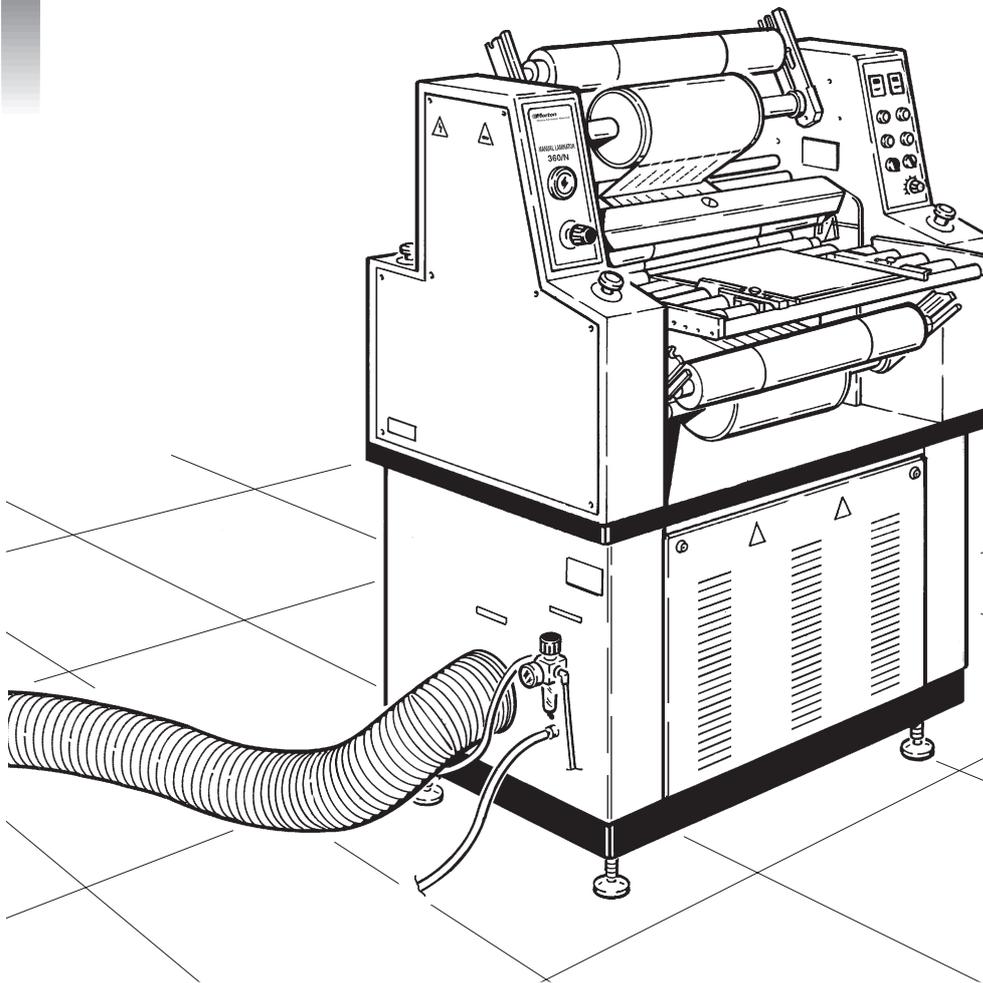


MANUAL LAMINATOR 360/N



**OPERATING AND
SERVICE MANUAL**

NOTICE

PRIOR TO INSTALLING, OPERATING OR PERFORMING MAINTENANCE ON THE MACHINE THIS INSTRUCTION MANUAL SHOULD BE READ CAREFULLY.

TO THE BEST OF OUR KNOWLEDGE THE INFORMATION CONTAINED HEREIN IS CORRECT, HOWEVER, SHIPLEY DOES NOT GUARANTEE THE COMPLETENESS OR ACCURACY OF THE INFORMATION.

USER IS RESPONSIBLE FOR THE SAFE INSTALLATION AND OPERATION OF THE MACHINE.

WARRANTY

The Machine is warranted by ShipleY, against defects in material and workmanship for a period of 90 days, from date of receipt by the customer.

During which time ShipleY will be responsible for the replacement or repair, at its option, of any defective parts and for any labor charges connected with the repair of the machine.

ShipleY, for an additional 90 days period, warrants that it will replace or repair, at its option, any part that proves to be defective; however, the customer will be responsible for all labor during this additional 90 days period.

ShipleY should be notified in writing of any defect in material or workmanship of the machine and if so instructed by ShipleY, the machine or any part thereof, will be shipped, freight paid by ShipleY, to ShipleY for repair.

Neither the machine nor any part thereof should be returned to ShipleY without written authorization from ShipleY.

This warranty is effective only under the condition that the machine installed in accordance with ShipleY specifications.

Additionally the warranty is not valid if the machine is abused or operated contrary to the instructions or if alterations or repairs are made by other than authorized ShipleY representatives or by written permission from ShipleY.

Notwithstanding the above and regardless of the circumstances Morton's total liability for any and all claims, losses or damages arising out of any cause whatsoever, shall not exceed the purchase price of the machine.

In no event shall ShipleY be liable for any incidental or consequential damages, whether arising from contract, negligence, strict liability or warranty.

The warranty is expressly in lieu of all other warranties, express or implied, including the warranty of merchantability of fitness for a particular purpose.

SHIPLEY is a Registered Trademark.

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SPECIAL RECOMMENDATIONS TO THE OPERATOR

- The terms: right, left, upper, lower, etc. being used in this manual to describe and locate the machine components and parts are always referred to the right position of the operator when inserting the boards during standard operation.
- Before starting to work on the machine, the operator must have a complete understanding of this manual, of the technical specifications of the machine and its controls.
- It is also advisable that the operator attends a training period as regards the use of the machine and of the products.
- The mechanical parts for transmitting the motions to the rolls and the electric components are located into the machine and are protected by entirely closed panels with interlocked switch or screws.
- Before removing the safety protections and have access to the internal parts, make sure that the main power switch of machine is in "OFF"  position, so that no power is present into the machine when the operator works.
- During the installation, it is essential to provide a breaker up-stream the machine switch and a ground system fully complying with industrial prevention regulations.
- Any control or periodic maintenance operations which imply the removal of protection are to be intended as effected under the full responsibility of the User and therefore should be carried out only by authorized and skilled persons.
- **Shipley will not be responsible for accidents or damages to persons or things, when such fundamental safety rules are not complied with.**
- **Anyway such rules, together with all rules concerned with the installation of the machine and with electrical connections, are an integral part of the industrial accident prevention regulations of any single Country.**
- **Never carry out improvised or hurried repairs which might compromise good machine operation.**
- **SHOULD ANY DOUBT ARISE ALWAYS ASK SKILLED SHIPLEY PERSONNEL FOR INTERVENTION.**
- **Periodically check the efficiency of the safety devices and protections and make sure that they are operating.**
- **ANY ERRONEOUS INTERVENTION BY THE USER WILL IMPLY NO LIABILITY WHATSOEVER ON THE SHIPLEY, AND THE USER SHALL BE FULLY LIABLE TOWARDS THE COMPETENT BOARDS FOR ACCIDENT PREVENTION.**

DESCRIPTION OF THE SYMBOLS

Many accidents are caused by insufficient knowledge of the safety regulations or failure to apply these instructions when running or servicing a machine.

To prevent accidents, it is essential to read, understand and comply with all the precautions and warnings in this manual and those reported on the safety plates fixed to the machine.

The following symbols have been used to identify the safety messages printed in this manual:



DANGER

This symbol is used to identify safety messages when these draw the operator's attention to situations of danger.



ATTENTION

This symbol is used to identify safety messages when these draw the operator's attention to situations of danger which, if ignored, could cause slight or moderate injuries or damage.

The message can be also used for dangers which can cause damages to the machine.



NOTE

This symbol is used to identify precautions the operator must take in order to avoid operations that could shorten the life of the machine, or to identify important information for the operator.

IMPORTANT

For a clear information some manual's pictures show the plant without safety guards.

DO NOT USE THE MACHINE WITHOUT SAFETY GUARDS.

1.1 TECHNICAL FEATURES

GENERAL SPECIFICATIONS

Max overall dimensions

- Width 1090 mm 42.91"
- Max. length (with open input roller) 770 mm 30.31"
- Min. length (with closed input roller) 670 mm 26.37"
- Height (min ÷ max) 1470 ÷ 1570 mm 57.87 ÷ 61.81"

PANELS SIZE

- Width (up to) 200 ÷ 640 mm 7.87 ÷ 25.19"
- Dry-film width (up to) 200 ÷ 610 mm 7.87 ÷ 24.02"
- Length (up to) 200 mm ÷ unlimited 7.87" ÷ unlimited
- Thickness (up to) (***) 0,1 ÷ 5 mm (***) 0.004 ÷ 0.20 mm"

CONVEYOR

- Conveyor height (min ÷ max) 1020 ÷ 1120 mm 40.16 ÷ 44.10"
- Conveyor speed adjustable up to 3 Mt/min. 10 FPM"

ELECTRICAL REQUIREMENTS

- Power type single-phase 50/60 Hz + ground
- Rated nominal power 2.4 KVA
- Nominal voltage 220/240

PNEUMATIC REQUIREMENTS

- Consumption 0,5 NI/cycle
- Operative pressure 6 kg/cm2
- Minimum pressure 3 kg/cm2

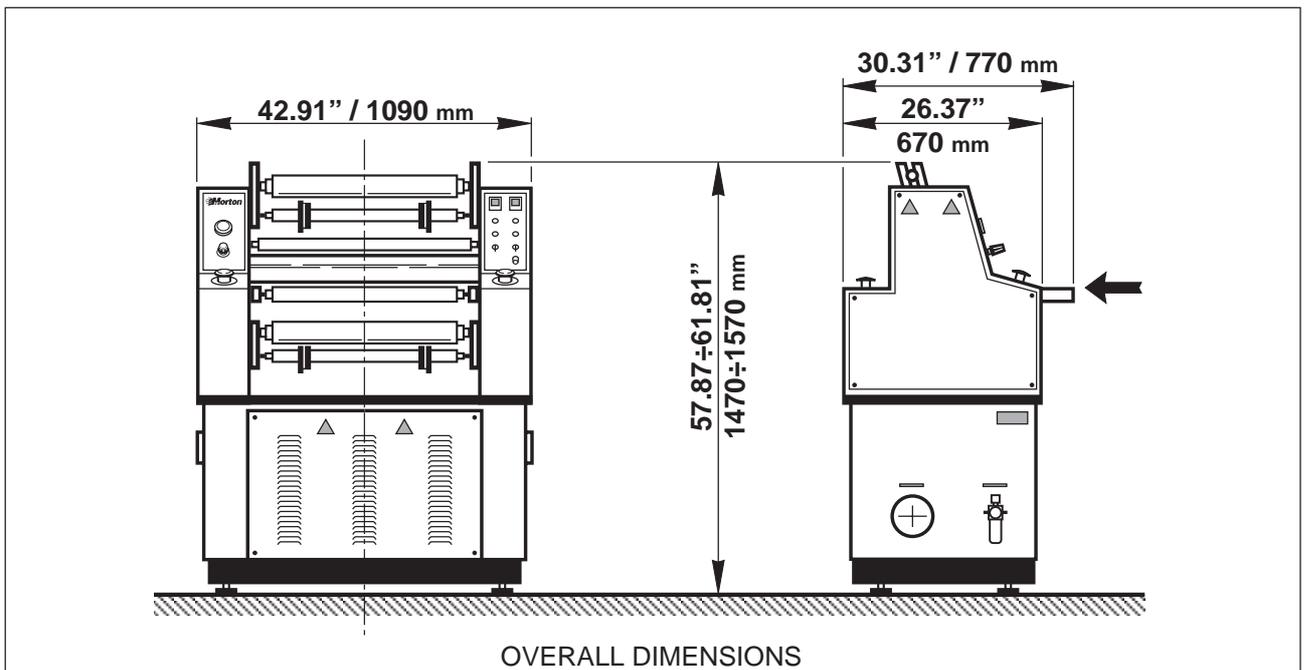
FAN REQUIREMENTS

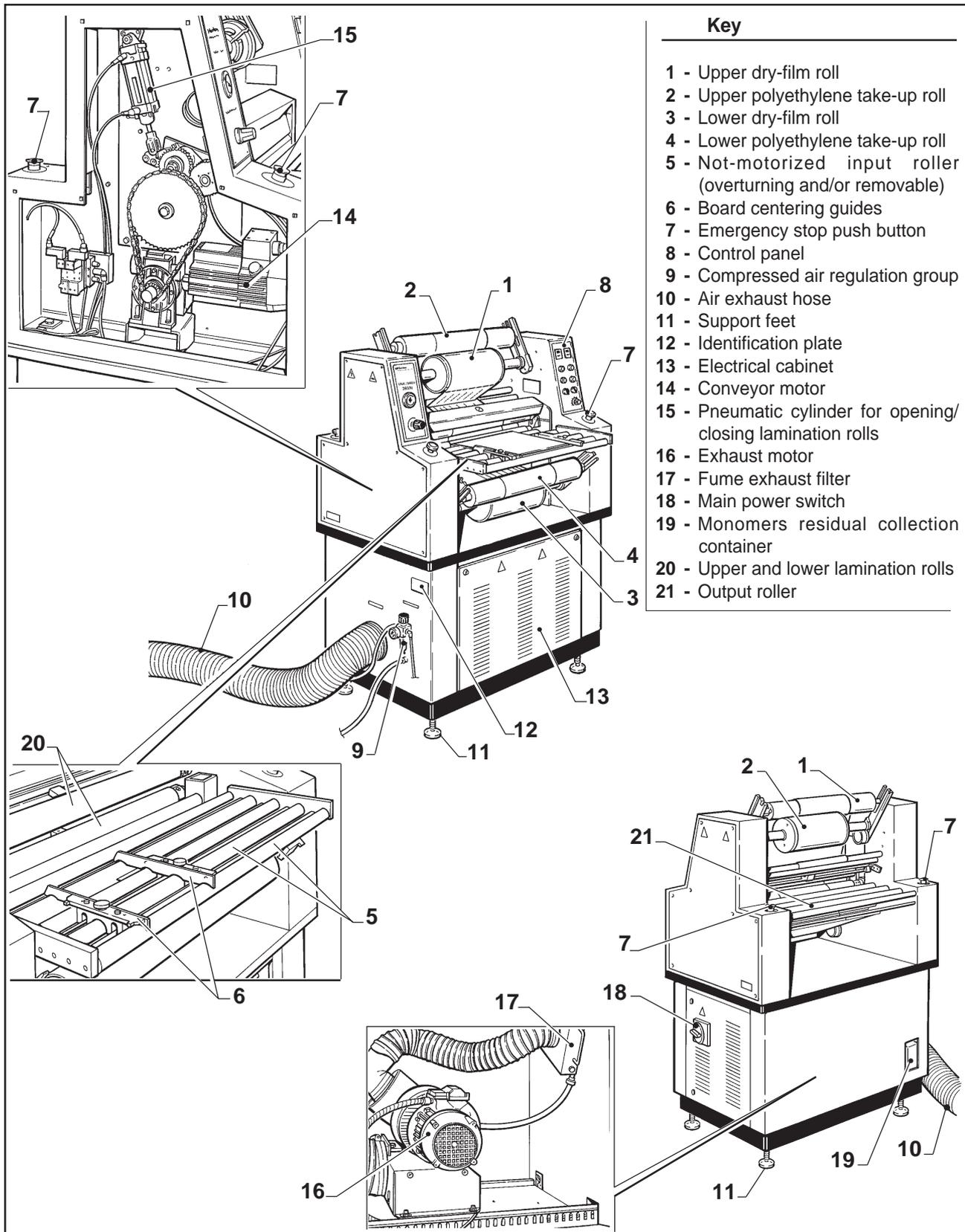
- Exhaust capacity 1000 m3/h 588 CFM"
- Tubes diameter 150 mm 5.91"

Gross weight 330 kg 726 lb"

Net weight 210 kg 462 lb"

(***) It is possible to supply the machine to work bigger thicknesses at the Customer request.





1.2 - GENERAL DESCRIPTION (Fig. 1)

- The Manual Laminator mod. 360/N, which will just be called ML 360/N from now on, has been designed and realized to use every kind of Dry Film Photoresist. Its features allow to laminate the Dry Film with rigid or flexible materials, on one or both sides of the printed circuit.

1.3 - FEATURES (Fig. 1)

- ML 360/N operation is entirely handled and controlled by a PLC. Besides machine management, this also indicates autodiagnosis of the faults that are shown by the "ALARM" light (4) placed on the control panel (see Fig.. 6).
- Both lamination rolls (20) are internally heated through two plug resistances.
- The temperature is detected directly on the roll surface by precise copper pin thermocouples. The temperature is controlled by two digital thermoregulators (pos. 1 and 2 Fig.. 6).
- The conveyor speed of the panels to be laminated can be adjusted from 0,5 to 3 mt/min, as the work requirements, through a potentiometer (9) placed on the control panel.
- An exhaust system removes Dry Film vapours during lamination.
- The not-motorized input roller (5) and the vacuum exhaust units are removable and overturning to allow an easier charging of the Dry Film rolls and an easy access to lamination rolls.
- Two centering guides (6) are arranged on the input roller (5) for the correct feeding of the panels to the lamination rolls.
- Please refer to the following paragraphs for the technical features of Manual Laminator 360/N and its operation.

 **NOTE**

The machine is equipped with safety devices in compliance with the current safety regulations.

1.4 - MACHINE IDENTIFICATION (Fig. 1)

- The serial number and the data necessary for machine identification are fixed to the identification plate (12) placed on the lower left side of the machine itself.

 **NOTE**

Always indicate the serial number of the machine when requesting technical servicing or ordering spare parts.

1.4A - Check after delivery.

- Remove the packing, check that the machine has not been damaged during the transport.
- Check for eventual damages crushings, brakings or tearings of the machine structure for crushed, torn or broken electrical cables.

 **NOTE**

Should the machine or its accessories be damaged, immediately inform our Technical Service Department or the area agent of the fault in writing (no later than 8 days after the delivery date).

1.5 - PRELIMINARY CHECKS AND INSTALLATION

1.5A - Installation (Fig. 2)

- The Manual Laminator 360/N must be positioned by carefully following in strict compliance the measurements given in Fig. 2. These indicate the minimum space required by the operator to correctly carry out each work sequence and/or servicing operation.
- The machine is equipped with a main cable without plug and operates with 220/240 V 50/60Hz single phase plus ground.
- However, other voltages can be supplied following agreement on order.

WARNING

Before connecting the power supply, check that the characteristics of the electrical power supply main agree with the values on the machine data plate (pos. 12 – Fig. 1).

1.5.B - Machine positioning and levelling (Fig. 3).

Place the machine in the required place. Adjust the height and the level of the working plan by means of its support feet (1) in the following way:

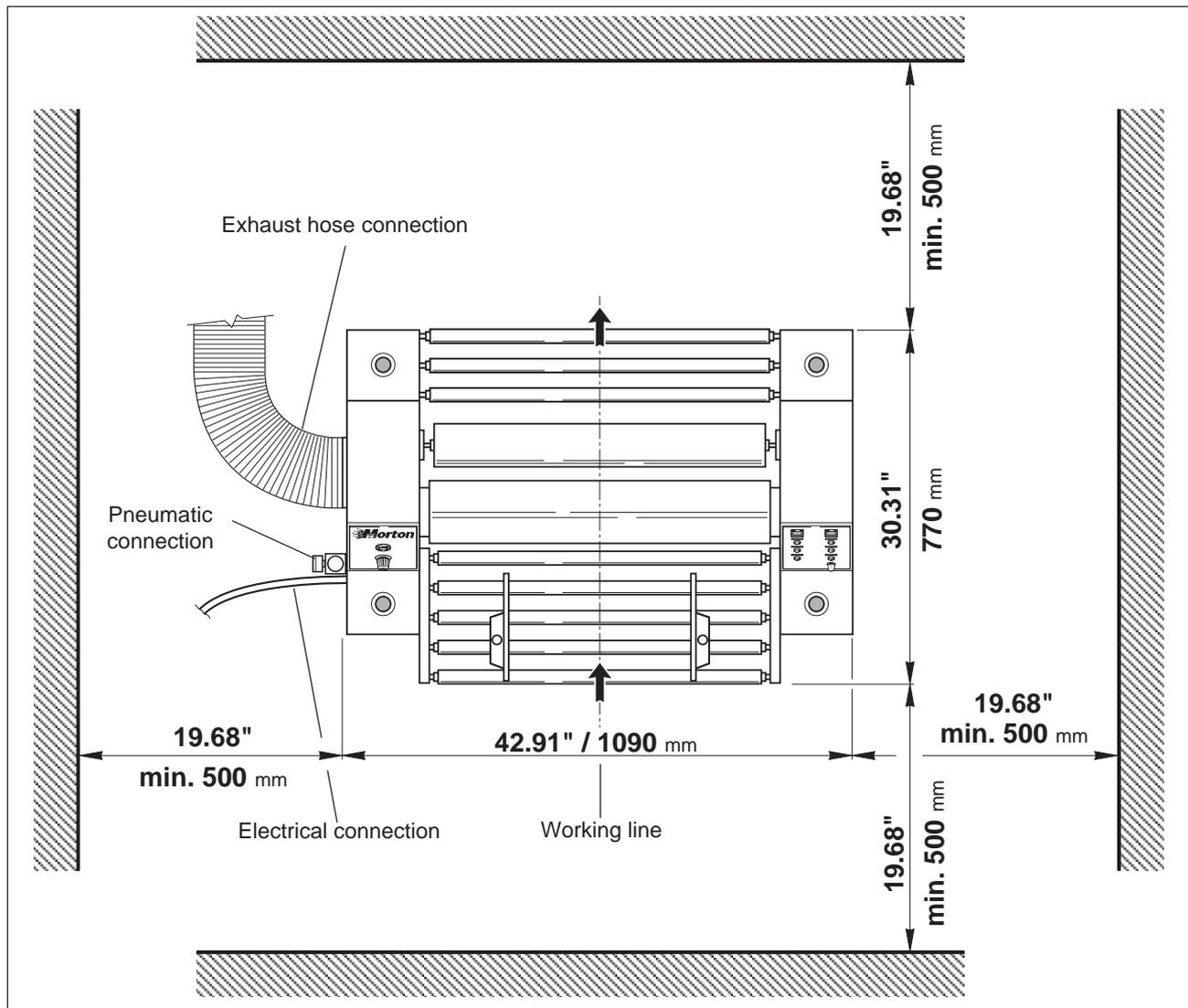


Fig. 2 - INSTALLATION PLAN VIEW

- slacken the nuts (2) of all four support feet (1);
- adjust the machine levelling and the height of the working plan;
- lock the feet (1) in place by rescrewing the nuts (2).

1.5.C - Electrical connection

- To connect ML 360/N directly to the electricity power supply grid make sure that:
 - it is equipped with its own switch of at least 16 A, such as motor overload switch;
 - it has a proper grounding system.
- Furthermore, make sure that the main cable is able to bear this current value.



WARNING

Voltage variations must not exceed $\pm 7\%$.

1.5.D - Pneumatic connection (Fig. 4)

- The coupling for pneumatic connection to the pneumatic grid is positioned outside the machine on the lower left side (see Fig.).
To complete the pneumatic connection, connect the ON/OFF valve (1), mounted on the machine, to the compressed air supply line remembering that the operative pressure of the machine is 6 kg/cm².

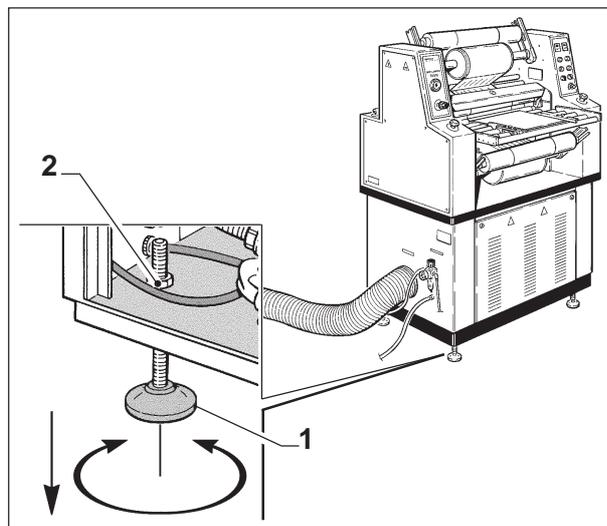


Fig. 3 - ML 360/N HEIGHT ADJUSTMENT

- A hose pipe with a minimum inner diameter of 6 mm and an external diameter of 8 mm is required for connection.

NOTE

The machine is supplied with the operative pressure of the system already regulated through the relative pressure gauge (2) installed inside the base. It is therefore not necessary to make further adjustments before the machine starting.

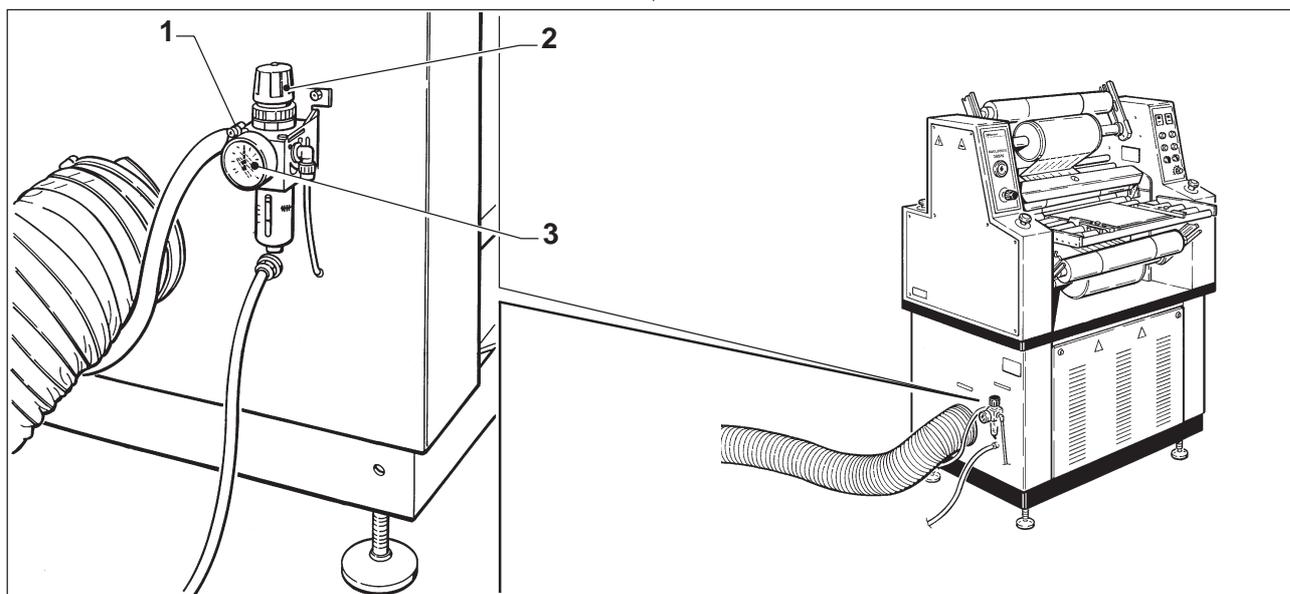


Fig. 4 - PNEUMATIC CONNECTION

It is, however, advisable to check the pressure value on the gauge (3) and to prevent this from dropping below 3 atm.

WARNING

*The pneumatic system of the Manual Laminator 360/N has been designed and built with dry components.
Lubricated air should not, therefore, be used.*

1.5.E -Exhaust hose connection (Fig. 5)

- The Manual Laminator 360/N is supplied with 5 mt of flexible hose (1) 150 mm diameter and two hose clamps (2).
- Therefore one end of the hose must be connected to the relative machine union, while the other end must be connected to a centralized vacuum in the department.

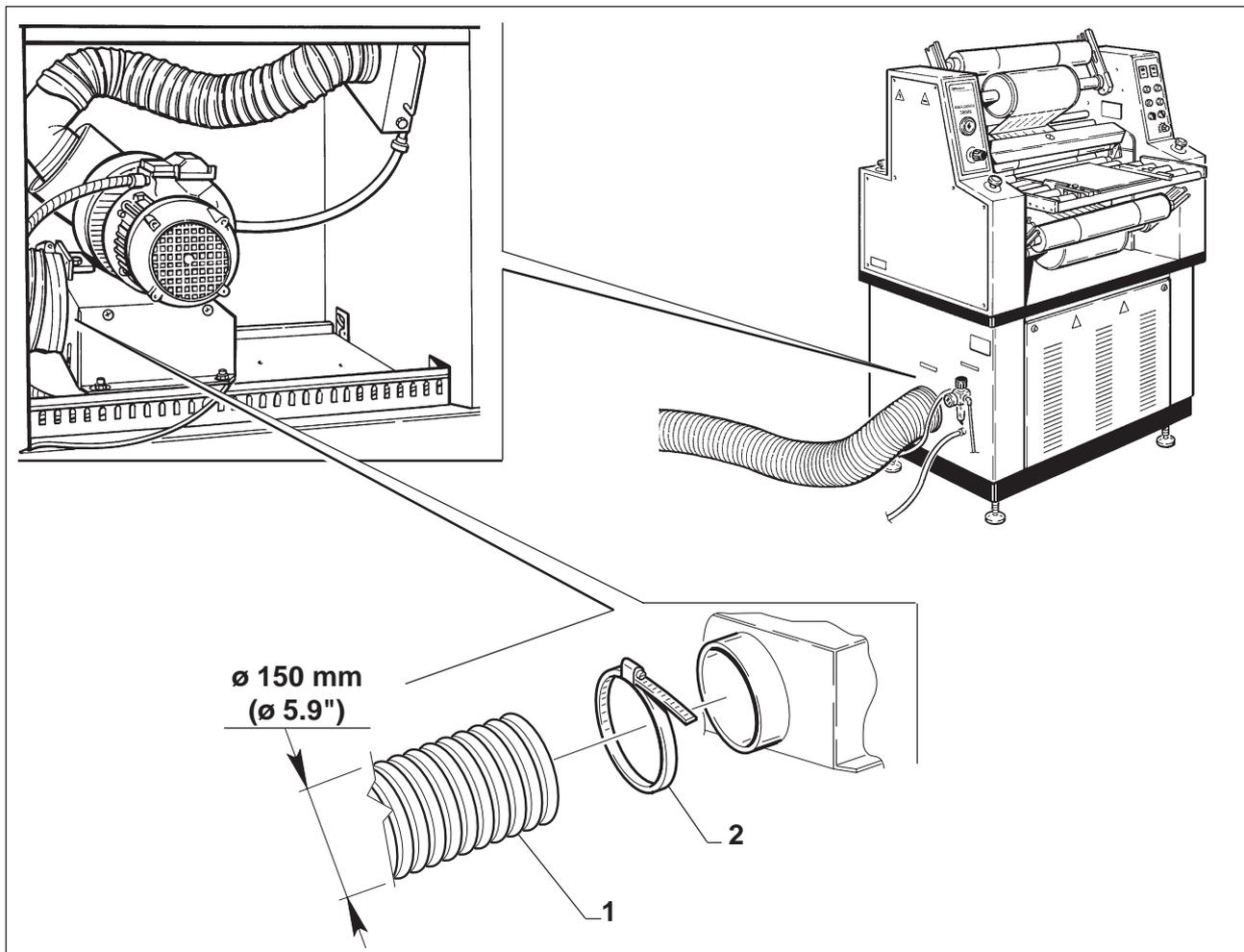


Fig.5 - EXHAUST HOSE CONNECTION

2.1 - CONTROL PANEL (Fig. 6)

This paragraph gives instructions for the correct use of controls and instruments on the control panel of ML 360/N.

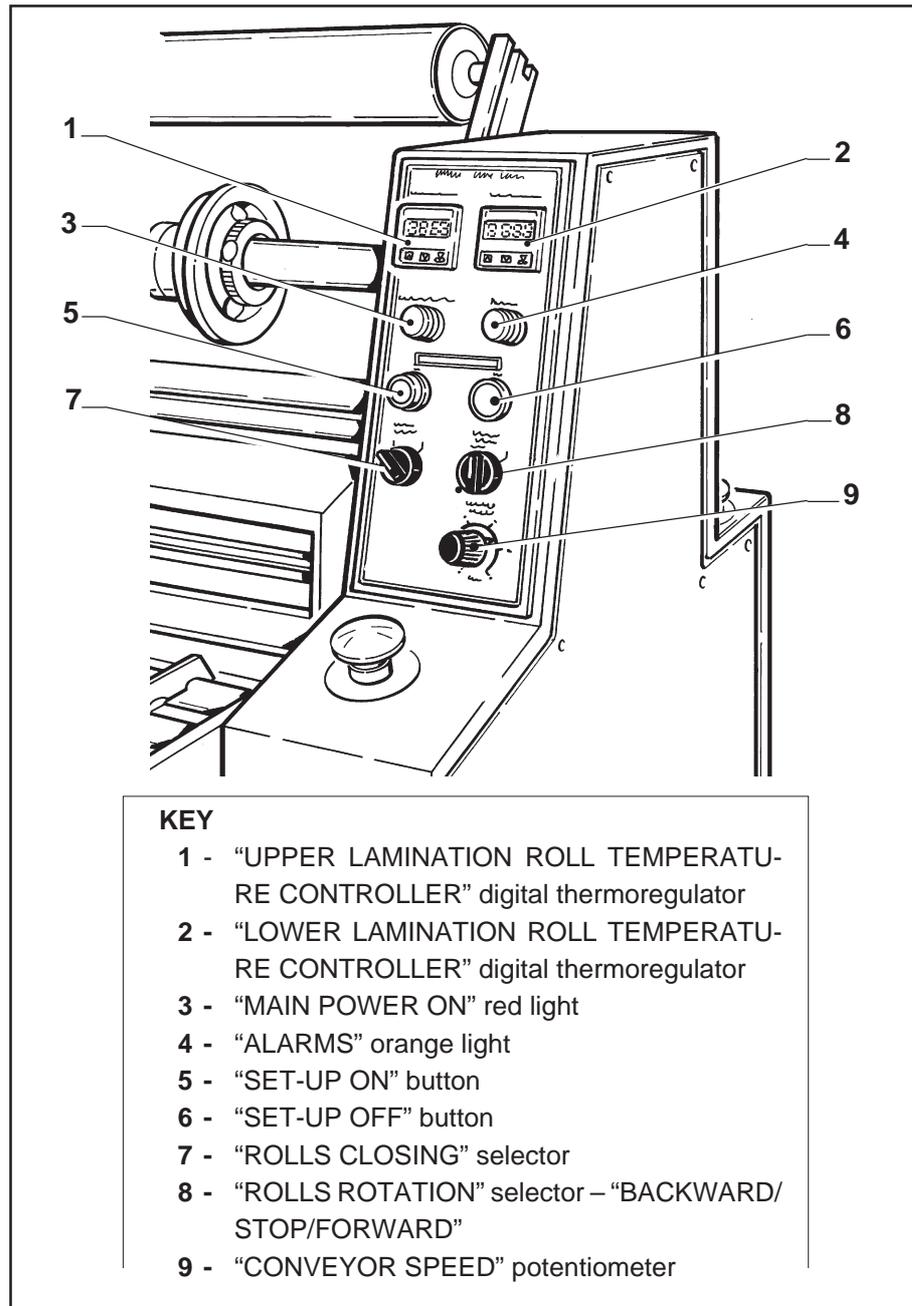


Fig.6 - CONTROL PANEL

- **UPPER AND LOWER ROLL TEMPERATURE CONTROL (pos. 1 and 2 - fig. 6)**

The two digital thermoregulators detect out and manage the temperature of the surface of the two laminating rolls.

A part in the appendix supplies a complete explanation about the starting and setting up of the parameters necessary for the operation of the machine (they have already been set during the machine final test).

- **“MAIN POWER ON” red warning light (pos. 3 - fig. 6)**

When switched on, the warning light indicates that the main power switch (see fig. 7) is in position **I**. The machine is therefore on and ready to operate.

- **“ALARMS” orange warning light (pos. 4 - fig. 6)**

The causes of the machine stop, indicated by this warning light, are the following:

- EMERGENCY PUSH BUTTONS ACTIVATED
- EXHAUST MOTOR OVERLOAD SWITCH
- EXHAUST GROUP NOT IN POSITION

It is possible to distinguish the stop cause, among the ones above-mentioned, by interpreting the different flashing frequencies of the “ALARMS” warning light.

- An on/off equal frequency every 0,5 seconds indicates the intervention of one of the emergency push buttons or of the “SET-UP OFF” push button.
- An on/off equal frequency every 1 second indicates the intervention of the exhaust motor overload switch.
- A different frequency (1,5 seconds on and 0,5 seconds off) indicates that the positioning of the exhaust group is not correct.

- **“SET-UP” - “ON” button (pos. 5 - fig. 6)**

It is the green lighted button that enables the operative functions of the machine.

The button can be switched off pressing “SET-UP OFF” or one of the emergency buttons on the machine or when any of the causes declared by the “ALARMS” light occurs.

- **“SET-UP” - “OFF” button (pos. 6 - fig. 6)**

Press this button to inhibit all functions preselected by the “SET-UP ON” button.

- **“ROLL CLOSING” selector (pos. 7 - fig. 6)**

Turn the selector to “1” to let the upper roll come down, only for gravity, not by pressure.

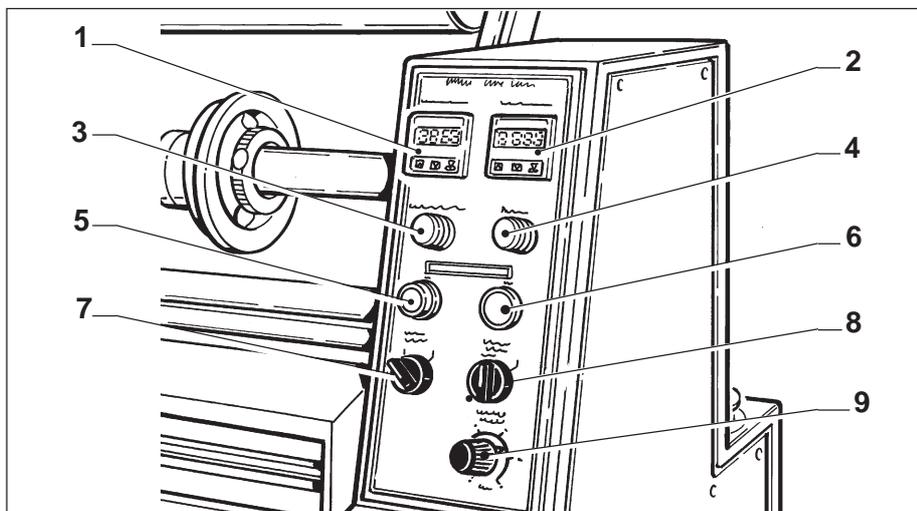


Fig.6 - CONTROL PANEL

- **“ROLLS ROTATION” selector - “BACKWARD/STOP/FORWARD” (pos. 8 - fig. 6)**

By changing the selector position it is possible to modify the working conditions of the lamination rolls, as follows:

- In the “STOP” position no conveyor movement of the lamination rolls occurs.
- By selecting “FORWARD” the rolls will be moved in the correct lamination direction and at the same time the electrovalve for the lamination pressure will be activated.
- In the “BACKWARD” position what is stated above occurs but with a contrary movement.

- **CONVEYOR SPEED potentiometer (pos. 9 - fig. 6)**

It allows to adjust the advancement or the moving back (if the above-mentioned selector is in the “BACKWARD” position) speed of the panels through the lamination rolls.

The possible selection varies from a minimum of 0,5 Mt/min to a maximum of 3 Mt/min.

2.2 - MAIN POWER SWITCH (Fig. 7)

- **Main power switch.**

To switch on the machine, turn the main power switch in a clockwise direction to the ON (I) position.

ⓘ WARNING

ALWAYS disconnect the power supply by setting the main power switch to the OFF position (O) before carrying out any maintenance operation involving electrical parts.

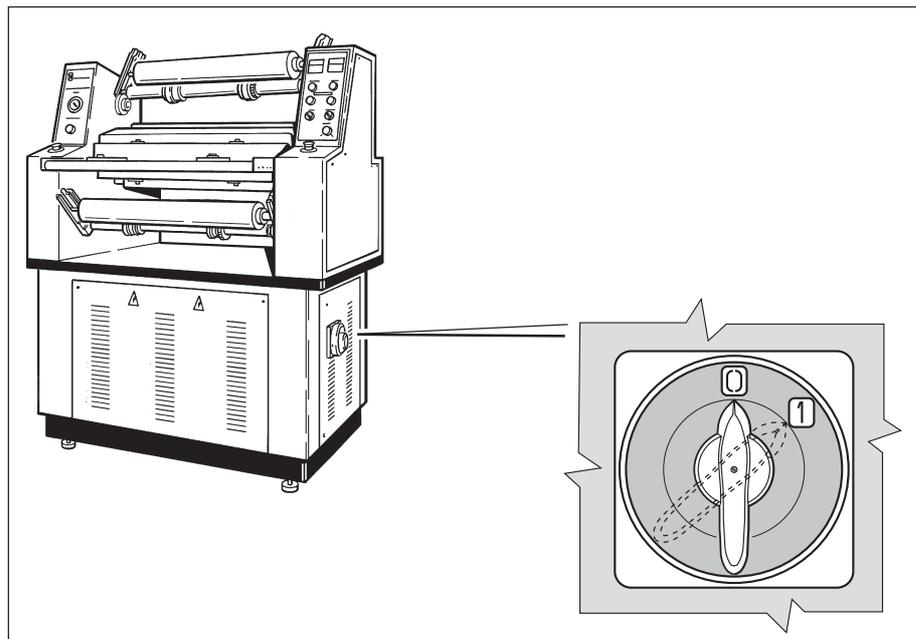


Fig. 7 - MAIN POWER SWITCH

3.1 - STARTING UP OF THE MACHINE (Fig. 8)

- After carrying out correctly the operations concerning the ML 360/N installation, described in the preceding pages, you have to:
 - place the input roller (1) in a horizontal position;
 - adjust the two centering guides (2) of the input panels your own according to their dimensions.
 - according to own process requirements, set up the correct temperature of the lamination rolls (3), the pressure and the conveyor speed, by operating on their controls (see section 2).
- Wait for the lamination rolls temperature (3) to settle to the pre-arranged set point value.
- Now the machine is ready to work.

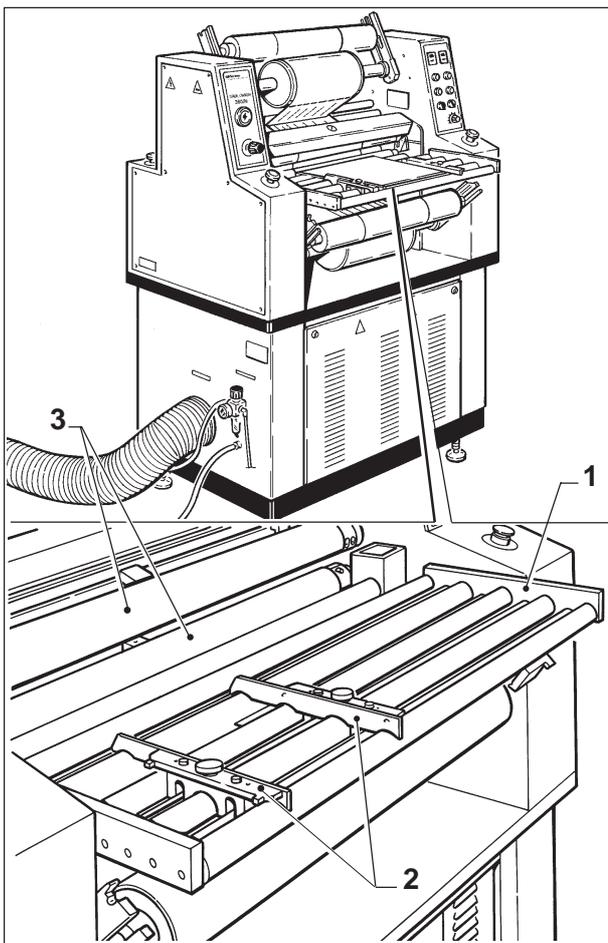


Fig. 8 - STARTING UP OF THE MACHINE

3.2 - OPERATION (Fig. 9)

- Once the machine is ready to work, the green light inside the "SET-UP" push button (5) will be switched on if the correct sequences for the setting up of the cycle have been observed by means of the "CLOSING" (7) and "ROLLS ROTATION" (8) selectors according to the following scheme:
 - **Light always** switched on, if when setting up the "ROLLS CLOSING" selector is in position "0" and the "ROLLS ROTATION" selector is in "STOP" position.
 To work commute in the following order:
 - "CLOSING" selector to 1 so that the upper roll comes down:
 - "ROTATION" selector to "FORWARD" or, according to own needs, to "BACKWARD".
- **Flashing light** switched on every 0.5 seconds and switched off every 0.5 seconds shows that "CLOSING" selector is not, at set-up, in the correct position "0".
- **Flashing light** switched on every 0.8 seconds and off every 0.2 seconds shows that "ROTATION" selector is not, at set-up, in the correct position "STOP".

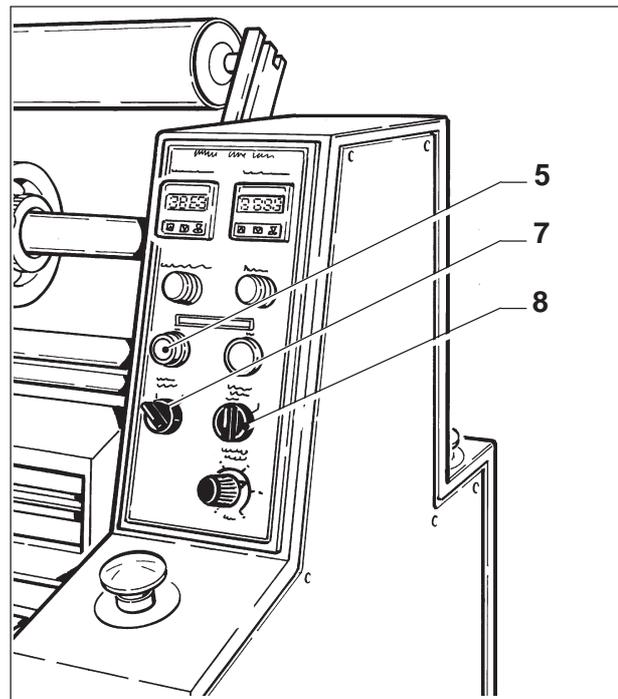


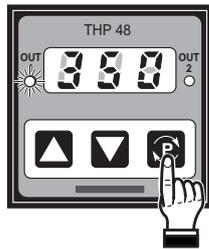
Fig. 9 - MACHINE OPERATION

3.3 - SETTING / PROGRAMMING OF THERMOREGULATORS (Fig. 10)

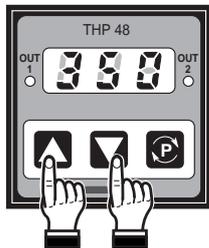
- This paragraph describes how to operate on the controllers that manage the lamination rolls temperature.
- The instrument used is a microprocessor temperature digital regulator with functions of self-learning of the machine variables.
- The programming is carried out through the use of three keys (, , ) placed on its frontal.

3.3.A - "SET-POINT" setting

- Press for a short time key , then release it. Led OUT1 will begin to flash and the display will show the "SET-POINT" value set.



- To increase this value press key .
- To decrease it press key .



➡ **NOTE**

These keys modify the value slowly. However, by pressing the desired key for more than one second, the value is modified quickly; keeping it pressed for more than 2 seconds the scanning speed will rise further on to allow to achieve the desired "SET-POINT" quickly.

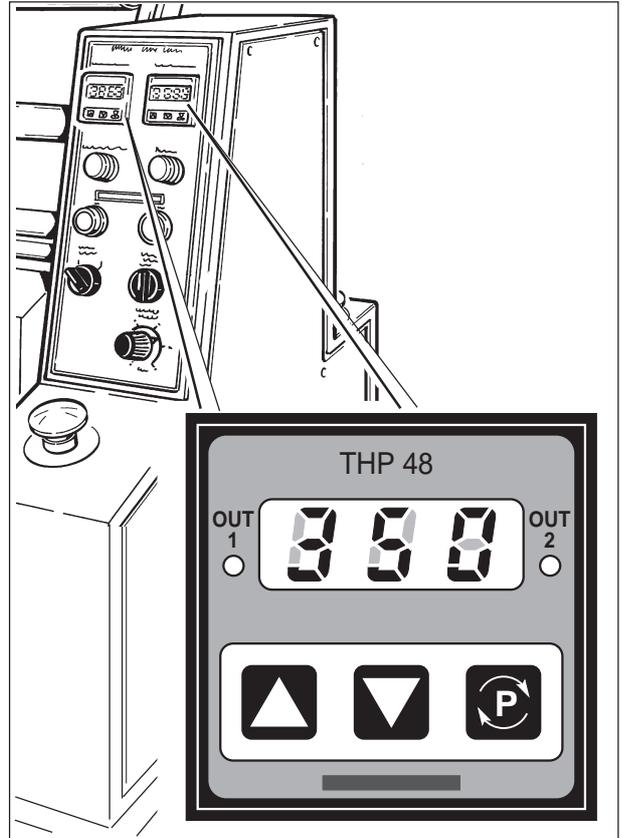


Fig. 10 - THERMOREGULATOR

- Abandoning the "SET-POINT" setting mode occurs automatically by pressing no key for at least 5 seconds; now the display will show again the temperature value taken.

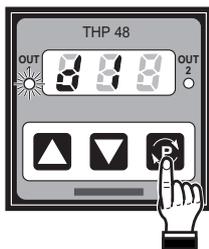
 **WARNING**

Do not deactivate the setting or switch of the instruments during these 5 seconds, since these operations will cause about the loss of the selected "SET-POINT" data setted.

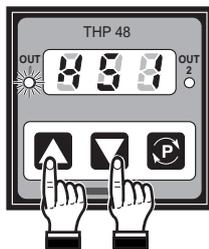
3.3.B - Programming of operating parameters

- To reach the operating parameters of the instrument press key **P** and keep it pressed for about 5 seconds.

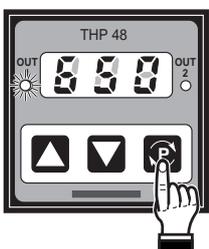
After this lapse of time, led "OUT 1" will flash and the display will show the code identifying the first parameter that can be set.



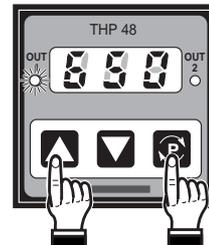
- Now release key **P** and, by pressing keys **▼** and **▲**, select the parameter on which you want to operate.



- After selecting the parameter, by keeping key **P** pressed, the selected value is shown.



To modify it press keys **▼** or **▲** (together with key **P**).



- After setting the desired value release key **P**; the display will show the abbreviation of the selected parameter.

WARNING

- **Change operating parameters only if you really need to, since such values are pre-selected during the machine test.**
- **If it is necessary to modify them, operate under strict control and in touch with the Technical Assistance Service of Shipley International.**
- **Shipley International does not answer for incidental malfunctions of the machine and/or damages caused by it which have modified the operating parameters arbitrarily.**

- To select another parameter press one of the two keys **▼** or **▲**.
- To abandon the programming mode do not press any key for at least 20 seconds; now the display will show again the temperature value taken.

WARNING

Before carrying out any operation wait for the setting phase to be over. If the instrument were switched off before, all the data set during the last operation will not be stored.

3.4 - THREAD-UP DIAGRAM (Fig. 11)

The following picture shows the correct thread-up of dry-film and of polyethylene.

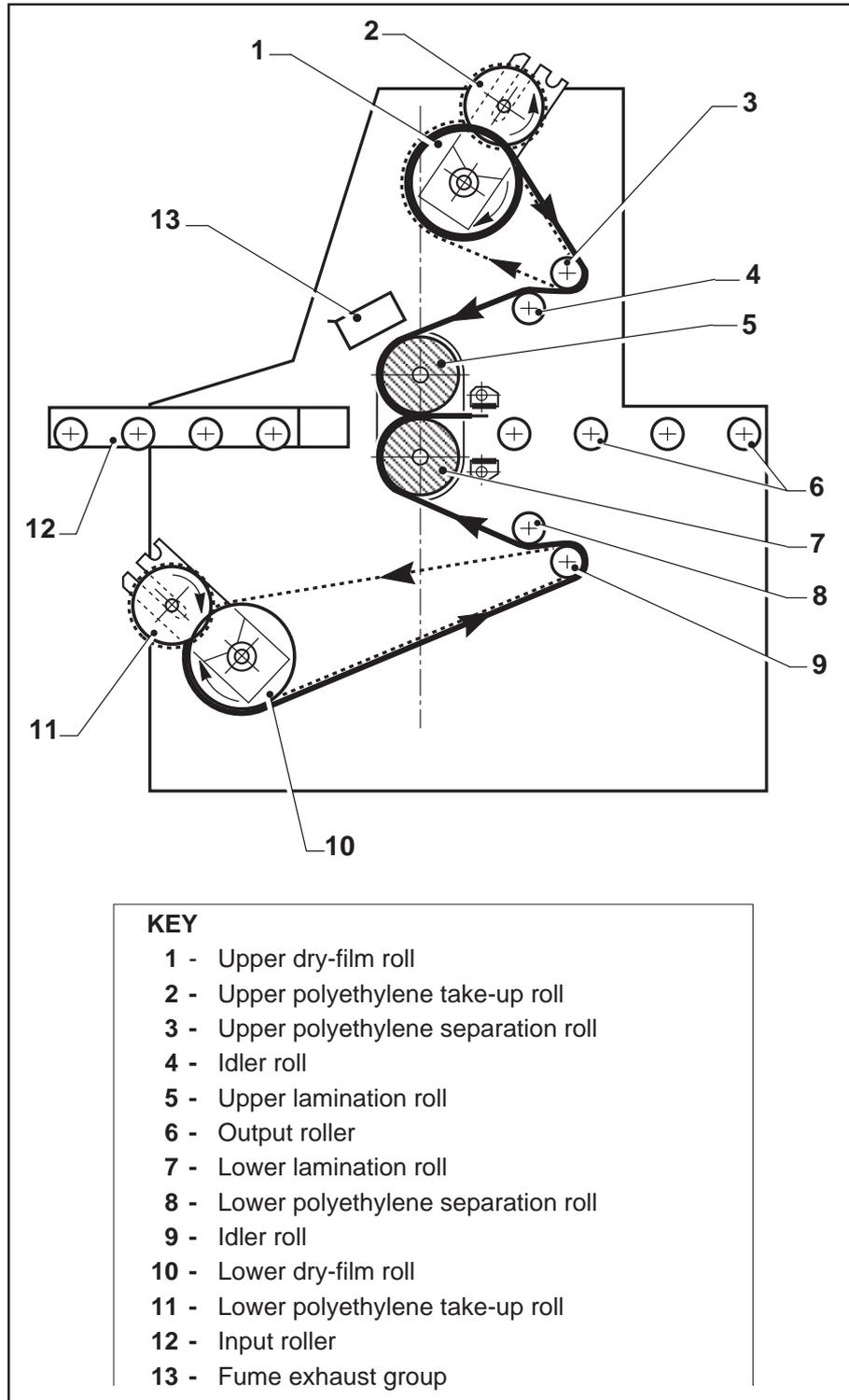


Fig. 11 - DRY-FILM AND POLYETHYLENE THREAD-UP

4.1 PLC INPUTS/OUTPUTS LIST

PLC INPUTS

- 0 - Emergency push buttons line + SET-UP OFF push button
- 1 - SET-UP ON push button
- 2 - ROLLS CLOSING selector
- 3 - ROLLS ROTATION FORWARD-STOP selector
- 4 - ROLLS ROTATION BACKWARD-STOP selector
- 5 - Exhaust motor overload switch
- 6 - Exhaust group in position
- 7 -

PLC OUTPUTS

- 16 - ALARM lamp
- 17 - Lamp in SET-UP ON push button
- 18 - SET-UP contactor
- 19 - ON to the driver for conveyor motor
- 20 - Conveyor motor BACKWARD or FORWARD
- 21 - Lamination rolls closing EV
- 22 - Lamination rolls pressure EV
- 23 -

5.1 EMERGENCY ALARMS LIST

Read what is said about "ALARM" lamp in chapter 2.1.

6.1 - INSPECTIONS AND MAINTENANCE

6.1.A - General information

- Strict attention to the maintenance rules contained in this section will guarantee long wear and smooth running of the machine, as well as avoiding the need for repairs.
- Maintenance operations and any adjustment and/or replacement should be carried out by specialized competent personnel.

WARNING

*In case of irregularity or no-function of any machine component, **FIRST OF ALL CHECK** that, when using it, the instructions given in the preceding paragraphs have been followed.*

Repairs should be carried out immediately, as soon as failures become evident, to avoid worsening the situation and causing further damages to other parts.

6.1.B - Inspections during work

- During the normal work cycle, all the operations are handled by a programmable logic controller (PLC), placed in the electrical cabinet. This displays, through the ALARM lamp (pos. 4 – Fig. 6), various error codes messages described in paragraph 2.1.

6.1.C - Ordinary maintenance

- ML 360/N has been designed and manufactured so to require very little maintenance.
- The electrical cabinet has been designed and manufactured according to the most rigorous safety regulations in compliance with international standards.

6.2 - REPLACEMENT OF ROLLS HEATERS (Fig. 13)

- a- Remove the right shoulder cover (1).
- b- Remove the transparent protection (2) of the rotating connector (3).
- c- Disconnect the electrical cables (5) by pulling out the fast-on (4).
- d- Proceed with the extraction of the heaters by pulling then very carefully towards oneself by means of the electrical cables .

⇒ **NOTE**

If the extraction should be difficult or the cables should break, remove the roll completely by operating as described in paragraph "6.3".

- e- After extracting the heater proceed with the insertion of the new one till when it is correctly placed on the roll.
- f- Restore the electrical connections as before, by verifying that during the replacement operations no brakes, excessives wrinkles or sagging occurred to the electrical cables or the isolation system.

⊗ **WARNING**

In such a case replace the damaged parts before the connections.

- g- Replace the transparent protection (2) of the rotating connector (3) correctly and close again the cover (1) removed at the beginning.

⇒ **NOTE**

To make a subsequent roll and/or heater replacement easier it is advisable, before assembling, to lubricate the part to be introduced into the roll by silicon grease or any other product that stands up temperatures higher than 200°C.

⊗ **WARNING**

- *Make sure that the rotating connector and/or the brushes have not left their place. In such a case line them up again as described in paragraph "6.4".*
- *Before re-start ML 360/N, check that the lamination rolls rotate freely.*

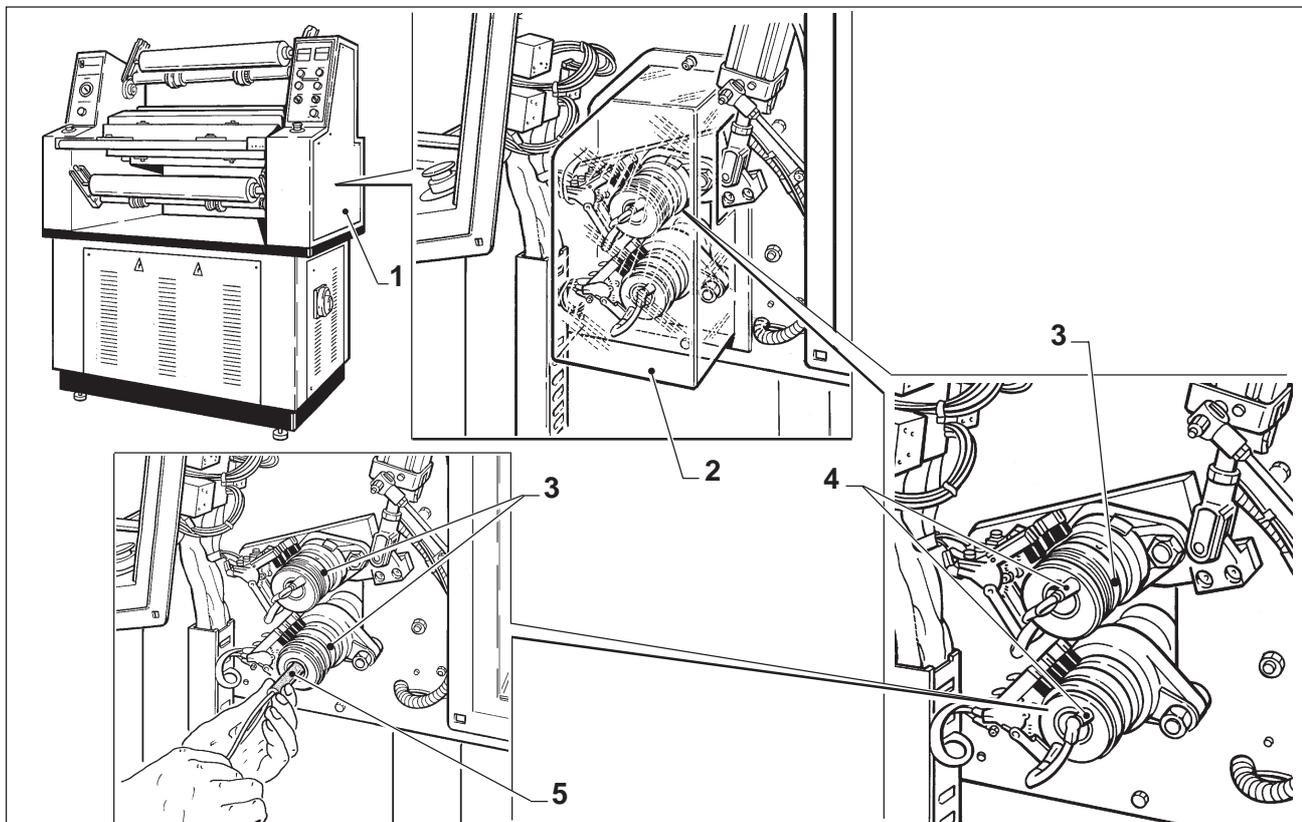


Fig. 13 - REPLACEMENT OF LAMINATION ROLLS HEATER

6.3 - REPLACEMENT OF LAMINATION ROLLS (Fig. 14 - 15)

⚠ DANGER
Carry out this operation only when the machine is completely cold.

- a- Pull out the heaters as described in the preceding paragraph (6.2).
- b- Loosen and then remove for each side the screws (1) which fix the roll (2) to the end shaft (4).

- c- Remove the blocking brackets (3).
- d- Lift the extractable roll (2) from the end shafts.
- e- Fix the new rolls, replace all the brackets, and then lock the screws tight (1).
- f- Once this operation is over, re-assemble the heaters correctly and carry out all the necessary controls as described in paragraph "6.2".

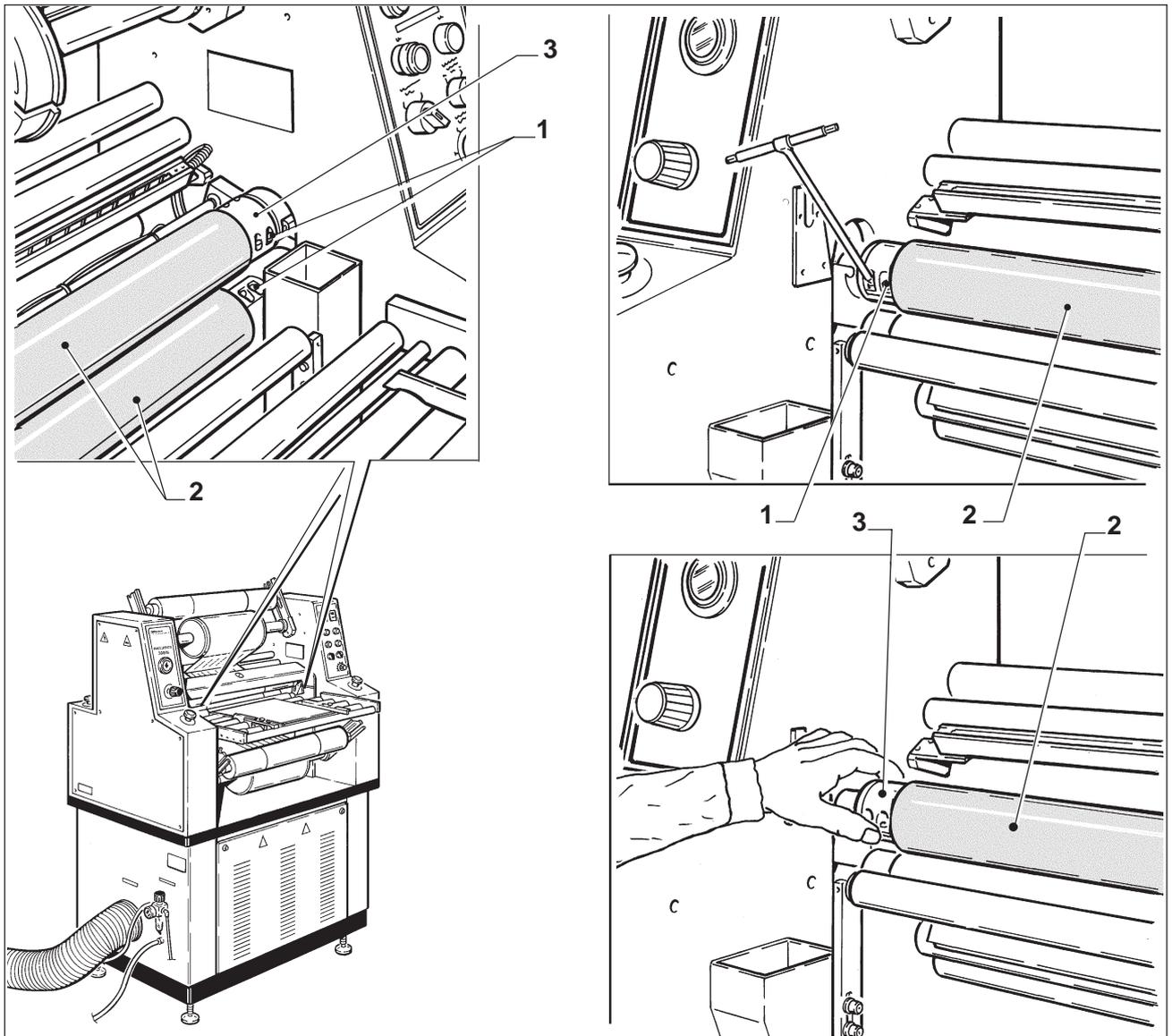


Fig. 14 - REPLACEMENT OF LAMINATION ROLLS

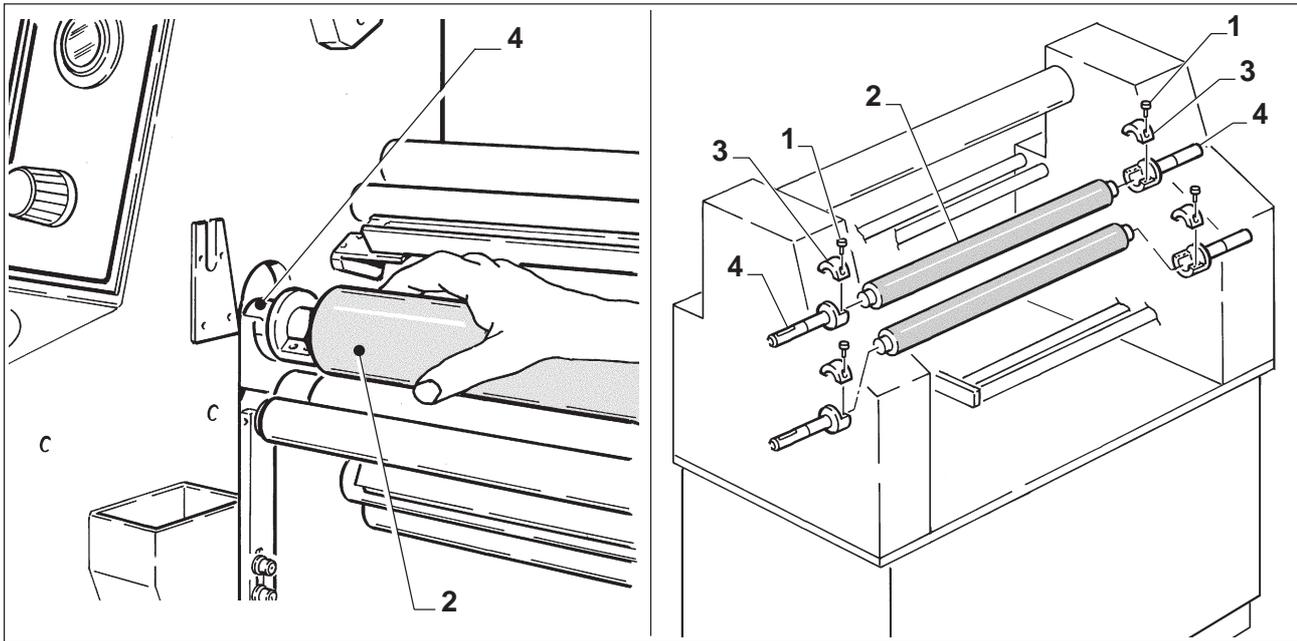


Fig. 15 - REPLACEMENT OF LAMINATION ROLLS

6.4 - LINING OF THE BRUSHES OF ROTATING CONNECTOR

(Fig. 16)

- The correct position, cold, of the rotating connector (1) is:
 - for half of their length astride of the copper ring (2),
 - for the other half towards the external part of the machine.
- This lining allows, once the roll has expanded because of heat, to have the best contact and more safety in work conditions.

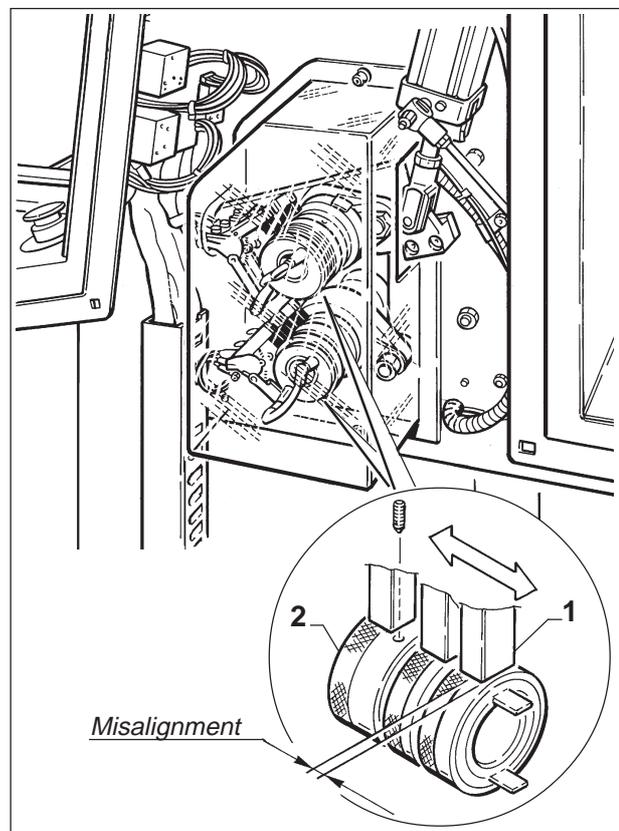


Fig. 16 - BRUSHES LINING

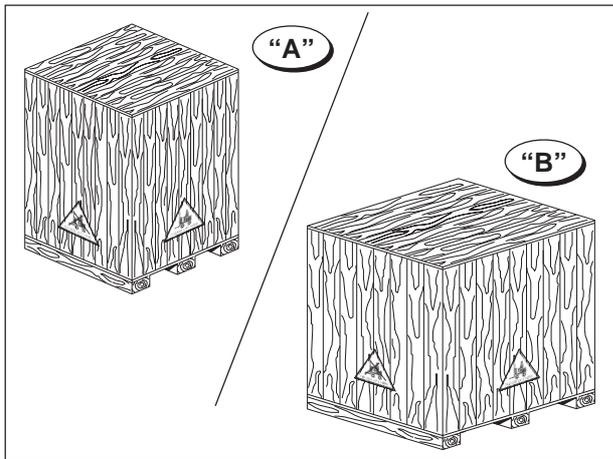
**BEFORE PROCEEDING ANY FURTHER MAINTENANCE OPERATION,
 SWITCH OFF THE MACHINE AND WAIT FOR ALL PARTS IN TEMPERATURE TO BE COMPLETELY COLD.**

ML 360/N	Periodic maintenance recommended every:					
	During work	Day	Week	Month	6 months	Year
		max. 8 hours	max. 40 hours	max. 160 hours	max. 1000 hours	max. 2000 hours
Cleaning of lamination rolls <i>(alcohol)</i>	●					
Replacement of lateral cutting blades	●					
Cleaning of net filter for monomers <i>(compressed air and alcohol)</i>				●		
Control and, if necessary, clean of thermocouple pin				●		
Control and, if necessary, lining of the brushes on the rotating connector of lamination rolls				●		
Cleaning of antistatic bars <i>(soft bristle brush soaked in alcohol)</i>				●		
Control of condensate drainage system				●		
General cleaning of the machine (aluminium rolls, etc.)				●		
Control and, if necessary, emptying of the container for monomer residuals					●	
Lubrication of conveyors <i>(light oil)</i>					●	
Control of the condition of the conveyor motor brushes					●	
Control of the wear of contactors and relays						●

Fig. 12 - MAINTENANCE TABLE

-- PACKING AND SHIPPING

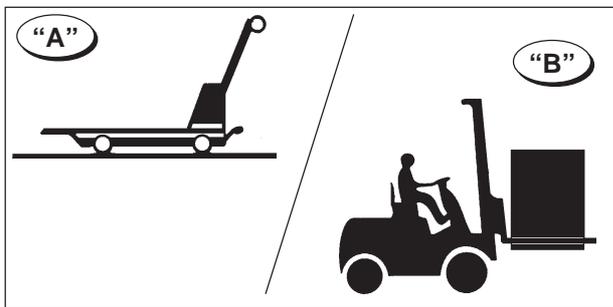
The machine is normally shipped in wooden crates, specially sized to suit the equipment in question. The wooden crates are basically of two types (as illustrated in the figure below). The first type ("A") has a square base while the other ("B") is more rectangular in shape.



TYPES OF PACKING CRATE

-- LIFTING THE CRATE

The crate must be handled with extreme care in order to prevent damage to the machine inside. It can be lifted by using a:
A- Transpallet;
B- Lift truck.



SUITABLE LIFTING MEANS

⇒ **NOTE**

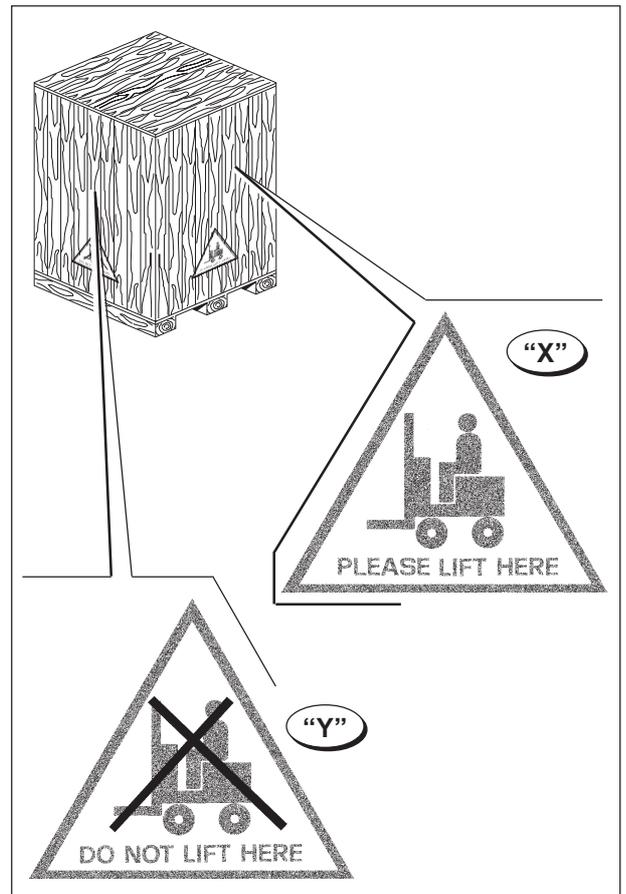
In both cases, always check that the utilized lifting means and accessories (ropes, chains, lifting forks, etc.) are sized according to the overall weight of the crate as stamped on the same.

The machine weight is also indicated on the relative page of this instruction manual where all the technical characteristics are listed.

⦿ **ATTENTION**

The crate lifting and handling operations must only be carried out by specialized personnel authorized to use the above mentioned equipment.

Check the data plates and/or indications on the crate before it is lifted. There are indications on the sides ("X" and "Y") marking the places where the lifting forks should be inserted.



INDICATIONS ON THE CRATE

 **ATTENTION**

- *Never stand near the machine while it is being lifted.*
- *SHIPLEY declines all responsibility for any damage to persons or property caused by failure to comply with the instructions given in this manual and specified by the current Safety Provisions concerning lifting and handling of materials inside and outside factories.*

-- **LIFTING THE MACHINE**

After having placed the crate in the position where the machine is to be installed, unpack the contents with extreme care.

 **ATTENTION**

Should the Customer note any defects, deformation or damage caused by transport on the crate and/or machine, he should immediately inform the haulage contractor of the matter both by phone (if the contractor is no longer present) and by Registered Letter with return receipt attached. SHIPLEY should also be notified in merit.

The machine must only be lifted by transpallet or lift truck, after having checked that the chosen lifting means is suited to the weight of the machine itself (see the indications on the technical characteristics page of this manual).

Check that the lift forks correctly hold the bottom of the machine before it is lifted and that the machine weight is adequately balanced.

 **DANGER**

Never stand near the machine while it is being lifted.

 **ATTENTION**

- *The machine lifting and handling operations must only be carried out by specialized personnel authorized to use the above mentioned equipment.*
- *SHIPLEY declines all responsibility for any damage to persons or property caused by failure to comply with the instructions given in this manual and specified by the current Safety Provisions concerning lifting and handling of materials inside and outside factories.*

-- **DEMOLISHING THE MACHINE**

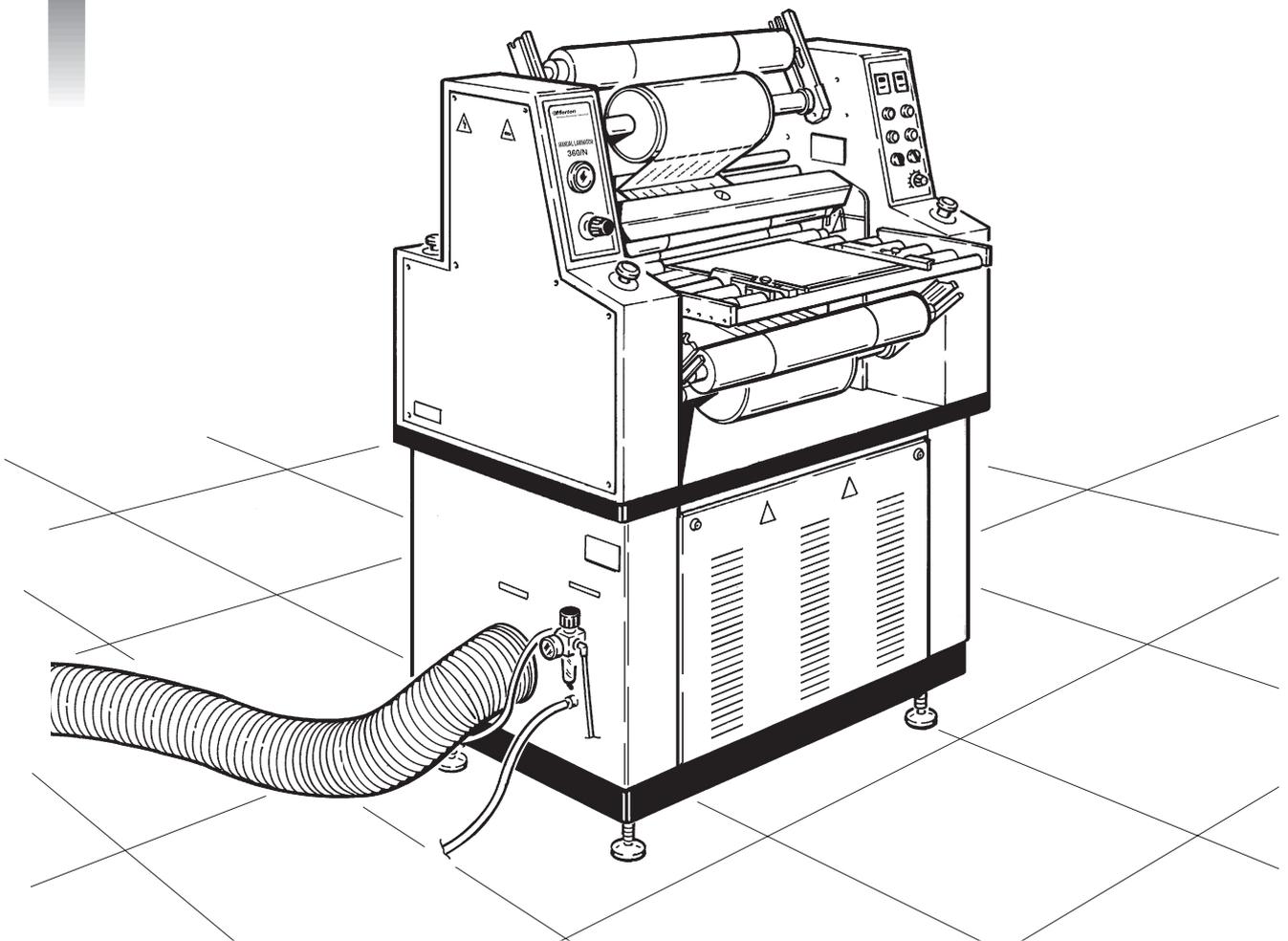
Proceed in the following way if the machine must be demolished for any reason (owing to age, if it can no longer be repaired, etc.):

- Disconnect the machine by carrying out the operations described in the “**operations**” and “**maintenance**” sections of this publication in reverse.
- Dismantle all possible parts of the machine (casing, lamps, guards, handles, chains, motors, etc.), dividing them according to their different nature (eg.: pipes, rubber components, lubricants, solvents, lacquering products, aluminium, ferrous material, copper, glass, etc.).
- Before the machine is scrapped, inform the authorities in charge of these matters in writing, in compliance with the provisions in force in the individual countries.
- After having received authorization from the above mentioned organizations, dispose of the components as prescribed by the current standards in merit.

 **ATTENTION**

Any irregularity committed by the Customer before, during or after dismantling and scrapping the machine components, or in interpreting and applying the current provisions in force, shall be the exclusive responsibility of the Customer himself.

MANUAL LAMINATOR 360/N



**SPARE PARTS
CATALOGUE**

To avoid misunderstandings and delivery errors, you are strongly advised to clearly and exactly state the following information when ordering SPARE PARTS

SHIPLEY A ROHM AND HAAS COMPANY				ELECTRICAL COMPONENTS		TAB. 6	
PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION	ED. 1	REV. A	360/N	
510-17-005-00	6 19	≤055.02.330	EMERGENCY PUSH BUTTON 077 (ASSY)				
510-14-070-00	6 19	≥055.02.331	EMERGENCY PRESS TO LOCK PUSH BUTTON P9X-ER4RN(ASSY)				
510-02-002-00	6 20	====	ANTISTATIC BAR MEB-629 CODE 0385507230 (SINGLE)				

Part number. es.: 510-14-070-00

Description. es.: EMERGENCY PRESS TO LOCK PUSH P9X-ER4RN (ASSY)

Serial number. es.: ≥055.02.331

Tab. N°. es.: TAB. 6

Position. es.: POS. 19

Edition. es.: ED. 1

Revision. es.: REV. A

Machine type. es.: 360/N

SHIPLEY
A ROHM AND HAAS COMPANY

viale Lombardia, 52
21040 Castronno (Varese) ITALY

MODEL **360/N**

SERIAL NUMBER **055.02.331**

YEAR OF MANUFACTURE **1996**

Volts -- Amps -- Ph -- Hz --

SHIPLEY A ROHM AND HAAS COMPANY				ELECTRICAL COMPONENTS		TAB. 6	
				REV. A	360/N		
				19	18	12	

The "SERIAL NUMBER" column identifies the serial number of the machine where the described part is install:
 ≤ : for machines with serial number up to
 ≥ : for machines with serial number from

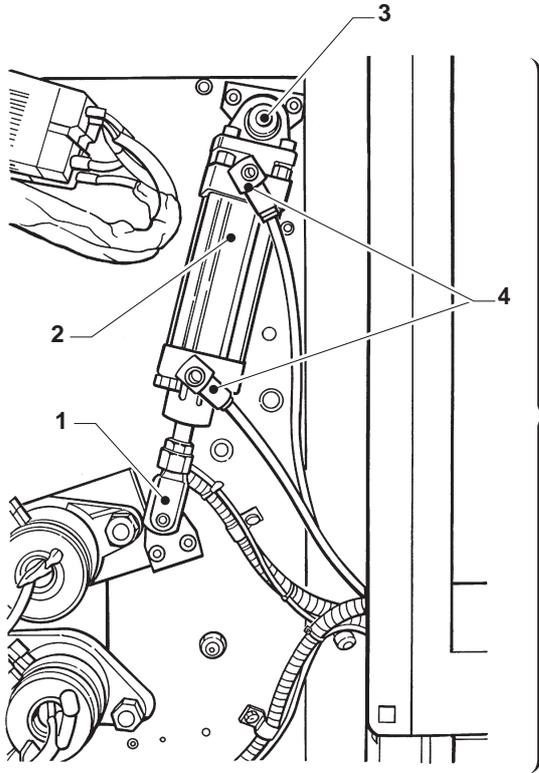
Example: the part with code "510-17-005-00" described in table 6, pos. 19 is mounted on machines with serial number up to "055.02.330" inclusive, while the code of part pos.19, tab. 6 will be "510-14-070-00" for machines with serial number "055.02.331" (inclusive) onwards.

The part described in position 20 (tab.6) mounted on the machine as original fitting, will not be subjected to variation.

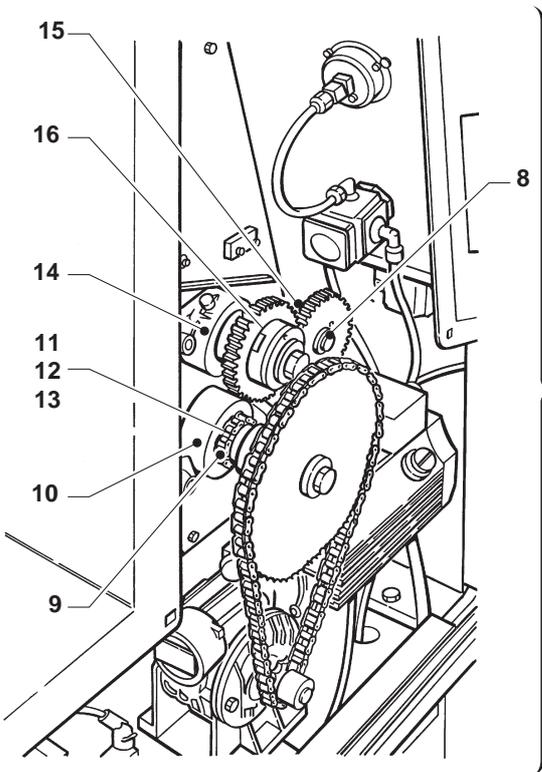
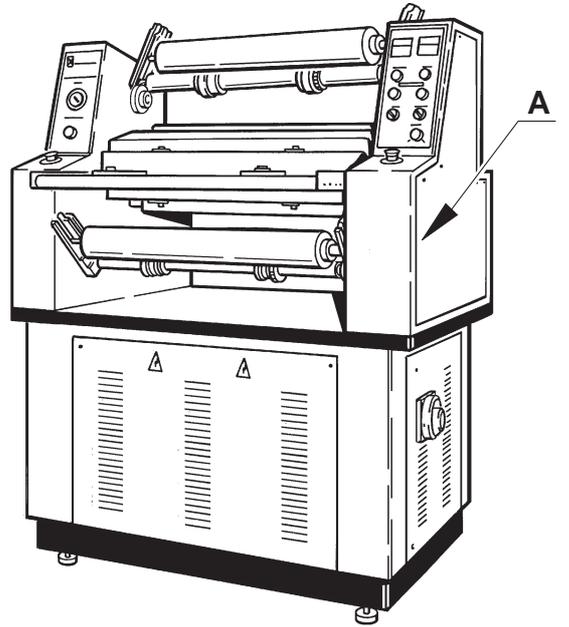
INDEX

TAB. 1	MECHANICAL COMPONENTS 1 st PART
TAB. 2	MECHANICAL COMPONENTS 2 nd PART
TAB. 3	MECHANICAL COMPONENTS 3 th PART
TAB. 4	MECHANICAL COMPONENTS 4 th PART
TAB. 5	MECHANICAL COMPONENTS 5 th PART
TAB. 6	ELECTRICAL COMPONENTS
TAB. 7	ELECTRICAL CABINET COMPONENTS

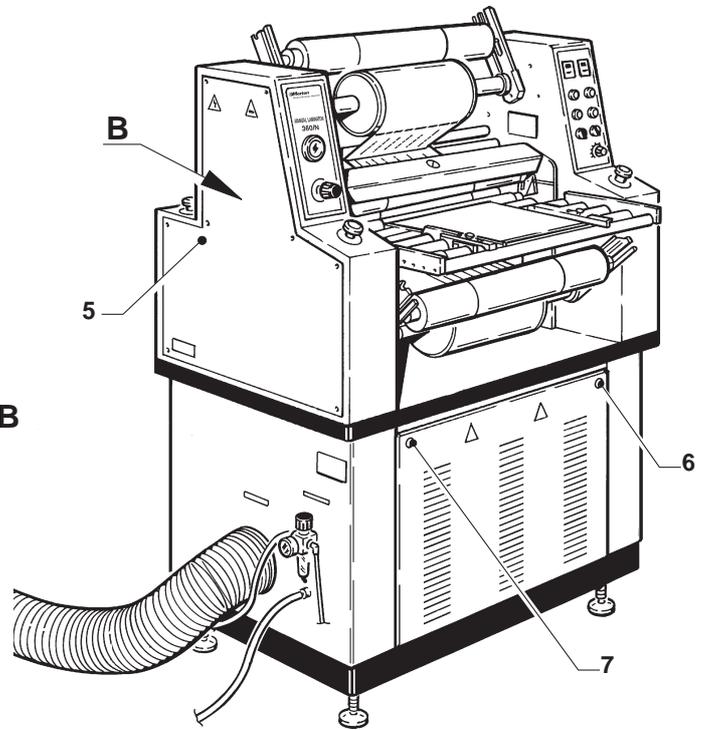
PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
520-06-002-00	1	1	≥055.02.331 CYLINDER FORK "UNIVER" TYPE KF 15032
520-03-011-00	1	2	≥055.02.331 PNEUMATIC CYLINDER "UNIVER" TYPE K200 D.32x50
520-03-010-00	1	3	≥055.02.331 HINGE "UNIVER" TYPE KF 11032 S
520-16-002-00	1	4	≥055.02.331 AIR FLOW REGULATOR "LEGRIS" 1/8" 4/6 TYPE 77600610
010-32-627-00	1	5	==== QUICK LOCK CLIPS DZUS ARROW MOD.2001-010
010-32-622-00	1	6	==== LOCK RIGHT 440F
010-32-622-01	1	7	==== LOCK LEFT 440F
010-32-661-00	1	8	==== COLLAR BUSHING D.12/16 L=12
010-32-605-00	1	9	==== SPROCKET Z=16 8x3DRW.0128-00-004
010-32-602-00	1	10	==== LOWER BEARING SUPPORT "NSK UCLF 204" DRW.10080/A
010-32-657-00	1	11	==== CHAIN 8x3 L=312mm
010-32-657-01	1	12	==== HALF LINK 8x3
010-32-657-01	1	13	==== LOCK SPRING 8x3
010-32-601-00	1	14	==== UPPER BEARING SUPPORT "NSK UCFL 204" DRW.0142-00-034
010-32-664-00	1	15	==== BUSHING DRW.0128-00-012
010-02-041-00	1	16	==== DUAL CLUTCH DRIVE ROLLS DRW.10083 "ROBA" TYP. 0



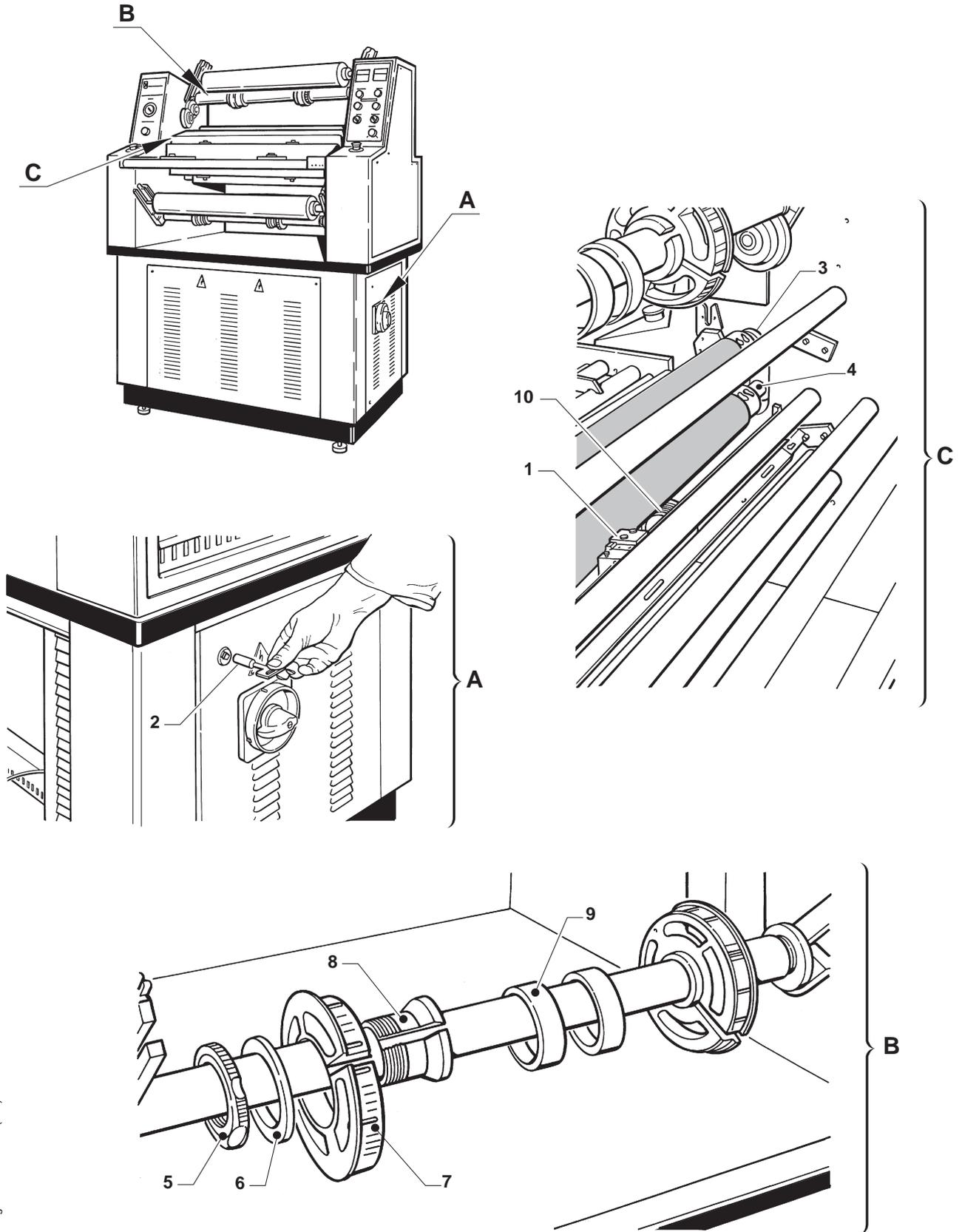
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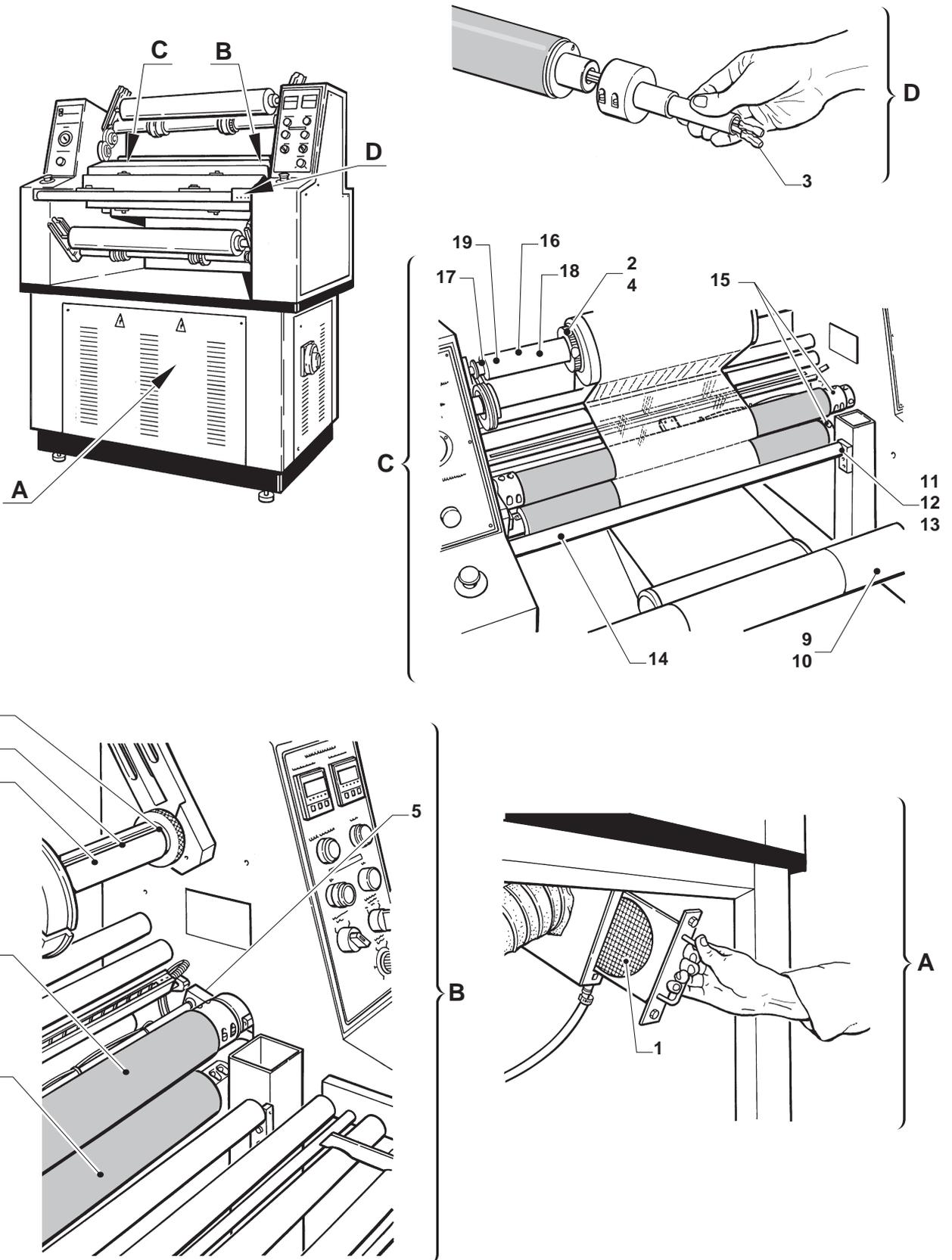
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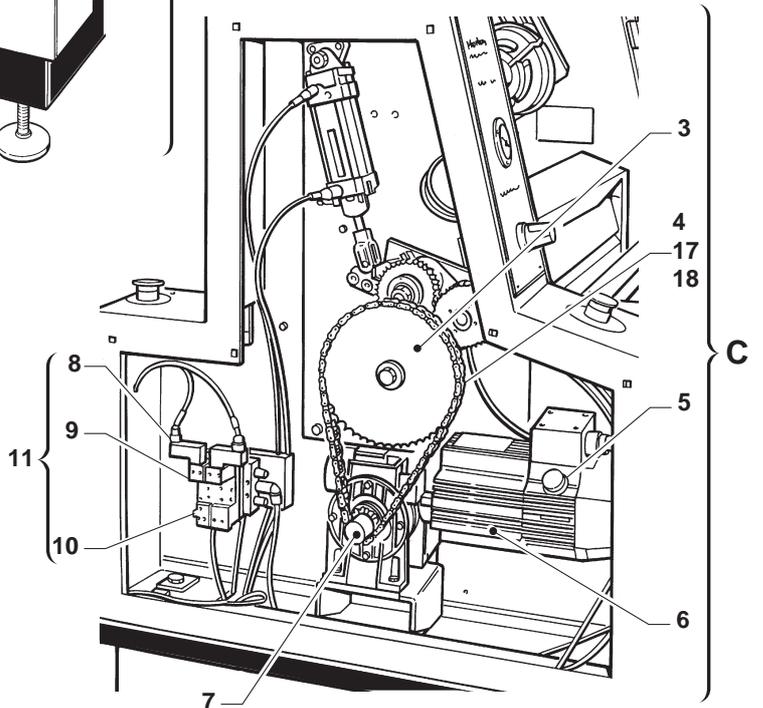
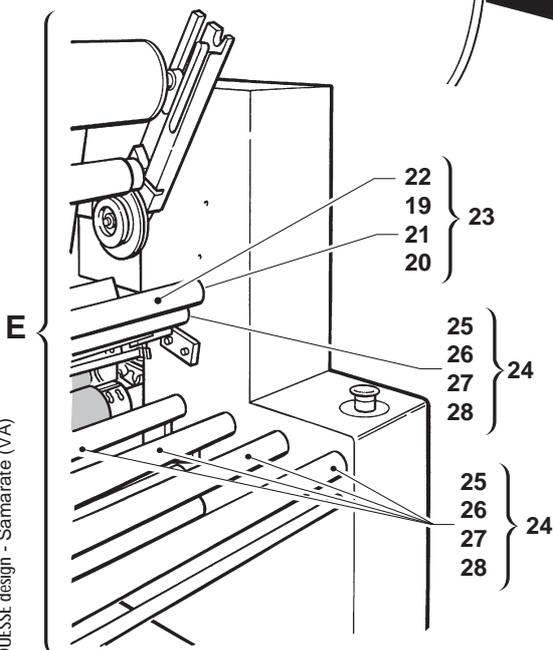
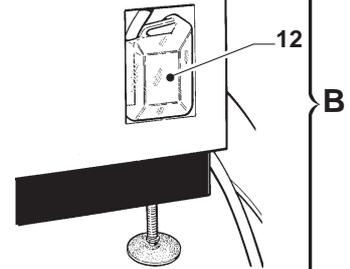
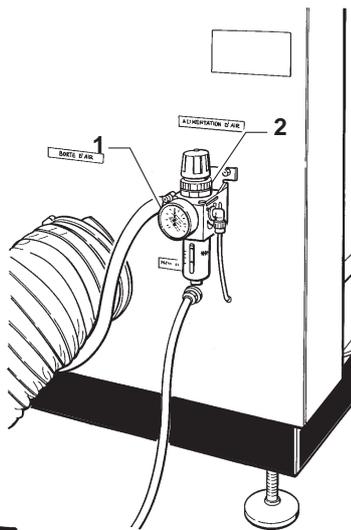
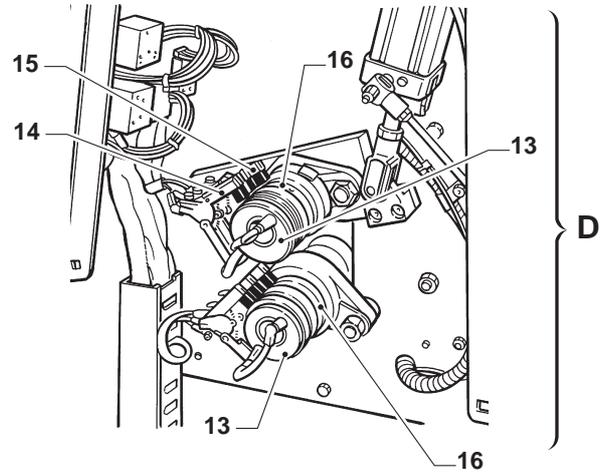
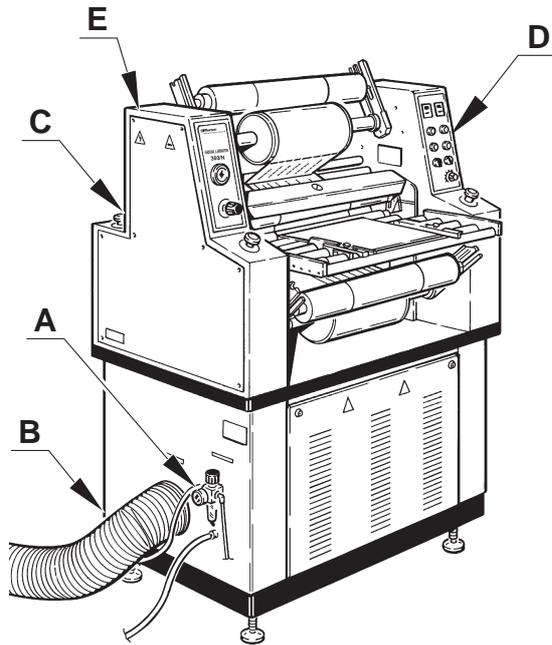
PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
010-30-406-00	2	1	==== ROLLING THERMOCOUPLE ASSY DRW.055-00-187
010-32-621-00	2	2	==== TRIANGULAR KEY
010-02-037-03	2	3	==== LEFT UPPER SHAFT DRW.0142-00-093+BRACKET DRW.0142-00-094
010-02-039-00	2	4	==== LEFT LOWER SHAFT DRW.0142-00-092 + BRACKET DRW.0142-00-094
010-02-035-02	2	5	==== NUT DRW.0210-00-001
010-02-035-03	2	6	==== CONIC RING DRW.0210-00-003
010-02-035-06	2	7	==== EXPANSION RING 6" DRW.0210-00-002
010-02-035-05	2	8	==== THREADED BUSHING DRW.0210-00-004
010-02-035-04	2	9	==== EXPANSION RING 3" DRW.0210-01-002
010-30-406-01	2	10	==== THERMOCOUPLE WIRE L=2,2m DRW.0187-00-008



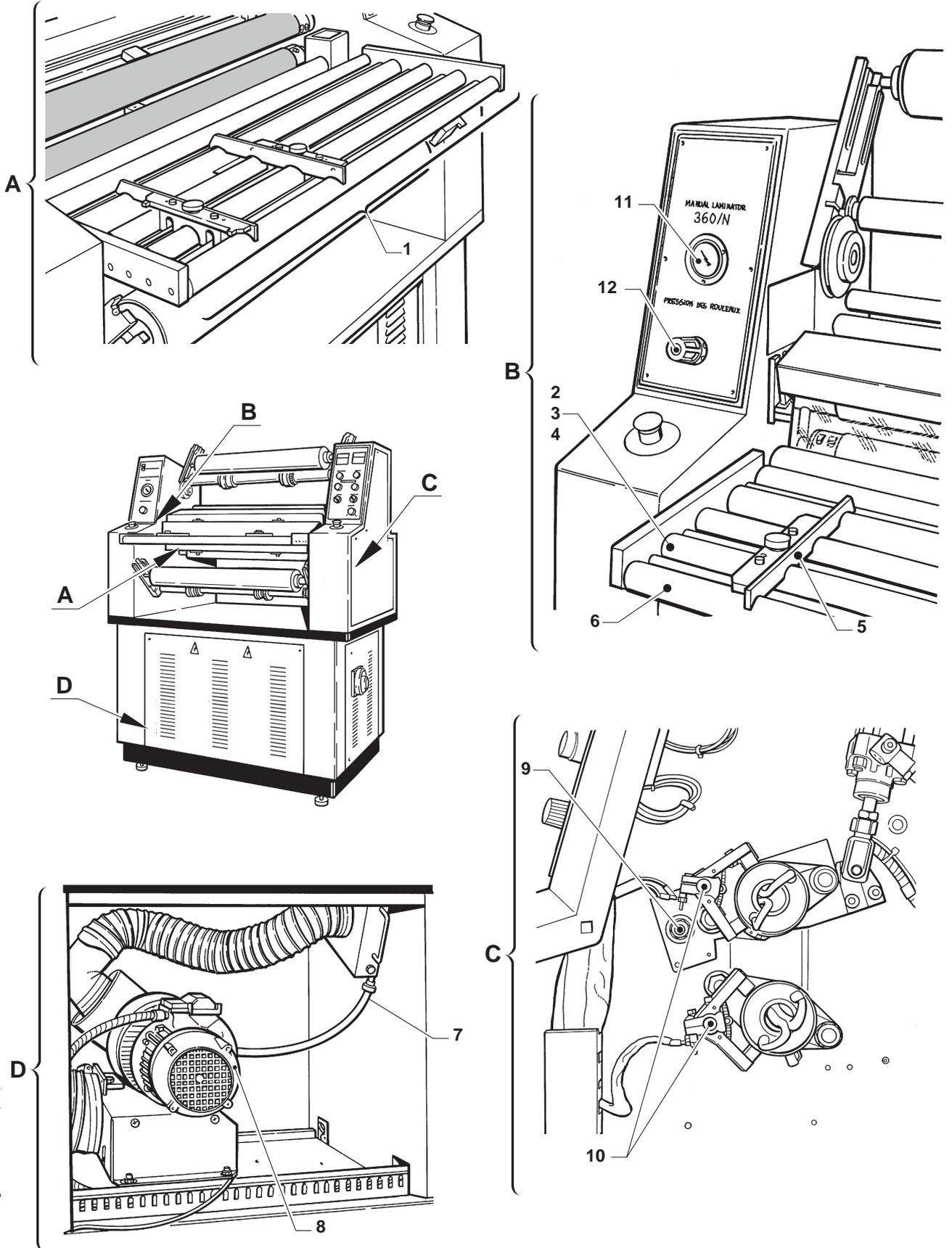
PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
010-32-641-01	3	1	==== FILTER ELEMENT LZ 61
010-02-035-01	3	2	==== EXPANSION CORE CLUTCH ASSY 6" DRW.055-00-211
010-40-736-00	3	3	==== HEATER ELEMENT 1000W 220V D.14x710
010-02-035-00	3	4	==== EXPANSION CORE CLUTCH ASSY 3" DRW.055-00-210
010-32-683-00	3	5	==== BALL ARTICULATION "SKF" TYPE GEH 10 C
010-02-099-00	3	6	==== UPPER EXTRACTABLE ROLL D.60 ASSY DRW.095-00-397
010-02-021-00	3	7	==== RUBBER ROLL D.60 DRW.0142-01-090+END SHAFT DRW.0142-00-096
010-02-098-00	3	8	==== LOWER EXTRACTABLE ROLL D.60 ASSY DRW.095-00-396
010-02-028-04	3	9	==== PVC ROLL D.90 DRW.10109
010-02-028-00	3	10	==== PVC POLYETHYLENE TAKE UP ROLL D.90 ASSY DRW.010-00-108
010-32-611-12	3	11	==== BUSHING FOR ROLLER DRW.10069/A
010-32-611-11	3	12	==== BEARING ADR 8/16/5
530-01-002-00	3	13	≥055.02.331 ROD FOR ROLLER DRW.0404-00-014
530-16-009-00	3	14	≥055.02.331 ALLUMINIUM ROLL D30x668 DRW.0404-00-013
010-02-040-00	3	15	==== LEFT UPPER AND LOWER SHAFT DRW.0142-00-091+BRACKET DRW.0142-00-094
010-02-061-06	3	16	==== ALLUMINIUM ROLL D.41 DRW.10093
010-02-061-03	3	17	==== FERODO DRW.10099
530-16-008-00	3	18	≥055.02.331 SUPPLY ROLL MANDREL ASSY DRW.095-00-400
010-02-061-00	3	19	==== PIN D4x32



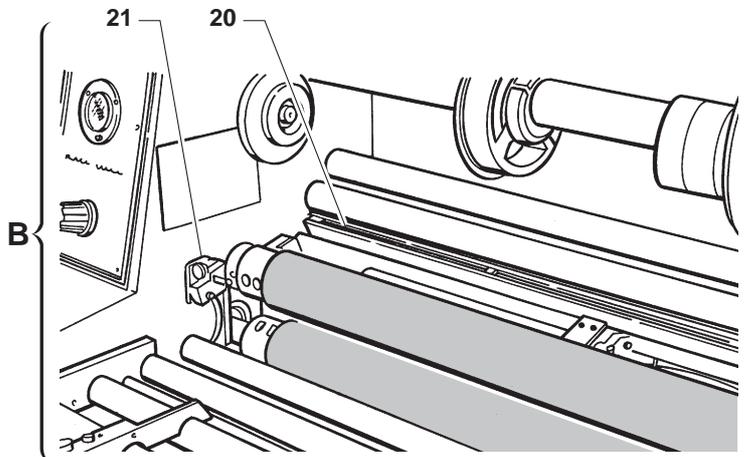
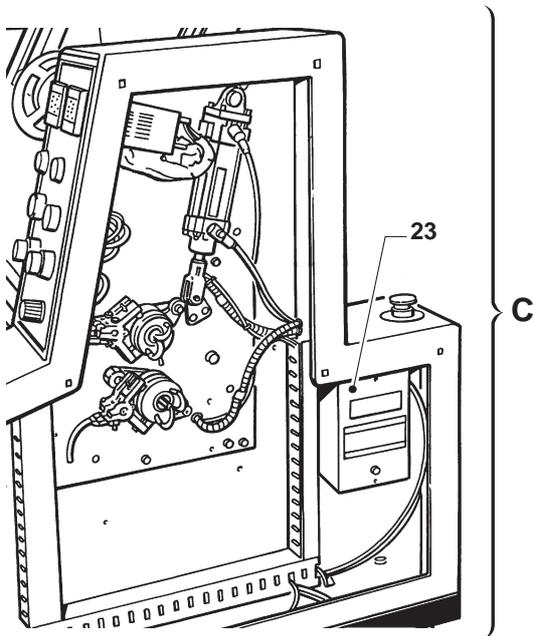
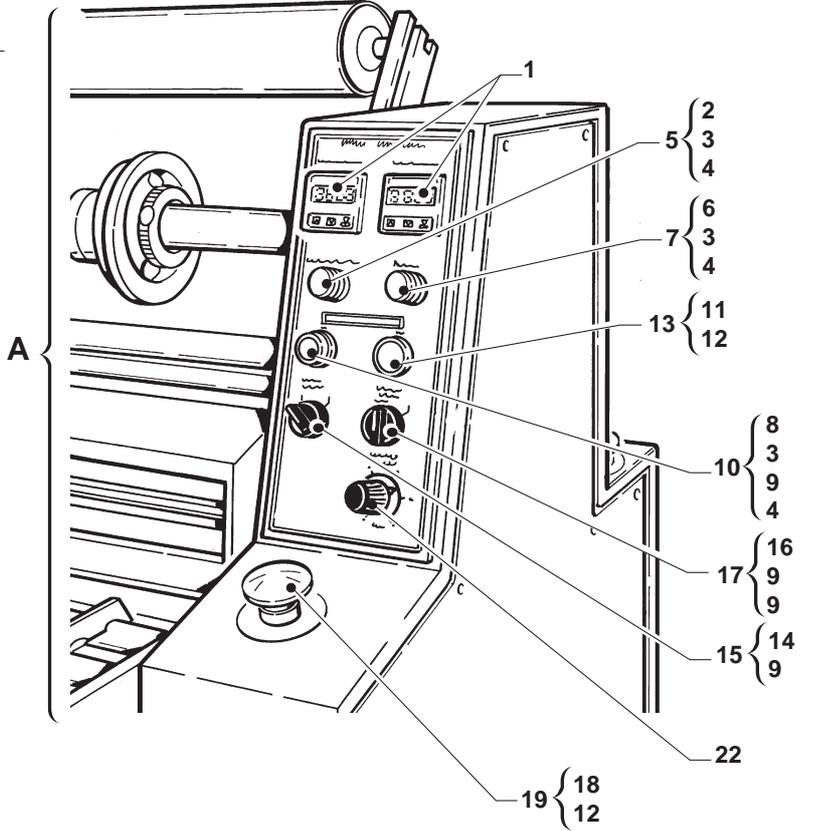
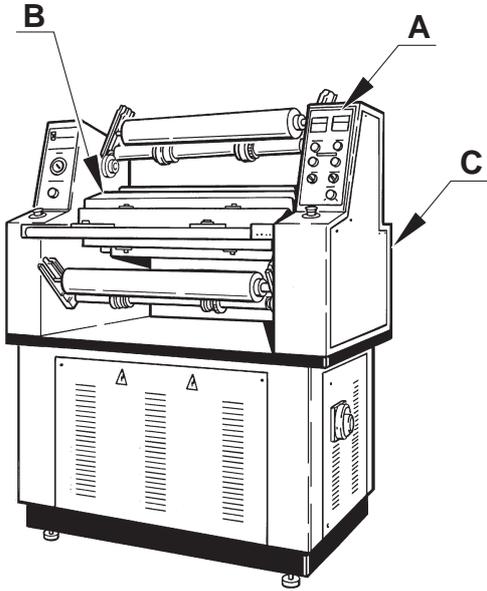
PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
520-11-001-00	4	1	≥055.02.331 AIR GAUGE TYPE 4W8664005 D.40 1/8" 0-12 BAR
520-06-001-00	4	2	≥055.02.331 REGULATOR FILTER "UNIVER" 1/4" TYPE 0W0B08C2+BRACKET 0W0GPA97010
530-03-027-00	4	3	≥055.02.331 SPROCKET Z=52 P=3/8" DRW.0403-00-004
010-02-030-00	4	4	==== CHAIN 3/8"x7/32" L=800mm
530-17-003-00	4	5	≥055.02.331 CONVEYOR MOTOR BRUSHES ATTI QUAD. 6S L82F7 6x9 31617
530-11-003-00	4	6	≥055.02.331 CONVEYOR MOTOR ATTI MI 40A QUAD. 6S R.1:40 3000G 190W/170V
530-14-017-00	4	7	≥055.02.331 MOTOR SPROCKET DRW. 0403-00-005
520-03-005-00	4	8	≥055.02.331 CONNECTOR TYPE AM.5109
520-02-001-00	4	9	≥055.02.331 COIL 24V DC TYPE DD.051
520-05-002-01	4	10	≥055.02.331 MONOSTABLE ELECTROVALVE 5/2 TYPE F.0120F (PILOTED)
520-07-001-00	4	11	≥055.02.331 ELECTROVALVE GROUP ASSY DRW.095-00-405
010-32-639-00	4	12	==== VAPOUR CONDENSING RECUPERATOR L=0,450
010-00-018-01	4	13	==== CONNECTOR RING TYPE 50-2-6
010-00-017-01	4	14	==== SINGLE CONTACT BRUSH L 117 5/10/15
010-00-017-00	4	15	==== CONTACT BRUSH ASSY (N°3 COUPLE)
010-00-018-02	4	16	==== SUPPORT BUSHING DRW.10063
010-02-030-01	4	17	==== HALF LINK 3/8"x7/32"
010-02-030-02	4	18	==== LOCK SPRING 3/8"x7/32"
010-32-709-02	4	19	==== TIE ROD DRW.0143-00-002
010-32-709-03	4	20	==== BUSHING DRW.0143-00-001
010-32-709-04	4	21	==== BEARING SKF 61802 15/24/5
010-32-709-06	4	22	==== CONVEYOR ROLL D.30 L 759 DRW.0143-00-003
010-32-709-00	4	23	==== TIE ROD ROLL ASSY DRW.055-00-143
010-02-059-00	4	24	==== CONVEYOR ROLL D.30x765 ASSY DRW.010-00-110
010-02-059-03	4	25	==== CONVEYOR ROLL D.30x765 DRW.10073
010-02-059-01	4	26	==== PIN DRW.14036
010-02-059-02	4	27	==== BEARING 625 2Z 5-16-5
010-32-611-12	4	28	==== BUSHING FOR ROLLER DRW.10069/A



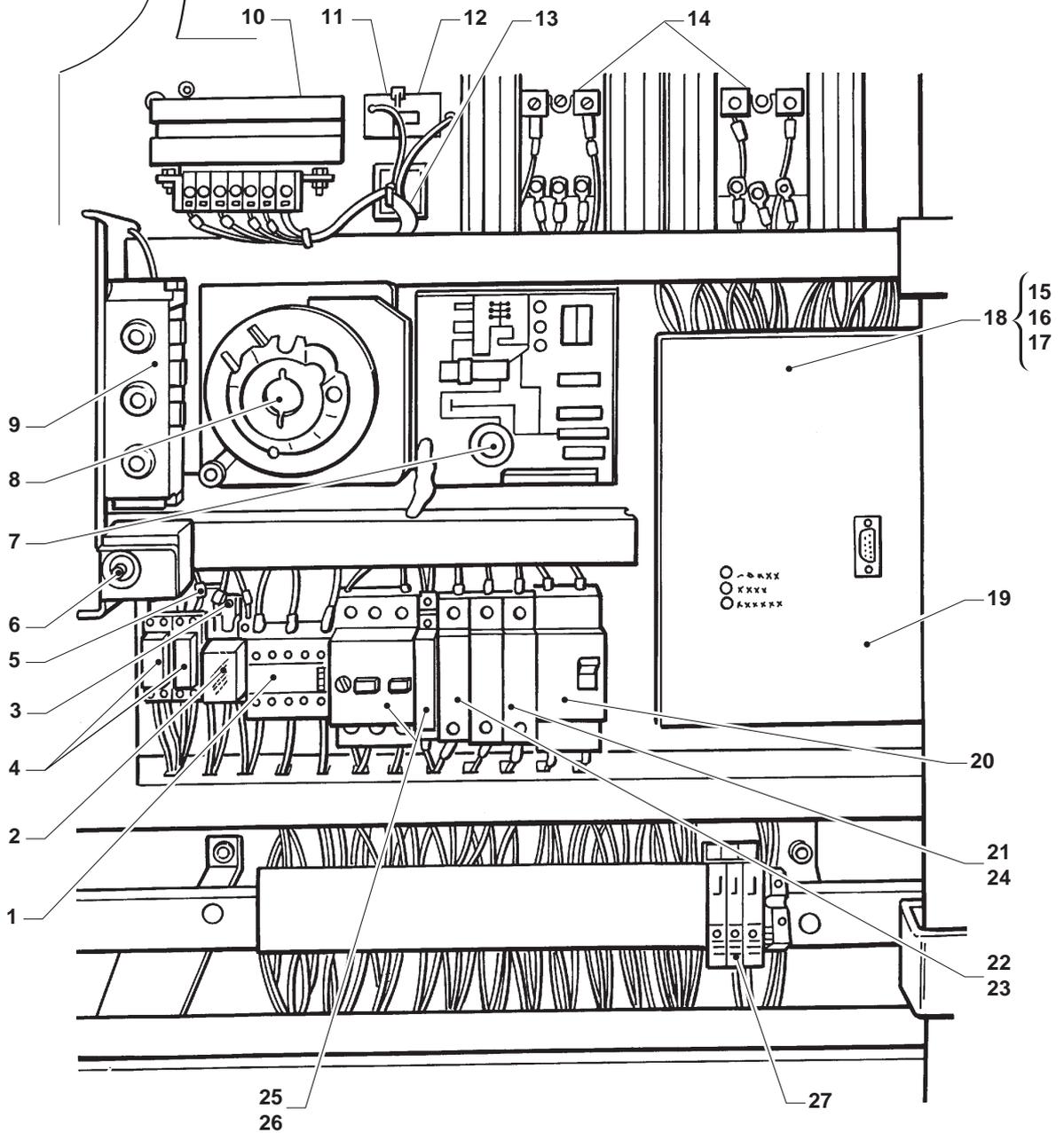
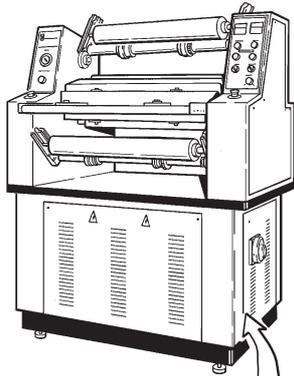
PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
530-03-028-00	5	1	≥055.02.331 INPUT ROLLER CONNECTION ASSY DRW.095-00-401
010-32-611-11	5	2	==== BEARING ADR 8/16/5
010-32-611-12	5	3	==== BUSHING FOR ROLLER DRW.10069/A
010-32-611-13	5	4	==== PIN DRW.10058
530-07-006-00	5	5	≥055.02.331 GUIDE PLATE DRW.0401-00-004
010-32-611-01	5	6	==== ROLLER D.30 L=730 DRW.10076
010-32-639-01	5	7	==== HOSE "PIRELLI" TYPE RUBBER HOSE 1,2 m
010-00-045-01	5	8	==== BLOWER "UTENTRA" U/HC 162 220/240V
010-32-697-00	5	9	==== BUSHING DRW.10037
010-30-421-00	5	10	==== BAKELITE INSULATING TUBE "DELLITE" D.8/10 L=0,1m
520-11-002-00	5	11	≥055.02.331 MANOMETER WITH FLANGE TYPE M3B-40-0/10-1/8"
520-16-001-00	5	12	≥055.02.331 PRESSURE GAUGE "UNIVER" 1/8" 0W0R08C2



PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
510-18-002-00	6	1	≥055.02.331 THERMOREGULATOR THP 48 FDCO
510-10-016-01	6	2	≥055.02.331 RED PILOT LAMP P9X-LRD
510-14-073-00	6	3	≥055.02.331 LAMP HOLDER P9-PDNV0
510-10-011-00	6	4	≥055.02.331 LIGHT INDICATOR BA9S 30V 2W
510-10-016-00	6	5	≥055.02.331 RED PILOT LAMP P9X-LRD (ASSY)
510-10-016-05	6	6	≥055.02.331 ORANGE PILOT LAMP P9X-LAD
510-10-016-04	6	7	≥055.02.331 ORANGE PILOT LAMP P9X-LAD (ASSY)
510-14-071-01	6	8	≥055.02.331 GREEN LIGHT PUSH BUTTON P9X-PLVGD
510-03-083-00	6	9	≥055.02.331 NO CONTACT P9-B10VN
510-14-071-00	6	10	≥055.02.331 GREEN LIGHT PUSH BUTTON (1NO) P9X-PLVGD (ASSY)
510-14-072-01	6	11	≥055.02.331 RED PUSH BUTTON P9X-PNRG
510-03-083-01	6	12	≥055.02.331 NC CONTACT P9-B01VN
510-14-072-00	6	13	≥055.02.331 RED PUSH BUTTON (1NC) P9X-PNRG (ASSY)
510-17-057-01	6	14	≥055.02.331 2 POSITIONS BLACK SELECTOR P9X-SMD0-N
510-17-057-00	6	15	≥055.02.331 2 POSITIONS BLACK SELECTOR (1NO) P9X-SMD0-N (ASSY)
510-17-057-11	6	16	≥055.02.331 3 POSITIONS BLACK SELECTOR P9X-SMZ0-N
510-17-057-10	6	17	≥055.02.331 3 POSITIONS BLACK SELECTOR (1NO+1NO) P9X-SMZ0-N (ASSY)
510-14-070-01	6	18	≥055.02.331 EMERGENCY PRESS TO LOCK PUSH BUTTON P9X-ER4RN
510-14-070-00	6	19	≥055.02.331 EMERGENCY PRESS TO LOCK PUSH BUTTON P9X-ER4RN (ASSY)
510-02-002-00	6	20	≥055.02.331 ANTISTATIC BAR MEB-629 CODE 0385507230 (SINGLE)
510-06-010-00	6	21	≥055.02.331 MICROSWITCH Z15 GW22
510-14-035-00	6	22	≥055.02.331 WIRE POTENTIOMETER 5Kohm COMPLETE OF B/R KNOB
510-01-002-00	6	23	≥055.02.331 POWER SUPPLY FOR ANTISTATIC BARS WITH LAMP SIMCO C2S



PART NUMBER	TAB. POS.	SERIAL NUMBER	DESCRIPTION
510-03-056-10	7	1	≥055.02.331 3P+1NO CONTACTOR 11-MC9C.10 24VDC
510-16-006-00	7	2	≥055.02.331 2 CONTACTS RELAY 55.32 24VDC (MY2)
510-21-001-00	7	3	≥055.02.331 2 CONTACTS BASE RELAY AND TIMER 94.72 (PYF 08AE)
510-16-021-00	7	4	≥055.02.331 2 CONTACTS RELAY 40.52 24VDC
510-21-012-00	7	5	≥055.02.331 1-2 CONTACTS BASE RELAY 95.65
510-06-006-00	7	6	≥055.02.331 3P MICROSWITCH 114-FCT-03
510-01-022-00	7	7	≥055.02.331 DRIVER FOR MOTOR AM-240/2.5
510-17-045-00	7	8	≥055.02.331 3P POWER SWITCH FOR PANEL RA 50-1753G
510-17-003-00	7	9	≥055.02.331 3PH OK LIGHT INDICATOR 105-DTL 500
510-18-022-05	7	10	≥055.02.331 1PH SAFETY TRANSFORMER 220V±10%/19V 100VA
510-03-003-00	7	11	≥055.02.331 CAPACITOR MWR 0,1/630V
510-03-002-00	7	12	≥055.02.331 AXIAL CAPACITOR 4.700uF 50VL
510-14-019-00	7	13	≥055.02.331 1PH RECTIFIER KBPC 10-08
510-16-016-00	7	14	≥055.02.331 SOLID STATE RELAY RA 2450
510-14-001-04	7	15	≥055.02.331 PLC: DIGITAL INPUT MODULE PCD2.E110
510-14-001-05	7	16	≥055.02.331 PLC: DIGITAL OUTPUT MODULE PCD2.A400
510-14-001-50	7	17	≥055.02.331 PLC: CPU MODULE MAX 32 I/O PCD1.M110
510-14-001-61	7	18	≥055.02.331 PLC PCD1 SERIE FOR 360/N (ASSY)
510-11-001-23	7	19	≥055.02.331 PROGRAMS MEMORY ML 360/N EPROM 27C1001
510-09-035-02	7	20	≥055.02.331 1P+N DIFFERENTIAL AUTOMATIC SWITCH I=16A AD022H
510-06-019-00	7	21	≥055.02.331 CERAMIC FUSE 10,3x38 mm I=6,3A FF
510-06-020-01	7	22	≥055.02.331 CERAMIC FUSE 10,3x38 mm I= 4A
510-14-021-00	7	23	≥055.02.331 1P FUSE HOLDER LM501
510-14-022-00	7	24	≥055.02.331 2P FUSE HOLDER LM512
510-09-036-08	7	25	≥055.02.331 3P AUTOMATIC SWITCH I=4:6.3A 11LMS25.6V3T
510-03-063-00	7	26	≥055.02.331 NO+NC AUXILIARY CONTACT FOR AUTOMATIC SWITCH 11-LMH11
510-06-021-01	7	27	≥055.02.331 GLASS FUSE 5x20 mm I= 0,8A M



PART NUMBER	SERIAL NUMBER	TAB.	POS.	PART NUMBER	SERIAL NUMBER	TAB.	POS.	PART NUMBER	SERIAL NUMBER	TAB.	POS.
010-00-017-00	=====	4	15	010-32-709-03	=====	4	20	510-17-003-00	≥055.02.331	7	9
010-00-017-01	=====	4	14	010-32-709-04	=====	4	21	510-17-045-00	≥055.02.331	7	8
010-00-018-01	=====	4	13	010-32-709-06	=====	4	22	510-17-057-00	≥055.02.331	6	15
010-00-018-02	=====	4	16	010-40-736-00	=====	3	3	510-17-057-01	≥055.02.331	6	14
010-00-045-01	=====	5	8					510-17-057-10	≥055.02.331	6	17
010-02-021-00	=====	3	7					510-17-057-11	≥055.02.331	6	16
010-02-028-00	=====	3	10					510-18-002-00	≥055.02.331	6	1
010-02-028-04	=====	3	9					510-18-022-05	≥055.02.331	7	10
010-02-030-00	=====	4	4					510-21-001-00	≥055.02.331	7	3
010-02-030-01	=====	4	17					510-21-012-00	≥055.02.331	7	5
010-02-030-02	=====	4	18								
010-02-035-00	=====	3	4								
010-02-035-01	=====	3	2								
010-02-035-02	=====	2	5								
010-02-035-03	=====	2	6								
010-02-035-04	=====	2	9								
010-02-035-05	=====	2	8								
010-02-035-06	=====	2	7								
010-02-037-03	=====	2	3								
010-02-039-00	=====	2	4								
010-02-040-00	=====	3	15	510-01-002-00	≥055.02.331	6	23	520-02-001-00	≥055.02.331	4	9
010-02-041-00	=====	1	16	510-01-022-00	≥055.02.331	7	7	520-03-005-00	≥055.02.331	4	8
010-02-059-00	=====	4	24	510-02-002-00	≥055.02.331	6	20	520-03-010-00	≥055.02.331	1	3
010-02-059-01	=====	4	26	510-03-002-00	≥055.02.331	7	12	520-03-011-00	≥055.02.331	1	2
010-02-059-02	=====	4	27	510-03-003-00	≥055.02.331	7	11	520-05-002-01	≥055.02.331	4	10
010-02-059-03	=====	4	25	510-03-056-10	≥055.02.331	7	1	520-06-001-00	≥055.02.331	4	2
010-02-061-00	=====	3	19	510-03-063-00	≥055.02.331	7	26	520-06-002-00	≥055.02.331	1	1
010-02-061-03	=====	3	17	510-03-083-00	≥055.02.331	6	9	520-07-001-00	≥055.02.331	4	11
010-02-061-06	=====	3	16	510-03-083-01	≥055.02.331	6	12	520-11-001-00	≥055.02.331	4	1
010-02-098-00	=====	3	8	510-06-006-00	≥055.02.331	7	6	520-11-002-00	≥055.02.331	5	11
								520-16-001-00	≥055.02.331	5	12
010-02-099-00	=====	3	6	510-06-010-00	≥055.02.331	6	21	520-16-002-00	≥055.02.331	1	4
010-30-406-00	=====	2	1	510-06-019-00	≥055.02.331	7	21				
010-30-406-01	=====	2	10	510-06-020-01	≥055.02.331	7	22				
010-30-421-00	=====	5	10	510-06-021-01	≥055.02.331	7	27				
010-32-601-00	=====	1	14	510-09-035-02	≥055.02.331	7	20				
010-32-602-00	=====	1	10	510-09-036-08	≥055.02.331	7	25				
010-32-605-00	=====	1	9	510-10-011-00	≥055.02.331	6	4				
010-32-611-01	=====	5	6	510-10-016-00	≥055.02.331	6	5				
010-32-611-11	=====	3	12	510-10-016-01	≥055.02.331	6	2				
010-32-611-11	=====	5	2	510-10-016-04	≥055.02.331	6	7				
010-32-611-12	=====	3	11	510-10-016-05	≥055.02.331	6	6	530-01-002-00	≥055.02.331	3	13
010-32-611-12	=====	4	28	510-11-001-23	≥055.02.331	7	19	530-03-027-00	≥055.02.331	4	3
010-32-611-12	=====	5	3	510-14-001-04	≥055.02.331	7	15	530-03-028-00	≥055.02.331	5	1
010-32-611-13	=====	5	4	510-14-001-05	≥055.02.331	7	16	530-07-006-00	≥055.02.331	5	5
010-32-621-00	=====	2	2	510-14-001-50	≥055.02.331	7	17	530-11-003-00	≥055.02.331	4	6
010-32-622-00	=====	1	6	510-14-001-61	≥055.02.331	7	18	530-14-017-00	≥055.02.331	4	7
010-32-622-01	=====	1	7	510-14-019-00	≥055.02.331	7	13	530-16-008-00	≥055.02.331	3	18
010-32-627-00	=====	1	5	510-14-021-00	≥055.02.331	7	23	530-16-009-00	≥055.02.331	3	14
010-32-639-00	=====	4	12	510-14-022-00	≥055.02.331	7	24	530-17-003-00	≥055.02.331	4	5
010-32-639-01	=====	5	7	510-14-035-00	≥055.02.331	6	22				
010-32-641-01	=====	3	1	510-14-070-00	≥055.02.331	6	19				
010-32-657-00	=====	1	11	510-14-070-01	≥055.02.331	6	18				
010-32-657-01	=====	1	12	510-14-071-00	≥055.02.331	6	10				
010-32-657-01	=====	1	13	510-14-071-01	≥055.02.331	6	8				
010-32-661-00	=====	1	8	510-14-072-00	≥055.02.331	6	13				
010-32-664-00	=====	1	15	510-14-072-01	≥055.02.331	6	11				
010-32-683-00	=====	3	5	510-14-073-00	≥055.02.331	6	3				
010-32-697-00	=====	5	9	510-16-006-00	≥055.02.331	7	2				
010-32-709-00	=====	4	23	510-16-016-00	≥055.02.331	7	14				
010-32-709-02	=====	4	19	510-16-021-00	≥055.02.331	7	4				

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