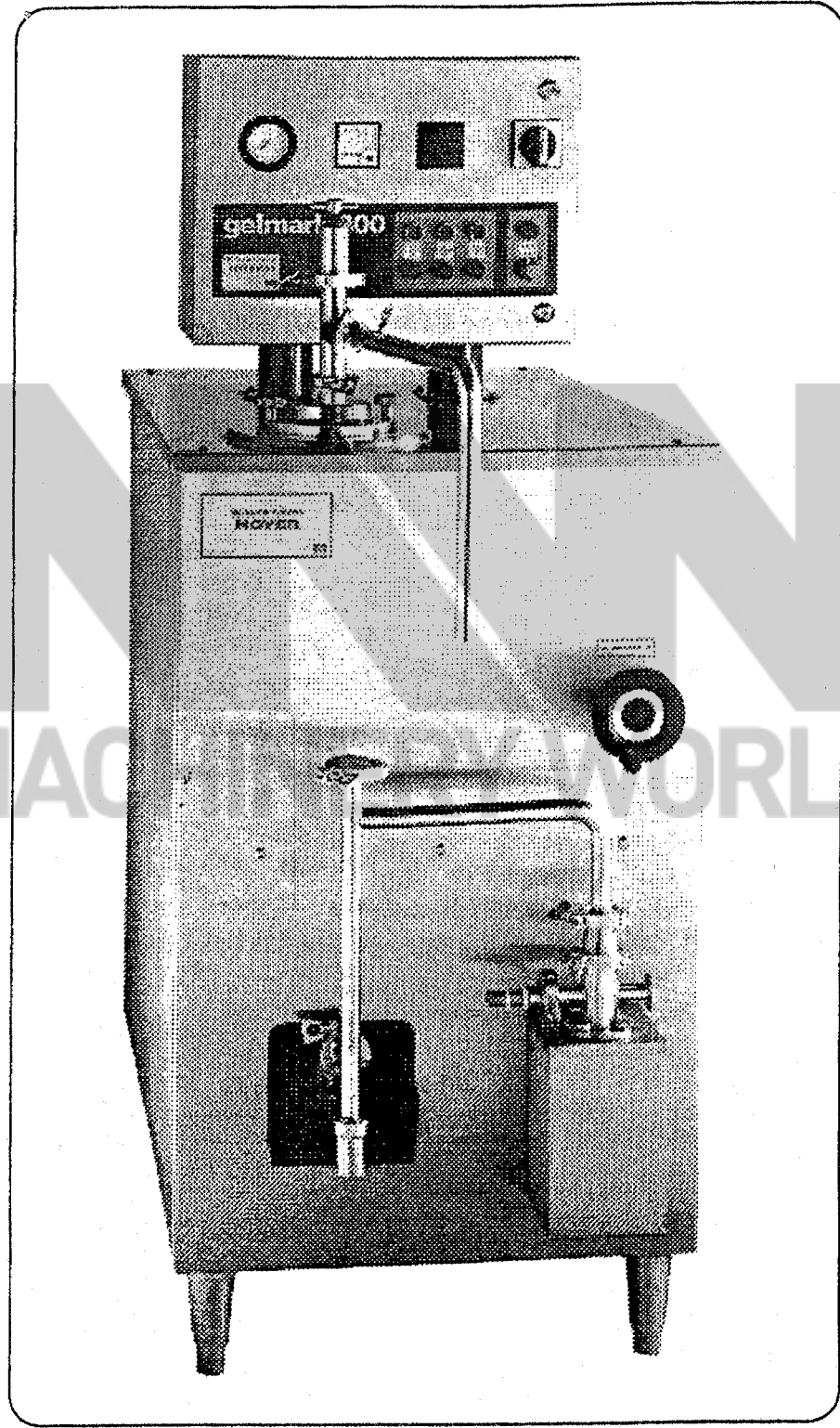


190300

CONTINUOUS FREEZERS GELMARK 160 - 300

SECTION ONE

(Instructions)



913.2




Hoyer

INTRODUCTION

We thank you for having chosen our product and recommend you read this manual carefully as it is indispensable for carrying out to the installation, control and maintenance operations required to keep your machine in perfect running condition.

The manual contains tables, drawings and layouts to help you familiarize yourself with all parts of the machine. For the maintenance and overhaul operations not covered by this manual, and for all technical problems, our Service department is at your disposal for information and to coordinate the necessary action. When calling our Service Department, please supply the following data:

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.

 Hoyer Tetra Laval Food	
Via Monferrato, 52 - 20098 San Giuliano Milanese (MI) Italia - Tel. 02-982921	
MODEL	
SERIAL	
ELECTRICAL DATA	
	ph Hz Kw
REFRIGERANT	
REFRIGERANT CHARGE	Kg
HEATING GAS	
THERMAL CAPACITY	Kcal/h.

WARNING

- The observance of the limits established to pressure, speed, temperature and voltage as well as other indication given are indispensable for the regular operation and therefore must be respected by the user.
- For the pneumatic components de-humidified compressed air must be used, at the right pressure and in the quantity prescribed, without any trace of oil. The environmental conditions of the installation site must also be taken into consideration.
- **The national laws which regulate the use of this type of electrical equipment must also be respected.**
- Our company declines any responsibility for damages deriving from the lack of respect of above warnings.

NOTE

- Each machine is equipped with a basic set of spare parts.
- The data given in this manual can be varied by Hoyer without prior notice.
- The manual includes instructions for all devices fitted on the standard machine. Please refer to the chapters which show the devices bought by you.

- **The machine is covered by guarantee as per purchase contract. The guarantee will automatically expire for any unauthorised repair from Hoyer during the guarantee period.**

DESCRIPTION

The continuous ice-cream freezers of the "Gelmark" series are made entirely of stainless steel.

Each continuous ice-cream freezer is equipped with removable side panels. This feature makes for easy access to the inside for cleaning, inspection and maintenance.

And each one is also equipped with four, adjustable, base supporting feet for its subsequent installation in a horizontally level position on the floor.

The main part of each continuous ice-cream freezer consists of:

- a vertical, freezing barrel with a dasher shaft, scraper blades and an electric motor;
- a refrigeration, motor-powered compressor of the semi-hermetic type and relative refrigeration system;
- air-mix pump control group.

On the front part of each continuous ice-cream freezer, there are arranged and installed the:

- air-mix pump and its support
- air-mix pump speed control handwheel.

The control panel (Fig. 1, 1), houses all the electronic control and operation equipment for the various parts of the continuous ice-cream freezer. Nearby each switch, is marked the symbol of the part actuated.

For the control of the operation of the continuous ice-cream freezer, there are, moreover:

- an ammeter (Fig. 1,4) which indicates current input required by the motor and therefore the hardness of the product in the cylinder.
- a vacuum gauge (Fig. 1,6) which indicates the suction temperature of the freon gas to the compressor.
- the electronic counter that shows the speed of the mix feeding pump (Fig. 1, 2).
- sanitary piping complete with (on request) pressure gauge and vacuum gauge for controlling pressure and the amount of air added to the mix; pipe fittings and safety valve.

INSTALLATION

- Arrange the continuous ice-cream freezer in the desired position and then, by screwing the base supporting feet either up or down, place it in a perfectly horizontal position.
- Make sure that the network voltage is the same as that for which continuous ice-cream freezer has been designed and manufactured.
- The customer will install a fuse general switch according to the domestic laws and requirements of his own country.
- Take off the side panels and check to see that the direction of rotation of the dasher shaft motor is that indicated by arrows. In any case, the dasher shaft has to rotate clockwise. If it does not, then invert one of the phases of the electrical input.

Warning

The continuous ice-cream freezer is delivered from the factory with all the valves of the refrigeration circuit in operating position. Consequently, it is not necessary to actuate them prior to the actual starting of the unit itself.

Connect the pipeline of the water supply system to the hose on which there has been attached a plate with the word, "INLET", and then connect the hose on which there has been written the word "OUTLET", to the water discharge pipeline. (Fig. 7,120).

The connecting hoses must neither have diameters which are less than hoses of the piping coming from the continuous ice-cream freezer nor must there be any constrictions at any point in their course.

Never use mixes that have a temperature of more than +4°C to +5°C. If this should happen, then reduce the speed of the pump.

OPERATION

Connect the main wall switch to give power to the continuous ice-cream freezer at least five to six hours before starting the refrigerating compressors. The resistance (that is arranged and installed in the carter of the refrigerating compressor) will slightly heat the oil, and in so doing, expel any eventual refrigeration gas that may be contained in it.

For the same reason, the main switch must never be cut-out at the end of the ice-cream processing cycle, shift and/or working day.

Before beginning to actually make ice-cream, be sure to disinfect and clean the continuous ice-cream freezer itself. (In this respect, please refer to the section entitled "DAILY CLEANING").

Connect the suction hose of the pump (Fig. 5, 93) to the mix tank.

Start up the pump by pressing push-button (Fig. 1, 8c). Then reduce the flow of the mix to the minimum by turning the handwheel (Fig. 6, 62) toward the sign (-). Wait until the mix begins to flow out from the pipe, and then stop the pump. (Fig. 1,10c). After having stopped the pump, then press push button (Fig. 1,8a) to start the dasher shaft, and then press push button (Fig. 1, 8b) for starting the refrigerating compressor.

Once these preliminary operations have been completed, then the hardening of the mix inside the freezing cylinder takes place.

The degree of the hardness of the ice cream can be controlled by means of the ammeter (Fig. 1, 4) which indicates the stress to which the motor is being subjected in proportion to the hardness of the ice-cream.

When the ice cream has attained the desired degree of hardness, then start up the pump once again and regulate both the flow of the mix and the quantity of air to be sucked into the mix.

REGULATION OF THE AIR TO BE SUCKED INTO THE MIX

For the regulation and the control of the air to be sucked into the mix, the continuous ice-cream freezer of the "Gelmark" series are supplied and delivered equipped with an air valve. (Fig. 5,81) On rotating the knurled ring nut (Fig. 5,78), the quantity of the air to be sucked into the mix can be varied.

When starting to make ice-cream it is advisable to keep the air valve (Fig. 5, 81) partially closed. So as to partially close the air valve turn the knurled ring nut (Fig. 5, 78) counterclockwise. In this state, the quantity of air sucked into the mix is minimal. After a couple of minutes from the outlet of the ice-cream from the freezer, slowly rotate the knurled ring nut (Fig. 5, 78) clockwise, so as to admit more air into the cylinder and the overrun can be checked. If the desired percentage of air is not yet reached then it can be increased, or decreased, as the case may be, by either opening, or closing, the relative air valve and, in so doing, subsequently obtain the exact increase in volume wanted. Each time the air valve is open or closed, several minutes shall have to pass before all the ice-cream is affected by the variation. In those continuous ice-cream freezers equipped with a vacuum gauge, when the desired quantity of air to be admitted into the mix has finally been resolved upon and attained, then the pointer of the vacuum gauge will indicate a certain numerical value which, in turn, will serve as a reference point, so to speak, for the next time, so as to be able to bring the continuous ice-cream freezer up to operating level in a shorter period of time. However, sight must not be lost of the fact that the numerical value indicated by the vacuum gauge will change, although slightly, according to the kind of mix used.

Note

If, when closing the air valve, the pointer of the vacuum gauge does not move downwards, then this means that there is a leak at some point in the pipeline that goes from the pump to the air valve itself.

The factor can, in turn, be due to a loose pipe end fitting or to a fitting without a gasket. The check valve eliminates the oscillation of the vacuum gauge by keeping the pointer steady. It is advisable, at periodic intervals, to unscrew and remove these valves from their housings and inspect the state of the gaskets. If they are worn they should be replaced.

REGULATION OF THE PRESSURE INSIDE THE CYLINDER

If the continuous ice-cream freezer is also equipped with a pressure gauge for the control of the pressure of the mix inside the cylinder, then this gauge ought to indicate a pressure from between 6 and 9 Kg/cm².

If the pressure should drop below these levels, then it could be too low and, as a consequence, cause difficulties in maintaining constant the production of ice-cream. Close the register screw so that the pressure goes back to 6 Kg/cm²; if the ice cream has not the desired consistency, please make sure that:

- 1) the speed of the air/mix pump is not too high;
- 2) the temperature of the mix coming from the vats is not too high and consequently the ice-cream produced is too soft;
- 3) the blades are fitted in the correct way (with the sharp end towards the cylinder Fig.3) and that they are not worn out
- 4) there is something wrong in the refrigeration system reducing its productive capacity and causing, the outlet of soft ice cream.

While the first three conditions can be more or less immediately rectified by modifying the relative adjusting controls, the refrigeration system has, on the other hand, to be inspected by a specialist, i.e., by a highly qualified refrigeration technician and by following the instructions given in the section entitled "MAINTENANCE". If, on the other hand, the pressure exceeds 10 Kg/cm², it has to be considered as being too high, but it can be reduced in the following ways :

- 1) loosen the adjusting screw (Fig.3,27) all the way;
- 2) make sure that there are no links or constrictions in the ice-cream outlet hose and that it is not, in any case, more than 3 to 5 meters in length.
- 3) increase the speed of the pump by turning the handwheel (Fig. 6, 62);
- 4) use the hot gas device - regulator (Fig. 1,142) as described in the following page.

In any case, the "Gelmark" continuous ice-cream freezers have a special safety valve (Fig. 5, 94/96) that automatically begins to open whenever the pressure exceeds 12 Kg/cm² so as to avoid the creation of abnormal pressure which could, in turn, be detrimental to the trouble-free operation of the continuous ice-cream freezer itself.

Do not (in any way, shape or form) tamper with the setting of the safety valve and, in case it should cut-in, then check to see just what caused it to be actuated in the first place.

Note

Absolutely do not press the membrane of the pressure gauge and/or that of the vacuum gauge with the tips of one's fingers. In the event that either the one, or the other, has to be disassembled for cleaning the continuous ice-cream freezer, then the maximum attention has to be given to reinstalling them, because if they should become mixed up and, as a consequence, one taken for the other, then they would be irreparably damaged.

REGULATION OF THE "HARDNESS" OF THE ICE-CREAM

The refrigeration system is equipped with a device for the partial recirculation of the hot gas. This "hot gas" device can be used as a regulator of the degree of hardness of the ice-cream and specially so whenever one wants to obtain an ice-cream suitable for being inserted in moulds for the production of ice-cream on a stick, or whenever one intends to reduce the production capacity of the continuous ice-cream freezer itself.

- In any one of these three cases, proceed as follows:
- 1) set the continuous ice-cream freezer in operation and then adjust the speed of the pump until the required production rate has been attained;
 - 2) Gradually rotate regulator (Fig. 1,142) until the desired product consistency is reached.

Attention

The effect is not immediately visible. Wait a few minutes before changing the regulation reached. The hot gas valve may also be used in an emergency, e.g., whenever there should be sudden and unforeseen interruption in the supply of electrical energy, or if the mix pump should, for any reason whatsoever, come to a halt. In case such as these, since the ice-cream would remain inside the freezing barrel for a longer period of time than necessary, it would become excessively hard and, as such, block the dasher shaft.

Under these conditions, before restarting the motor of dasher, turn the regulator (Fig. 1, 142) to its all-open position.

Wait two minutes for the product in the barrel to defrost. Return regulator to position '0' (Fig. 1, 142).

Once this stage has been reached the continuous ice-cream freezer is ready to resume normal production.

DAILY CLEANING

At the end of each day's operation cycle, the continuous ice-cream freezer has to be thoroughly washed and sanitized. To do so, disassemble all the parts that have come in contact with the mix. In particular, when taking off the dasher shaft, use the special threaded ring. Immerse the disassembled parts in a special detergent solution. (The quantity of detergent to be used shall be specified by its manufacturer and/or supplier). Carefully wash these disassembled parts. Afterwards, thoroughly rinse them with clean water. Then, reinstall these disassembled parts in exactly the same positions they were in before. Special care should be paid to the fitting of the blades as shown in Fig. 3 (with the sharp end towards the cylinder).



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In case of doubt, revert to the figures and the drawings in the back part of this manual. Sanitize the continuous ice-cream freezer by making the pump suck up a solution containing an appropriate sterilizing liquid. After cleaning and rinsing, let the liquid pour out of the machine by unscrewing the safety valve (Fig. 5, 94/96) Before starting the production, let the rinsing water circulate for 2/3 minutes. Decharge the water by unscrewing the safety valve (Fig. 5, 94/96). At this point, the continuous ice-cream freezer is ready to be used, again.

Note

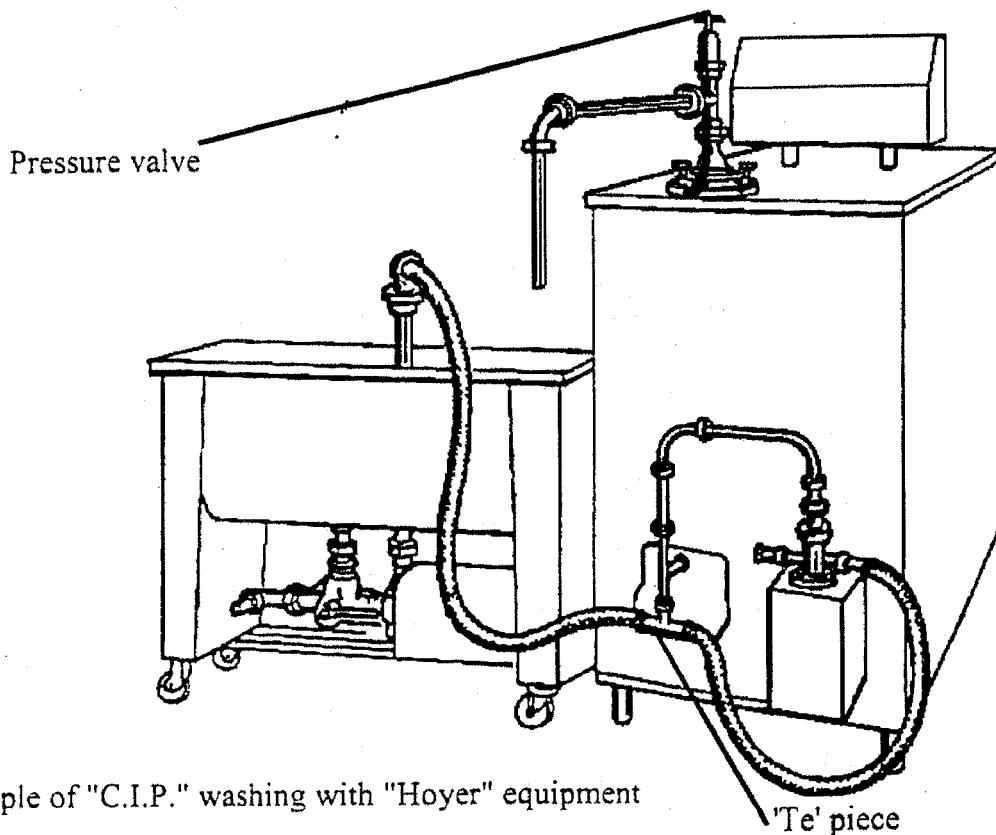
Those products used for washing and sanitizing the continuous ice-cream freezer must not corrode the mechanical parts with which they come in contact. In case the type of production has to be changed, then all one has to do is to add a neutral detergent to the water; set the pump and the dasher shaft in motion; and then have the pump suck up this solution into the continuous ice-cream freezer.

The compressor is not in operation. So as to rinse out to continuous ice-cream freezer, all one has to do is but to repeat this operation with clean water. Stop the motor dasher and the pump, take the safety valve out to discharge the water.

Once this stage has been attained, then the continuous ice-cream freezer is ready to be used, again. The "C.I.P." washing is a rational method for cleaning the continuous ice-cream freezer without having to disassemble all the parts that have come in contact with the mix.

To do so, proceed as follows:

- 1) In a special tank e.g., the "HOYER washing tank with a built-in pump", add a detergent (as per instructions) to 100-150 liters of water at a temperature of 40-50 °C. This pump will flow the solution into the cylinder.
- 2) Take off the safety valve (Fig. 5, 94/96); screw on a double junction (Te piece); and then connect the pump as shown in below drawing.
- 3) Set in motion the washing pump, loosen the pressure valve completely. The solution has to circulate in the freezer cylinder for 20 minutes approx.



An example of "C.I.P." washing with "Hoyer" equipment

Every 2/3 minutes put the freezer pump on and the dasher for 5/10 seconds.

4) Rinse out the continuous ice-cream freezer with clean water. In doing so, follow the same procedure described in the preceding point.

5) To sanitize the continuous ice-cream freezer, add disinfectant to 50-100 liters of clean water. (The quantity of disinfectant to be used shall be specified by its manufacturer and/or supplied.) make this disinfectant solution circulate throughout the whole continuous ice-cream freezer for approximately five minutes.

6) At the end of the aforementioned time period, let this disinfectant solution run out from the continuous ice-cream freezer by loosing the double junction (Te piece). Then, put the safety valve back in place. (Fig. 5, 94/96) The continuous ice-cream freezer is now ready for a new production cycle.

(See separate table on C.I.P. CLEANING PROGRAM pag.11)

Note

After having disinfected it, do not disassemble any part of the continuous ice-cream freezer, so as to avoid possible contamination.

The products used for washing and disinfecting the continuous ice-cream freezer must not corrode the mechanical parts with which they come in contact. It is of the maximum importance to periodically inspect the various component parts of the continuous ice-cream freezer, and especially so after long seasonal pauses, so as to subsequently avoid any inconvenience when the maximum efficiency and uninterrupted production is demanded of it.

We here at HOYER SPA will never tire of telling this to our clients. It is in their own best interest! The maintenance of the "GELMARK" models is of three kinds, viz., mechanical, electric and frigorific.

MECHANICAL MAINTENANCE

The maintenance of the mechanical parts consist in:

a) Inspection of the base supports (Fig. 4, 48). On each of these base supports, there are installed bearings, gaskets, a pulley and the main shaft. If during operation the shaft should become noisy, then disassemble it. Replace the worn gaskets and bearings. Reinstall the entire assembly with the maximum attention. Check to be sure that there is no play in the housings of the shaft and the bearings.

b) Inspection of the bushings (Fig. 3, 17/19) in which the dasher eccentric rotates. If they are worn, replace them.

c) Inspection of the scraper blades (Fig. 3,11) They have to be arranged and installed on their relative pins in such a way and to such an extent that they cannot come out during the processing of the ice-cream. If the edge of the blade should be marred by nicks, dents, or what have you, then hone it, or else remove it and replace it with a new one. Warning: correctly reinstall it as shown in Fig. 3.

d) Inspection of the rotating seals installed on the bottom of the dasher shaft. The housing of rotary packing ring (Fig. 3, 15) is faced in hard metal which, on being pressed by the spring (Fig. 3,16), grazes against the face of the bushing (Fig. 3,13) These two surfaces have always to be specular, i.e., polished to a mirror-like state, otherwise the mixture will come out from the lower part of the cylinder. So as to smooth and polish the two surface to a high gloss, use a fine grade of sand paper. Initially rub them against a very hard surface (glass), and then one against the other, and in the same way as one would in grinding the valves. If the ring type gaskets are worn, then replace them. (Fig. 3,12/14)

e) Inspection of the belts of the main shaft and of the pump. The belts of the main shaft not be excessively stretched and they must always have the same degree of stretchness. Never substitute a

single belt but, on the contrary, replace all of them at the same time (Fig. 4,57).

If the belt of the pump speed variator is worn, then replace it. (Fig. 6,118).

ELECTRICAL SYSTEM MAINTENANCE

The electrical system has been conceived, designed and developed to protect to the maximum the components of the continuous ice-cream freezer.

a) When a motor stops, the intermittance signal lamp flashes (Fig. 1,60) to inform about the intervention of a thermal relay. This type of relay is "self-resetting". After few seconds from its intervention, it re-sets automatically and the controlled motor starts again by pressing the relevant button. A further thermal tripping few seconds after the start of the interested motor means that a short circuit is still on and it is necessary to check the electric circuit.

b) if the motor compressor stops, then check the pressure switches (Fig. 7,63/64) and the electronic protection (placed in the terminal board of the motor compressor)

These operations have to be done before intervening on the electrical system. Attentively follow and strictly adhere to the electrical wiring diagram. The terminal board numbered on the relative electrical wiring diagram duplicates that one installed on the continuous ice-cream freezer. As a consequence, it facilitates control procedures. For maintenance, and eventual repairs, it is advisable to have recourse to the services of a qualified electrician.

REFRIGERATION SYSTEM MAINTENANCE

All checks and controls have to be done only by a highly qualified refrigeration technician. In the event that the refrigeration system does not function as it should, then the reason may be due to one or more of the following factors:

- 1) insufficient condensation;
- 2) thermostatic valve (Fig. 7,65) which is not properly set or else it is inefficient;
- 3) circuit filter (Fig. 7,66) which is dirty or else it is clogged;
- 4) hot gas solenoid valve (Fig. 7,67a) which is either blocked or else it is open;
- 5) solenoid valve (Fig. 7,67b) which is either blocked or else it is closed;
- 6) there is a lack of gas in the refrigeration system.

Insufficient condensation can be due to:

- a) a lack of water coming from the water supply system;
- b) the pressostatic valve (7,120) is not properly adjusted.

In the first case, check that all the circuit valves (that convey water to the continuous ice-cream freezer) are open and that the flow of water to the continuous ice-cream freezer itself is uninterrupted.

To adjust the water flow pressostatic valve (Fig. 7, 120) tighten or loosen, as the case may be, the screw installed in the head of the valve itself. If the water flow regulating valve is properly adjusted, then the temperature of the water (coming out from the discharge outlet and with the refrigeration system in operation) should be from +30 °C to +35 °C ca. If the thermostatic valve (Fig. 7, 65) is not properly set, then it can result in a considerable reduction in the refrigerating capacity of the entire system. The thermostatic valve has to be set in such a way that the vacuum gauge (Fig. 7,6) during operation, indicates a temperature of from -26 °C to -30 °C. If the circuit filter (Fig. 7,66) is clogged, then it becomes covered with frost. Consequently, disassemble it and replace it. In any case, it has

always to be replaced each time the refrigeration circuit is opened. If the solenoid valve (Fig. 7,67a) that controls the hot gas remains open, it results in a considerable decrease in the refrigerating capacity. Check the solenoid valve and replace it. The solenoid valve (Fig. 7, 67b), automatically closes the cooling liquid circuit whenever the refrigeration compressor stops. If this solenoid valve does not open, then the refrigeration system tends to become a vacuum. Moreover, the vacuum gauge (Fig. 1,6) drops down to more than -35°C . In the event that this should happen, then check that the solenoid valve is being supplied with electrical current. If it is not being so supplied, then replace it. If the electrical system is in order, and all above-mentioned points result to be okay, then the subsequent insufficient refrigerating capacity is due to a lack of gas in the refrigeration system. A lack of gas in the refrigeration system, under normal operating conditions and circumstances, is revealed by the presence of gas bubbles that can be seen by looking through the sight gauge (Fig. 7,68).

Whenever a lack of gas in the refrigeration system has been ascertained, and before tacking the time and trouble to add additional gas, look for the reason that caused the preceding gas to escape.

Unless it is absolutely necessary to do so, do not add gas to the refrigeration circuit: to do so, is nothing more nor less than a waste of time, money and energy.

A refrigeration system with too much gas just does not work properly.

At regular intervals, check the level of the oil in the refrigerating compressor by looking through the relative sight gauge. In effecting any and all checks and controls, always revert to the drawings and diagrams in the back of this manual.

P. CLEANING PROGKI I

Recommended cleaning programme for PASTEURIZER-HOMOGENIZER section

STAGE	APPROX. TIME MIN.	APPROX. °C
Pre-rinse with water (can be omitted if pasteurizer is flushed after production run).	5	
2-Acid wash - 0.8 % nitric acid solution. To drain after use.	20	65
3-Intermediate rinse . Water displaces acid and goes to drain after regenerative cooling.	10	65
4-Lye wash - 1 % caustic soda solution with wetting agent and phosphate additives. To drain after use.	20	65
5-Hot water sterilization. Water displaces lye and goes to drain after regenerative cooling.	10	90/93
6-Cooling with cold water. Outgoing water to drain.	5	

Recommended cleaning programme : 1 TANK AND PIPES

STAGE	APPROX. TIME MIN.	APPROX. °C
1-Pre-rinse with water. Outgoing water to drain.	3	
2-Lye wash - 1 % caustic soda solution with wetting agent and phosphate additives. To drain after use.	6	65
3-Hot water sterilization. Water displaces lye and goes to drain after circulating.	6	90/95
4-Gradual cooling with water and goes to drain after use. Time according to desired final temperature.		

Recommended cleaning programme : FREEZER

STAGE	APPROX. TIME MIN.	APPROX. °C
1-Pre-rinse with water. Outgoing water to drain.	7	10/15
2-Lye wash - 1 % caustic soda solution with wetting agent and phosphate additives. Returned to tank after use.	12	65/70
3-Hot water sterilization. Water displaces lye and goes to drain after circulating.	12	90/95
4-Water goes to drain and gradual cooling.		

The times mentioned above are normative and the programme is effective from a bacteriological point of view, but it does not prevent hand rinsing water from depositing lime salts. Lime salts are to be removed once or twice every season by means of acetic acid or citric acid (ph 3.5/4.5) according to the following procedure: the freezer and the pumps are to be disassembled and the individual parts are to be washed in the above-mentioned weak acid (max. 100 ppm), immediately they are to be rinsed carefully in clean, cold water and dried.

WARNING

Do not use acidiferous or chlorine-containing detergent apart from the exception referred to.

Chlorine pits and makes mutator, dasher and blades rust and pits chrome!

Acid attacks chrome!

LUBRICATION

OIL			NOTES
Frigorific compressor Fig.7,69	TYPE - Density (at + 15°C) - Viscosity (at +50°C)	SUNISO 3G kg./m ³ 9,4 °E 2,7 °C -40	The refrigeration compressor is life-time lubricated. If necessary, top the level off up to 3/4ths of the level gauge on the housing of the refrigeration compressor.
Bushings Fig.6,114/116	TYPE	Bearing grease	Every 50 hours of operation, grease the bushings with suitable grease .
Variable Pulley Fig.6,117	TYPE	Bearing grease	Every 50 hours of operation, as it is needed.
Bushings Fig.3,17/19 Fig.3,9/15	TYPE	Bearing grease	Every time parts are disassembled.

SPARE PARTS

When ordering separate parts, always mention the construction serial number, the drawing number and the part number given in the manual.

DUE TO CONTINUOUS TECHNOLOGICAL DEVELOPMENTS AND IMPROVEMENTS, THE DIMENSIONS AND THE DATA GIVEN IN THIS MANUAL ARE NOT BINDING AND CAN BE CHANGED WITHOUT ANY PRIOR NOTICE ON OUR PART.

For any request of spare parts we kindly ask you to give all data indicated on the identification plate on the back of the electric board.

Moreover, when ordering the spare parts it is necessary to specify:

- 1) type of machine
- 2) the machine serial number
- 3) electrical characteristics
- 4) the illustration and position number of the part
- 5) description of the part

The spare parts can change without previous notice according to technical improvements by Hoyer on their machines.

Fixing trifles (bolts, screws, washers) are not supplied as spare part.

EXAMPLE FOR SPARE PARTS ORDER

Model: Gelmark 300

Serial Number: 0001

Electrical characteristics: 380 V - 50 Hz - 3 PH

1 pc. Fig. 3 - number 25 code 016060218

Eccentric shaft top bronze bush.

CONTINUOUS FREEZERS

GELMARK 160 - 300

SECTION TWO

DESCRIPTION	Fig. 1	Qty	TYPE OF MACHINE	
			GM 160 Code	GM 300 Code
5 Main switch -door lock		1	017035835 017035836	= =
2 Electronic speed counter		1	017087024	=
8 Green Light push button -lamp holder -conection base -lamp		3	017060913 017060911 017060921 017040915	= = = =
10 Red push button -conection base		3	017060916 017060902	= =
60 Red signal lamp for relay intervention -lamp holder -lampa		1	017060905 017060911 017040915	= = =
142 Hot gas regulator -label -stator -hand wheel -cover		1	017060010 017060011 017060012 017060013	= = = =
6 Vacuum gauge		1	015075386	=

Mark "=" means the code is the same.



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FIG. 1

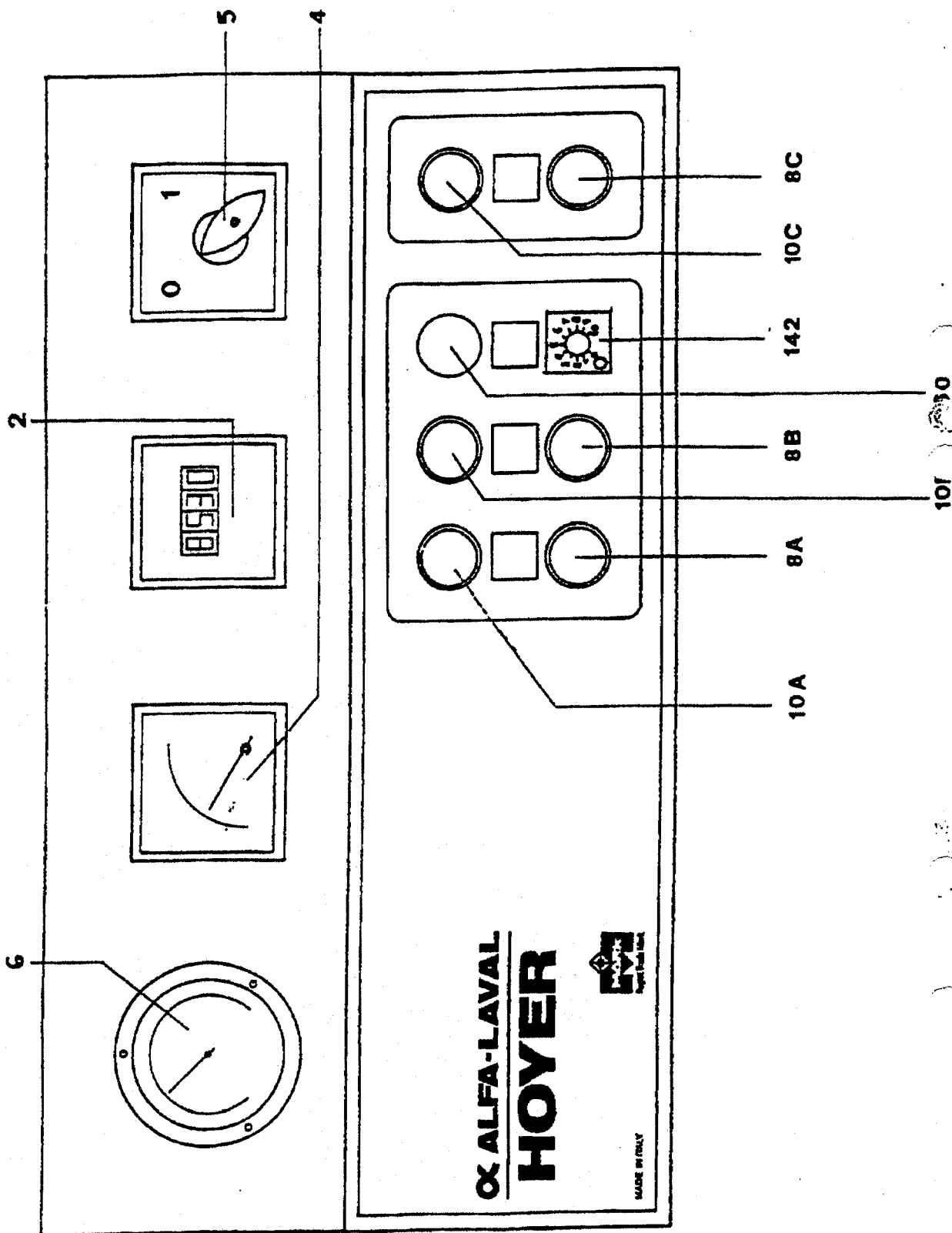
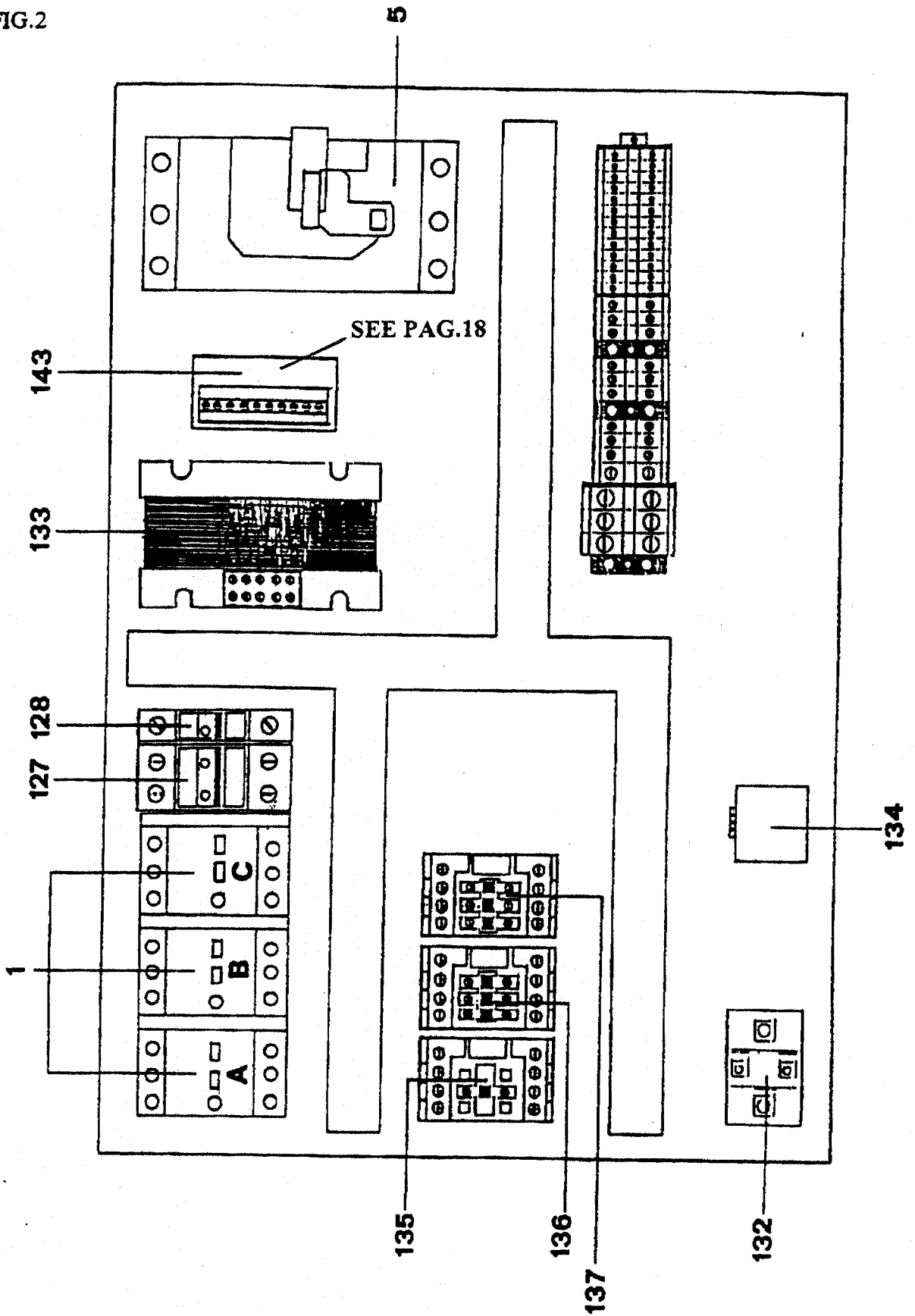


FIG. 2

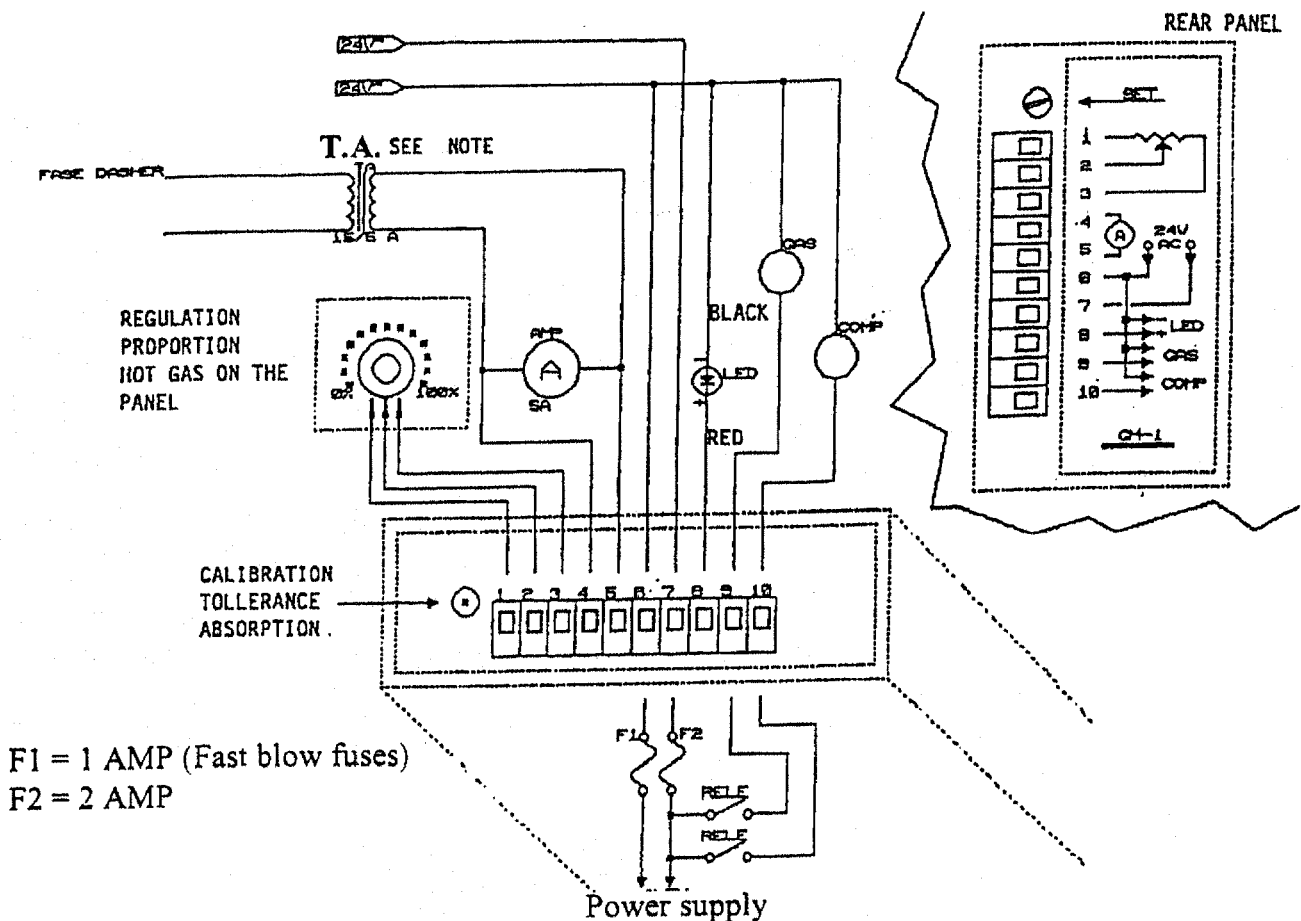
DESCRIPTION	Fig. 2	Qty	TYPE OF MACHINE	
			GM 160 Code	GM 300 Code
1A Automatic switch pump -contact		1	017035007 017035025	= =
1B Automatic switch dasher -contact		1	017035010 017035025	017035011 =
1C Automatic switch compressor -contact		1	017035011 017035025	017035013 =
127 Automatic switch		1	017035376	=
128 Automatic switch		1	017035363	=
132 Ammeter Transformer		1	017045037	=
133 Main Transformer		1	017070185	=
134 Counter Piece Transformer		1	015075002	=
135 Pump contactor		1	017080670	=
136 Dasher contactor		1	017080670	017080674
137 Compressor contactor		1	017080020	=
143 Hot gas electronic card		1	017087030	=
5 Main switch -door lock		1	017035835 017035836	= =

Mark "=" means the code is the same.

FIG.2



HOT GAS ELECTRONIC CARD



FUSES:

Inside the device two fuses 5x20 (F1 and F2) are available by removing the rear panel of the electronic card, loosening the four screws.

CALIBRATION ELECTRONIC CARD:

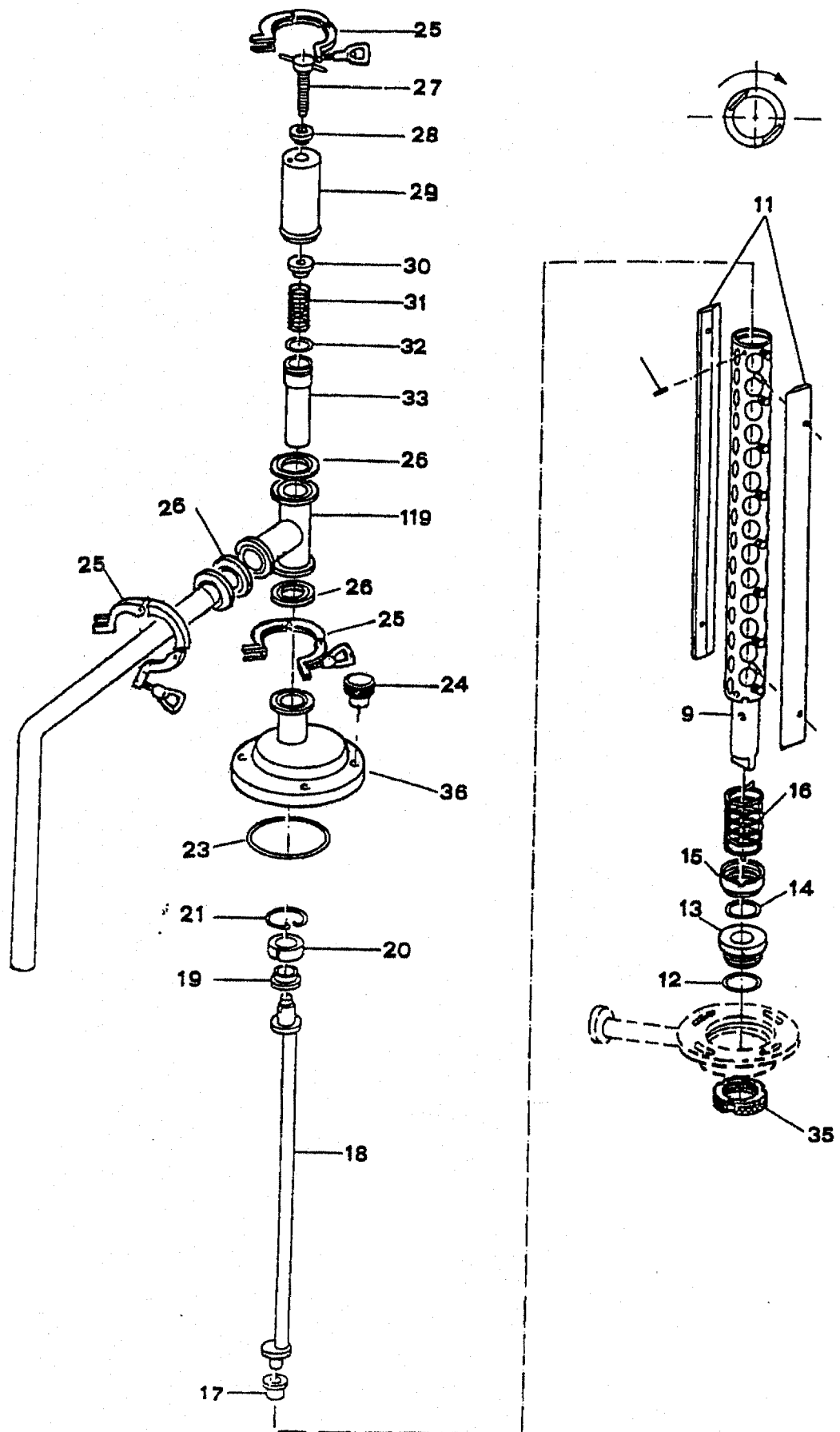
- 1 - connect mix pipe,
- 2 - to start the pump (adjust it at minimum speed by means of the handwheel (fig.6,62)),
- 3 - wait the mix to come out from the ice cream outlet; stop the pump,
- 4 - to keep the potentiometer of the thermal frost on "0" and start the setting,
- 5 - check the nominal absorption on the dasher motor, plate according to its voltage,
- 6 - start dasher and compressor; check the electric absorption of the dasher motor by the ammeter, it should reach of plate absorption before the protection of the hot gas is activated. Should the protection activates before the absorption value of plate, turn the screw "SET" clockwise.

Viceversa, if the protection of the hot gas does not activate when the electric absorption exceeds the plate nominal absorption, turn the screw "SET" anti-clockwise.

Repeat the setting many times until the protection of the hot gas activates exactly at the absorption value of plate.

- NOTE:**
- if F1 is cut off: the hot gas is excited and the compressor is not running,
 - if F2 is cut off: the hot gas and the compressors do not run,
 - it is essential that the T.A. is present to isolate the ammeter from the line.

Fig.3



DESCRIPTION

Fig. 4

TYPE OF MACHINE

	Qty	GM 160	GM 300
		Code	Code
3 Freezing barrel	1	141020110	141020210
37 Gasket OR 4350	1	336067037	-
Gasket OR 4375	1	-	336067039
26 Clamp 1" / 1 1/2"	1	018020575	=
39 Mix inlet plate	1	141015035	141015135
41 Reinforced nut for main shaft	1	141005030	141005230
42 Gasket OR 2118	1	336067024	-
Gasket OR 3156	1	-	336067057
43 Gasket Corteco 3040/7	1	336071220	-
4052/7	1	-	336071290
44 Bearing cover	1	141005040	141005240
45 Main shaft	1	141005020	141005220
46 Drop collector	1		
47 Ball bearing 6207 2RS	1	336001710	-
7208 2RS	1	-	336001720
48 Alluminium support	1	141005010	141005210
49 Motor plate screw	1	141005270	=
50 Ball bearing 6206 2RS	1	336001468	-
6207 2RS	1	-	336001710
52 Seering ring	1	326019530	326019535
53 Motor plate pin	1	141005250	=
54 Motor plate	1	141010115	141010215
55 Electric motor 3 HP	1	014045432	-
4 HP	1	-	014045599
56 Motor pulley 70x4A	1	141010110	-
80x5A	1	-	141010210
57 Belt A 41	4	336019041	-
A 43	5	-	336019050
58 Driven pulley 250 x 4A	1	141010105	-
250 x 5A	1	-	141010205
59 Polytene gasket	1	018020911	141005245

Mark "=" means the code is the same.

Mark "-" means item not fitted for this model.

DESCRIPTION Fig. 5

TYPE OF MACHINE

		Qty	GM 160 Code	GM 300 Code
25	Clamp 1" /1 1/2"	5	016060218	=
26	Gasket clamp 1"	5	018020575	-
27	OR 4100	5	336067082	-
75	Air valve pin	1	146000035	=
76	Gasket OR 112	1	336067030	=
77	Gasket OR 121	1	336067038	=
78A	Air valve body	1	146000030	=
78B	Air valve body	1	146000040	=
79	Front spring for air valve	1	146000050	=
80	Rear spring for air valve	1	146000045	=
81	Complete air valve	1	156000031	=
83	Air valve S/S cup	1	146000055	=
85	Pump body diam 25	1	141515125	-
	Pump body diam 35	1	-	141515135
86	Gasket OR 4100	1	336067082	-
	Gasket OR 4137	1	-	336067089
87	Gasket OR 4112	1	336067085	-
	Gasket OR 4150	1	-	336067091
88	Pump upper part	1	141525045	=
89	Gasket Clamp 2"	1	018020578	=
90	S/S ball	1	336003998	=
91	Ball pushing spring	1	141525035	=
93	Clamp 2"	1	016060219	=
94	Inox body safety valve	1	146000010	=
95	Safety valve spring	1	146000020	=
96	Safety valve plastic part	1	146000015	=
AIR CONTROL (optional)				
25	Clamp 1"	1	016060218	=
26	Gasket clamp 1"	1	018020575	=
82	Non return valve	1	146000006	=
89	Gasket clamp 2"	1	018020578	=
93	Clamp 2"	1	016060219	=
144	Air vacuum gauge	1	015075616	=
145	Te piece	1	141042007	=
PRESSURE CONTROL (optional)				
93	Clamp 2"	1	016060219	=
89	Gasket clamp 2"	1	018020578	=
142	Pressure gauge	1	015075615	=

Mark "=" means the code is the same.

Mark "-" means item not fitted for this model.



Hoyer

DESCRIPTION Fig. 6

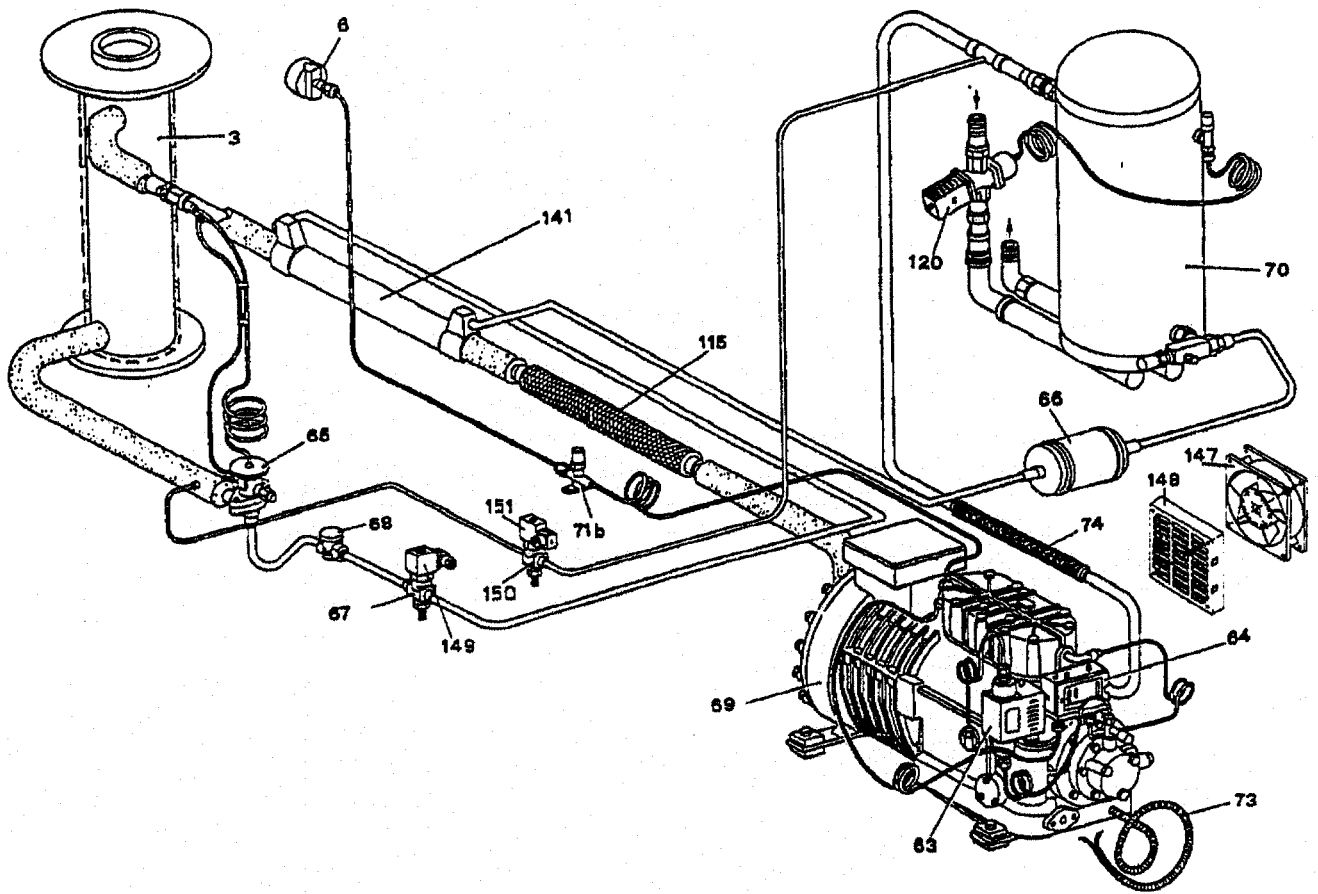
TYPE OF MACHINE

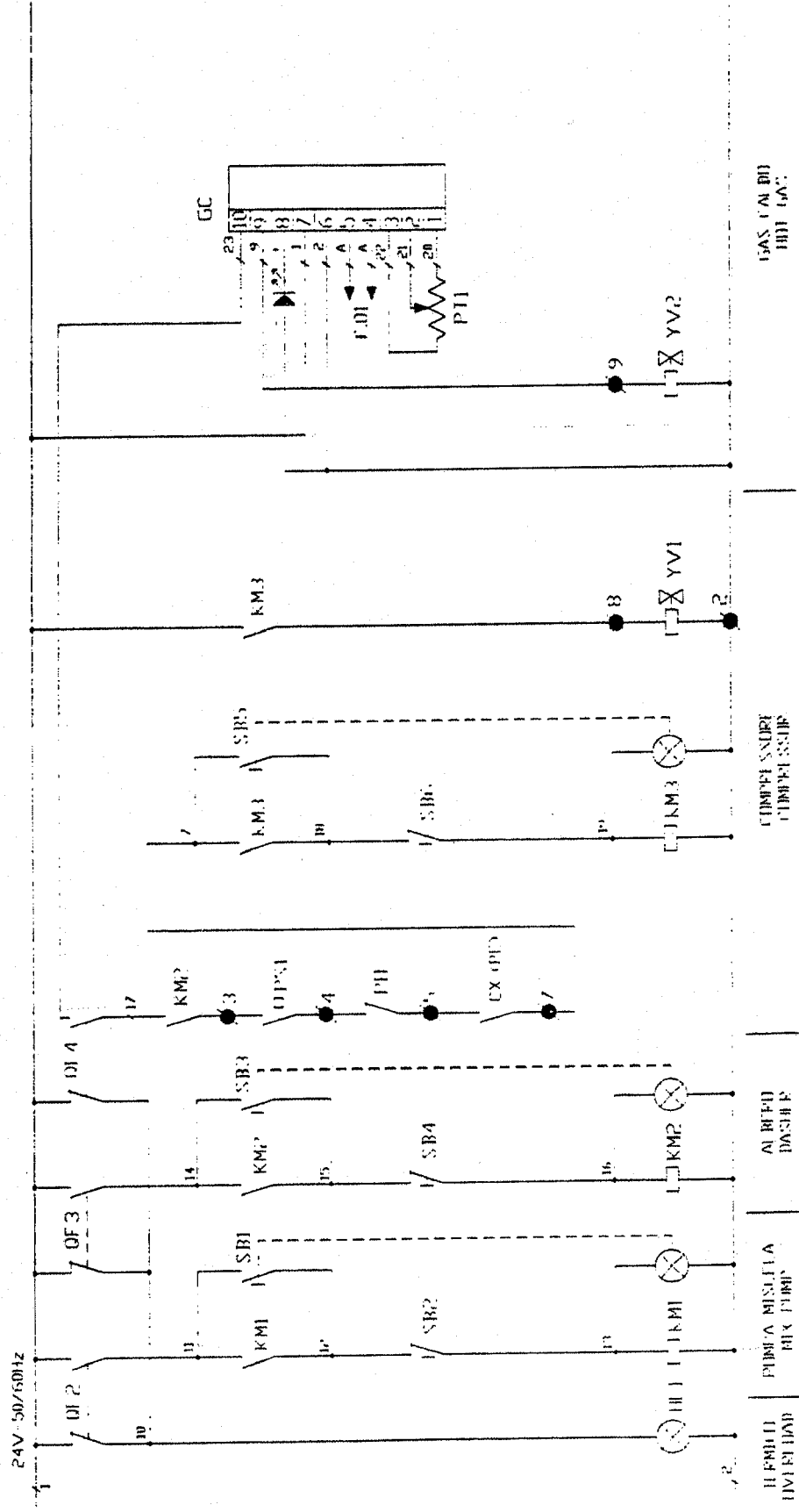
			GM 160	GM 300
		Qty	Code	Code
62	Handwheel speed variator	1	341567002	=
97	Reducer centering flange	1	141510011	=
98	Right angle support	1	141510035	=
99	Eccentric	1	141505060	=
100	Eccentric pin	1	141505050	=
101A	Covers for con-rod	1	141505025	=
101B	Covers for con-rod	1	141505027	=
102	Ball bearing SKF 6204/2RS	2	336001428	=
103	Con-rod for pump	1	141505035	=
104	Con-rod pin	1	141505045	=
105	Pump cover	1	141510020	=
106	Piston diam. 25	1	141520025	-
	Piston diam. 35	1	-	141520035
107	Seeger E 20	1	336019520	=
108	Reducer rate 1/15	1	336010121	=
109	Pulley int. diam. 100x22	1	141010102	=
110	Pump motor plate	1	141045110	=
111	Electric motor 1 HP	1	014045133	=
113	Speed variator flange	1	141050010	=
114	Piston bronze bush	1	336005667	=
116	Con-rod bronze bush	2	336005666	=
117	Variable pulley SCH 125 hole 19	1	336027002	=
118	Belt 22x08x650	1	336019785	-
	Belt 22x08x700	1	-	336019790
146	Slow shaft	1	141505028	=
147	Proximity	1	017035929	=

Mark "=" means the code is the same.

Mark "-" means item not fitted for this model.

Fig. 7





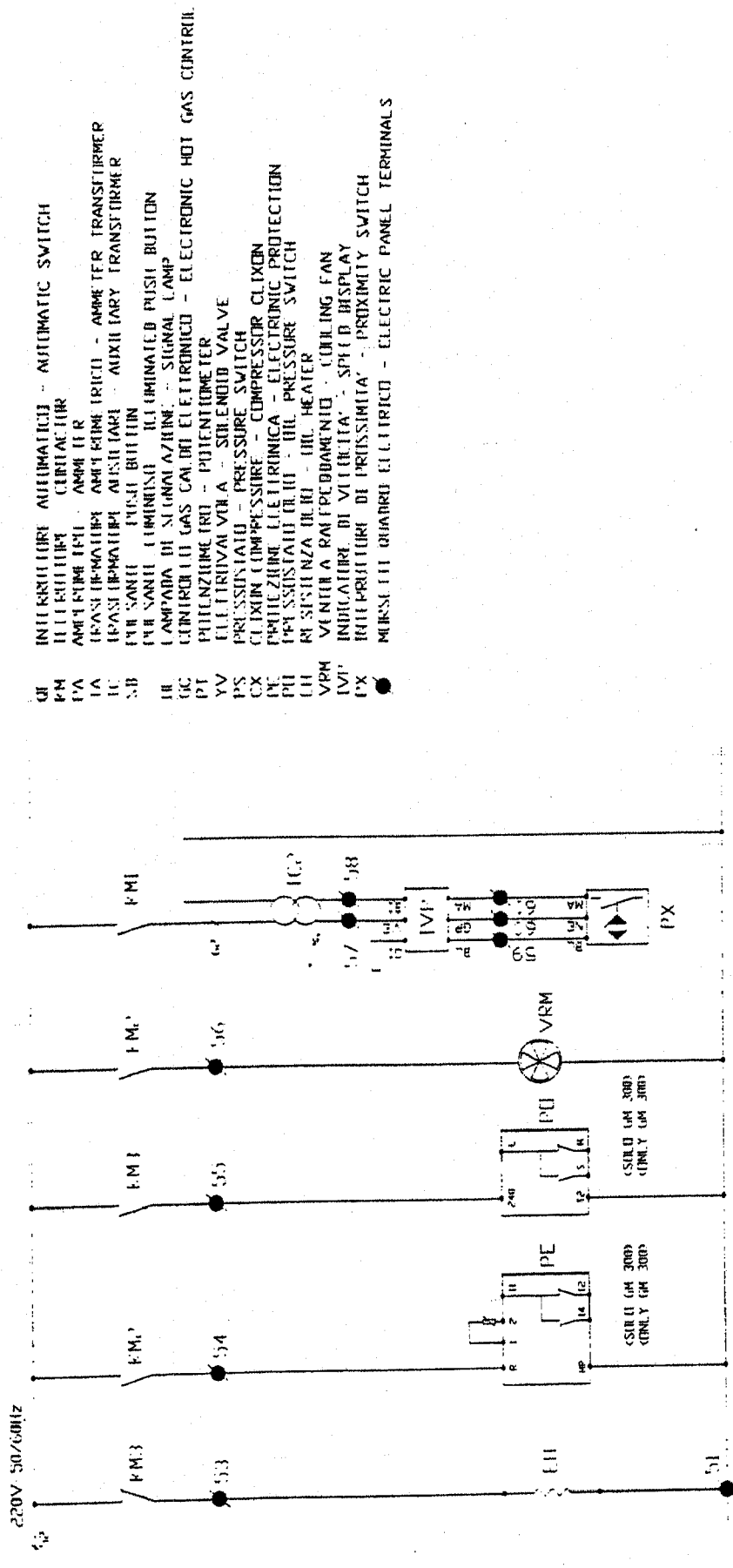
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1000 VA
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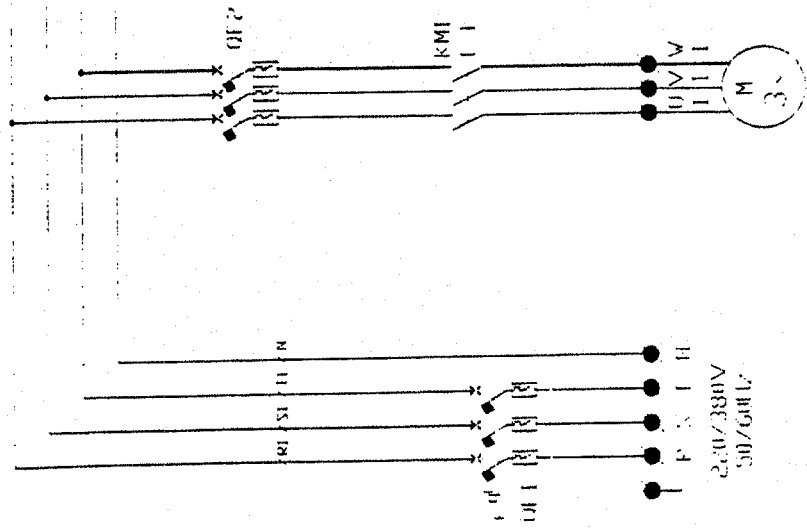
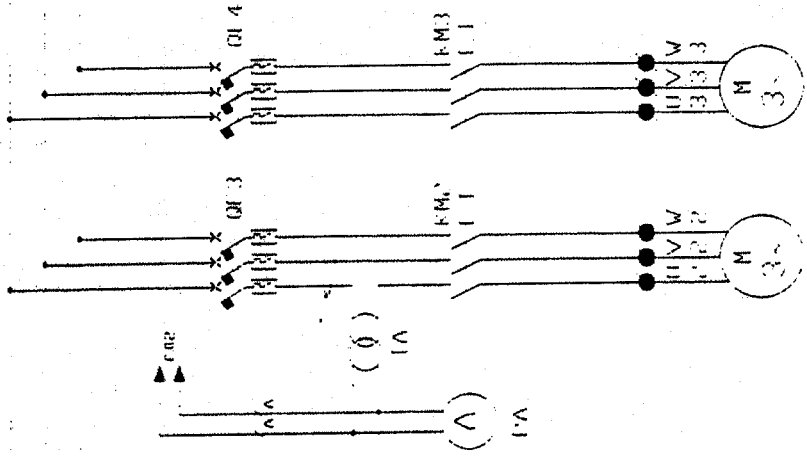
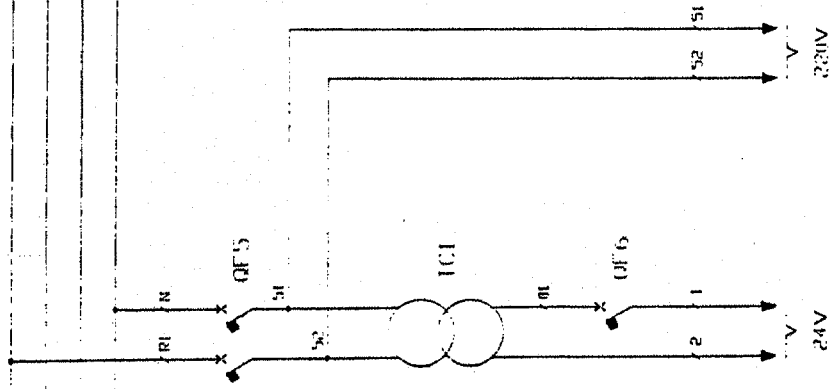
GELMARK 160-300 C.I. AMP

ALFA-LAVAL HOYER
 201300501



- QI INTERRUTTORE AUTOMATICO - AUTOMATIC SWITCH
- IEI ILLUMINANTE CERTIFICATO
- F.A. AMPEROMETRO - AMP METER
- I.A. TRASFORMATORE AMPEROMETRICO - AMP METER TRANSFORMER
- I.C. TRASFORMATORE AUSILIARE - AUXILIARY TRANSFORMER
- S.B. FUSIBILE ILLUMINATO
- I.H. LAMPADA ILLUMINANTE ILLUMINATED PUSH BUTTON
- I.C. LAMPADA DI SICURTA' AZIONE - SIGNAL LAMP
- P.T. CENTRIFUGO GAS CALDI ELETTRONICO - ELECTRONIC HOT GAS CONTROL
- Y.V. POTENZIOMETRO - POTENTIOMETER
- E.H. ELETTRIVALVOLA - SOLENOID VALVE
- P.S. PRESSOSTATO - PRESSURE SWITCH
- C.X. CLIXON COMPRESSORE - COMPRESSOR CLIXON
- P.V. PROTEZIONE ELETTRONICA - ELECTRONIC PROTECTION
- P.P. PRESSOSTATO OIL - OIL PRESSURE SWITCH
- E.H. RESISTENZA OIL - OIL HEATER
- V.R.M. VENTILATORE RAFFREDDAMENTO - COOLING FAN
- I.V. INDICATORE DI VITEZZA - SPEED DISPLAY
- P.X. INDICATORE DI PROSSIMITA' - PROXIMITY SWITCH
- P.X. MURSEITI QUADRO ELETTRICO - ELECTRIC PANEL TERMINALS

- 53 E.H. ELETTRIVALVOLA
- 54 P.E. PROTEZIONE ELETTRONICA
- 55 P.P. PRESSOSTATO
- 56 V.R.M. VENTILATORE RAFFREDDAMENTO
- P.X. INDICATORE DI VITEZZA



- LIMPA SSBET
LIMPA SSBUP
1.5 KW
3 KW
5.5 KW
- LIMPA SSBUP
LIMPA SSBUP
1.5 KW
3 KW
3 KW
- LIMPA MISTELA
MIX PUMP
0.37 KW
0.75 KW
0.75 KW

CLIEVE L'EDITEUR 2009 L'EDITEUR CAVALUTTO PER L'EDITEUR L'EDITEUR L'EDITEUR
 WITH PUMP 240V 380V 50/60Hz PUMP BETWEEN TERMINAL 1 2 N

ALFA-LAVAL
JOYER
 CLIENTE
 2009/10
 160-300 CLAMP
 2009/10