Servicing / ordering of spare parts

1. Servicing of the CL can be carried out in accordance with the following list of intervals:
a. Every 2000 operating hours:
- compressed air/vacuum system (sleeves, o-rings, etc.).
- suction discs (in cup dispenser/lid dispenser).
- slide-bearing bushings (e. g. in filler and lid dispenser).
- conveyor chains.

b. Every 10. 000 operating hours
- ball bearings.

c. As required
- all components which have become defective due to abnormal circumstances.

2. The spare parts required for the servicing are selected in the following way:
- in case of stops during normal operation, the causes for these should be identified or at least established as a probable result with a view to the ordering of spare parts of a later time.
- the CL should be monitored during normal operating conditions. Abnormalities, if any, are taken down and perhaps linked up with information given by the machine operators.
- besides, all moving parts should be examined for wear (slackness in bearings and bushes and perhaps scores) or other conditions requiring replacement or repair.

3. The necessary spare parts are ordered from Tetra Laval Food Hoyer SpA.
Note: when ordering, please include:
- serial number and year of manufacturing of the machine.
- drawing numbers, position number, part numbers and quantities.

4. The servicing is carried out. Disassembling of the CL should be carried out by the erector in charge of the servicing. If a service engineer from Tetra Laval Food Hoyer SpA is sent for, disassembling as well as servicing should be made by this engineer.

5. The required adjustment and test runs are made.
- partly without products.
- partly during normal operating conditions.

6. Resumption of production on the CL.

7.5 Lubrication instructions

The following lubrication instructions apply to standard CL.

The CL have been designed with a view to limiting lubrication as much as possible. This has been achieved i. a. by extensive use of ball bearings and ball joints with double seal and self-lubricating bushes.

However, some component have to be lubricated regularly. The blow lubricating instructions contain recommended lubrication points, lubrication intervals, and lubricants.

7.6 Scheduled maintenance

MOTOR SPEED -VARIATOR
- Change oil every 2000 hours (high-pressure oil type ISO-150)
(Further information from Stöber annexes).

INTERMITTOR CF3
- No oil change required.

Note: in case of replacement of inner parts of the box, recover the oil flowing out from the open box (in a clean container).
Once the repair operation is over, pour the previously recovered oil into the box.
If during the repair operation some oil were wasted, add up with AGIP BLASIA 150.
Note: should you dismantle the intermittor for repair or replacement, first of all notice carefully the position of the machine in which the tray-chain just has stopped.
Note down the degrees of the encoder and proceed with the disassembly.
During reassembly make sure the output shaft of the intermittor is in the exact position where it first stopped, then reassemble everything as originally.

BONFIGLIOLI REDUCTION UNIT
- No oil change required.

Note:in case of replacement of inner parts of the box, recover the oil flowing out from the open box (into a clean container).
Once the repair operation is over, pour the previously recovered oil into the box.
If during the repair operation some oil were wasted, add up with SYNTHETIC GREASE (we recommend synthetic grease TOTALCARTER S100 of TOTAL)
Note: in case it were necessary to dismantle a reduction unit for repair or replacement, first of all put a reference mark on the cam, so that when reassembling all the parts, everything is still in phase.

BECKER VACUUM PUMP
- Clean every 100 hours the filter of the vacuum pump.

HEADS OF CONNECTING RODS
- Grease monthly the pin on which they run, cover with a layer of grease the outer spheric part.
Note: in case these parts are in proximity of the product, utilize food-industry grade grease.

ENCODER
- In case it was required to replace the encoder,the belt or the flexible coupling, first of all note down the degrees read on the display of the programmer, then proceed with the replacement.
After the repair, restore the original conditions.
Note: during the operation do not move the machine's drive.

7.6.1 Recommended replacements and overhauls

1) **Every 1500/2000 hours**

- pneumatic cylinders	check and replace gaskets, if required
- suction cups	replace

2) **Every 5000 hours**

- bearings	check and replace, if required
- bronze bushes	check and replace, if required
- pins	check and replace, if required
- processing parts	check and replace, if required
- pneumatic valves	check and replace, if required

DE-HUMIDIFYING FILTER
To clean:
- unscrew cup
- remove float, by unscrewing lock nut
- remove the internal float
- clean all parts with water and detergent, dry with compressed air.

Warning:
DO NOT USE ALCOHOL OR SOLVENTS to clean.

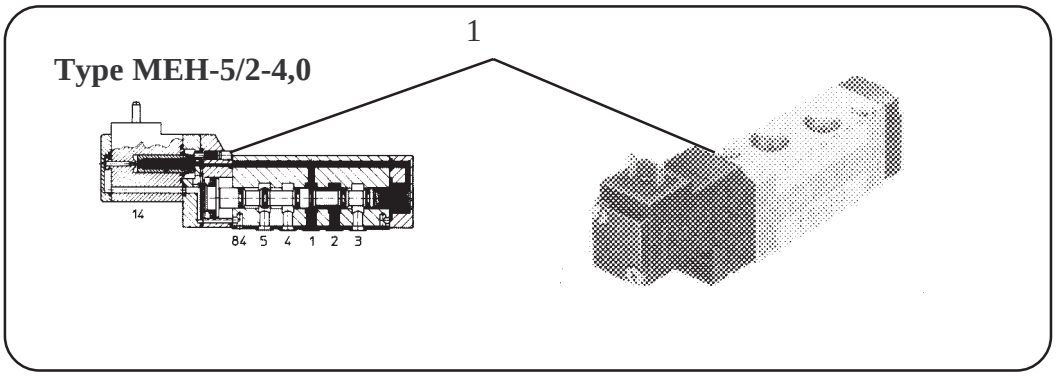
SILENCERS
Unscrew by hand and clean with warm water only. Dry with compressed air.

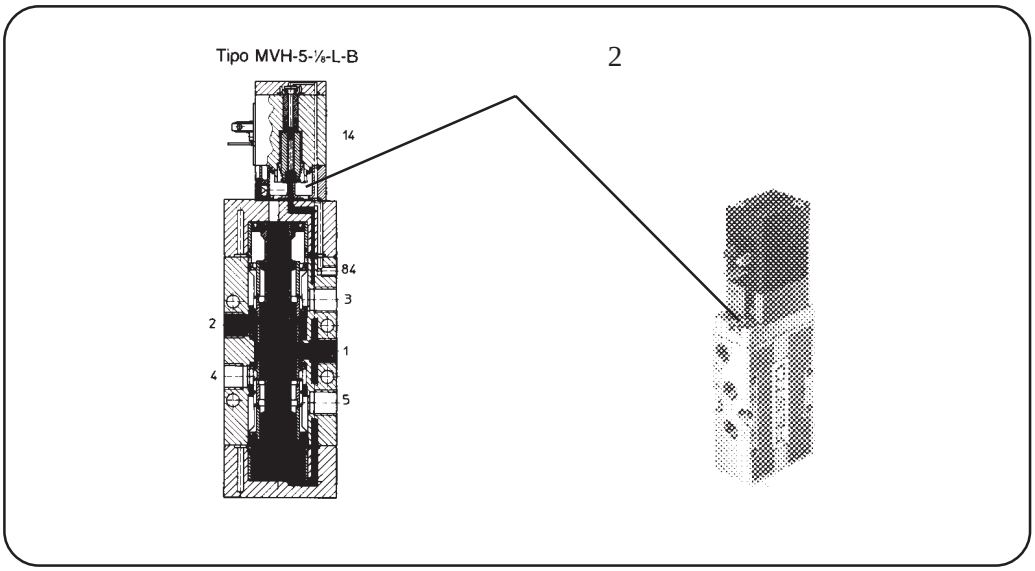
PNEUMATIC CYLINDERS

- unscrew lock screws and nuts
- unscrew cylinder head
- unscrew cylinder body
- check condition of gasket and replace if necessary (lubricate new gasket before mounting)

To check condition of the pneumatic valves:
- stop the machine with the processing heads at bottom dead center
- disconnect air tubes to the various heads: a leakage of air can be noticed from one of the holes
- if operating the control valve manually (i. e. by pressing the test push-button (1 & 2) a leakge of air occurs from the other hole. This means the valve is in good condition
- otherwise the valve must be replaced after having removed the lock screws and nuts.

FIG.7.2





CHAPTER 8.0
TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Power on lamp HL1 is OFF.	Main switch defective.	Replace main switch.
	Main switch on "0" position.	Turn main switch on "1" position.
	Lamp HL1 are burnt out.	Replace lamp.
	Automatic switches QF01-02 are open.	Reset automatic switch.
	Transformer defective (TC1).	Control and if necessary replace.
	Short circuit on sub-services.	Find the fault and reset the circuit.
Overload lamp HL4 is ON.	Automatic switches QF1/2/3 are tripped.	Reset automatic switch .
	Automatic switch QF1 or QF2 or QF3 faulty.	Control and if necessary replace.
Lamp HL2 is ON.	Reducer Filter group incorrectly set.	Push the air button SB4 until the insufficient air pressure lamp swiches off. If the lamp remains on, check the air pressure gauge (pressure read should be about 6-7 bar). If the pressure is correct, check the pressure switch setting by turning the setting screw until the lamp switches off. If the lamp remains still on , the pressure switch is faulty. Replace.
	Air supply not connected.	Connect air supply.
	Valve YV1 faulty.	Check electrical connections and if necessary replace the valve.
	Pressure switch PS1 incorrectly set or faulty.	Control and if necessary replace. (adjust pressure at 4 bar)
	Relay KA3/4 faulty.	If all the above checks are satisfied and the lamp HL3 is still switched on, check electrical connections and if necessary replace relay KA4.

PROBLEM	PROBABLE CAUSE	REMEDY
Lamp HL5 is ON.	Lubrication box no voltage.	Check into the control panel on the terminals 221 and 222 if there is voltage (220V). (see lubrication box manual)
	Automatic switches QF01/ 03 are tripped.	Control and if necessary replace.
	Transformer TC1 faulty.	Control and if necessary replace.
	Relay KA10 faulty.	Control and if necessary replace.
The conveyor belt does not start.	Low air pressure.	See "Lamp HL2 is ON".
	Automatic switch QF1 tripped or faulty.	Control and if necessary replace.
	No power.	Check power supply.
	Faulty emergency stop.	Replace the button.
	Emergency stop has not been released.	Release the button.
	Microswitches SQ6/7 on the chocolate spray and pressing unit pistons.	With the machine stationary (power on) the microswitch LEDs must be on. If a LED is off, move the microswitch up and down. If the LED comes on, fix the microswitch in that position. If the LED still does not come on, check (on the control panel) the voltage at the microswitch terminals using a tester (see electrical diagram). If there is voltage, the microswitch is faulty, replace it.
	Relay KA9/17 (relative to microswitches SQ6/7) faulty.	Control and if necessary replace.
	Microswitch SQ1 of the safety joint is faulty.	Check that there are no obstructions on the conveyor belt. Control and if necessary replace.
	Relay KA5/6/7 faulty.	Control and if necessary replace.

PROBLEM	PROBABLE CAUSE	REMEDY
All stations do not operate or operate in an irregular manner.	Programmer.	Check "zero" point. Check the programming of the programmer (degree). Check sense of rotation of the encoder. (the degree on the programmer display have to be increasing)
	Encoder faulty.	Replace.
	Programmer faulty.	Check programmer fuses, if necessary replace. If the fuses are operating, check the voltage on the programmer terminals. If there is voltage, replace the programmer.
One station does not operate or operate in an irregular manner.	Selector not turned on.	Turn on.
	Pneumatic Cylinder .	Check gasket.
	Pneumatic valve.	Check the operating. Identify the valve relative at the station by the pneumatic diagram. With the machine stazionary (with air on and power off), check (manually) the valve pushing the test button on the valve. If the valve working correctly, check the voltage at the coil terminals.
	Programmer.	Check the programming of the programmer (degree).
	Relay card.	Check the relay corresponding at the cam. If the relay is fault, use a free relay. Program the relative cam at the new relay.
	Solenoid valve corresponding at the station.	Check connection pipe of the air. Check power supply of the coil. Check the mechanical operation of the solenoid valve.

PROBLEM	PROBABLE CAUSE	REMEDY
The filling and lid dispensing stations operate incorrectly.	Insufficient pressure inside of cylinder of the cam lever.	The pressure have to be 2-4 bar. Viceversa check setting of the pressure reducer; if it is correct check the mechanical components of columns of the stations. Check the lubrication and the sliding of the columns.
No chocolate from topping or chocolate sprayer.	Chocolate tank and piping..	Check chocolate to be liquid and if possible without clots.
	Topping-chocolate sprayer	Check for presence of hardened chocolate and wash.
Lids don't drop.	Chocolate pump.	Check the pump operating.
	Vacuometer no set or faulty.	Control and if necessary replace.
	Lack of lids in dispenser or lids are incorrectly placed.	Check.
	Insufficient vacuum.	Check vacuum generator/silencer/sucker/piping to be clean.
	Programmer.	Check cam regulation.
insufficient or excessive chocolate from chocolate sprayer.	Chocolate pump.	Use the adjusting screw, placed on the pump, to increase or decrease the chocolate quantity.
	Filling time.	Increase or decrease the filling time set on the programmer.
insufficient or excessive chocolate from topping.		

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CHAPTER 9.0
SPARE PARTS LIST

FIG.9.1

N°	DESCRIPTION	CODE
1	DRIVEN CROWN-GEAR	546051138
2	DRIVEN SHAFT GUIDE SHOE	540300030
3	ADJUSTABLE SCREW	546000074
4	DRIVEN CROWN-GEAR FLANGE	540300075
5	DRIVEN SHAFT	546051016
6	CHAIN	336017934

FIG.9.1

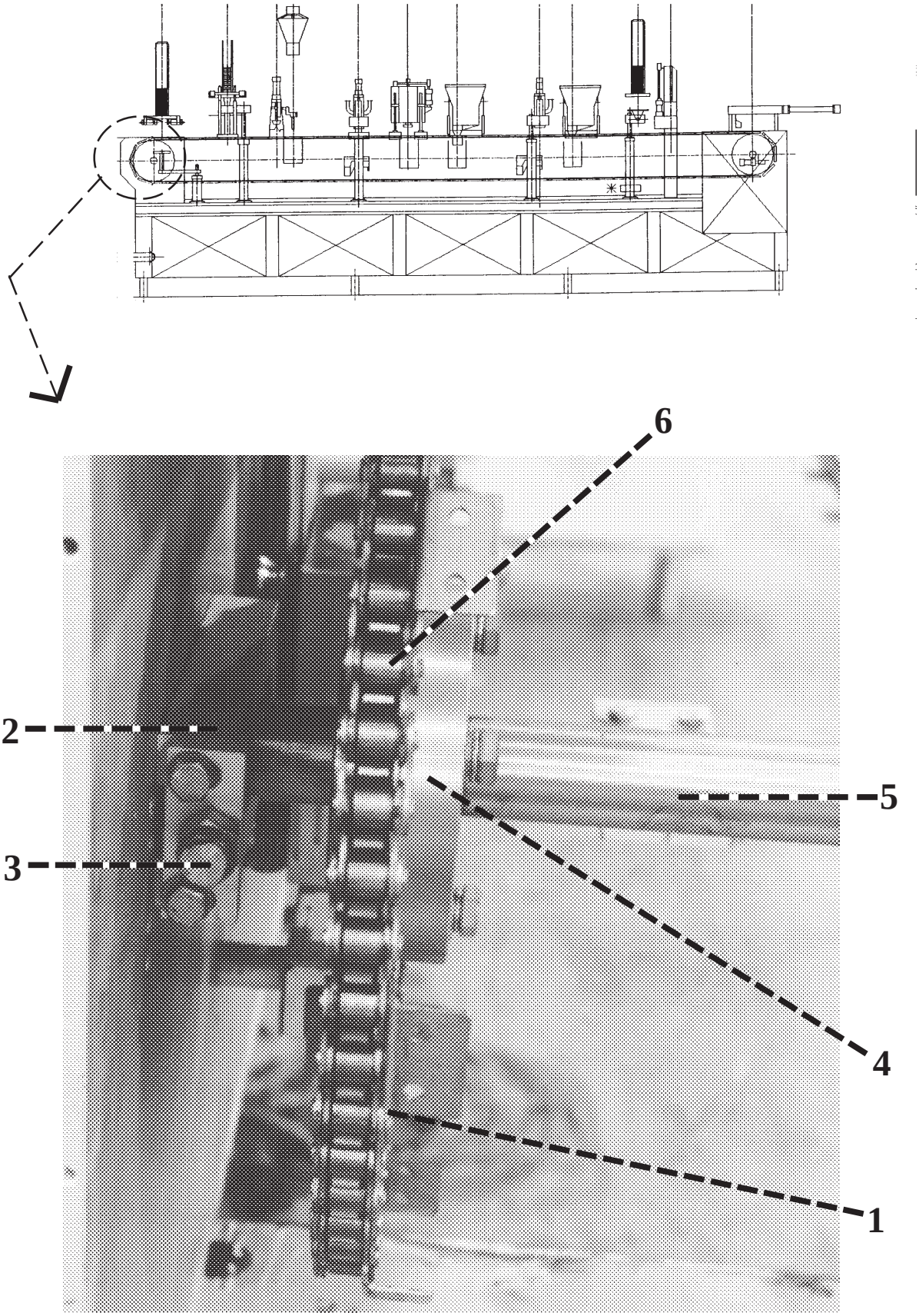


FIG.9.2

N°	DESCRIPTION	CODE
7	REDUCER VF/86	336010153
8	REDUCER VF/44	336010052
9	ENCODER	017087101
10	JOINT	336072910
11	PULLEY	336026872
12	BUSHING	336006295
13	COG BELT	336019527

FIG.9.2

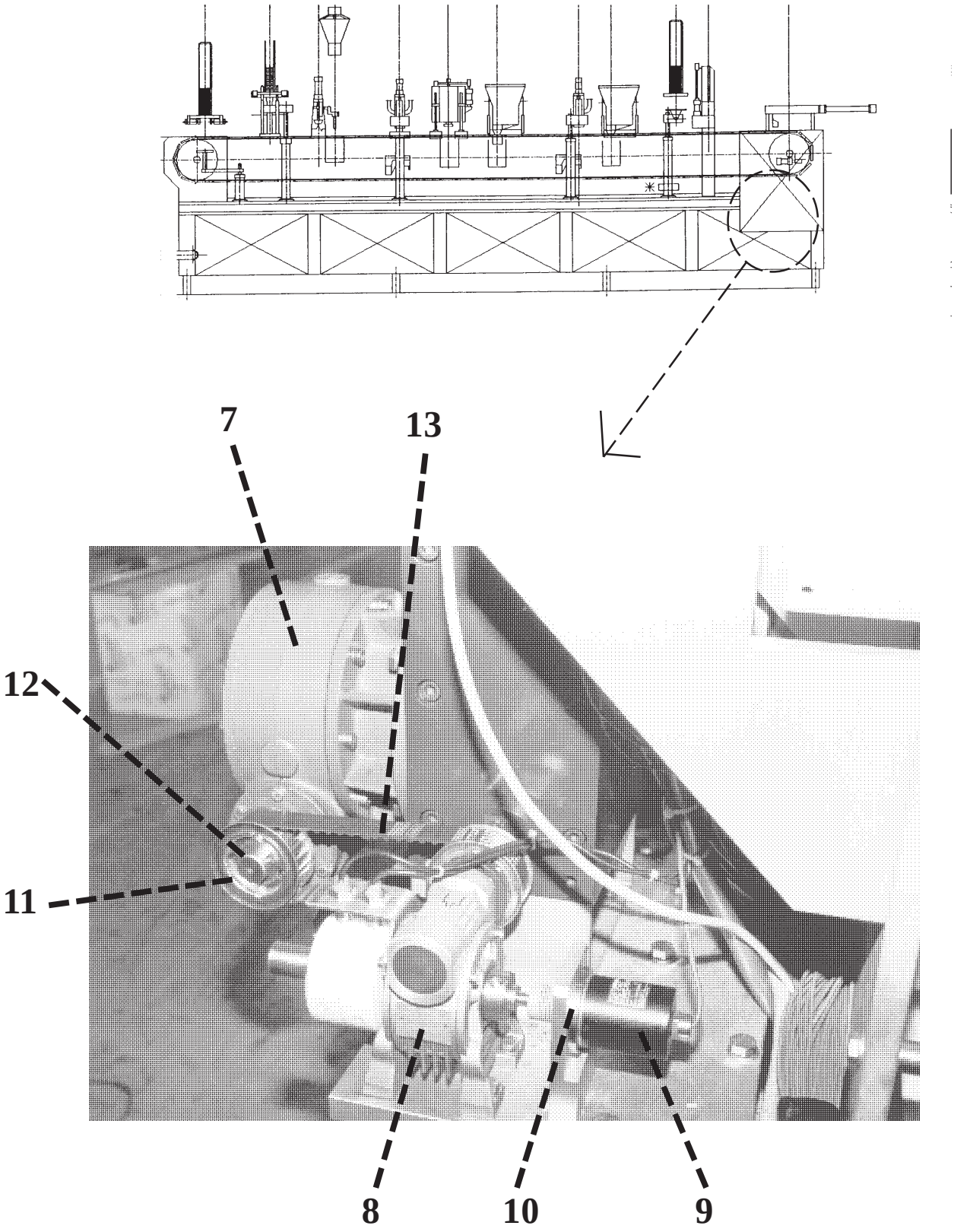


FIG.9.3

N°	DESCRIPTION	CODE
11	PULLEY	336026872
17	CHAIN TIGHTENER	326033071
18	ROLLER	326033076
19	PULLEY	336026867
20	BUSHING	336006293
21	SAFETY COUPLING	546051196
22	PULLEY	546051198
23	COG BELT	336019710
24	COG BELT	336019713
25	COG BELT	336019711
26	PULLEY	336026874
27	REDUCER VF86/A	336010166
28	JOGGING UNIT	336014181
29	VARIABLE-SPEED MOTOR	014060516
30	SUPPORT	336007056
31	SUPPORT	336007058
32	DRIVE SHAFT FLANGE	CM50D21004
33	JOGGING UNIT FLANGE	CM50D21005
33A	INTERMEDIATE FLANGE	CM50D21006
33B	DISK CLUTCH	336072947

FIG.9.3

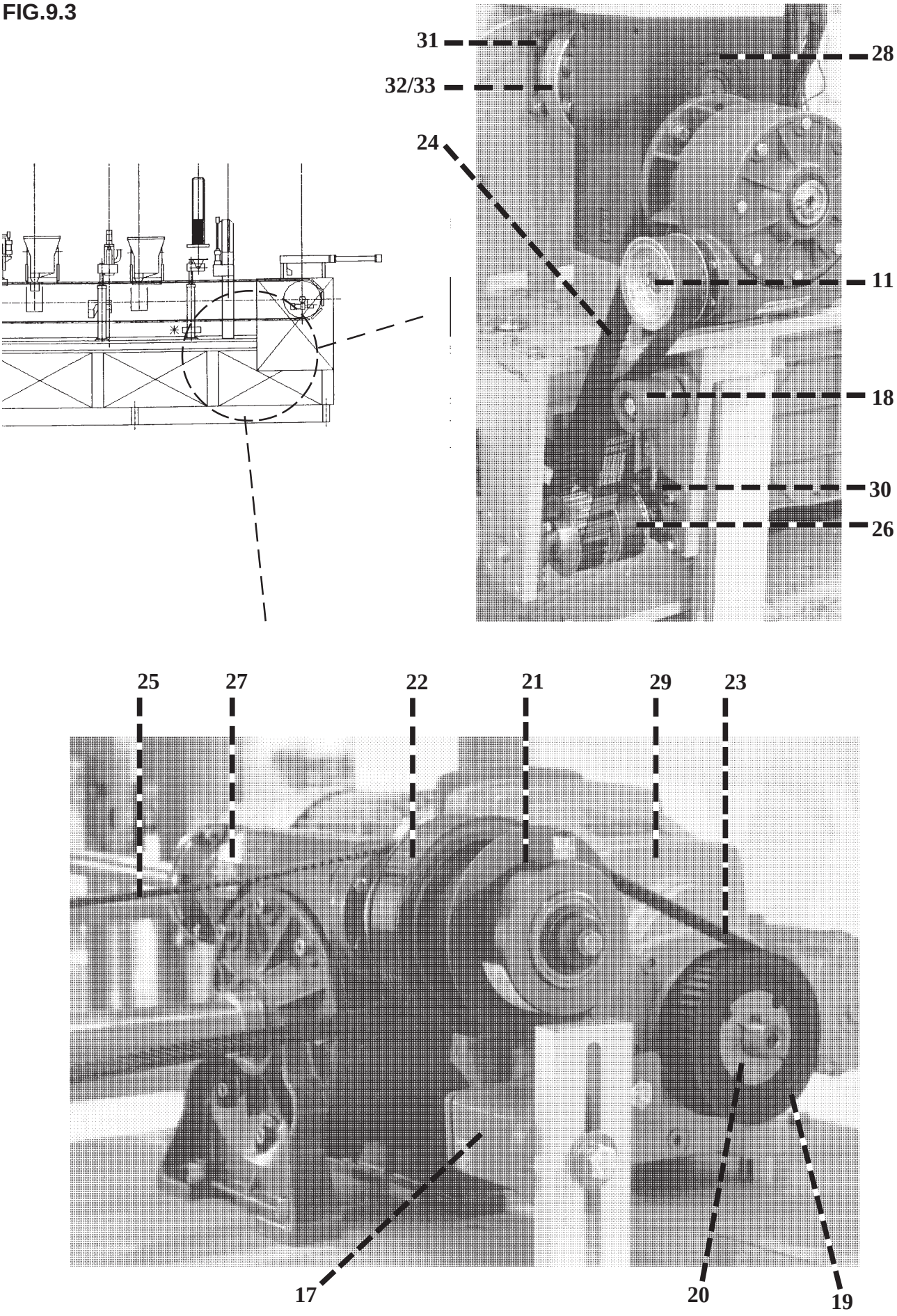


FIG.9.4

N°	DESCRIPTION	CODE
14	DRIVE CROWN-GEAR	546051143
15	FLANGE	546051033
16	BUSHING	546051032

FIG.9.4

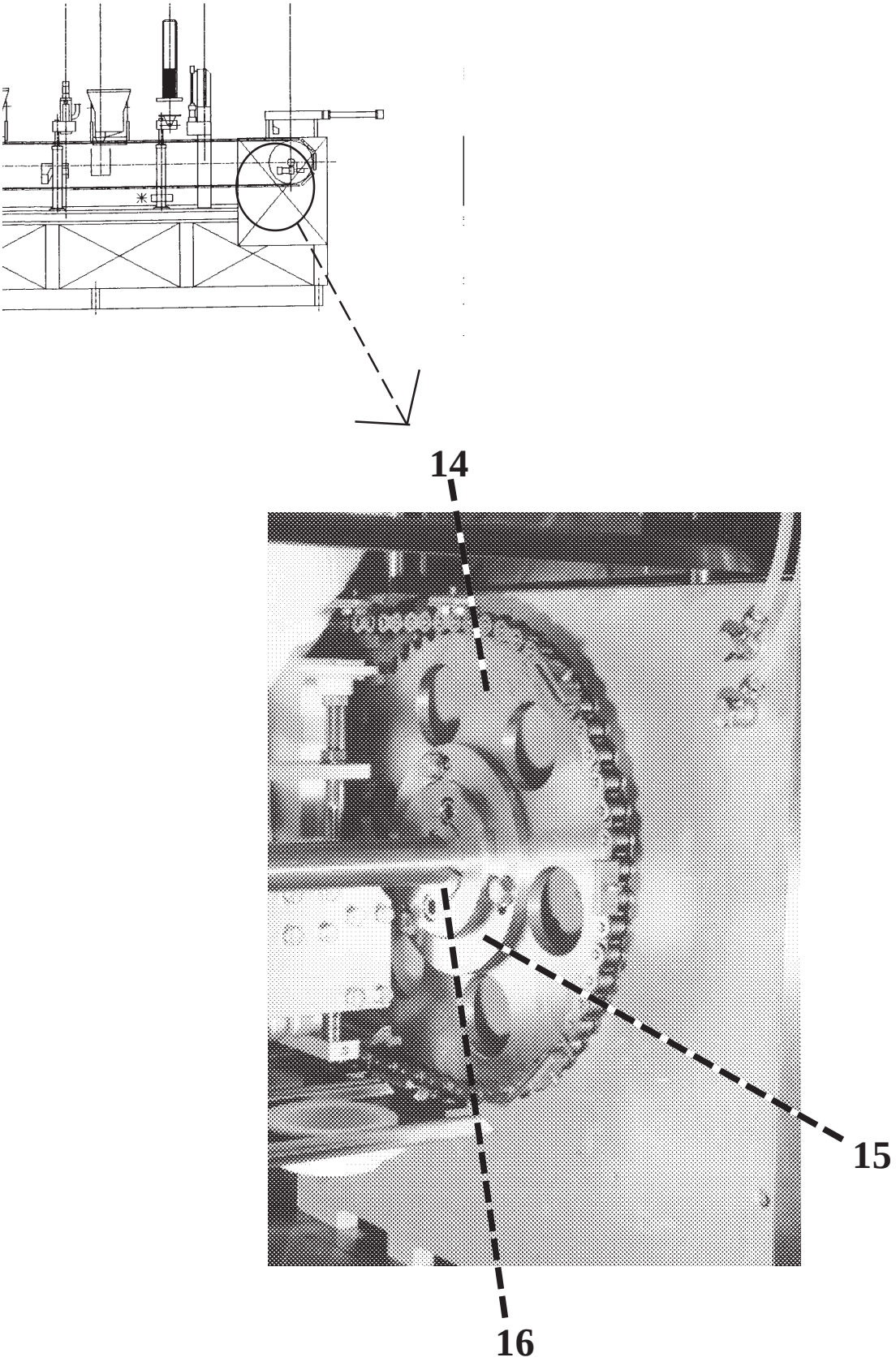


FIG.9.5

N°	DESCRIPTION	CODE
34	REDUCER VF86/A	336010165
35	ECCENTRIC	D01B10074
36	BEARING 6023	336001408
37	BEARING 2203	336002206
38	DISK CLUTCH	336072992
39	BUSHING	336005850
40	LOWER BUSHING	546053004
41	UPPER BUSHING	546053006
42	SCRAPER	336069750
43	GASKET	336067111

FIG.9.5

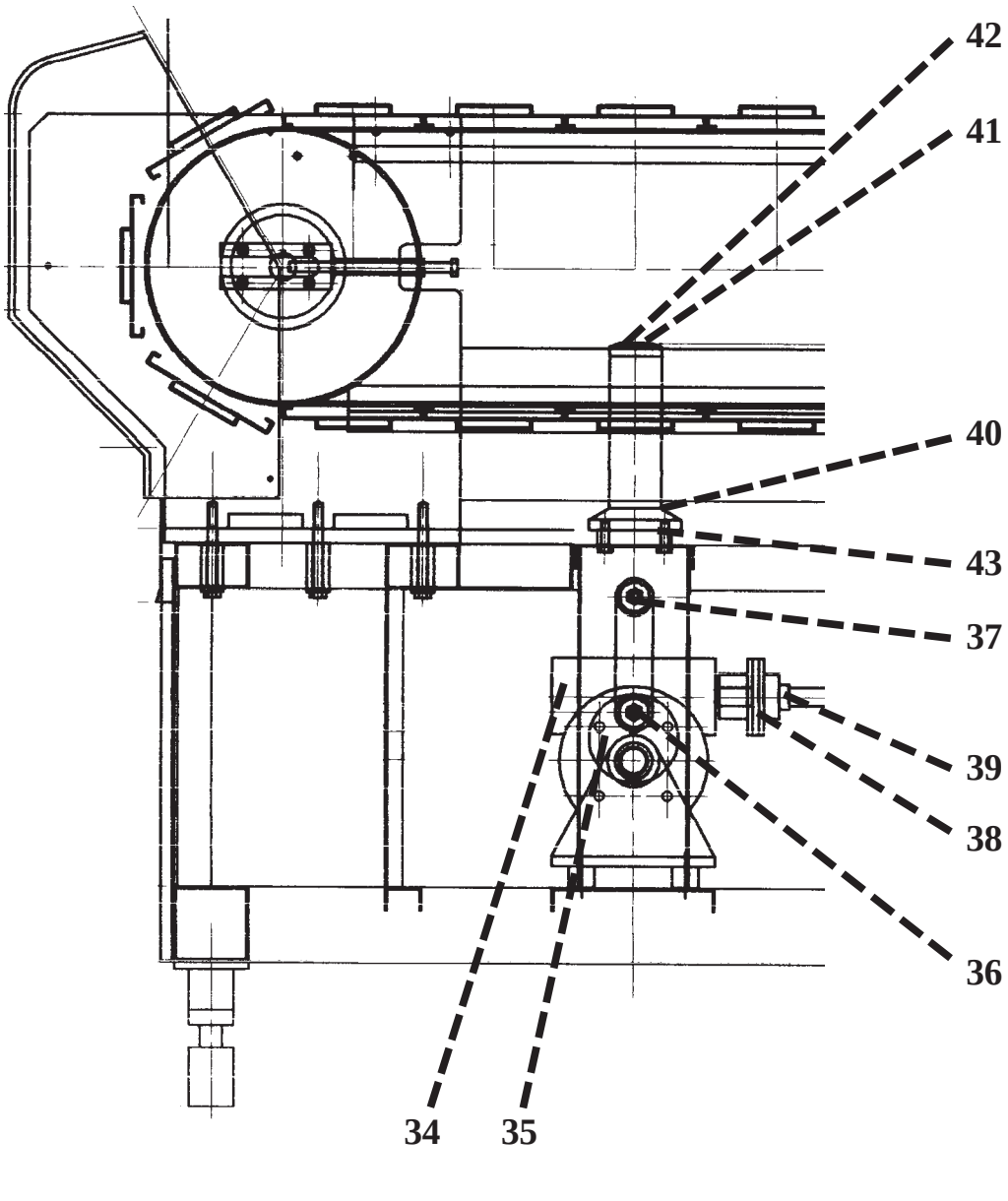


FIG.9.6

N°	DESCRIPTION	CODE
38	DISK CLUTCH	336072992
44	LEVER	546059014
45	BEARING 6003	336001520
46	CRANKPIN	336003158
47	JOINT JAFL	336078028
48	JOINT JAF	336078027
49	JOINT JAM	336078054
50	SLEEVE	336063675
51	SLIDE BAR	CM50U43002
110	JOINT SGS	333001647
111	CYLINDER	333001188
112	SUPPORT	333001521

FIG.9.6

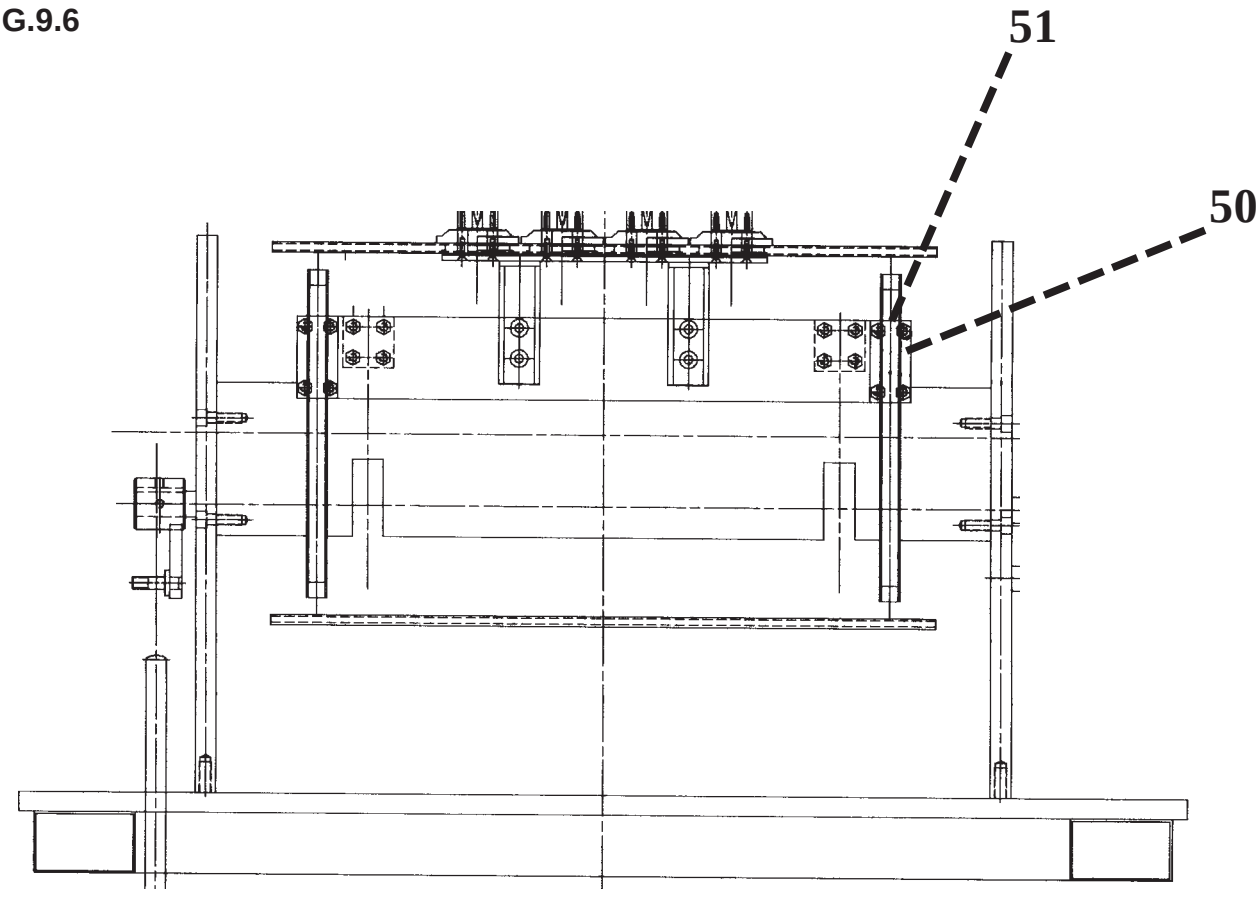


FIG.9.6

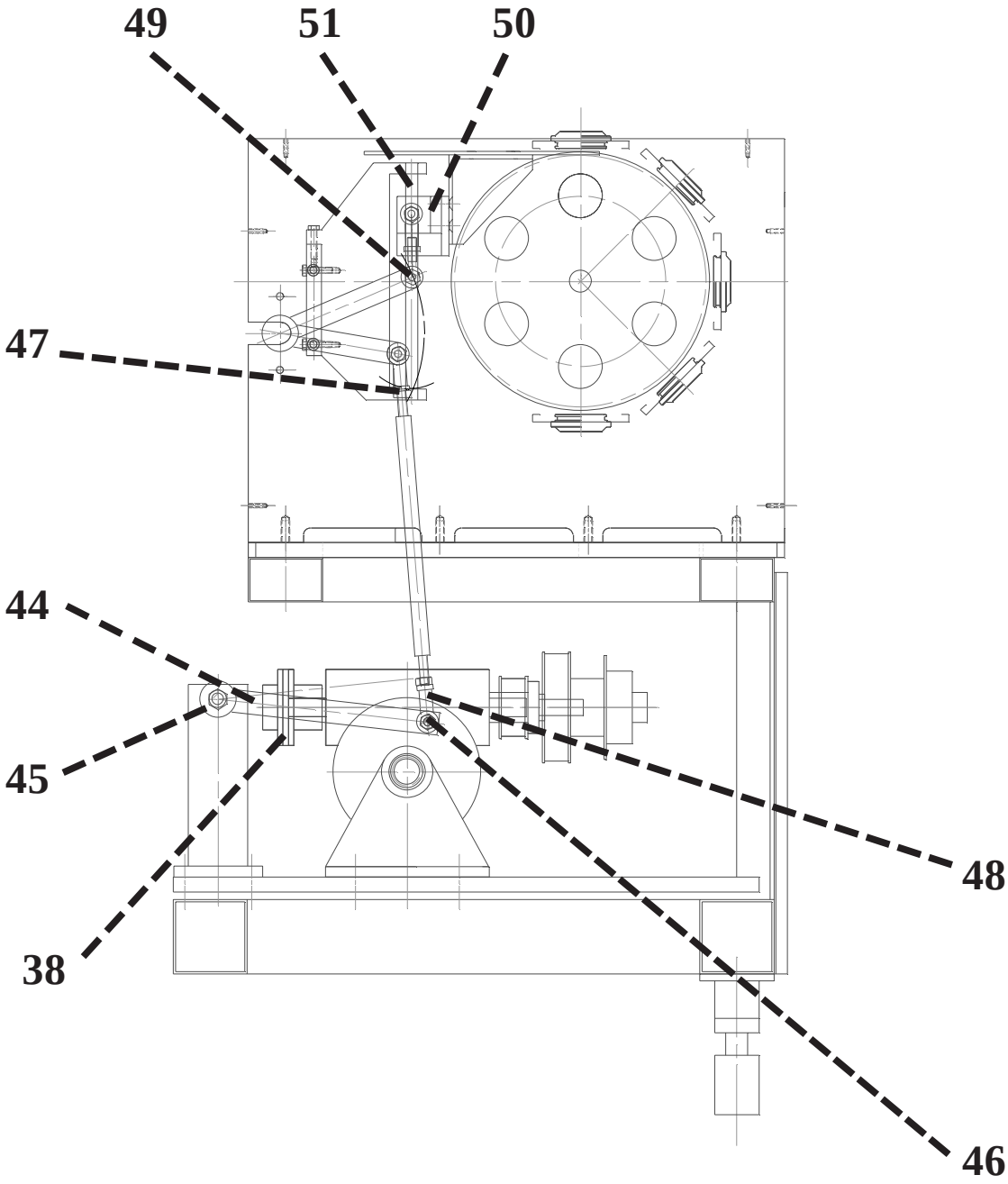


FIG.9.7

N°	DESCRIPTION	CODE
52	PINION Z55	336022248
53	LEVER	D01B00026
54	ROD	D01B00031
55	SLIDE BAR	D01B00079
56	BEARING	336001520
57	CYLINDER	333001065
58	JOINT	333001644
60	CYLINDER	333001186
62	CYLINDER	333001355

FIG.9.7

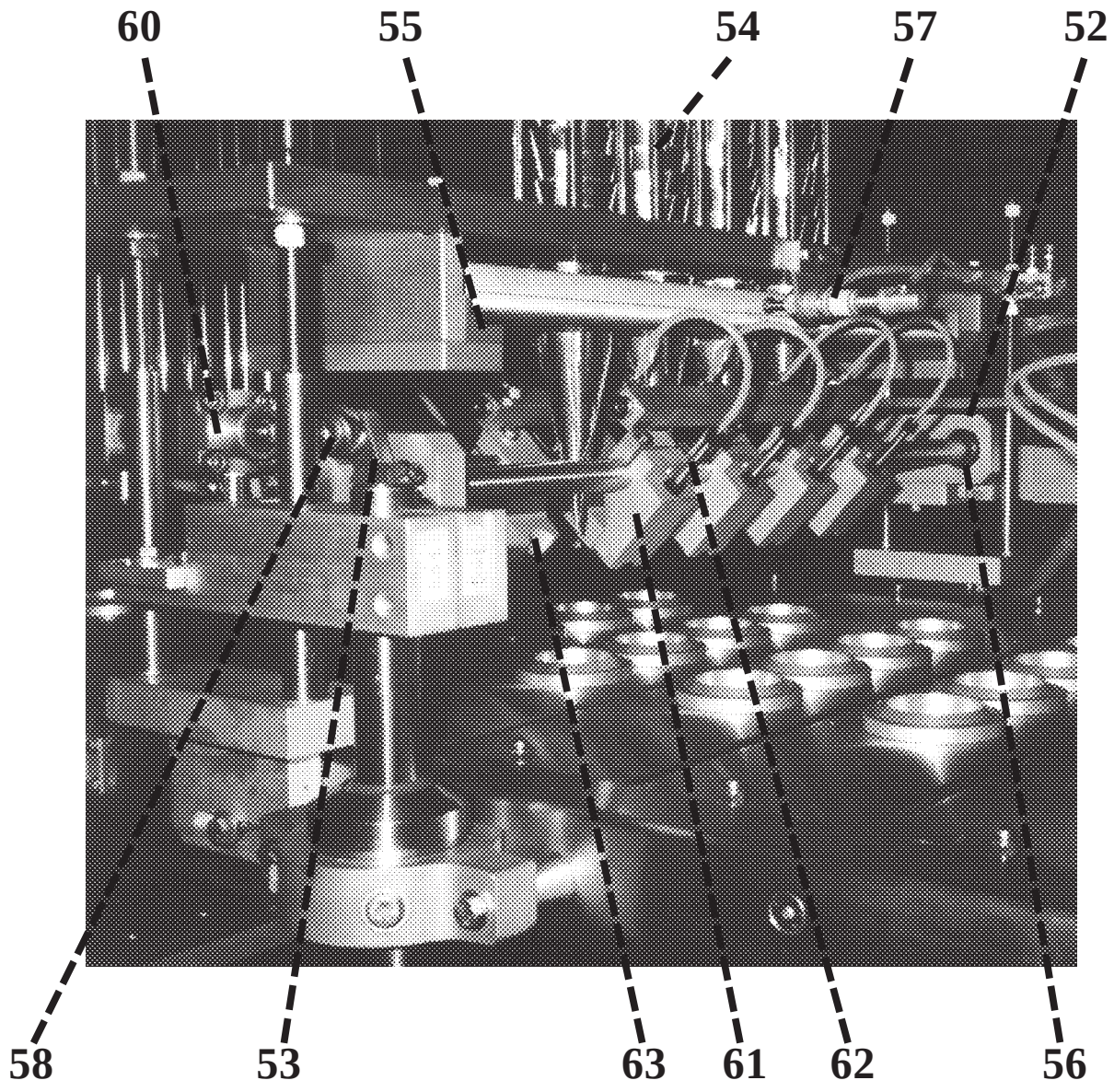


FIG.9.8

N°	DESCRIPTION	CODE
64	COLUMN	D01C00014
65	BUSHING	D01M00005A/5B
66	SPRAYER	011070112
67	HEATER	017075166
68	CYLINDER	333001220
69	CYLINDER JOINT	D01Q10064
70	CONTAINER SIZING	CM25J80001

FIG.9.8

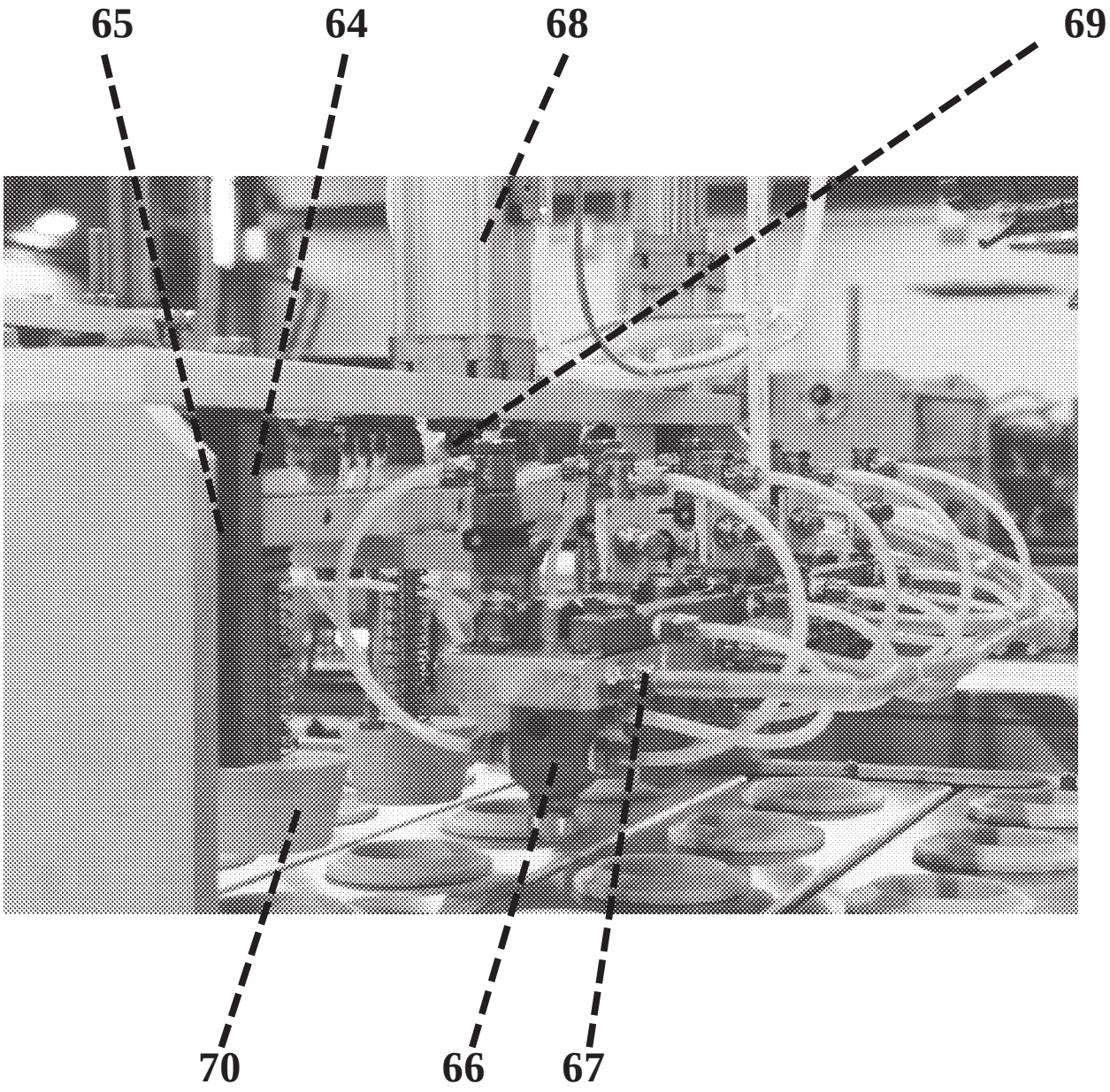


FIG.9.9

N°	DESCRIPTION	CODE
	DOSER	081771000
1	-FILLER HEAD	540204063
2	-FITTING FOR FILLER HEAD	540204055
3	-PILOT BOSS	540204075
7	-GASKET	336067036
8	-SLIDE BUSHING	540204064
9	-GASKET	336067042
11	-CYLINDER	333001180
12	-DOSER BODY	540204076

FIG.9.9

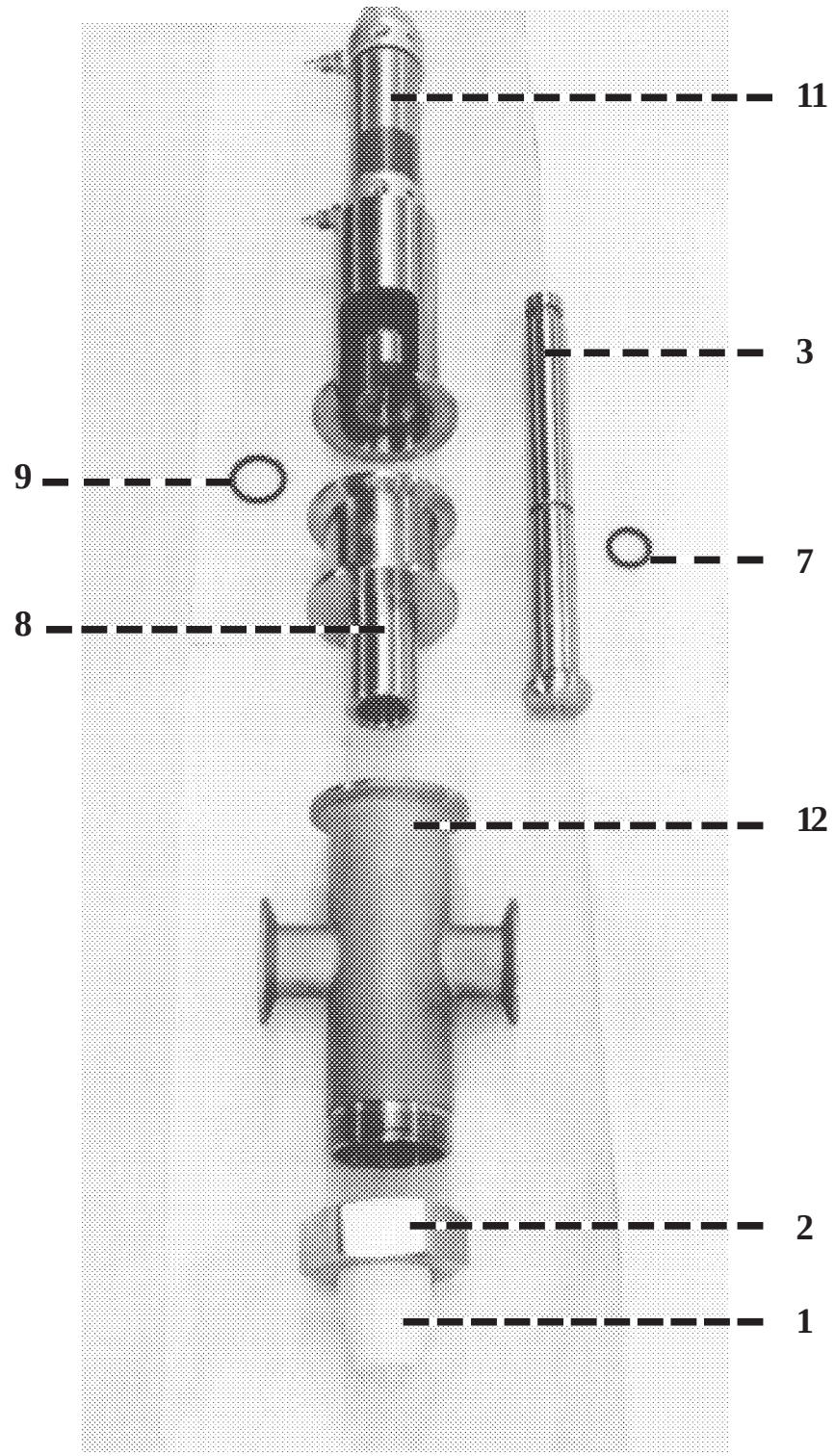


FIG.9.10

N°	DESCRIPTION	CODE
73	NOZZLE	D01H00006
75	RING NUT	D01H00016A
76	DISK	D01H00016B
77	JOINT	333001650
78	SUPPORT	333001675
79	CYLINDER	333001180
80	HEATER	017975020
81	THERMOSTAT	017088239
82	PIN BUSHING	D01H00014
83	PIN	D01H00010
84	AIR REGULATOR	011045253

FIG.9.10

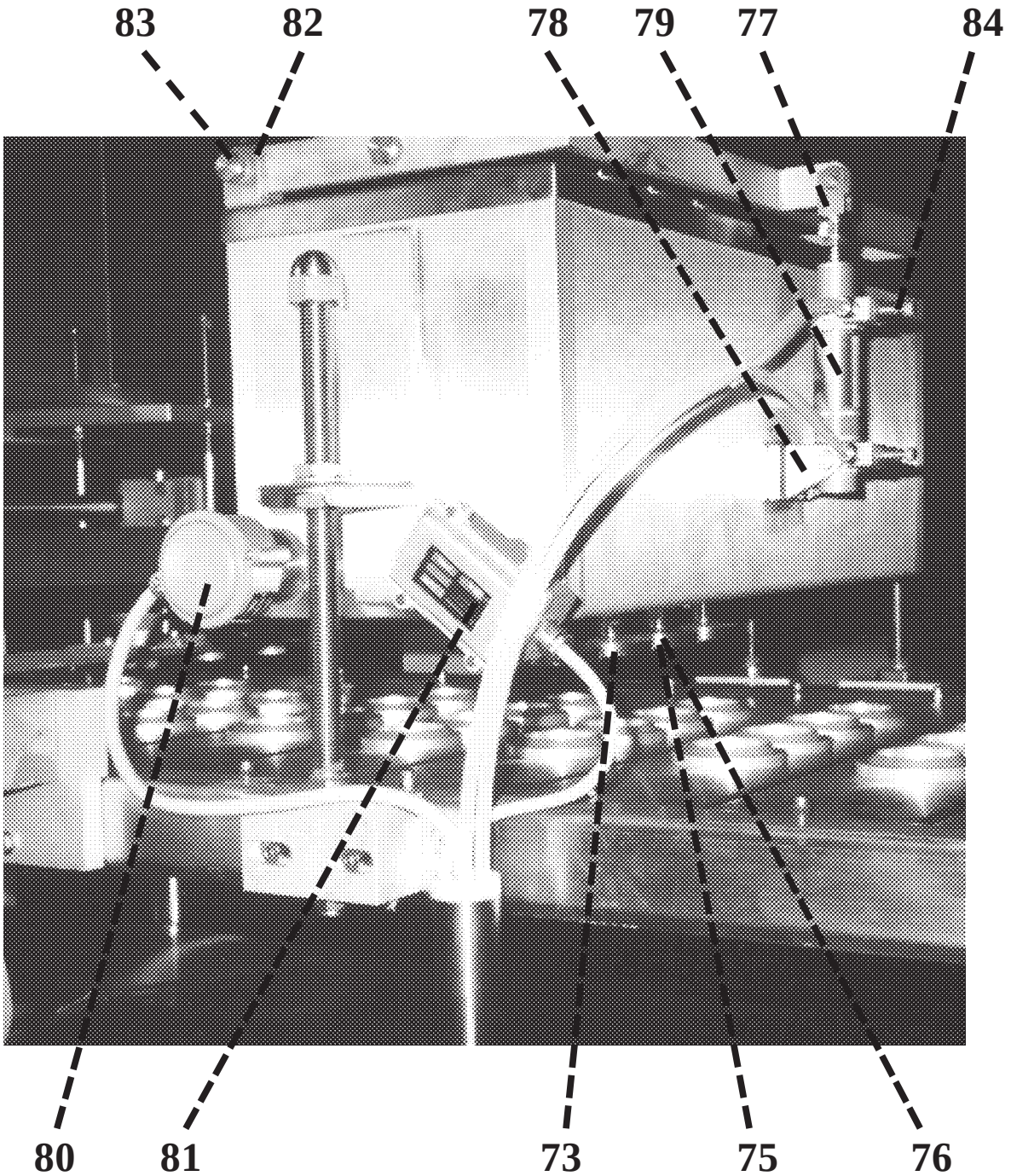


FIG.9.11

N°	DESCRIPTION	CODE
85	PNEUMATIC VIBRATOR	336091100
86	DAMPER	015010825
87	LUBRICATOR	333012001
88	SPACER	D01G00010

FIG.9.11

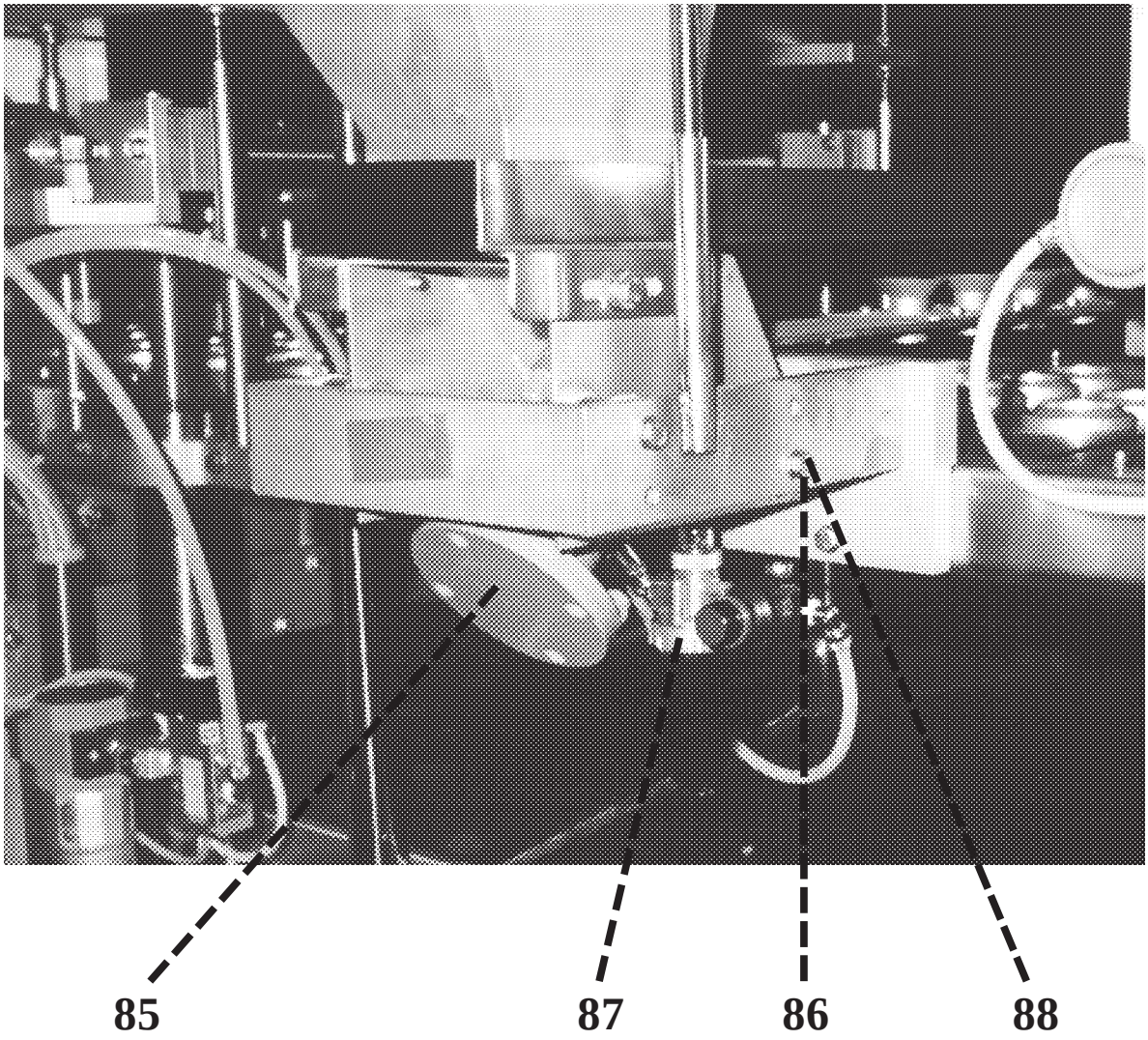


FIG.9.12

N°	DESCRIPTION	CODE
89	BEARING	336001448
90	ROTATING CYLINDER	333001021
91	BRAKE	333003205
92	SHAFT	CM25Q20001
93	FILTER	333012014
94	SOLENOID VALVE	333004116
95	VACUUM GAUGE	333010107
96	SLIDE BAR	D01I00042
97	LID LOCK SPRIG	D-FM0847
98	LID DISPENSER	It depends of the product type.

FIG.9.12

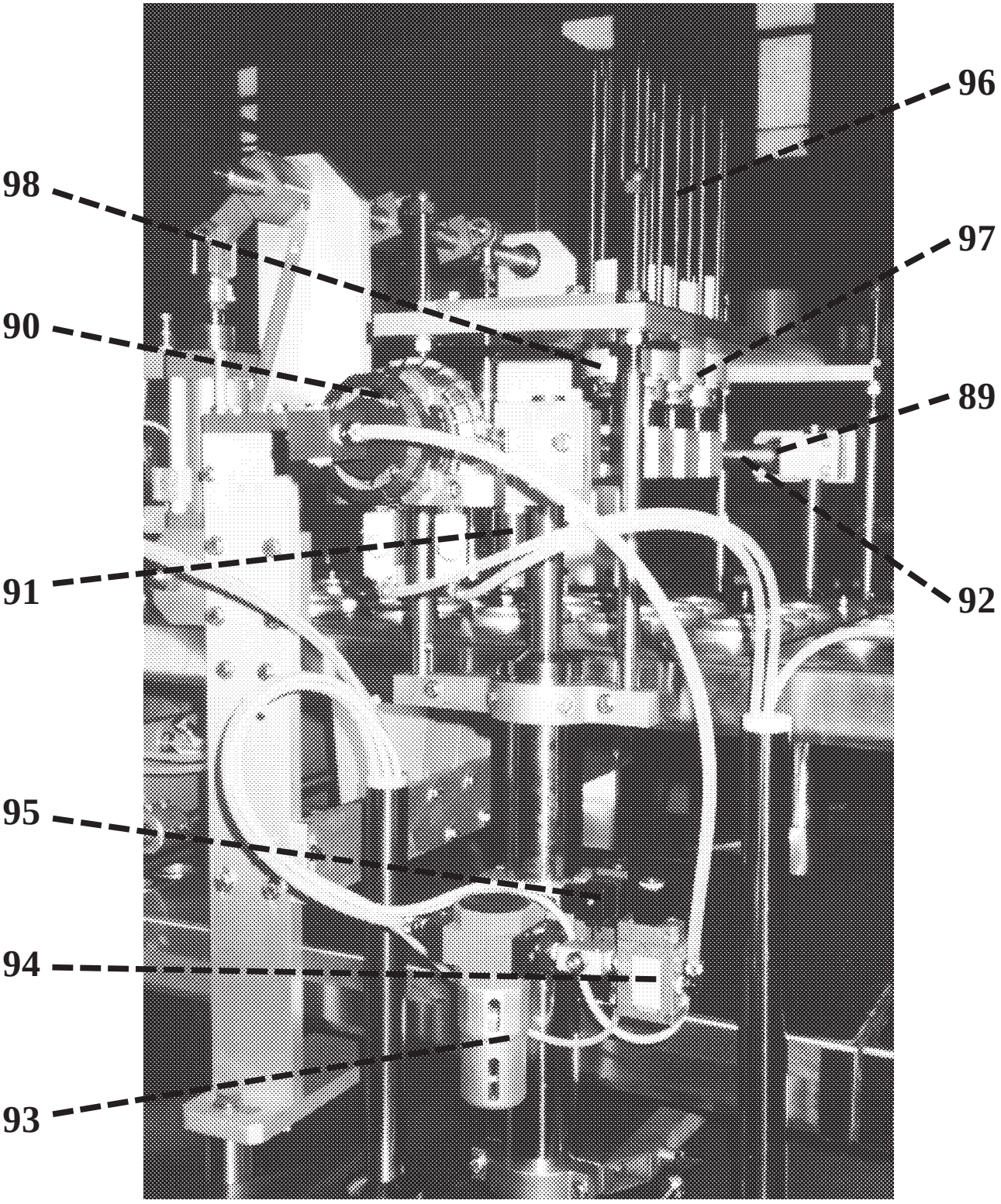


FIG.9.13

N°	DESCRIPTION	CODE
99	JOINT	336001642
100	CYLINDER	333001292
101	FASTENER	333001533
102	BEARING	336003808
103	BUSHING	D01L00017
104	VERTICAL ROD	D01L00018
105	JOINT	336078028
106	JOINT	336078027
107	TIRANTE	D01L00016
108	CRIMPING UNIT	CM25R00001
109	AIR REGULATOR	011045254

FIG.9.13

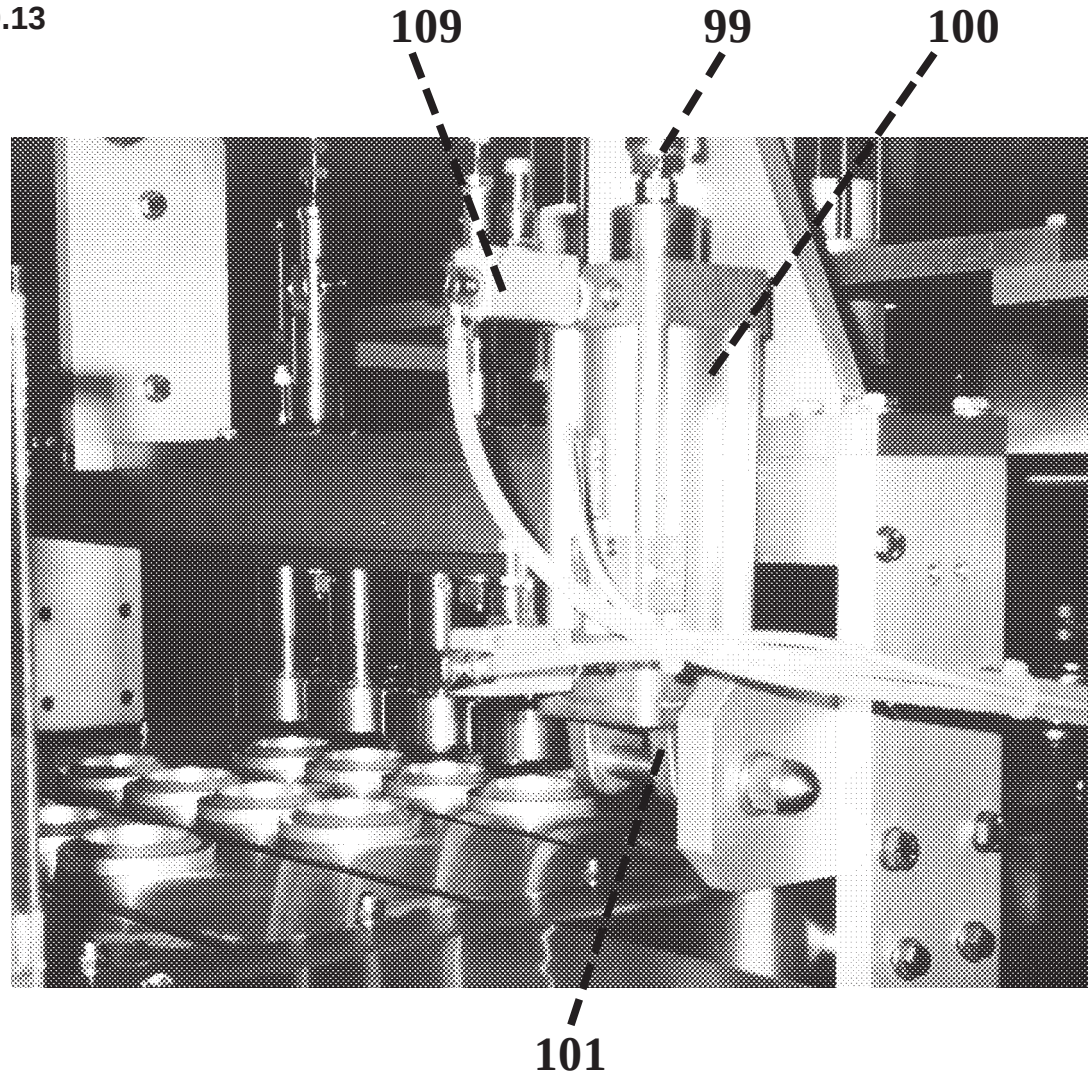


FIG.9.13

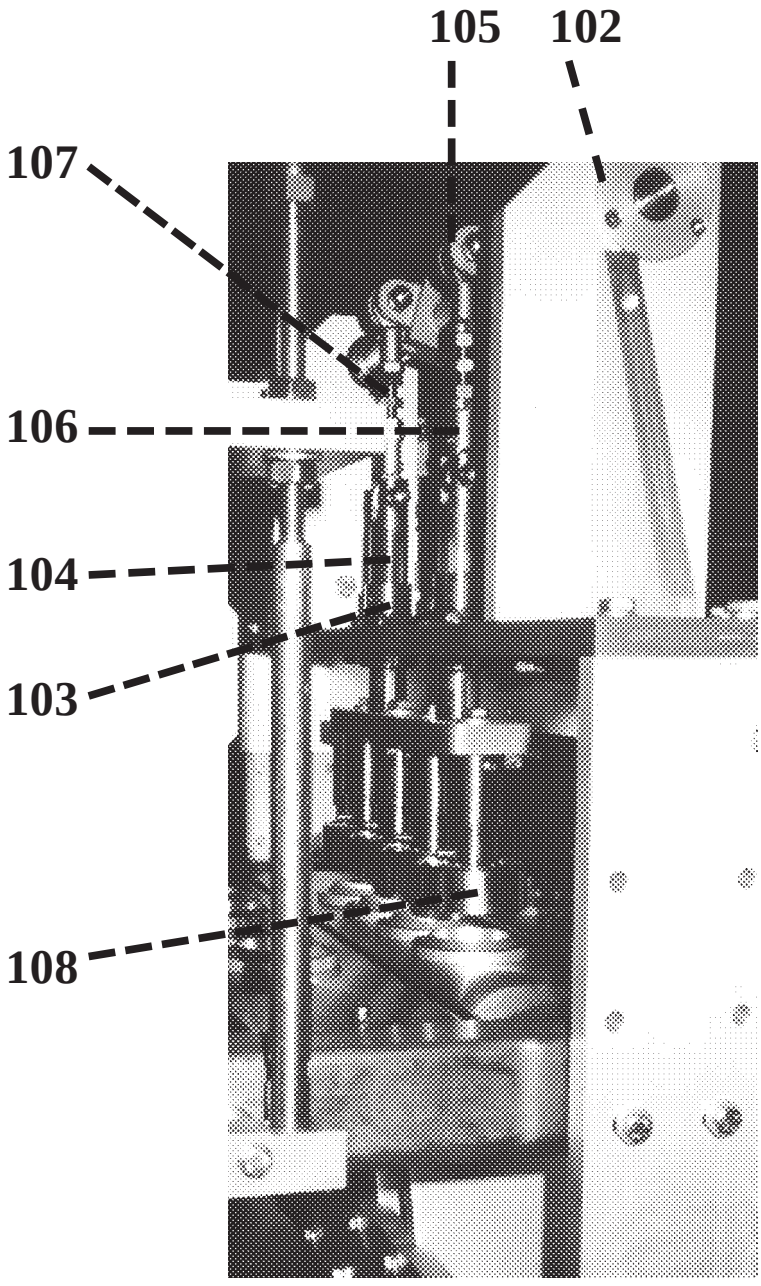


FIG.9.14

N°	DESCRIPTION	CODE
118	ROLLER	D01M00005B
119	ROLLER PIN	D01M00005A
113	CYLINDER	333001226

FIG.9.14

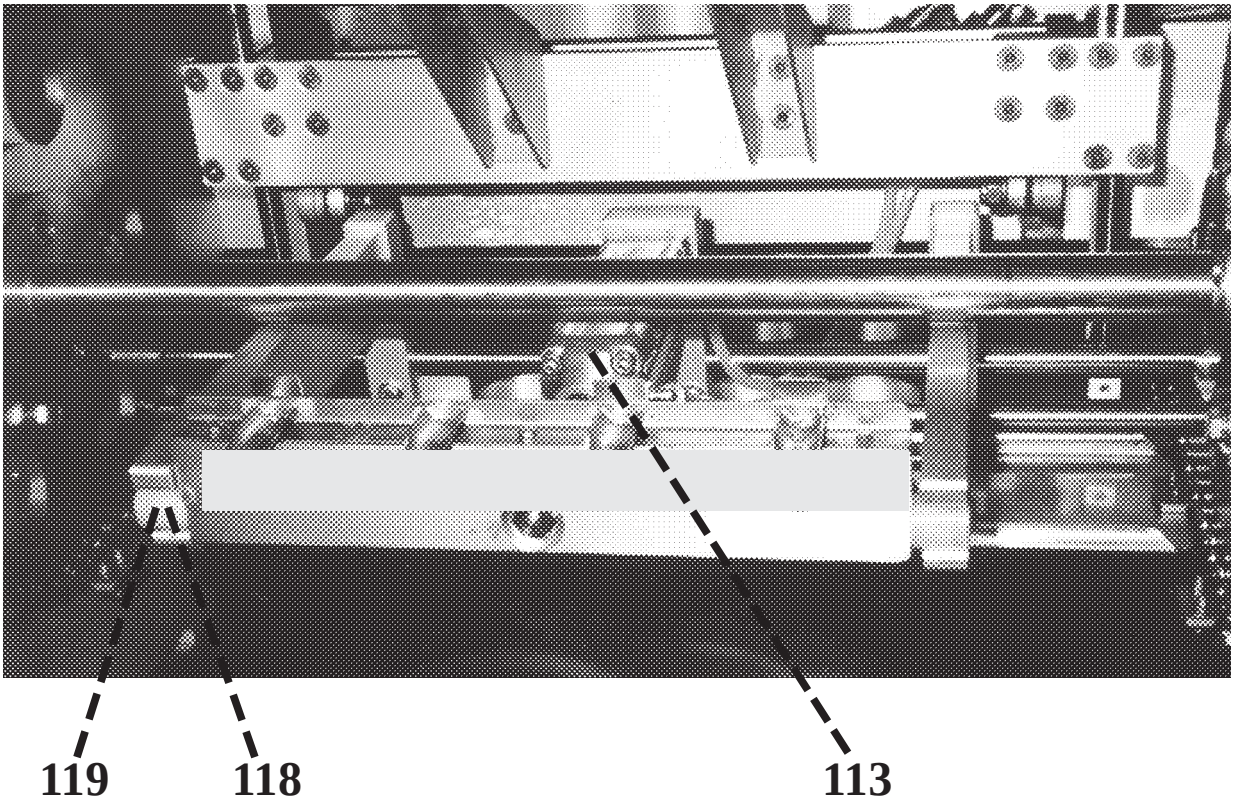


FIG.9.15

N°	DESCRIPTION	CODE
114	CONE LAMELLAS (distance between center line 150mm)	D01A00062
115	CONE SEAT (distance between center line 150mm)	CM25D05011
117	CUP LAMELLAS	D01A00063
116	CUP SEAT	CM25D05013

FIG.9.15

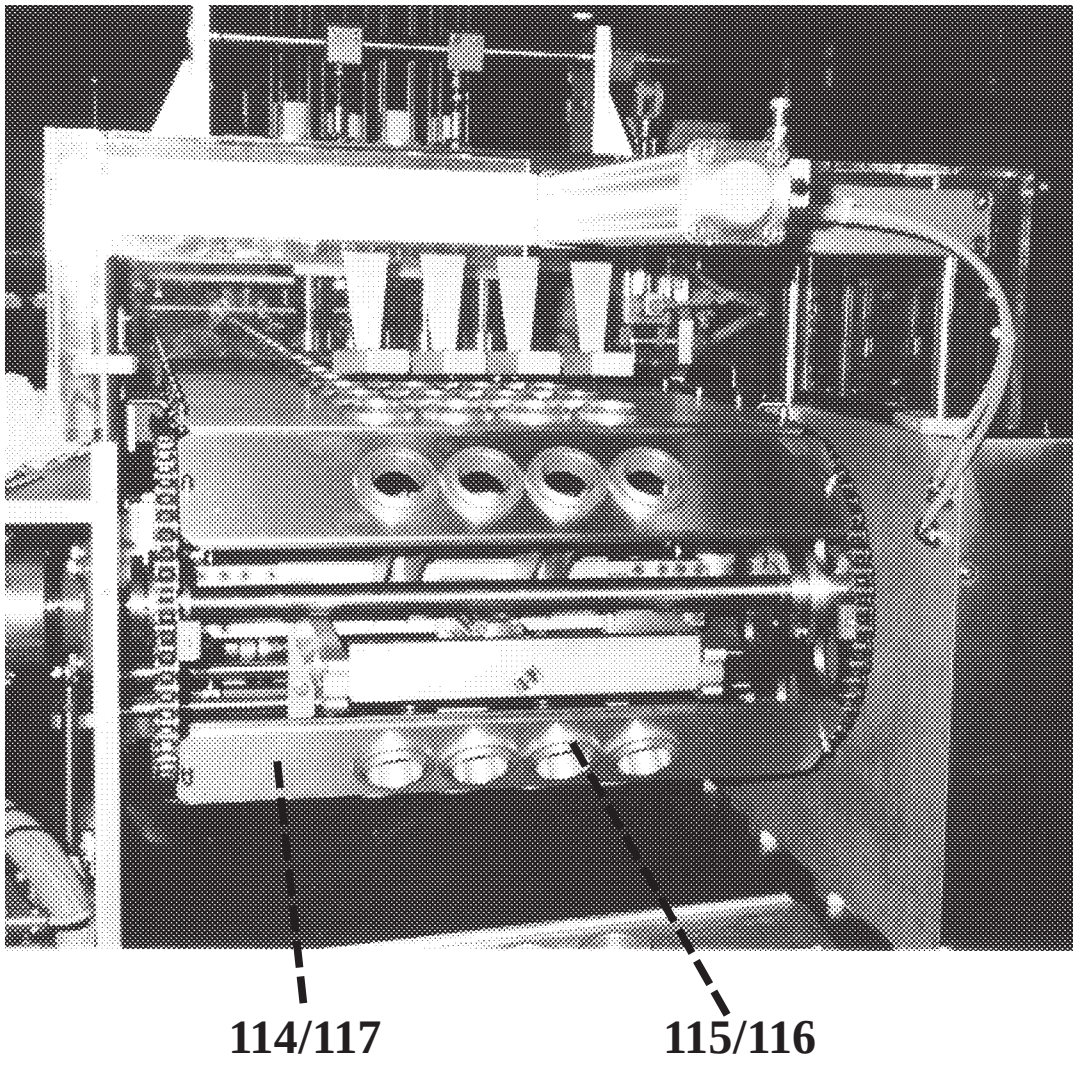
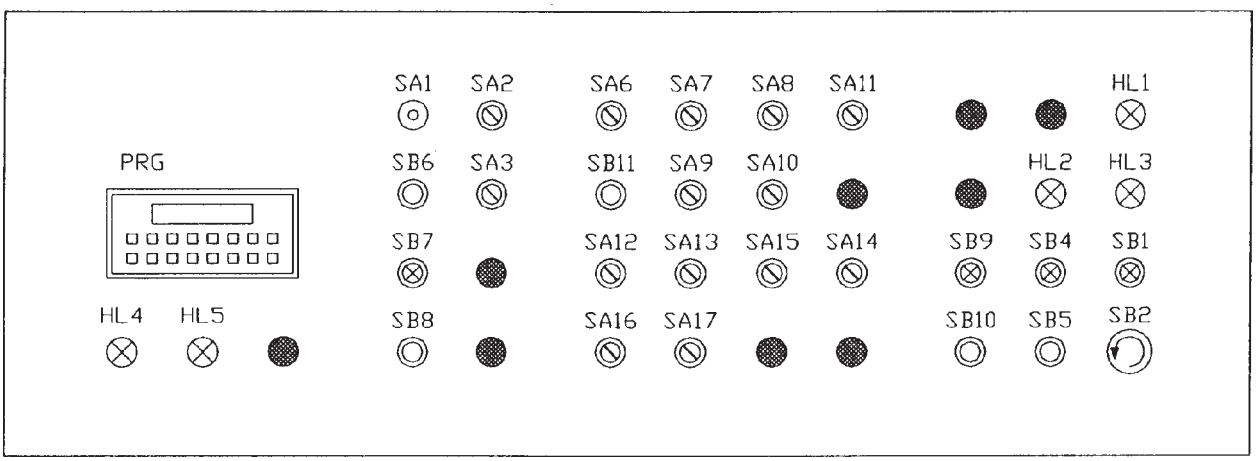
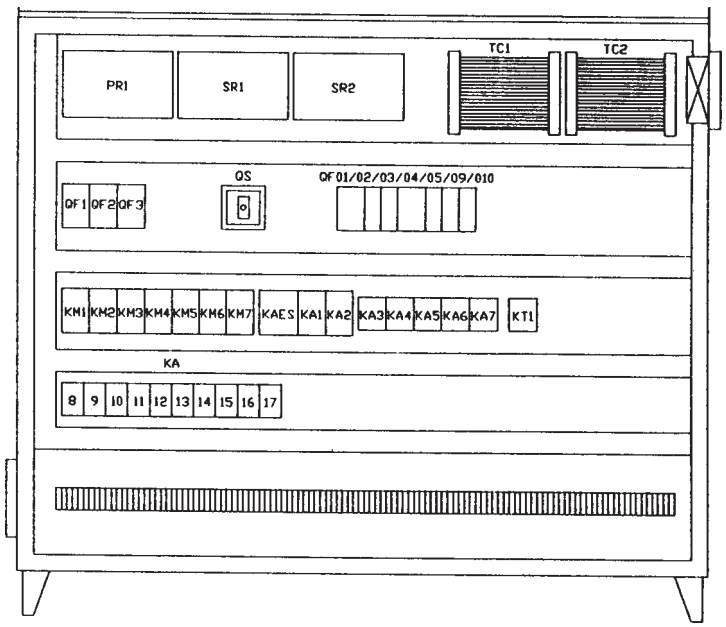


FIG.9.16

N°	DESCRIPTION	CODE
HL1	LAMP	017060454
HL2	LAMP	017060451
HL5	LAMP	017060450
HL4	LAMP	017060450
HL3	LAMP	017060452
SA2/3/6/7/8/9/10/11/12/13/14/15/16/17	ILLUMINATED SELECTOR	017060491
SB4/7/9	ILLUMINATED BUTTON	017060472
SB1	ILLUMINATED BUTTON	017060473
SB6/11	PUSH-BUTTON	017060462
SB5/8/10	PUSH-BUTTON	017060461
PRG	PROGRAMMER	017087100
SB2	EMERGENCY STOP	017060464
SR1/2	BASE FOR RELAY	017087108
PR1	SUPPLY	017087080
QS	MAIN SWITCH	017036023
TC1	TRANSFORMER	017090273
TC2	TRANSFORMER	017090098
QF3/01	AUTOMATIC SWITCH	017035560
QF1	AUTOMATIC SWITCH	017035562
QF2	AUTOMATIC SWITCH	017035556
QF09/03	SINGLE-POLE AUTOMATIC SWITCH	017035302
QF010	SINGLE-POLE AUTOMATIC SWITCH	017035301
QF02	SINGLE-POLE AUTOMATIC SWITCH	017035305
QF05	SINGLE-POLE AUTOMATIC SWITCH	017035307
KM1	CONTACTOR	017081028
KM2/3/4/5/6/7	CONTACTOR	017081024
KAES	RELAY	017085400
KA1/2	RELAY	017085493
KA3/4/5/6/7	RELAY	017085466
KT1	TIMER	017085634
KA8/9/10/11/12/13/14/15/16/17	RELAY	017085465

FIG.9.16


SA1
SA2
SA6
SA7
SA8
SA11
HL1
PRG
SB6
SA3
SB11
SA9
SA10
HL2
HL3
SB7
SA12
SA13
SA15
SA14
SB9
SB4
SB1
HL4
HL5
SB8
SA16
SA17
SB10
SB5
SB2


PR1
SR1
SR2
TC1
TC2
QS
QF01/02/03/04/05/09/010
QF1
QF2
QF3
KM1
KM2
KM3
KM4
KM5
KM6
KM7
KAES
KA1
KA2
KA3
KA4
KA5
KA6
KA7
KT1
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Questa pagina è stata lasciata intenzionalmente vuota.

SEZIONE 10.0
SCHEMI
ELETTRICI E PNEUMATICI