U200 Manual Underpinner

Operating Manual – Revision H

Formerly Model – VNA2M200

AMP A Fletcher Company

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1. GENERAL INFORMATION

1.1. PRODUCER

The firm Alfamacchine can boast more than 20 years of experience in the manufacturing of woodworking machines. It has acquired technological know-how developed during years of research in strict compliance with manufacturing departments and the international community. We offer the best warranty that anyone can grant its customers.

TEL 800-843-3826	**Fax 800-329-3826**

1.2. SERVICE CENTERS

AMP is the authorized representative for Alfamacchine in North, Central & South America. Contact us directly to find your nearest distributor. For every need regarding Use, Maintenance or Request of Spare Parts, the Customer is asked to contact AMP's distributors or directly to AMP, specifying the machine's 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. Please note: CE certification is only for machines shipped into European countries. For all other countries, CE certification is an option at the time of the initial order.

1.4 WARRANTY

Alfamacchine's products are built to have a long life and are tested one by one prior to shipping.
If, in spite of this, any damages or malfunctioning should occur, the replacement of defective parts is warranted (starting from the date written on the delivery bill) for a period of:

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

The driver blade is tested for about 1.000.000 working cycles. The Warranty does not include the sending of technical staff. The repair interventions will be performed at your local distributor or AMP's plants and the freight of the shipment will be entirely charged to the customer.

Warranty does not cover the damages caused by the inappropriate use of the machine or not corresponding to the instructions described in this handbook. The warranty is voided in case of unauthorized modifications, accidental damages or tampering performed by unqualified personnel. The warranty is also voided if you use V-nails that are not manufactured by AMP.

1.5 PRE-INSTALLATION REQUIREMENTS

It is the customer's responsibility to execute what is described in the following documentation:
Things normally charged to the customer are:

- Premises predisposition, included building works;
- Pneumatic supplying of compressed air (see the paragraph 4.5)

1.6 STRUCTURE OF MANUAL

The customer must pay extreme attention to the instructions written in this manual, because the proper installation and use of the machine constitutes the basis of a correct customer distributor relationship.

1.6.1 Object and Contents

The purpose of this handbook is to provide to the customer all the necessary information to use the machine as safely as possible. The manual contains information regarding the technical aspects of the machine, machine operating and idle time, maintenance, spare parts and safety. Before performing any operation on the machine, the qualified technicians and operators and qualified technicians must carefully read this manual. In case there is any doubt about any interpretation, please contact your local distributor or AMP.

1.6.2 Users

This manual is made for both the operators of the machine as well as the technicians authorized to perform maintenance on the machine. The operators cannot perform any maintenance, which is reserved only to qualified technicians. The manufacturer does not answer to damages caused by not observing the prohibitions listed above.

1.6.3 Preservation

The operating manual must be kept very close to the machine in a special container protecting it from liquids and whatever could compromise its legibility.

1.6.4 Symbols utilized

 P...	DANGER	It indicates a danger with a mortal risk for the operator
 A...	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.
 O...	OBSERVATION	It is requested to take a measurement data, to check a signal,....
 I...	INQUIRY	The user is requested to check the proper positioning of any element of the machine, before operating a certain command
 C...	EXAMINATION	It's necessary to consult the handbook before performing a certain operation
 R...	ADJUSTMENT	In case of strange sitituation and/or anomalies you can be requested to perform a certain mechanical adjustment

1.7 Notes, Cautions & Warnings

Throughout this manual, small symbols are inserted. These images are there to draw the reader's attention to specific areas. Below are examples of those images and what those images mean.

2. MACHINE DESCRIPTION

2.1 WORKING PRINCIPLE

The frame assembling machine U-200 Manual Underpinner has been realized to assemble any kind of frame. The U-200 being of simple construction and extremely easy to use, makes it possible to join with absolute precision any kind of moulding by means of special steel V-nails.
It uses V-nails with the "pulling power' effect in different sizes.

2.2 MAIN COMPONENTS

The main components constituting the machine are:

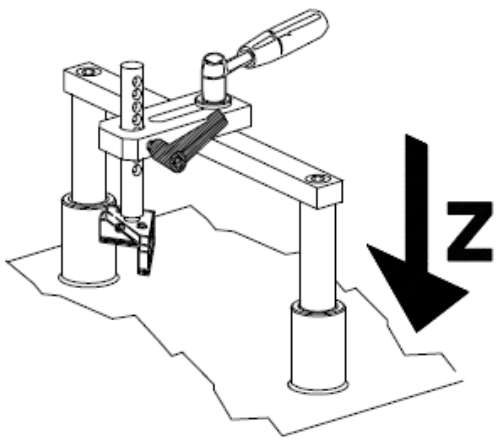
- Mechanical operating foot pedal
- Nail heads sizes 7, 10 and 15 mm.

2.3 MACHINE STRUCTURE

The movement directions during the machine's working are the following:

Z AXIS
Movement of vertical clamp

Figure 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 permitted temperatures go from 41˚ to 104˚ F, with a humidity level not higher than 50% at 104˚ F for 90% at 68˚F.

2.6 LIGHTING

Premises lighting must be conformed to the norms in force in the Country where the machine is installed and has to guarantee a clear visibility and cannot 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 Instantaneous weighed pression <130dB

The noise levels of indicated are emission levels and are not representative of operating levels. In spite of an existing relationship between emission levels and exposure ones, this cannot be used in a reliable way to define if further precautions are necessary. The factors determining the exposure level to which the working force is subjected, include exposure length, working premises characteristics and other noise sources (number of machines, closed building, etc…). Furthermore, 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 they are submitted to.

☞	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 tested on the same machine.

2.9 TECHNICAL DATA

The technical data of the machine is listed below. You can use this for reference for any future need of technical assistance.

TABLE 2.9.1 Technical Data

• Frame thickness	min-max	.24”- 3.15”
• Frame width	min-max	.24”- 3.15”
• V-nails magazine capacity		N. 220
• V-nails size		7, 10, 15 mm
• V-nails size on request		3, 5, 12 mm
• Weight		approx. 110 lbs.
• Height of working bench		39.36”
• Overall dimensions		15.75” x 19.68 x 45.27”

2.10 STANDARD EQUIPMENT

The equipment listed below is standard.

2.10.1 Standard Accessories

Once you have removed the packaging, please check the presence of the following standard parts:

- N.1 Nail Head - 7 mm
- N.1 Nail Head - 10 mm
- N.1 Nail Head - 15 mm
- N.1 L-shaped Pressure Pad
- N.1 Rounding Pressure Pad
- N.1 Allen Wrench 5 mm for V-nails Head Replacement
- N.1 Brass Rod Magnet to remove V-nails

2.10.2 Upgrading and Implementing of Mechanical Parts

The machine has been designed and developed based upon modular standards; therefore the existing equipment can be upgraded with additional accessories that will not alter the basic structure. Technical upgrades on the machine, if any, will be such that they can be installed at any time without requiring any substantial modifications to the machines structure.

2.10.3 Optional Accessories

- Adjustable Tilting fences (see Fig. 1)
- Metallic Working Bench Extension
- V-nails Claw Heads sizes 3, 5 & 12 mm
- Special Fences for Octagons (see Fig. 3)
- Special Fences for Hexagons (see Fig. 2)

Figure 1

Figure 2

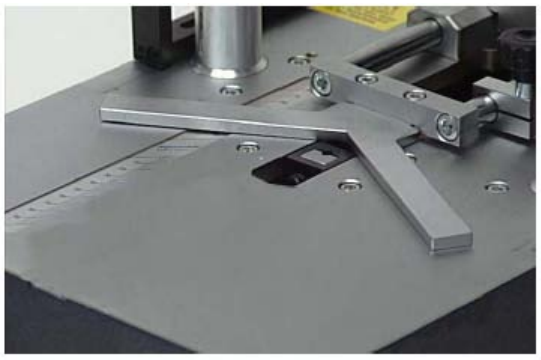


Figure 3

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 frame assembling easier: ex. special fences for peculiar moulding shapes, special clamps to ensure the mouldings are locked properly during V-nail firing, and so on. You can have your local machine shop make these for you.

3. SAFETY

3.1 GENERAL WARNINGS

The operator must read and pay the maximum attention to the information written on this manual, especially about proper precautions for safety included in this chapter. It is imperative that the operator follows the warnings list here below:

- Keep the machine and work area clean and orderly;
- Provide appropriate containers to store moulding to be used for the frame assembly;
- Use the machine only when in perfect psychological & physical condition;
- Wear adequate clothing to avoid obstacles and/or dangerous entangles to/from the machine;
- Wear the individual protection gear listed in this manual;
- Do not remove or alter the warning plates and adhesive signs;
- Keep the fingers away from the working areas/danger zones;
- Keep the foot separated from the pedal during machine regulation.

3.2 SCHEDULED USE

The Machine is designed and constructed to execute junctions of frames. The machine is projected for manual use only.

3.3 INADVISABLE USE

The machine is **not** to be used for or in:

- For uses different from those listed in 3.2 paragraph
- In explosive or aggressive atmosphere, or where there is a high concentration of dust or oily substances suspended in the air.
- In a flammable atmosphere
- Outdoors in any weather
- For working with materials not compatible with the machine's characteristics

3.4 DANGEROUS AREAS

The area of frames leaning is defined "working area" The dangerous areas of machine, include the movable parts and surrounding zones.

Figure 3.4.A – Dangerous Areas.

Dangerous areas

3.5 SAFE WORKING PROCEDURES

	The machine is projected and realized to eliminate any risk connected with its use. The user, however, is requested to receive adequate training and to be instructed by AMP's technicians.

3.6 RESIDUAL RISKS

During the normal operation or while performing maintenance on the machine, the operators or technicians are exposed to several residual risks that, because of the nature of the machine, cannot be totally eliminated. These are:

- Risk of crushing fingers due to the presence of vertical clamps.

It is necessary to carefully follow the instructions as listed below:

1. Keep your fingers away from the vertical clamp working area.
2. Keep your feet away from the pedal during machine operation.

4. INSTALLATION

4.1 SHIPPING AND HANDLING

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

- The machine has to be shipped like it is 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 110 lbs.

☞	Lifting the machine must be performed by 2 operators.

Any damage of the machine caused during its shipment or handling is not covered under warranty.
Repairs or replacement of damaged parts are charged to the customer.

4.2 STORAGE

In case you decide to store your machine, the machine must be stored carefully, especially concerning the storage place and duration:

- Store the machine indoors
- Protect the machine from damage due to jarring impacts and stressors
- Protect the machine from humidity and high temperatures
- Avoid storing the machine near corrosive materials
- Lubricate the parts that are not painted to avoid rust

4.3 PRELIMINARY ARRANGEMENTS

To install the machine, it is necessary to prepare a working area adequate to the machine's dimensions, lifting devices chosen and length of mouldings to be used.

4.4 UNPACKING

The machine is shipped on a pallet, packed into an appropriate carton and protected with foam and polyurethane parts. Remove the external packing and save it for future use. Check for any casual shipping damage and report it immediately. Shipping damages or any other defects must be reported to AMP within and not later than 3 days from receipt of the machine.

4.5 PRELIMINARY CONTROLS

There are preliminary steps that need to be taken prior to starting the machine and must be performed by a technician appointed by the customer.
Before setting up the machine, the technician must do the following to prevent mistakes or accidents during the initial set up:

- Verify that the machine has not been damaged during set up or unpacking

4.6 MACHINE ARRANGEMENT

4.6.1 V-nails Magazine Loading

- Move the claw pusher backwards by means of the special control wire located on the back side of the machine's working bench. This will give you access to the V-nail magazine (see fig. 7 & 8).
- Insert one or more V-nail strips into the magazine. Make sure 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 as indicated in Figure 8. Check to see if the V-nail size is suitable with the type of claw head mounted (see Fig. 9).
- Release the control wire to move the claw pusher forward (see Fig. 7).

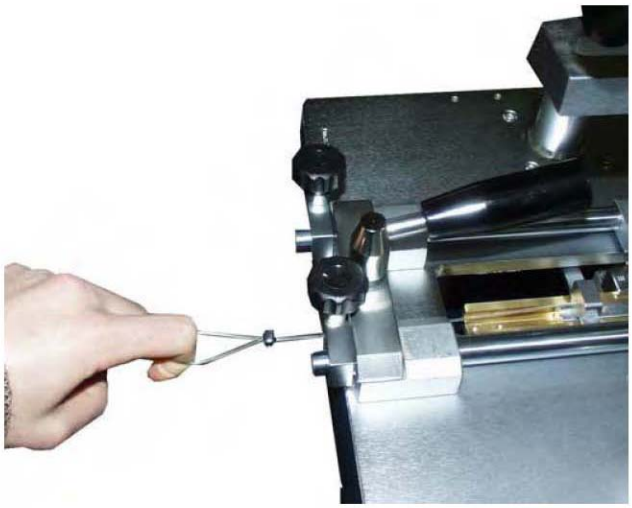


Figure 7

Figure 8

4.6.2 V-nail guide head replacement to change V-nail's 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 by using the proper 5 mm Allen wrench the screw is on the opposite side from the V-nails magazine (See Fig. 9).
- Remove the v-nail guide head.
- Move the claw pusher backwards by means of the special control wire located on the back side of the machine's working bench. This will give you access to the V-nail magazine (see Fig. 7 & 8).
- Remove all the V-nails that are still in the magazine (using the proper brass magnet, if necessary) (see Fig. 10).
- Insert the new V-nail strip of desired height into the magazine.
- Move the claw pusher forward by releasing the control wire (see Figure 8).
- Insert the new size V-nail guide head to match the V-nails to be used (see Fig. 11).
- Tighten the locking screw of the V-nail guide head (see fig.9).

Figure 9

Figure 10

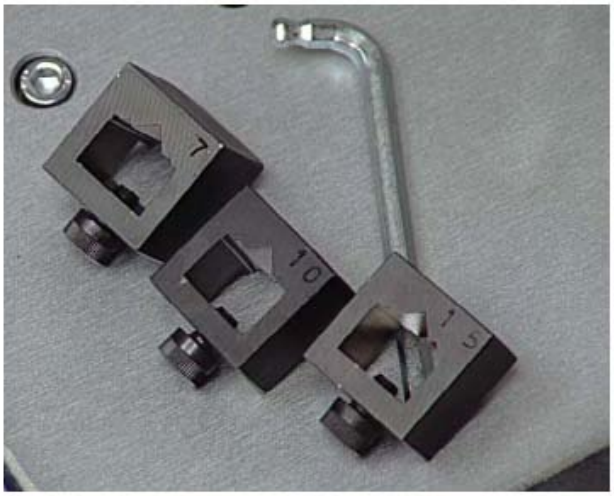


Figure 11

4.7 ADJUSTMENTS

The machine is completely tested and checked in AMP's plants before its shipment, so the operator has only to perform the following adjustments:

4.7.1 V-Nails inserting positions adjustment

To be properly positioned the mouldings to be assembled, the U-200 Manual is equipped with a 90˚ fence. The fence can be shifted forward or backward in order to allow the proper positioning of the V-nails in the frame. The fence limits (backward and forward) can be set with precision by means of locking clamps A-B (see fig. 12). The operator can easily use the machine to insert v-nails with extreme precision into 2 different positions.

Figure 12

Figure 13

4.7.2 Vertical clamp position adjustment

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

4.7.2a Vertical clamp position adjustment

- Position the mouldings to be assembled on the working bench.
- Loosen the top handle 9see fig. 140 that locks the clamp, which holds the pressure pad bar. This will permit its movement forward or backward. You will want the pressure pad directly over the v-nail inserting point.
- Tighten the handle once you have reached the proper position.

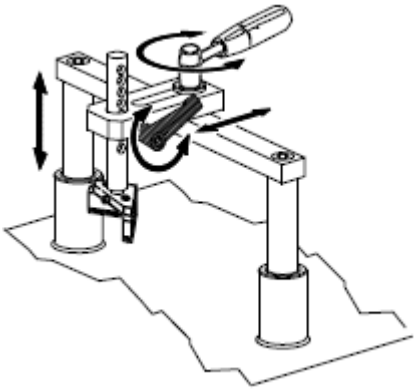


Figure 14

4.7.2b Vertical clamp height adjustment

- Loosen the side handle (see fig. 15) and adjust the pressure pad height over the frame. We recommend that you put the bar height between 5mm and 8mm above the moulding. This will help prevent any accidental fingers crushing.
- Tighten the handle 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 all the way down the foot pedal to insert the V-nail.

4.8 FUNCTIONS TO BE CHECKED BEFORE STARTING WORK

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

1. The mouldings to be assembled are properly positioned on the work bench.
2. The magazine is loaded with the type & size of v-nails suitable with the mouldings to be assembled.
3. The claw head size matches the chosen V-nail height.
4. The adjustment of the vertical clamp is correct (Chapter 4.7.2)
5. Pressing half-way down on the foot pedal, the vertical clamp locks the moulding to be assembled perfectly.
6. Pressing the pedal full down inserts the V-nail.

☞	If you want to insert 2 or more V-nails one upon the other in the same position, you must release the pedal halfway and then press it all the way down again to insert the second V-nail.

5. FUNCTIONING

5.1 OPERATORS

The machine was designed to be used by a single operator. The operator must be trained in the use of the machine and has to read this instruction manual. They must pay special attention to all of the safety precautions listed. They must also know the following:

- Must be able to read & understand the manual, including the drawings & schematics.
- Must be knowledgeable about safety precautions.
- Must have knowledge of the specific line where the machine is installed & the plant here it is located.
- Must have specific knowledge about the frame assembly process.
- Must know how to operate the emergency stop features.
- The maintenance staff must be adequately trained in the technical field.

5.2 FUNCTIONING DESCRIPTION

The only possible way of operating of the machine is the manual mechanic functioning by using the foot pedal. Press the foot pedal half way to get the frames clamping Press the foot pedal full down to get the V-nail ejection.

To affect a junction, you must operate as follows:

1. Set the inserting positions by means of fence locking clamps.
2. Lean the mouldings on the working bench positioning the fence on the first inserting point.
3. Adjust the vertical clamp height and position.
4. Press the foot pedal half way down and verify the proper positioning and holding of the mouldings to be assembled.
5. Press the pedal full down to insert the V-nail. If you want to insert 2 or more V-nails, one upon the other in the same position, you must release the pedal until half of its stroke and then press again it full down to insert the second V-nail and so on.
6. Release completely the foot pedal
7. Shift the mouldings and the fence on the next inserting point and repeat steps 5, 6 and 7.

5.3 TIPS FOR PERFECT JUNCTIONS

5.3.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 V-nails types for different uses.

V-nails can be classified in three different groups:

For Soft woods and Soft plastic	Suggested V-nail® code SPT
For Medium woods	Suggested V-nail® code HPT
For Hard woods	Suggested V-nail® code HPT

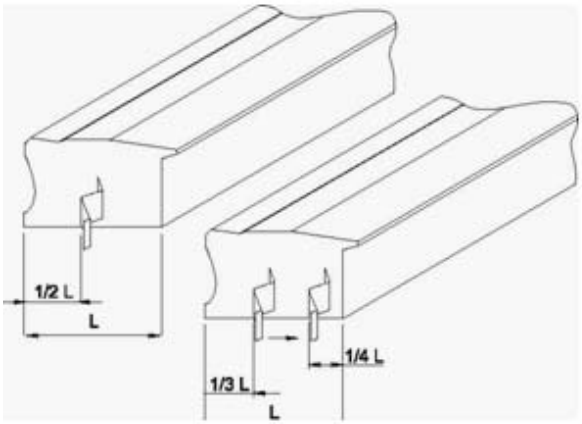
5.3.b. Assembling positions

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

⇒ Never drive 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.

⇒ 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.



5.4 MACHINE STOP

The machine can work only by pressing the foot pedal; to stop, it is enough to lift the foot from the pedal.

5.5 MACHINE REINSTATEMENT

The machine reinstatement is effected by pressing the foot pedal.

6. MAINTENANCE

6.1 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

6.2 SPECIAL CAUTIONS

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

- Before starting any operation, place a sign "machine under maintenance" in a well visible position
- Do not use solvents or flammable materials
- Do not disperse into the environment lubricating liquids that have ozone harmful propellents.
- Do not step on the machine parts, because they have not been projected to sustain the weight of persons.
- Once all the operations are finished, replace any protection or shields you removed or opened

6.3 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 residues.
- Remove any residue from the V-nails guide "L" shaped support.

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

6.4 ORDINARY MAINTENANCE

The following maintenance operations must be performed at the times indicated below. If they are not performed as stated, the manufacturer is exonerated from any responsibility regarding the warranty.
The operations described below, even if simple, must be performed by fully trained staff at your facility.
The scheduled ordinary maintenance includes overhauls, checks and interventions that will help prevent stops and breakdowns, and keep the system working properly.

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

Table 6.4-A

Maintenance	Description
V-nail(R) driver blade	Replacement every 1,000,000 V-nails driven
Movable parts lubrication	Lubricate the driver blade every 200 working hours
V-nail(R) claw heads	Replacement every 5,000,000 V-nails shot
"L" shaped supports (V-nail	Replacement every 5,000,000 V-nails shot

7. DIAGNOSTICS

7.1. SAFETY WARNINGS

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

7.2. TROUBLESHOOTING

TABLE 7.2 - A

TROUBLE	CAUSE	CHECK AND REMEDY
Pressing the foot pedal the V-nails ejection is not regular	V-nails positioned wrong into the V-nail magazines	Check that the sharpened side (glue side) faces up – check the V-nails direction
Pressing the foot pedal the v-nails ejection is not regular	Magazine is obstructed or damaged	Check that the V vertex of the V-nails is pointed to the machine external side
Pressing the foot pedal the v-nails ejection is not regular	Insufficient pressure on the claw pusher	Check that the V-nails slide freely in the magazine. Clean the magazine.
Pressing the foot pedal the v-nails ejection is not regular	The claw head does not match up the V-nail height	Replace the claw head with the correct one
Wishing to insert several V-nails one upon the other in the same point, they do not stack properly or tilt during their insertion	Wrong type of V-nails	Replace the V-nails with suitable ones
Wishing to insert several v-nails one upon the other in the same point, they do not stack properly or tilt during their insertion	The frames clamping is not correct (the frame is moving during the V-nail insertion)	Check and adjust the vertical clamp position Replace the vertical clamp pad with one more suitable to the frame you are using
Wishing to insert several v-nails one upon the other in the same point, they do not stack properly or tilt during their insertion	Jammed driver blade	Bad driver blade Replace driver blade
Wishing to insert several v-nails one upon the other in the same point, they do not stack properly or tilt during their insertion	Driver blade dirty	Clean the driver blade's upper part of any glue residue.

7.3 REQUEST FOR ASSISTANCE

For any information regarding Use, Maintenance, Installation, etc., we remain at your disposal. The Customer has to express clearly their questions by sending us a fax listing a detailed description of the issues of concern, and for a quicker response, you should reference this handbook and review the instructions listed in Paragraph 1.2.

Fax: 1-800-329-3826
Phone: 1-800-843-3826

E-mail: customerservice@fletcher-terry.com
Website: www.fletcher-terry.com

8. SPARE PARTS

8.1 SPARE PARTS LIST

Even though the machine has been submitted to several tests and functional checks, we listed below the components that we suggest you have a minimum and sufficient set of. This will help guarantee the shortest possible down time.

TABLE 8.1-A

COMPONENT
• V-NAILS DRIVER BLADE
• V-NAILS CLAW HEADS "L"
• SHAPED SUPPORT (V-NAILS GUIDE)

8.2 SPARE PARTS ORDERING

We remind you that only a qualified technician can repair the machine.
Therefore, we suggest the intervention of your local distributor or AMP's Center of Technical Assistance, which has the qualified staff, proper equipment and tools, and who uses original spare parts.

9.1 DEMOLITION

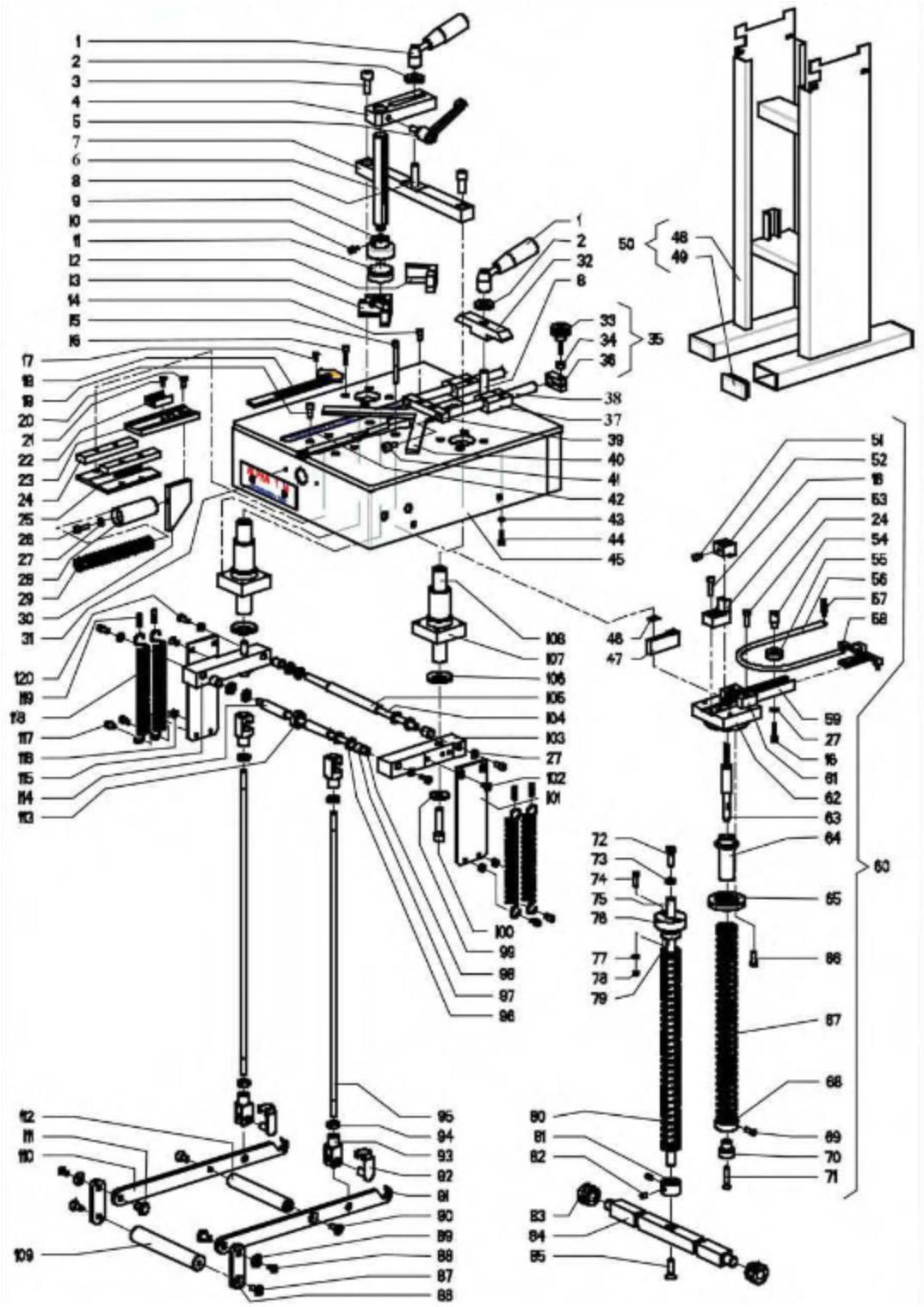
When you dispose of your machine it is necessary to separate the parts in plastic from the electric components. Most countries require this respecting the current Norms.
Concerning the machines metallic mass, it is enough to separate the steel parts and those of other metals or alloys, for proper recycling.

10.1 SCHEMES

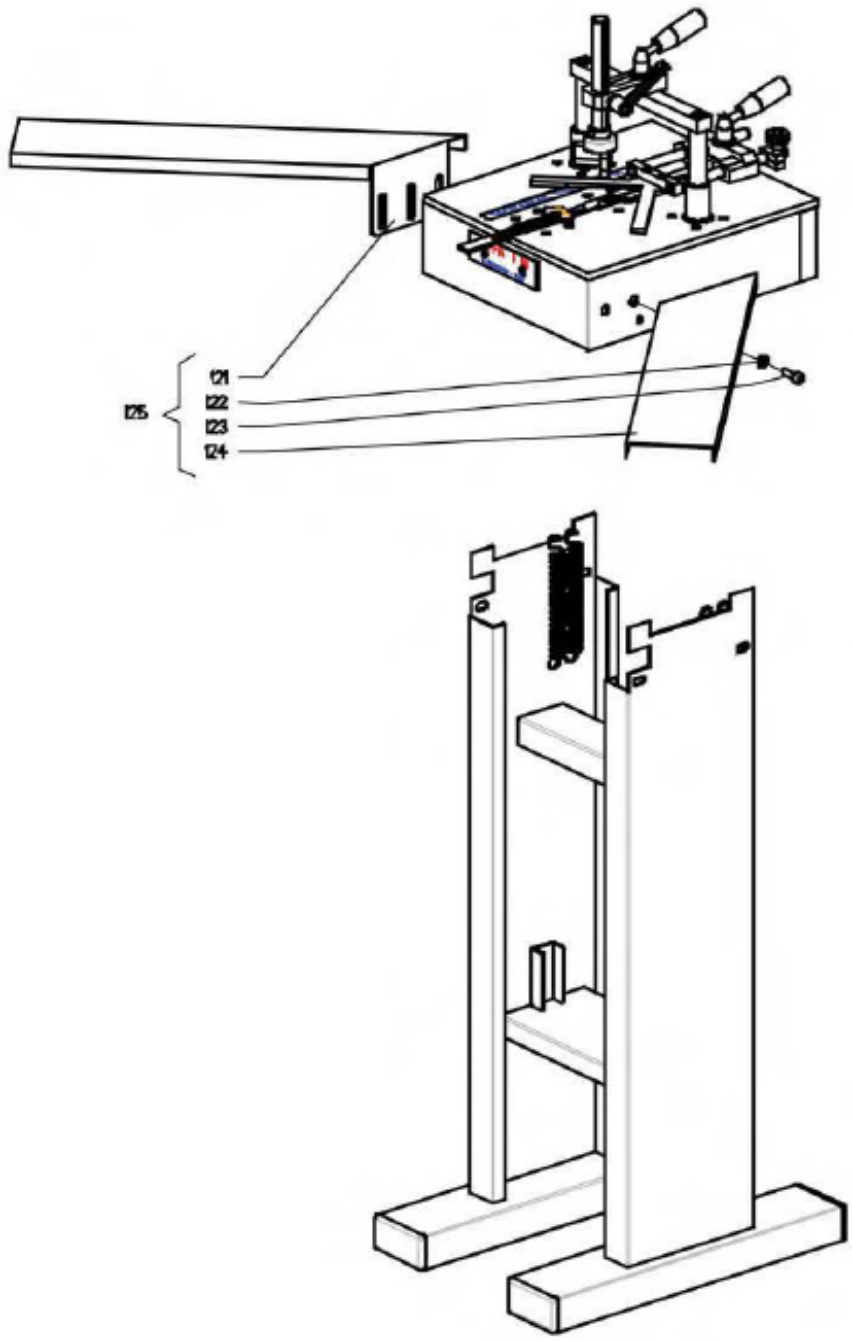
You can find here attached, the following schemes:

- (A) Mechanic Schemes
- (B) Sharpening Table

U-200 SCHEMES A – Mechanic Schemes (Code: DWG n˚ 006.1.200)



U-200 - Dwg nr. 006.1.200)



U-200 – Drawing Nr. 006.1.200

Ref.	Code Number	Qty	Description
1	41-169	2	Ratchet Handle For Top Slide 12mm x 1.25
2	41-261	2	Washer OD=30 ID=12 H=4.5
3	41-490	2	Screw SCS 10X25
4	383600061	1	5" Hold Down - No longer available
5	41-162	1	**Ratchet Handle for Hold Down
6	244120120	1	Magnetic Rod Complete – Not available (Order Item 2983)
6	334000181	1	Hold Down Rod D=20 L=160 – Not available
7	41-335	1	Support (Top Bar), 12MM
8	41-518	2	Set Screw 12 x 60 1.25 Pitch
9	41-167	1	Base For Magnetic Hold Down
10	41-465	1	Screw SCS 5X10
11	41-132	1	Round Pressure Plate with Felt for Magnetic Base
11	41-134	1	Round Pressure Plate with Rubber for Magnetic Base
12	41-133	1	Square Pressure Plate with Felt for Magnetic Base
12	41-144	1	Square Pressure Plate with Rubber for Magnetic Base
13	41-137	1	Square Pressure Plate with Rubber bolt on part
14	41-470	2	Screw SCS 6X10
15	710100086	4	Screw SCS 6X65
16	41-475	12	Screw SCS 6X25
17	366210080	1	Screw
18	242170140	1	Front Clamp
19	41-473	4	Screw SCS 6X16
20	710200057	2	Screw
21	710200047	1	Screw Special VNM
22	392750040	1	Support
23	383900600	1	Support
24	381600150	2	Spacer
25	381301180	1	Support
26	41-474	3	Screw SCS 6X20
27	41-533	7	Washer (6MM)
28	336500230	1	Bushing
29	765000022	1	Spring,
30	381301190	1	Support
31	365211060	1	Plate
32	383600040	1	Clamp Locking Support
33	41-612	2	Fence Stop Clamp Knob
34	41-260	2	Washer For Fence Stop Clamp
35	243150010	2	Complete Clamp
36	41-380	2	Fence Stop Clamp
37	334000400	2	Fence Rod
38	41-357	2	Fence Rod Guide
39	383900020	1	Support
40	41-332	1	Fence 90 Degree
41	41-483	2	Screw SCS 8X14
42	366710050	1	Inch rule
43	718100002	6	Washer
44	41-466	4	Screw SCS 5X16
45	211250330	1	Casing
46	41-351	4	Leveler Spacer
47	41-339	2	Support
48	291670100	1	Base
49	752600001	2	Cover
50	240450120	1	Complete floor stand
51	41-469	3	Screw SCS 6X8
52	04-095	1	Nail Head H5
52	04-091	1	Nail Head H7

Ref.	Code Number	Qty	Description
52	04-092	1	Nail Head H10
52	04-093	1	Nail Head H12
52	04-094	1	Nail Head H15
53	41-368	1	L - Support Block
54	337500220	2	Spacer
55	337000070	2	Spring, Pulley
56	41-653	2	Feed Spring 0.8 x 7.5 x 250
57	393850010	2	Spring Holder HST 6MM
58	245450020	1	Clawpusher with Arm
59	41-398	1	Steel Nail Magazine 2000+
60	224240170	1	Complete head
61	41-352	2	Block for Magazine
62	352200240	1	Head Driver Cylinder OD=70
63	298420080	1	Piston and Driver Blade
64	337000110	1	Slide Bushing
65	336100510	1	Washer OD=90 ID=25 S=8
66	41-945	2	Screw SCS 6X18
67	765000021	1	Spring
68	338500010	1	Ring Nut
69	710100044	1	Screw SCS 5X14 Use Part #71010
70	337000120	1	Bushing
71	41-506	1	Screw FCS 6X35MM
72	710600009	1	Screw HCS 8X30MM
73	41-525	1	Nut M8
74	41-468	2	Screw SCS 5X30
75	334000340	1	Rod OD=14 L=465
76	337000130	1	Bushing
77	718300003	2	Washer
78	41-528	2	Nut M5
79	337500460	1	Bushing
80	765000022	1	Spring
81	337500391	1	Spacer
82	41-515	2	Set Screw 6X10
83	337000140	2	Bushing
84	381300701	1	Support
85	710200085	1	Screw
86	381300940	2	Support
87	41-507	2	Screw FCS 8X16
88	41-505	2	Screw FCS 6X16
89	41-272	2	Washer OD=20 ID=6.5 S=5
90	710200058	2	Screw
91	381300950	1	Support DX
92	753820002	2	Pin w/Clips
93	753770002	2	Fork M10
94	715650011	4	Nut M10
95	334000350	2	Rod D=9 L=540
96	395150070	2	Fork
97	718100005	8	Washer
98	337500430	4	Spacer OD=14 ID=10 S=18
99	718150005	2	Washer
100	41-493	2	Screw SCS 10 x 45
101	373400521	2	Plate
102	710200059	4	Screw
103	381301070	1	Support DX
104	334000360	2	Rod OD=10 L=275
105	337500440	2	Spacer OD=14 ID=10 S=13
106	336100530	2	Washer
107	352200250	2	Cylinder Head - Vertical
108	334000330	2	Rod OD=22 L=160
109	337500410	2	Foot Pedal Spacer
110	381300951	1	Support SX
111	334500170	2	Pin
112	337500420	1	Foot Pedal Spacer
113	740550018	1	Bearing Box
114	337500470	2	Spacer

Ref	Code Number	Qty	Description
115	381301060	1	Support SX
116	41-529	2	Screw Nut M6
117	710100098	2	Spring
118	41-657	2	Spring
119	41-381	2	Spring Holder
120	41-472	4	Screw SCS 6X14MM
121	41-484	4	Screw SCS 8X25MM
122	391650511	1	Extension SX
123	41-534	4	Special Washer ID=8.5MM
124	391650501	1	Extension DX
125	04-032	1	Extension Arm Set for Joiners

SCHEMES B - SHARPENING TABLE

	SOFT WOOD			HARD WOOD		
	A	**B**	**C**	**D**	**E**	**F**
Height mm	Very soft wood	Soft wood	Averaged soft wood	Averaged hard wood	Hard wood	Very hard wood
H 3* mm	HPT	HPT	HPT	HPT	HPT	HPT
H 5* mm	HPT	HPT	HPT	HPT	HPT	HPT
H 7 mm	SPT	SPT	HPT	HPT	HPT	HPT
H 10 mm	SPT	SPT	HPT	HPT	HPT	HPT
H 12 mm	SPT	SPT	HPT	HPT	HPT	HPT
H 15 mm	SPT	SPT	HPT	HPT	HPT	HPT

SPT — 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

HPT — Suitable for soft wood such as: Thailand and Asian South-East wood, Cedar, Pine, Bass, Banak, Obeche, Poplar , polystyrene, pvc

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

HDF — Suitable for horizontal Grain MDF & HDF

In order to stack 2 or more V-nails per junction, use V-nails coded **HPT OR HDF**