

INSTRUCTIONS FOR “VIBEMAC 3022WB406” AUTOMATIC UNIT WITH LS01PMG DIGITAL PANEL

INTRODUCTION

Thank you for buying this industrial sewing machine of **VI.BE.MAC. S.p.A.**

Before starting to operate with this automatic unit, please read carefully the following instructions so as to help you to understand the working of the machine.

These will explain you the working system that must be followed according to the current regulations.

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- The content of this handbook can be subject to alterations without notice.

To ask for a new manual or have explanations on every information or technical note presented in this volume, please contact:

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In case of followings improvements, some incongruities on technical notes might appear in this manual. Therefore, we suggest You always to contact our Tech. Dept. to check if new version of this manual or new deepening are available.

“Suggestions on possible mistakes and signalling to improve this handbook will always be welcomed”

[Morandin Dario](#)

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1. GENERAL FEATURES OF THE MACHINE

The VIBEMAC 3022 machine is equipped with an AUTOMATIC device to cut and unstash at the required measure, the two ends of a waistband fabricated by a border unit.

The Material Cutting, the Pneumatic 1 needle Unstitching and the Stitching Cycle Automatic Stopping functions are executed by the LS01 PMG Digital Logic panel, while the Electronic Unstitch and the sewing speed control functions are executed by the MITSUBISHI XL-CE servomotor with the new kind GMFY panel.

The user, through the LS01/M panel using software, programs the number of impulses ($\pm \frac{1}{4}$ stitch resolution) required for every counter, in order to obtain a complete waistband of the required features.

The material cutting device is made up by a shearer controlled by a special cylinder checked by a safety sensor.

The two unstitching devices can be:

- ELECTRONIC (standard): executes a movement of the material without there is the sewing cycle at the same time.
- PNEUMATIC (optional): is made up by a patented device that prevents the stitch fabrication.

The transport of the material is driven by a Step-by-Step motor, with the Auxiliary Feeder at different speed between the two roller present and the length of the sewing stitch that can be chosen up to 5mm maximum.

1.1.SUPPLY TENSION

The supply tension is of 220V single-phase 50/60 Hz. The consumption is of about 740W.

1.2.CONSUMPTION AND PRESSURE OF THE COMPRESSED AIR

The consumption is of about 0.5 litres of air sucked with a cycle of almost six bars pressure.

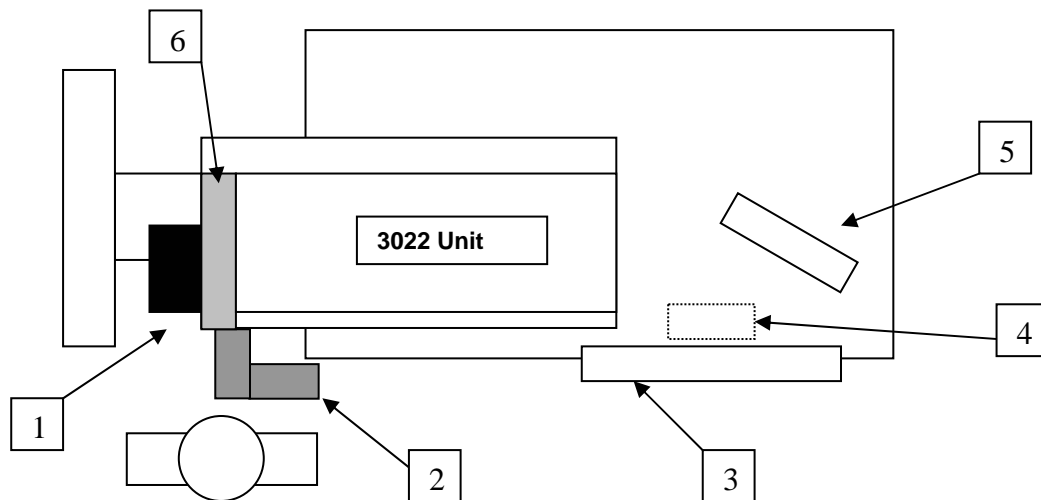
1.3.DIMENSIONS AND WEIGHT

Width: 105 cm Length: 60 cm Height: 125 cm Weight: 130 kg (about)

1.4.WORKING PLACE

The user works sits in front of the sewing machine with:

- the speed control pedal (1) placed at his feet, fixed at MITSUBISHI motor.
- the waistband guide Border units (2), fixed at his adjustable support, placed in front of the operator
- the Band guide (3), fixed at his adjustable support, placed in front of the operator
- the general current switch (4) at his right under the table, fixed at his support.
- the LS01 logic panel (5) at his right on the table.
- the sewing head with the working table (6) under the three control photocells.



2. TERMS OF USE

We consider normal all the operations suitable to prepare and apply belts on pairs of trousers, clinging to the following conditions:

- that user has read and understood the meaning of all this manual.
- that user applies all the "CE" rules and those of this manual.
- that all the safety measures are respected, not removing the covers or the safeties used by the manufacturer.
- that current supply is uniform.
- that the machine is connected with a grounding system to prevent troubles or current shocks.
- that the machine is used not with continuous working cycle, locking the speed control board in any position.
- that it is not possible to work with the machine at high (over 40°C) or low temperatures (below 10°C).
- that water or other liquids (except oil) enter the sewing machine.
- that water or other liquids enter the control card, the electro valves and the cylinders.
- that the machine cannot be used in atmosphere where there can be found explosive gases, dust or oil vapours.
- the machine is not connected with a compressed air system having water or other liquids inside the circuit under pressure.
- the machine is connected with a compressed air system, having a minimum pressure at inside of 5,5 uniform bars.
- that user wears earplugs to prevent any disturb from hearing disease.
- that the start up of the machine and his extraordinary maintenance is carried out from qualified staff.
- that the waistband fitted in the STANDARD border unit must be proportionate at the type used, 123/125 mm for a Needles Calibre of 2", 113/105 mm for a Needles Calibre of 1"3/4, 103/105 mm for a Needles Calibre of 1"1/2, e 93/95 mm for a Needles Calibre of 1"1/4.
- the thickness of the trousers where you want to apply the waistband must not be over the 6 mm of material.

The manufacturer rejects any liability for damages caused by the machine to things or people in case that:

- the machine has not been properly installed.
- the start up of the machine has not been performed by qualified staff.
- the possible reparations of the machine (Mechanical and/or Electronics) have not been performed by qualified staff.
- that current supply is not uniform.
- the air inside the pneumatic plant is not uniform and/or does not satisfies the demanded requisites.
- the machine has bad fault in the expected maintenance.
- the spare parts used are not original or not specific for the model of the machine.
- the instructions are not entirely followed by the user.
- that user has worked with broken needles or not suitable ruining trousers.

Is absolutely forbidden to:

- remove covers and protections from their position, making the machine dangerous for the user.
- remove the mirror for eyes protection without supplying the user with special protective glasses as laid down by law.
- not activate the protections arranged by the manufacturer, making the machine dangerous for the user.
- alter the machine, without the manufacturer's authorization, making the machine dangerous for the user.
- exceptional cases.

2.1.WARRANTY FORM

On all the parts that compose the machine, forwarded and found defectives by the manufacturer, a warranty of one (1) year will be provided. The warranty does not cover the parts of regular use and consumption (for example: oil – needles – knives).

All the parts damaged for negligence by the user and/or for an incorrect setting of the machine by technical staff not allowed by VI.BE.MAC to carry out the maintenance, will NOT be considered defectives by the manufacturer. Those parts will be charged including all the eventual carriages and/or installation expenses.

3. DESCRIPTION OF SWITCHES, BUTTONS AND CONTROLS

In the 3022CS unit are the following switches:

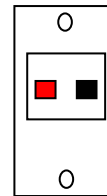
3.1 GENERAL SWITCH OF THE MACHINE

It is placed under the table fixed to the pillar of the support.

There are two switches:

The RED one on the left side (OFF) is used to take off current to the unit.

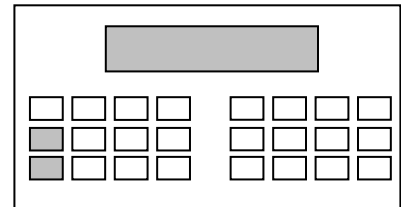
The BLACK one on the right side (ON) is used to supply current to the unit.



3.2 LS01/M GENERAL PANEL SWITCH

It is placed on the frontal of the panel, check the position in the drawing at the paragraph 7 :LS01/M GENERAL PANEL SWITCH.

The panel automatically switches on when the unit switches on and on the display the inscription VIBEMAC 3022 and the program in use appears.



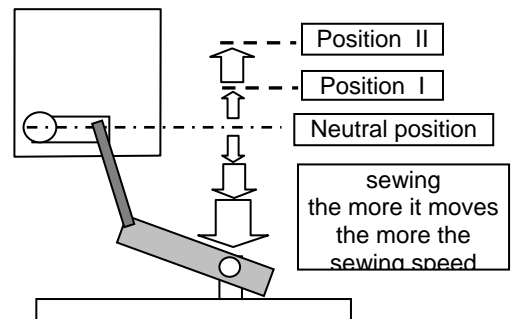
3.3 CONTROL BOARD

It is placed at the base of the support, connected through a rod and a lever to the MITSUBISHI panel. It is used to check the running of the Automatic Unit.

At the ignition is in neutral position,

Shifting towards down - on the grounds of the executed shifting the sewing speed changes between the minimum level L and the maximum H fixed in the software.

Shifting towards up - on the grounds of the executed shifting there are two available contacts or positions that recall or executes precise functions programmed inside the software.



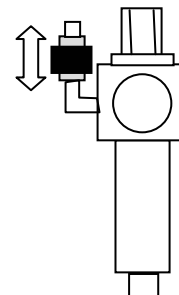
3.4 GENERAL AIR COCK

Placed at the input of the reduction group, allows to take off the air from the pneumatic circuit inside the machine.

Shift the black selector to choose the two running positions.

To turn the air cock on, move it towards the reducer.

To turn the air cock off, move it towards the outside.



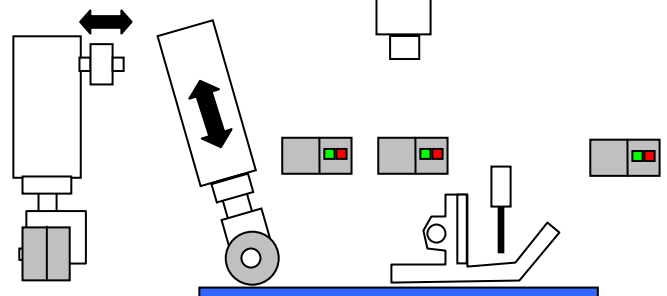
3.5 LIFT PULLER COCK

Placed in the higher part of the cylinder, allows to take off the air at the inside.

Shift the black selector to choose the two running positions.

To turn the air cock on, move it towards right.

To turn the air cock off, move it towards left



4. HOW TO START UP THE MACHINE

Press the black button "ON" on the general switch.

The sewing head is ready to work in AUTOMATIC mode with the last program used.

Turn the air cock on, placed on the side of the reduction group, moving it towards the reducer.

5. HOW TO STOP THE MACHINE

Press the red button "OFF" on the general switch when the machine is stopped.

Turn the air cock off, placed on the side of the reduction group, move it towards the outside.

6. DIRECTION OF ROTATION

In the 3022 unit a single-phase MITSUBISHI servomotor is used.

Usually, the direction of rotation for the unit considered has already been programmed inside the motor panel.

7. WORKING CYCLE

In the 3022 unit the different counters on the LS01PMG panel **have two different measure unities:**

impulses to obtain a tolerance of only $\pm \frac{1}{4}$ stitch on the cutting counter, while in msec for the unstitching.

For example the value of **5 stitches** in a cutting counter corresponds to the value of **20 impulses**, that is the value of stitches that you want to insert always multiplies by four.

7.1 BEGINING OF THE TROUSERS PROGRAM 3

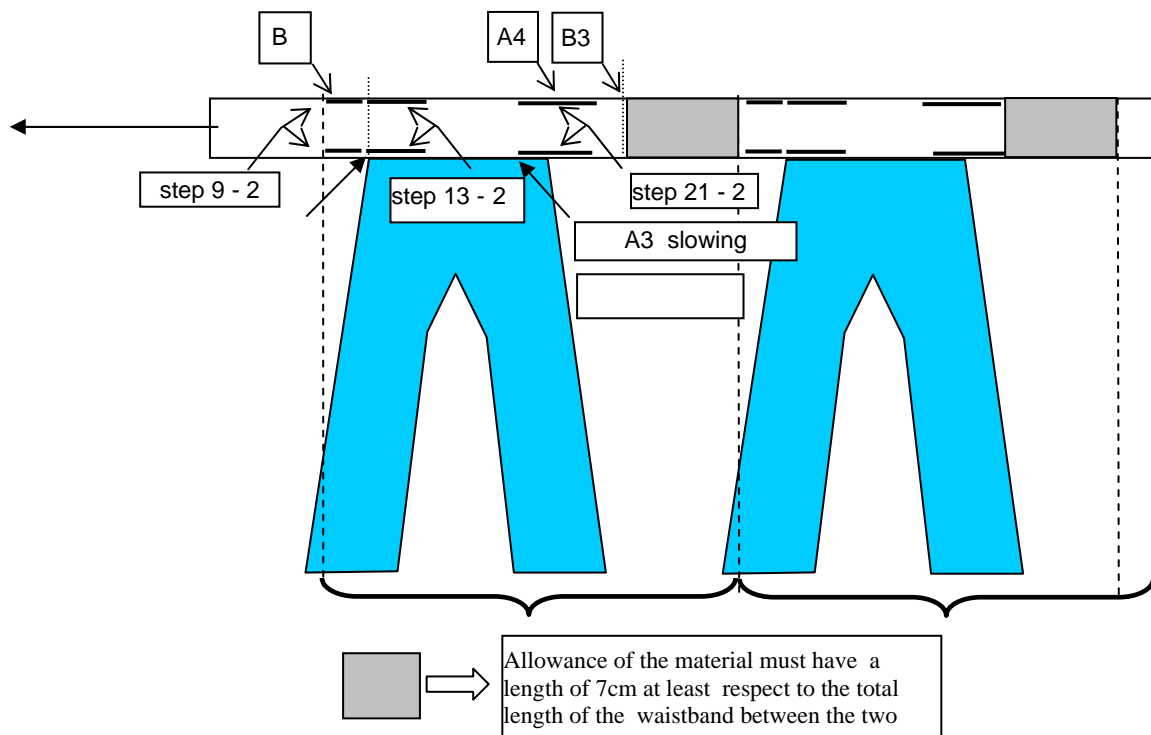
The operator inserts the material under the photocell N°1, the insertion of trousers automatically allows the lifting of the presser foot. The counter **step 9 – 2** (initial unstitching preparation) activates and the conveyor pulls the waistband according to the quantity selected. The operator locates the beginning of the trousers to the reference mark and presses the pedal fixed to the motor panel towards down, the presser foot bends down and the counter **step 13 – 2** (initial unstitching length), is activated, the conveyor starts rotating and pulls the material at the settled measure with the operator who helps the shifting of the cloth. At the end of the unstitching cycle, the operator releases the board and then he presses it again to start the stitching cycle. The beginning of the trousers reaches the other two photocells in the worktable, the photocell N°3 reads the beginning of the trousers and the counter **B1** activates. After having selected the number of steps, the shearing machine executes the initial cutting of the waistband.

7.2. END OF THE TROUSERS PROGRAM 3

The photocell N°1 reads the end of the trousers. The counter **A2** (starting final unstitching delay) activates. At the end of the calculation, the stitching cycle stops automatically and the counter **step 21 – 2** (final unstitching length) is activated. The presser foot activates automatically and the conveyor pulls the material at the required measure, the operator at the end of this cycle releases the board and then he presses it again to end the stitching cycle. The machine arrives with the end of the trousers under the other two photocells.

The photocell N°2 reads the end of the trousers, the step counter **A4** that determines the delay at the start of the Pulling material pincer (set the number of steps equal to the value in the final cut) is activated.

The photocell N°3 reads the end of the trousers, the step counter **B3** is activated. After having selected the number of steps, the shearing machine executes the final cut of the waistband, checked trough the safety detector and the stitching cycle stops automatically.



7.3. BEGINING OF THE TROUSERS PROGRAM 4

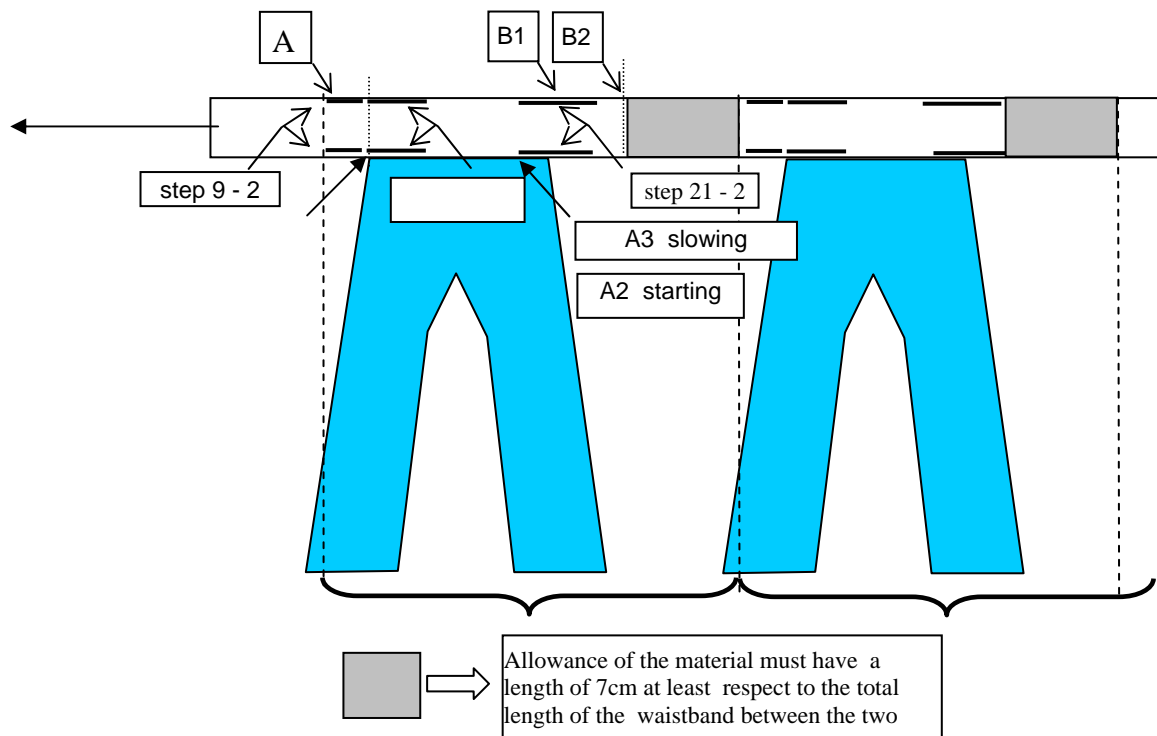
The operator inserts the material under the photocell N°1, the insertion of trousers automatically allows the lifting of the presser foot. The counter **step 9 – 2** (initial unstitching preparation) activates and the conveyor pulls the waistband according to the quantity selected. The operator locates the beginning of the trousers to the reference mark and presses the board fixed to the al motor panel towards down, the presser foot lowers and the counter **step 13 – 2** (initial unstitching length), is activated. The conveyor starts rotating and pulls the material at the settled measure with the operator who helps the shifting of the cloth.. At the end of the unstitching cycle, the operator releases the board and then he presses it again to start the stitching cycle. The beginning of the trousers reaches the other two photocells in the worktable when the photocell N°3 reads the beginning of the trousers the counter **A4** is activated.. After having selected the number of steps, the shearing machine executes the initial cutting of the waistband.

7.4. END OF THE TROUSERS PROGRAM 4

The photocell N°1 reads the end of the trousers. The counter **A2** (starting final unstitching delay) activates. At the end of the calculation, the stitching cycle stops automatically the counter **step 21 – 2** (final unstitching length) is activated. The presser foot activates automatically and the conveyor pulls the material at the required measure, the operator at the end of this cycle releases the board and then he presses it again to end the stitching cycle. The machine arrives with the end of the trousers under the other two photocells.

The photocell N°2 reads the end of the trousers, the step counter **B1** that determines the delay at the start of the Pulling material pincer (set the number of steps equal to the value in the final cut) is activated.

The photocell N°3 reads the end of the trousers, the step **B2** is activated. After having selected the number of steps, the shearing machine executes the final cut of the waistband, checked trough the safety detector and the stitching cycle stops automatically.



8. "LS01/PMG" LOGIC PANEL

The digital panel with the new software in the new updated version "**LS01/PMG**" checks all the different functions (CUT, SKIP STITCH, PINCER, STOP AT THE END OF THE CYCLE) of the equipment applied upon the stitching machine. The start and the stop of the machine and the speed of the sewing cycle, are controlled through the MITSUBISHI panel and its control board.

The panel is connected through the rear cup connector to the MOTOR panel GMFYCE model.

The LS01 digital panel can execute four different programs, in programmable sequences, with the possibility to set the use of the four INPUTS and of the five OUTPUTS as required.

Usually, in the panel, two programs are loaded, with two different operations of the machine.

They are:

Program No. 1 – Final automatic stop at the end of the final cut with pneumatic unstitching system

Program No. 2 – Intermediate automatic stop when reads the photocell No.2 with pneumatic unstitching system

Program No. 3 – Final automatic stop at the end of the final cut with electronic unstitching system

Program No. 4 – Intermediate automatic stop when reads the photocell No.2 with electronic unstitching system.

1 and 3 – FINAL STOP

When the panel executes the waistband Final Cut, it automatically stops the Sewing Head, even maintaining completely pressed the motor control lever, to allow the insertion of new trousers.

Put at zero the position of the control lever in the motor bringing it back to home position.

Press the Control Lever again to execute a new Sewing Cycle.

2 and 4 – INTERMEDIATE STOP

As soon as the photocell N° 2 "uncovers" with the end of the trousers, automatically the panel stops the Sewing Head, even maintaining completely pressed the motor control lever, to allow the insertion of new trousers.

Put at zero the position of the control lever in the EFKA motor bringing it back to home position.

Press the Control Lever again to execute a new Sewing Cycle.

Please check that between the two trousers there are 4 cm of distance at least to correctly execute the final cut on the first pair of trousers and start on the second pair.

This working system is used when:

- The length of the trousers waistband is equal or slightly bigger than the length of the trunk.
- Due to any cause, it is not possible to use the cycle with the Final Stop.

The different counters only count a part of a stitch and not the whole stitch, **therefore the measure obtained has a tolerance of only $\pm \frac{1}{4}$ stitch.**

For example the value of **5 stitches** in a counter corresponds to the value of **20 steps**, that is the value of stitches that you want to insert always multiplies by four. This allows to insert both a complete value of stitches 40 steps = 10 stitches as for example inserting 42 steps the value obtained is of ten stitches and a half and makes the computation more flexible.

8.1. DESCRIPTION OF THE FRONTAL KEYBOARD

0 – 9 Numerical keyboard to set the values



Shift the slide towards right of a step

Shift the slide towards left of a step

Shift the slide to the preceding line

Shift the slide to the following line

ON Enable the working of the panel

OFF Disable the working of the panel

TEST TEST Function

RESET The panel positions at the beginning of the program in execution.

SEL Select the program to execute and/or allows to select a sequence of programs

F Count Stitches control function (COUNTER)

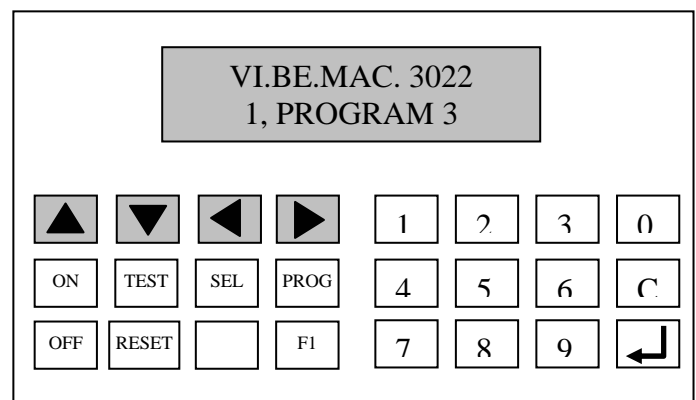
PROG Set the control programming

F1 Electro valves control function (OUTPUTS)

C Cancel data and exit the function in use (CLEAR)



Confirm of the settled data (ENTER)



8.2. IGNITION OF THE MACHINE

At the ignition of the machine on the display appears: (see picture above)

In the lower line you visualize:

- The first number indicates the position of the program in execution in the sequence.
- The second number, PROGRAM "x" indicates the number of the program ready for the execution

In case that the cutting photocell is already covered while reading (ON) on the panel appears:

CONTROL
DISARMED

Clean the photocells in their lower side or the lower chromium-plated surface where they reflect, with a cloth, to remove the possible dirt and remain only with the green LED on.

Turn the unit off and then turn it on.

8.2.1. SWITCHING-ON AND SWITCHING-OFF OF THE PANEL

Press the key to activate the panel and set the AUTOMATIC working of the machine.

The display changes as follows:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **OFF** to deactivate the panel and set the NORMAL working of the machine.

The display changes as follows:

CONTROL
DISARMED

8.3. WORK FUNCTION

At the ignition of the machine on the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

During the execution of a program on the display appears:

Execute the
N. Program 1

When the operator stops the sewing cycle, during a program, on the display appears:

in delay
N. Program 1

At the end of the sewing cycle automatically appears on the display:

VI.BE.MAC. 3022
1, PROGRAM 3

8.3.1. HOW TO CALL BACK A NEW SEWING PROGRAM

At the ignition of the machine on the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **SEL**, on the display appears:

selection program
3, 0, 0, 0,

Compound the number of the program to use between the **four** available:

Program No.1 – Final automatic stop at the end of the final cut with pneumatic unstitching system

Program No.2 – Intermediate automatic stop when reads the photocell No.2 with pneumatic unstitching system

Program No. 3 — Final automatic stop at the end of the final cut with electronic unstitching system.

Program No.4 – Intermediate automatic stop when reads the photocell No.2 with electronic unstitching system.

example n°3, always insert the number zero in the following empty spaces
Press **ENTER** to exit

8.3.2. HOW TO CREATE A SEQUENCE OF PROGRAMS

At the ignition of the machine on the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **SEL**, on the display appears:

selection program
3, 0, 0, 0,

Insert the number of the first (**1°**) program, insert the number of the second (**2°**), insert the number of the third (**3°**), insert the number of the fourth (**4°**).

In the case that there are only two (2) or three (3) programs to use in the sequence, always insert the number **zero** in the empty spaces

selection program
3, 4, 4, 0,

Press **ENTER** to exit

8.3.3. HOW TO ENABLE/DISENABLE THE OUTPUTS

The operator during the sewing cycle has the possibility to delete one or more function for temporary needs.

At the ignition of the machine on the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **F1**, on the display appears:

F1 y = on , n = off
1y 2y 3y 4y

Please, remember that the outputs have the following dispositions:

- **In the position 1 is visualized the output relative to the UNSTITCHING function.**
Press the key **1** to enable (y =on) or disenable (n = off) the function.
- **In the position 2 1 is visualized the output relative to the GRIP function.**
Press the key **2** to enable (y =on) or disenable (n = off)) the function.
The value is 1 (on) when the function is enabled while is 0 (off) when it is disenabled.
- **In the position 1 is visualized the output relative to the CUTTING function.**
Press the key **3** to enable (y =on or disenable (n = off) the function.
The value is 1 (on) when the function is enabled while is 0 (off)) when it is disenabled.
- **In the position 4 is visualized the output relative to the SAFETY CUT detector function.**
Press the key **4** to enable (y =on) or disenable (n = off the function.
The value is 1 (on) when the function is enabled while is 0 (off)) when it is disenabled.

Select with the numerical keyboard, the output/s to modify.

After this procedure on the display appears:

1, PROGRAM 3
1y 2y 3y 4y

Where the letter "n" visualizes that the relative output is not in the original conditions according to the program loaded in memory (standard). Such message remains until the original setting is reset .

8.3.4. .HOW TO RESET THE PROGRAM IN EXECUTION OR THE SEQUENCE

When the operator stops the sewing cycle, during a program, on the display appears:

in delay
N. Program 1

Press the key **RESET**, the panel goes back on the first line of the program in execution.
On the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **RESET**, the panel goes back to the first program in the sequence if used.

8.3.5 HOW TO SET THE CUT AND UNSTITCHING COUNTER IN THE PROGRAM N°3

Inside the program in execution are used two different types of counter, **A** and **B**.

Every counter can be used many times in a sequence, with a maximum value of 250 stitches/setting.

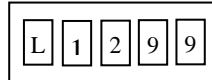
Their purpose is to keep or delay the insertion of a function.

ATTENTION: For the correct insertion always check through the legend of the program in use the model and number of the counter to modify.

8.3.5.1. SETTING OF THE COUNT INITIAL UNSTITCHING LENGTH MATERIAL INSERTION (PROGRAM 3)

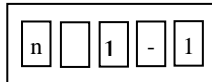
Press the key **PARAMETER SETUP**, on the motor panel and then press FOUR (4) times the arrow up

On the display appears:



Press the key **ENTER**

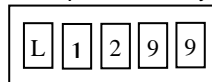
On the display appears:



The number on the left identifies the line of the program, while the number on the right identifies the column of the directions,

where the time-switch is selected, press the key **D**

On the display appears:

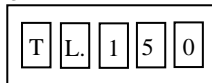


Set with A and B the number of the line to modify

number **9 – 2** in this case the section for the preparation of initial unstitching (150) must be changed.

Press **ENTER**

On the display appears the logic number of the line selected:



Set with B, C and D the required value, for example **150** press **ENTER**

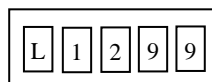
Press the key **PARAMETER SETUP** twice to exit

Switch the motor off and wait until the display switches off too, then switch the unit on again.

8.3.5.2. SETTING OF THE COUNT INITIAL UNSTITCHING LENGTH PRESSER FOOT LOWERING (PROGRAM 3)

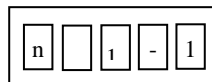
Press the key **PARAMETER SETUP**, on the motor panel and press FOUR (4) times the arrow up

On the display appears:



Press the key **ENTER**

On the display appears:



The number on the left identifies the line of the program, while the number on the right identifies the column of the directions,

where the time-switch is selected, press the key **D**

On the display appears:

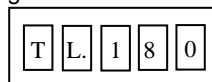


Set with A and B the number of the line to modify

number **13 – 2** in this case the section for the preparation of unstitching (180) must be changed.

press **ENTER**

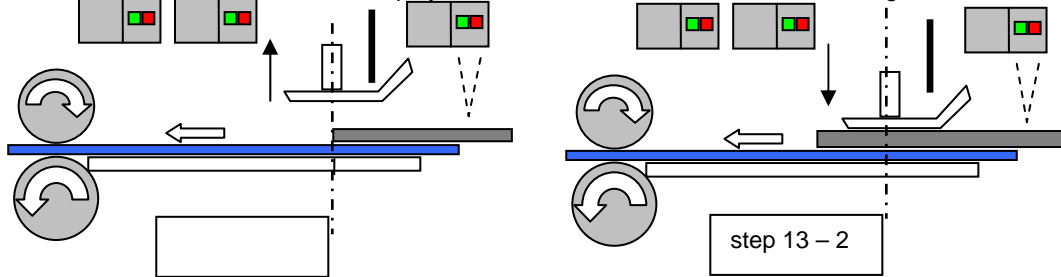
On the display appears the logic number of the line selected:



Set with B, C and D the required value, for example **180** press **ENTER**

Press the key **PARAMETER SETUP** twice to exit

Switch the motor off and wait until the display switches off too, then switch the unit on again



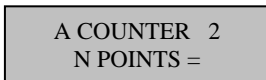
8.3.5.3. SETTING OF THE COUNT STARTING POSITION OF THE FINAL UNSTITCHING (PROGRAM 3)

Press the key **PROG**, on the display appears:



Set with the numeric keyboard, the number of the required counter, in this case press **2**

Press the key **ENTER**



Set with the numeric keyboard, the required value of total impulses. Example: 8 impulses

Press the key **ENTER**

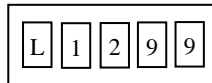
To lengthen the section of the final unstitching on the trousers, decrease the value.

To diminish the section of the final unstitching on the trousers, increase the value.

8.3.5.4. SETTING OF THE LENGTH OF THE FINAL UNSTITCHING COUNT (PROGRAMMA 3)

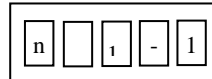
Press the key **PARAMETER SETUP**, on the motor panel, then press FOUR (4) times the arrow up

On the display appears:



Press the key **ENTER**

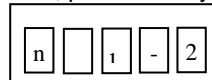
On the display appears:



The number on the left identifies the line of the program, while the number on the right identifies the column of the directions,

where the time-switch is selected, press the key **D**

On the display appears:

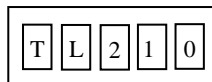


Set with A and B the number of the line to modify

number **21 - 2** in this case the section of the final unstitching length must be changed.

Press **ENTER**

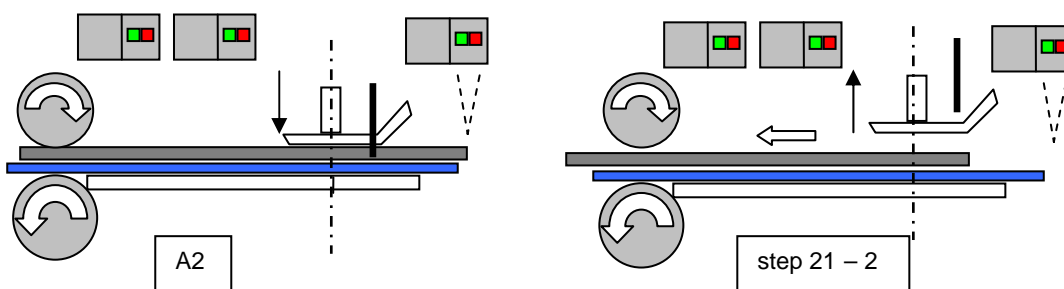
On the display appears the logic number of the line selected:



Set with B, C and D the required value, for example **210** press **ENTER**

Press the key **PARAMETER SETUP** twice to exit

Switch the motor off and wait until the display switches off too, then switch the unit on again.



8.3.5.5 SETTING OF THE INITIAL CUTTING COUNT (PROGRAM 3)

Press the key **PROG**, on the display appears:

A COUNTER

Press **the arrow up** to change to counter B on the display appears:

B COUNTER

B1

Set with the numeric keyboard, the number of the required counter, in this case press **1**
Press the key **ENTER**

B COUNTER 1
N POINTS =

Set with the numeric keyboard, the required value of total impulses. Example: 8 impulses
Press the key **ENTER**

To lengthen the length of the initial cutting on the trousers, decrease the value.
To diminish the length of the initial cutting on the trousers, increase the value.

8.3.5.6.SETTING OF THE FINAL CUTTING COUNT (PROGRAM 3)

Press the key **PROG**, on the display appears:

A COUNTER

Press **arrow up** to change to counter B, on the display appears:

B COUNTER

B3

Set with the numeric keyboard, the number of the required counter, in this case press **3**
Press the key **ENTER**

B COUNTER 3
N POINTS =

Set with the numeric keyboard, the required value of total impulses. Example: 8 impulses
Press the key **ENTER**

To lengthen the length of the final cutting on the trousers, increase the value.
To diminish the length of the final cutting on the trousers, decrease the value.

8.3.5.7.SETTING OF THE START PINCE DELAY COUNT (PROGRAM 3)

Press the key **PROG**, on the display appears:

A COUNTER

A4

Set with the numeric keyboard, the number of the required counter, in this case press **4**
Press the key **ENTER**

A COUNTER 4
N POINTS =

Set with the numeric keyboard, the required value of total impulses. Example: 60 impulses
Press the key **ENTER**

To lengthen the descent delay on the trousers, increase the value.
To diminish the descent delay on the trousers, decrease the value.

8.3.6. HOW TO SET THE CUT AND UNSTITCHING COUNTER IN THE PROGRAM N°4

Inside the program in execution are used two different types of counter, **A** and **B**.

Every counter can be used many times in a sequence, with a maximum value of 250 stitches/setting.

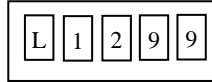
Their purpose is to keep or delay the insertion of a function.

ATTENTION: For the correct insertion always check through the legend of the program in use the model and number of the counter to modify.

8.3.6.1. SETTING OF THE COUNT INITIAL UNSTITCHING LENGTH MATERIAL INSERTION (PROGRAM 4)

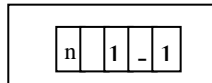
Press the key **PARAMETER SETUP**, on the motor panel, then press FOUR (4) times the arrow up

On the display appears:



Press the key **ENTER**

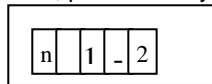
On the display appears:



The number on the left identifies the line of the program, while the number on the right identifies the column of the directions,

where the time-switch is selected, press the key **D**

On the display appears:

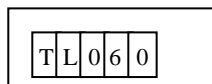


Set with A and B the number of the line to modify

Number **9 – 2** in this case the section of the initial unstitching preparation (150) must be changed.

Press **ENTER**

On the display appears the logic number of the line selected:



Set with B, C and the required value, for example **180** press **ENTER**

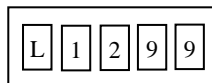
Press the key **PARAMETER SETUP** twice to exit

Switch the motor off and wait until the display switches off too, then switch the unit on again.

8.3.6.2. SETTING OF THE COUNT INITIAL UNSTITCHING LENGTH PRESSER FOOT LOWERING (PROGRAM 4)

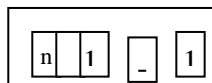
Press the key **PARAMETER SETUP**, on the motor panel and press FOUR (4) times the key up

On the display appears:



Press the key **ENTER**

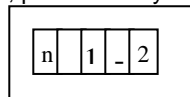
On the display appears:



The number on the left identifies the line of the program, while the number on the right identifies the column of the directions,

where the time-switch is selected, press the key **D**

On the display appears:

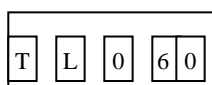


Set with A and B the number of the line to modify

number **13 – 2** in this case the unstitching length section must be changed (180)

press **ENTER**

On the display appears the logic number of the line selected:



Set with B, C and D the required value for example **180** press **ENTER**

Press the key **PARAMETER SETUP** twice to exit

Switch the motor off and wait until the display switches off too, then switch the unit on again.

8.3.6.3.SETTING OF THE START POSITION FINAL UNSTITCHING COUNT (PROGRAM 4)

Press the key **PROG**, on the display appears:

A COUNTER	A2
-----------	----

Set with the numeric keyboard, the number of the required counter, in this case press **2**
Press the key **ENTER**

A COUNTER 2 N POINTS =

Set with the numeric keyboard, the required value of total impulses. Example: 8 impulses
Press the key **ENTER**

To lengthen the section of the final unstitching on the trousers, decrease the value.
To diminish the section of the final unstitching on the trousers, increase the value.

8.3.6.4.SETTING OF THE COUNT FINAL UNSTITCHING LENGTH (PROGRAM 4)

Press the key **PARAMETER SETUP**, on the motor panel and press FOUR (4) times the arrow key.
On the display appears:

I 1 2 9 9

Press the key **ENTER**
On the display appears:

n 1 . - 1

The number on the left identifies the line of the program, while the number on the right identifies the column of the directions,
where the time-switch is selected, press the key **D**
On the display appears:

n 1 . - 2

Set with A and B the number of the line to modify
number **22** – in this case the sector final unstitching length must be changed.
press **ENTER**
On the display appears the logic number of the line selected:

T I 0 6 0

Set with B, C and D the required value for example **210** press **ENTER**
Press the key **PARAMETER SETUP** twice to exit

Switch the motor off and wait until the display switches off too, then switch the unit on again.

8.3.6.5.SETTING OF THE INITIAL CUTTING COUNT (PROGRAM 4)

Press the key **PROG**, on the display appears:

A COUNTER	A4
-----------	----

Set with the numeric keyboard, the number of the required counter, in this case **4**
Press the key **ENTER**

A COUNTER 4 N POINTS =

Set with the numeric keyboard, the required value of total impulses. Example: 8 impulses
Press the key **ENTER**

To lengthen the length of the initial cut on the trousers, decrease the value.
To diminish the length of the initial cut on the trousers, increase the value.

8.3.6.6.SETTING OF THE FINAL CUTTING COUNT (PROGRAM 4)

Press the key **PROG**, on the display appears:

A COUNTER

Press **the arrow up** to change to counter B on the display appears:

B COUNTER

B1

Set with the numeric keyboard, the number of the required counter, in this case **1**

Press the key **ENTER**

B COUNTER 1
N POINTS =

Set with the numeric keyboard, the required value of total impulses. Example: 40 impulses

Press the key **ENTER**

To lengthen the length of the final cut on the trousers, increase the value.

To diminish the length of the final cut on the trousers, decrease the value.

8.4. PROGRAMMING OF THE BASIC PANEL

This kind of programming is very important because determines the SETTING of the BASIC PARAMETERS
With this programming the following functions are settled:

- MACCHINE STOP (in msec) from the stop control you set the stopping time.
- FILTER – INPUTS DELAY (number of stitches) from the inputs reading, the input signal is checked and consequently, the starting of the respective counters.
- OUTPUTS ACTIVATION (total amounts of the available outputs)

Press the key **PROG** and keep it pressed until the second acoustic signal.

The display changes as follows:

PASSWORD
* * * *

Insert with the keyboard the access code (CODE used **1 – 2 – 3 – 4**)

The display changes as follows:

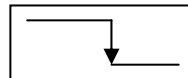
STOP – motor 15

Insert with the keyboard the value required, parameter usually set on **15** x10 = 150msec

Confirm with the key **ENT**

The display changes as follows:

STOP – motor 15
Off Phot 1 = xx



Final unstitching

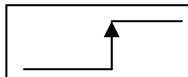
Insert the required value for the input n°.1 when changes from ON to OFF (down Front).

Usually is set the value **4**

Confirm with the key **ENT**

The display changes as follows:

Off Phot 1 = xx
On Phot 1 = xx



Initial unstitching

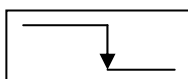
Insert the required value for the input n°.1 when changes from OFF to ON (up Front).

Usually is set the value **4**

Confirm with the key **ENT**

The display changes as follows:

On Phot 1 = xx
Off Phot 2 = xx



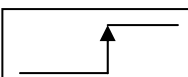
Insert the required value for the input n°.2 when changes from ON to OFF (down Front).

Usually is set the value **8**

Confirm with the key **ENT**

The display changes as follows:

Off Phot 2 = xx
On Phot 2 = xx



Insert the required value for the input n°.2 when changes from OFF to ON (up Front).

Usually is set the value **8**

Confirm with the key **ENT**

The display changes as follows:



Insert the required value for the input n°.3 when changes from ON to OFF (down Front).

Usually is set the value **16**

Confirm with the key **ENT**

The display changes as follows:

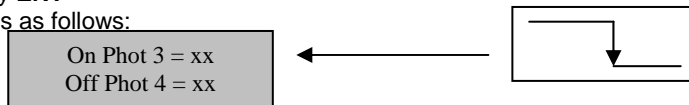


Insert the required value for the input n°.3 when changes from OFF to ON (up Front).

Usually is set the value **8**

Confirm with the key **ENT**

The display changes as follows:

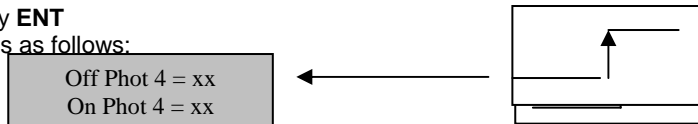


Insert the required value for the input n°.3 when changes from ON to OFF (down Front).

Usually is set the value **0**

Confirm with the key **ENT**

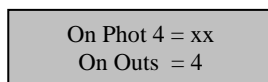
The display changes as follows:



Insert the required value for the input n°.4 when changes from OFF to ON (up Front).

Usually is set the value **0**

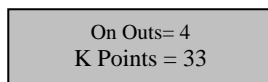
Confirm with the key **ENT**; the display changes as follows:



Insert with the keyboard, the required value (for this working four (**4**) values are necessary)

Confirm with the key **ENT**

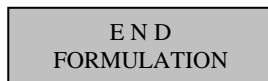
the display changes as follows:



Insert with the keyboard, the required value, selecting the same value that appears in the parameter CP of the motor.

Usually the basic value is set on **33**; confirm with the key **ENT**

The display changes as follows:



Confirm with the key **ENT**

8.5. DIRECT PROGRAMMING OF THE NUMBER OF IMPULSES PER STITCH

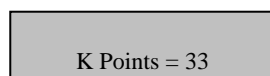
Press the key **PROG** and keep it pressed until the second acoustic signal.

The display changes as follows:



Insert with the keyboard the access code (CODE used **1 – 2 – 3 – 5**)

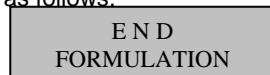
The display changes as follows:



Insert with the keyboard, the required value, selecting the same value that appears in the parameter CP of the motor.

Usually the basic value is set on **33**; confirm with the key **ENT**

The display changes as follows:



Confirm with the key **ENT**

8.6. TEST FUNCTION

At the ignition of the machine on the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **TEST** and keep it pressed until the second acoustic signal

The display changes as follows:

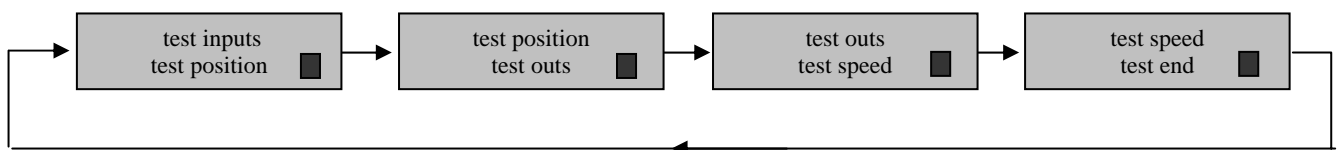
PASSWORD
* * * *

Insert with the keyboard the access code (CODE used **4 – 7 – 1 – 1**)

The display changes as follows:

test inputs ■

Through the directional keys (Up/Down) shift the flashing cursor on the Test to check, selecting it between the different options in the following list.



Test inputs select the INPUTS control (photocells) at the panel

Test position select the logic INPUTS control that comes from the motor panel

Test outs select the OUTPUTS control at the electro valves

Test speed select the SPEED control that have been settled through logical output to the motor panel

8.6.1.INPUTS CONTROL FROM PHOTOCELL OR DETECTOR

Through the directional arrow place the flashing cursor beside the inputs Test.

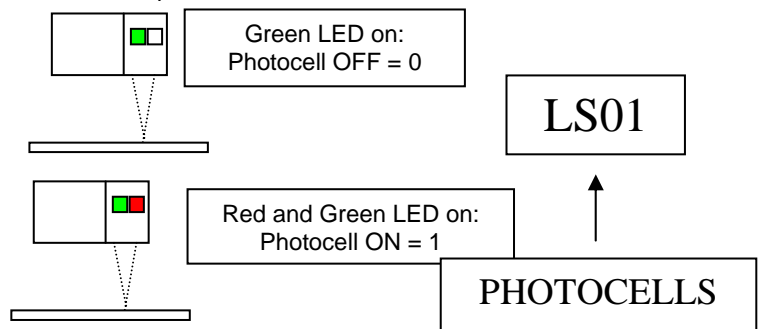
The display changes as follows:

test inputs ■

Confirm with the key **ENT**

the display changes as follows:

External Inputs
0 0 0 0



In order to check the working remember that:


External Inputs
1 2 3 4

- In the position 1 the input relative to the UNSTITCHING photocell is visualized. The value is 1 (on) when it is covered while is 0 (off) when uncovered.
- In the position 2 the input relative to the INTERMEDIATE STOP is visualized. The value is 1 (on) when it is covered while is 0 (off) when uncovered.
- In the position 3 the input relative to the CUTTING photocell is visualized. The value is 1 (on) when it is covered while is 0 (off) when uncovered.

To exit the function and return to the Principal Menu press the key **ENT**

8.6.2. INPUTS CONTROL FROM THE MOTOR PANEL

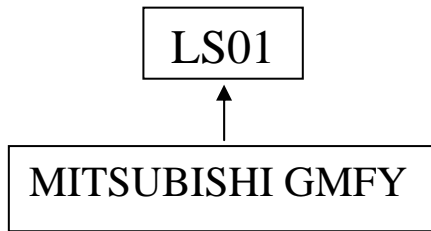
Through the arrow down, place the flashing cursor beside the Test Positions Test.
The display changes as follows:

test inputs
test position 

Confirm with the key **ENT**

The display changes as follows:

inputs from motor
0 0 0



In order to check the working please remember that:


inputs from motor
1 2 3

- the position 1 is NOT used.
- In the position 2 the INPUT relative to the SIGNAL MACHINE IN ROTATION is visualized.
The value is 1 (on) when the OUTPUT is active.
Press the control pedal and when the machine is rotating the value becomes 1.
- In the position 3 the input relative to the function STEP BY STEP MOTOR IMPULSES is visualized.
The value is 1 (ON) only when the motor panel send an impulse through the exit CP
Rotate slowly with the hand the wheel of the machine to change the value

To exit the function and return to the principal Menu press the key **ENT**

8.6.3.INPUTS CONTROL TO THE ELECTROVALVES

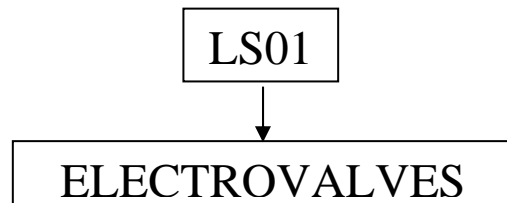
With the arrow down place the flashing cursor beside the Outs Test.
The display changes as follows:

test position
test Outs 

Confirm with the key **ENT**

The display changes as follows:

Outputs
0 0 0 0 0



In order to check the working remember that the outputs have the following setup:

Outputs
1 2 3 4 5

- In the position 1 the output relative to the UNSTITCHING function is visualized.
Press the key **1** to enable / disable the function.
The value is 1 (on) when the function is enabled while the value is 0 (off) when it is disabled.
- In the position 2 the output relative to the PINCER function is visualized.
Press the key **2** to enable / disable the function.
The value is 1 (on) when the function is enabled while the value is 0 (off) when it is disabled.
- In the position 3 the output relative to the CUTTING function is visualized.
Press the key **3** to enable / disable the function.
The value is 1 (on) when the function is enabled while is 0 (off) when it is disabled.
- In the position 4 is visualized the output relative to the SAFETY CUT DETECTOR function
Press the key to enable / disable the function.
The value is 1 (on) when the function is enabled while is 0 (off) when it is disabled.

NOTE:

The function 3 CUT is activated only if the function 4 SAFETY CUT DETECTOR is active too.

To exit the function and return to the principal Menu press the key **ENT**

8.6.4.CONTROL OF THE AUTOMATIC SPEED OUTPUTS AND MOTOR STOP

with the arrow down place the flashing cursor beside the Speed Test

The display changes as follows:

test Outs
test Speed

Confirm with the key **ENT**

The display changes as follows:

Outputs
0 0 0 0 0

LS01

MITSUBISHI GMFY

In order to check the working remember that the outputs have the following setup:

Outs Speed
1 2 3 4

ATTENTION: Before passing to the successive control put at zero the one in execution.

- In the position 1 the input relative to the AUTOMATIC SPEED 1 (SPEED1) function is visualized
Press the key **1** to enable / disable the function.
The value is 1 (on) when the function is enabled while the value is 0 (off) when it is disabled.
- In the position 2 the input relative to the function AUTOMATIC SPEED 2 (SPEED2) is visualized.
Press the key **2** to enable / disable the function.
The value is 1 (on) when the function is enabled while the value is 0 (off) when it is disabled.
- In the position 3 the input relative to the function AUTOMATIC SPEED 3 (SPEED3) is visualized.
Press the key **3** to enable / disable the function.
The value is 1 (on) when the function is enabled while the value is 0 (off) when it is disabled.
- In the position 4 the input relative to the function MACHINE STOP is visualized.
Press the key **4** to enable / disable the function.
The value is 1 (on) when the function is enabled while the value is 0 (off) when it is disabled.

To exit the function and return to the principal Menu press the key **ENT**

8.6.4.1. LIST OF THE AUTOMATIC SPEED USED

The automatic speed are of different types and they can be recalled through parameters inside the motor panel during the sewing. Here is the list with the features of every single speed.

- SPEED 0 = The machine starts rotating, between zero and the maximum speed settled through the parameter H, only if the control pedal in the box is set in any position different from 0 (zero).
- SPEED 1 = The machine starts rotating to the constant maximum speed set through the parameter L, only if the control pedal in the box is set in any position different from 0 (zero).
- SPEED 2 = The machine starts rotating to the constant maximum speed set through the parameter M, only if the control pedal in the box is set in any position different from 0 (zero).
- SPEED 3 = The machine starts rotating, between zero and the maximum speed settled through the parameter V even if the control pedal is the in the position 0 (zero).

To exit the function and return to the principal Menu press the key **ENT**

8.6.5.EXIT THE TEST FUNCTION

With the arrow down, place the flashing cursor beside the Test end.

The display changes as follows:

test Speed ■
test End

Confirm with the key **ENT**

On the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

8.7.SET THE DURATION OF THE CUTTING IMPULSE

At the ignition of the machine on the display appears:

VI.BE.MAC. 3022
1, PROGRAM 3

Press the key **PROG** keep it pressed until the second acoustic signal
The display changes as follows:

PASSWORD
* * * *

Insert with the keyboard the access code, (CODE used **7 – 8 – 9 – 0**)

On the display appears:

PROGRAM N

Select the number of the program to modify, the number

Press the key **ENTER**

On the display appears:

1, outs off

With the key down move to the line with the number

On the display appears:

XX , Time = 4

This parameter identifies the duration of the INITIAL SAFETY impulse,
insert the value **4** and confirm with **ENTER**

With the key down move to the line with the number

On the display appears:

XX, Time = 6

This parameter identifies the duration of the INITIAL CUTTING impulse,
insert with the value **6** and confirm with **ENTER**

With the directional keys, towards up and down, move to the line with the number

On the display appears:

XX, Time = 4

This parameter identifies the duration of the FINAL SAFETY impulse,
insert the value **4** and confirm with **ENTER**

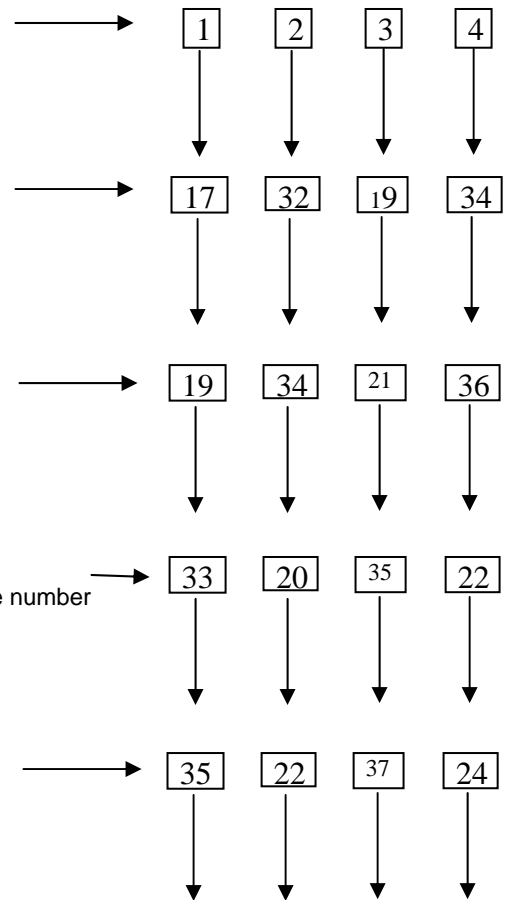
With the key down, move to the line with the number

On the display appears:

XX, Time = 6

This parameter identifies the duration of the FINAL CUTTING impulse,
insert the value **6 4** and confirm with **ENTER**

Press the key **PROG** to exit.



9. MITSUBISHI SERVOMOTOR

On the automatic unit is installed a **MITSUBISHI** servomotor of the **XL-554 CE** series combined to a panel of the **GMFY** series and a un Positioner of the **XC-KE-01P** series.

The Panel has a specific programming of the Inputs/Outputs, altered respect a to that mass produced.

On the motor is assembled a pulley of 85mm diameter of and the machine rotates at about 4000 stitch per minute.

9.1.POSITIONER:

In the Positioner of the **XC-KE-01P** series are two disks (starting from the inside to the outside):

1° Disk: Black Disk speedometer to survey the not adjustable speed. Needle stop position at the end of the stitching cycle.

2° Disk: Red Disk of the Needle stop position with pedal in neutral position during the stitching cycle.

To adjust the needle position at the end of the stitching cycle with the Thread Puller to the Upper Dead center, loosen the fixing screws of the Positioner to the wheel.

Feeling the Positioner still rotate the wheel in the required position.

Rotating the disks ANTICLOCKWISE the signal is anticipated.

Rotating the disks CLOCKWISE the signal is delayed.

9.2.TYPE FMFY PANEL:

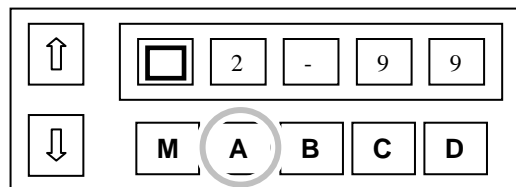
IN THE Motor panel **FMFY** model to select the different functions there are a Display and a series of buttons to recall in the different menus the necessary functions.

Set the type of sewing machine on the grounds of the list in the original technical manual.

For the electronic connections check the different settings, on the grounds of the list in the original technical manual from page 34 to page 56.

9.2.1.SETTING OF THE NEEDLE MACHINE STOP POSITION

On the display of the control panel appears:

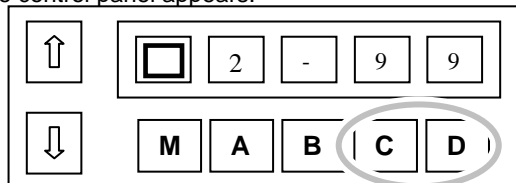


The first number identifies the type of stop of the sewing head during the stitching cycle putting the pedal in neutral position.

Setting the number 1 the machine stops with the Thread Puller to the Upper Dead center (PSU) (obligatory).

9.2.2.SETTING OF THE SPEED STITCHING MACHINE

On the display of the control panel appears:



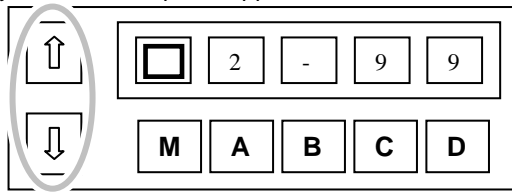
The couple of numbers highlighted identifies the value in percentage of the speed of the sewing head during the stitching cycle.

Press the buttons **C** and **D** to change the value of the speed, example 50% of the maximum set value.

Using range from 1 to 99% of the set value through the parameter H in P – P mode.

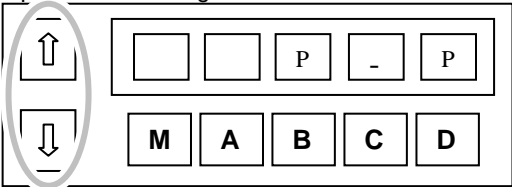
9.2.3.SETTING OF THE MAXIMUM SEWING SPEED-POSITIONING-CUTTING

On the display of the control panel appears:

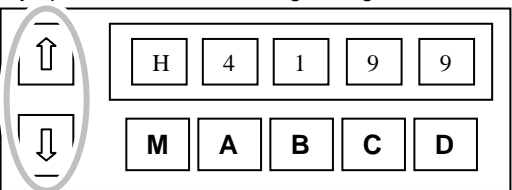


Press the **arrow up** ↑ and **down** ↓ at the same time

On the display appears the writing:



Keep the two keys pressed until the writing changes as follows:



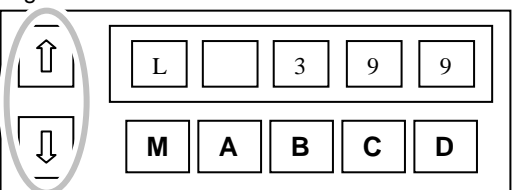
H = Maximum Set Speed

Adjust on value **4199 for the Chain Stitch Machine**

Adjust on value **3199 for the Lockstitch machine**

With the key **A = thousand B = hundred C = ten D =unit**

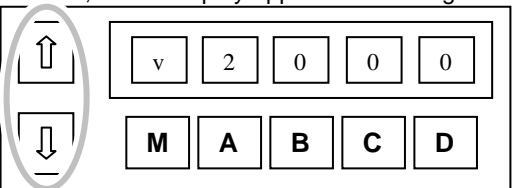
The writing changes as follows:



L = Maximum Set Speed

Adjust on value **399** with the key **B = hundred C = ten D = unit**

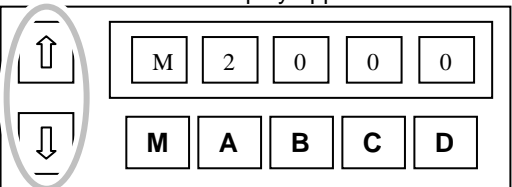
Press the arrow **down**, on the display appears the writing:



v = Set SPEED SPEED3

Ad just on value **399** with the key **A = thousand B = hundred C = ten D = unit**

Press the arrow **down** until on the display appears:



v = Set SPEED SPEED2

Adjust on value **399** with the key **A = thousand B = hundred C = ten D = unit**

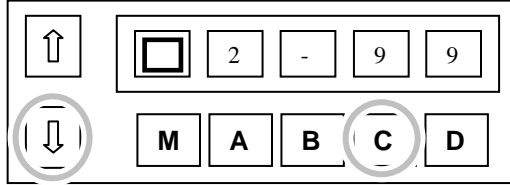
Press the arrow **down** until on the display appears:

Press the **arrow up** and **down** at the same time to exit

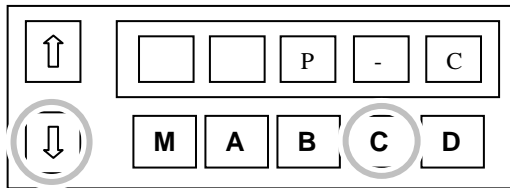
9.2.4.SETTING OF THE OUTPUT IMPLULSE NUMBER TO COMMAND A STEP BY STEP MOTOR

This adjustment is necessary to change the rotatory speed of the Step by Step motor on the grounds of the required stitch length.

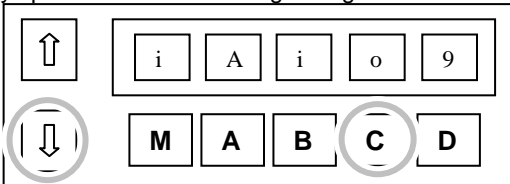
On the display of the control panel appears:



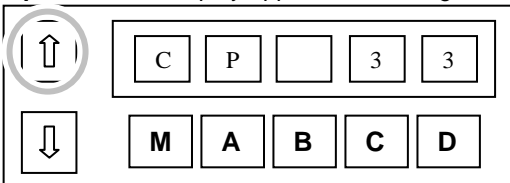
Press the **arrow down** ↓ and the key C at the same time.



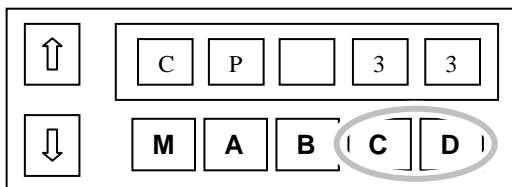
Keep the two keys pressed until the writing changes as follows:



Press the **arrow up** until on the display appears the writing:



With the keys **C** and **D** insert the number of the required impulses by the reading of the end of the material through the photocell.



Impulses base CP = 33

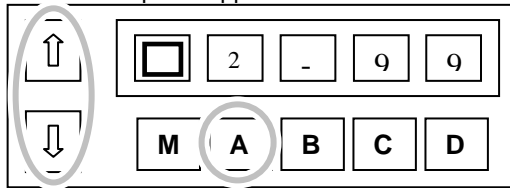
Press the **arrow up** and the arrow down at the same time to exit.

IMPORTANT: Every time that the number of impulses is modified, turn the unit off, wait until the display on the console turns off and then turn the unit on again.

NOTE: set the parameter "K points" at the inside of the basis parameters on the LS01 panel at the same value adjusted on the CP parameter.

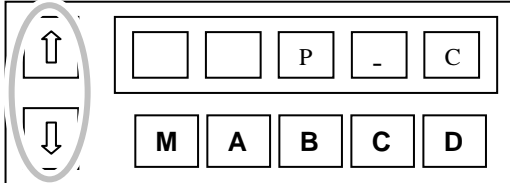
9.2.5.INPUTS/OUTPUTS TEST

On the display of the control panel appears:

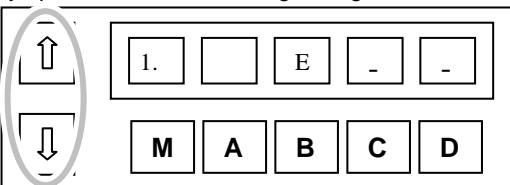


Press the **arrow up** ↑ and **down** ↓ and the key A at the same time

On the display appears the writing:



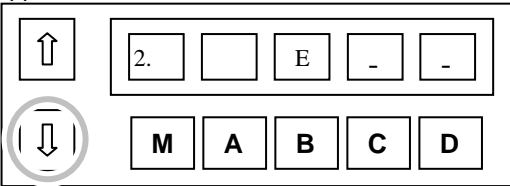
Keep the two keys pressed until the writing changes as follows:



On the display is visualized the last error message shown by the machine

Press the **arrow down**

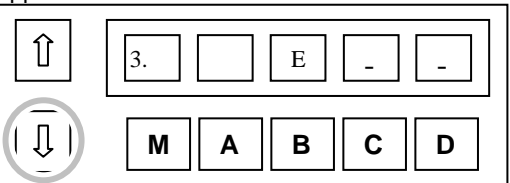
On the display appears:



On the display is visualized the last but one error message shown by the machine

Press the **arrow down**

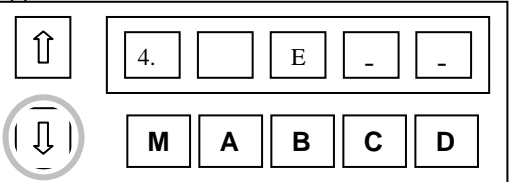
On the display appears:



On the display is visualized the last but two error message shown by the machine

Press the **arrow down**

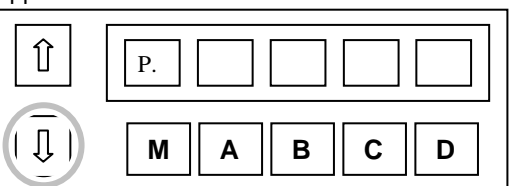
On the display appears:



On the display is visualized the fourth from last error message shown by the machine

Press the **arrow down**

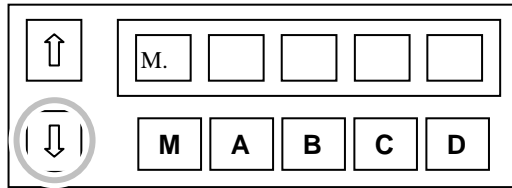
On the display appears:



Real hours of the ignition of the motor: the value must be multiplied by 10 (Total hours = n° X 10)

Press the **arrow down**

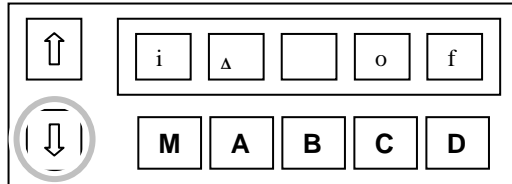
On the display appears:



Real hours of the motor rotation: the value must be multiplied by 10 (Total hours = $n^\circ \times 10$)
Press the arrow **down**

View of all the available INPUTS (from iA to i5) with the possibility of manual check

On the display appears:



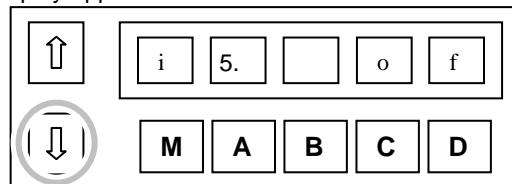
The INPUT value (ON/OFF) of the parameter **i A** is visualized.

Altering the logic condition of the belonging input (pedal – switch – detector – (photocell) the value changes from **o f** to **o n**.

Press the arrow **down** to inspect the parameters used:

FUNCTION	INPUT
Photocell Unstitching Signal	ID
Final Slowing Down Signal	IF
Variable Speed Rotation Signal	IG
Thread Puller Signal	IH
Presser Foot Lifter Signal	II
Input Speed Signal 2 Initial Cut	I1
Stop Machine Signal	I2
Input Speed Signal 1	I4
Input Speed Signal 2 Final Cut	I5

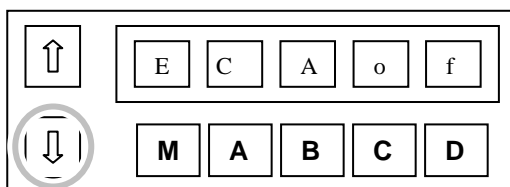
When on the display appears:



The INPUT value (ON/OFF) of the last parameter **i 5** is visualized.

Press the arrow **down**

On the display appears:



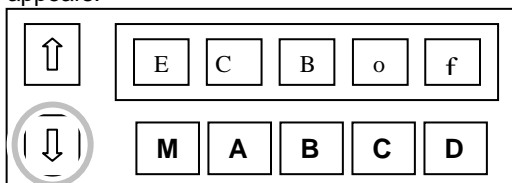
The ENCODER detector is placed inside the motor behind the fan cooling. Is a detector close to a magnetic disk.

Input parameter of the MOTOR ENCODER phase A

Revolving the synchronizer on the machine is possible to change it from **o n** to **o f** or vice versa.

Press the arrow **down**

On the display appears:

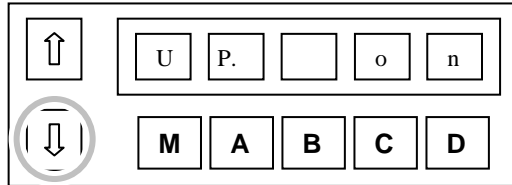


Input parameter of the MOTOR ENCODER phase B

Revolving the synchronizer on the machine is possible to change it from **o n** to **o f** or vice versa.

Press the arrow **down**

On the display appears:

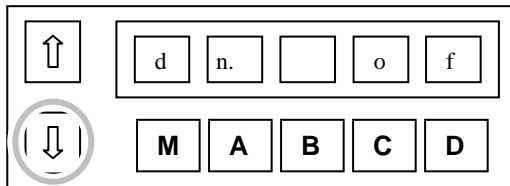


Input parameter of the High Thread puller detector position

Revolving the synchronizer on the machine is possible to change it from **o n** to **o f** or vice versa.

Press the arrow **down**

On the display appears:

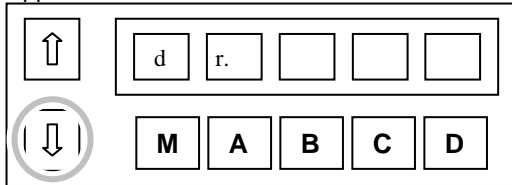


Input parameter of the reading detector of the low needle position

Revolving the synchronizer on the machine is possible to change it from **o n** to **o f** or vice versa.

Press the arrow **down**

On the display appears:

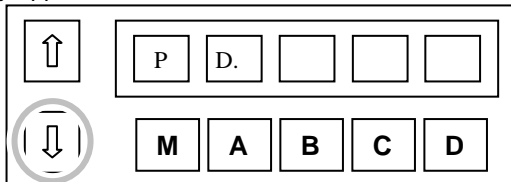


View of the angle of the current position reading needle of the signal **d n**

Revolving the synchronizer on the machine is possible to visualize the value.

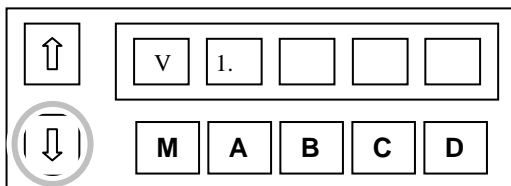
Press the arrow **down**

On the display appears:



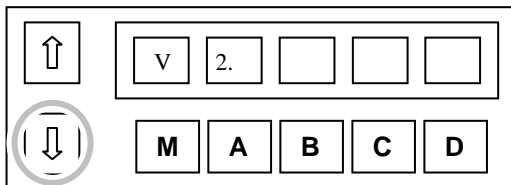
Numeric value that it is equal to the tension given by the variable speed parameter variable speed parameter VC with lowered pedal. Reading range from 000 to 3FF

Press the arrow **down**:



Numeric value that it is equal to the tension given by the variable speed parameter VC with OPTION B connector. Reading range from 000 to 3FF

Press the arrow **down**:

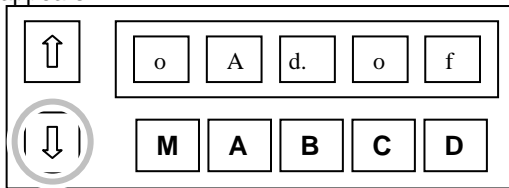


Numeric value that it is equal to the tension given by the variable speed parameter VC with OPTION B connector. Reading range from 000 to 3FF

Press the arrow **down**

View of all the signals that go from CPU to the INPUTS while the sewing machine is working

On the display appears:



SOFTWARE CHECK- In case of bad working of the outputs check the PARAMETERS placed in the MITSUBISHI motor

The value of the OUPUT signal of the parameter **0 A d** is visualized.

The parameters of the OUTPUTS usually set are the following:

Press the arrow **down** to inspect the parameters used:

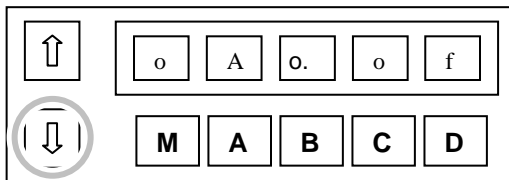
FUNCTION	OUTPUTS
----------	---------

Output Cooling Needle Signal	oCD
Output Cylinder Material Shoot Signal	oDD
Presser Foot Lifting Signal	oFD
Opening Tension Disk Signal	o2D
Machine Working Signal	o3D
Auxiliary Feeder Rotation Signal	o4D

Press the arrow **down**

View of all the available OUTPUTS with the possibility of manual check

On the display appears:



The value of the OUTPUT signal of the parameter **0 A o** is visualized.

Press the button **D** to modify the value from OFF to ON.

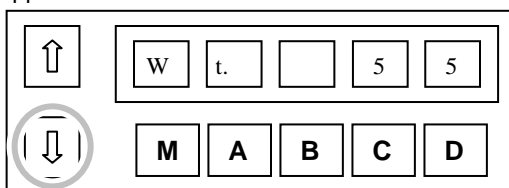
The outputs usually connected to the different terminals are the following:

Press the arrow **down** to inspect the parameters used:

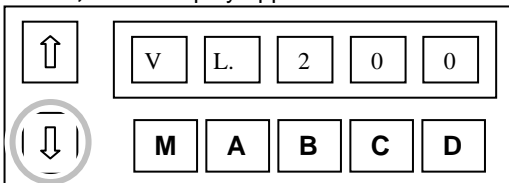
FUNCTION	DISPLAY	PARAMETER
Output Cooling Needle Signal	oCo	
Output Cylinder Material Shoot Signal	oDo	
Presser Foot Lifting Signal	oFo	
Opening Tension Disk Signal	o2o	
Machine Working Signal	o3o	
Auxiliary Feeder Rotation Signal	o4o	

Press the arrow **down** to inspect the parameters used:

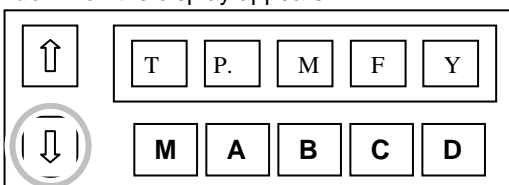
On the display appears:



Press the arrow **down**, on the display appears:



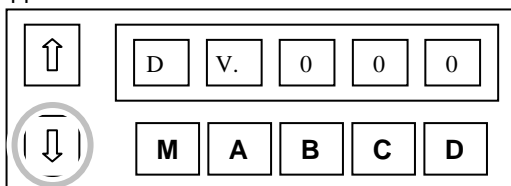
Press the arrow **down** on the display appears:



SOFTWARE CHECK- In case of bad working of the outputs check the PARAMETERS placed in the MITSUBISHI motor

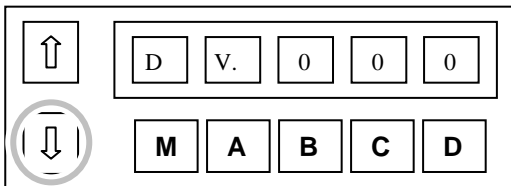
Press the arrow **down**

On the display appears:



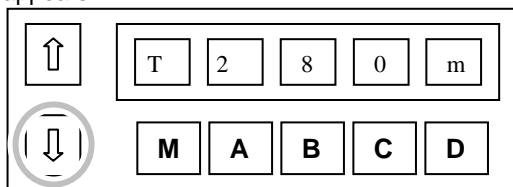
Press the arrow **down**

On the display appears:

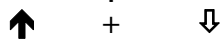


Press the arrow **down**

On the display appears:



Press the **arrow up** and the arrow **down** at the same time to exit



9.2.6.WRITE THE PROGRAMMING INTO THE MEMORY PANEL (BACKUP)

Switch the machine on keeping pressed **the arrow down** ↓ the button **A** and **C** at the same time

Switch on + ↓ + **A** + **C**

On the display appears the writing:

P - q (q mode)

Keep the THREE buttons pressed until the writing changes in:

U C S. of

Press the **arrow up** ↑ and the **arrow down** ↓ at the same time to exit

↑ + ↓

On the display of the control panel appears:

□ 2 - 9 9

Switch the machine off keeping pressed the **arrow down** ↓ and the buttons **A**, **B** and **D** at the same time

Switch on + ↓ + **A** + **B** + **D**

On the display appears the writing:

P - u (u mode)

Keep the buttons pressed until the writing changes in:

B a c k u p

Press the button **D** to make the copying cycle start.

Usually in about 5 seconds all the data are transferred. If during the transfer appears the following message

M - 5

Switch the machine off and repeat the operations above-mentioned.

9.2.7. .HOW TO RESET THE MEMORY OF THE PANEL (RESET)

On the display of the control panel appears:

□ 2 - 9 9

Press the **arrow down** ↓ and the buttons **B** and **C** at the same time

↓ + **B** + **C**

On the display appears the writing:

P - r (r mode)

Keep the THREE buttons pressed until the writing changes in:

R e s e t

Press the button **D** to make the copying cycle start.. Keep it pressed until the writings flashes three time
On the display of the control panel appears:

□ 2 – 9 9

9.2.8. LIST OF ERRORS

E - x

If during the working one of the following messages appears:

switch the machine on and check the cause of the problem through the following steps.
Here is the complete list of the errors and the possible solutions:

E - 1

Check if the feeding connector of the motor is properly connected.

E - 2

Check the voltage of the line (Over voltage)

E - 3

Check if the ENCODER connector on the motor panel is properly connected.
Check if the machine is not locked.
Check if the motor is not locked.

E - 4

Check if the feeding connector to the motor panel is properly connected.

E - 6

Problems with the INPUT signals (NOISE)
Check if there are not interferences in the INPUT signals to the software.

E - 8

Check if the machine is not locked
Check if the synchronizer is connected

E - 9

Check if the electro valves or the bobbins are not in short circuit.
Check if the synchronizer is connected

9.2.9.LIST OF PARAMETERS**First thing set : 280M (Factory setting)**

Mode	Function	Parameter	Standard	Set and Type	
C Mode	C1	IA	PSU	NO	Input
	C4	IB	PSD	NO	Input
	C	ID	PSD	NO	Input
	C49	IB	PSD	SPM	Medium Speed Initial Cut Input
	C62	I2	U	PSU	(value parameter speed 2) Stopping cycle Function
	C70	I4	NO	SPL	Slow Speed Cut Input (value parameter speed 1)
	C73	I5	NO	SPM	Medium Speed Final Cut Input (value parameter speed 3)
	C92	OC	B	NCL	Cooling Needle Output
	C118	O3	TF	OP	Machine in rotation Output
	C	O4	TF	NO	Machine in rotation Output
	C	CPK	ON	OF	Motor impulses Output CP enabled
	C	CP	0	33	Number of Impulses per rotation
H Mode	H1	LHH	90	42	Maximum Speed Limit Setting
	H3	LLH	5	4	Low Limit Speed Setting
	H7	LNH	30	20	Setting of the Final Speed Delay Limit
	H9	LMH	30	20	Setting of the Initial Speed Delay Limit
P Mode	P1	H	4000	4199	Maximum Speed
	P2	L	200	399	Low Speed
	P5	V	1700	1999	Final Delay Speed (value speed 3)
	P6	M	1700	1999	Initial Delay Speed (value speed 2)
Q Mode	Q17	TH	OF	OX	Breaking Valid Thread Detector (optional)
	Q18	TST	TR	ST	Operation after breaking thread survey
	Q19	B	600	1000	Speed until the detector is ignored
	Q20	THS	7	F	Number of stitches that the breaking thread detector ignores at the starting of a new cycle

C Mode Press the arrow down + Button C**H Mode** Press the arrow down + Arrow up + Button D**P Mode** Press the arrow down + Arrow up**Q Mode** Press the arrow down + Button B + button D**Press the arrow up and down to exit**

10. INPUTS

10.1. PHOTOCELLS

The THREE (3) photocells on the machine are of the "RT01" type.

Their function is to signal to the logic LS01 panel the position of the trousers on the machine worktable.

The photocells read the position of the trousers through the stainless steel mirror fixed to the worktable.

This kind of photocells has two (2) light to check the working:

GREEN LIGHT ON

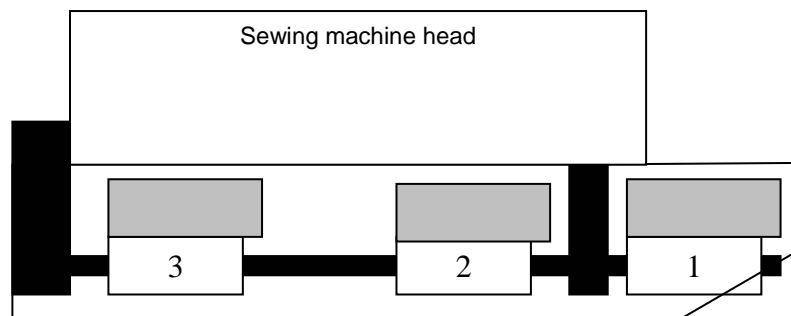
- The photocell is on with the output value to OFF, can read through the stainless steel mirror.

GREEN AND RED LIGHTS ON

- The photocell is on with the output value to ON, cannot read because the stainless steel mirror is covered with material.

IMPORTANT:

Every morning clean with a piece of cloth the optical reader and the mirror to remove the dust accumulated during the working of the machine.



The N°1 is placed close to the user and is the photocell to check the Unstitching function.

Is connected to the LS01/P panel through the inputs 15 poles rear connector.

Is connected to the clamps following this order:

n°7 light blue wire

n°1 Black wire

n°5 Brown wire

The orange wire is NOT connected to any pole.

La N°2 is placed in central position and is the photocell to check the Automatic Stop function.

Is connected to the LS01/P panel through the inputs 15 poles rear connector.

Is connected to the clamps following this order:

n°7 light blue wire

n°2 Black wire

n°5 Brown wire

The orange wire is NOT connected to any pole.

La N°3 is placed close to the Puller Roller is the photocell for the Cutting Function.

Is connected to the LS01/P panel through the inputs 15 poles rear connector.

Is connected to the clamps following this order:

n°8 light blue wire

n°3 Black wire

n°6 Brown wire

The orange wire is NOT connected to any pole.

10.2. SAFETY SENSOR

The detector is placed vertically close to the cylinder of the Puller.

Is connected to the LS01/P panel through the inputs 15 poles rear connector.

Is connected to the clamps following this order:

n°9 light blue wire

n°11 Black wire

n°10 Brown wire

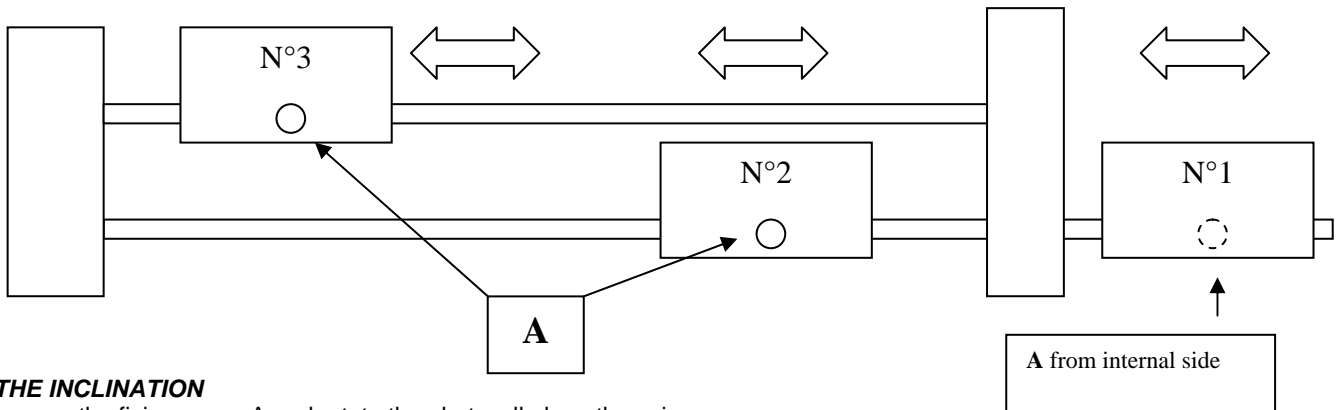
The orange wire is NOT connected to any pole.

10.3. PHOTOCELLS SETTINGS

On these photocells the position, the inclination and the sensibility can be varied.

THE POSITION

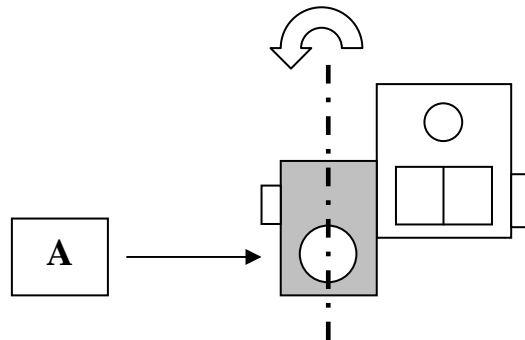
Loosen the fixing screw A and shift the photocell along the fixing rod.



THE INCLINATION

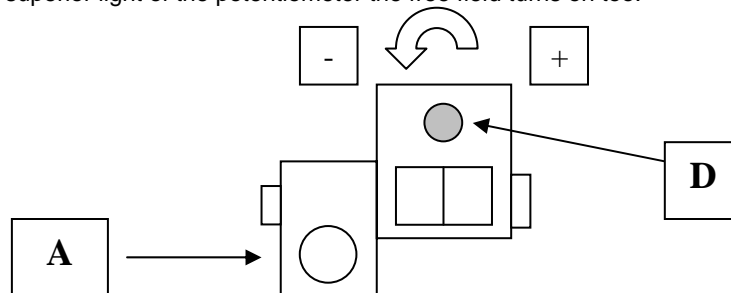
Loosen the fixing screw A and rotate the photocell along the axis.

Attention: the photocell can read in an incorrect way if the inclination is not perpendicular to the reading mirror below.



THE SENSIBILITY

Rotating the potentiometer D placed in the frontal side of the photocell, the sensibility can be varied. With the sensibility at minimum, the red superior light of the potentiometer the free field turns on too.



When the photocell is at maximum sensibility fake signals can happen.

11. ELECTRO VALVES

The Electro Valves assembled in the machine are the following:

11.1.CUTTING

This 5 way EV6 Electro Valve, of the EA58ML model, has a 6W 24V DC bobbin. This commands the cutting cylinder fixed to the shearing machine and it is connected to the LS01 panel through the 9 poles rear OUTS connector.

At the inside the clamps are connected to the numbers n°3 and 7.

ATTENTION

If the lever connected to the safety cylinder cannot entirely perform the movement, and the safety detector cannot read, the Unit does NOT perform the CUTTING function.

11.2.UNSTITCHING

This 3 way EV3 Electro Valve, of the PA13 model, has a 2,5 W 24V DC bobbin.

This commands the cylinder for the insertion of the unstitching comb. Connected to a flux regulator and it is connected to the LS01 panel through the 9 poles rear OUTS connector.

At the inside the clamps are connected to the numbers n°1 and 6.

11.3.PINCER

This 5 way EV5 Electro Valve, of the EA58ML model, has a 6W 24V DC bobbin.

This commands the couple of the cylinders that close and e moves the pincer group and it is connected to the LS01 panel through the 9 poles rear OUTS connector.

At the inside the clamps are connected to the numbers n°2 and 6.

11.4.SAFETY

This 1 way EV1 Electro Valve, of the PA13 model, has a 2,5 W 24V DC bobbin.

It drives the safety cylinder, with the anterior part of the cylinder connected to a reduction air group, and it is connected to the LS01 panel through the 9 poles rear OUTS connector.

At the inside the clamps are connected to the numbers n°4 and 7.

ATTENTION

If the lever connected to the safety cylinder cannot entirely perform the movement, and the safety detector does not close the electric contact inside the unit does NOT perform the Cutting function..

11.5.PRESSER FOOT LIFTER

This 3 way EV4 Electro Valve, of the PA13 model, has a 2,5 W 24V DC bobbin.

It drives the Presser Foot Lifter cylinder, with the superior part of the cylinder connected to a Reduction group and it is connected to the motor panel through the 4 poles F.L. connector.

At the inside the clamps are connected to the numbers n°3 and 4.

11.6.NEEDLE COOLING

This 3 way EV2 Electro Valve, of the PA13 model, has a 2,5 W 24V DC bobbin.

It is useful to COOL THE NEEDLES, connected to a flux regulator and connected to the motor panel through the 12 poles connector S.M.

At the inside the clamps are connected to the numbers n°11 and 12.

12. SAFETY MICRO SWITCH

The purpose of this micro switch is to prevent the Cutting function in the case that the safety cover is removed.

It's a lever micro switch, of the V9LR model, fixed between the right support of the Puller and the cover of the shearing machine.

Is connected in series between the LS01 panel and the EV6 electro valve.

13. CYLINDERS

In the machine there are 5 cylinders for the following functions:

13.1.CUTTING

Is a 40/40 cylinder with internal bumper.

Is connected through the fork to the superior mobile knife, and it is fixed in the back to a vertical support, through a pin blocked by a grub screw.

Changing the position of the vertical support is possible to vary the final position of the superior knife when the cylinder is in extent.

13.2.SAFETY CUTTING

È un cilindro 10/5.

Is connected through the fork to the lever that makes the safety sensor reading, and it is fixed in the back to a vertical support, through a pin blocked by a grub screw.

Changing the position of the fork is possible to vary the final position of the superior blade when the cylinder is in extent.

Always check in case of bad working if the safety detector can read the position of the cylinder.

13.3.PRESSER FOOT LIFTER

It is a 27/35 double-acting cylinder.

It is inside the machine and it is directly connected to the Presser Foot.

13.4.PULLER

It is a 25/25 double-acting special cylinder.

It is placed in front of the shearing machine and it is connected through a plug to its support.

The working pressure of the cylinder is supplied by the reduction group placed under the table.

Usually the working pressure is of 2 bars and it is given by the difference between the general air pressure and that sent to the cylinder through the reduction group.

13.5.UNSTITCHING

It is a special single-acting cylinder with spring back.

It is fixed inside the sewing head, under the horizontal cover where it is also fixed the cutting group.

The output speed of the cylinder is given by the flux regulator at the specific electro valve output.

14. PULLING MATERIAL DEVICE

The pulling material device, continuously, uses a couple of cylinders placed behind the Presser Foot and before the Cutting device. While the speed of the lower roller is given by the Step by Step motor, the upper roller receives the movement through a pulley with a variable diameter. The advantage of this solution is the possibility to vary or maintain equal the speed of the upper roller respect to the lower roller, to increase the wereability of the trousers.

14.1.UPPER RUBBER ROLLER - PULLER

The Puller group is placed precisely on the axis of the original lower roller of the machine.
The purpose of the Puller is to pull the upper part of the waistband, so that the material is pulled and stitched by the machine perfectly joined, in order to increase the wereability of the waistband of the trousers.
To adjust the draft of the Puller, operate on the special pulley with variable diameter placed on the upper shaft of the equipment.

14.1.1.ADJUSTING OF THE POSITION

The user **MUST** turn the unit off following the procedure 5. STOP THE MACHINE.
The working position is determined by the two fixing screws of the Puller group.
These allow to change towards right or left the group to increase or decrease the bending of the waistband and therefore the wereability of the trousers.

14.1.2.CHANGE THE RUBBER ROLLER

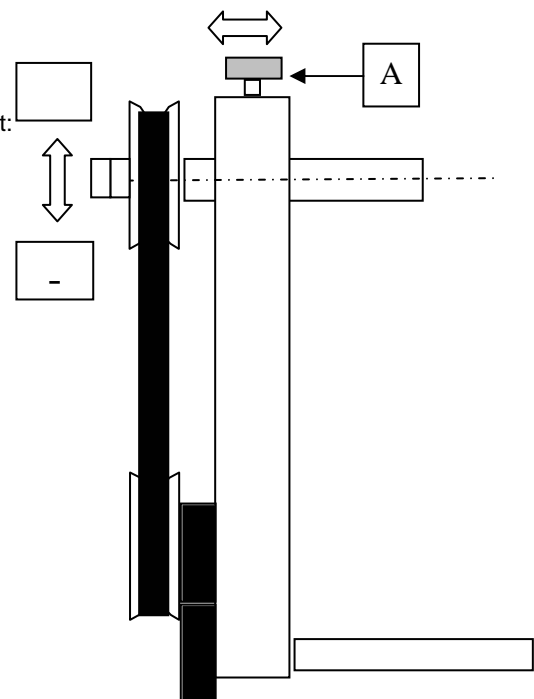
The user **MUST** turn the unit off following the procedure 5. STOP THE MACHINE.
Remove the safety cover loosening the fixing screws.
Lift the Roller acting on the cock placed on the upper side of the Puller cylinder.
Loosen the self-locking nut with a 10 mm key, keeping the roller steady with a hand through the upper joint shaft.
Remove the washer and the couple of rollers extracting them from their place.
Insert a new roller, checking that is right for the kind of material that you are sewing.
For the Denim/Jean's the BLACK one is recommended, for the other materials the WHITE one is recommended.
Locking the self-locking nut with a 10 mm key, keeping the roller steady with a hand through the upper joint shaft..
Place the safety cover screwing the fixing screws.
Lower the Roller acting on the cock placed on the upper side of the Puller cylinder.
Turn the machine on and start the production.

14.1.3.VARIABLE PULLEY

The pulling material device, continuously, uses a couple of cylinders placed behind the Presser Foot and before the Cutting device. The speed of the teathed lower roller is given by the Step by Step motor while the upper roller, in rubber, receives the through a pulley with variable diameter. The advantage of this solution is to maintain equal the speed of rotation between the rollers, or the possibility to vary the speed of the upper roller, respect to the lower roller, to increase the waistband sewing quality of the trousers.
This pulley takes the movement from the Pinion fixed to the external inferior shaft of the machine and transmit the rotary movement to the rubber Roller of the Puller.
In the pulley there is a knob to vary the gear ratio between the lower roller and the superior one.
Screwing the knob of the regulation of the pulley diameter ,the speed of the upper roller increases and decreases, respect to the movement received by the machine.
Shifting the adjustment lever towards up the ZEROMAX decreases the draft, respect to the movement received by the machine.

ADJUSTMENT

To obtain the best compromise draft/duration
Of the roller is necessary to perform with a good accuracy the following adjustment:
Execute a stitching cycle on the trousers of about 20 cm.
Check that the material is pulled by the upper roller.
Loosen the knob to reduce the speed of the upper roller,
as to obtain a slight waviness of the material in the sewing cycle.
Execute a new stitching cycle on the trousers of about 20 cm.
Increase a little the draft of the upper roller slightly screwing the knob (A).



14.2.LOWER TOOTHED ROLLER

The purpose of the lower toothed roller moved by the step by step motor, is to shift the material on the grounds of the required length stitch and to pull the lower part of the waistband, so that the material is perfectly joined and sewed by the Unit, to increase the wereability of the waistband of the trousers, even though in the presence of peculiar materials like stretch, multifibres etc.

To adjust the roller rotation speed, and therefore the required stitch length, operate on the motor panel on the specific CP parameter.

Follow the specific directions at paragraph "9.2.4. SETTING OF THE OUTPUT IMPLULSE NUMBER TO COMMAND A STEP BY STEP MOTOR".

15. FOLDER

The Folder has the purpose to drive the material to form the waistband and it is placed on a special removable support.

The features of the Folder depends on:

- the type of waistband (SINGLE or DOUBLE)
- the height of the waistband
- the type of material in use

The Folder is fixed with its support to an articulated Folder holder.

Pulling the Folder towards you, this moves from its position in front of the presser foot in order to allow all the necessary operations.

To get a constant quality of the waistband, the Folder must be centred as regards to the needles and to the presser foot checking the Position, the Height and the Inclination of the Folder.

15.1.POSITION

Check that the Folder, loosening the two fixing screws, is placed according to the following rules:

- that the Folder is aligned on its left side with the left side of the Presser Foot.
- that the Folder does not touch the Presser foot not at all.
- that the Folder does not touch the worktable of the machine with the adjustable claw.

15.2.WORKTABLE HEIGHT

Check that the Folder, loosening the two fixing screws, is placed according to the following rules:

- that the Folder is parallel with the worktable.

15.3.INCLINATION OF THE BORDER HOLDER

Check that the Folder, loosening the two fixing screws of the Folder holder, is placed according to the following rules:

- that the Folder is parallel with the worktable.

Check that the Folder makes a waistband with the left upper and lower margins equals.

When the inclination is varied, always check the height and the subsequent position of the Border.

16. BAND GUIDE

The purpose of the band guide is to guide and slightly pull the waistband before its entrance in the Border.
Set the adjustable support as to obtain the right tension.

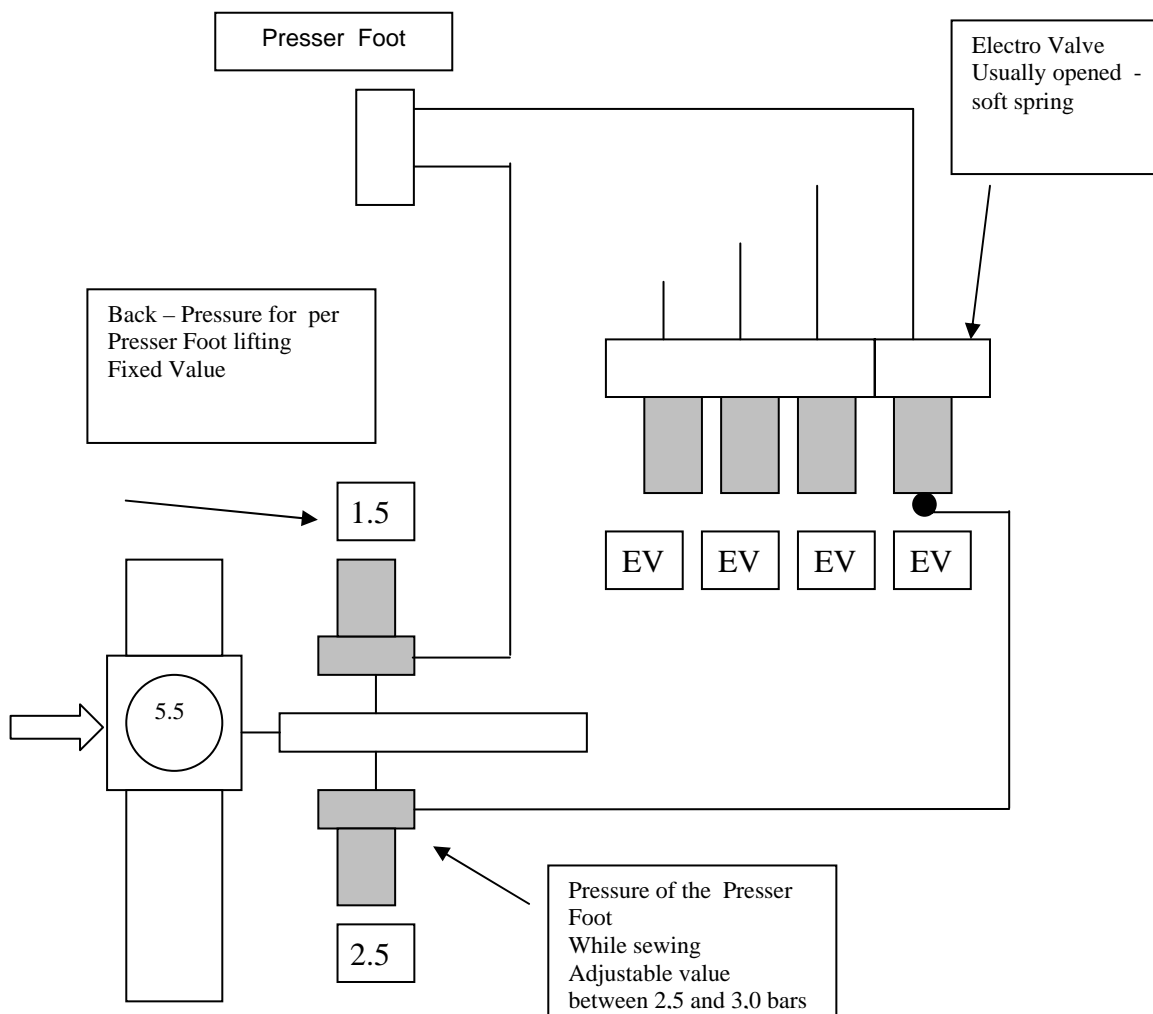
In case of STRETCH material decrease to minimum the number of passages, to avoid problems with the measure of the sewn waistband, after his application on the trousers.

17. ADJUSTMENT OF THE PRESSER FOOT PRESSURE

The pressure of the presser foot is adjusted by the pressure governor in the pneumatic circuit (see scheme).

The presser foot must be adjusted with the minimum possible working pressure, paying attention that the presser foot does not hop in vain and the material below can not wave at full speed.

Perfectly adjusting the pressure the obtained waistband has an optimal wearability even though in presence of particular materials.



18. ADJUSTMENT OF THE MECHANICAL EQUIPMENT

The user **MUST** turn the unit off following procedure 5. HOW TO STOP THE MACHINE before performing any adjustment.

18.1 CUTTING DEVICE

The user **MUST** turn the unit off following procedure 5. HOW TO STOP THE MACHINE.

Here is a list of the most common adjustments that must be carried out on the machine in case of bad working.

Always check that the couple of knives are sharpened and do NOT show toothings.

18.1.1 ADJUSTMENT OF THE MOVABLE KNIFE POSITION

When the cutting cylinder is completely extended, loosening the screws that fix the vertical support, with a wrench of about 13 mm, the final position of the upper mobile knife can be varied.

Check that the final part of the movable knife exceeds the fixed knife of about 2 mm.

With the two screws that fix the vertical support, it can also be checked the alignment of the cylinder with the movable knife, checking that the movement of the cylinder is free in any directions.

18.1.2 ADJUSTMENT OF THE CUTTING PRESSURE

On the movable knife the cutting pressure can be varied.

Loosening the fixing bolt with a 10 mm key, the pressure can be increased or decreased, screwing in or loosening the adjustable screw.

With the movable knife in home position (completely opened) the THREE (3) cup washers must be slightly frictioned.

18.1.3 UPPER KNIFE CHANGE

Remove the movable knife group, loosening the fixing bolt with a 10 mm key and unscrewing the pressure adjustment screw.

Loosening the fixing screws, with a 4 mm Allen key.

Remove the knife and clean carefully the support.

Insert the new knife e reassemble the whole.

Is always recommended to change the knives in couple to avoid bad working.

18.1.4 LOWER KNIFE CHAGE

Remove the movable knife group, loosening the fixing bolt with a 10 mm key and unscrewing the pressure adjustment screw.

Loosening the three (3) fixing screws, with a 4 mm Allen key.

Remove the knife and clean carefully the support.

Insert the new knife e reassemble the whole.

Is always recommended to change the knives in couple to avoid bad working.

18.2.UNSTITCHING DEVICE

The user **MUST** turn the unit off following procedure 5. HOW TO STOP THE MACHINE.

Here is a list of the most common adjustments that must be carried out on the machine in case of bad working.

18.2.1 UNSTITCHING LATTEN ADJUSTMENT

Loosening the couple of screws on the latten holder slide, is possible to adjust the position of the latten itself.

Check if the position of the spreader group is correct and then check if:

- the latten is completely leaned against the support of the spreader, with the slide free to carry out the two movements.
- the latten is able to cover with its comb the spreader hook avoiding the formation of the chain stitch.
- that the distance between the latten with its comb, and the upper part of the lower crochet is 0,5 mm at least.
- that the distance between the needle, at Lower Dead Center, and the frontal side of the comb is of 2 mm.

18.2.2. CYLINDER-SLIDE SUPPORT ADJUSTMENT

The unstitching cylinder moves a slide, to which the unstitching latten is fixed.

To avoid the slide to take the axial play, a "U"-shaped support is assembled, inside which the cylinder-slide union support runs.

Check that the "U"-shaped support touches for all its length the union support without hindering the movement.

19. MECHANICAL ADJUSTMENT OF THE SEWING HEAD

The 3022 automatic unit uses a new sewing head expressly built for this kind of sewing from VI.BE.MAC. Spa.

The user **MUST** always turn the unit off following procedure 5. HOW TO STOP THE MACHINE before turning any stitching organ on.

Here is a list of the most common adjustments that must be carried out on the machine in case of bad working.

We remind you that only the staff authorized by VI.BE.MAC. Spa is qualified to repair the machine in object.

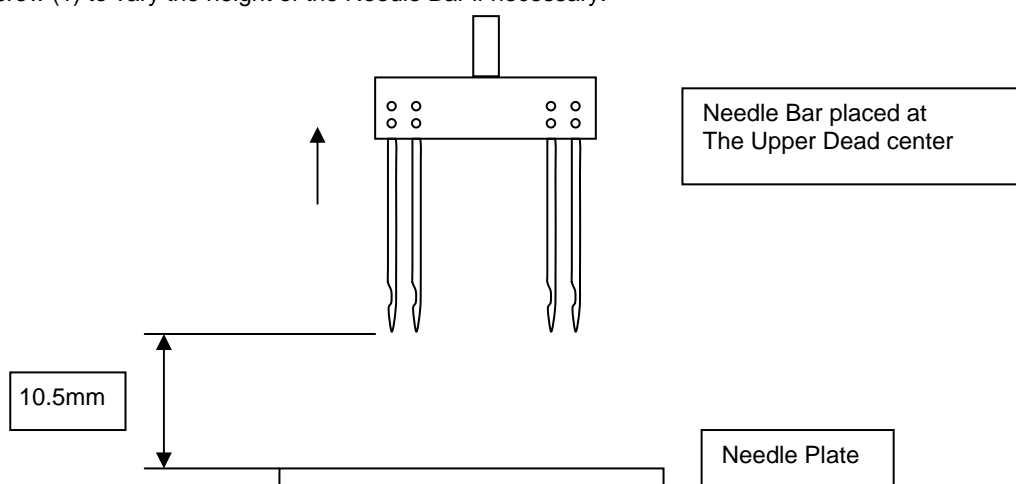
For any problem that cannot be solved immediately or for further information, please contact your VI.BE.MAC. dealer or our Technical Department.

19.1.NEEDLE BAR HEIGHT

For the correct adjustment of the sewing head, place the Needle Bar to the Upper Dead Center.

Control that the distance between the point of the needle and the needle plate is of about 10,5mm, as shown in the next scheme:

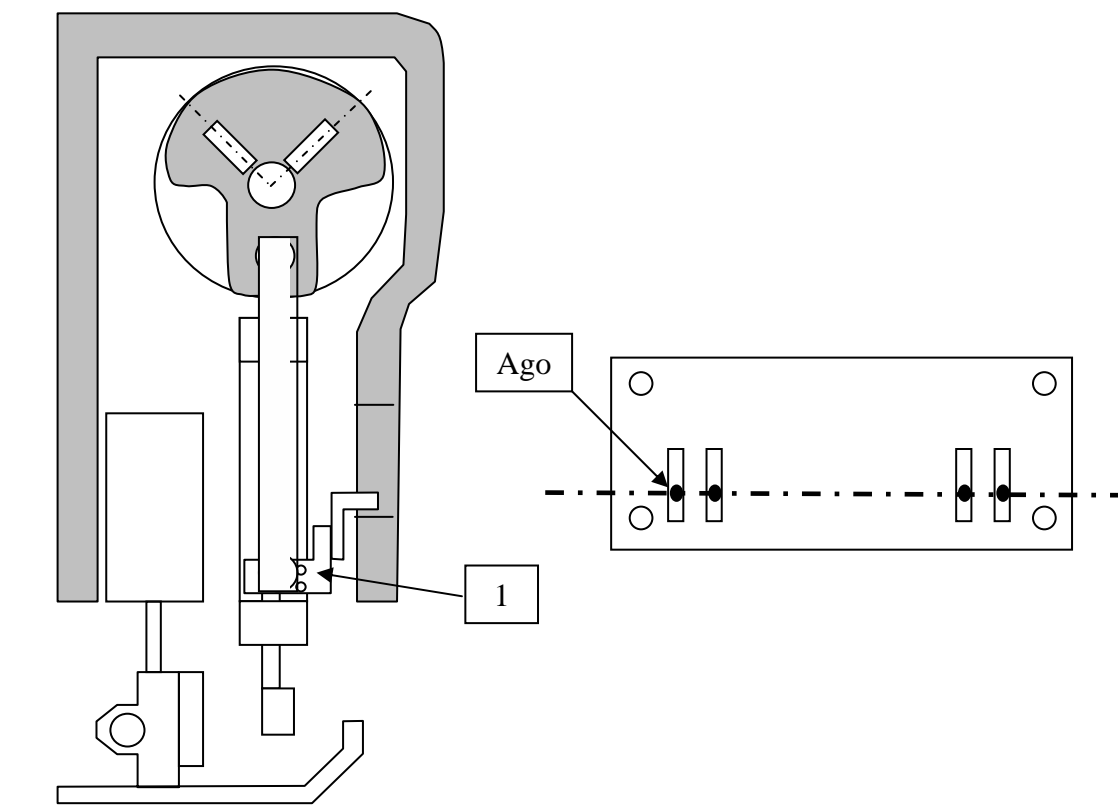
Loosen the fixing screw (1) to vary the height of the Needle Bar if necessary.



In the case the 4 needles are not perfectly aligned turn the Needle Bar to obtain the same distance for the external needles.

Loosen the screws (1) on the clamp that fixes the Needle Bar and gently turn the needle bar to place correctly the needles.

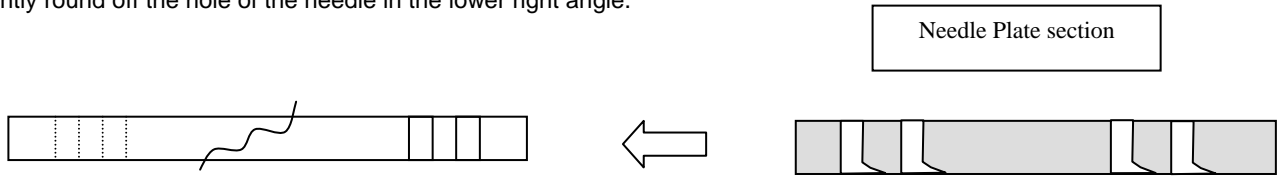
Screwing the screws (1) on the clamp that fixes the Needle Bar and check again if the pendulum position is correct.



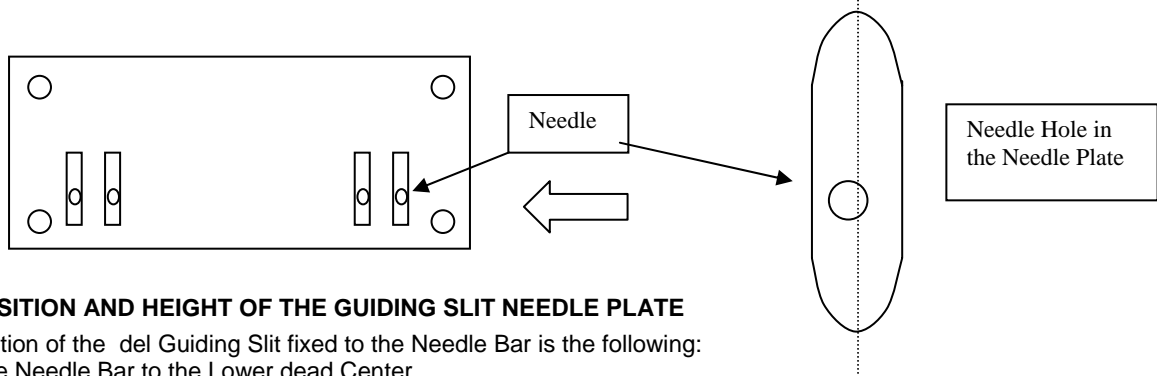
19.2.NEEDLE PLATE

For the correct adjustment of the sewing head, check that the different mechanical parts are adjusted according to the following scheme:

Lightly round off the hole of the needle in the lower right angle.

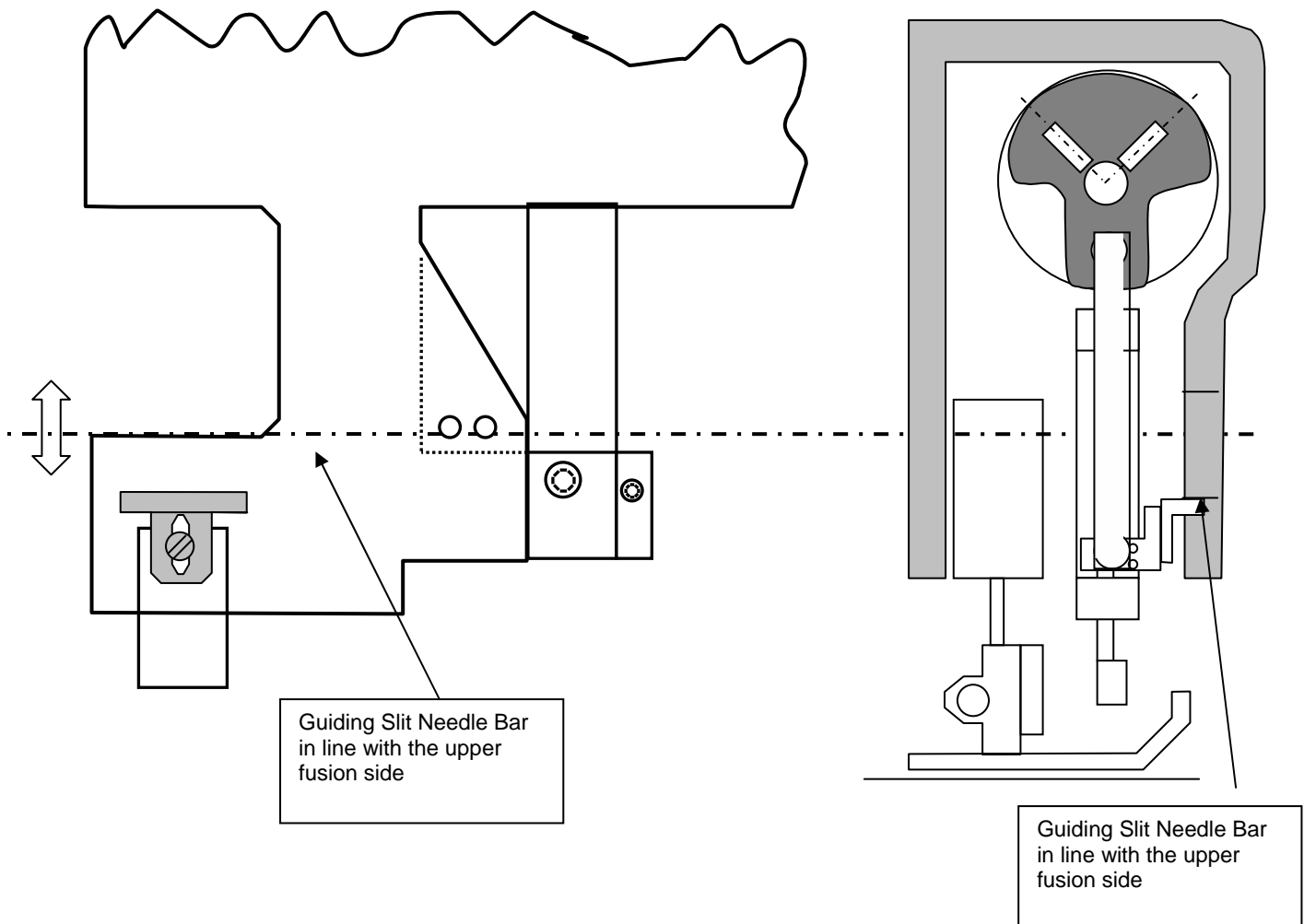


Place the needle plate towards so that the needle is lightly out of center respect to its own hole, as represented in the picture below:



19.3.POSITION AND HEIGHT OF THE GUIDING SLIT NEEDLE PLATE

The position of the Guiding Slit fixed to the Needle Bar is the following:
Place the Needle Bar to the Lower dead Center



19.4.ECCENTRIC FOR THE TRANSLATION MOVEMENT OF THE NEEDLE BAR

The purpose of this eccentric is to move the needle in synchrony with the material.

19.4.1.POSITION

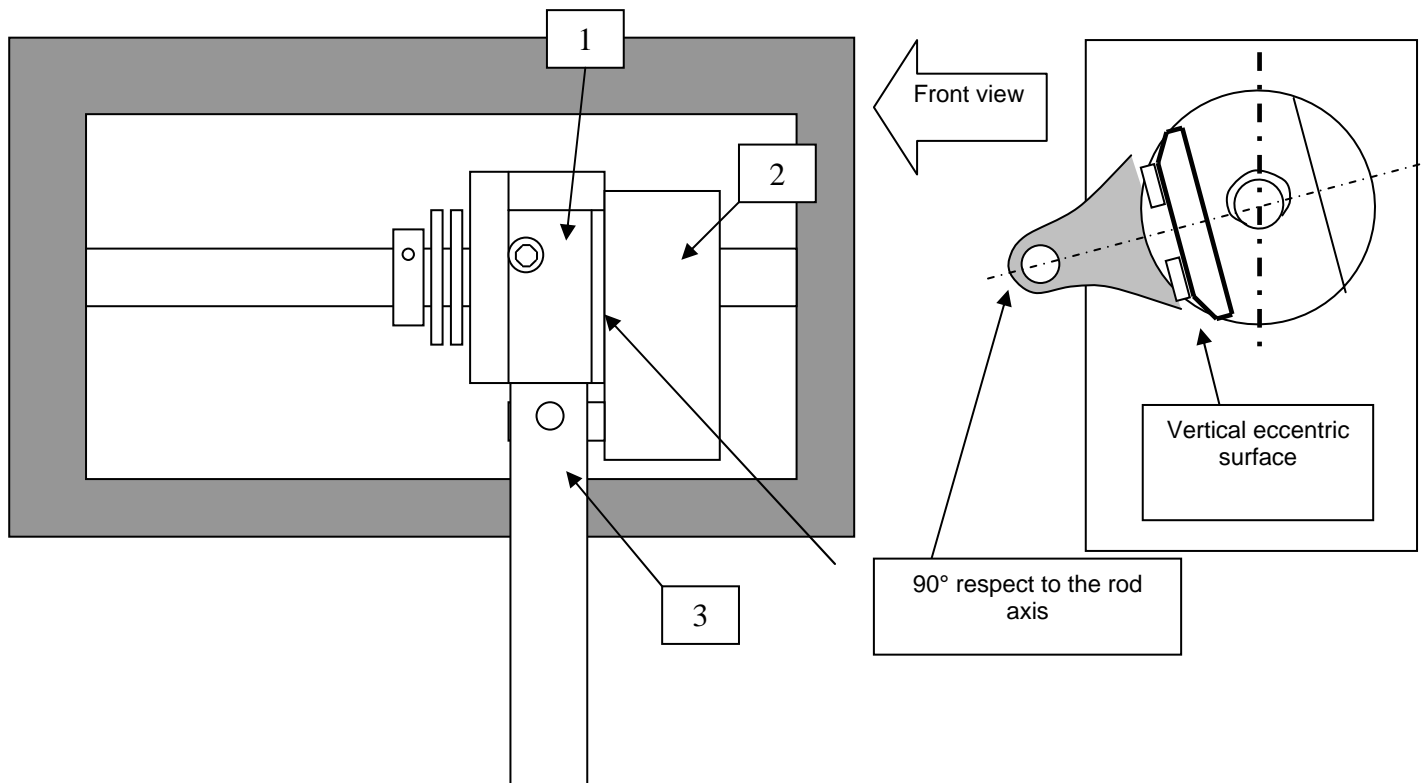
Place the Needle Bar to the Lower Dead Center, in order to find the correct position of the eccentric of the Needle Bar translation, respect to the Upper shaft inside the sewing head, so that the movement is perfectly symmetric respect to the needle plate hole.

The eccentric is placed with the vertical table towards the outside.

Check the position with the pictures below:

From the back view is possible to note:

At the inside of the fusion the right side of the eccentric (1) is parallel to its left side (2) where is connected the lever (3) that moves the pendulum of the Needle Bar.



In the frontal view from the loom of the Needle Bar, the eccentric (1) inside the fusion is parallel to the axis of the shaft.

19.4.2.MOVEMENT LENGTH

Always adjust the movement of the Translation of the Needle Bar on the grounds of the selected Stitch Length; to do so press the key A on the parte Upper side of the Head and rotate the wheel.

When the key A comes down in the dimple:

- rotating the wheel toward the operator (anticlockwise) the Needle Bar movement is lengthened.
- rotating the wheel toward the operator (clockwise) the Needle Bar movement is shortened.

Disconnect the key rotating it anticlockwise to extract it from the dimple.

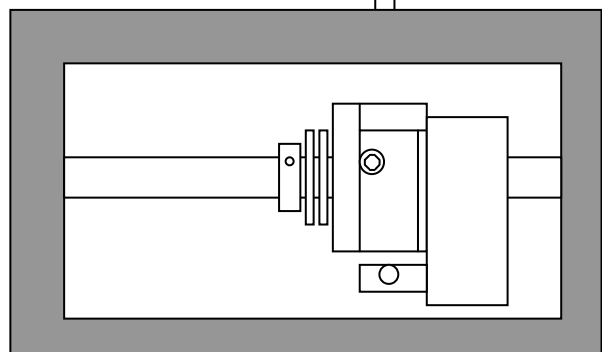
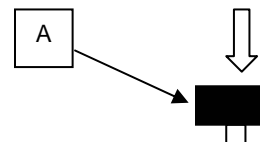
Insert a piece of paper of about 40cm long, execute a seam to check if the needle pierces the paper perfectly, or if the paper is ripped (elliptic hole).

Ad just the length of the movement until the hole is perfectly executed.

ATTENTION

NEVER push the key A while the machine is in rotation.

Before starting the machine check that key A is disconnected.

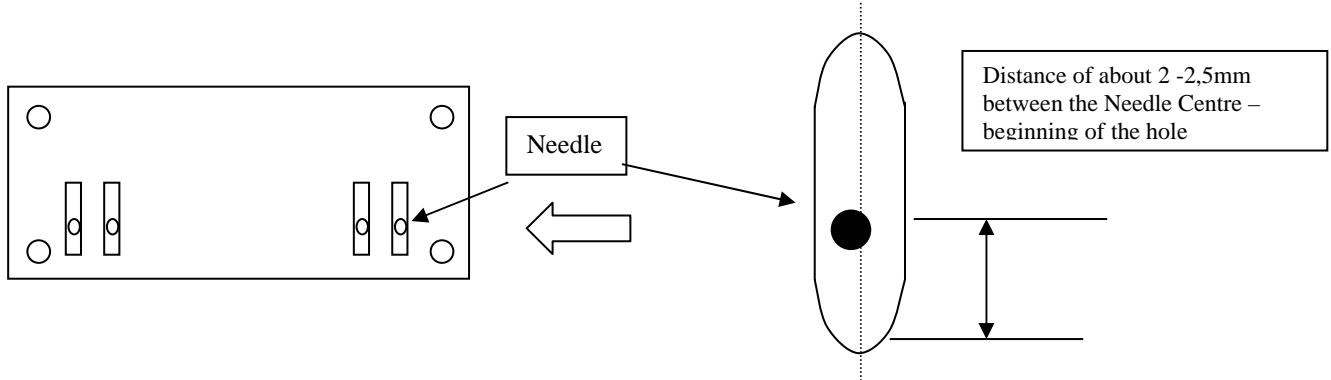


19.5. NEEDLE BAR PENDULUM POSITION

The adjustment of the position of the needles respect to the hole of the Needle Plate is very important, if it is not correctly executed this might lead to troubles during the stitching (skip of the stitch).

Rotate the wheel with the hand, with the movement of the needle toward down, when the hole on the needle and is at the same level of the plate loosen the fixing screw (1) of the pendulum of the Needle Bar.

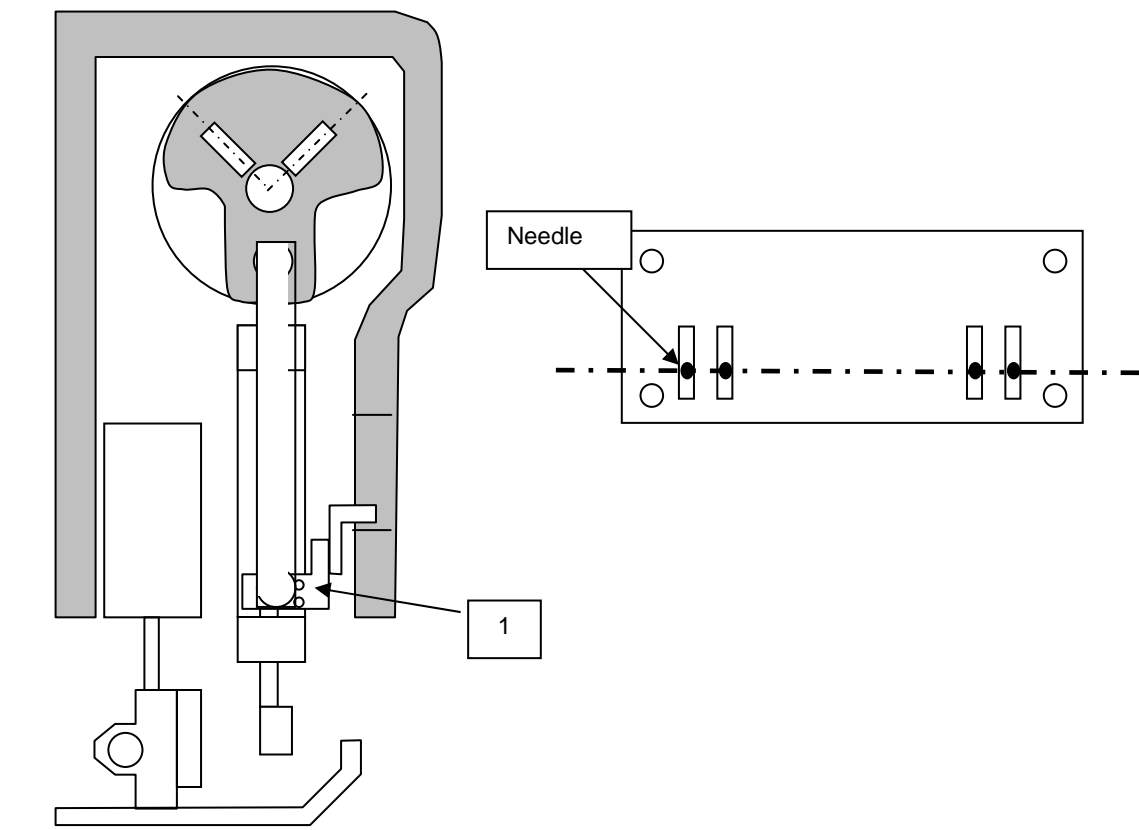
Then shift the needles to the specific measure 2 -2,5mm as represented in the picture below and screwing again the fixing screw (1):



In the case the 4 needles are not perfectly aligned rotate the Needle bar to obtain the same distance for the external needles.

Loosening the screws (2) on the clamp that fixes the Needle Bar and gently rotate the Needle Bar to locate correctly the needles.

Fix the screws (2) on the clamp that fixes the Needle Bar and check again if the position of the pendulum is correct.



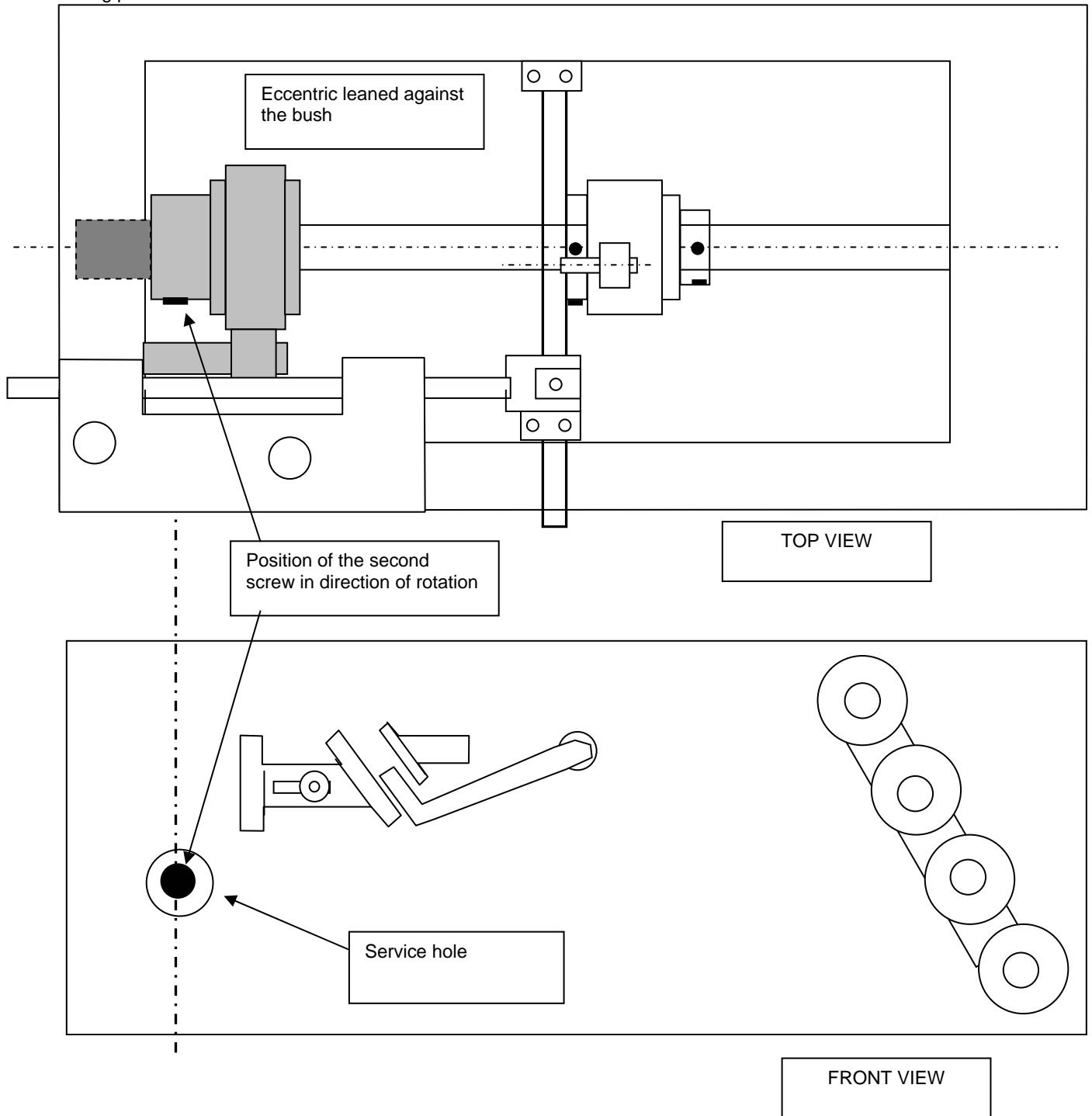
19.6.ECCENTRIC OF THE LOOP STARTINGS MOVEMENT

The purpose of this eccentric is to move in synchrony with the needle movement the looper movement, starting of the Needle Bar descent movement with starting of the stroke backward the loop and vice versa.

19.6.1.POSITION

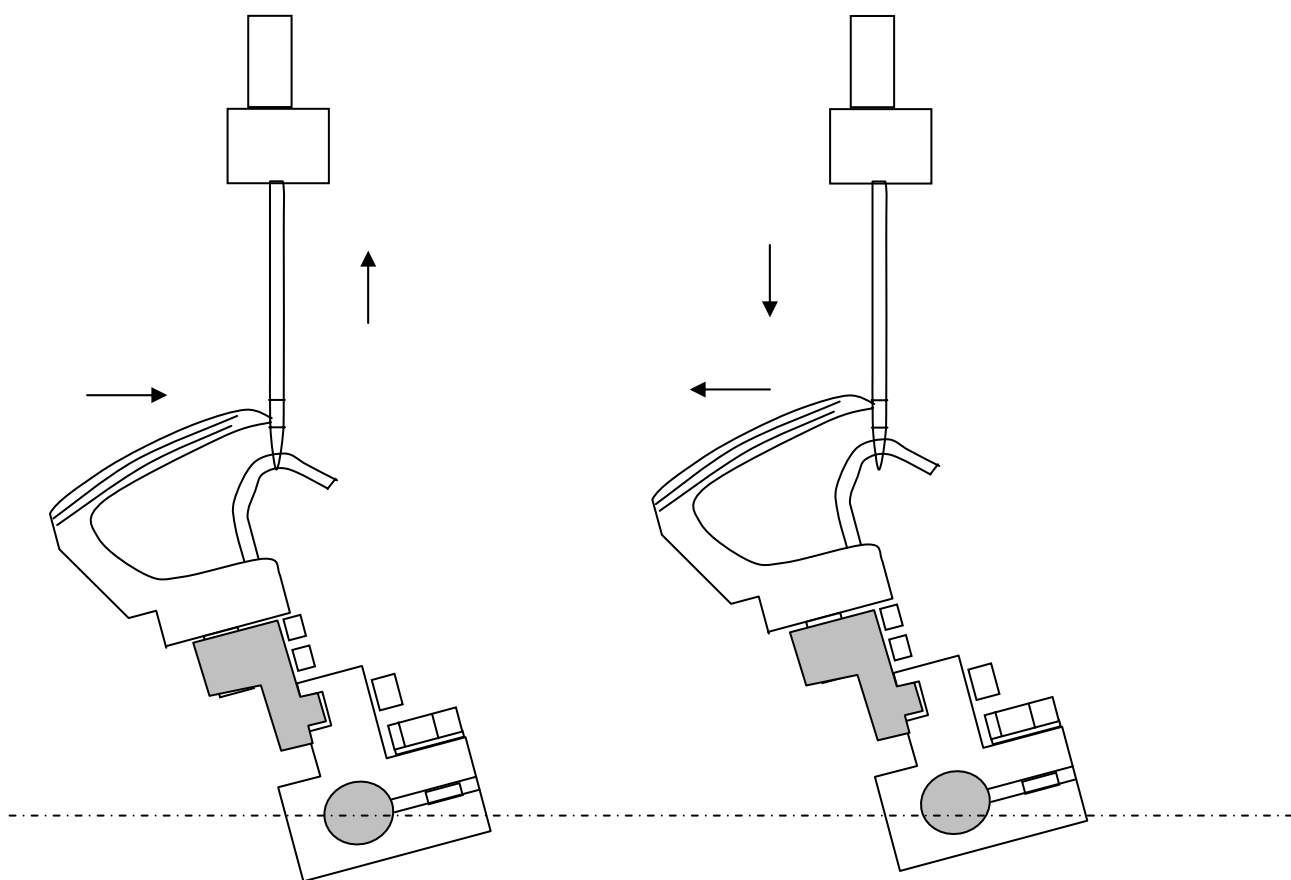
In order to place correctly the eccentric of the looper movement starting respect to the needle **place the Needle Bar to the Lower Dead Center.**

The eccentric is placed with the second screw in direction of rotation towards the outside, check its position through the two following pictures:



In this way, the point of the looper passes through the needle respect to the position of the dimple:

- In the forward movement of the looper it is lower respect to the center line of the dimple itself
- In the backward movement it is higher respect to the center line of the dimple itself



19.7. DISTANCE BETWEEN LOOPER- NEEDLE

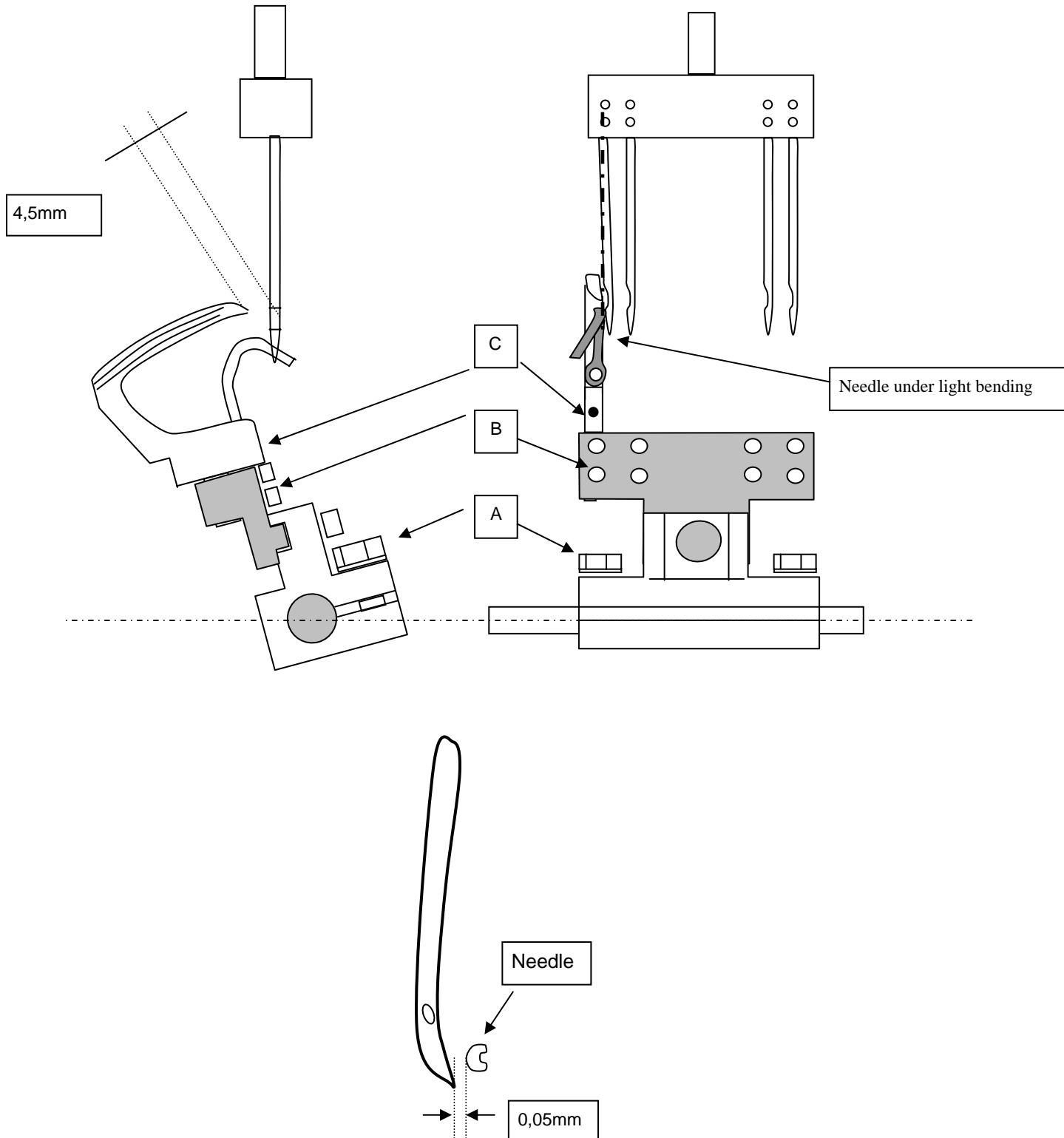
To place correctly the loop group respect to the needle, place the Needle Bar to the Lower Dead Center. Loosen the two screws (A) (six-sided head) that fix the clamp to the shaft and check that the distance between the center of the needle and the point of the looper is of 5mm. Fix the screws at the end of the operation.

Loosen the fixing screws of the loop (B) and those of the needle protector (C) and slightly rotate them towards left. Rotate the wheel with the hand and take the point of the loop at the centre of the needle.

Check that the point of the loop touches the needle without deflecting the needle and then fix the screw (B).

Place the needle against the needle protector and slightly bend the needle, the distance between the point of the loop and the needle is of 0,05mm.

The distances between the different mechanical parts can be distributed as represented in the picture below:



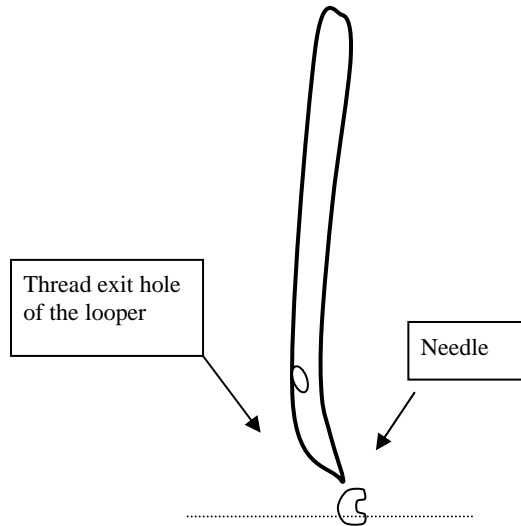
19.8.SPREADER PHASE

The purpose of this eccentric is to move the comb of the spreader in synchrony with the movement of the needle and with the movement of the looper.

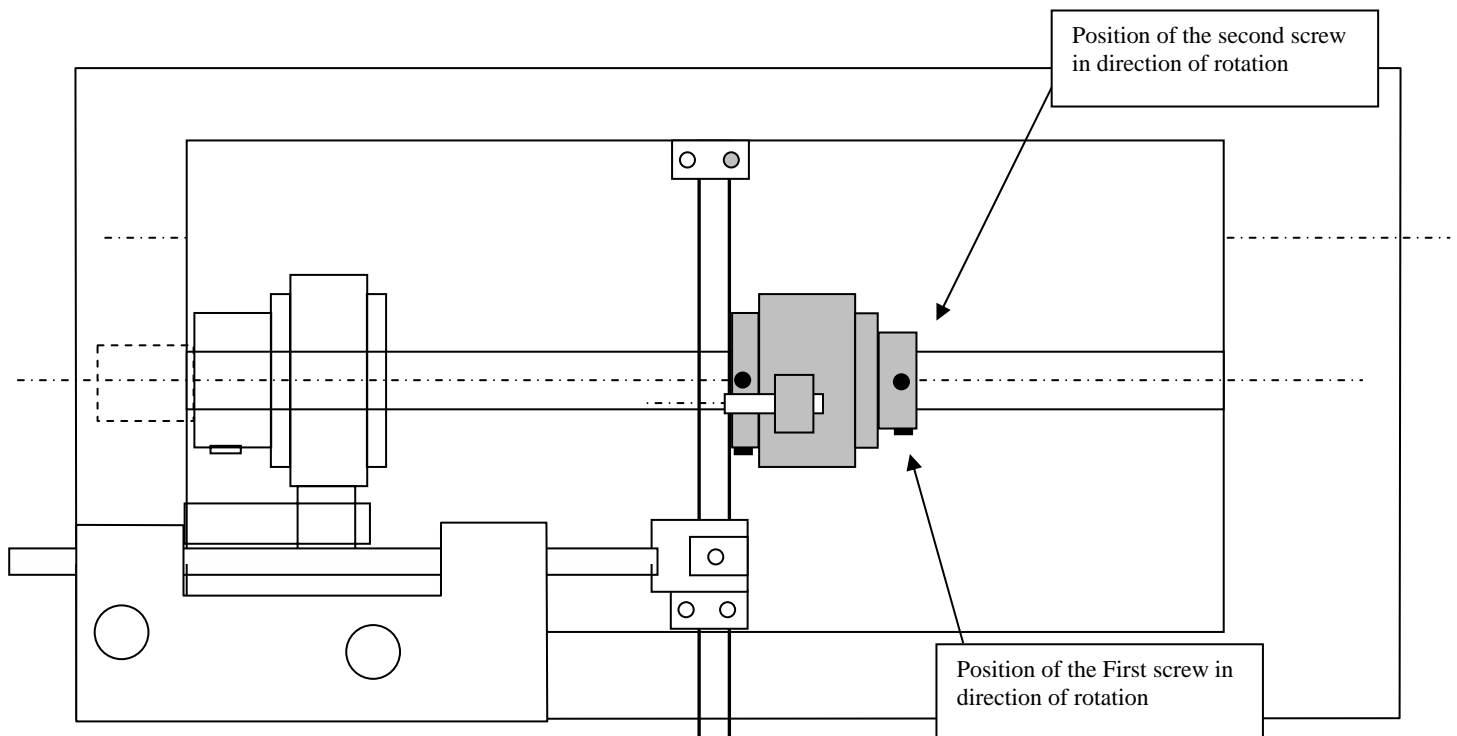
19.8.1.POSITION

To place correctly the eccentric of the starting of the spreader movement place the Needle Bar to the following Phase point.

Rotate the wheel until the thread exit hole on the upper part of the loop crosses the center line of the needle, with the Needle Bar in descent.



At this point the eccentric is with the fixing screws in the following position, the first screw in direction of rotation perfectly vertical while the second one is perfectly horizontal as represented in the picture below:

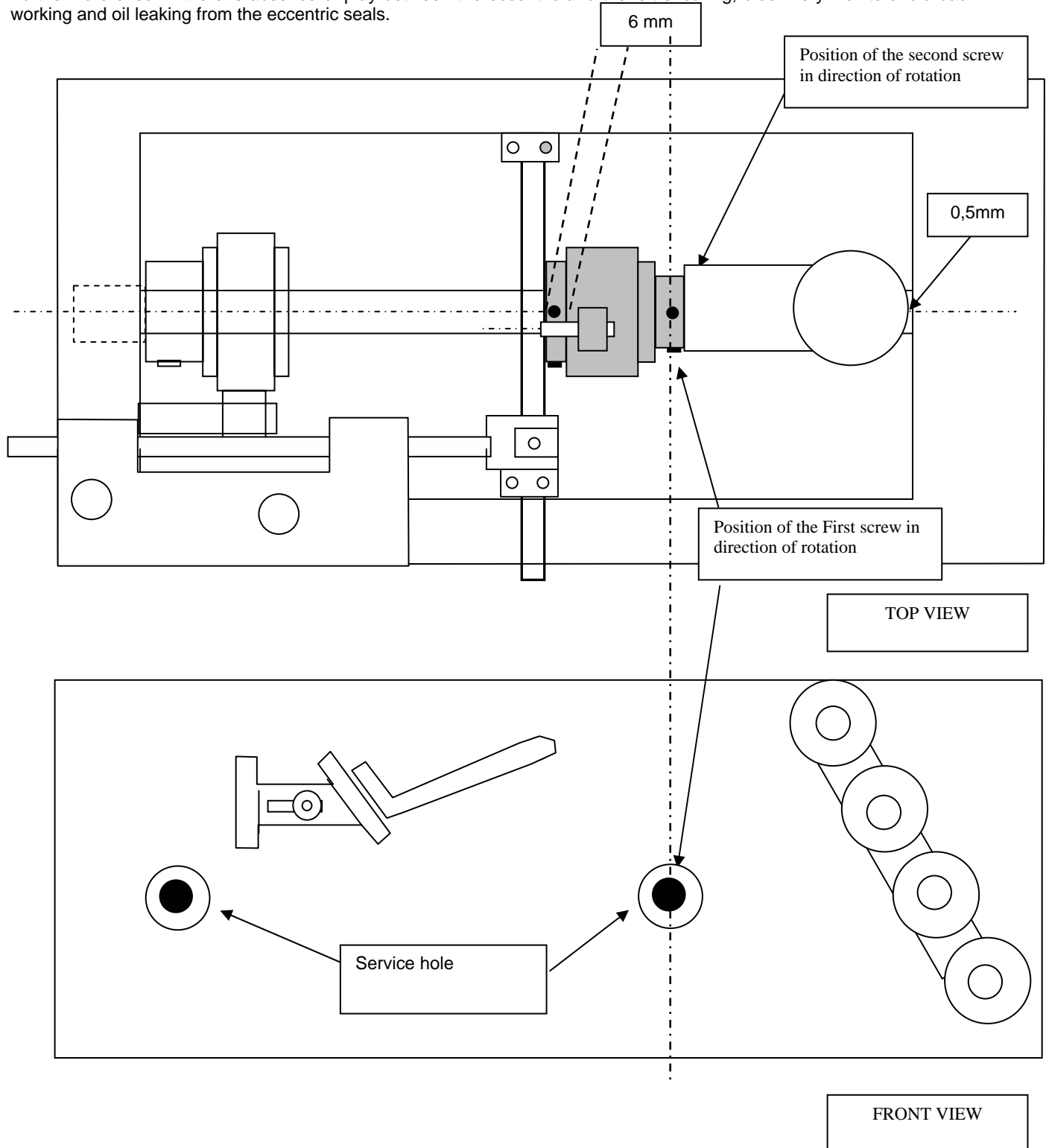


Furthermore, check if there is absence of play between the eccentric and the left shearing, block very well to avoid bad working and oil leaking from the eccentric seals.

19.8.2.LENGTH OF MOVEMENT

Its purpose is to adjust the movement of the Spreader translation as wider as possible. The position of the eccentric respect to the transversal shaft determines the lever arm and so the total shifting of the Spreader. Always place the fixing screws of the eccentric as shown in the picture below and then shift the eccentric towards right or left. The correct value of the measure is of 6mm between the left side of the eccentric and the transversal shaft.

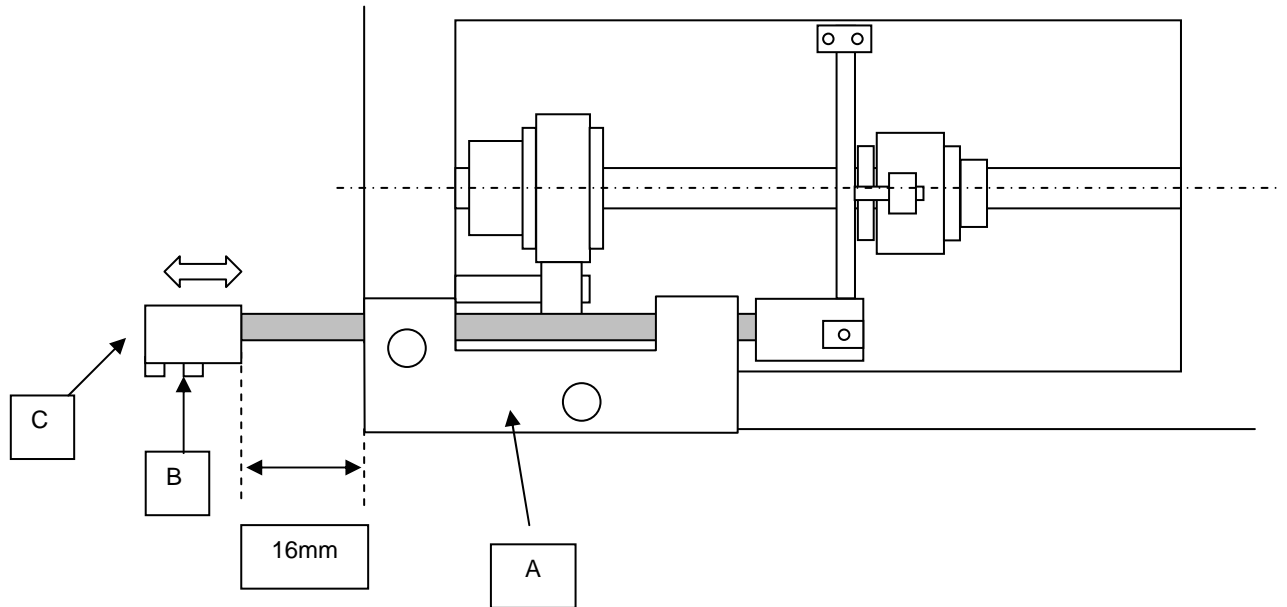
Furthermore check if there is absence of play between the eccentric and the left shearing, block very well to avoid bad working and oil leaking from the eccentric seals.



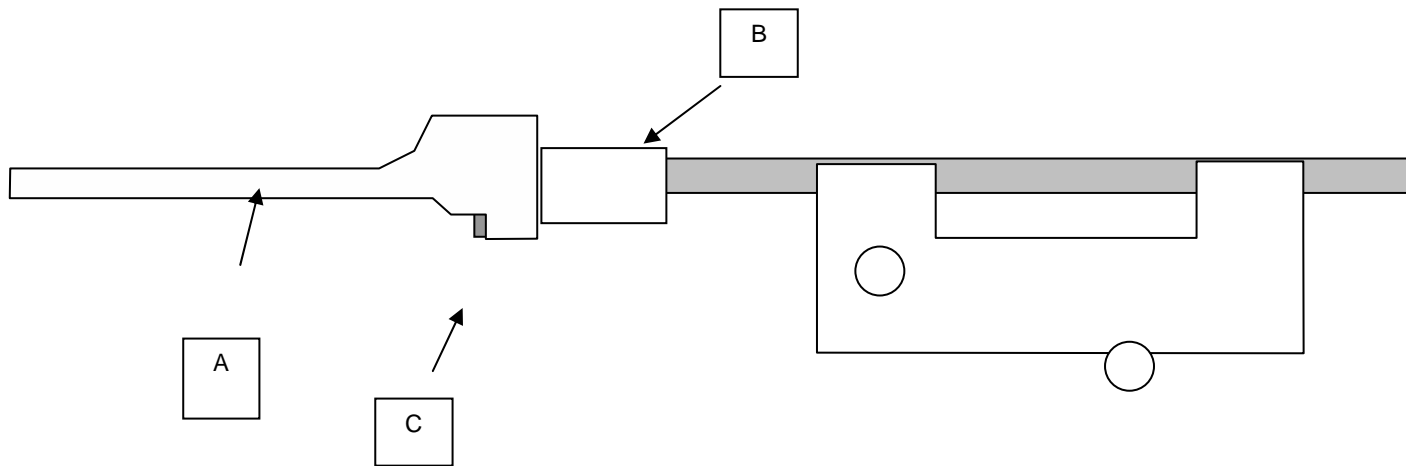
19.8.3.POSITION OF THE SPREADER MOVEMENT PIN

When the Spreader is completely shifted to left, the distance between the support shaft (A) and the 2 brackets to its extremities is of 5mm on the right side and of 15mm on the left side.

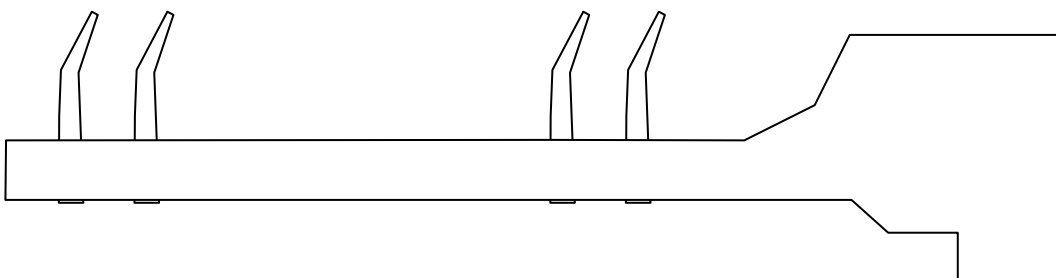
Loosen the two fixing screws (B) of the support (C) to perform the correct adjustment.

**19.8.4.POSITION OF THE SPREADER**

The spreader (A) is embossed respect to its own support (B) of about 1mm towards the operator. Loosen the fixing screw (C) to perform the adjustment.

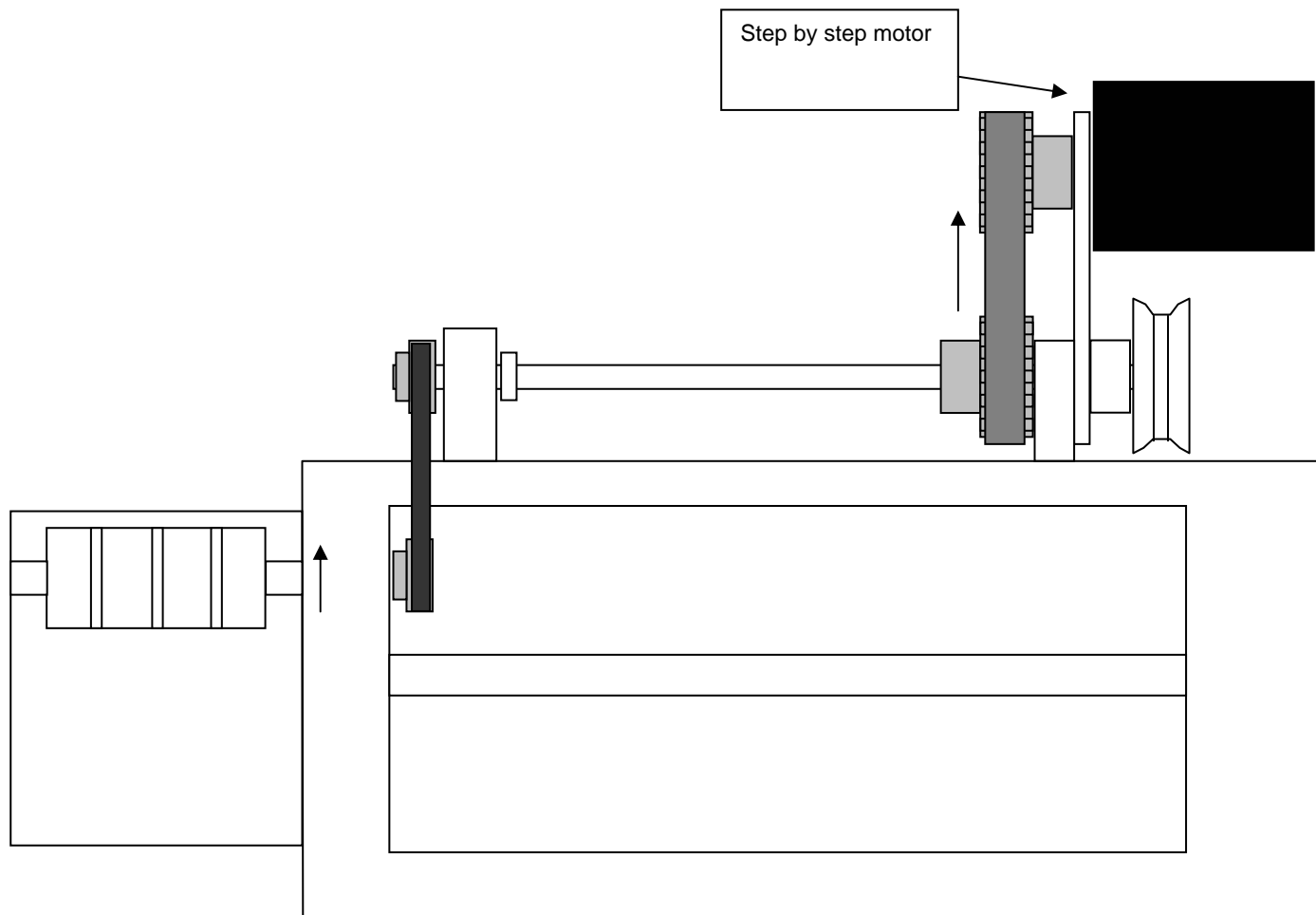
**19.8.5.POSITION OF THE SPREADER PINS**

The four pins must be slightly rotated towards right to avoid that the thread goes out in advance during the discharging phase of it itself.



19.9. STITCH LENGTH

The 3022 automatic unit uses a new sewing head expressly built for this kind of sewing from VI.BE.MAC. Spa. To vary the stitch length modify the number of impulses per revolution for the Step by step Motor following the specific directions in the paragraph about the motor panel. 9.2.4. SETTING OF THE OUTPUT IMPLULSE NUMBER TO COMMAND A STEP BY STEP MOTOR



19.10. ADJUSTMENT OF THE LOWER ROLLER PROFILED PLUGS

On the material device transport is assembled a toothed roller (A) in steel.

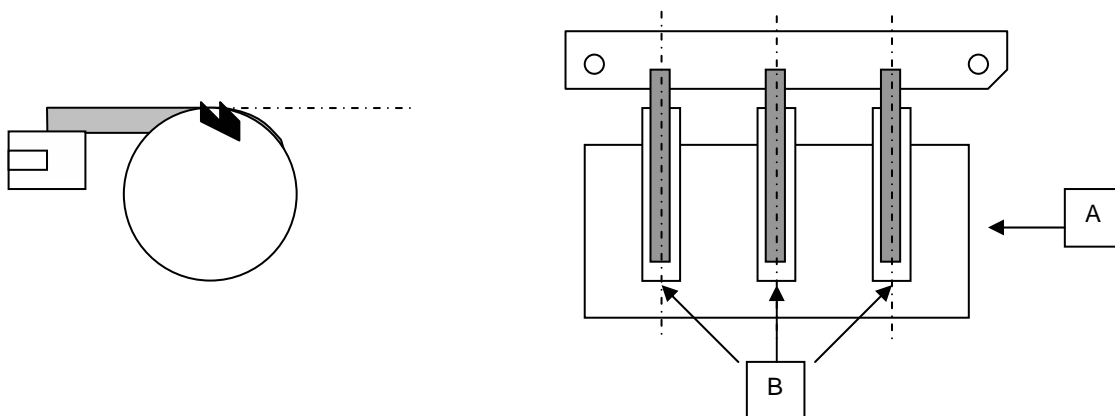
In the roller there are 3 splined gorges to which interior must be placed 3 special profiled pins (B).

Their purpose is to avoid that the roller, while is rotating, can pull inside the machine edges of the material, stopping in this manner the transport or breaking the special "safety screw"

Is very important to check always that the 3 profiled pins are placed, with their upper side, at level of the lower side of the teeth on the roller and perfectly at the center of the gorge in the roller.

There are two models:

- the standard one is to pull rugged material(denim) with very sharpened teeth to enter better
- the special one is to pull light material with thinner teeth and more numerous respect to the standard model.



20. CLEANING

The user **MUST** turn the unit off following procedure 5. HOW TO STOP THE MACHINE.

Clean every day with an air compressed jet the following places:

- the machine in general, especially under the needle plate.
- The couple of the puller upper rollers of the machine, from pieces of thread.
- The puller dragging lower roller of the machine, from pieces of thread.
- The suction screen of the MITSUBISHI motor
- The photocells (clean carefully with a piece of material).
- The reflecting table for the photocells (clean carefully with a piece of material).

21. LUBRICATION

The user **MUST** always turn the unit off following procedure 5. HOW TO STOP THE MACHINE.

Remember to execute always first the cleaning function and then the lubrication function of the unit.

In the 3022 unit there are 2 oil tanks placed in the following points:

1) – UPPER SIDE SEWING HEAD:

The first one is placed in the middle of the fusion behind the passage of the upper wires, capped by a red rubber plug.

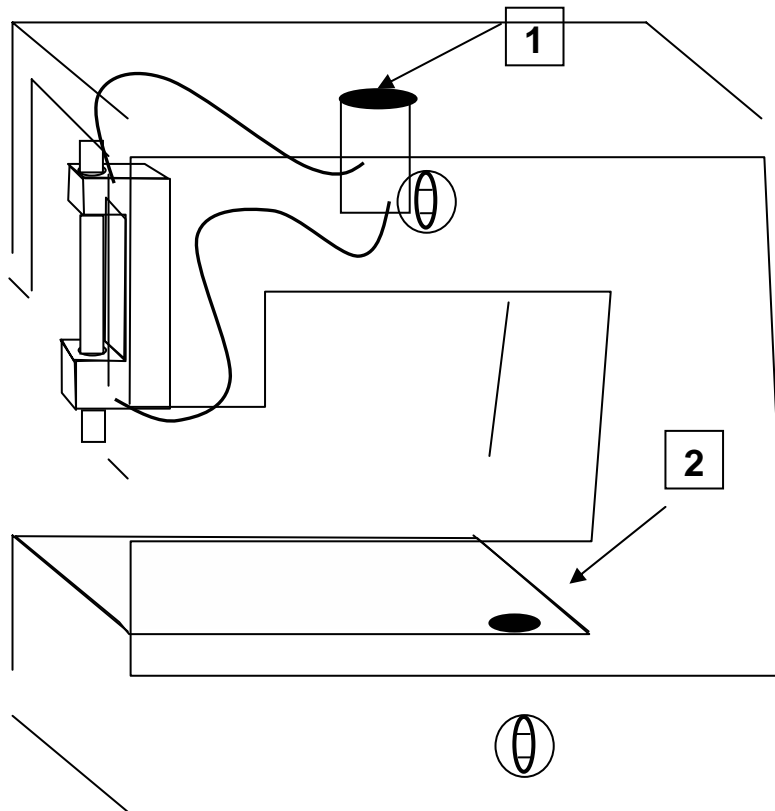
The function of this tank is to lubricate the upper side of the sewing head. Beside the bushes of the Needle Bar, two little tanks have been drawn, to lubricate the Needle Bar, that are feeded by the upper tank.

2) – LOWER SIDE SEWING HEAD:

In the middle of the fusion in the table of the machine comes out a little transparent pipe. This tank has the purpose to lubricate the lower side of the sewing head.

In the unit is used only a very tick oil, of the SAE100 type, not detergent, and **with the frequency of (2) twice a week**. Use the special pump oiler included in the equipment to fill up the tanks and lubricate the unit.

See the picture below to check the position of the holes and of the points to lubricate in the fusion.



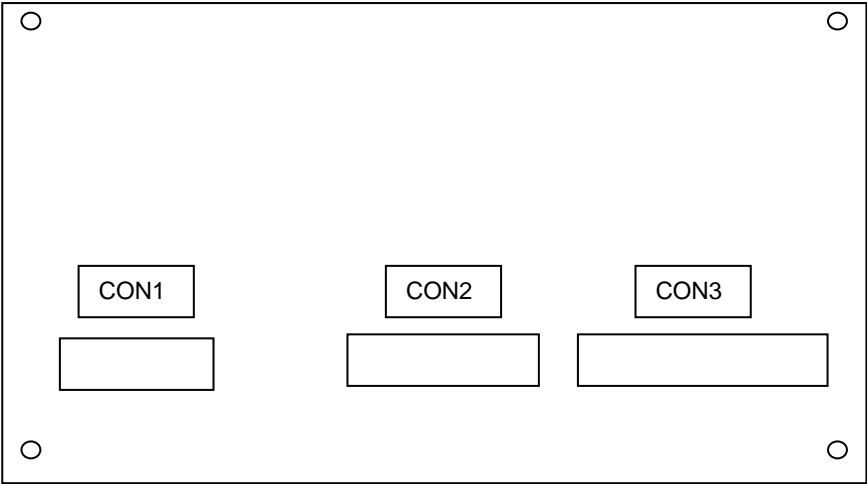
Lubricate the shanks of the cylinders and the cutting shearer using oil of the SAE32 type not detergent **with the frequency of twice(2) a day**.

22. ELECTRICAL CONNECTION

22.1. LS01 PANEL

In the rear side of the LS01/P panel, there are three cup connectors. Their function is the following:

- CON1, cup shaped, connects the motor panel to the LS01/P logic panel.
- CON2, cup shaped 15 poles, connects the inputs to the LS01/P logic panel.
- CON3, cup shaped 9 poles, connects the outputs from the LS01/P logic panel.



22.1.1.INPUTS - 15 POLES CONNECTOR

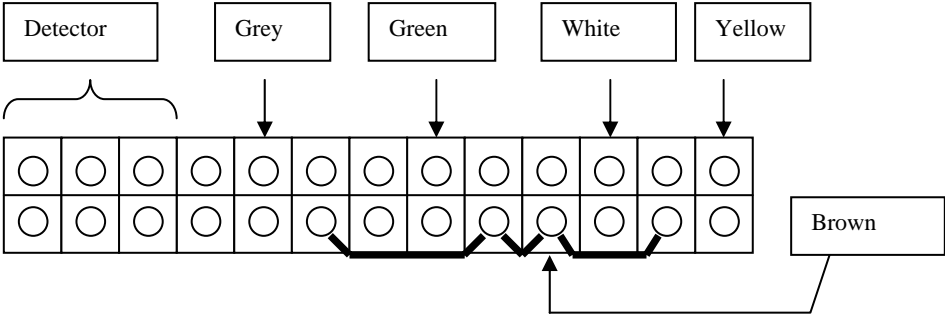
PIN	FUNCTION	COLOUR
1	UNSTITCHING Photocell	YELLOW
2	INTERMEDIATE STOP Photocell	WHITE
3	CUTTING Photocell	PINK
5-6	+ 24V Feeding	BROWN
7-8	+ 0V Photocell	BLUE/GREEN
9	+ 0V	LIGHT BLUE
10	+ 5V	BROWN
11	SIGNAL	BLACK

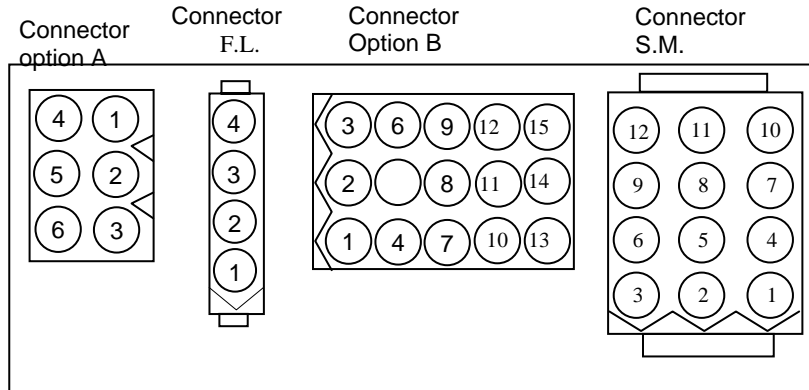
SAFETY CUTTING DETECTOR LS01/P VERSION

22.1.2.OUTPUTS - 9 POLES CONNECTOR

PIN	FUNCTION	COLOUR
1	UNSTITCHING Electro Valve	YELLOW
2	PULLER Electro Valve	WHITE
3	CUTTING Electro Valve	VERDE
4	SAFETY DETECTOR Electro Valve	GREY
6-7	+ 24 V COMMON Electro Valve	BROWN

22.1.3.OUTPUTS - 13 POLES CONNECTOR ON THE TABLE



22.2. MITSUBISHI MOTOR**SEWING MACHINE**

Ground	Ground	1
OB		2
+24V/+30V	+24V	3
OA		4
0V	0V	5
ID	Photocell Number 1	6
OD	Stopper Material (optional)	7
+24V/+30V	+24V	8
IE		9
0V/(+5V)	0V	10
+24V/+30V	+24V	11
OC	Needle Cooler	12

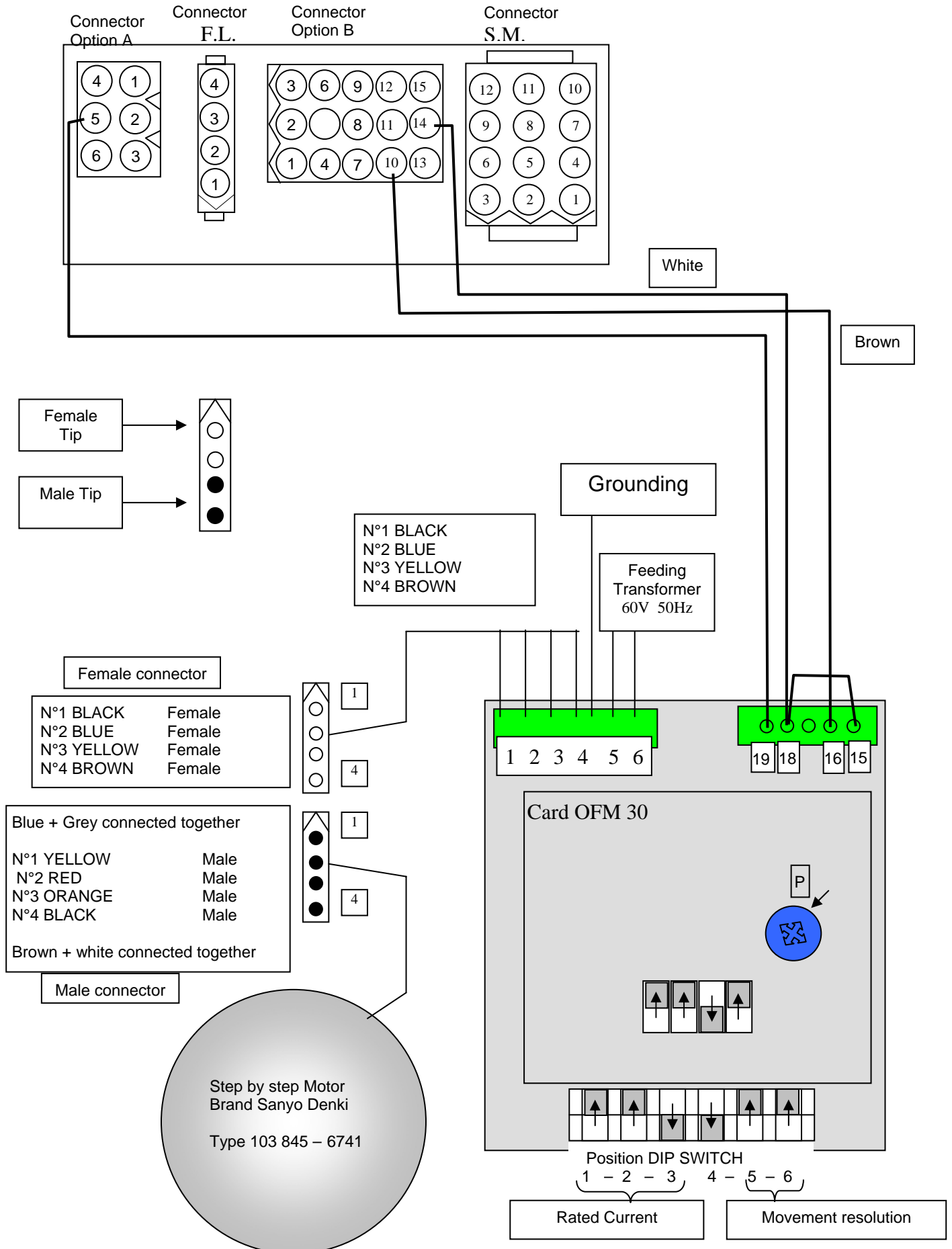
OPTION A

0V	0V	1
IA	opening head added Switch	2
+12V/(+5V)	+12V	3
IB		4
O4	Rotation conveyor signal	5
IC		6

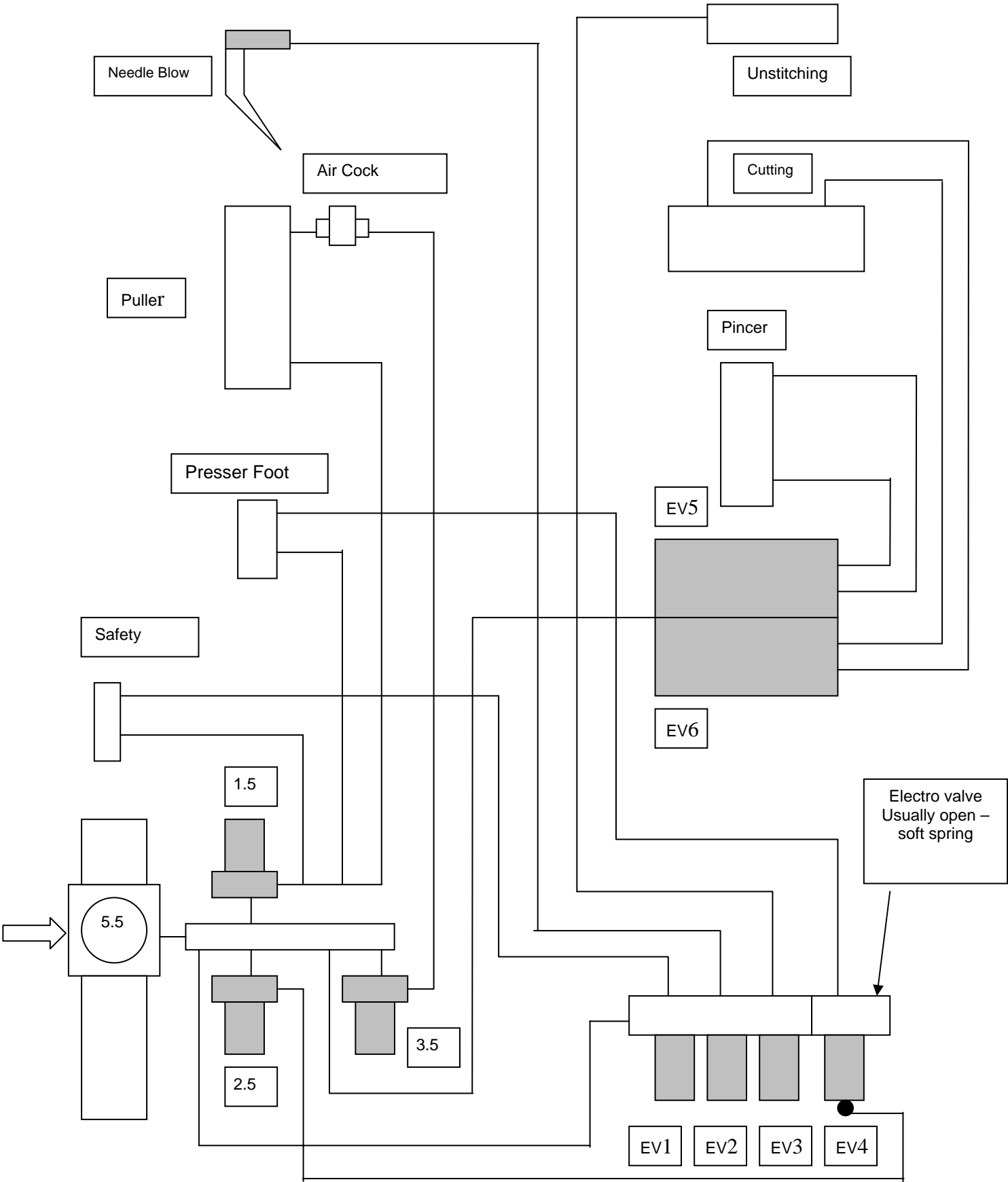
OPTION B

0V	0V	1
I4	Automatic speed 2	2
O1		3
VC2		4
I5	Automatic speed 1	5
I1	Automatic speed 1	6
+5V/(+12V)	+5V	7
+24V/+30V	+24V	8
I2	Stop stitching cycle	9
0V	0V	10
+24V/+30V	+24V	11
O2	Opening tension while unstitching	12
O7	No setting	13
CP	Movement impulses step by step motor	14
O3	Rotation Exit	15

22.3.CARD OF THE GAC03 AND OFM30 STEP BY STEP MOTOR RUNNING



23. PNEUMATIC STANDARD SCHEME



24. PNEUMATIC SCHEME FOR PRESSER FOOT AND PULLER LIFT AT THE SAME TIME

