

INSTRUCTION HANDBOOK

Minigraf 4 Electronic

2-3 positions

Stroke 80

Stroke 125



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Summary

1. GENERAL INFORMATION	4	4.8 PRELIMINARY CONTROLS	11
1.1 PRODUCER	4	4.9 MACHINE ARRANGEMENT	11
1.2 ASSISTANCE CENTERS	4	4.9.1 V-Nails magazine loading	11
1.3 CERTIFICATION	4	4.9.2 V-nail guide head replacement to change V-nails size	11
1.4 WARRANTY	4	4.10 ADJUSTMENTS	12
1.5 PRE-ARRANGEMENTS CHARGED TO THE CUSTOMER	4	4.10.1 Limit stops adjustment for V-nail positioning	12
1.6 HANDBOOK STRUCTURE	4	4.10.2 Vertical clamp adjustment	13
1.6.1 Object and contents	4	4.10.2a Vertical clamp position adjustment	13
1.6.2 Utilizers	4	4.10.2b Vertical clamp height adjustment	13
1.6.3 Preservation	4	4.10.3 Frontal clamp adjustment	13
1.6.4 Symbols utilized	5	4.10.4 Fence adjustment	13
2. MACHINE DESCRIPTION	6	4.10.5 Working pressure adjustment	14
2.1 WORKING PRINCIPLE	6	4.10.6 Protective shield adjustment*	14
2.2 MAIN COMPONENTS	6	5. FUNCTIONING	15
2.3 MACHINE STRUCTURE	6	5.1 OPERATORS	15
2.4 DIMENSIONS	6	5.2 WAY OF OPERATING	15
2.5 SURROUNDING CONDITIONS	6	5.3 MANUAL FUNCTIONING	15
2.6 LIGHTING	6	5.4 COLOR CODE OF THE ELECTRONIC CONTROL SYSTEM KEYBOARD	15
2.7 VIBRATIONS	6	5.5 Minigraf 4E 2 or 3 position	15
2.8 NOISE EMISSIONS	6	5.6 Minigraf 4E-2 FIXED PROGRAMS	16
2.9 TECHNICAL DATA	7	5.7 FUNCTIONING BY MEANS OF KEYBOARD COMMAND IN MANUAL MODE	16
2.10 STANDARD EQUIPMENT	7	5.8 SEMI - AUTOMATIC FUNCTIONING WITH FIXED PROGRAMS	17
2.10.1 Standard accessories	7	5.9 SEMI-AUTOMATIC MODE USING NEW PROGRAMS CREATED BY THE OPERATOR	18
2.10.2 Upgrading and implementing of mechanical parts	7	5.10 OPERATIONS TO CHECKED BEFORE STARTING YOUR WORK	18
2.10.3 Optional Accessories	7	5.11 TIPS FOR PERFECT JUNCTIONS	18
2.10.4 Customized optional accessories	7	5.11.1 Use of particular clamping	19
2.11 ELECTROMAGNETIC AMBIENT	7	6. SPECIAL FUNCTIONS	20
3. SAFETY	8	6.1 DAILY V-NAILS COUNTER RESET	20
3.1 GENERAL WARNINGS	8	6.2 RESETTING THE V-NAIL COUNTER TO 200	20
3.2 SCHEDULED USE	8	6.3 CHANGE OF WORKING CYCLE SPEED	20
3.3 INADVISABLE USE	8	6.3.1 Minigraf 4-E 2 Position & 3Position	20
3.4 DANGEROUS AREAS	8	6.3.2 Minigraf 4E-2 Position fixed programs	20
3.5 PROTECTION DEVICES	8	6.4 MACHINE STOP	21
3.6 STOP FUNCTIONS	8	6.5 PUTTING OUT OF SERVICE	21
3.7 SAFE WORKING PROCEDURES	8	7. MAINTENANCE	22
3.8 RESIDUAL RISKS	9	7.1 STATE OF MAINTENANCE	22
3.9 PLATES	9	7.2 MACHINE ISOLATION	22
4. INSTALLATION	9	7.3 SPECIAL PRECAUTIONS	22
4.1 SHIPPING AND HANDLING	9	7.6 ORDINARY MAINTENANCE	22
4.2 STORAGE	9	7.4 CLEANING	22
4.3 PRELIMINARY ARRANGEMENTS	10	7.5 LUBRICATION	22
4.4 UNPACKING	10	7.7 EXTRAORDINARY MAINTENANCE	23
4.5 MACHINE POSITIONING	10	8. DIAGNOSTIC	24
4.6 CONNECTIONS	10	8.1 SAFETY WARNINGS	24
4.6.1 Pneumatic connection	10	8.2 TROUBLESHOOTING	24
4.6.2 Electric connection	10	8.3 REQUEST OF ASSISTANCE	25
4.7 CHECKING OF PNEUMATIC AND POWER SUPPLYING CONNECTIONS CORRECTNESS	10		



*This machine is equipped with a frontal safety guard as standard equipment to comply with CE regulations for the EUROPEAN MARKET.
It can be supplied for other markets on request for and additional charge.

<u>9. SPARE PARTS</u>	<u>26</u>
9.1 SPARE PARTS LIST	26
9.2 SPARE PARTS ORDERING	26
<u>10 DEMOLITION</u>	<u>26</u>
10.1 DEMOLITION	26
<u>11. ATTACHMENTS</u>	<u>26</u>
11.1 DECLARATIONS	26
11.2 SCHEMES	26

1. GENERAL INFORMATION

1.1 PRODUCER

The firm Alfamacchine can boast more than 10 years of experience in the construction of Woodworking Machines. It has acquired technological know-how, developed during years of research in strict touch with manufacturing department and international commercialization. We offer best warranty that anyone can grant to its customers.

TEL +39-0543-482711

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1.2 ASSISTANCE CENTERS

ALFAMACCHINE is represented in North & South America by a numerous and prepared sales organization. Contact us directly to get the number of your closest distributor.

For every need regarding Use, Maintenance or Request of Spare Parts, the Customer should contact their distributor specifying the machine identification data impressed on the plate.



1.3 CERTIFICATION

The machine is produced in conformity to the pertinent European Community Norms in force at the moment of its introduction on the market.

1.4 WARRANTY

ALFAMACCHINE's products are constructed to have a long life and are tested one by one.

If, in spite of this, if any damages would occur the replacement of defective parts is warranted (counting from the date written on the delivery bill) for a period of:

- 24 months for mechanical components
- 12 months for pneumatic part

The driver blade is tested for about 1.000.000 working cycles.

The Warranty does not include the sending of technical staff.

The repairs will be performed at ALFAMACCHINE and the freight of shipment will be entirely charged to the Customer. The warranty does not cover the damages caused by an inappropriate use of the machine or not corresponding to the instructions described in this handbook.

The Warranty is void in case of unauthorized modifications or because of accidental damages or tampering performed by unqualified personnel.

The warranty is also voided in case you use V-nails different from the original ALFAMACCHINE ones.

To take advantage of warranty services, it is necessary, at the moment you receive your machine, to fill out the warranty card, and send it back as soon as possible to ALFAMACCHINE.

The warranty will be valid only after the receipt & recording.

1.5 PRE-ARRANGEMENTS CHARGED TO THE CUSTOMER

It is the customer's duty, on times agreed with the producer, to execute what is indicated in our documentation. Things normally charged to the customer are as follows:

- Premises predisposition, included building works and/or canalization eventually requested
- Machine power supply, observing the current norms of Country where the machine is installed (see at the paragraph 4.6.2)
- Pneumatic supply of compressed air (see at the paragraph 4.6.1)

1.6 HANDBOOK STRUCTURE

The customer must pay extreme attention to the indications reported in this handbook, because the proper Pre-Arrangement, Installation and Use of the Machine, constitute the basis of a correct customer-distributor relationship.

1.6.1 Object and contents

The goal of this handbook is to provide to the customer all necessary information so that, besides the proper use of the machine, He would be able to run it in complete autonomy and safety. The handbook contains information concerning the technical aspects, machine working, standby modes, maintenance, spare parts and safety. Before making any operation on the machine, the qualified technicians and operators must read carefully this handbook instructions. In case of doubt about the correct interpretation of these instructions, ask your distributor to have them explained.

1.6.2 Utilizers

This handbook is made both for operators and technicians authorized to the machine maintenance.







The operators can not execute operations reserved to the maintainers or to the qualified technicians.

The producer does not answer of damages derived from not-observing this prohibition

1.6.3 Preservation

The instruction handbook must be kept very closed to the machine, into a special container protected from liquids and whatever could compromise its legibility

1.6.4 Symbols utilized

	DANGER	It indicates a danger with a mortal risk for the operator
	WARNING	It indicates a warning or a note about key functions or useful information. Pay the maximum attention to the paragraph marked with this symbol.
	OBSERVATION	It is requested to take a measurement data, to check a signal,....
	INQUIRY	The user is requested to check the proper positioning of any element of the machine, before operating a certain command
	EXAMINATION	It's necessary to consult the handbook before performing a certain operation
	ADJUSTMENT	In case of strange working and/or anomalies, can be requested a certain mechanical adjustment and/or electrical setting

2. MACHINE DESCRIPTION

2.1 WORKING PRINCIPLE

The frame assembling machine Minigraf 4E has been realized for the mass production of medium or large sized frames.

The machine is controlled by an electronic system able to execute very quickly the different working cycles.

3 different versions of this model are available:

- The Minigraf 4- Electronic 2 positions fixed programs allows the insertion of V-nails in 2 unsettled positions by using inserting sequences previously programmed by into the machine
- The Minigraf 4- Electronic 2 positions unsettled programs allows the insertion of V-nails in 2 unsettled positions by using inserting sequences both previously programmed into the machine or programmed by the user.
- The Minigraf 4-Electronic 3 positions unsettled programs allows the insertion of V-nails in 3 unsettled positions by using inserting sequences previously programmed into the machine or programmed by the user.

2.2 MAIN COMPONENTS

The main components constituting the machine are:

- Frontal clamping device to have a perfect junction.
- Pneumatic balancing that allows to work easily when the working bench is tilted.
- Adjustable tilting fences.
- Floor stand
- Soft moulding clamp device that adjusts the pressure during the several working phases.
- Magnetic pressure pads of different types and quick replacement
- Dual functions foot operating pedal for separate control of clamping and nail insertion
- Pneumatic opening of V-nails magazine for a very quick reloading
- Nail heads sizes 7, 10 and 15 mm.

2.3 MACHINE STRUCTURE

The movement directions during the machine working are the followings:

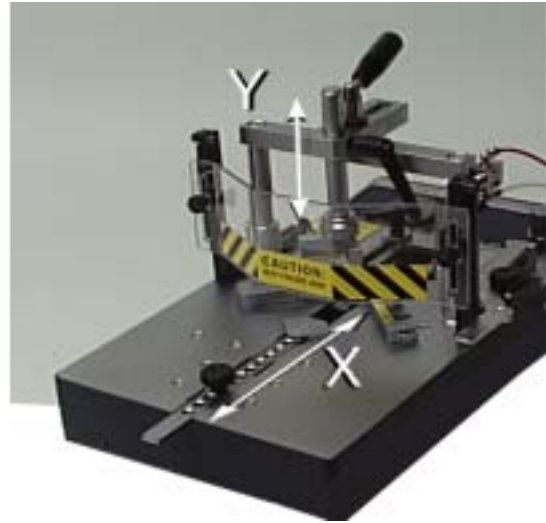
- XAXIS

Movement of horizontal clamp

- YAXIS

Movement of vertical clamp

Picture 2. 1 A - Movement directions



2.4 DIMENSIONS

The overall dimensions are reported on table 2.9-A

2.5 SURROUNDING CONDITIONS

The machine does not need special surrounding conditions. It has to be installed inside an industrial building, lit, aired and with a compact and flat floor. The admitted temperatures go from 5° to 40° C, with an humidity not higher than 50% at 40° C or 90% at 20° C.

2.6 LIGHTING

Premises lighting must be conformed to the norms in force in that Country where the machine is installed and has to guarantee a clear view and can not create dangerous light reflections.

2.7 VIBRATIONS

In standard conditions conformed to the indication of machine proper utilization the vibrations do not create dangerous conditions. The average quadratic weighed level, according to the acceleration frequency to which arms are exposed does not exceed 2,5 m/s².


2.8 NOISE EMISSIONS

The machine is designed and projected for reducing the noise emission level to its source. In standard working conditions the Machine noise power level is:

Acoustic Continuous Equivalent weighed pression A	<70dB
Acoustic Istantaneous weighed pression	<130dB

The noise levels indicated are emission levels and are not representative of operating levels. In spite of an existing relationship between emission levels and exposure ones, this can not be used in a reliable way to define if further precautions are necessary. The factors length, working premises characteristics and other noise sources (number of machines, closed area,etc...). Furthermore, also the allowed exposure levels could change according to several

Countries. At any rate, the information provided, will allow the Machine Operator to achieve a better evaluation of the danger and risks he is submitted to.

	<p>The indicated noise levels are emission ones measured in standard conditions of use. In case of any machine modification, the above mentioned levels could be changed and should be settled directly on the same machine.</p>
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2.9 TECHNICAL DATA

Here below we have indicated the Machine data and technical characteristics.

Frames thickness	min-max 4-80 mm.
Frames width	min-max 10-90 mm.
Max distance between V-nails (stroke 80)	75 mm.
(stroke 125)	120 mm.
V-nails magazine capacity	n. 230
V-nails size	7,10,15 mm.
V-nails size on request	3, 5, 12 mm.
Pneumatic supplying	BAR 4-6
Power supplying	V 220 (110)
Weight	about 100 kg
Height of working bench	960 mm.
Overall dimensions	600x750x1350 mm.

2.10 STANDARD EQUIPMENT

The accessories listed below are the standard one. Possible special supplying could consequently need different components from the listed ones.

2.10.1 Standard accessories

Once you have removed the packing, please check the presence of following accessories:

- N.1 nail head mm. 7
- N.1 nail head mm.10
- N.1 nail head mm.15
- N.1 L shaped pressure pad
- N.1 Allen Wrench 5 mm. for V-nails head replacement
- N. 4 adjustable feet.
- N.1 pressure gauge
- N.1 fast clutch fitting
- N.1 Brass rod magnet to remove V-nails
- N.1 Double/triple mechanical pressure plate
- N.1 Double Hydraulic hold down

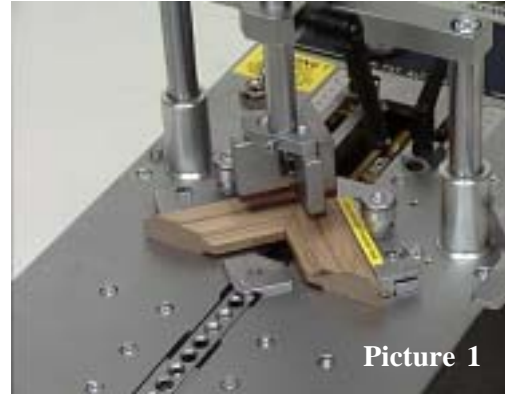
2.10.2 Upgrading and implementing of mechanical parts

The machine has been realized following a modular criterion, therefore the existing equipment can be further upgraded with additional accessories that will not alter its basic structure.

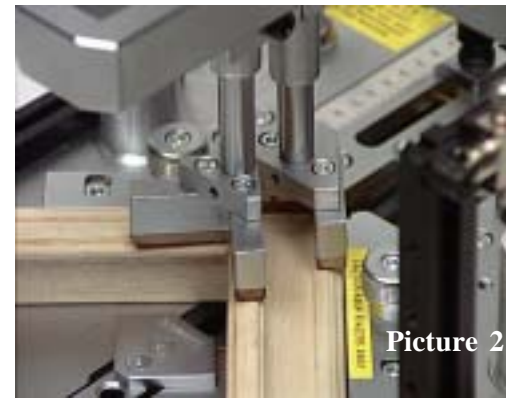
Technical upgrades on the machine model, if any, will be such that they can be installed at any time without requiring any substantial modifications to the machine structure.

2.10.3 Optional Accessories

- Metal Extension tables
- Wood extension tables
- Special fences for Hexagons
- Special fences for Octogons
- Nailheads sizes 3,5,12 mm



Picture 1



Picture 2

2.10.4 Customized optional accessories

Thanks to its versatility this machine can be 'custom-made' to meet our users requirements, with additional accessories that can make the frame assembling easier: e.g. special fences for peculiar moulding shapes, special clamps to ensure the mouldings are locked properly during V-nail firing, and so on. Your local machine shop can make these for you.

2.11 ELECTROMAGNETIC AMBIENT

The Machine is designed to operate properly in an industrial electromagnetic ambient, being included in the following Norms about Emission and Immunity:

- EN 50081-2 Electromagnetic compatibility-Generic Norm on Emissions-2nd part-Industrial Environment-(1993)
- EN 50082-2 Electromagnetic compatibility-Generic Norm on Immunity-2nd part-Industrial Environment-(1995)

3. SAFETY

3.1 GENERAL WARNINGS

The operator must read paying the maximum attention to the information written in this Handbook, expressly about proper precautions for Safety listed in this chapter. It is advisable for the operator to follow the warnings list below:

- Keep the machine and the working premises clean & ordered.
- Provide appropriate containers to stock pieces you have assembled & those you want to assemble.
- Use the Machine only in a perfect mental state of mind.
- Wear adequate clothing to avoid obstacles and/or dangerous entanglements to/from the machine
- Wear the individual protection equipment prescribed by the instructions handbook, regarding the performed operations
- Do not remove or alter the warning plates and adhesive signs
- Do not remove or elude the Machine Safety Systems
- Keep the fingers away from the working area
- Disconnect the air pressure and power supply during any maintenance intervention
- Keep the feet separated from the pedal during Machine regulation

3.2 SCHEDULED USE

The Machine is designed and built to execute junctions of frames.

The machine is projected for manual operating only (under operator control).

3.3 INADVISABLE USE

The machine can not be used:

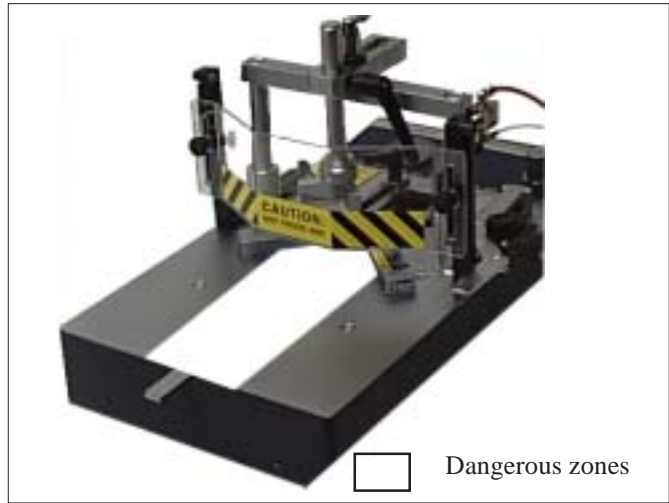
- For uses different from those listed in 3.2 paragraph
- In an explosive or aggressive atmosphere, where there is a high density of dust or oily substances suspended in the air
- In a flammable atmosphere
- Outside in all weather severity
- With disconnected electromagnetic interblocks
- With electric bridges and/or mechanic instruments leaving out machine parts or functions
- For working materials not suitable with machine characteristics

3.4 DANGEROUS AREAS

The area where the frame parts are placed for assembly is defined as the “working area”

The dangerous areas of the machine, include the movable parts and surrounding zones

Picture 3.4.A- Working area and dangerous zones



3.5 PROTECTION DEVICES

The machine is equipped with adequate protection for persons exposed to the machines working parts (driver blade, horizontal clamp, vertical clamp).

3.6 STOP FUNCTIONS

The machine stop functions are the following:

- Stop of Category 0.
- Stop of Category 1.

STOP CATEGORY 0

It is obtained by disconnecting the fast clutch fitting from the feeding system (uncontrolled stop).

It is obtained by flipping the main switch located on the floor stand.

STOP CATEGORY 1

Controlled stop obtained by lifting the foot from the pneumatic pedal that does not allow the v-nails to drive

3.7 SAFE WORKING PROCEDURES

	<p>The machine is projected and realized to eliminate any risk connected with its use. The user is requested to achieve an adequate training to be instructed by their local distributor.</p>
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The other risks related with using this machine are:

- Finger crushing in the vertical clamp working area
- Finger crushing in the frontal clamp working area

Even if the protection shield is properly adjusted, it is necessary to follow carefully the following instructions:

- Keep the fingers away from frontal and vertical clamp working areas
- Disconnect the air pressure and the power supplying during any maintenance interventions
- Keep the foot away from the pedal during machine regulation

3.8 RESIDUAL RISKS

During the normal working cycle and while maintaining, the operators are exposed to several residual risks that, because of the operations own nature, can not be totally eliminated.

- Risk of finger crushing due to the presence of vertical and frontal clamping
- Risk due the presence of electricity in the machine

3.9 PLATES

The warning plates carrying out safety functions can not be removed, covered or damaged.

To take view of the plates or adhesive signs location, consult the Fig.10.2-D

Table 3.9 A- Types of plates



Plate concerning the machines characteristics



Adhesive sign concerning the finger danger zone,located on the protection shield



Adhesive sign concerning the behaviour to be kept in the working area



Adhesive sign concerning the behaviour to be kept in the working area

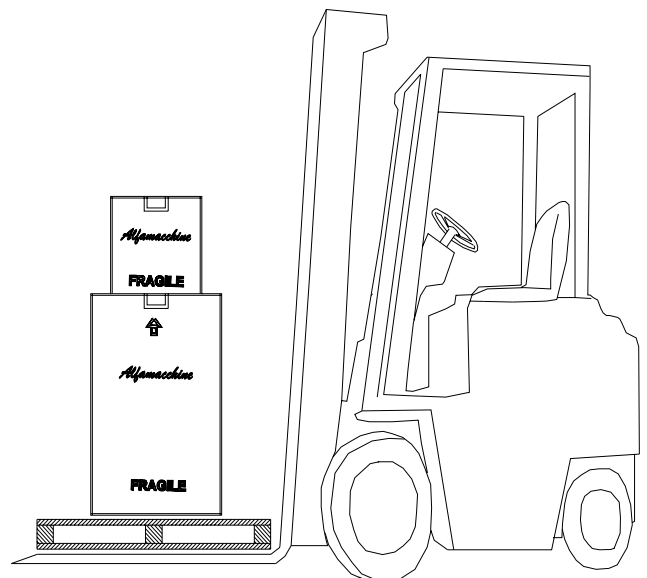
4. INSTALLATION

4.1 SHIPPING AND HANDLING

The shipment must be packed by a professionally qualified staff. The machine has to be shipped in a safe way to avoid any damage to its parts.

- All the protections and guard devices must be properly closed and locked.
- The machine has to be shipped like positioned for installation.
- Before the shipment, it is necessary to lubricate the parts which are not painted.
- According to the type of shipment, it is necessary to protect the machine from any jarring impact or stress

Figure 4.1A – machine handling indications



Machine total weight: about 100 Kilos

Any damage of the machine caused during its shipment or handling is not covered under warranty.

Repairs or replacements of damaged parts are charged to the customer.

4.2 STORAGE

In case of long inactivity, the machine must be stored with cautions concerning storage place and times.

- Store the machine indoors
- Protect the machine from jarring impacts and stresses
- Protect the machine from high humidity and high temperatures
- Keep the machine away from corrosive materials
- Lubricate the parts which are not painted

4.3 PRELIMINARY ARRANGEMENTS

In order to install the machine it is necessary to prepare a working area adequate to the machines dimensions & the chosen and length of mouldings to be assembled.

4.4 UNPACKING

The machine is shipped in a appropriate carton and bolted to a pallet.

Remove the external packing and save it for a future use. Check for any casual shipping damage and report it immediately. Shipping damages or any other defects must be reported to *ALFAMACCHINE* within 3 days from receipt of the machine.

4.5 MACHINE POSITIONING

Position the machine where you intend to use it. Screw the levelors into the floor stand and level the machine by loosening or screwing the the levelors in or out.

4.6 CONNECTIONS

To avoid any problems while setting up the machine, it is suggested to follow the instructions listed below.

4.6.1 Pneumatic connection

Remove the lubricator bowl, which is placed under regulator on the left side.

Fill the bowl with lubricating oil

Screw the pressure gauge on the filter/regulator /lubricator. Connect the fast clutch fitting (or a similar one) to the pneumatic system (see pict. 3).

Connect the air supply line to the machine (see pict 4).



Picture 3



Picture 4



TAKE CARE: In the lubricator it is advisable to use lubricant type CASTROL MAGNA GC 32 or an equivalent lubricant. Don't use generic lubricants !
The use of a non-suitable lubricants will damage the valves.

4.6.2 Electric connection

Check the input Voltage: it must be the same as what is indicated on the machine cable (120 V).

Connect the power supply cable to the plug positioned on the rear side of the machine.

Make sure that the electrical supply is equipped with the proper protections.EX:Surge protection

Avoid the use of long extension cables.

4.7 CHECKING OF PNEUMATIC AND POWER SUPPLYING CONNECTIONS CORRECTNESS

Use the pneumatic foot pedal to verify the pneumatic connection. The proper functioning of the pneumatic foot pedal is as follows:

The foot pedal pressed half way down activates the vertical and frontal clamps.

The foot pedal pressed full down activates the V-nail driver.



Make sure that the V-nail magazine is closed and it does not contain any V-nails before checking the operation of the foot pedal.

Minigraf 4E FIXED PROGRAMS

To verify the electric connection check the LED POWER light on the keypad.

Minigraf 4E 2 or 3 position.

To verify the electric connection, perform the machine's automatic test. When the screen is on you will see the following message:

Minigraf 4 3P ELECTRONIC <POWER ON>
PRESS CM TO EXECUTE THE TESTING CYCLE

Press the CM key to test the cycle

The machine will activate in the following sequence:

- Frontal clamp
- Vertical clamp
- Shifting into several inserting positions
- The acoustic beeper

Verify that on the screen you see the following message:

AUTOMATIC PROGRAM	STAPLES LEFT=200
SELECT THE SEQUENCE	F2 NORMAL

It indicates the machine is Ready.

4.8 PRELIMINARY CONTROLS

Setup of the machine must be executed by a technician appointed by the customer. Before setting up the machine, it is necessary to execute certain verifications and checks to prevent mistakes or accidents during setup.

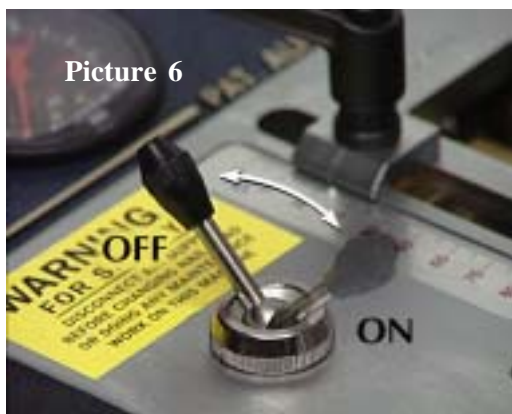
- Verify that machine has not been damaged during assembly steps.
- Verify with extreme care, the pipes integrity

4.9 MACHINE ARRANGEMENT

4.9.1 V-Nails magazine loading

To load the V-nail magazine proceed as follows:

- Move the clawpusher backwards by flipping the special lever located on the right side of the machine's working bench. This will give you access to the V-nail magazine (see fig. 7).
- Insert one or more V-nail strips into the magazine, taking care that the sharpened edge of the V-nails (glue side) faces up and that they are loaded with the V of the V-nails pointing in the direction indicated in the figures 8 and 9. You also need to check if the V-nail size is suitable with the type of claw head mounted.
- Move the clawpusher forward by flipping the control lever (see fig.7)



Picture 6



Picture 7



Picture 8

4.9.2 V-nail guide head replacement to change V-nails size

The V-nail guide head must be changed each time you use V-nails of different sizes.

Proceed as follows to replace it:

- Loosen the locking screw of the V-nail guide head using the proper 5 mm Allen wrench (the screw is on the opposite side from the V-nails magazine(See fig. 10)
- Remove the V-nail guide head (nailhead)
- Move the clawpusher backwards by flipping the special lever located on the right side of the machine's working bench. (see fig. 8).
- Remove all the V-nails that are still in the magazine using the proper brass magnet (if necessary). (see fig.11).
- Insert the new V-nail strip (of desired height) into the magazine
- Move the clawpusher forward by flipping the control lever (see figure 7).
- Insert the new size V-nail guide head to match the V-nails you will be using. (see fig. 12).
- Tighten the locking screw of the V-nail guide head (see fig.10).



Picture 9



Picture 10



Picture 11



Picture 12

4.10 ADJUSTMENTS

The machine has been completely tested and checked in ALFAMACCHINE's plant before its shipment. The operator only has to perform the following adjustments:

4.10.1 Limit stops adjustment for V-nail positioning

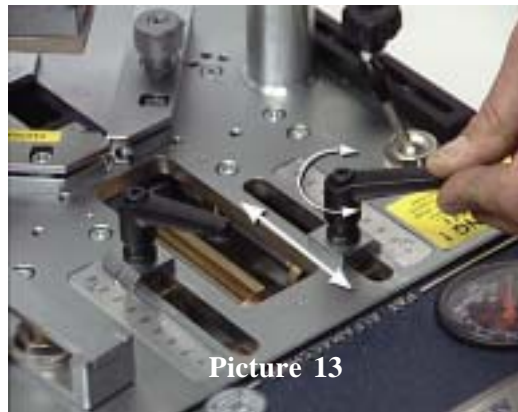
The machine is equipped with a movable driver assembly, which shifts along several working positions.

The limit stops, located on the machine's working bench, set the V-nails inserting points. The positioning of the stops can be set by moving the special handles (see fig. 13). The exact positioning of any insertion point can be verified thanks to a ruler that indicates the distance between the several points and the vertex. The operator can shift the driver assembly by pressing the special lever located on right side of the working bench (see fig. 14).

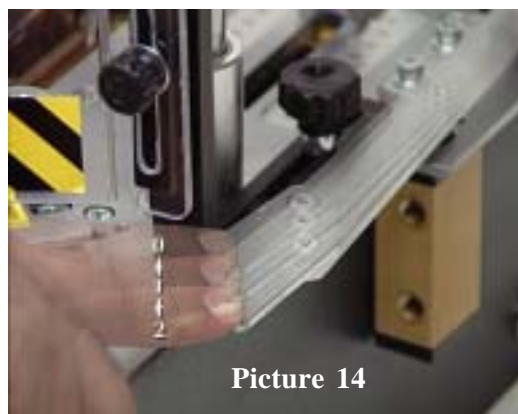
In the 2 position version of the machine, the stops are marked as X and Z, & in the 3 position version the stops are marked as X, Y and Z (see fig.15).

	<p>In the Minigraf 4E-3, we recommend you set X and Z as extreme V-nails inserting positions and Y as intermediate one.</p>
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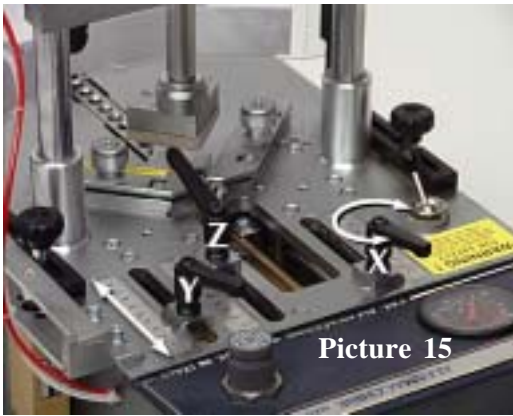
	<p>While the machine is not working, the driver assembly is positioned in X. To change the X-position stop, it is necessary to shift the V-nail driver assembly in one of the next positions (Y or Z) –see fig.15</p>
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Picture 13



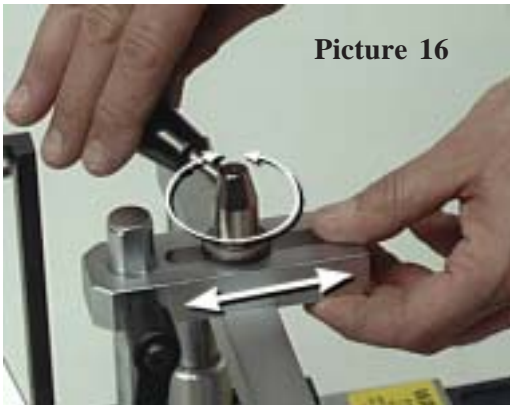
Picture 14



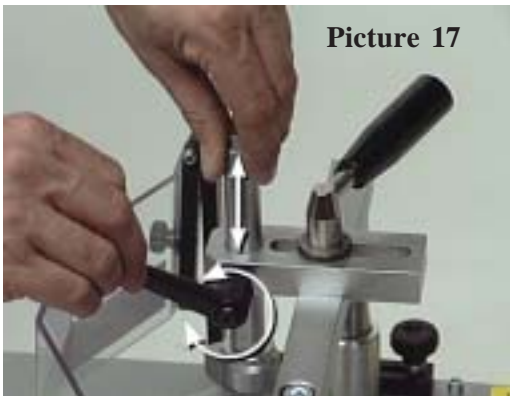
Picture 15

4.10.2 Vertical clamp adjustment

The vertical clamp can be adjusted in height and position. Proceed as follows to adjust them:



Picture 16



Picture 17

4.10.2a Vertical clamp position adjustment

- Position the mouldings to be assembled on the working bench
- Select the pressure pad suitable with the profile of the moulding to be assembled and lock it on the vertical bar
- Loosen the handle (see fig.15) that holds the clamp, that locks the pressure pad bar. This will permit it to shift forward or backward. The pad should be directly in line with V-nail inserting point.
- Tighten the handle once you have reached the proper position

4.10.2b Vertical clamp height adjustment

- Loosen the handle on the side of the clamp (see fig. 16) Adjust the pressure pad height, so it is between 5 and 8 mm above the moulding. This will help prevent the possibility of any accidental crushing of your fingers.
- Tighten the handles once you have reached the proper position
- Lower the vertical clamp by pressing halfway down on the foot pedal. This will verify that the mouldings to be assembled are properly clamped.
- Press full down on the foot pedal to insert the V-nail.

4.10.3 Frontal clamp adjustment

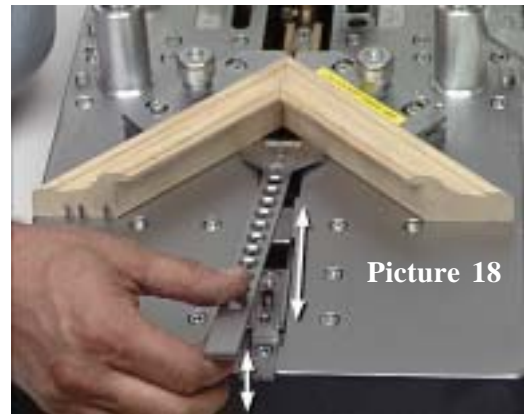
The Frontal Clamp (horizontal clamp) has a series of holes in the flat bar (see fig.17).

Lift the bar upwards, to take it out of its initial position. This will allow you to move it forward and backward.

To lock the bar it is sufficient to insert it into the proper peg located in the middle of the guide channel.

Proceed as follows to position the frontal Clamp correctly:

1. Remove the bar from the peg (lifting it by about 10-15 mm) and move it forward until it touches the moulding (see fig.18)
2. Bring the bar backwards, until you can drop it into the next available hole.



Picture 18

4.10.4 Fence adjustment

The machine is equipped with a special fence composed by 2 different parts.

Each fence side is equipped with a knob that allows to tilt the mouldings support.

We suggest you use the fence when assembling shaped mouldings.

Furthermore, if the moulding rolls forward or backwards as the front clamps engages, you can adjust the tilting fence to compensate the defect.

In addition to the 90 degrees junctions, the Minigraf 4E can also be used for 6-sided (120 degrees) or 8-sided frames (135 degrees). You do this by properly positioning the back fence supports.

Proceed as follows to modify the position of fence back supports:

- use a 5 mm Allen wrench and remove the outside screw;
- loosen the inside screw slightly and position the fence into the next set of holes towards the back of the machine for 6-sided frames & the next set back for 8-sided frames.

The proper positioning of the fence supports can be obtained by using a special square. This is included with your machine.

Care must be taken to ensure that the 120° or 135° angle is perfectly centered on the internal vertex of the V-nail head.

4.10.5 Working pressure adjustment

The working pressure must be adjusted depending upon the hardness of the moulding to be assembled.

The pressure regulation allows you to change the clamping pressure of the moulding to be assembled.

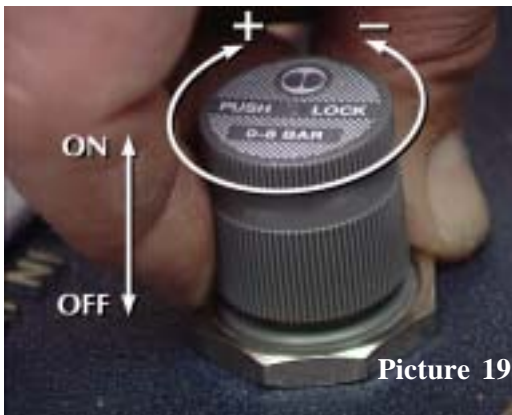
Too high of a working pressure can cause a poor junction and (especially on small-size frames) the moulding could be crushed.

Too low of a working pressure can cause an incomplete insertion of the V-nail into the frame.


The working pressure is adjusted by means of the regulator located on the panel near the pressure gauge (see fig. 19).

Proceed as follows to adjust the working pressure:

1. Pull up on the regulator cap by about 3-4 mm to unlock it.
2. Turn it clockwise to increase the pressure and counter-clockwise to decrease it.
3. Push the regulator cap back down to lock it into position



Picture 19

	DO NOT ADJUST the pressure if the machine is not connected to the air supply.
-------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------

The suggested pressures are:

Soft woods	(samba,.....)	1.5 - 2.0 Bar
Medium	(ramin,.....)	2.0 - 3.0 Bar
Very hard woods	(oak)	3.0 - 5.0 Bar


The above listed values apply to 7 and 10 mm high V-nails. Increase the pressure by 10 % for 15 mm high V-nails. When stacking 2 or more V-nails, increase the working pressure by about 10-15 %.

4.10.6 Protective shield adjustment

You can order a protective shield made of transparent plastic material. This can help prevent the operator from accidentally crushing their fingers. (see fig.20).

Proceed as follows to adjust the protection shield:

- position the mouldings to be assembled on the working bench;
- loosen the 2 knobs which hold the protection. Lift or lower it to a height of about 6-8 mm from the moulding to be assembled.
- tighten the knobs to lock the protection shield

	Opening the shield, deactivates by the foot pedal.
-----------------------------------------------------------------------------------	----------------------------------------------------

Even if the protective shield is properly adjusted, it is necessary to follow the instructions listed below:

- keep the fingers away from the frontal and vertical clamp working area.
- disconnect the pressure supply during any maintenance intervention.
- keep the foot separated from the pedal while adjusting the machine.



Picture 20

5. FUNCTIONING

5.1 OPERATORS

The machine has been projected to be used by only one operator.

The staff assigned to operate the machine, must be in possession (or acquire through an adequate training) the requirements indicated below. In addition they must have the knowledge of this handbook and of every information concerning safety:

- General and technical culture sufficient to comprehend the handbook contents and properly understand the drawings and schemes.
- Knowledge of main sanitary, technological and anti-accidental norms.
- Overall knowledge of the line and plant where the machine is installed.
- Specific experience regarding frame assembly technologies
- To know how operate in case of emergency, & where to find the individual protection means.

The Maintenance people in addition to the above mentioned characteristics must be in possession of an adequate technical education.

5.2 WAY OF OPERATING

The machine has 4 possible operating modes:


- manual mechanical mode, using the pneumatic foot pedal only and the lever located on the right side of the working bench.
- manual electronic mode, using single operations on the keyboard of the electronic control system
- semi-automatic mode, using fixed programs on the keyboard. (blue push-buttons on the keyboard)
- semi-automatic mode, using new programs selected by the operator (valid only for the Minigraf 4E-2 and the Minigraf 4E-3).

5.3 MANUAL FUNCTIONING

The Minigraf 4E allows the operator to work manually by means of single controls.

To assemble a frame manually, you must :

- Position the moulding to be assembled on the machine's working bench.
- Press the pneumatic foot pedal half way down to activate the vertical and frontal clamps.
- Press the pneumatic foot pedal full down to insert the V-nail

	<p>If you want to stack two or more V-nails in the same position, you must release the foot pedal halfway and then press it again full down to insert the second V-nail.</p>
-------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

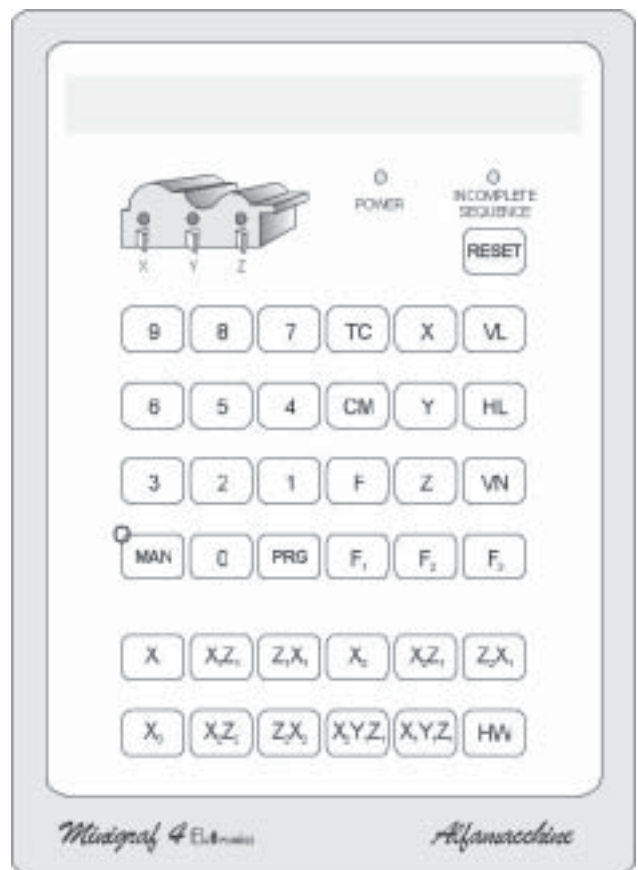
- Press the halfway down on the touch lever (only in the 3P version) to reach the second inserting position (Y).
- Press the foot pedal one or more times in order to insert the V-nail(s)
- Press full down on the touch lever to reach the third inserting position (Z)
- Press the foot pedal one or more times in order to insert the V-nail(s)

5.4 COLOR CODE OF THE ELECTRONIC CONTROL SYSTEM KEYBOARD

BLUE keys	Pre-determined working cycles
ORANGE keys	Keys for single manual commands
GREEN keys	Numeric keys to input numeric values (not valid for Minigraf 4E Fixed Programs)
RED keys	RESET (homing) or CM (new programs confirmation) keys

5.5 Minigraf 4E 2 or 3 position

RESET	Resets the previous setting
1-9	To input numeric data
TC	V-nail counter
X-Y-Z	V-nail inserting positions
VL	Vertical clamp activation
HL	Frontal clamp activation
VN	V-nail ejection
CM	Confirmation
F...F3	Special Functions Keys
MAN	Manual Mode
PRG	Programming Mode
HW	Working of hard materials
X1..X1Y1Z1	Memorized Programs

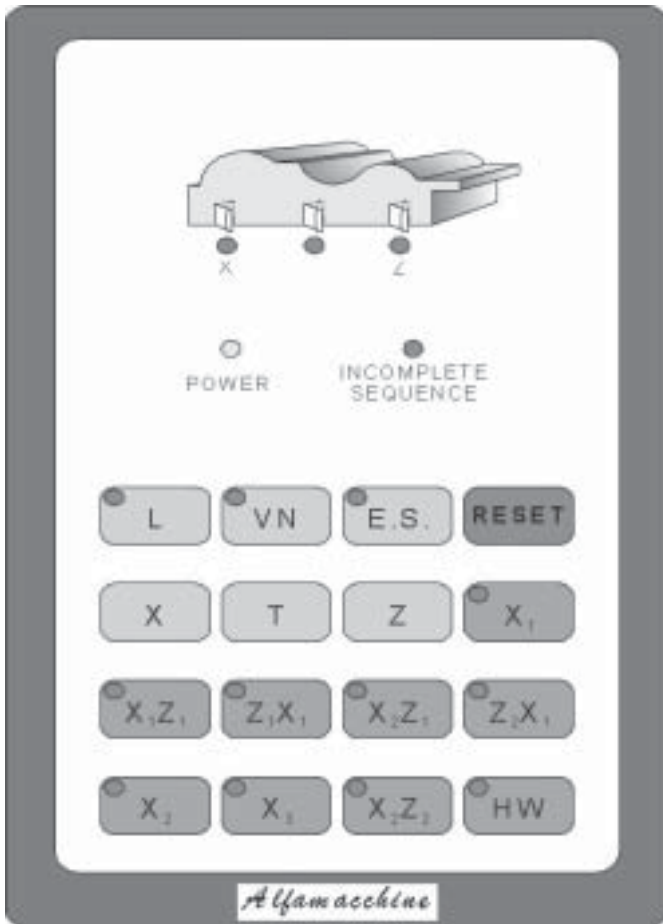


Minigraf 4E 2 or 3 position keyboard

5.6 Minigraf 4E-2P FIXED PROGRAMS

RESET	Resets the previous setting
L	Vertical and frontal clamp activation
VN	V-nail ejection
E.S.	Maximum speed setting
X-Z	V-nail inserting position
HW	Working of hard materials
X1..X2Z2	Memorized Programs

Minigraf 4E Fixed Programs



5.7 FUNCTIONING BY MEANS OF KEYBOARD COMMAND IN MANUAL MODE

The operator, by means of the keyboard, can activate the single commands.

This way of functioning can be used to verify the machine's proper functioning or to execute a test cycle (ex: assembling a corner).

To execute these commands, operate as follows:

Minigraf 4E 2 position or 3 position

- Press the RESET pushbutton
- Press the MAN pushbutton, the corresponding led must light up.

At this point the operator can use the keyboard's Orange pushbuttons:

- Pressing the VL pushbutton the vertical clamp is activated
- Pressing the HL pushbutton the frontal clamp is activated
- Pressing VN pushbutton the driver blade goes up
- Pressing the X, Y and Z buttons, shifts the driver assembly to the preset inserting positions

Minigraf 4E-2Position Fixed Programs

- Press the RESET pushbutton

At this point the operator can use the keyboard's Orange pushbuttons:

- Pressing the L pushbutton the vertical and the frontal clamps are activated
- Pressing the VN pushbutton the driver blade goes up
- Pressing the X and Z buttons, shifts the driver assembly to the preset inserting positions
- All manual commands can be deactivated by pressing again the pushbuttons previously activated or by pressing RESET.

5.8 SEMI - AUTOMATIC FUNCTIONING WITH FIXED PROGRAMS

The machine can work with fixed working cycles previously programmed:

11 working cycles for the Minigraf 4E- 3Position

9 working cycles for the Minigraf 4E- 2Position and VN4E-2 position Fixed Programs

To activate these cycles the operator must proceed as follows:

1. Press the RESET pushbutton: on the screen is displayed the following message

AUTOMATIC PROGRAM SELECT THE SEQUENCE	STAPLES LEFT=200 F2 NORMAL
------------------------------------------	-------------------------------

2. Select the execution speed (see chapter 6.3.2)

3. Press the BLUE pushbutton corresponding to the desired cycle: on the screen is displayed the following message:

AUTOMATIC PROGRAM EXECUTING PROGRAM X _n Y _n Z _n	STAPLES LEFT=200 F2 NORMAL
-------------------------------------------------------------------------------------	-------------------------------

4. Once you have positioned the mouldings on the working bench, press the electric foot pedal to start the cycle
5. In case you assemble frames that have very hard materials, press the HW pushbutton (this selection will automatically slow down the machine's operating speed to the minimum)

The machine will keep the same working cycle until you change it.

To change the working cycle, press RESET and repeat the steps listed above.

The preprogrammed working cycles are:

<i>Pushbutton</i>	<i>Result on 2P machine</i>	<i>Result on 3P machine</i>
X1	Inserts 1 V-nail in the X position	Inserts 1 V-nail in the X position
X1Z1	Inserts 1 V-nail in both the X and Z positions	Inserts 1 V-nail in both the X and Z position
Z1X1	Inserts 1 V-nail in both the Z and X position	Inserts 1 V-nail in both the Z and X position
X2	Inserts 2 V-nails in the X position	Inserts 2 V-nails in the X position
X2Z1	Inserts 2 V-nails in the X pos and 1 V-nail in the Z position	Inserts 2 V-nails in the X pos and 1 V-nail in the Z position
Z2X1	Inserts 2 V-nails in the Z pos and 1 V-nail in the X position	Inserts 2 V-nails in the Z position and 1 V-nail in the X position
X3	Inserts 3 V-nails in the X position	Inserts 3 V-nails in the X position
X2Z2	Inserts 2 V-nails in both the X and Z position	Inserts 2 V-nails in both the X and Z position
Z2X2	Inserts 2 V-nails both in the Z and X position	Inserts 2 V-nails both in the Z and X position
X2Y1Z1	NOT AVAILABLE	Inserts 2 V-nails in the X position and 1 V-nail in both the Y and Z positions
X1Y1Z1	NOT AVAILABLE	Inserts 1 V-nail in X, Y and Z. positions


5.9 SEMI-AUTOMATIC MODE USING NEW PROGRAMS CREATED BY THE OPERATOR

Note: This option is not available in the Minigraf 4E-2 Position fixed program machine

The Minigraf 4E-2Position and 3Position machines allow the operator to create customized working cycles.

Proceed as follows to create your own working cycles:

1. Press RESET
2. Select the working speed
3. Press PRG
4. Press X and input the number of V-nails to be inserted in X position (use the green keys)
5. Press Y (only in Minigraf 4E-3) and input the number of V-nails to be inserted in Y.
6. Press Z and input the number of V-nails to be inserted in Z.
7. Press CM to confirm the working cycle
8. Press the electric foot pedal to start the semi-automatic working cycle.

	<p>In case of very hard materials, press the HW pushbutton.</p>
-----------------------------------------------------------------------------------	-----------------------------------------------------------------

The machine will keep working with the same cycle until you reset it.

To change the working cycle, press RESET & repeat the steps listed above.

5.10 OPERATIONS TO CHECKED BEFORE STARTING YOUR WORK

Once the machine has been properly installed (like previously described), check that:

- The magazine is loaded with the type of V-nails suitable with the mouldings to be assembled
- The claw head matches up with the chosen V-nails
- The limit stops of the driver assembly are positioned in the selected points and properly locked (see chapter 4.8.1)
- The pressure pad is placed on the hold down rod
- The vertical and frontal clamps are properly positioned

In order to improve the clamping of large moulding or very hard material, we recommend you use a multiple clamping device (double/triple mechanical hold down or double hydraulic hold down)

- The working pressure is adequate to the wood hardness
- The limit stops are properly set
- The protective shield is properly positioned (see chapter 4.8.5)

5.11 TIPS FOR PERFECT JUNCTIONS

a) V-nail types

In order to allow the machine to make excellent quality junctions using different materials, it has been necessary to manufacture different types of v-nails for different uses (see attachment D).

V-nails can be classified in three different groups:

for soft woods and soft plastic	Suggested V-nails code	SW
for medium woods	Suggested V-nails code	MW
for hard woods	Suggested V-nails code	HW

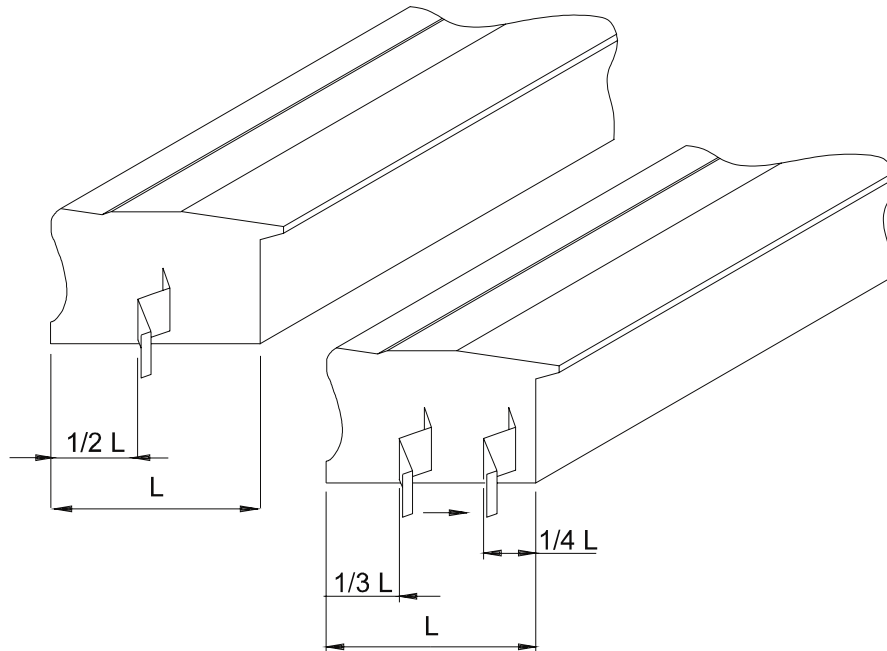
b) Assembling positions

It is advisable to operate as follows in order to achieve the best results in terms of junction quality:

Never drive the V-nails near the junction vertex. The minimum recommended distance from the external vertex is at least 10 mm.

When you want to make the junction using only one V-nail, the most suitable position is in the middle of the moulding (see fig. 23)

In case you want to insert 2 or more V-nails into each junction, we recommend you to insert the most external one $1/3$ from the external vertex and the most internal one $1/4$ from the internal vertex.



Picture 23

5.11.1 Use of particular clamping

In order to improve the clamping of large frames or very hard material, we recommend you use a multiple clamping device (double/triple mechanical hold down or double hydraulic hold down) (see fig. 24-25)



Picture 24



Picture 25

6. SPECIAL FUNCTIONS

6.1 DAILY V-NAILS COUNTER RESET

Take care: this option is not available in the Minigraf 4E- 2 Position fixed program machine

Press the orange TC pushbutton: the display will indicate the V-nails daily consumption and the total amount of V-nails consumed from machine's beginning.

PRODUCTION: DAILY = TOTAL =
PRESS 0 TO DELETE DAILY STAPLES COUNTER

Press RESET if you DO NOT WANT to reset the daily counter; press 0 if you WANT to reset the daily counter: the display will indicate the following message:

PRODUCTION: DAILY = 000000 TOTAL =

6.2 RESETTING THE V-NAIL COUNTER TO 200

Take care: this option is not available in the Minigraf 4E-2 Position fixed programs

To reset the V-nail counter to 200, proceed as follows:

- Press F



Each time a new V-nail strip is inserted into the magazine, the counter resets to 200.

To attract the operators attention, the Minigraf 4E is equipped with an acoustic beeper the warns the operator when the V-nail magazine runs low.

The machine will sound a beep when 10 V-nails are still left in the magazine, & then again at 5 and 0 V-nails left.

When a new stick is inserted into the magazine (see chapter 4.7.1) the counter will reset to indicate:

STAPLES LEFT = 200.

6.3 CHANGE OF WORKING CYCLE SPEED

6.3.1 Minigraf 4E-2 Position & 3 Position

To increase or decrease the working cycle speed, proceed as follows:

- press RESET
- press MAN
- press PRG: on the display you will see the following message:

EDIT PARAMETER
F=EXT.FAST F1=FAST F2=NORMAL F3=SLOW

- press the pushbutton corresponding to the desired speed:

F	EXT.FAST	(soft woods)
F1	FAST	(medium woods)
F2	NORMAL	(medium woods)
F3	SLOW	(hard woods)

The selected speed will be indicated on the display (low on the right side next to the working program).

6.3.2 Minigraf 4E-2 Position fixed programs

Selecting the pushbutton corresponding to the program to be executed is automatically selects the slow working speed. Operate as follows if you want to change it:

SLOW SPEED Press the Blue pushbutton corresponding to the chosen program: the corresponding led will light up

MEDIUM SPEED Press the same pushbutton again and hold it down for about 2 seconds: the led blinks

MAXIMUM SPEED when the led lights up (slow speed), press the Orange pushbutton HS or ES.

MINIMUM SPEED Select a program and then press the HW button: this speed is recommended for very hard materials.

To go back to the slow speed, press RESET and then the pushbutton corresponding to the selected program.

6.4 MACHINE STOP

To stop the machine press the RESET pushbutton on the keyboard or disconnect the power supply by switching off the main switch located on the floor stand.

6.5 PUTTING OUT OF SERVICE

In case on long inactivity periods it is necessary to disconnect the fast clutch fitting from pneumatic system and the power supply cable.

7. MAINTENANCE

7.1 STATE OF MAINTENANCE

The maintenance operations must be performed with the machine in the conditions described at “state of the machine” in the tables 6.6.A and 6.7.A

7.2 MACHINE ISOLATION

Before performing any type of maintenance or repair , it is necessary to isolate the machine from it’s feeding sources, making the following operations:

- 1) Disconnect the plug from the electric socket.
- 2) Disconnect the fast clutch fitting from the pneumatic system.

7.3 SPECIAL PRECAUTIONS

During the maintenance or repair operations is suggested to proceed as follows:

- Before starting any operation place a sign “machine under maintenance” in a well visible position & put on a pair of safety glasses
- Do not use solvents or flammable materials
- Do not step on the machine parts, because they have not been projected to sustain the weight of persons.
- Disconnect the power supply from the electric system
- Once all the operations are finished, restore and properly replace the protections and/or the shields removed or opened

7.4 CLEANING

The machine structure is simple and robust therefore the mechanical parts do not require any special maintenance.

It is advisable to follow the rules listed below:

- Regularly remove glue or other residues from the V-nail head and from the upper part of the driver blade;
- always keep the V-nail magazine clean & without any residues
- remove any residues from the V-nails guide “L” shaped support.

Do not use water to clean the machine, otherwise metallic parts may rust.



Before performing any cleaning intervention, the operator must disconnect the pneumatic & electric system.s.

7.5 LUBRICATION



If you use glue while assembling parts, we suggest you lubricate the driver blade daily.

Use CASTROL MAGNA GC 32 or equivalent oil in the lubricator, which is located on the floor stand

Furthermore, we recommend you lubricate the driver blade every 200 working hours.

ATTENTION: Unsuitable lubricants may cause valve seal problems (seals may become too large) and consequent Valve jamming.

7.6 ORDINARY MAINTENANCE

The following operations must be executed at the times indicated below. Not observing the following instructions exonerate the Producer from any responsibility regarding the warranty.

The operations described below, even if simple, must be executed by qualified personnel.

The scheduled ordinary maintenance includes overhauls, checks and interventions that, to prevent stops and breakdowns, keep your machine working properly:

- Lubrication state of the machine
- Wear and tear parts state

Tab. 7.6

Maintenance	Description	Machine state
V-nail driver blade	Replacement every 1.000.000 V-nails shot	Isolation for maintenance
Movable parts lubrication	Lubricate the driver blade every 200 working hours	Isolation for maintenance
V-nails claw heads	Replacement every 5.000.000 V-nails shot	Isolation for maintenance
“L” shaped supports (V-nails guide)	Replacement every 5.000.000 V-nails shot	Isolation for maintenance

7.7 EXTRAORDINARY MAINTENANCE

We have listed below the operations that need the intervention of your local distributor or ALFAMACCHINE's Technical Assistance (see the paragraph 1.2) you can also use persons who are qualified by ALFAMACCHINE

The extraordinary maintenance includes interventions to be effected in exceptional cases:

- Breakage
- Revisions

TAB. 7.7

MAINTENANCE	DESCRIPTION	MACHINE STATE
Valves and Reducers	Suggested replacement every 6/8 million of V-nails shot	Isolation for maintenance
Frontal and vertical clamping gaskets	Replacement in case of leak of air	Isolation for maintenance

8. DIAGNOSTIC

8.1 SAFETY WARNINGS

The interventions must be performed by personnel properly trained and must take all precautions in order to avoid accidental starts.

8.2 TROUBLESHOOTING

Functional inconveniences (causes-remedies)

8.2.a Pressing the foot pedal the v-nails ejection is not regular

Possible cause	Remedy
Insufficient working pressure	<ul style="list-style-type: none"> The minimum value should be higher than 1 Bar
v-nails wrongly positioned into the magazine	<ul style="list-style-type: none"> The sharpened side (glued side) must be face up The V vertex of nails must face the machine's rear side
Insufficient pushing of the V-nail feed cylinder	<ul style="list-style-type: none"> The regulator pressure must be at least 2 bars. If necessary increase it by 10%.
Claw head not suitable with V-nails height	<ul style="list-style-type: none"> the number engraved on the claw head must correspond to V-nails height
Defective V-nails	<ul style="list-style-type: none"> Replace the V-nails Use shorter V-nail strips

8.2.b Pressing the foot pedal the machine does not work

Possible cause	Remedy
Insufficient working pressure	<ul style="list-style-type: none"> The air pressure coming out from the compressor must be at least 3 Bars
Opened V-nails magazine	<ul style="list-style-type: none"> Close the magazine by flipping the special valve

8.2.c Pressing the foot pedal several times, the machine's cycle which was correct becomes irregular

Possible cause	Remedy
Jammed valves because of condense or oil surplus	<ul style="list-style-type: none"> Eliminate the condensation or oil surplus by disconnecting the control pipes one by one to make the air force out the water or oil
Defective valves	<ul style="list-style-type: none"> Replace the control valves Replace the foot pedal valves

8.2.d Pressing the foot pedal the machine works properly, but when the pedal is released there is a delay in the vertical cylinders and/or driver blade

Possible cause	Remedy
Defective or jammed valves	<ul style="list-style-type: none"> Eliminate the condensation or oil surplus by disconnecting the air lines one by one to
force out the water or oil	<ul style="list-style-type: none"> Replace the control valve Replace the foot pedal valves

8.2.e The machine works regularly, after a few moments, it stops

Possible cause	Remedy
The foot pedal or the positioning valves are stalled	<ul style="list-style-type: none"> Disconnect or replace the foot pedal or the positioning valve of X-Z for Minigraf 4E-2P or X-Y-Z for 3P version (before the possible replacement, ascertain if this inconvenience is dependent upon manual commands by activating the foot pedal and the lever valves for several times: so the valves go back to work normally.

8.2.f Pressing the electric foot pedal, the machine does not work

Possible cause	Remedy
There is no air in the feeding system	<ul style="list-style-type: none"> •Check that the compressor is working and the taps are opened •Check that the regulator indicates more than 4 Bars There is no Voltage •Check that the electric switches are turned on and/or the machine is connected to electricity

8.2.g The electronic part does not work

Possible cause	Remedy
Machine disconnected from the electric supply or one or more interrupted fuses	<ul style="list-style-type: none"> •Connect the machine to the electric supply •Unscrew the panel located on the rear side of the floor <p>stand: verify by using a tester the fuses continuity and replace it if necessary with:</p> <ol style="list-style-type: none"> 1. Possible fuse on 80 VA (p 0-110 V-220V/ s 0-20 V) transformer; delayed 1A fuse (mod. 5x20 glass) 1. Network filter board M003/x: delayed 4A fuse (mod. 5x20 glass) 2. Board M006/x....F1 delayed 3.15A fuse fast (mod. 5x20 glass)
Wrong voltage	•connect the machine to a 120 V socket.
If the above listed conditions are correct and the failure still exists	•call for ALFAMACCHINE's Assistance service

8.2.h Wishing to insert several V-nails one upon the other in the same point, they do not stack properly or tilt during their insertion

Possible cause	Remedy
Wrong V-nails	•replace the V-nails with the proper ones
Wrong frames clamping (the frame moves during the insertion of V-nails)	<ul style="list-style-type: none"> •verify and if necessary adjust the vertical and frontal clamps position •increase the pressure by using the regulator

8.2.i Visualized signals list

Message	Situation
Overtime Position	<ul style="list-style-type: none"> •no air present in the system •too low of a input air pressure •the X position can not be reached because of an obstacle in the stroke of the driver assembly •x stop wrongly positioned •X or Y stops wrongly positioned (see chapter C1)
Incomplete Sequence for Holding Pedal	•Pressed or damaged electric foot pedal

8.3 REQUEST OF ASSISTANCE

For any information regarding Use, Maintenance, Installation, etc.. we remain at your disposal. The Customer has to formulate clearly their questions & send us by fax a detailed description of the troubles met. For eventual explanations we suggest you use this handbook and the instructions listed in the paragraph 1.2. as a reference.

E_Mail: info@alfamacchine.com
FAX: +39-0543-480770
via Dell'Artigiano, 12 - 47100 Forlì - Italy

9. SPARE PARTS

9.1 SPARE PARTS LIST

Even though the machine has been submitted to several tests and functional checks, we list below the components that we suggest you have a minimum and sufficient set of to guarantee the shortest possible downtime.

TABLE 9.1 - A

COMPONENT
<ul style="list-style-type: none">• V-NAILS DRIVER BLADE• V-NAILS CLAW HEADS "L"• SHAPED SUPPORT (V-NAILS GUIDE)• VALVES-REDUCERS-REGULATORS• VERTICAL AND HORIZONTAL CLAMPING GASKETS

9.2 SPARE PARTS ORDERING

We remind you that only a qualified technician can repair the machine.

Thus, we suggest the intervention of your local distributor or ALFAMACCHINE's Center of Technical Assistance. They have the qualified staff, proper equipment and tools, and use original spare parts.

To order the above listed spare parts, send by fax or letter the following data:

- Model of the Machine
- Code of mechanical drawing
- Reference number of spare part or group indicated on the mechanical drawing
- Code number of single or group of spare parts

10. DEMOLITION

10.1 DEMOLITION

At the act of demolition it is necessary to separate the parts in plastic material from electric components, sometimes they must be sent to different places concerning the current Norms.

Concerning the machine metallic mass, it is enough to subdivide the steel parts and those of other metals or alloys, for a proper recycling by smelting.

11. ATTACHMENTS

11.1 DECLARATIONS

You can find here attached the following declarations:

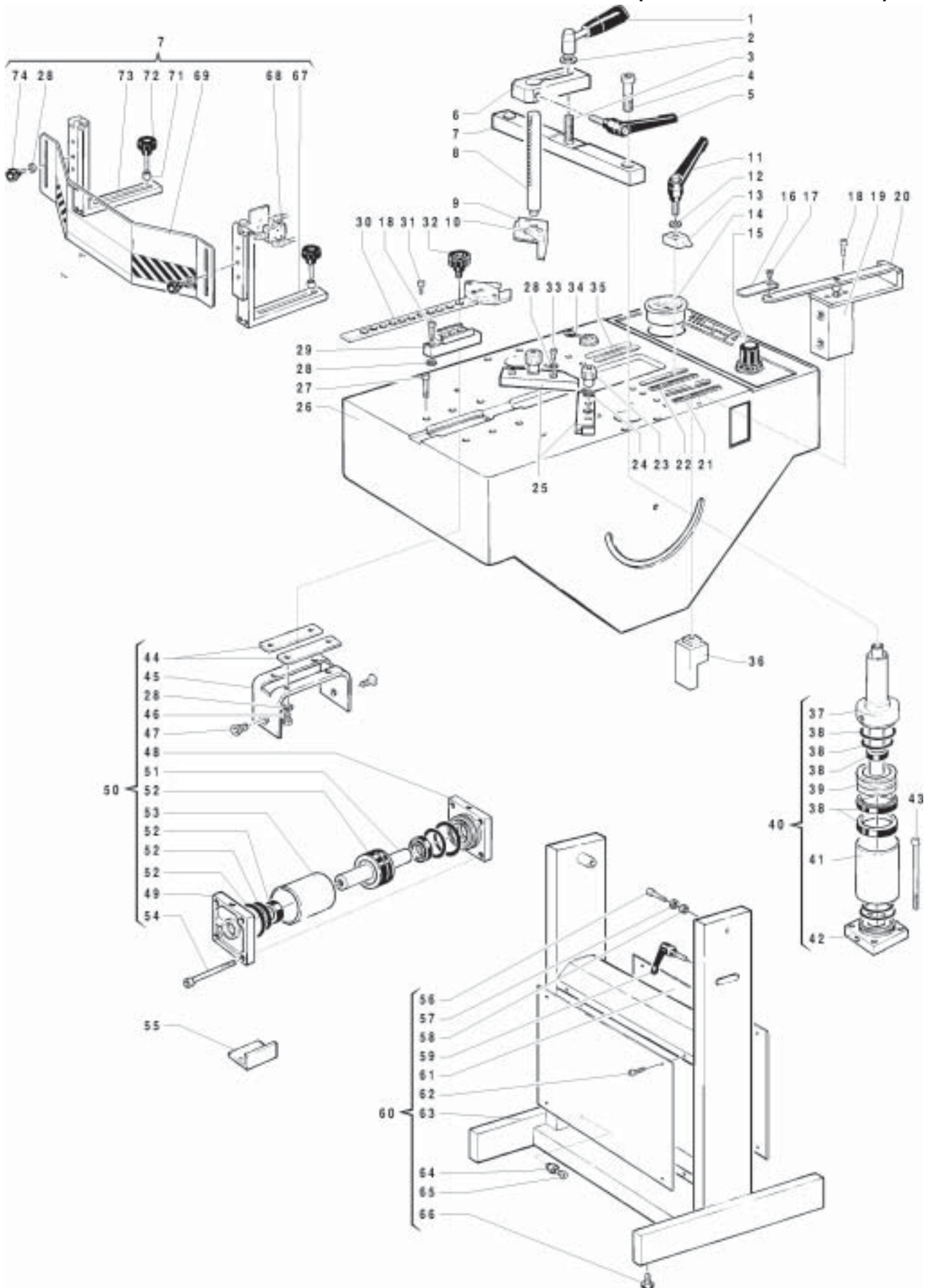
- Declaration of conformity to the Norm 89/392/CEE
- Declaration of conformity to the Norm 89/336/CEE

11.2 SCHEMES

You can find here attached the following schemes:

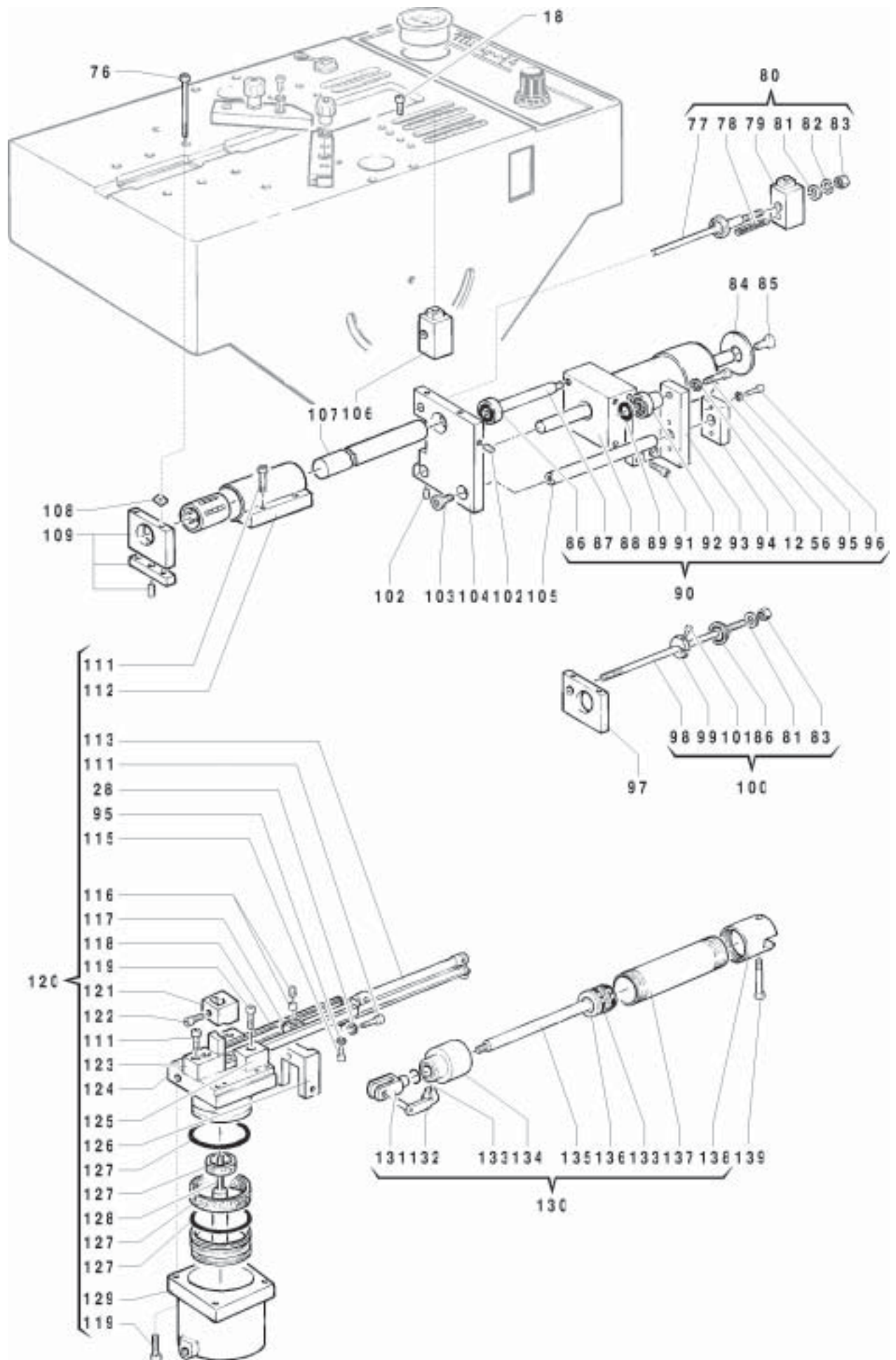
- (A) Mechanic Schemes
- (B) Pneumatic Scheme
- (C) Plates location
- (D) Sharpening Table
- (E) Electric Scheme

ATTACHMENT A - MECHANIC SCHEMES MINIGRAF 4E 3P (cod: DWG n° 004.3.130)



Ref. Description

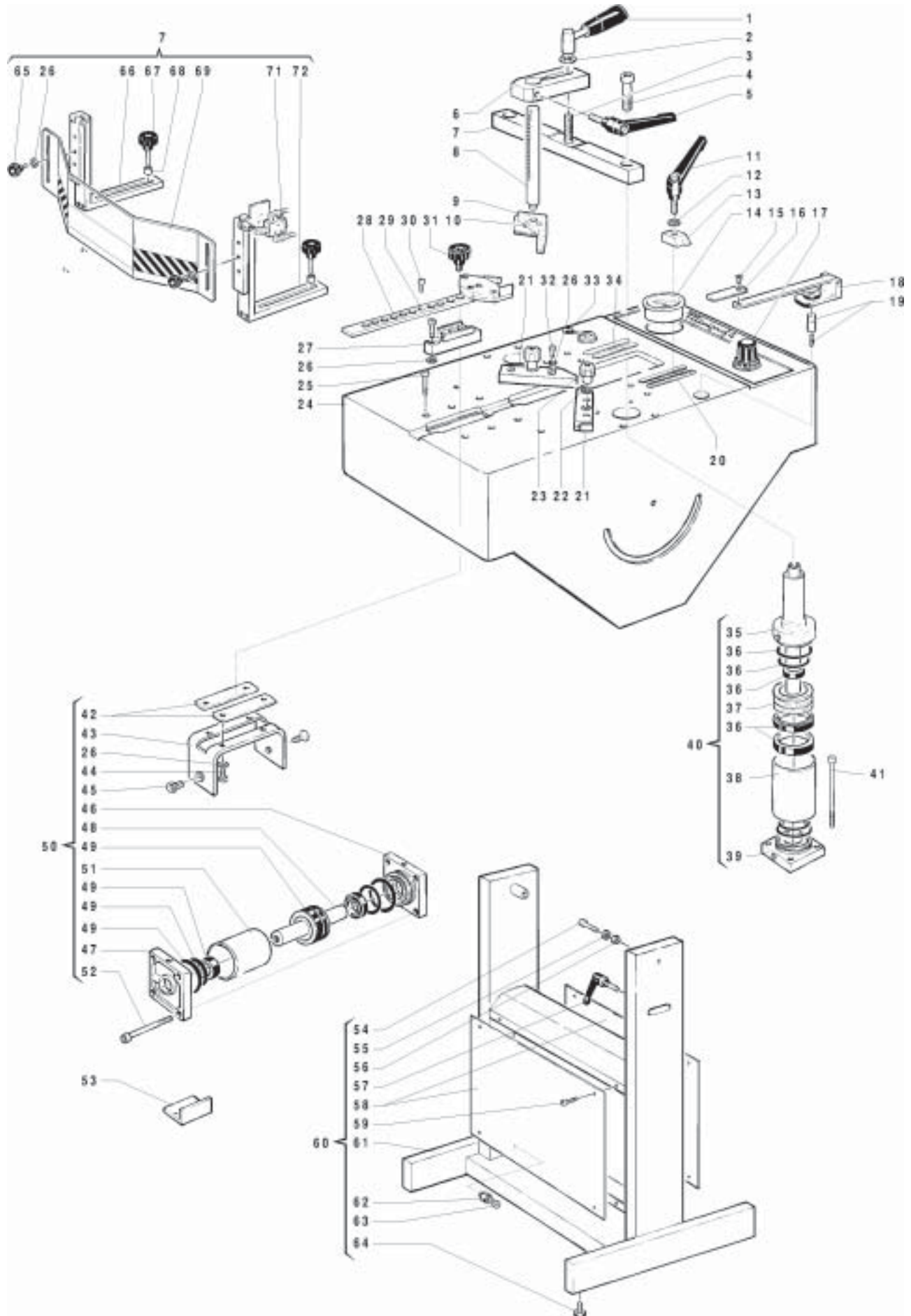
1	Handle	59	Headless screw
2	Washer	59	Handle
3	Headless screw	60	Complete frame
4	Screw	61	Plate
5	Handle	62	Screw
6	Support	63	Base
7	Support	64	Extension
8	Rod	65	Plug
9	Pressure plate	66	Foot
10	Screw	67	Support
11	Handle	68	Valve
12	Washer	69	Protection
13	Index	70	Protection unit
14	Pressure gauge	71	Spacer
15	Pressure regulator	72	Knob
16	Extension	73	Support
17	Screw		
18	Screw		
19	Valve		
20	Lever		
21	Inch rule "Z" axis		
22	Inch rule "Y" axis		
23	Knob		
24	Washer		
25	Complete connecting plate		
26	Main frame		
27	Screw		
28	Washer		
29	Support		
30	Blocking clamp		
31	Screw		
32	Knob		
33	Screw		
34	Lever-valve		
35	Inch rule "X" axis		
36	Block		
37	Head		
38	Gasket kit		
39	Piston		
40	Complete cylinder		
41	Cylinder		
42	Bottom		
43	Screw		
44	Slide		
45	Support		
46	Screw		
47	Screw		
48	Head		
49	Head		
50	Complete cylinder		
51	Piston		
52	Gasket kit		
53	Cylinder		
54	Screw		
55	Bracket		
56	Screw		
57	Washer		
58	Washer		



Ref. Description

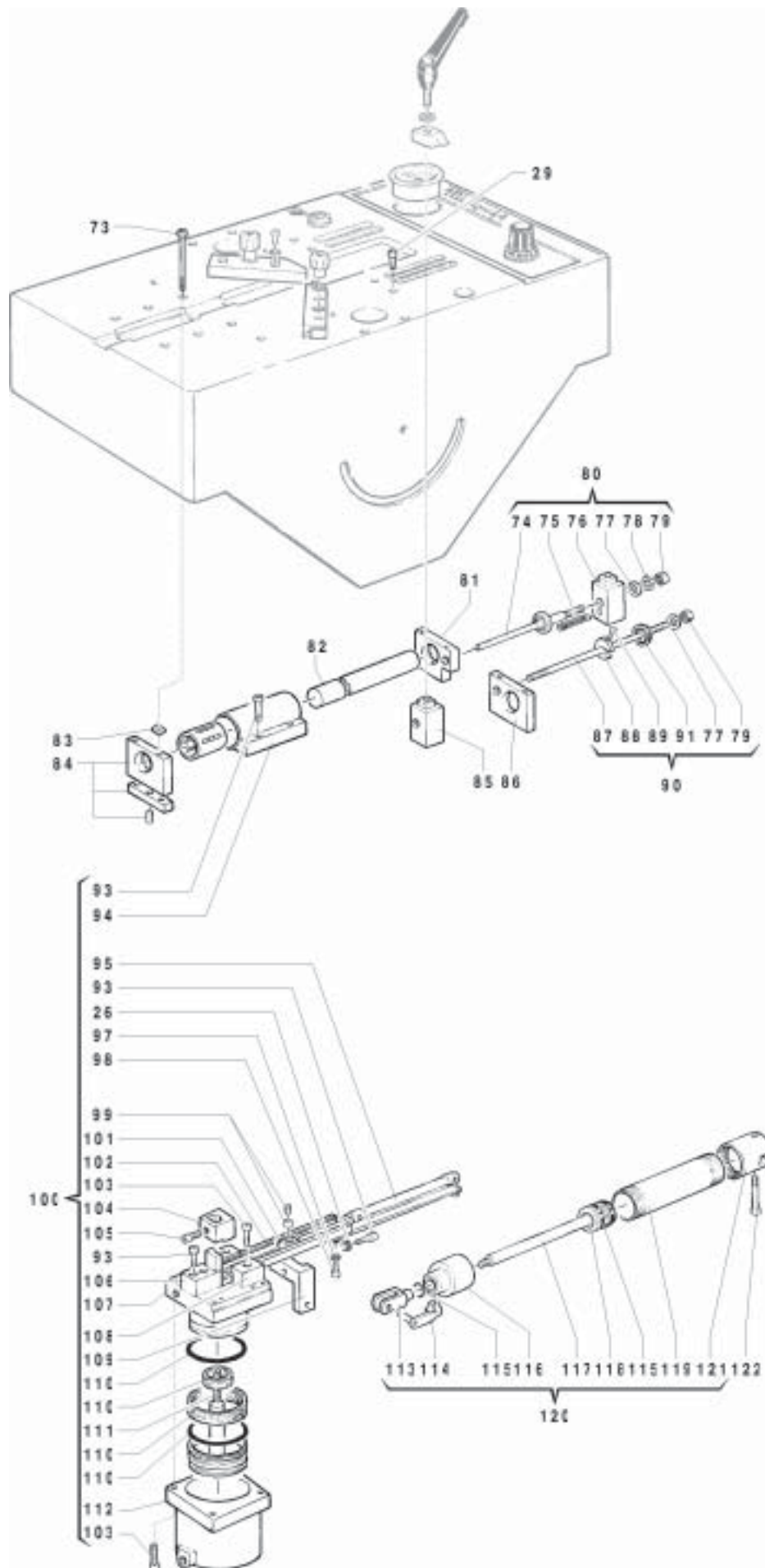
74	Knob	129	Cylinder
76	Screw	130	Complete cylinder
77	Bushing	131	Head
77	Bushing	132	Pin with clip
77	Stud	133	Gasket kit
78	Spring	134	Head
79	Block	135	Rod
80	Complete limit stop	136	Piston
81	Washer	137	Cylinder
82	Grower	138	Bottom
83	Nut	139	Screw
84	Washer	140	Complete hydraulic blocking
85	Screw	141	Hose
86	Bushing	142	Raccord
87	Rod	143	Screw
88	Head	144	Complete cylinder
89	Gasket	145	Handle
90	Complete cylinder 3° position	146	Handle
91	Screw	147	Plate
92	Bushing	148	Support
93	Support	149	Slide
94	Spacer	150	Headless screw
95	Washer	151	Screw
96	Rod	152	Extension
97	Support	153	Washer
98	Stud	154	Extension
99	Spacer		
100	Complete limit stop		
101	Screw		
102	Headless screw		
103	Screw		
104	Support		
105	Rod		
106	Block		
107	Slide		
108	Spacer		
109	Support		
109	Support		
109	Headless screw		
111	Screw		
112	Support		
113	Complete cylinder		
115	Screw		
116	Complete pin		
117	Staples pusher		
118	Staples box		
119	Screw		
120	Complete head		
121	Head H7		
121	Head H10		
121	Head H15		
122	Screw		
123	Block "L"		
124	Head		
125	Block		
126	Support		
127	Gasket kit		
128	Piston and driver blade		

ATTACHMENT A1-MECHANIC SCHEME MINIGRAF 4E 2P (cod: DWG n°004.2.130)



Ref. Description

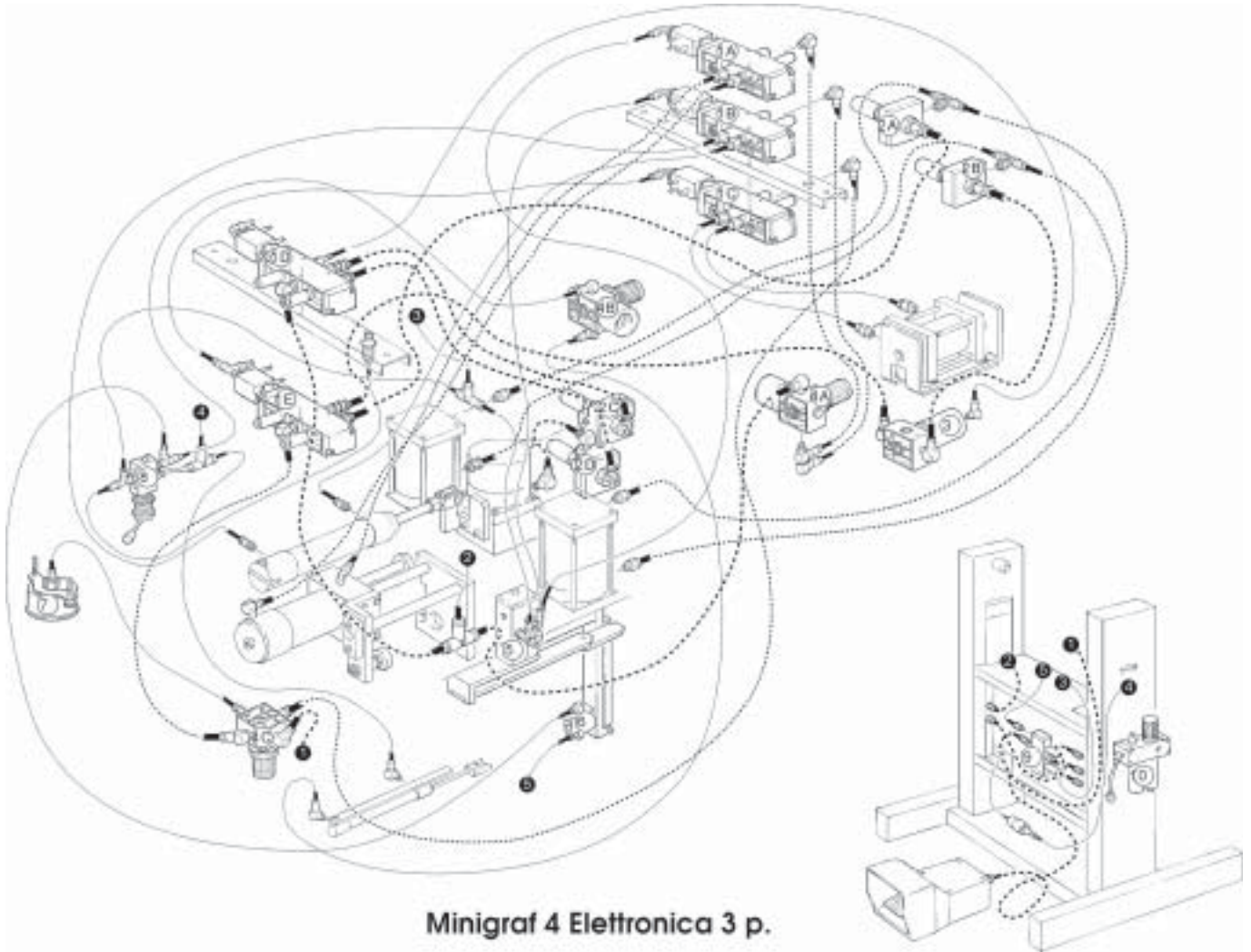
1	Handle	58	Plate
2	Washer	59	Screw
3	Headless screw	60	Complete frame
4	Screw	61	Base
5	Handle	62	Extension
6	Support	63	Plug
7	Support	64	Foot
8	Rod	65	Knob
9	Pressure plate	66	Support
10	Screw	67	Knob
11	Handle	68	Spacer
12	Washer	69	Protection
13	Index	70	Protection unit
14	Pressure gauge	71	Valve
15	Screw	72	Support
16	Extension		
17	Pressure regulator		
18	Lever		
19	STG valve pushbutton		
20	Right inch rule		
21	Complete connecting plate		
22	Washer		
23	Knob		
24	Main frame		
25	Screw		
26	Washer		
27	Support		
28	Blocking clamp		
29	Screw		
30	Screw		
31	Knob		
32	Screw		
33	Lever-valve		
34	Left inch rule		
35	Head		
36	Gasket kit		
37	Piston		
38	Cylinder		
39	Bottom		
40	Complete cylinder		
41	Screw		
42	Slide		
43	Support		
44	Screw		
45	Screw		
46	Head		
47	Head		
48	Piston		
49	Gasket kit		
50	Complete cylinder		
51	Cylinder		
52	Screw		
53	Bracket		
54	Screw		
55	Washer		
56	Washer		
57	Headless screw		
57	Handle		



Minigraf 4 Electronic

Ref.	Descrizione	Ref.	Descrizione
73	Screw	127	Handle
74	Bushing	128	Handle
74	Bushing	129	Plate
74	Stud	130	Complete hydraulic blocking
75	Spring	131	Support
76	Block	132	Slide
77	Washer	133	Headless screw
78	Grower	134	Screw
79	Nut	135	Extension
80	Complete limit stop	136	Washer
81	Support	137	Extension
82	Slide		
83	Spacer		
84	Support		
84	Support		
84	Headless screw		
85	Block		
86	Support		
87	Stud		
88	Spacer		
89	Screw		
90	Complete limit stop		
91	Limit stop		
93	Screw		
94	Support		
95	Complete cylinder		
97	Washer		
98	Screw		
99	Complete pin		
100	Complete head		
101	Stapples pusher		
102	Staples box		
103	Screw		
104	Head H7		
104	Head H10		
104	Head H15		
105	Screw		
106	L block		
107	Head		
108	Block		
109	Bracket		
110	Gasket kit		
111	Piston and driver blade		
112	Cylinder		
113	Head		
114	Pin with clip		
115	Gasket		
116	Head		
117	Rod		
118	Piston		
119	Cylinder		
120	Complete cylinder		
121	Bottom		
122	Screw		
123	Hose		
124	Raccord		
125	Screw		
126	Complete cylinder		

ATTACHMENT B - PNEUMATIC SCHEME MINIGRAF 4E - 3 POSITON

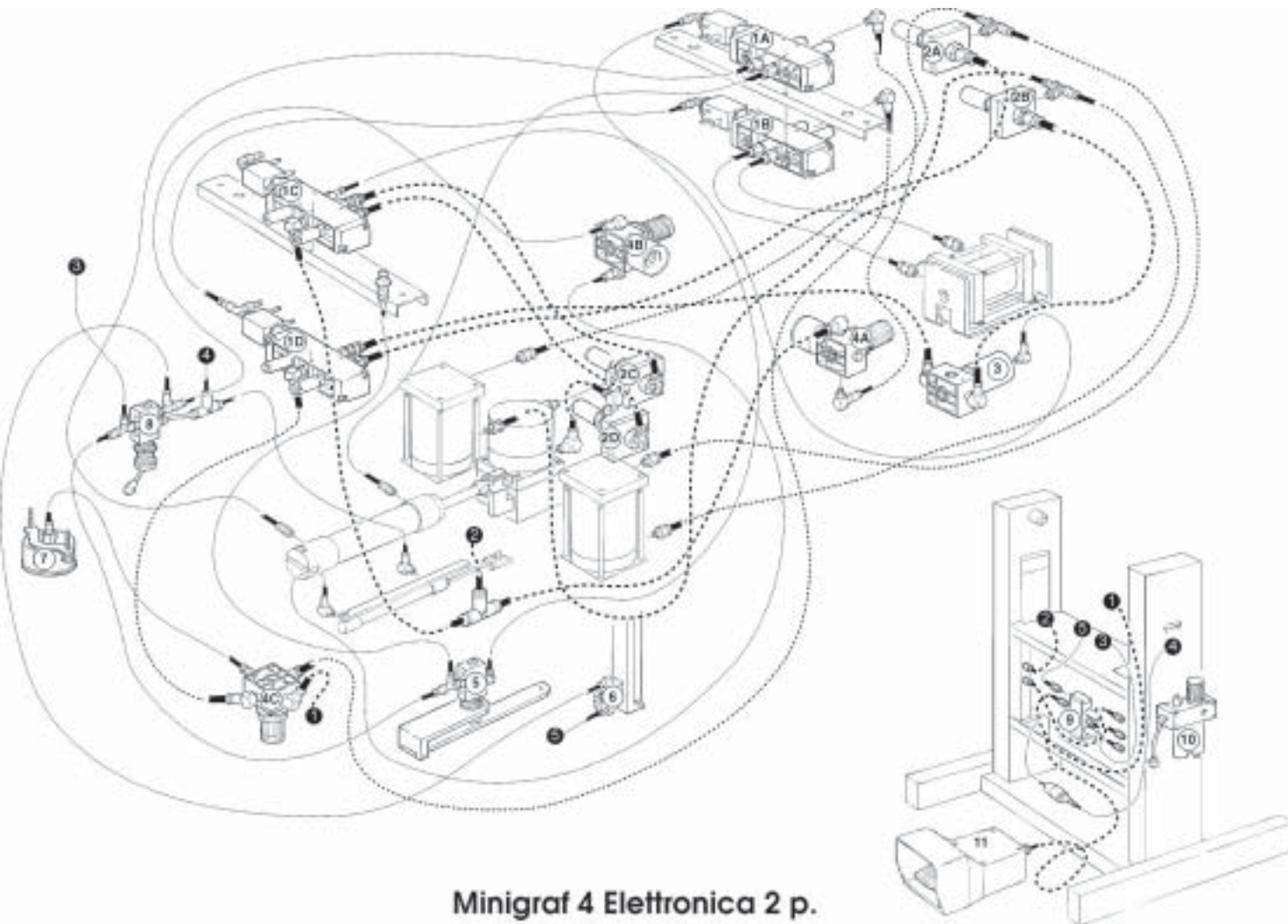


Minigraf 4 Elettronica 3 p.

Ref. Description

- | | |
|--------------------------|------------------------|
| 1A Valve 0ALF 103 | 4A Pressure Regulator |
| 1B Valve 0ALF 103 | 4B Pressure Regulator |
| 1C Valve 0ALF 103 | 4C Pressure Regulator |
| 1D Valve L12BA452BG00061 | 5 Valve 0ALF 104 |
| 1E Valve L12BA452BG00061 | 6 Microvalve |
| 2A Exhaust Valve | 7 Pressure Gauge |
| 2B Exhaust Valve | 8 Lever-Valve |
| 2C Exhaust Valve | 9 Valve |
| 2D Exhaust Valve | 10 Filter Lubrificator |
| 3 Soft Clamp (BIT 02) | 11 Foot pedal |

ATTACHMENT B1 - PNEUMATIC SCHEME MINIGRAF 4E - 2 POSITION



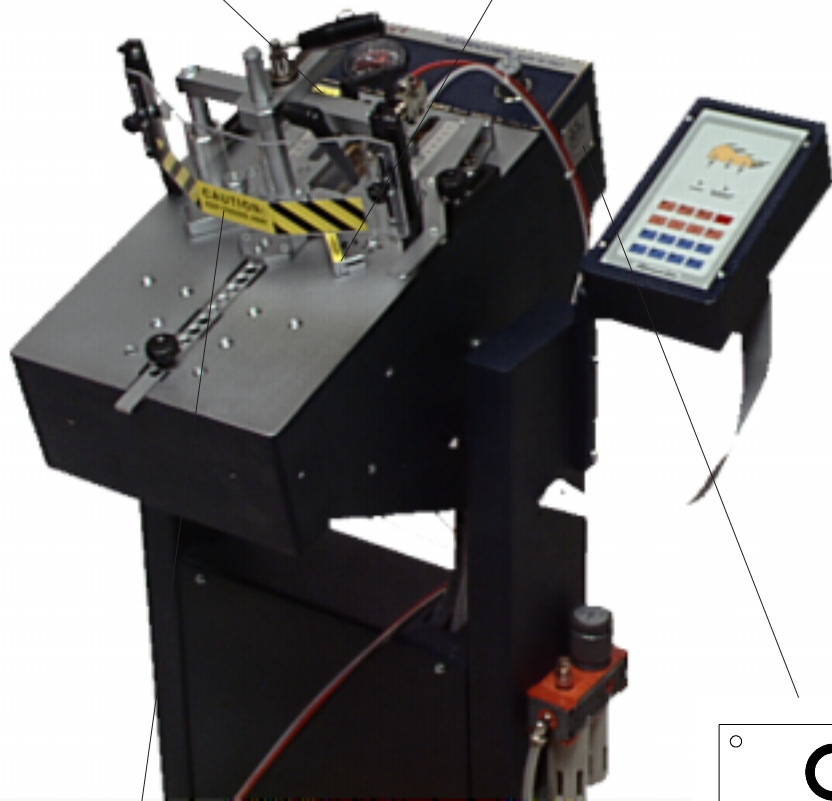
Ref. Description

1A	Valve 0ALF 103	4A	Pressure Regulator
1B	Valve 0ALF 103	4B	Pressure Regulator
1C	Valve L12BA452BG00061	4C	Pressure Regulator
1D	Valve L12BA452BG00061	5	Valve 0ALF 101
2A	Exhaust Valve	6	Microvalve
2B	Exhaust Valve	7	Pressure Gauge
2C	Exhaust Valve	8	Lever-Valve
2D	Exhaust Valve	9	Valve
3	Soft Clamp (BIT 02)	10	Filter Lubrificator
		11	Foot pedal

ATTACHMENT C - PLATES LOCATION Minigraf 4E FIXED PROGRAMS

CAUTION!
FOR YOUR SECURITY
DISCONNECT THE AIR
SUPPLY BEFORE REPLACING
THE V-NAIL CLAW HEAD OR
ANY MAINTENANCE OPERATION

CAUTION: KEEP THE FINGERS AWAY



○ **CE** ○
Alfamacchine
Via dell'Artigiano , 12 Forlì ITALY
Tipo Minigraf 4 Elettronica
Anno di costruzione 1998
Matricola 31245
Peso 100 Kg.
Alimentazione pneumatica 6-8 BAR
○ ○

CAUTION:
KEEP FINGERS AWAY

ATTACHMENT C - PLATES LOCATION Minigraf 4E - 2 OR 3 POSITION

CAUTION!
FOR YOUR SECURITY
DISCONNECT THE AIR
SUPPLY BEFORE REPLACING
THE V-NAIL CLAW HEAD OR
ANY MAINTENANCE OPERATION

CAUTION: KEEP THE FINGERS AWAY



○ **CE** ○
Alfamacchine
Via dell'Artigiano, 12 Forlì ITALY
Tipo Minigraf 4 Elettronica
Anno di costruzione 1998
Matricola 31245
Peso 100 Kg.
Alimentazione pneumatica 6-8 BAR
○ ○

CAUTION:
KEEP FINGERS AWAY

ATTACHMENT D - SHARPENING TABLE

	SOFT WOOD			HARD WOOD		
	A	B	C	D	E	F
<i>Height mm</i>	Very soft wood	Soft wood	Averaged soft wood	Averaged hard wood	Hard wood	Very hard wood
H 3* mm	◇	◇	◇	MW	MW	MW
H 5* mm	MW	MW	MW	MW	MW	MW
H 7 mm	SW	SW	MW	MW	HW	HW
H 10 mm	SW	SW	MW	MW	HW	HW
H 12 mm	SW	SW	MW	HW	HW	HW
H 15 mm	SW	SW	MW	HW	HW	HW

* V-nails available only on customer's request for order higher than 500.000 pcs.

SW Suitable for soft wood such as: Thailand and Asian South-East wood, Cedar, Pine, Bass, Banak, Obeche, Poplar
Other materials: Cellular, Polystyrene, Vertical Grain MDF

MW Suitable for soft wood such as: Thailand and Asian South-East wood, Cedar, Pine, Bass, Banak, Obeche, Poplar
Other materials: Vertical Grain MDF

MW Suitable for wood such as: Cedar, Cherry, Oak, Ramin, Poplar, Maple, Pine
Other materials: Vertical grain MDF, Polystyrene, PVC

HW Suitable for soft wood such as: Oak, Ash, Hickory, Pecan, Maple, Cherry, Ramin
Other materials: Horizontal grain MDF

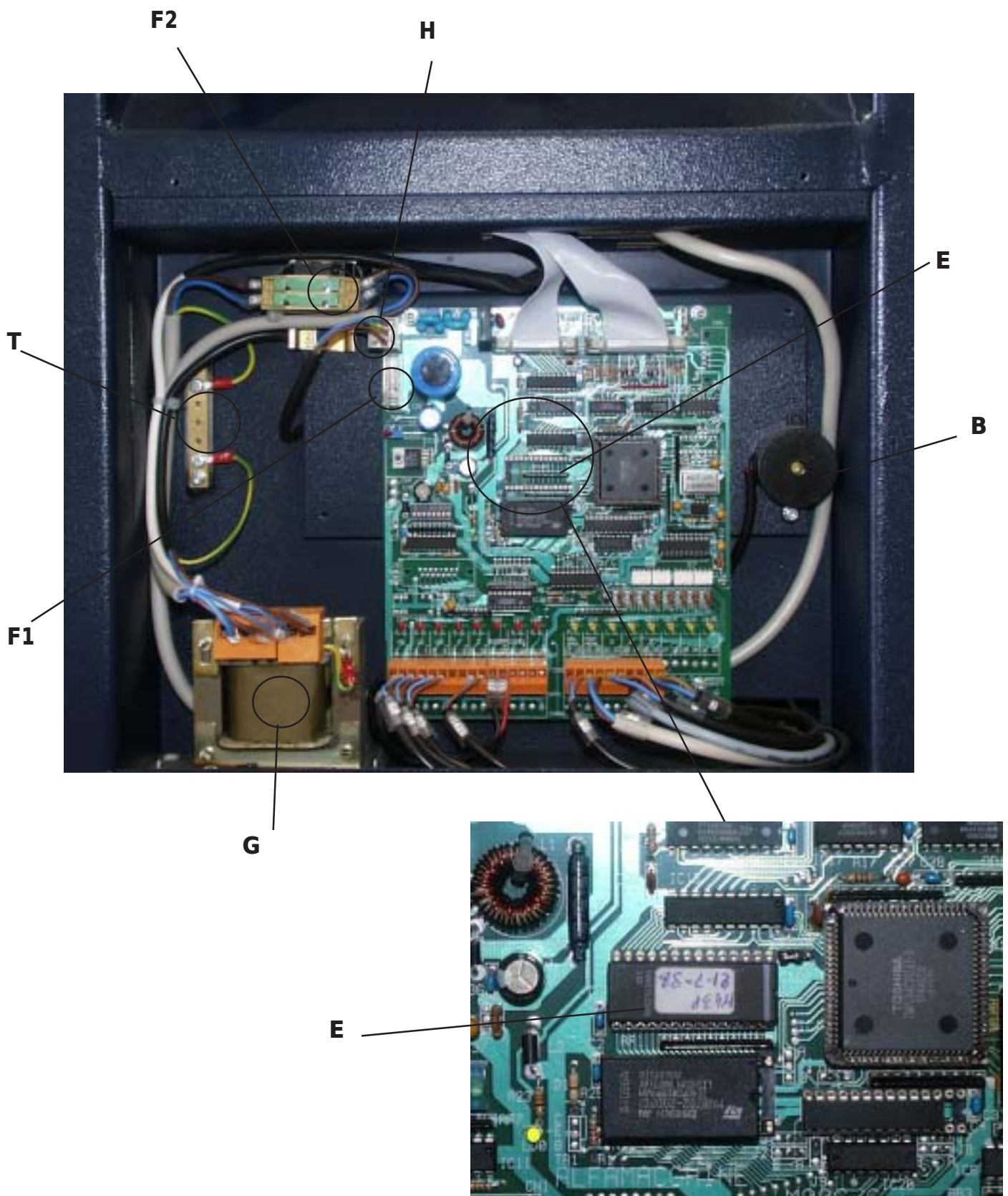


In order to stack 2 or more V-nails per junction, use V-nails coded **MW,HW**

ATTACHMENT F - CHARACTERISTICS OF THE FLOORSTANDS INNER ELECTRIC BOARD



- 1: Solenoid valves output 10 poles connector
- 2: Buzzer output 6 poles connector
- 3: 10 poles connector input limit switch and footpedal
- A: 26 poles cable of connection to the keypad
- B: 20 poles cable of connection to the display



- F2: 2 delayed fuses 1A (type 5x20 glass)
- F1: 1 fast fuse 3,15 A rapido (type 5x20 glass)
- H: power supply connector 20V ac 3 poles
- G: 80 W trasormer
- T: common point for ground connections
- E: Eprom
- B: buzzer