AMF® REECE

Better Ideas, Better Made

MODEL S-111

ELECTRONIC EYELET BUTTONHOLE MACHINE

PARTS AND SERVICE MANUAL

MACHINE SERIAL No.

PART NUMBER 97. 1902.0.000

This manual is valid from the machine serial No.: F190056

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A - INTRODUCTION

1. BASIC INFORMATION

The sewing machine S-111 is designed and produced to be very reliable. Important design goals have been to provide a safe machine that is simple and inexpensive to maintain.

Special electronic and mechanical safety devices protect the operator and the machine. There is a special power lock out switch that permits the machine to be locked in the off position, so that it cannot be cycled accidentally. The drive cover is equipped with a safety switch that will not allow machine operation while the cover is open. There is an emergency off switch. There is a low air pressure detector that will not permit machine operation if air pressure is dangerously low.

There are safety-warning labels on the machine in all areas that require special care. These must not be removed. If they are lost replace them immediately.

You are the most important safety equipment of all. Be sure you understand the proper operation of the machine. Never remove safety mechanisms or labels. We have made every effort to provide the safest possible machine, but without complete knowledge of how this machine operates, and the use of proper care by the operator, this machine can cause serious injury or death. That is why there are safety warnings throughout these instructions that carry one of these messages.

DANGER! Possible loss of life.

WARNING! Possible serious injury or machine damage.

NOTICE! Possible injury or machine damage.

We recommend that service workers from AMF Reece oversee the installation and initial training of your mechanics and operators.

The most effective safety precaution is a well-managed safety program. Be sure those who use this machine are properly trained. Never disable safety equipment.

Always wear safety goggles when operating or servicing the machine.

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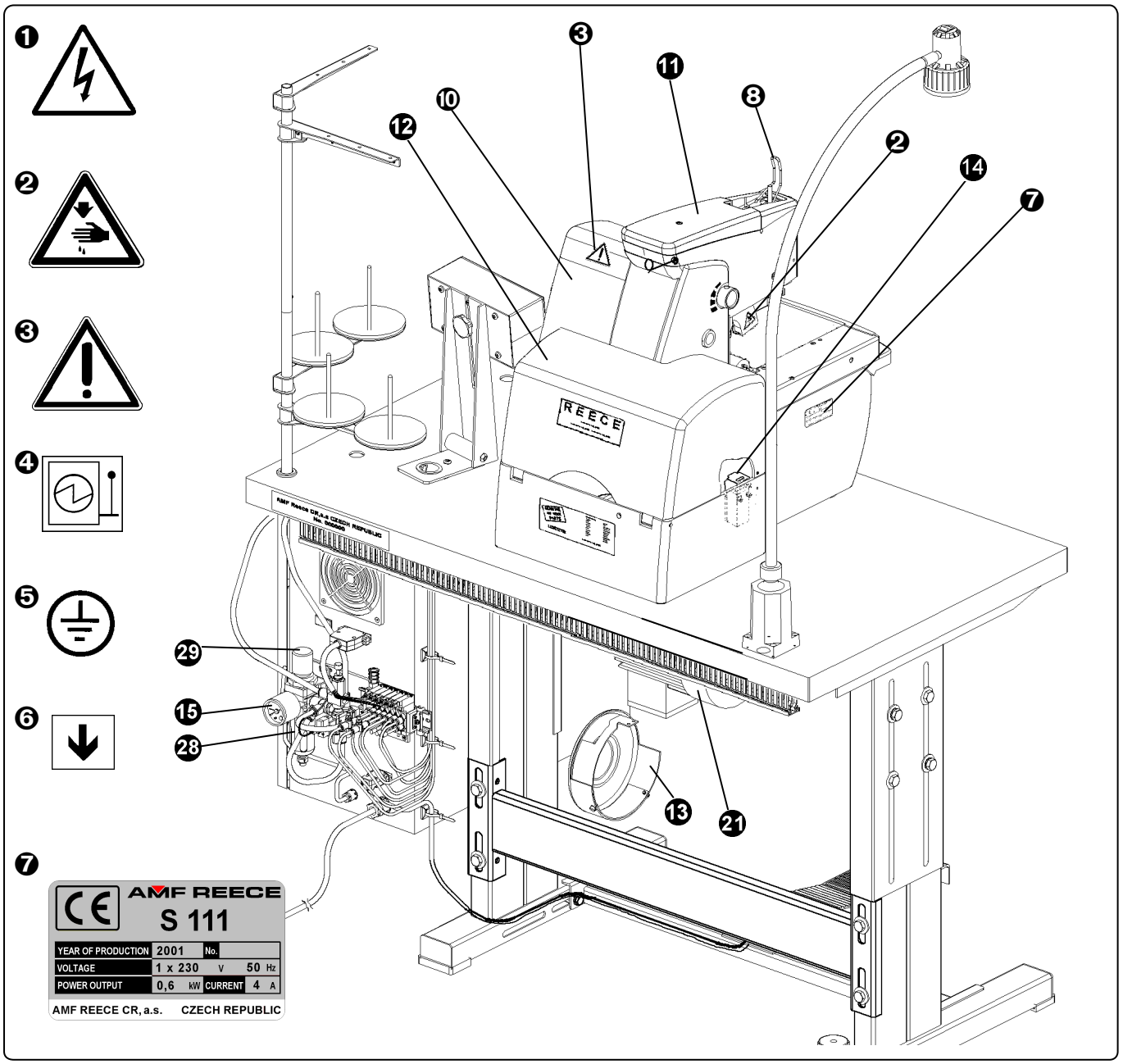
2. SAFETY LABELS AND DEVICE



1. Warning
2. Danger possible injury
3. Covers removed possible injury
4. Main power switch mark
5. Grounding
6. Rotational direction
7. Standard label
8. Needle bar cover
9. Eye guard
10. Drive belt cover
11. Top cover
12. Rear cover
13. Motor pulley cover
14. Safety switch
15. Air pressure switch

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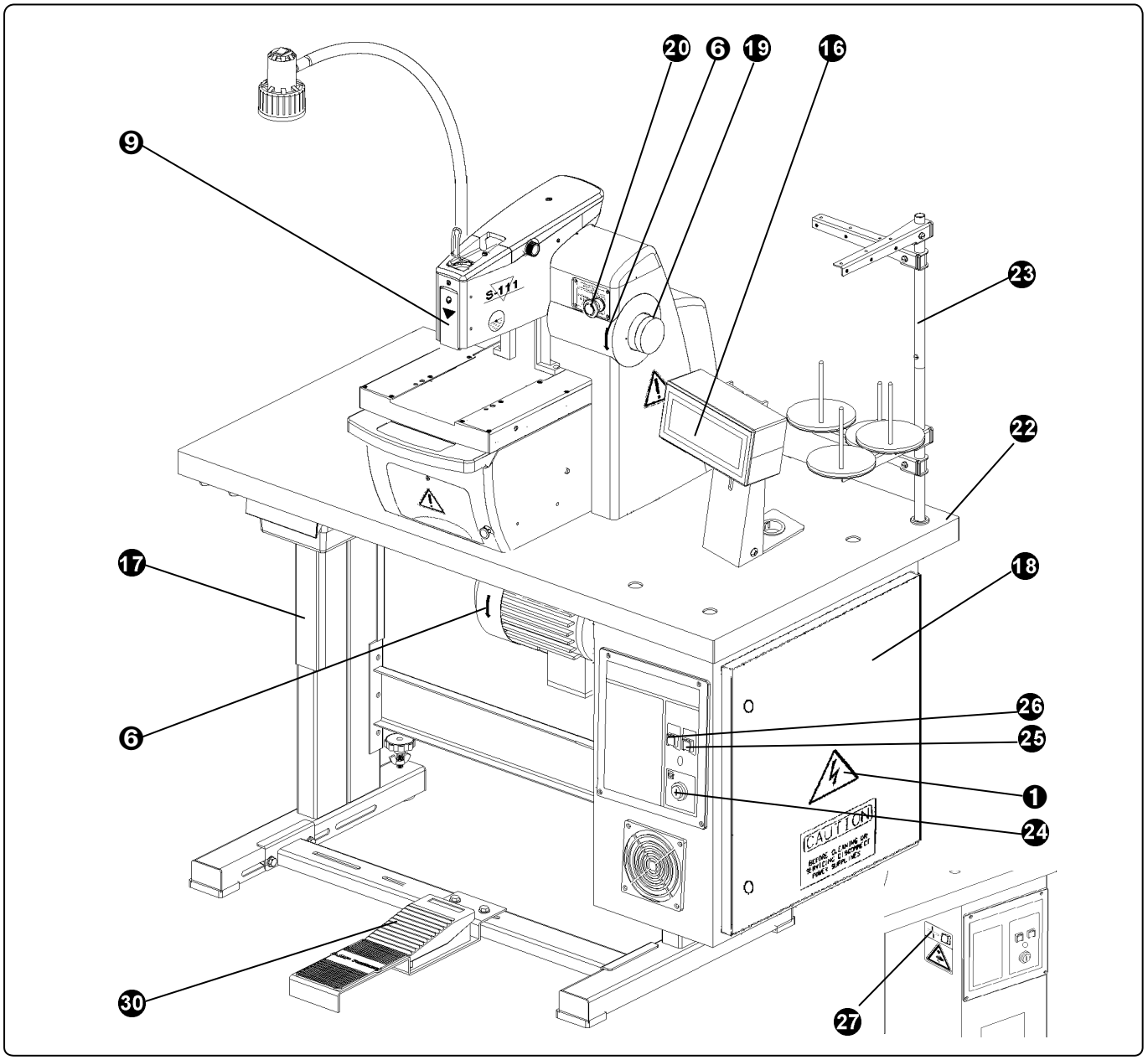
3. GENERAL MACHINE PARTS DESCRIPTIONS



16 Display
17 Table
18 Control box
19 Hand wheel
20 Emergency Stop button
21 Motor
22 Table top
23 Thread stand
24 Main power switch
25 Start button
26 Stop button
27 Cutting activation button
28 Air pressure regulator
29 Air pressure adjustment knob
30 Foot pedal

4. SPECIFICATION

Machine type	S111-002 AF
Description	Electronic (X-Y) eyelet buttonhole machine, stitch type 301 with or without gimp
Sewing Speed	1000 — 2000 stitches/min (500 — 1000 rev/min of the drive shaft)
Buttonhole Length	10 — 50 mm (0.397 – 1.969”) (increments of 1 mm, 0.04”)
Stitch Density	0,5 — 2,0 mm(0.0197 – 0.0787”) (increments of 0.1 mm, 0.04”)
Bite Range	2,0 — 2,6 mm (0.0787-0.102”); 2,7 — 3,3 mm (0.106-0.13”); or 3,3 — 4,0 mm (0.106-0.157”)
Buttonhole style	eye, no eye, fly bar, open end, cross bar, round end
Eye Type	No eye; 2.2 x 3.0 mm (0,086 x 0,118"); 2.8 x 4.2 mm (0,110 x 0,165"); 3.0 x 4.6 mm (0,118 x 0,177"); 3.2 x 5.0 mm (0,126 x 0,197")
Fly bar Length	3,0 — 20,0 mm (0.118-0.79”)
Number of stitches in the eye	4 — 20
Number of stitches in the round end	4 — 20
Length of the cross bar	4 - 8 mm (0.157 – 0.315”)
Cross bar density	0,5 — 1,5 mm (0.020 – 0.059”)
Clamp foot, height	12 mm (0.472”)
Maximum work thickness	to 8,0 mm (0.315”)
Buttonhole Cutting Mode	Cutting before (CB), cutting after (CA), no cut (OFF)
Cutting Space	-0,5 to +1,2 mm
Cut position (Y axis)	± 1,5 mm (0.059”)
Bedplate movement	64 mm
Needle system	Reece 02.0501 (type 1807D)
Operating Conditions	according to IEC 364-3, IEC 364-5-51 temperature from +5°C to 40°C, relative air humidity from 30 to 80 %
Air Pressure	0.45 MPa
Machine db Level	L_{wA} = 86,9 db; L_{pfA} = 74,8 dB, Noise measurement according to EN ISO 3746:1995
Machine Head Dimension	Height -490 mm (19.291”); width - 405 mm (15.945”); depth 600 mm (23.622”)
Machine Head Weight	64 kg
Table Dimension	Height - 750 mm (29.528”); width - 1100 mm (43.307”); depth – 600 mm (23.622”)
Machine Weight	175 kg (385 lbs.)
Electrical requirements	1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S
Thread trimming	Upper thread only

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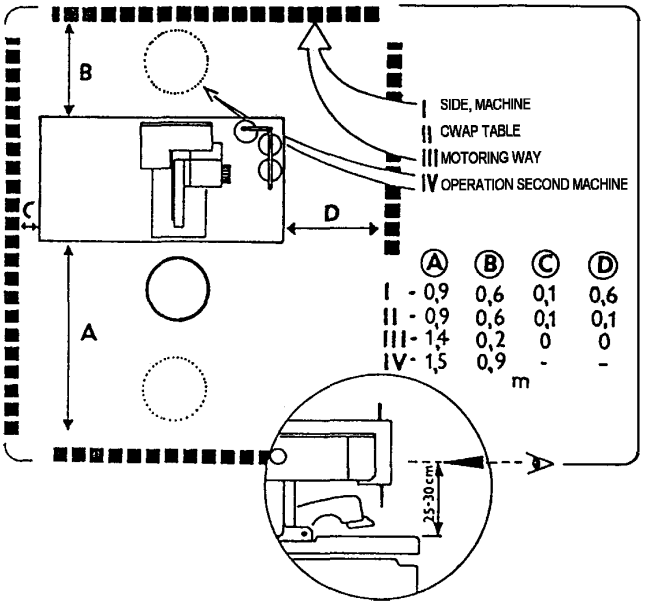
5. INSTRUCTIONS FOR OPERATOR SAFETY AND MAINTENANCE OF THE MACHINE S-111



When installing the machine the manufacturer recommends the minimum clearance mentioned above around the machine. Read all of the instructions that follow. DO NOT PUT THE MACHINE INTO OPERATION UNTIL YOU ARE COMPLETELY FAMILIAR WITH ALL INSTALLATION AND OPERATING INSTRUCTIONS.

DANGER!

- Before connecting the machine to the power supply, be positive that all safety covers are correctly installed.
- Always engage the power lockout switch, or disconnect the main power supply, before removing any safety covers.
- Never connect the machine to the power supply when any cover is removed.
- It is forbidden to disconnect all connectors when the machine is switched on and connected to the power supply. ***The electrical components and motors can be damaged.***

WARNING!

- Locate the Emergency Stop button. Be sure you know how to use it.
- Be sure that you have a reliable and uniform power supply.
- Be sure that all electrical cables are in good condition and have no signs of damage to avoid electrical shock.
- If any covers become damaged, they must be repaired or replaced immediately.
- Do not touch moving parts of the machine while it is operating.
- Keep clear of the needle.
- Always switch off the main power before changing the needle.
- Before cleaning the machine or performing service to the machine, engage the power lock out switch or disconnect the main power supply.
- When the machine is not in use engage the power lock out switch or disconnect the main power supply.

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- When this machine is used incorrectly, or is incorrectly maintained, it can be dangerous.
- Everyone who uses this machine, or maintains this machine, must be completely familiar with this manual.

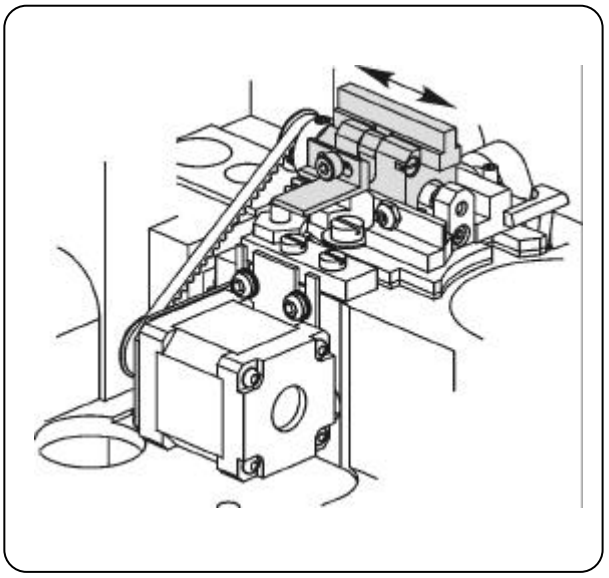
CAUTION!

- Perform all regular service as described by this manual.
- If there is any problem with the power supply, turn off the main power switch.
- Do not remove, paint over, damage or in any way change safety labels. If a safety label cannot be easily read, replace it.
- Long hair and loose clothing may be dangerous near any machinery. Always contain long hair and avoid loose clothing, so that it cannot be caught by machinery and cause injury.
- Never use this machine while under the influence of drugs or alcohol.
- If anything seems to be operating incorrectly in the machine call for maintenance assistance immediately.
- Be sure that there is adequate light for safe operation. A normal minimum light level is 750 lux.

6. SPECIAL DEVICE

Adjustable cutting length steel (ACL)

- it allows sewing the buttonholes in range ***14 - 32 mm*** without changing the cutting steels
- the adjustable cutting length steel does not belong to the standard machine equipment - a customer has to order is together with a machine (part number 03.5509.0.000) - see page 3-62



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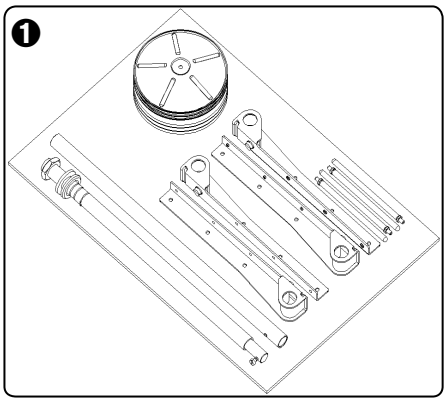
B - MACHINE ASSEMBLY

1. CONTENT OF THE SHIPPING BOX



1. The delivery usually contains three separated boxes, if it is not mentioned otherwise during the ordering. These boxes contain machine head, table, which is taken apart and control box with motor.

2. In a box with head is also carton with accessories and operation instruction with spare parts manual.

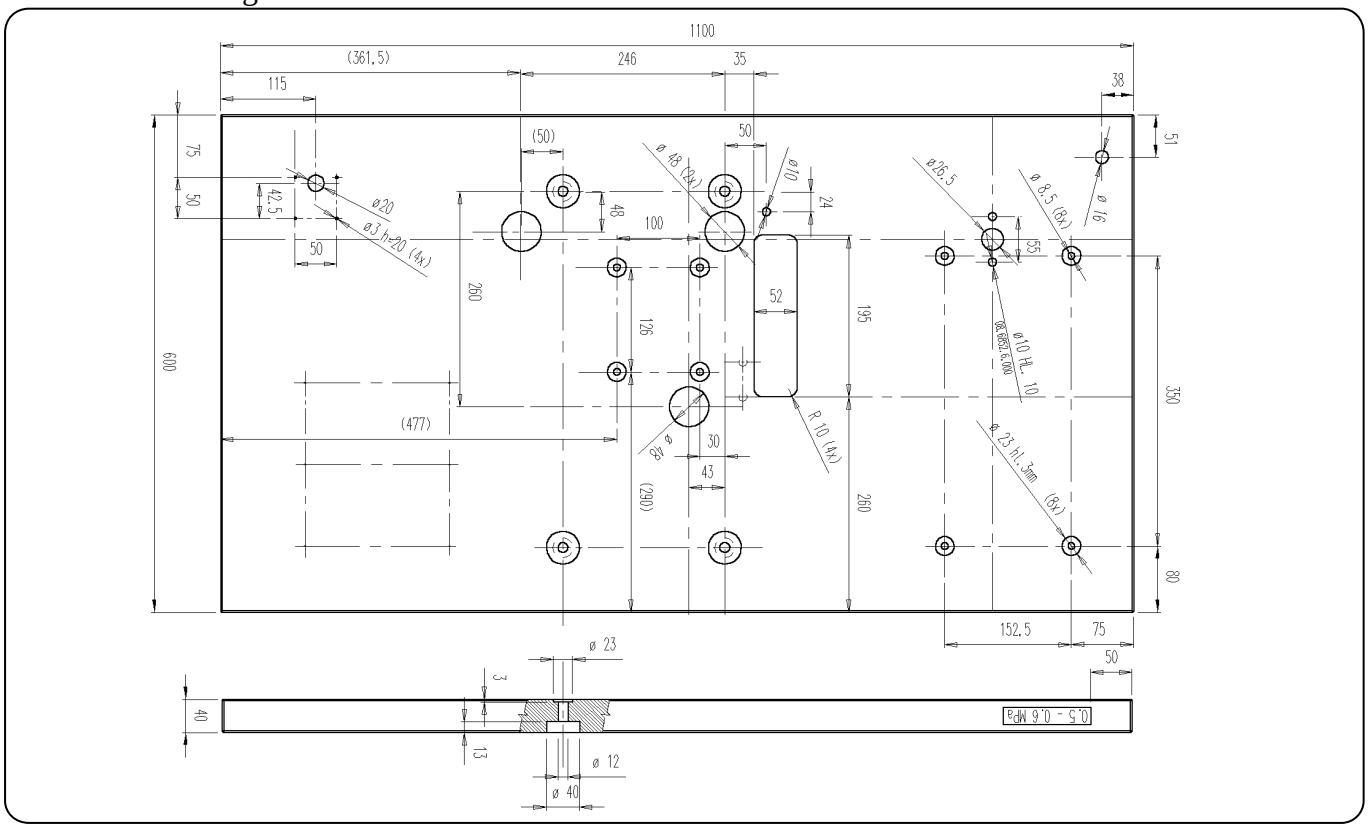
3. In a box with table is thread stand ❶.

4. When unpacking the delivery, follow labels which are on a cover.

CAUTION: If the delivery was damaged during the transport, inform the carrier. Check the contains of the delivery with order. In case that there are some faults, immediately inform the manufacturer- later complains will not be taken into consideration.

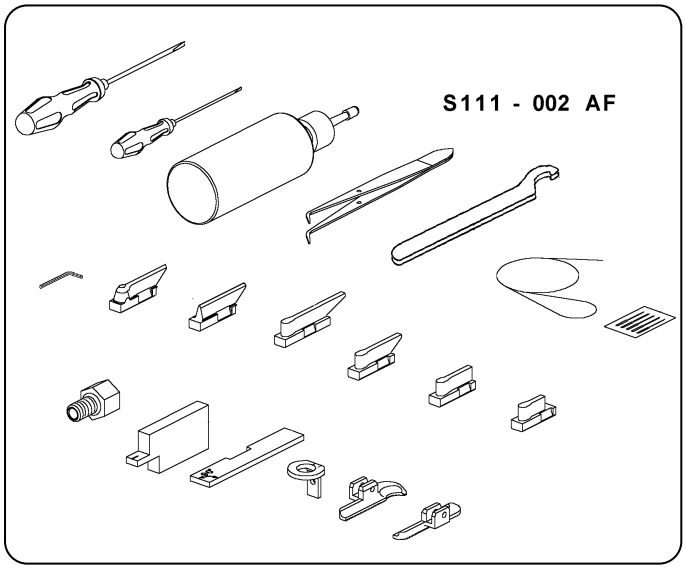
2. TABLE

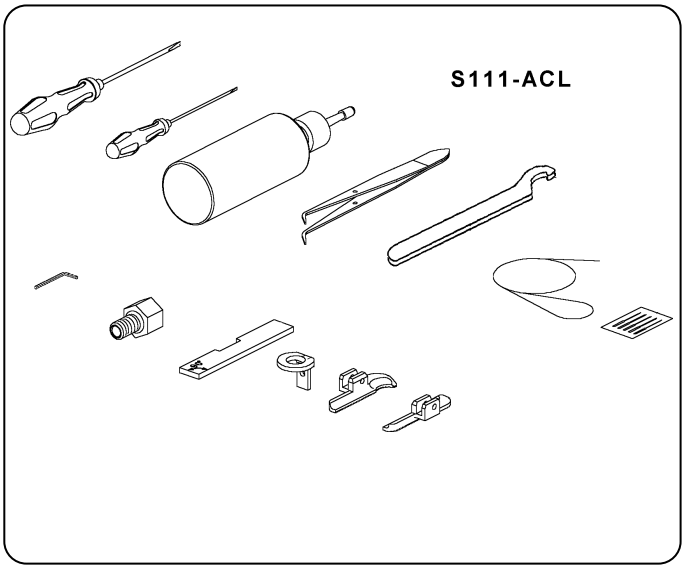
The manufacturer supposes that for operation with this machine will be used table 19.0007.8.404, which part is also control box, motor and thread stand. In case that it is necessary to install the machine to the other table then this table must have a table top with minimal thickness 40 mm (0.024“). Fixing holes are shown on a drawing.



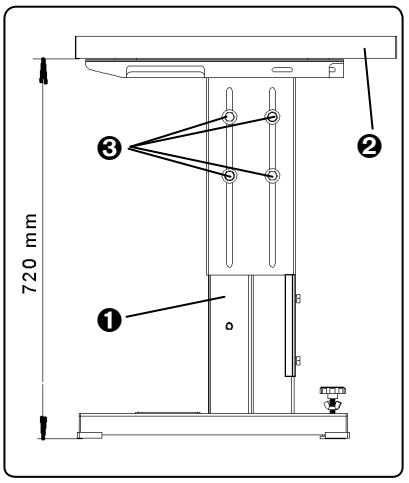
3. ACCESSORIES

Free accessories are supplied with the machine. The list is mentioned on page 3-59.





4. MACHINE ASSEMBLY



1. Put the frame ❶ and the table top ❷ together. For assembly use drawing which is enclosed in each delivery with disassembled table. Drawing is possible to order in manufacturing plant, its ordering number is 17.0099.0.004.
   For ensuring of the conductive connection among all metal parts of the table is necessary to put fan washers ❹ under the one of the two neighboring screws ❸. Adjustment of the working table height is perform by loosing the screws ❸. Recommended height of a table is 720 mm (28.346“). Tighten the screws ❸ again.
2. Before the motor ❺ and the control box ❻ assembly, it is recommended to turn the table ❶ upside down, the best is put it on the piece of polystyrene. Then insert 2 x 4 screws ❼ from the down side into holes ⌀ 8,5 with countersink. In this position, install the motor ❺ and control box ❻. Then put the washers ❺ on the screws ❼ and tighten by nuts ❾.

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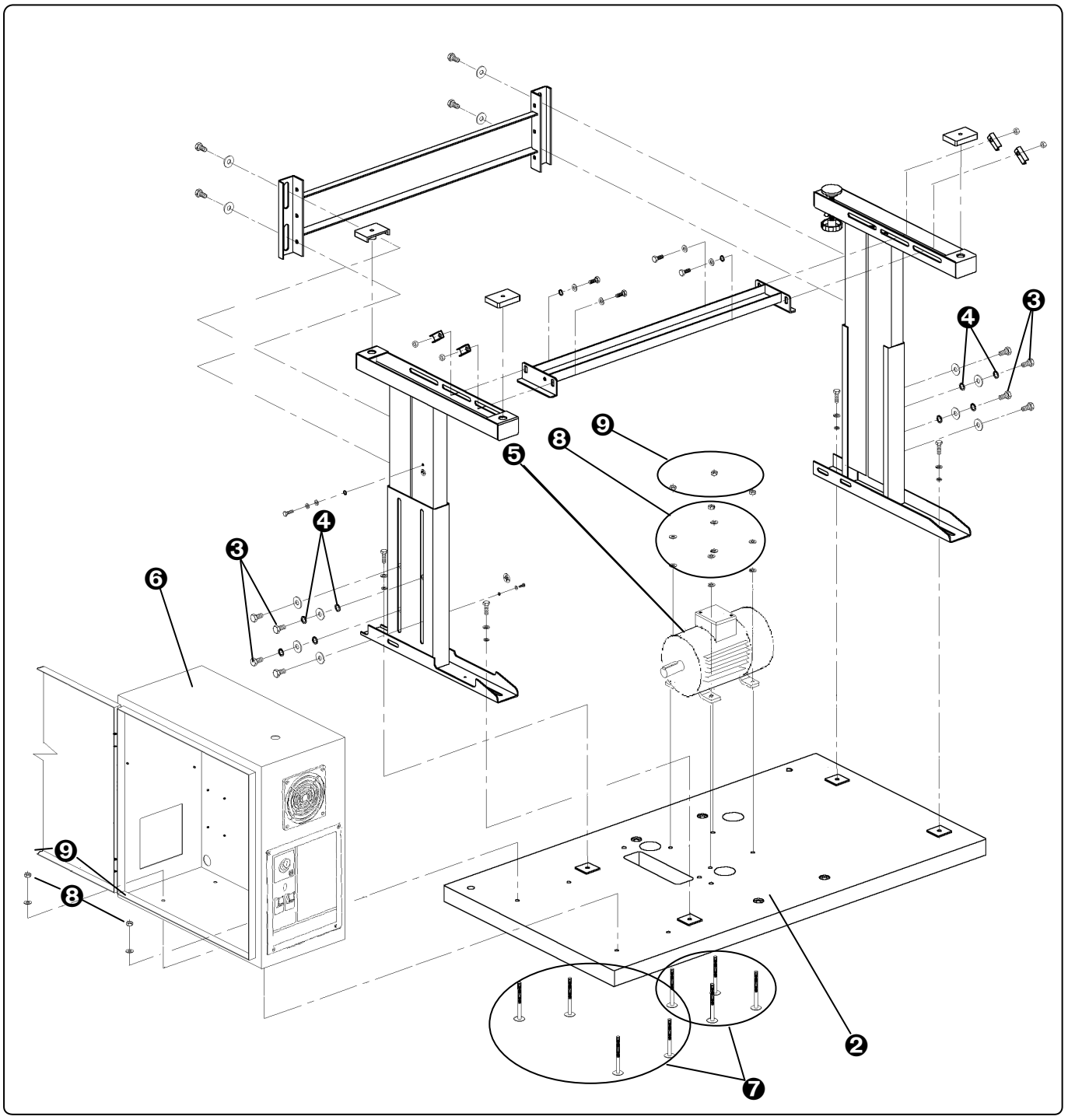

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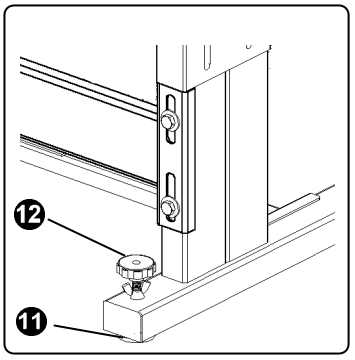
3. Turn the table back and instal to the given place. Its stability ensure by rear support ⓫, which is controlled by the hand screw ⓬. Check the flat of the set upper plate.

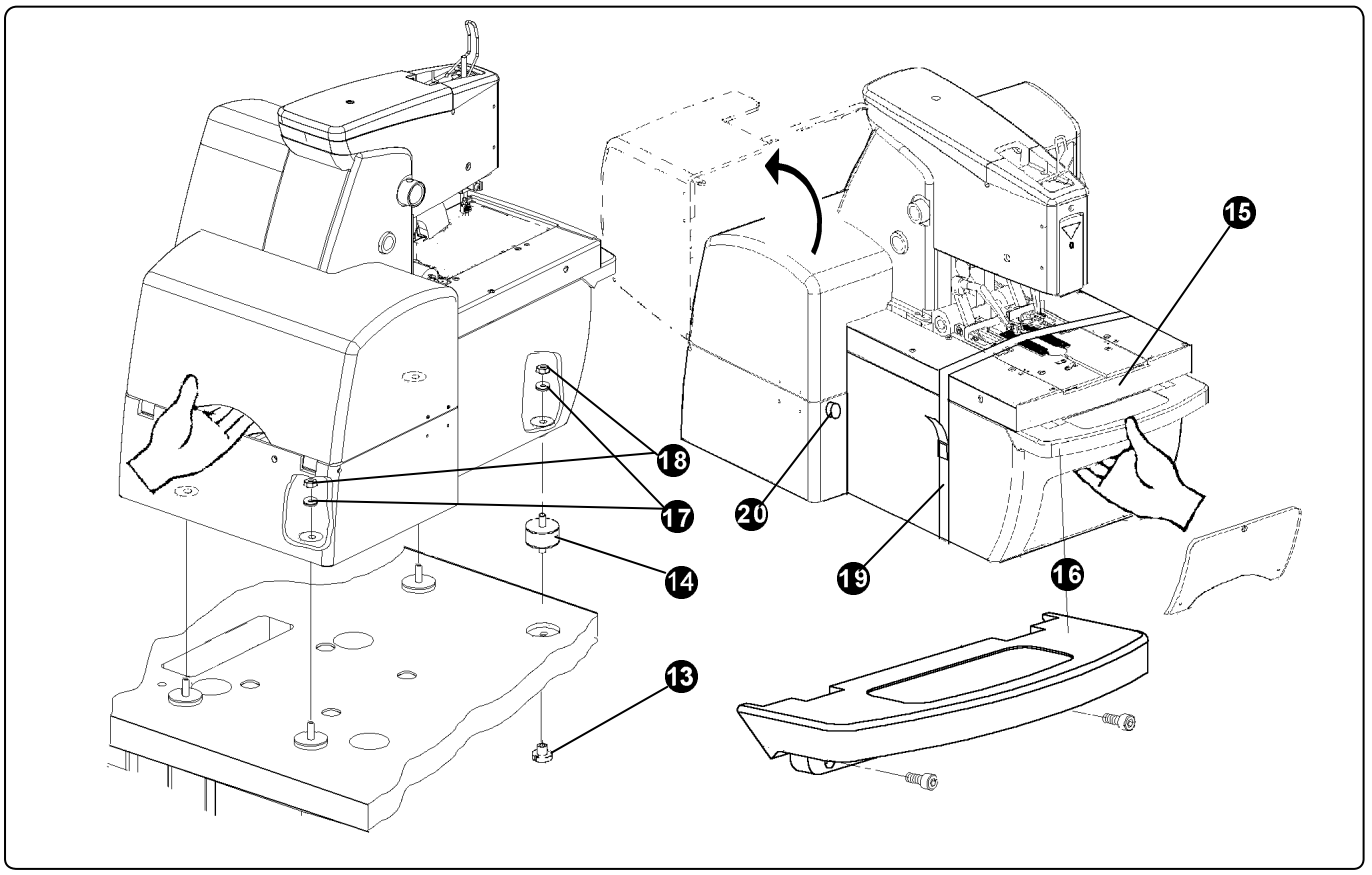


4. Install 4 rubber blocks ⓮ from accessories on the table plate and fix them by special nuts ⓭.

5. Take the machine head out from the package and put it on the installed rubber blocks ⓮. For lifting use slots in the rear cover and hole in front part of frame - see picture. It is not recommended to lift the machine up by holding the working plate ⓯ or holder ⓰ in the front under the working plate (if is fixed on the machine). Holder is only for tilting the sewing arm in a frame after tilting the rear cover.

6. Through the hole in the front part of the frame and after loosening the locking screw ⓴ and tilting the rear cover, insert the washers ⓱ on the screws of rubber blocks ⓮ and tighten them by nuts ⓲.

7. Remove the shipping restraints ⓳, which protects the machine head. Install the holder ⓰ using screws. It is recommended to reattach the shipping restraints during transport of the machine.



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5. CONNECTION OF THE MACHINE HEAD WITH THE CONTROL BOX

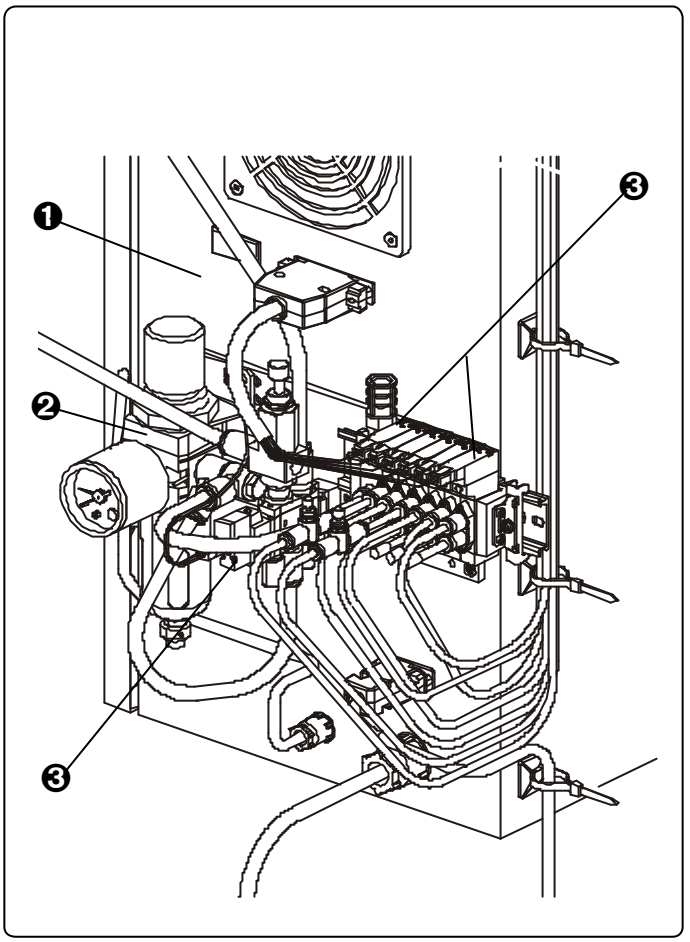
1. Control box ❶ of the table contains electronic for the machine controlling, regulator ❷ and valve terminal ❸ for controling the pneumatic cylinders of individual mechanismes.

2. Remove covers from the guide gib in the bottom of the table.

3. From the rear view pull the air distribution tubes through the left hole in the frame and table board. Do not pull through this hole the tubes J6A, J6B, which are for cutting cylinders. These tubes pull through the right hole. To enter to the tubes inside of the machine, lift the folding cover according to the section ***B4, point 6*** .

4. Connect the blue tubes of the air distribution with appropriate outputs of regulator ❷ and with air valves ❸. The tubes are marked J1A - J6A /possibly B or C. Connect them according to the picture and insert to the guide gibs.

5. Cable connectors for connection of the step motors are marked **XX**, **XY**, **XR** and **XT** (for ACL modification). Pull them through the bottom rear right hole of the table and a frame (rear view) and connect them to the sockets inside of the machine frame. The sockets have the same marks. Insert the tubes to the guide gibs.



6. Throught the same hole, pull the cables **X7**, **X8** and **X9** for connection of the sensors and machine head switches and connect them into the connectors, which are placed on the rear side of the control box - *see page 1-14.*

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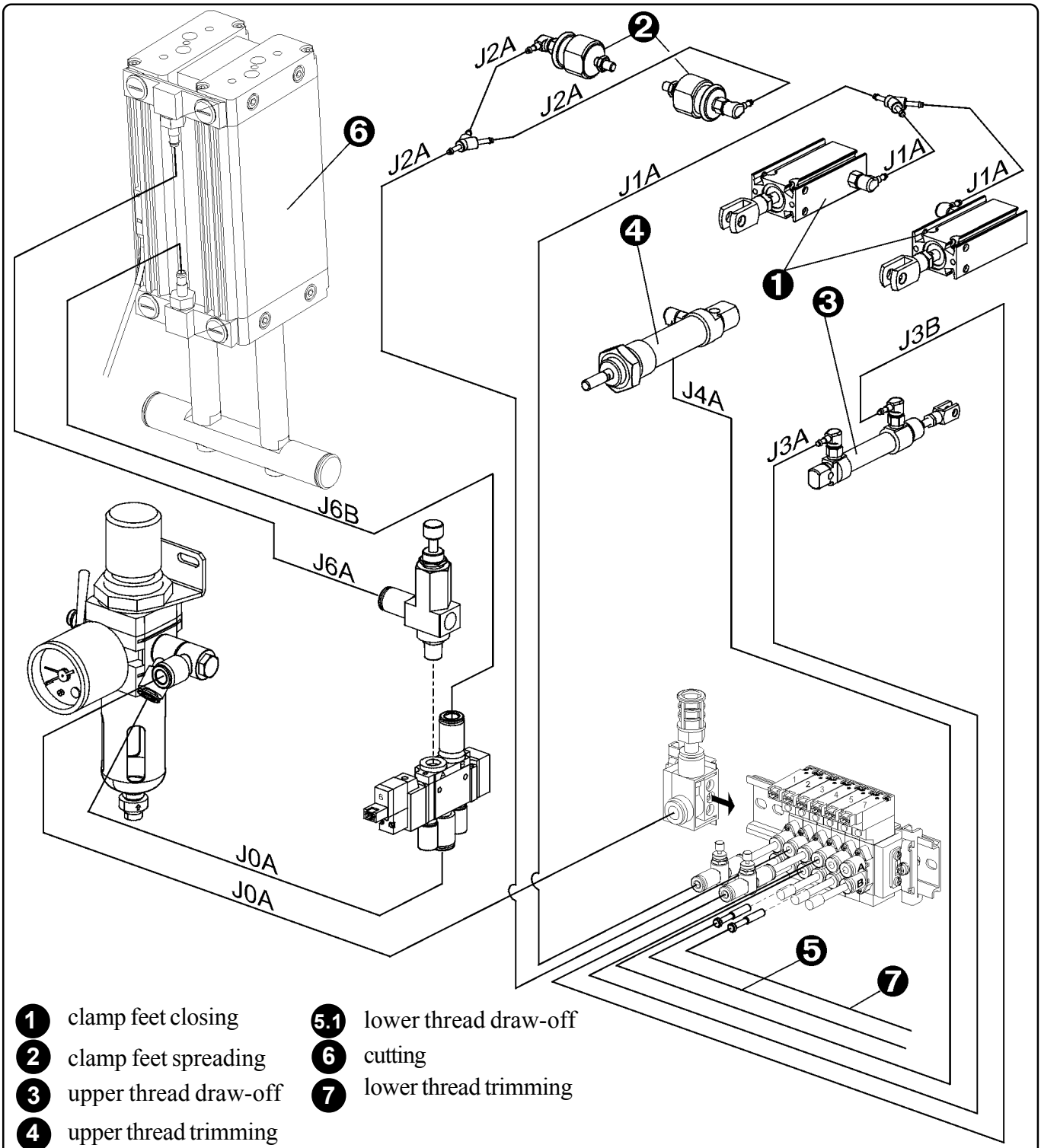
B - MACHINE ASSEMBLY

Pneumatic diagram



1 clamp feet closing
2 clamp feet spreading
3 upper thread draw-off
4 upper thread trimming
5 upper thread pick-up
5.1 lower thread draw-off
6 cutting
7 lower thread trimming

Tubes identification J X X X

- air distribution
- 0, 1, 2 — X => distribution from a regulator
- 0, 1, 2 — X pneumatic cylinder identification (the first number is 0 but is not marked)
- **A** ; **B**; **C**

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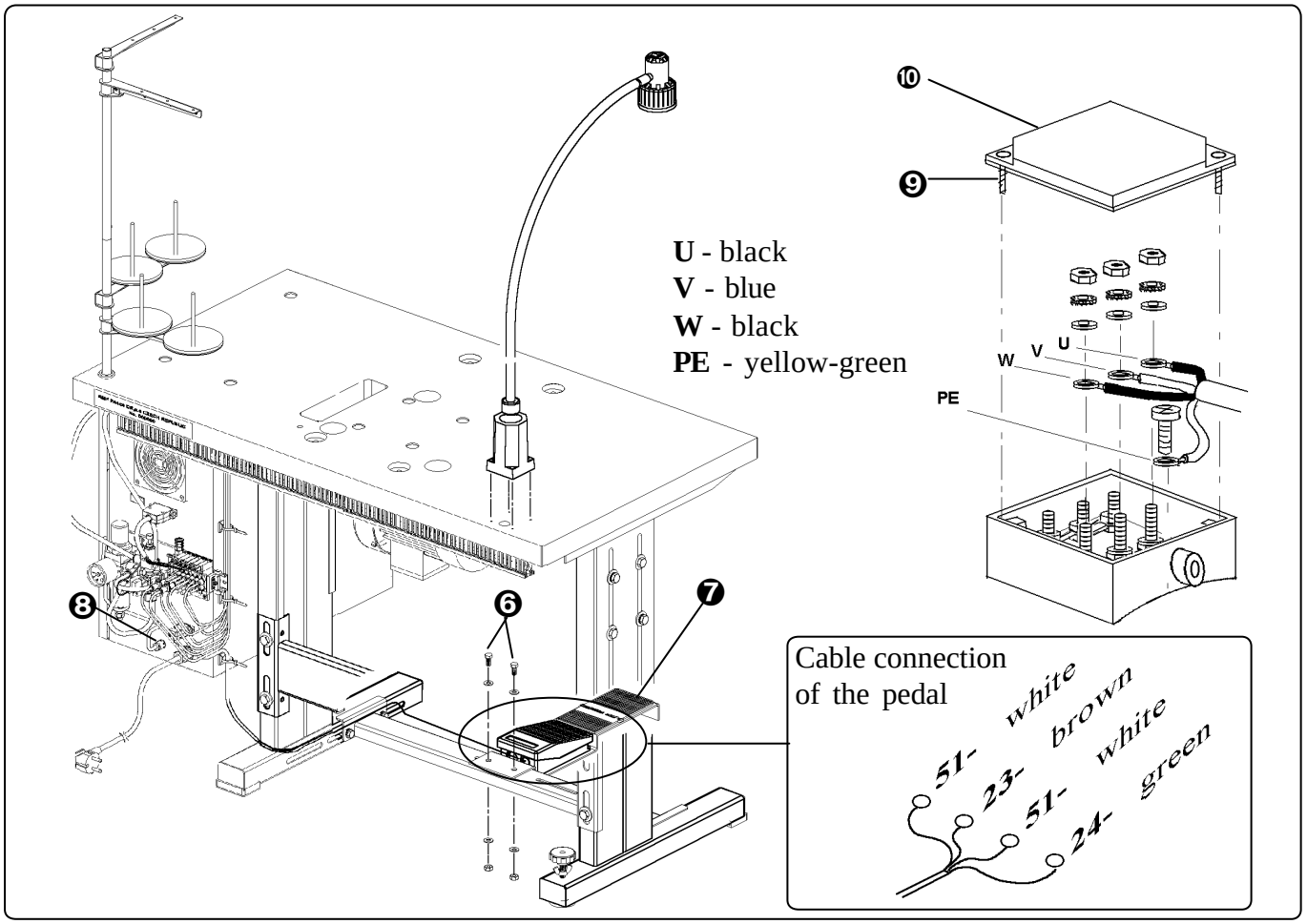
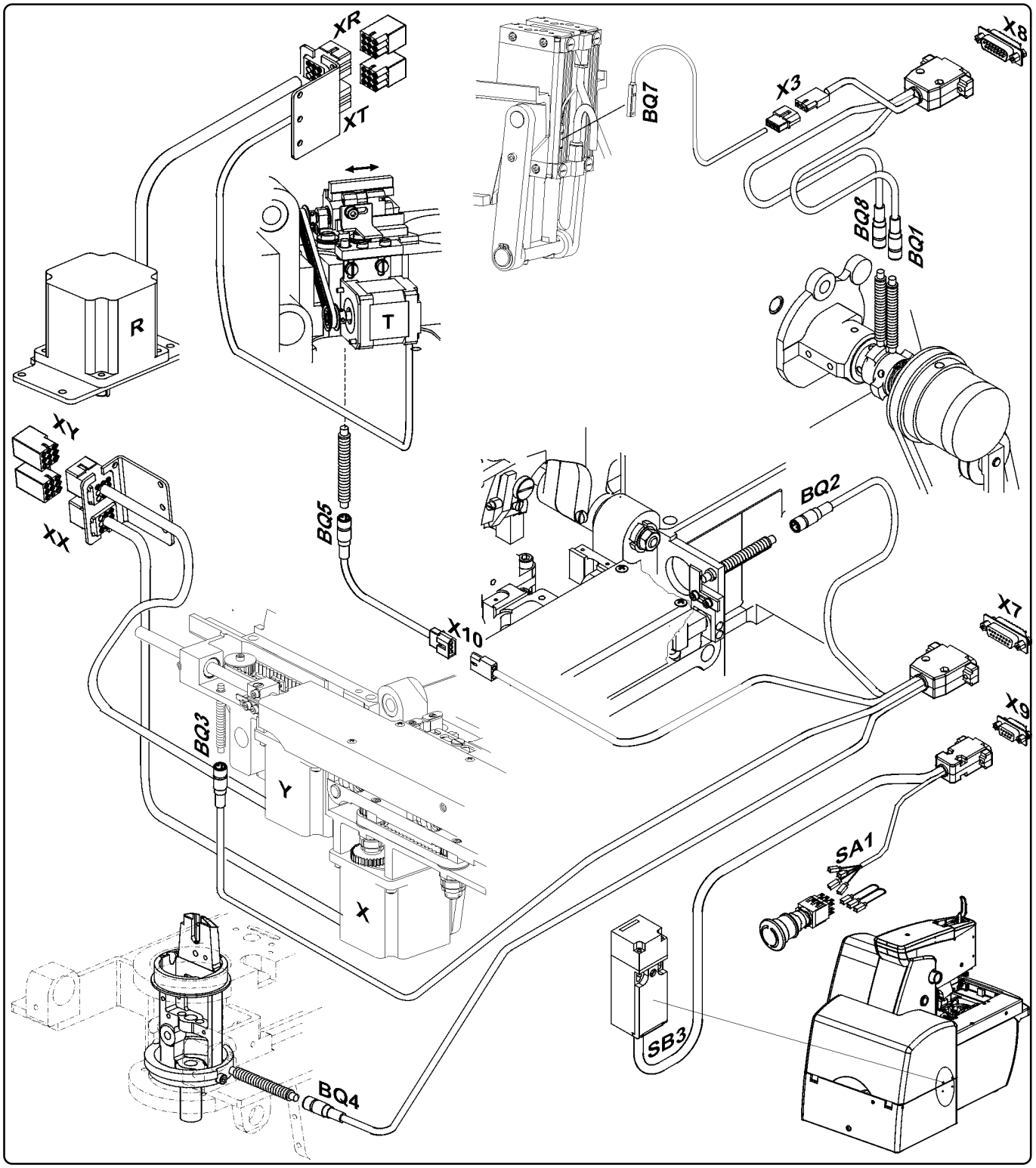
B - MACHINE ASSEMBLY

7. Fix the pedal ❼ on the table by two screws ❻. To connect the pedal with control box, insert the connecting cable into socket ❽ on the control box. Fix the slack cable with tightening tape according to the drawing. Standard connection of the pedal guides is showed below.

8. Using the cable, connect the motor with the control box. Connect the single wires of the cable with appropriate brackets of the terminal U, V, W, PE after outscrewing the screw ❾ of the cover ❿ - see drawing.



B - MACHINE ASSEMBLY



BQ1 synchronizer
BQ2 sensor of the axis X
BQ3 sensor of the axis Y
BQ4 sensor of the axis R
BQ5 sensor of the axis T
BQ7 sensor of the cutting cylinders
BQ8 needle bar position
SA1 Emergency stop button
SB3 switch of the cover

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6. BELT TENSION

1. Lower belt ❶ of sewing mechanism drive is usually installed on machine head pulley during the transport. To enter to this pulley : loosen screw ❷ on drive belt cover ❹, shift the cover aside and remove the cover. Then loosen two screws ❺ and screw ❻ of the drive belt cover ❸.

2. To remove the cover ❹, loosen the screw ❼. It makes possible to insert the panel ❽ with the Emergency Stop button, inwards the cover.

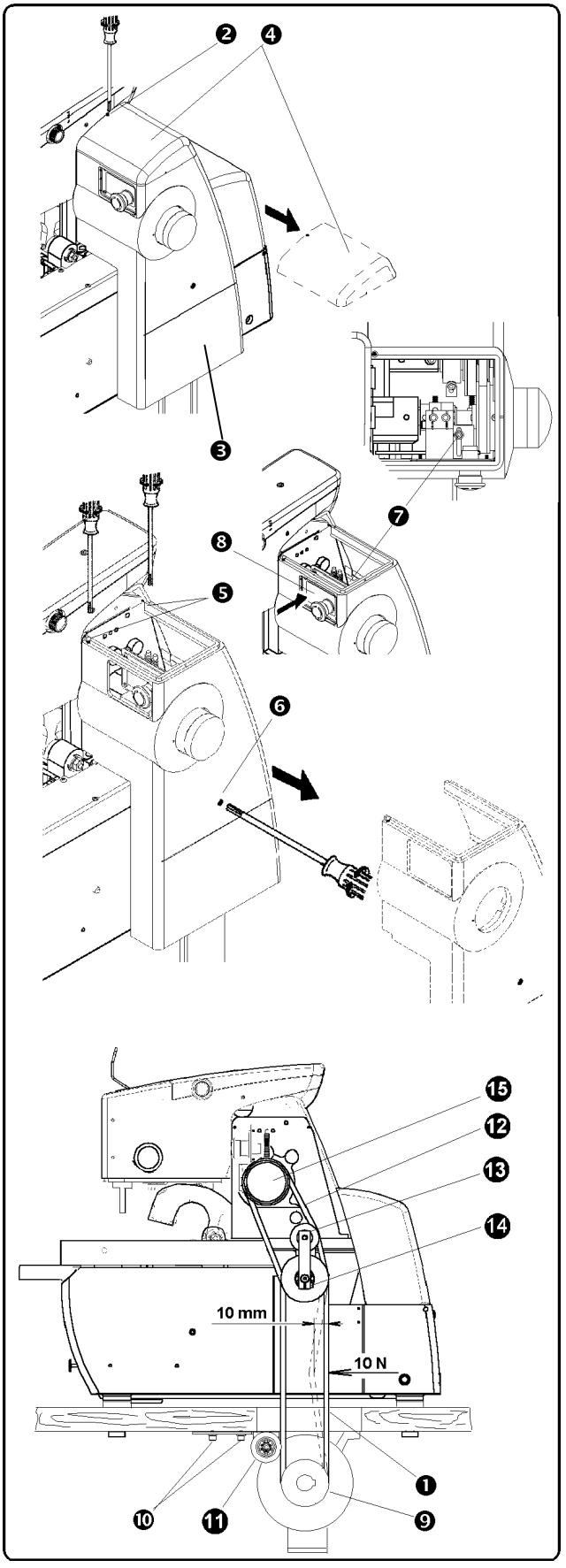
3. Put the belt onto the motor pulley ❾ through a slot in table plate.

4. After loosing the screws ❿ of the tension pulley ⓫, tighten the belt by moving the pulley. Tighten the screws again.

5. Check the tension by pressure approximately 10 N above the plate. The sag of the belt should be approximately 10 mm (0,394“).

6. After loosing the screws ⓮, it is possible to stretch the upper drive belt ⓬ using the pulley ⓭ .

7. Install the motor pulley cover and machine covers ❸, ❹ . By turning the hand wheel ⓯ check, whether the belts do not touch any cover.



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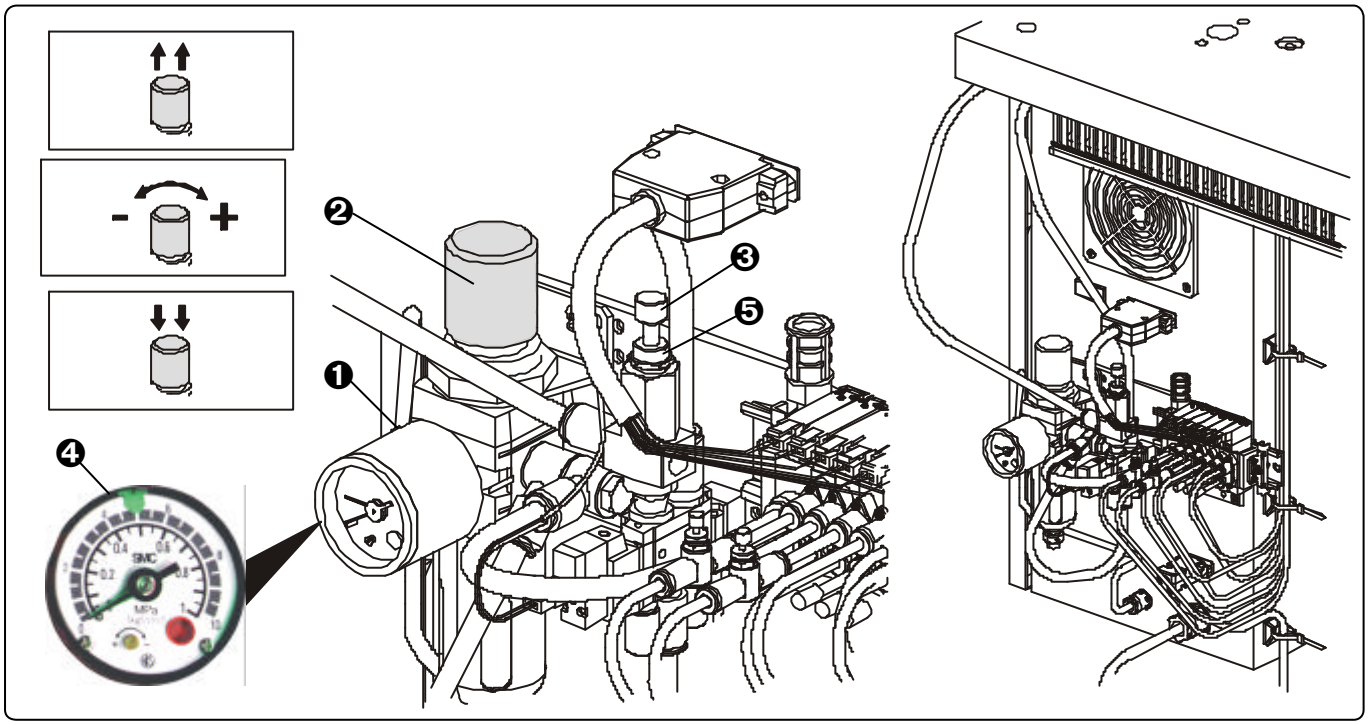
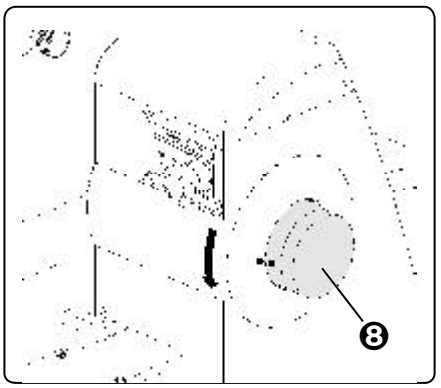
7. POWER AND AIR CONNECTION

1. Simple connection for air adaptation will be ensured by a socket of quick coupler. Socket 25 KEAK 13 (ordering number FESTO 151776 - marking KD 1/4 - S, ordering number RECTUS 38044) is used as standard. Unit has corresponding input ❶.
   Input pressure must minimally be by 1 bar (0,1 MPa) bigger than output pressure set on regulator. Different connection of air is also possible. In this case the manufacturer recommends to add a hand stopper so that it is possible to close the air supply.
2. After air connection check, the air pressure set on the dial of the regulator. It should be in range 0.45-0.5 MPa. To correct it: pull the stopper ❷ out. To increase the set pressure turn clockwise, to decrease, turn anticlockwise. Tighten the stopper ❷ again. The pressure for the cutting cylinders is set to 0.4 MPa (4bar) from a manufacturer by screw ❸ after loosing the nut ❺.



If a material is incorrectly cut, check the cutting steel and a pressure on the regulator ❹.

3. Power supply supposes using 230 V net. Socket for plug must correspond to requirements of IEC standard 364-4-41. The right connection will ensure turning of the hand wheel ❽ anti-clockwise.



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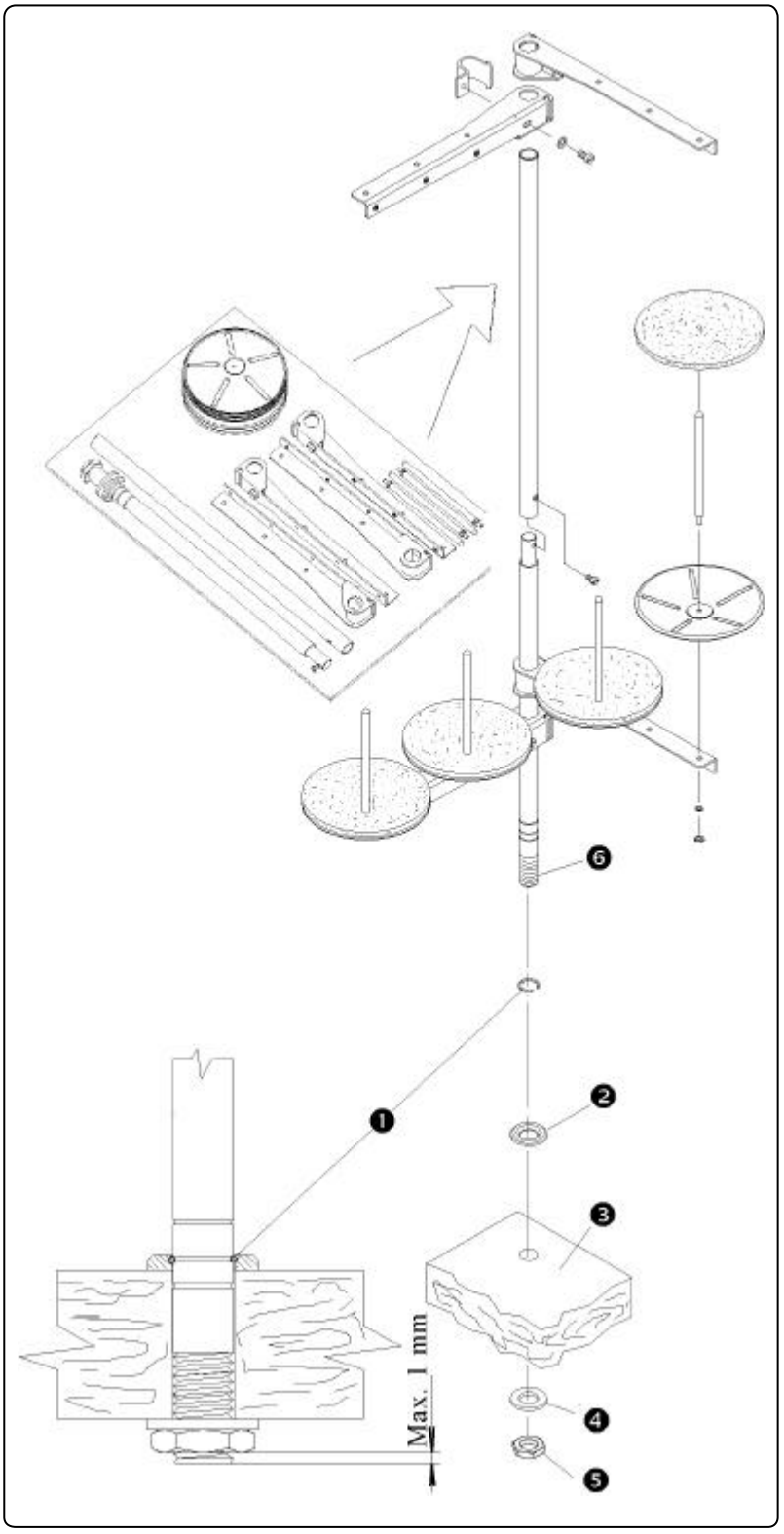
8. THREAD STAND INSTALLATION

1. Put the thread stand together according to the drawing.

2. Position of the locking ring ❶ allows assembly of the thread stand for various thickness of the table top. Threaded end of the post ❻ must not extend more that 1 mm (1/32") through the locking nut ❺.

3. Insert the washer ❷ and the post into the hole provided in the right rear of the table top ❸. Insert the washer ❹ and tighten the nut ❺.



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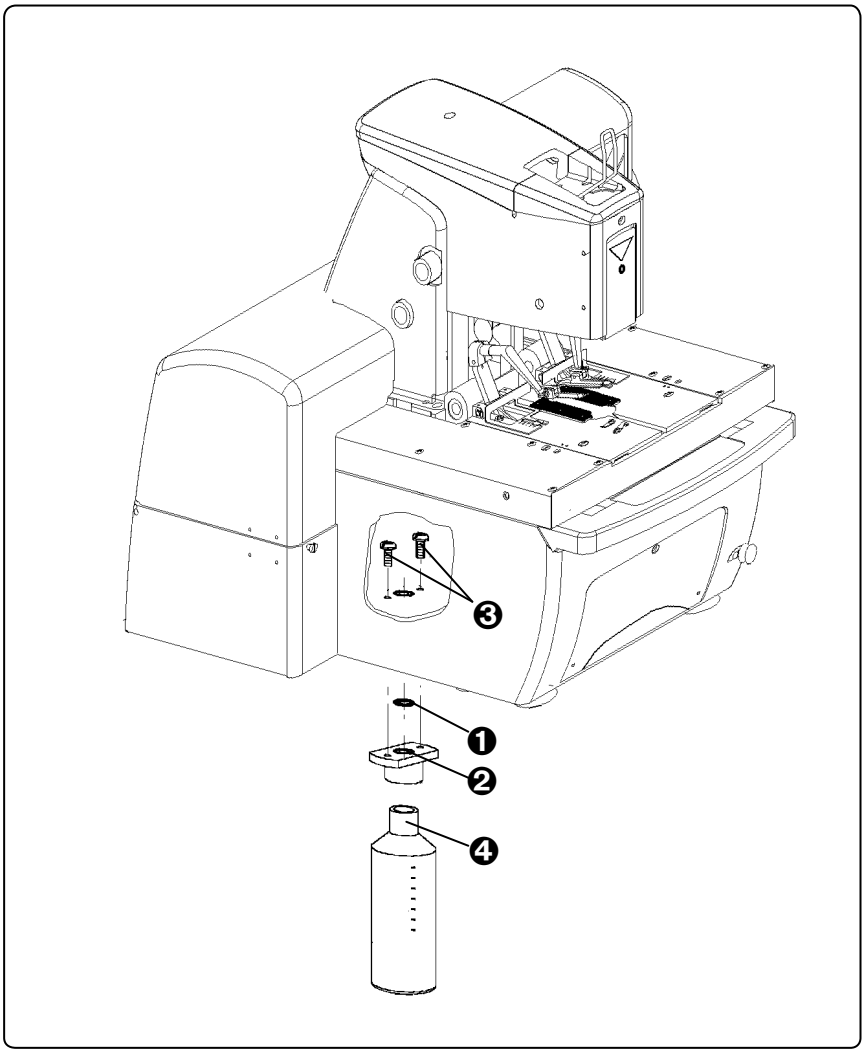
9. LUBRICATION

1. Put the rubber ring ❷ on threading part of reservoir holder ❶.

2. Insert the holder with reservoir ❹ thought the slot in the table plate, from the bottom, on lower part of machine frame by tube of threading part into hole in frame and pull the holder ❶ to the machine head frame by the screws ❸.



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C - PROPER APPLICATION

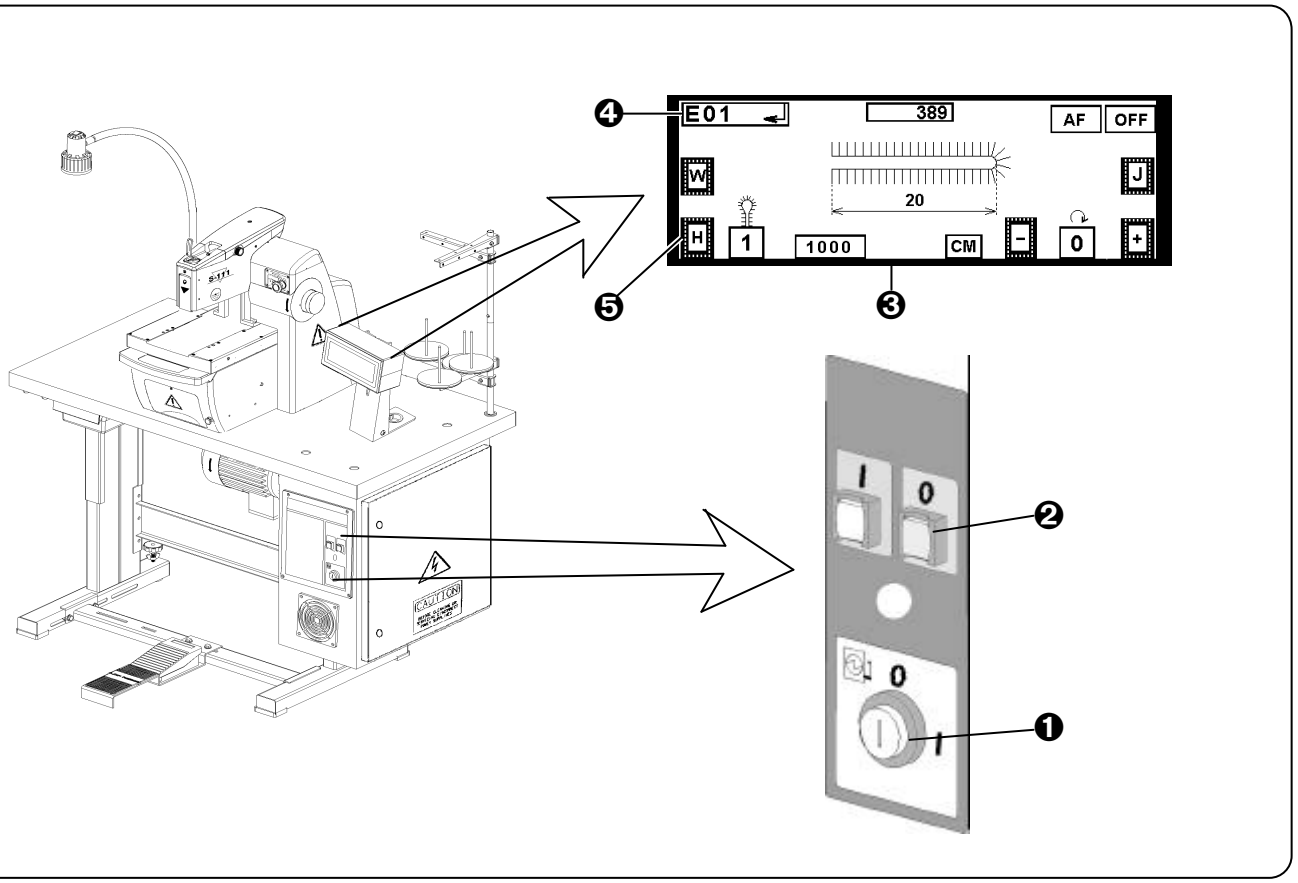
1. POWER UP / HOME POSITION

1. Turn the main power switch on ❶ by turning clockwise to the „**I**“ position.

2. Push the switch ❷  , the LED  should light. The display is activated and lighted. Wait until the main screen ❸ appears on the display.

3. If the error message **E01** ❹ (machine is not in the home position) appears on the display press the **H** button ❺. After the machine is in the home position, the **H** letter disappears. If a different error message appears on the display - follow the Troubleshooting section.

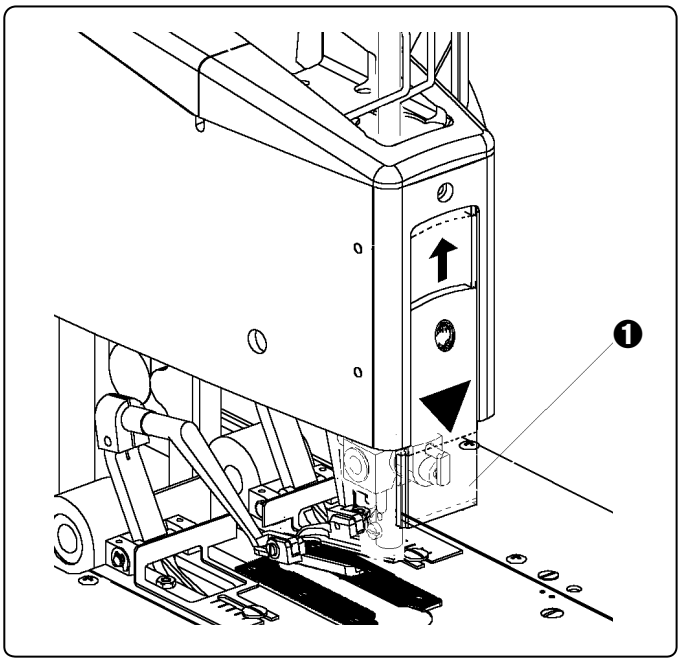
4. The machine is ready for operation when **Ready** message appears on the display.



2. NEEDLE INSTALLATION

Use needles AMF Reece 02.0505.0.111/113…. (1807D Nm 100 – 120) only.

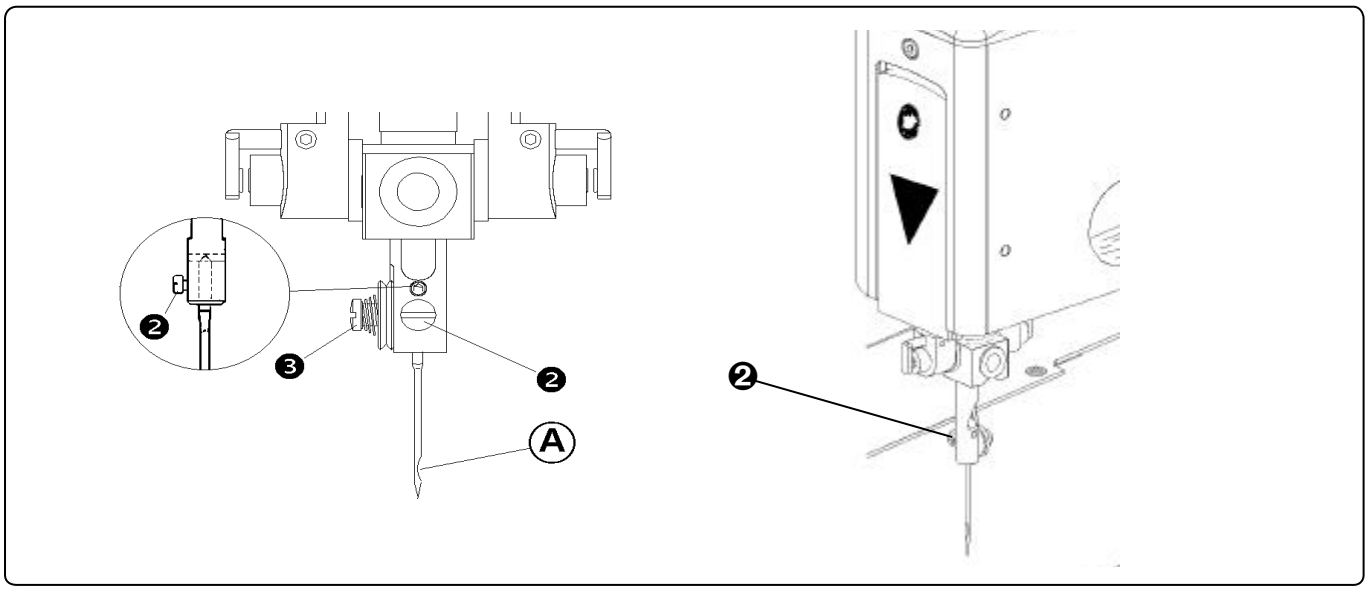
1. Lift the transparent needle cover up ❶.



2. Loosen the screw ❷ and remove the needle.

3. Insert the new needle so that the needle scarf **A** is on opposite side from screw ❸ of the tension. Do not install a bent or broken needle. Roll the needle on a flat surface to check for straightness.

4. Tighten the screw ❷ well.



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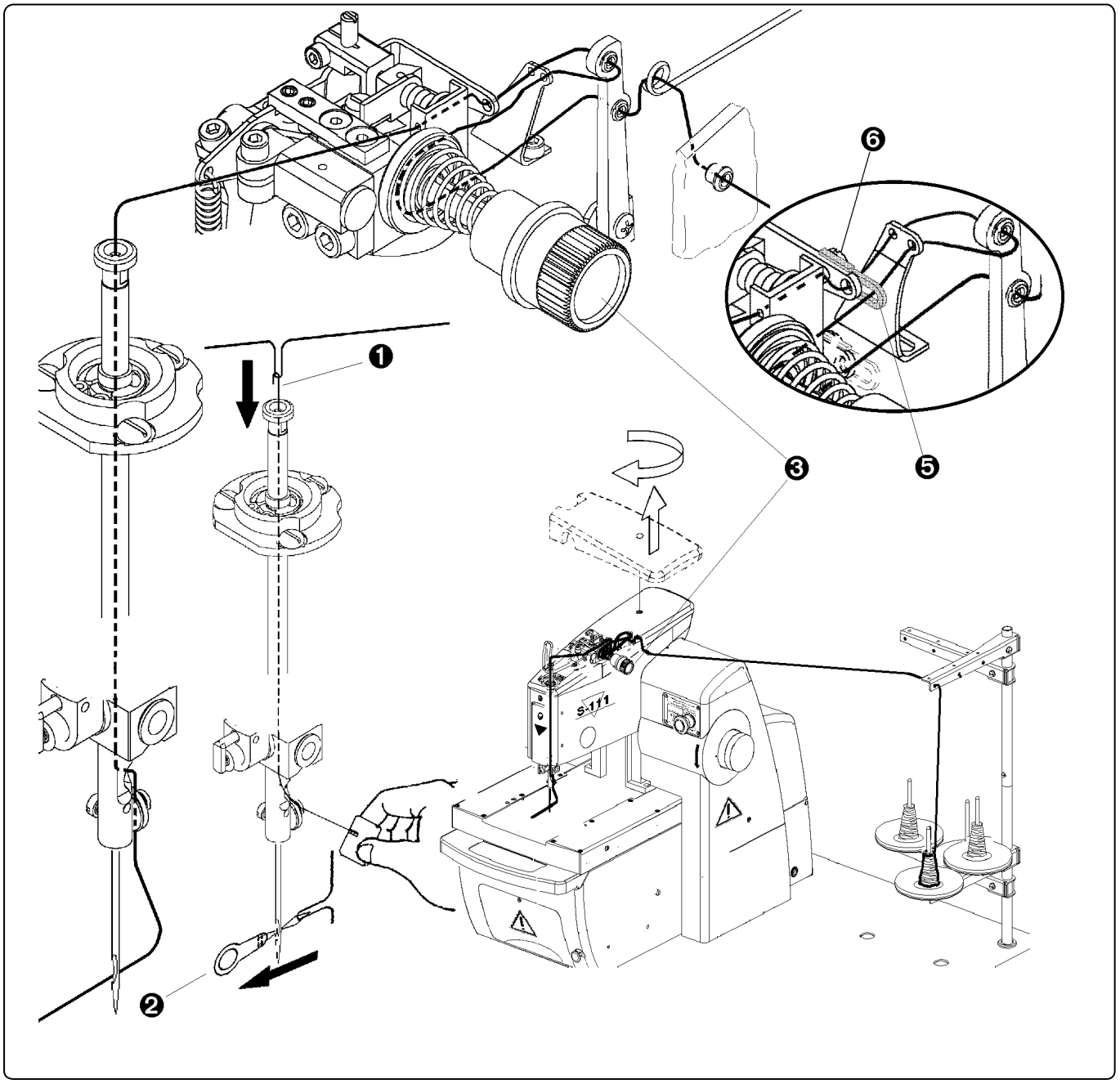
C - PROPER APPLICATION

3. THREADING

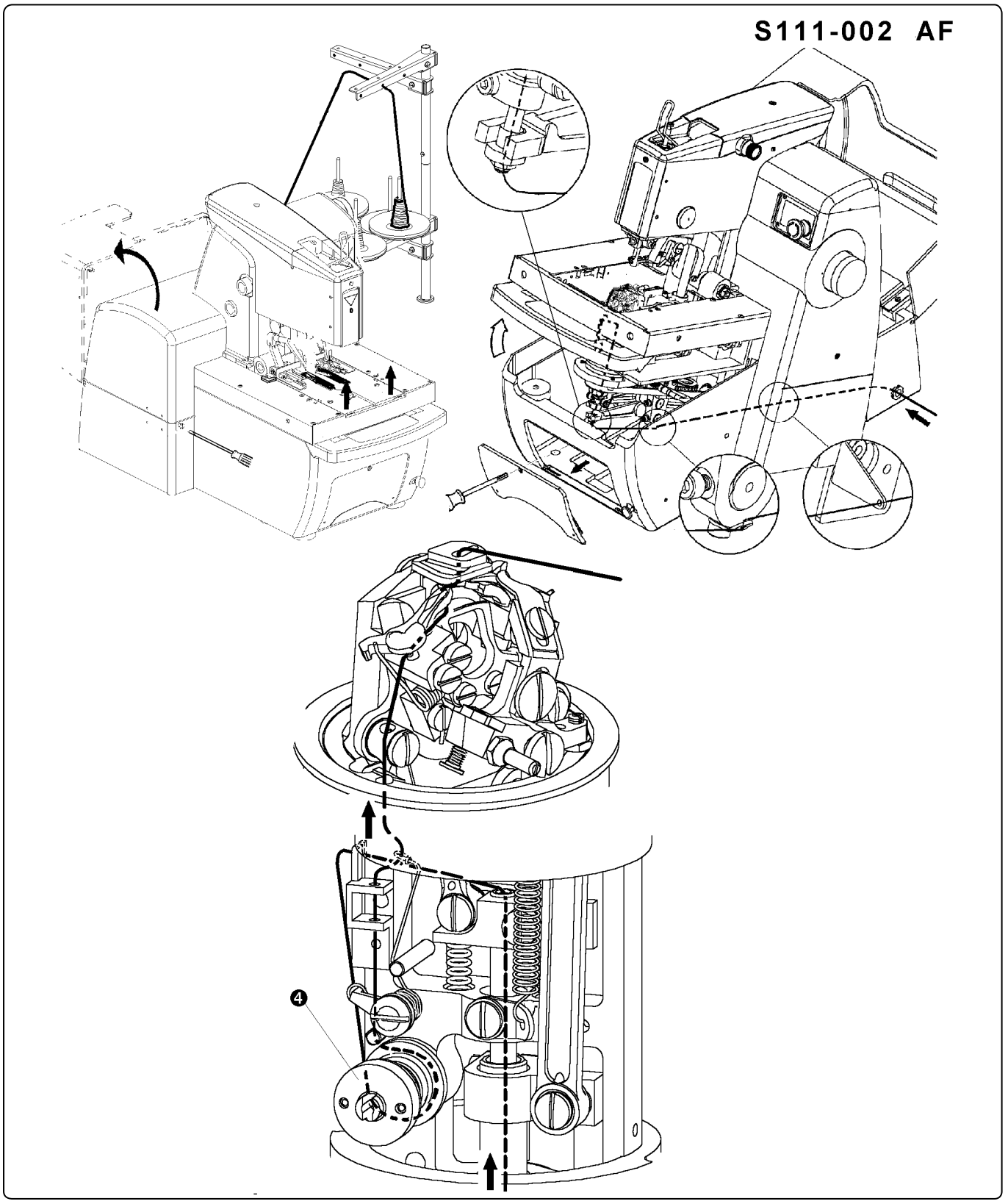
1. When threading, see the pictures below. For easy threading use threading devices ❶, ❷ from accessories kit. Adjust the thread tension by nuts ❸, ❹ according to the sewing conditions.
2. To increase the thread draw-off (for example during the sewing of narrow bite on thin fabric, where missing stitches appear) it is possible to install an arm ❺ (19.0082.1.402) by screw ❻ (17.0012.0.605) on the lever.
3. It is possible to turn a race by 180° for better threading - to perform it *see page 1-31, section **D 7***.

Needle thread



C - PROPER APPLICATION

Lower thread - fold the rear cover and lift the machine head to thread the lower thread



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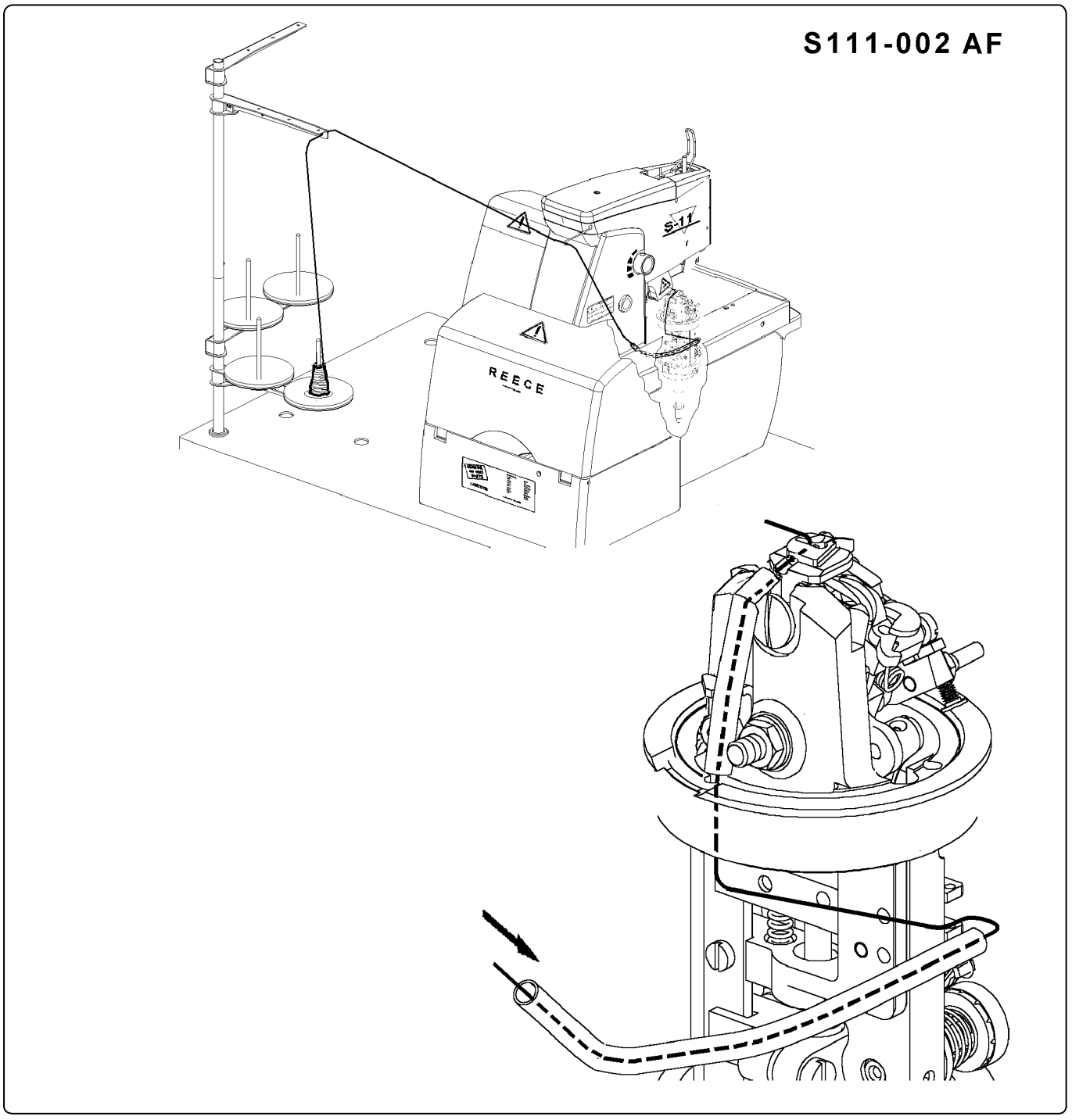
C - PROPER APPLICATION

Gimp



The appearance and quality of the buttonhole may be affected by one or more of the following:

- stitches density (number of stitches in the first and the second row of stitches)
- number of stitches in the eye
- amount of fabric spread
- cutting space
- tension of upper and lower thread
- type of thread (size, etc.)
- needle bite
- sewn material (thickness, density)

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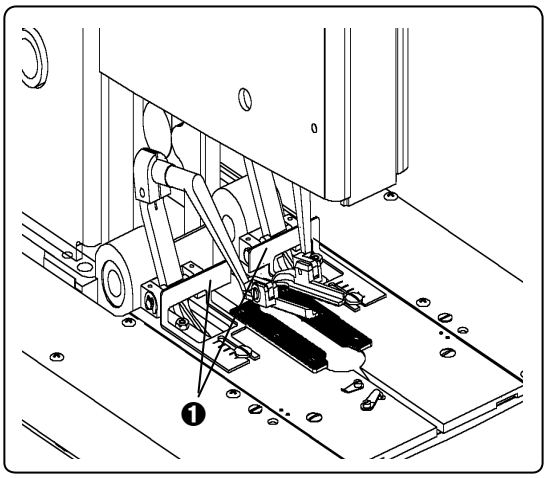
1. PROGRESS FOR THE BUTTONHOLE SEWING

1. With the machine is in the home position, before sewing, manufacturer recommends 3 minutes for warm up.



2. Be certain that the machine is threaded correctly - see section **C3**, and needed buttonhole appears on the display. Insert the fabric under the clamp feet. Use the rear stops ❶ to position the buttonhole.

3. When the foot pedal ❷ is pressed to the first position, the fabric is clamped by the clamp feet. (When the pedal is released, the clamp feet raise.)

4. When the foot pedal is pressed to the its second position, the sewing is started. When the buttonhole is sewn, fabric is cut and the upper thread is trimmed, clamp feet raise and machine goes back to its home position.

5. When the clamp feet are up, it is possible to move the fabric for sewing the next buttonhole.

6. Immediate stopping in any place of the cycle is possible by the EMERGENCY STOP button ❸ on a machine head. The machine finishes the cycle after releasing the Emergency Stop Button and again pressing the foot pedal.

7. If the foot pedal ❷ is pressed before the buttonhole is finished, the clamp feet will not raise. Is is possible to sew the buttonhole again after the foot pedal is pressed.

8. When your work is finished, switch the machine off by the right ❺ button. Then switch off the main switch ❹ and close the air supply.

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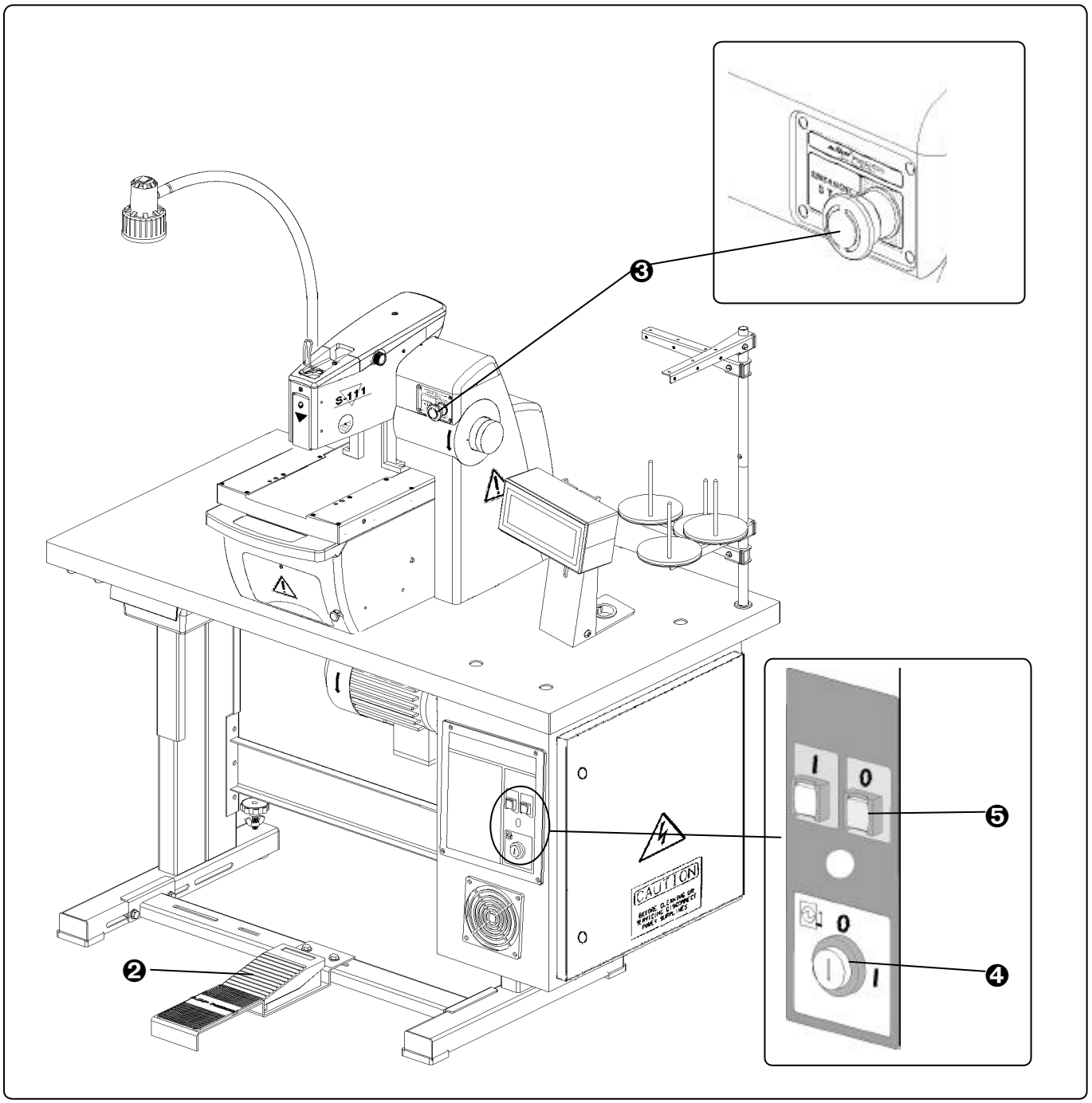
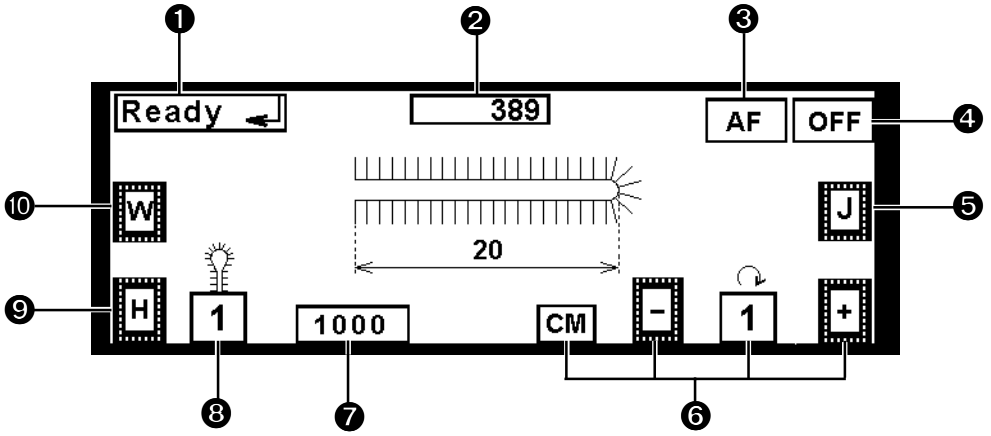
D - MACHINE CONTROLS



2. DISPLAY INFORMATION

Be sure you understand the proper setting of display: the eye shape, the sewing speed change, machine modification change, the cutting space setting, cycle mode use and button jog using.
It is also necessary to understand the proper machine testing.
Before setting the display parameters, read the manual section D - MACHINE CONTROLS.



❶ Display messages - standard - Ready; Busy
- error - error messages start with letter E - see Troubleshooting section

❷ Daily counter of the sewn buttonholes

❸ Machine modification

❹ The cutting setting

❺ JOG - hand controling of the successive jogging of the machine cycle. After pressing this button, the button is changed to [>]. It is possible to jog the buttonhole by pressing the button. To finish the jogging, press the foot pedal. To bring the machine to the home position, press ❾ button.

❻ Buttons for cycle mode setting

❼ Setting the sewing speed

❽ The number of programmed buttonhole - to select the number of the programmed buttonhole from a memory, press this button. The numerical screen appears on the display. Choose the number of buttonhole which will be sewn. To save the chosen number, press ❿ button.

❾ Button for machine home position - to bring the machine to the home position, press this button

❿ Saving the set parameters - after making any change, it is necessary to press this button.

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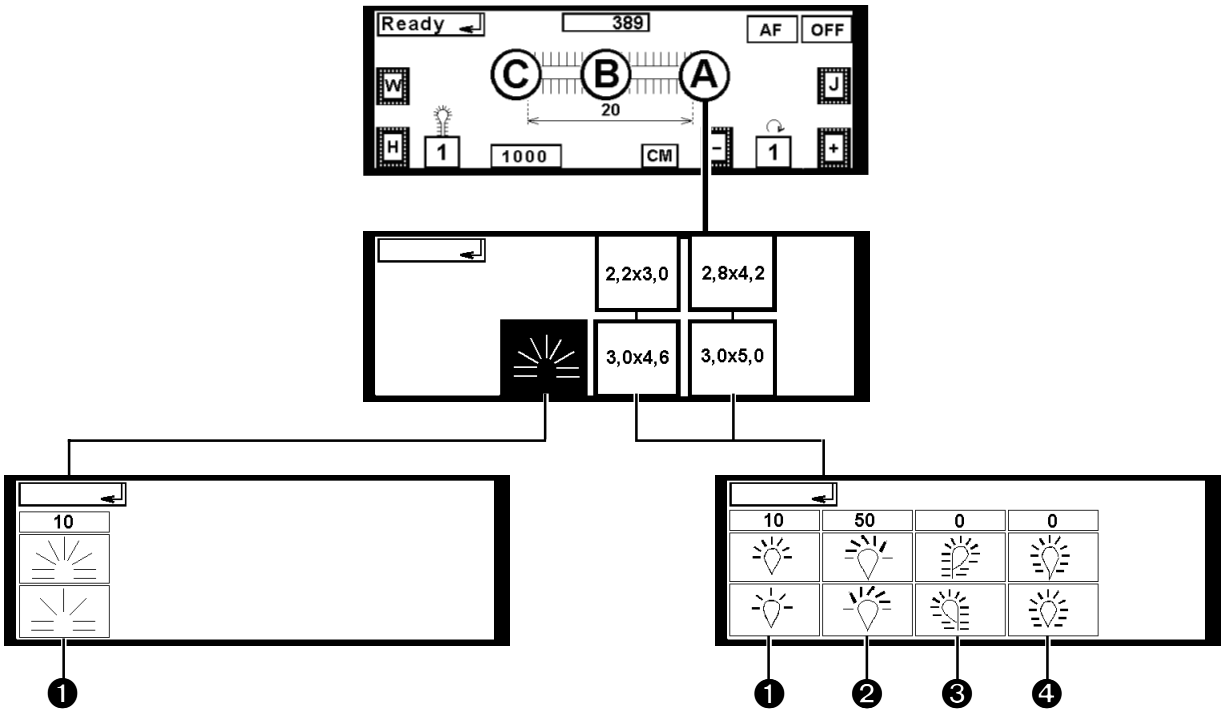
3. THE BUTTONHOLE SETTING

To set the buttonhole, it is necessary to set the parameters of eye, the first and the second row of stitches and the bar. Press the marked places (**A**, **B** or **C**), to set the parameters.

A - ***setting the parameters of the eye*** - possible sizes of eye: ***2,2x3,0*** or ***2,8 x4,2*** or ***3,0x4,6*** or ***3,2x5,0*** or ***No Eye***



❶ ***Number of stitches in the eye*** - range 4-20 by buttons **+** and **-**.

❷ ***Eye stitch correction*** - range 0-100 by buttons **+** and **-**. The feeding is spread on the right and left looper.

❸ ***Straightening eye in respect of the buttonhole.*** Range ±1 by buttons **+** and **-**.

❹ ***Eye start correction*** - range 0 - 0.2. Use for the final appearance of eye.

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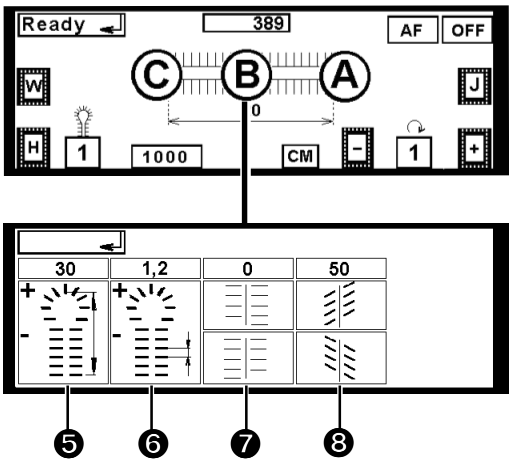
B - ***setting the first and the second row of stitches***



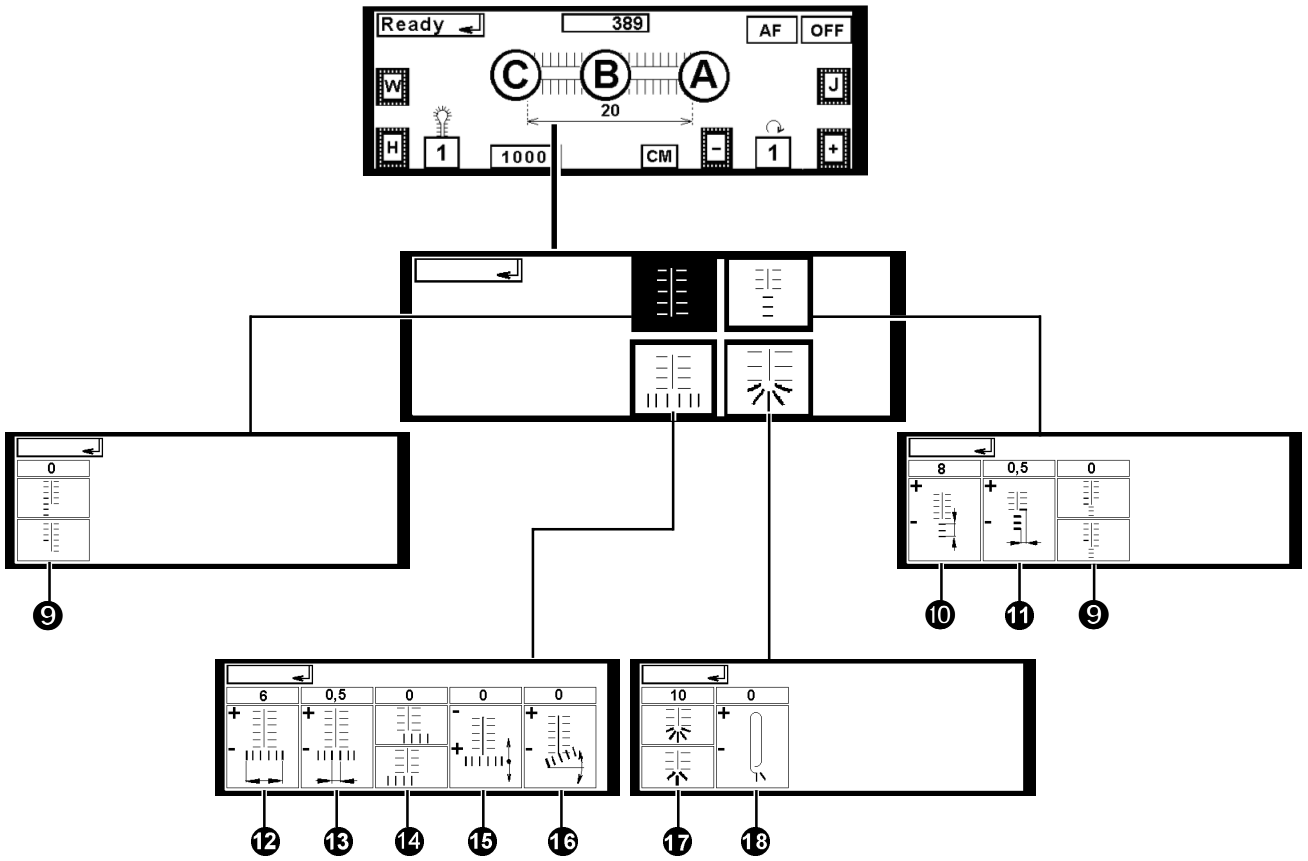
❺ ***Length of the buttonhole*** - range 10-50 by buttons + and -.

❻ ***Stitch density*** - range 0,5 - 2,0 mm by buttons + and -.

❼ ***The first and the second row of stitches alignment*** - range ±1,5 mm.

❽ ***Stitch angle*** - range 0-100 %. If 50% is set, the stitches are vertical to the buttonhole. The feeding is spread on the right and left looper.

C - ***setting a bar*** - possible types of the bar: ***Open End***, ***Fly Bar***, ***Cross Bar***, ***Round End***



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❾ ***Number of removed or added stitches at the end of the second row of stitches*** - range ± 2 stitches by buttons + and -. To align the first and the second row of stitches, use this parameter.

❿ ***Flybar length*** - range 3 - 20 mm by buttons + and -.

⓫ ***Side shifting relative to the flybar*** - range 0,5 - 2,0 mm by buttons + and -.

⓬ ***Length of the cross bar*** - range 4,0 - 8,0 by buttons + and -.

⓭ ***Cross bar density*** - range 0,5 - 1,5 by buttons + and -.

⓮ ***Correction of the cross bar position in axis X*** - range ± 2 by buttons + and -.

⓯ ***Correction of the cross bar position in axis Y*** - range ± 1,5 by buttons + and -.

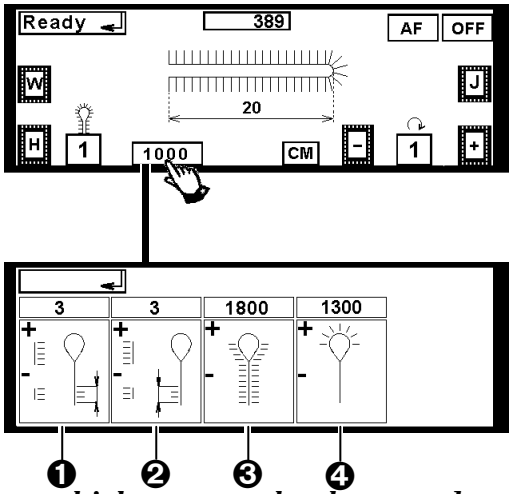
⓰ ***Cross bar angle correction*** - range 0° - 15° by buttons + and -. The cross bar should be perpendicular to the both row of stitches (when using various type of material)

⓱ ***Number of overlapped stitches of the round end*** - range 0-2.

⓲ ***Number of stitches in the round end*** - range 4-20 by buttons + and -.

4. THE SEWING SPEED SETTING

It is possible to set the sewing speed in range 1000, 1300, 1600, 1700, 1800, 1900 and 2000.



❶ ***Number of stitches, which are sewn by slow speed at the beginning of a sewing***- range 0-9 by buttons + and -.

❷ ***Number of stitches, which are sewn by slow speed at the end of a sewing***- range 0-9 by buttons + and -.

❸ ***Sewing speed in the first and the second row of stitches*** - range 1000 - 2000 by buttons + and - .

❹ ***Sewing speed in the eye*** - range 1000 - 2000 by buttons + and - .

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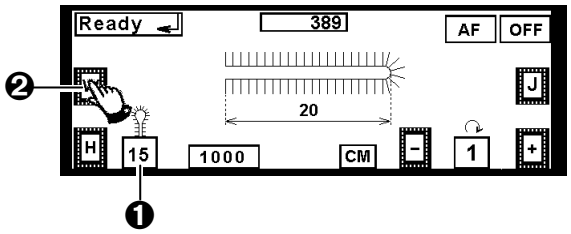
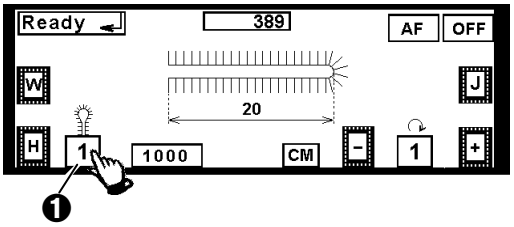
5. PARAMETERS SAVING

1. ***To save the set parameters to the same assigned number of a buttonhole*** ❶, press button ❷ (marked **W**).

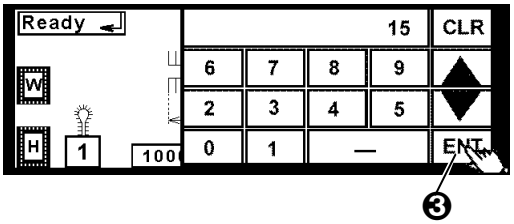


The message „PLEASE WAIT“ appears on the display and parameters are saved.

2. ***To save the set parameters to a new number of a buttonhole:*** press the number of a buttonhole button ❶. The numerical display appears on the display.



3. Choose the number and press the button ❸.



4. Set needed parameters.

5. To save the parameters, press button ❷.

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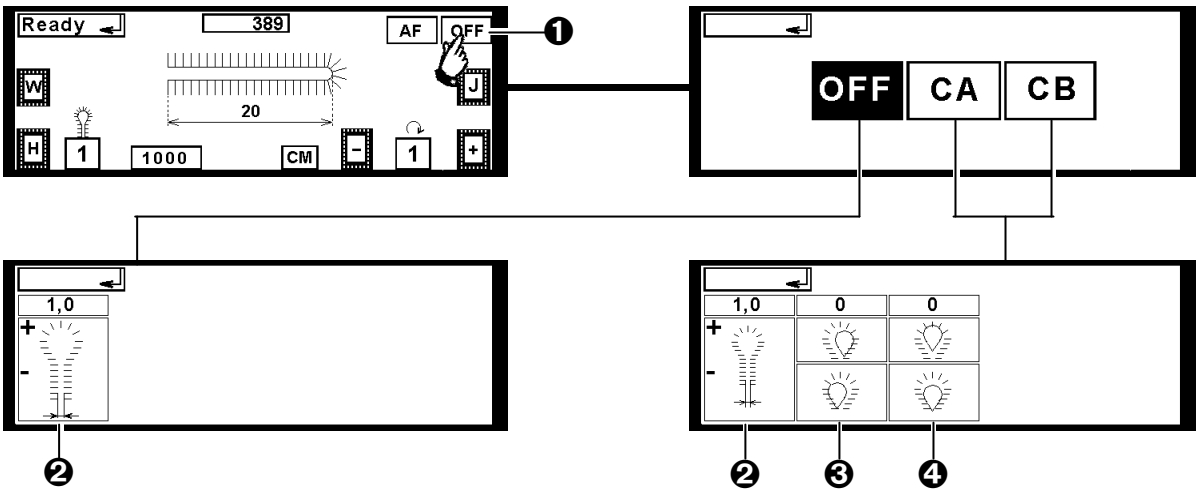
6. SETTING THE CUTTING

Press button ❶ to set the cutting. Possible setting:
OFF - No cutting
CA - Cutting after sewing the buttonhole
CB - Cutting before sewing the buttonhole



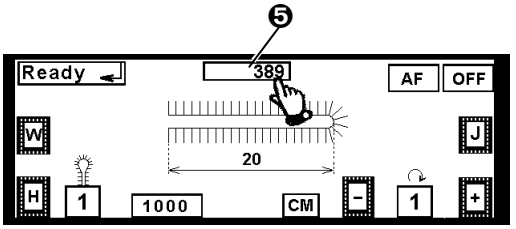
❷ ***Cutting space*** - range from -0,5 to +1,2 mm by buttons **+** and **-**. Choose needed value. Negative values are usually used for sewing with CB.

❸ ***Centering the knife cut*** (axis X) - range ±1,5 mm. To move the knife to the left, choose negative value, to move the knife to the right, choose positive value.

❹ ***Centering the knife cut*** (axis Y) - range ±1,5 mm by buttons **+** and **-**.

7. SERVICE MODE - CYCLE COUNTER

To enter, press cycle counter button ❺.

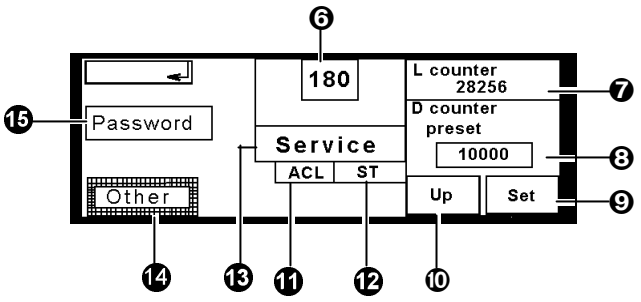


❻ For better threading, press this button and the race turns by 180°

❼ Life counter

❽ Cycle counter range

❾ Set button



❿ Up / Down button - Choose ***Down*** and press Set button - value which is set on the cycle counter range ❽ will be transferred to the cycle counter ❺
Choose ***Up*** and press Set button to reset the cycle counter ❺

⓫ ACL - not active for AF modification. If this button is lighted, the adjustable cutting length steel is activated.

⓬ ST - not active for AF modification

⓭ Service Mode - press this button to activate the Service Mode. Error message **E-40** appears on the display. After pressing the foot pedal, the clamp feet are lowered and it is possible to sew the buttonhole by turning the handwheel. To deactivate the Service Mode, press and release the Emergency Stop button, the clamp feet will raise and press H button.
Note: Service Mode is intended for use by the service personnel only.

⓮ This button is intended for service personnel only.

⓯ This button is intended for service personnel only.

Cycle counter

possible setting:

a) ***ascending counting*** - 1↓ 9↓ to ascend the buttonholes, set the value of the cycle counter range ❽, set Up ❿ and press Set button ❾.

b) ***descending counting*** - 9↓ 1↓ to descend the buttonholes, set the value of the cycle counter range ❽, set Down ❿ and press Set button ❾.

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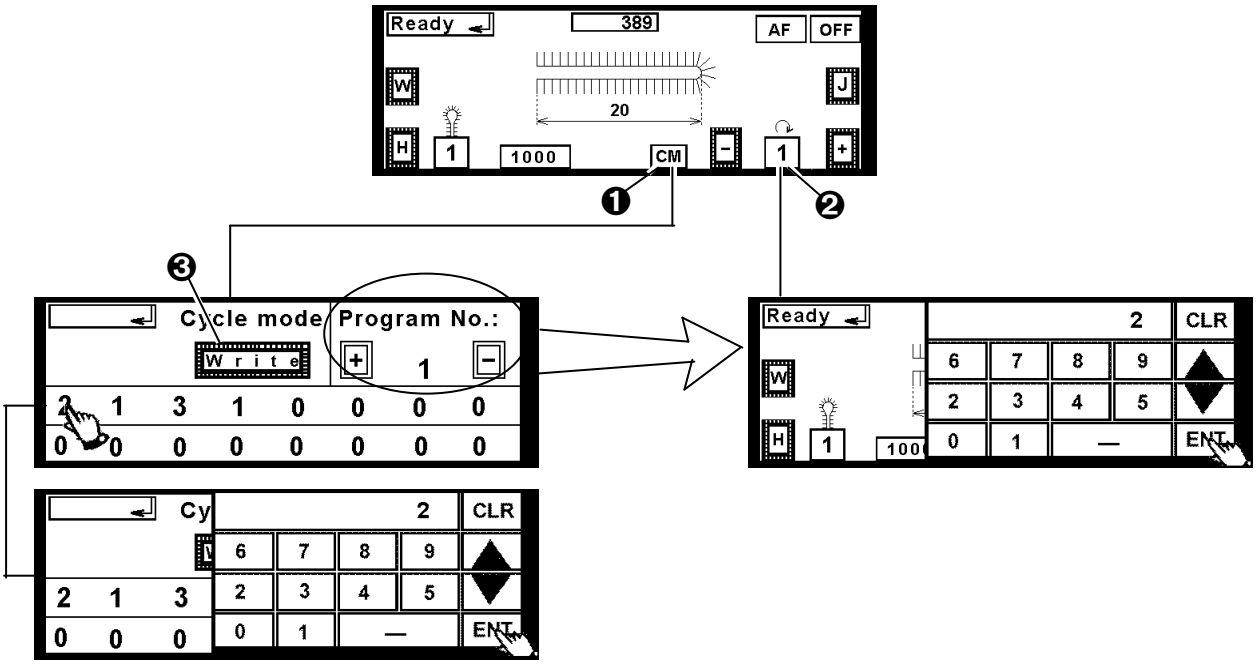
8. CYCLE MODE

It is possible to set the type and the number of buttonholes which will be sewn in one sewing cycle.

CAUTION: Modification **AF** - it is necessary to use the same cutting length for all buttonholes in one cycle. Imitation (no cut) buttonholes of different length can be included in the sewing cycle.

❶ Setting the number of buttonholes in the cycle - possible setting: 1-16 buttonholes
Note: If **0** is set, the machine starts to sew from the first set buttonhole.

❷ Program number setting - range 0-9. ***If*** 0 ***is set, the cycle mode is not activated. After the machine is switched on, the*** 0 ***automatically appears in the program number.***

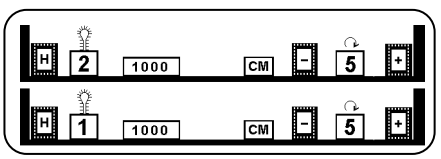


To save the performed changes, press ❸ button.

Example:

In the program number **5** you want to sew the buttonholes in the following order: **2, 1, 3, 4, 1**.

1. Press ❷ button.The numerical display appears on the screen. Choose program number **5** and press ENT.
2. Press ❶ button. The screen, where it is possible to set the order of sewn buttonholes, appears on the display. Press the first number and using the numerical display set the buttonhole number **2**, which will be sewn as the first. Press ENT to confirm. Next, press the secont number to set the buttonhole number **1**. Follow those steps to set all the buttonholes which will be sewn. If **0** is selected, the cycle mode will return to the first set buttonhole (**2**).
3. Press WRITE to save the set buttonholes to program number **5**. Return to the main screen.
4. Program number 5 and buttonhole number **2** appear on the display.
5. When the buttonhole is sewn,the number of the next buttonhole in the cycle (**1**) will be displayed.



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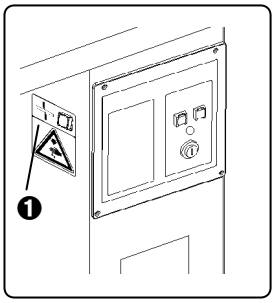
9. MANUAL CUT MODE



Green button ❶ outside of the control box, activates cutting independently on the program. It may be used with or without the fabric clamps (closed by pressing the foot pedal to the first position).

Progress: Insert the fabric under the clamp feet, switch the foot pedal into the first position, hold this pedal in this position and press button ❶. Cutting lever will cut the fabric everytime, when the button ❶ is pressed. Then release the foot pedal.

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E - STANDARD MACHINE ADJUSTMENT

Warning: - before making any adjustments, turn the main power switch off
- careless adjustment can cause damage to electronic and mechanical parts

Caution: - always maintain good safety standards
- where possible, remove the sewing needle before making mechanical adjustments

1. SET BUTTONHOLE SHAPES FROM A MANUFACTURER

The buttonholes 1-9 are pre-programmed from a manufacturer according to the section ***D*** - see table.

PARAMETERS	1	2	3	4	5	6	7	8	9
	1800	2000	1800	1900	2000	2000	1900	1900	1000
2,2x3,0 2,8x4,2 3,0x4,6 3,0x5,0	3,0 x 5,0	3,0 x 5,0	3,0 x 5,0	3,0 x 5,0			2,8 x 4,2	3,0 x 4,6	3,0 x 5,0
	9	10	11	12	4	6	8	10	4
	24	22	22	24	18	18	32	44	50
	1,0	1,0	1,0	1,0	1,2	1,2	1,1	1,1	1,5
	0,0	0,1	0,1	0,2	0,0	0,0	0,0	0,0	0,0
		7				8	6	3	
		1, 4				1, 5	1, 5	0, 5	
				6					
				0,6					
				0,0					
				0,0					
				0					
			6		5				
	0	0	1		1	0	0	0	
OFF CA CB	OFF	CB	CB	CA	OFF	OFF	OFF	OFF	OFF

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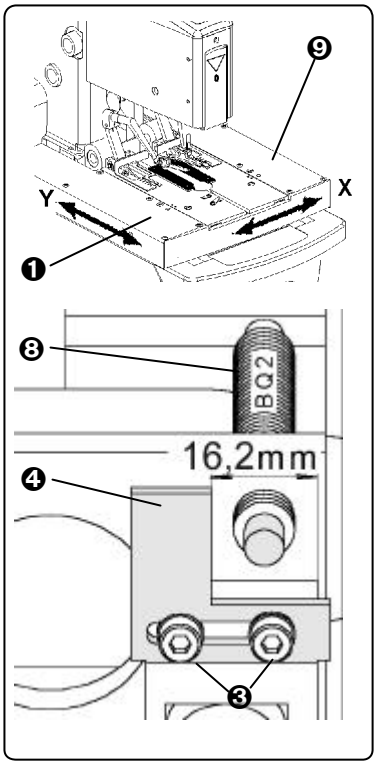
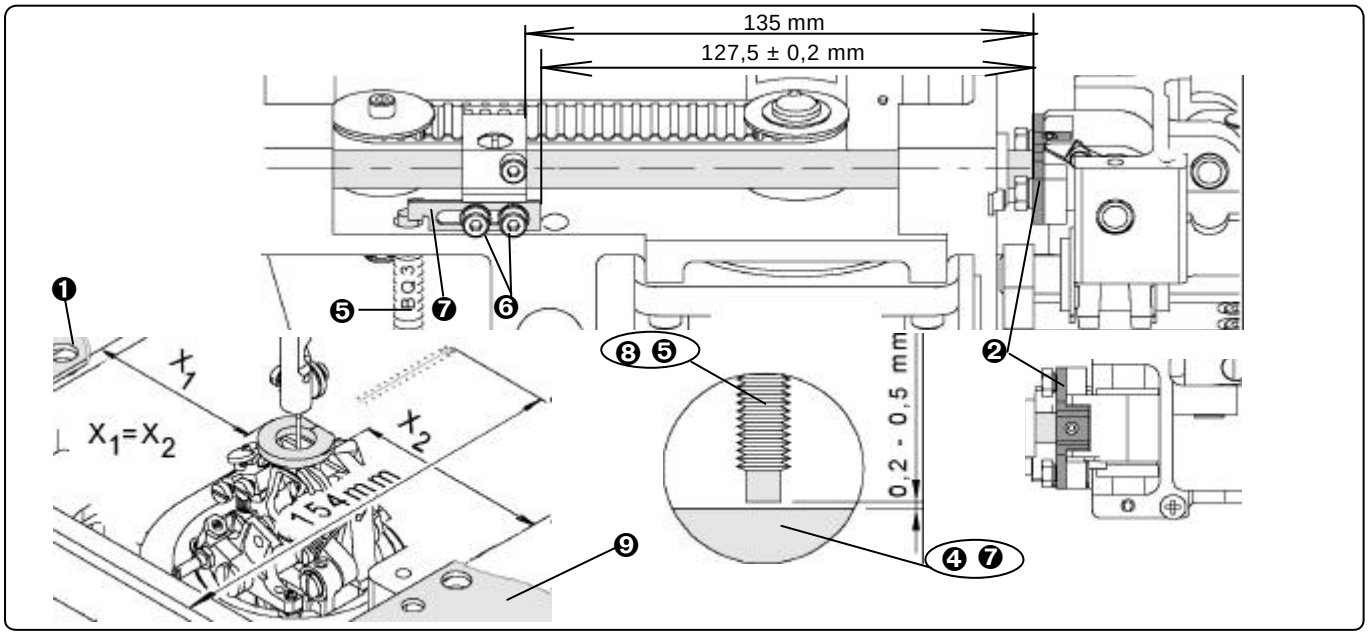
2. THE BEDPLATE HOME POSITION ADJUSTMENT

The bedplate home position is given by position of the plates ❹,❼ and sensor BQ2 ❽ for axes X and BQ3 ❺ for Y. Sensor plate screws are locked by paint from the manufacturer, that is why only a service technician from AMF REECE can perform this operation during the guarantee period .



1. Adjust the sensor plate ❹ (BQ2) ❽ after loosening the screws ❸ approximately to 16,2 mm (0.64“). Remove the right cover of the bedplate ❾ to access to the plate.
2. After removing the left cover of the table ❶ adjust the sensor plate (BQ3) ❺. Loosen the screws ❻ to obtain the 127.5 ± 0.2 mm from the shaft holder ❷ to the plate edge - see picture. Belt holder is set to 135 mm from the shaft holder ❷.
3. The distance between the sensors and plates must be 0.2 - 0.5 mm (0.007 - 0.019“). Bigger distance causes incorrect function of the electric system.
4. Adjust the position of the sensor plate ❺ if the dimension from inner most lengthwise puncture in the eye and edge of the bedplate is different than below mentioned dimension 154 mm (6.06“).



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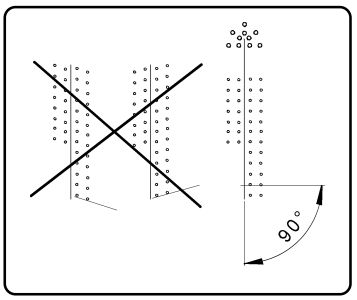
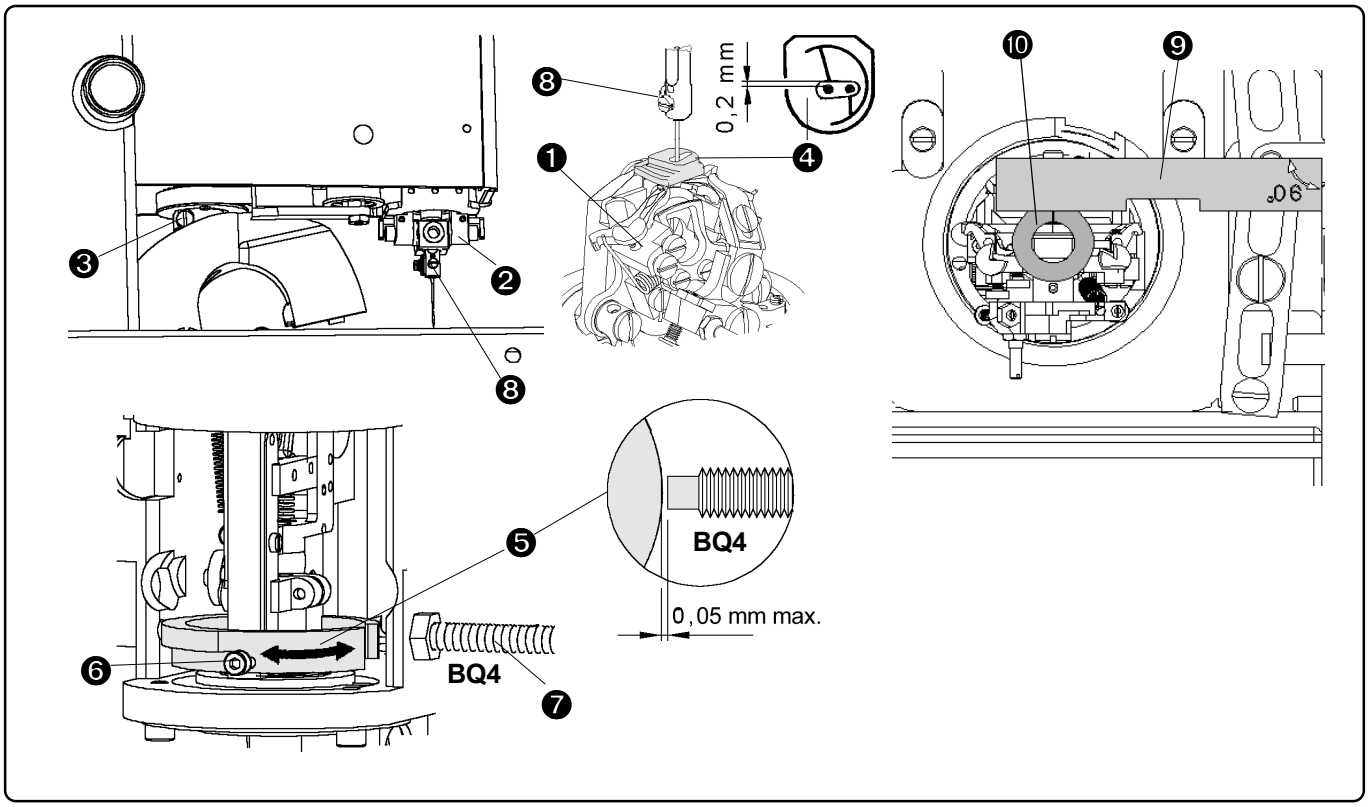
3. THE RACE MECHANISM ADJUSTMENT

Home position of the working plate is given by position of the plate ❺ and sensor ❼ (BQ4). Screw of the sensor plate ❻ is ensured by the covering paint from the manufacturer, that is why this operation can do only service technician from AMF REECE during the guarantee period.

1. In the machine home position adjust the ensemble of the sewing mechanism by the looper beam ❶ to the operator side. For exact adjustment of the position, you can use gauges ❾, ❿ from accessory.
2. Adjust the block ❷ of the needle bar, after loosing the screws ❸ of the bevel gear, so that screw ❽ in the needle bar is on the left and tighten the screws. When you sew a side stitch, the distance between the needle and the edge of the throat plate ❹ must be the same as when sewing a centre stitch.
3. After loosing the screws ❻, turn the plate of sensor ❺ clockwise to the extreme position.
4. During stepping regime, punch in the buttonhole shape on the paper. Find if the stitches in the straight part of the buttonhole are vertical to the buttonhole axes and center stitches are turned by 90°. To correct it, rotate the sensor plate ❺.





4. CLAMP PLATES SPREADING ADJUSTMENT

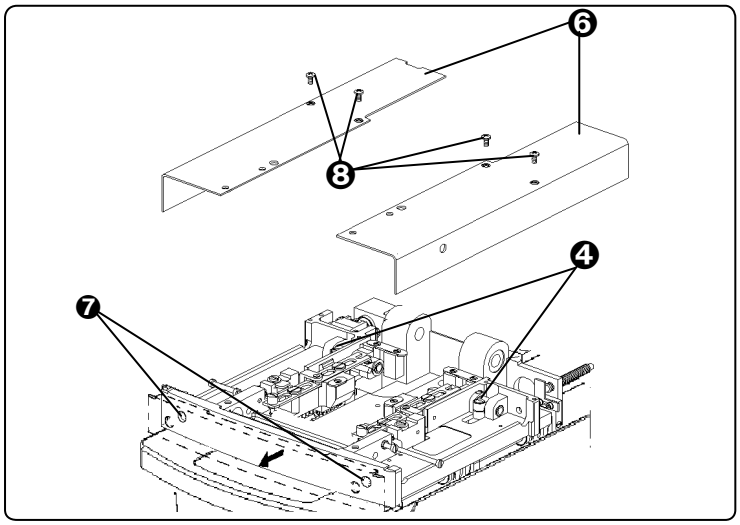
WARNING! Before making any adjustments, switch the main power switch off.

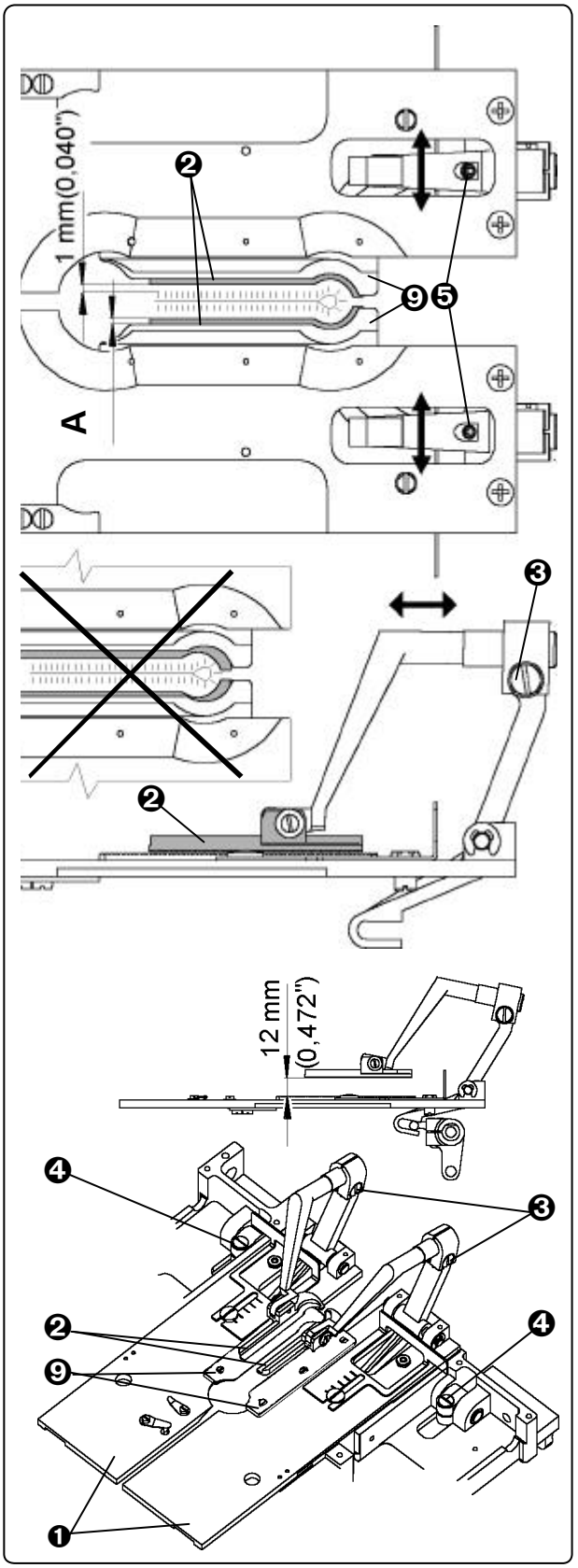
To perform the basic adjustment of clamp plates ❶ with clamp feet ❷ , remove it out of the machine

1. Loosen screws ❸, ❺.
2. Equally adjust the clamp feet ❷ over the clamp plates ❾ (A mm) and tighten the screws ❸, ❺.
3. Remove the side covers ❻ by unscrewing the screws ❼ and loosening the screw ❽.
4. Install the clamp plates ❶ to the machine.
5. Loosen screws ❹ and position the clamp plates to the machine.
6. Adjust opened clamp feet ❷ to 12 mm (0,472“) and tighten the screws ❹.
7. Install the side covers ❻ and tighten by screws.

Recommended space between the clamp foot and needle during the outer penetration is 1 mm (0.040"). If the bite size is changed, ensure this space by covering the clamp feet ❷ over clamp plate ❾ - measure **A** to values. Adjust after loosening the screw ❺ and shifting the clamp plate arm to the correct needed clearance.

Bite	A
2,0-2,6 mm	2,2 mm
2,7-3,3 mm	1,6 mm
3,4-4,0 mm	1,0 mm





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5. ADJUSTMENT OF THE CUTTING MECHANISM

a) adjustment with gauge - the gauge 19.0064.6.469 is not standardly supplied with the machine. A customer can order it.

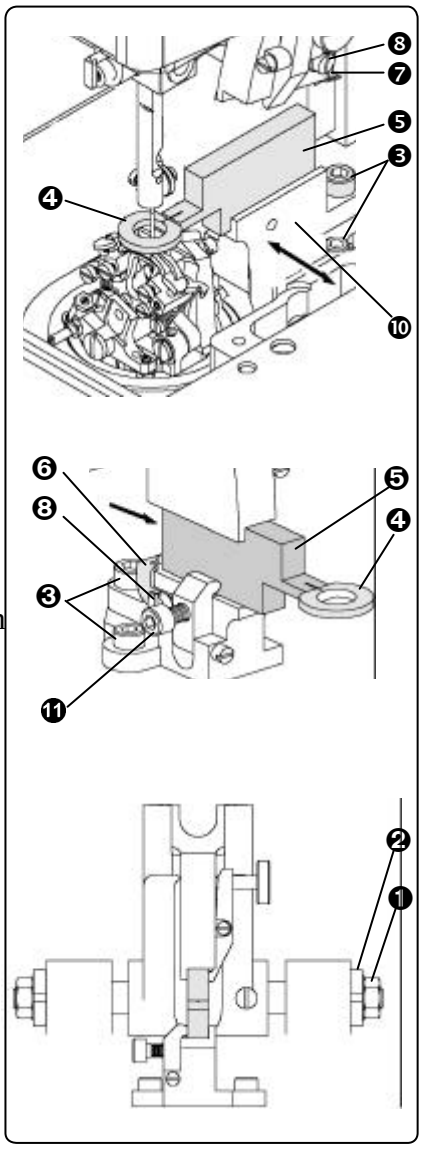
A position of the intersection and dimension of the sewn eyes is prepared by program for movement of the table by stepping motors. If it is necessary to modify the knife position for intersection, it is possible to change it in the programming mode.

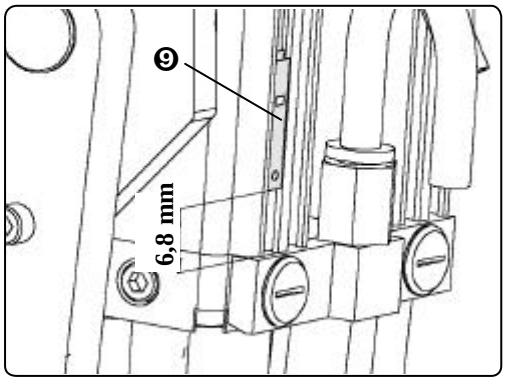
If a different dimensions of the knife eyes are used and the cut before is set, the sewing design around the buttonhole eye can be deformed. The bigger eye of the knife damages the stitches in the eye when cut after is set.

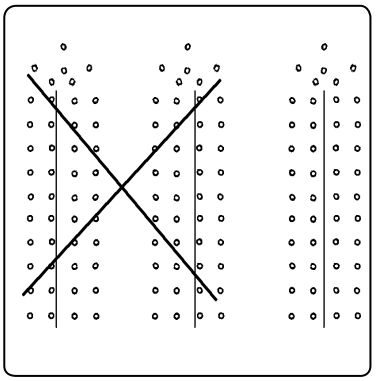
Standard knife eye sizes	
Eye shape	Dimension
◊	2,2 x 3,0 mm
◊	2,8 x 4,2 mm
◊	3,0 x 4,6 mm
◊	3,2 x 5,0 mm
I	No eye

Basic adjustment of the cutting mechanism position, perform only during assembly of the new parts, especially cutting lever and cutting steel holder. Used process is a base for next adjustment of the bedplate movement mechanisms.

1. For correct position use adjusting support ❹ (install it instead of a throat plate) and jig ❺ (install it to the cutting steel holder ❿ by screw ⓫).
2. Locate the cutting steel holder after loosing the screws ❸ so that the grooves of both parts ❹ and ❺ are covered.
3. After loosening the screws ❽, lean a limiter ❻ to the jig face ❺ and tighten the screws.
4. Locate the cutting lever sideways after loosing the nuts ❶ by nuts ❷. Adjust it when the air supply is switched off after lowering to the jig ❺.
5. After loosing the screws ❽, lean a limiter ❼ to the jig face ❺ and tighten the screws.
6. To modify a contact between knife and washer, move the cutting cylinder sensor ❾. To cut an inserted fabric, use button according to the section ***D9***.
7. The pressure is set to 4 MPa from a manufacturer for length to 25 mm. It may be necessary to increase the pressure for buttonhole lengths longer than 25 mm, by turning the screw counter clockwise -see section ***B7***.
8. The adjustment of the adjustable cutting length steel is mentioned in the section ***E14***.







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b) adjustment without gauge

CAUTION: Before making this adjustment be sure all parameters in section ***D6*** are set to 0.

1. First, adjust the cutting lever in axis X.
   Note: Bring the machine to the home position before making this adjustment.

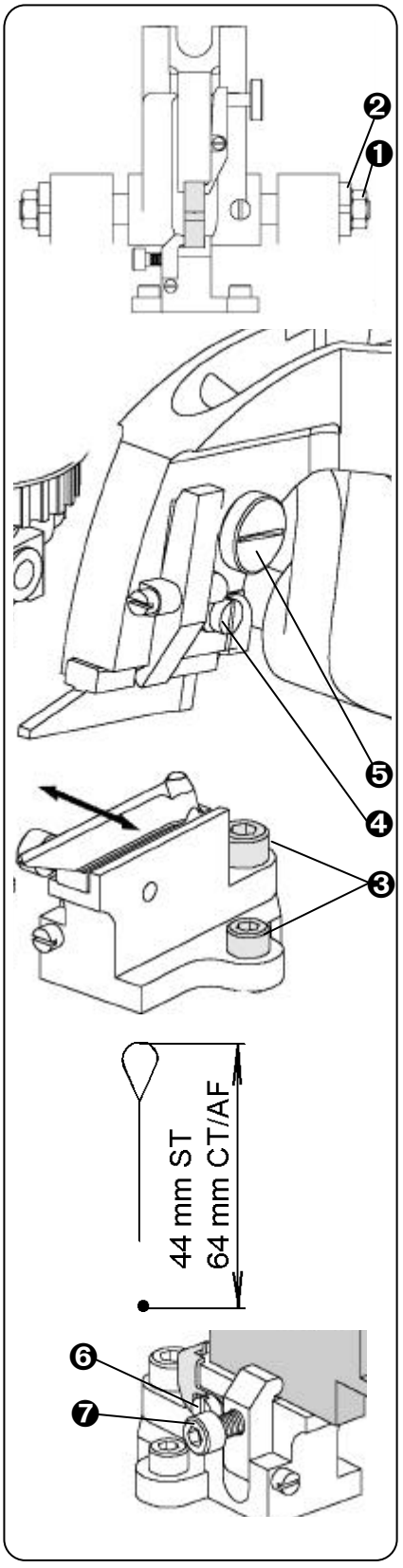
Knife is installed on the cutting lever - when the cutting lever is in the upper position, loosen the nut ❶ and adjust by nut ❷. Move the cutting lever to the left or right as needed.

Knife is installed on the cutting steel holder - loosen 3 screws ❸. Move the cutting steel holder to the left or right as needed.

2. Adjust the cutting lever in axis Y as follows:
   - prick a needle to a paper and press button for cutting (see section ***D9***) to cut a paper. The distance between the needle penetration and the end of the eye must be 64 mm (CT/AF) or 44 mm (ST).

Knife is installed on the cutting lever - if the distance is not correct, loosen the stop screw ❹ and knife holder screw ❺. If the distance is longer, move a knife towards a operator. If the distance is shorter, move a knife backwards a operator. Tighten the screws ❺ and ❹.

Knife is installed on the cutting steel holder - move the stop screw ❻ and screw ❼. Move the cutting steel holder towards a operator if the distance is loonger. Move the cutting steel holder backwards a operator if the distance is shorter.



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6. ADJUSTMENT OF THE ADJUSTABLE CUTTING STEEL HOLDER

To adjust the adjustable cutting steel holder, follow the below mentioned steps:

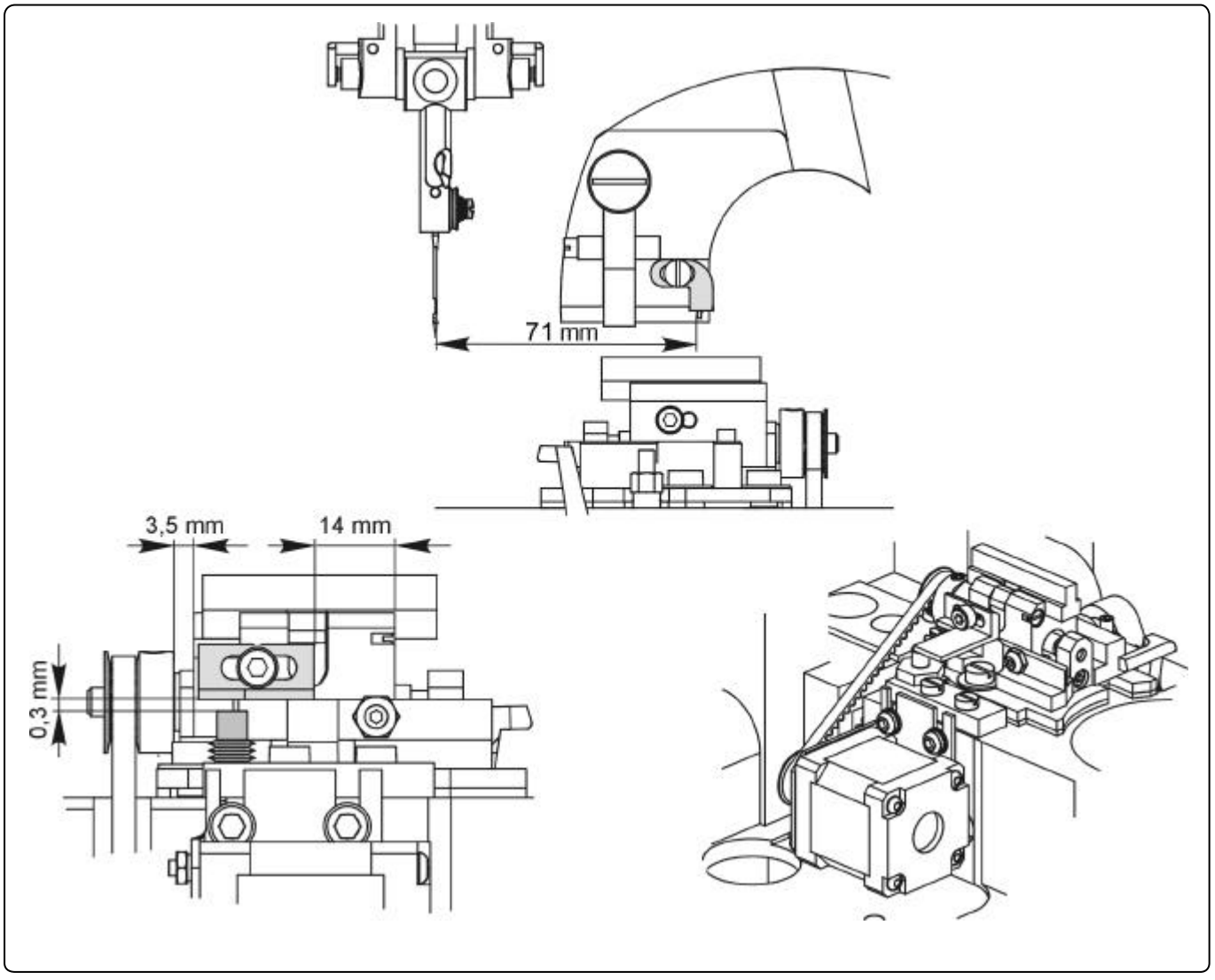
1. The distance between the sensor plate and the rear edge of the adjustable cutting steel holder is 14 mm.

2. The distance between the sensor plate and the sensor must be 0.3 mm.

3. Adjust the clearance 3.5 mm between the adjustable cutting steel holder and the timing belt pulley.

4. Adjust the distance 71 mm between the stop of the cutting lever and tip of a needle.

5. To adjust the correct cutting length, move the cutting steel to distance 16 mmm after loosing the clamp screw.



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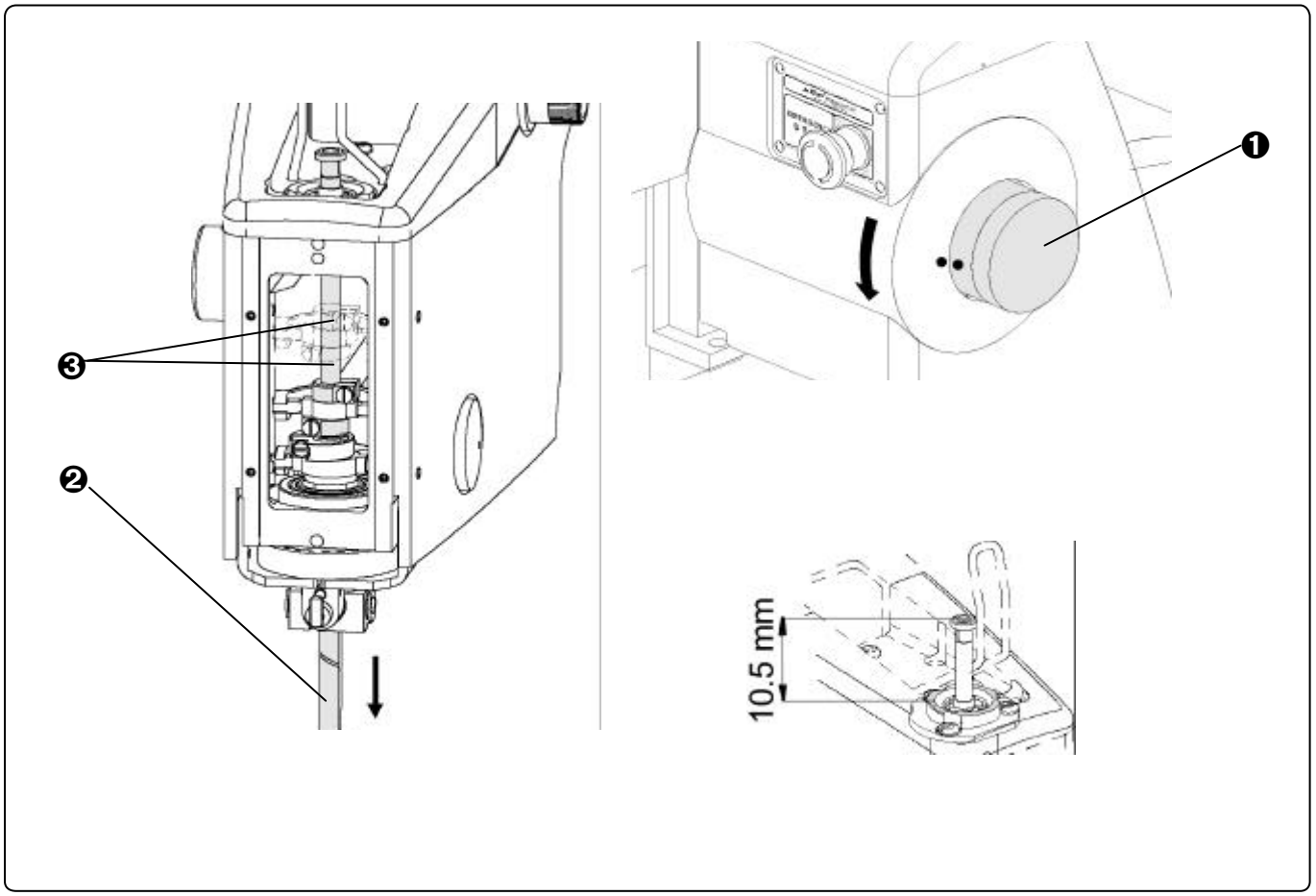
7. SETTING THE NEEDLE BAR HEIGHT

1. Remove the machine head front cover.
2. Turn the handwheel ❶ and adjust the needle bar ❷ to the lowest position.
3. Using a slide calliper, measure the distance from the upper side of the needle bar to the bearing. The distance must be 10.5 mm.
4. If incorrect, loosen the screws ❸ and move the needle bar up or down to obtain correct distance. Tighten the screws.



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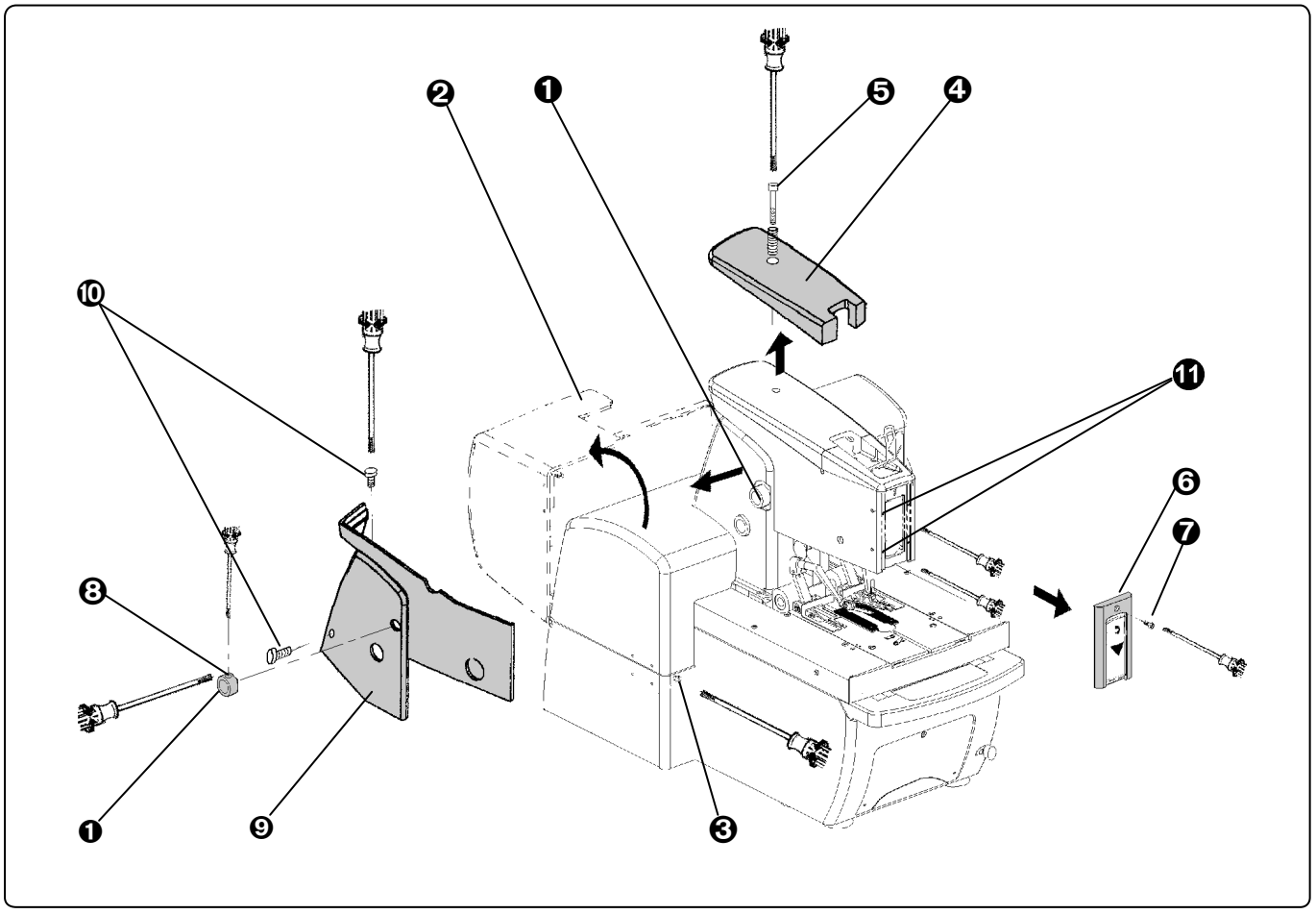
8. ADJUSTMENT OF THE BITE MECHANISM

The bite size is mechanically changed by the button ❶. The standard adjustment is 2,0 ... 2,6 mm (0.0787 - 0.102“). It is possible to adjust the bite in range 2,7 ... 3,3 mm (0.106 - 1.130“) or 3,4 ... 4,0 mm (0.134 - 0.157“).

1. To dismantle the machine covers:

   Open the rear cover ❷ after loosing of the screw ❸.
   Remove the upper cover ❹ after removing the screw ❺,
   the front cover ❻ after removing the screw ❼ and
   the button ❶ by loosening the screw ❽.
   Remove the left cover ❾ after loosening the screw ❿ and ⓫.



2. After loosening the screw ⓮ and unscrewing the screw ⓭, turn the limiter ⓬. It must be possible to install the screw ⓭ through the hole which is marked **3** for sewing 2,7 ... 3,3, or hole which is marked **4** for sewing 3,4 ... 4,0 and tighten the screws ⓭ and ⓮. During this operation it is necessary to remove the spring ⓯ and turn the eccentric shaft ⓰ by appropriate tool.

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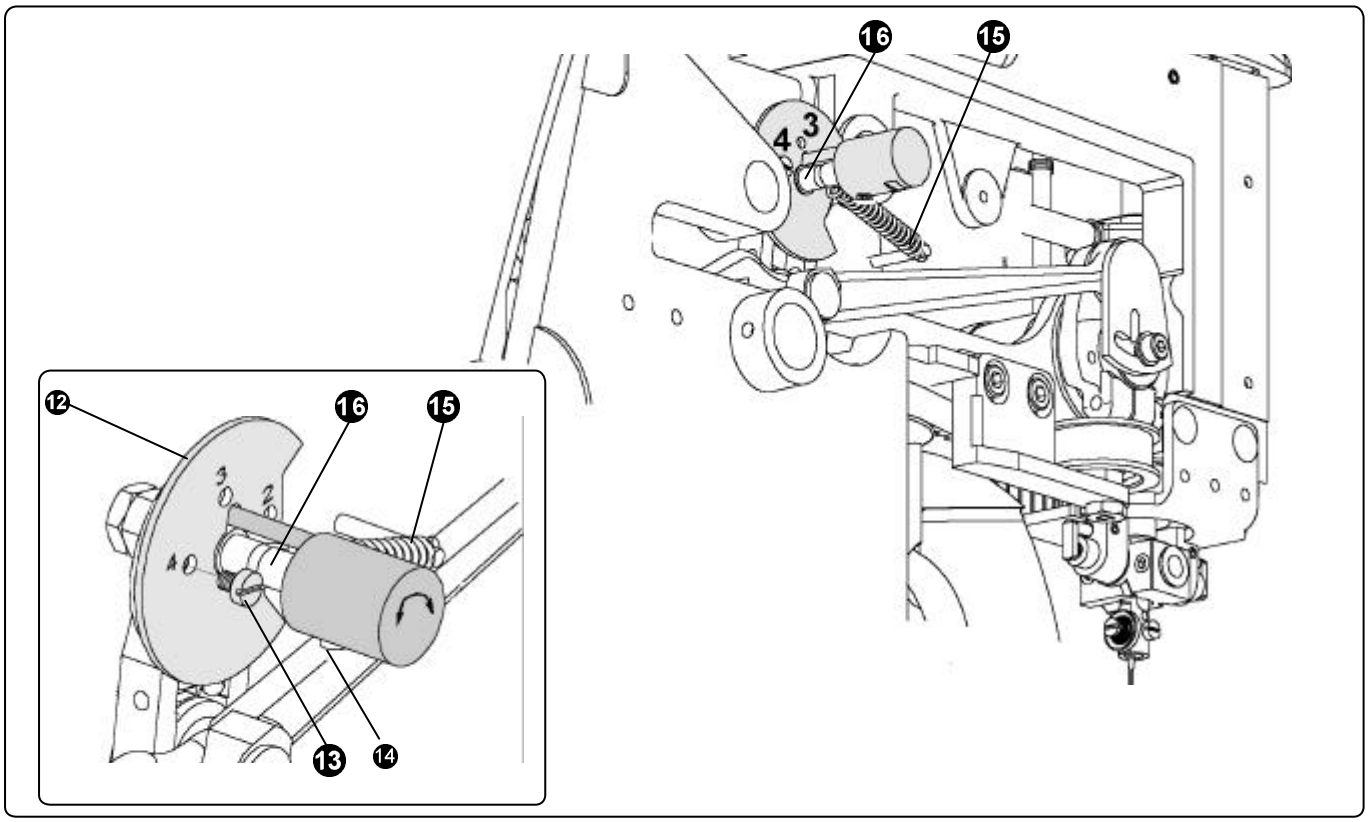
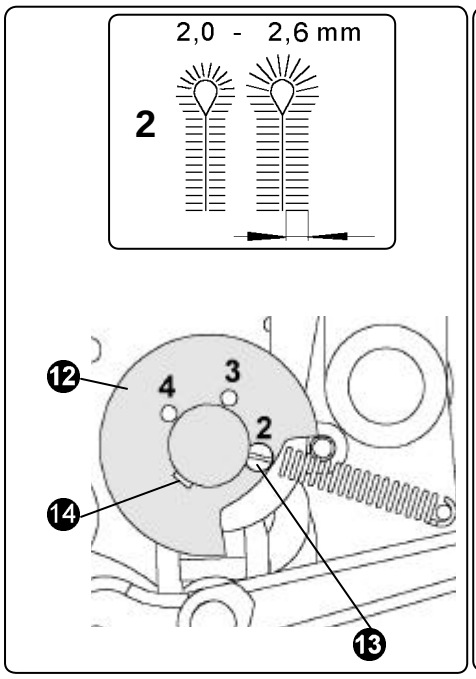
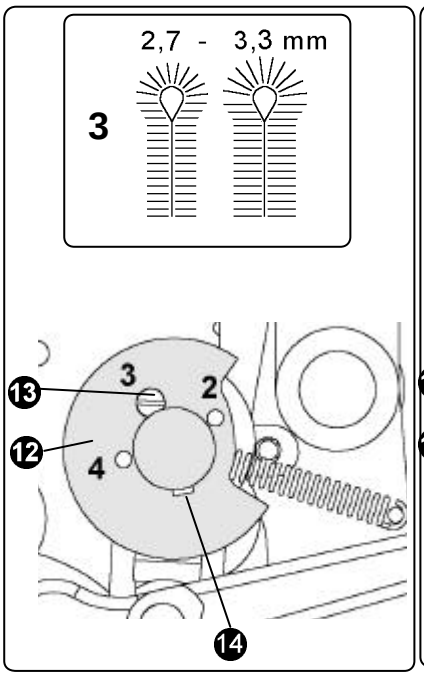
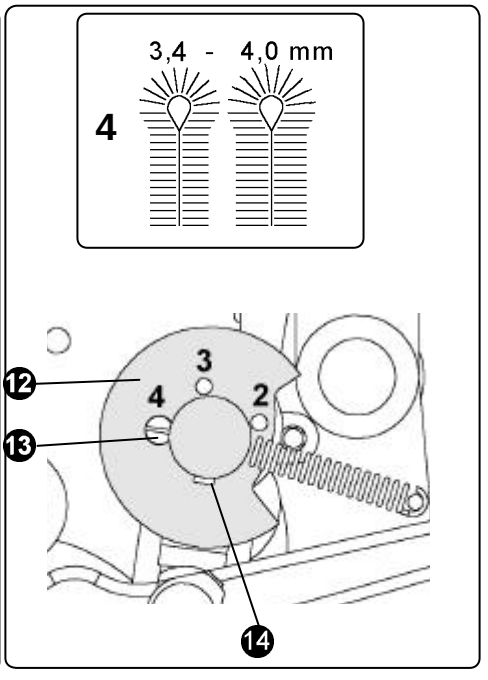
3. After the limiter is turned to the position **2, 3, 4**, it is necessary to check the sewing mechanism according to the ***section E9*** and check clamp feet position according to the ***section E4***.

4. Install the covers according to the point 1 by reverse process.









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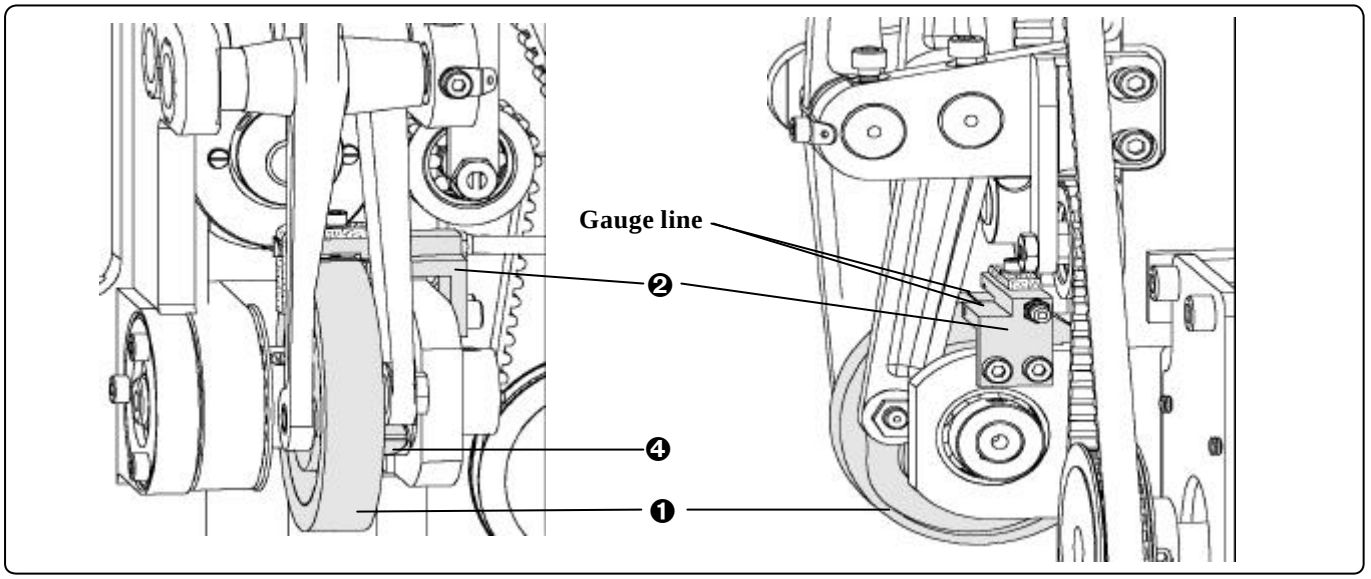
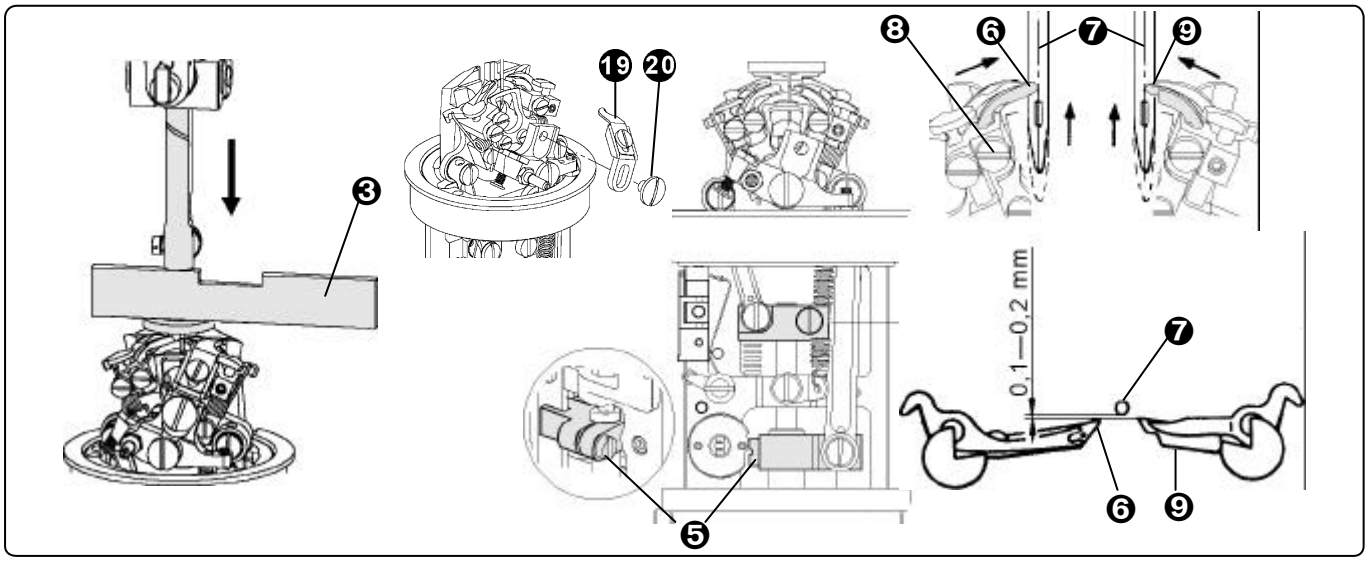
9. SPREADER AND LOOPER CAM ADJUSTMENT

Locate the cam ❶ on the holder gauge line ❷ when the needle bar is in the lowest position according to the ***section E3, point 2***. To turn a cam, loosen the screw ❹.



10. LOOPERS ADJUSTMENT

1. To perform this adjustment, remove the plates and holder ⓳ by unscrewing the screw ⓴.
2. After the loosing the bracket screws ❺, locate left looper ❻ on the axis of the needle ❼. By turning the handwheel, raise the needle bar from the lowest position, to insert a gauge ❸ by its higher end between gauge support and the needle bar end.
3. After loosing the screw ❽ adjust the distance 0.1 - 0.2 mm (0.004 - 0.008“) between the needle and looper tip ❻ . Tighten the screw again.
4. Adjust the same space on the right looper ❾ when it passes the needle. To perform it, turn the hand wheel.



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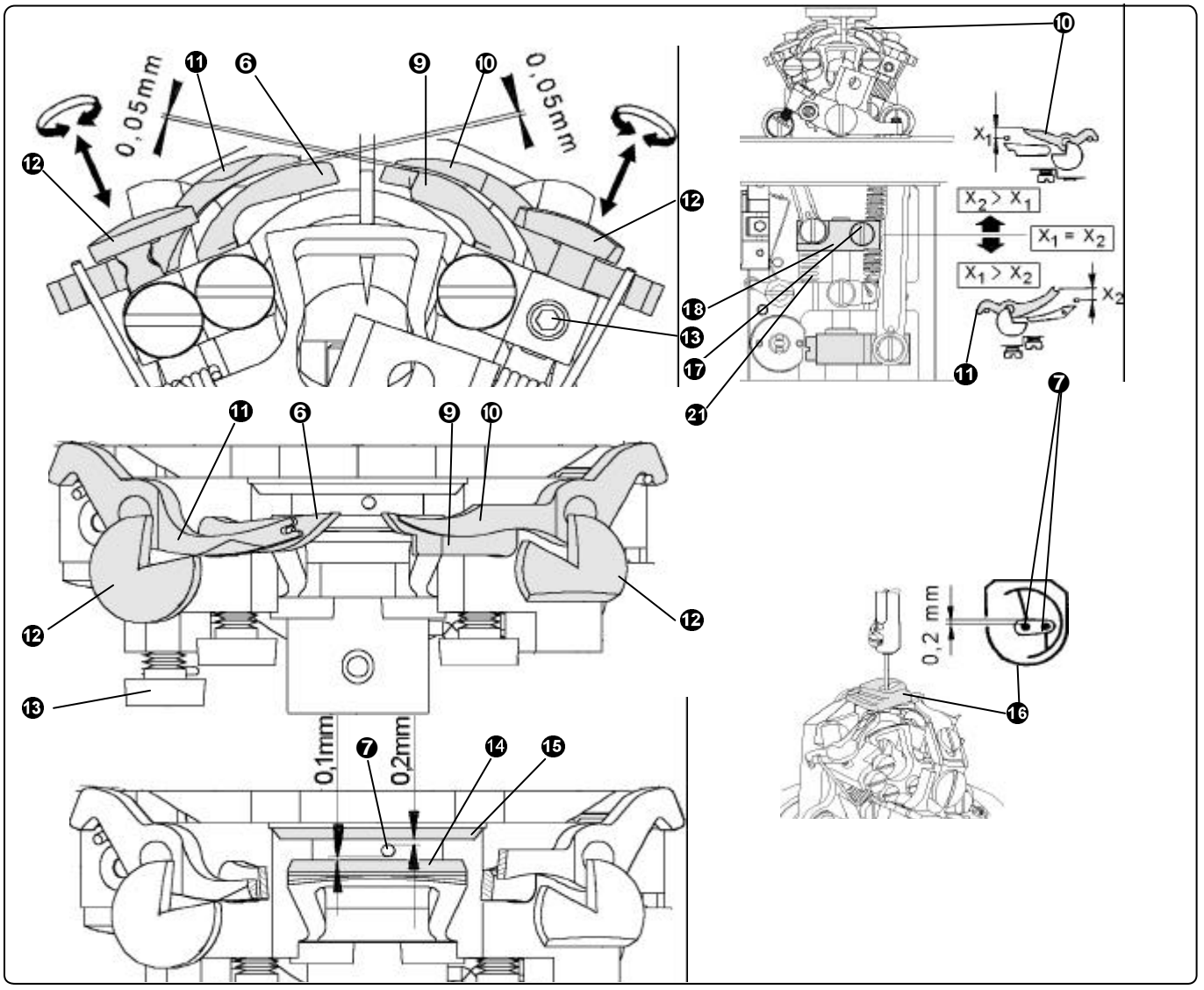
11. SPREADERS ADJUSTMENT

1. Adjust the spreader ⑩ to the looper edge ⑨, the groove of the spreader ⑪ to the looper eye ⑥. To adjust, loosen the screws ⑬ and adjust the stops ⑫ .
2. Check the clearance between spreaders and loopers (it must be minimal) - max 0,05 mm (0.002“).
3. Check clearance between needle ❼ and guard ⑭. Tilt the guard to obtain 0,1 mm (0.004“), clearance 0,2 mm (0.008“) should be between the needle and looper carrier ⑮.
4. Install the throat plate, check the clearance between needle ❼ and throat plate ⑯. If the clearance is bigger than 0,2 mm, change the throat plate.
5. To correct position of the left spreader ⑫ and right spreader ⑩, loosen screw ⑰ and carefully place the bracket ⑱. It is necessary to hold the bracket because springs ㉑ could shift the bracket.



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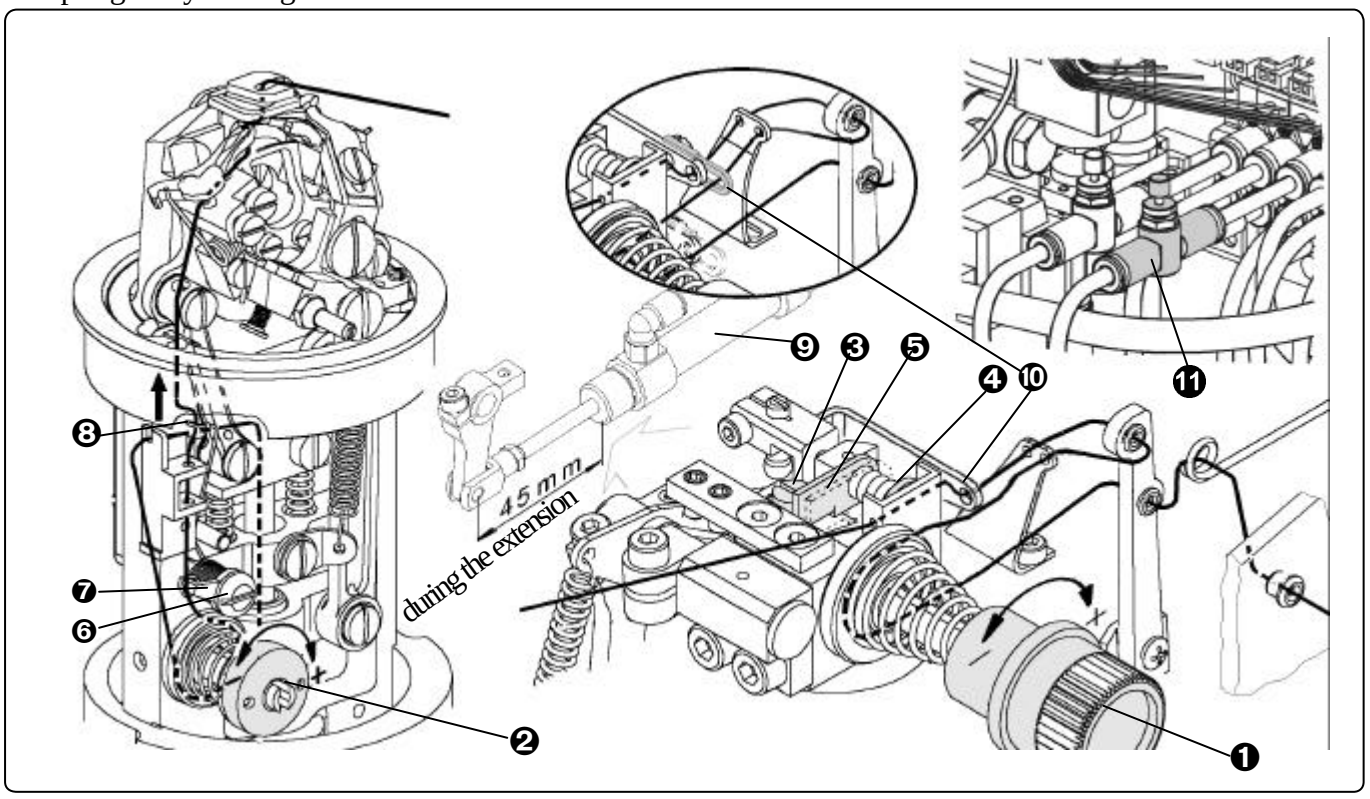
12. SETTING THE THREAD TENSION AND THREAD DRAW OFF

A thread tension change may be needed if the thread and fabric change. The thread tension influences the appearance of the buttonhole. It is necessary to use quality threads with little elasticity, smooth. Check to be certain all parts, which contact the thread, are smooth and polished with no burrs or sharp edges.

Recomended thread tension:	upper thread lower thread thread draw off spring	0,8N cotton 0,3N cotton 0,3N cotton	1,0N PES 0,8N PES 0,5N PES

1. By turning the tension knob ❶ clockwise, ***the top thread tension*** increases, anti-clockwise decreases.
2. By turning the tension knob ❷ clockwise, ***the bottom thread tension*** increases, anti-clockwise decreases. After loosening the screw ❻, it is possible to adjust the preloading of the take-up spring ❽ by turning the lever ❼.



3. Increase the stud pressure ❹ by loosening the screw ❸ and moving the bracket ❺. The ends of the threads will be extended during the trimming.
4. Adjust the draw off cylinder clevis ❾ as shown 45 mm (1.772“) during the extension and thread draw off lever ❿ in stop position has the eye in the axis of the thread. To slow down the draw-off, adjust the speed controller ⓫.

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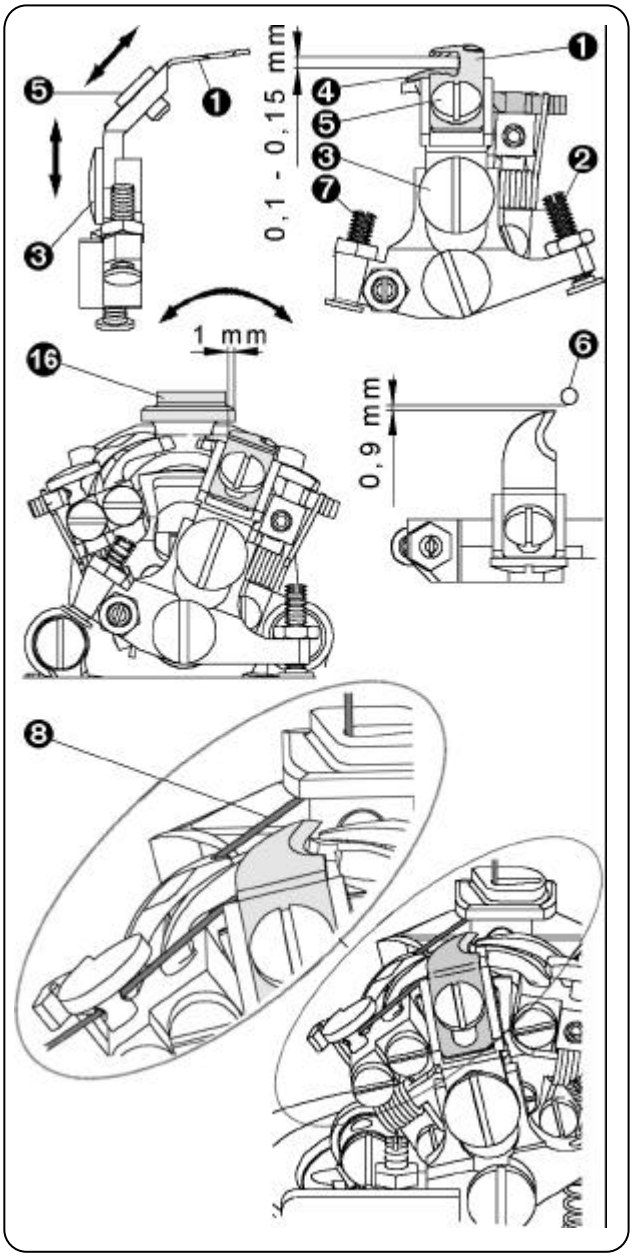
13. UPPER THREAD TRIMMING

1. Install the holder with trimming knife ❶ and adjust the trimming knife after loosening the screw ❸ to obtain the clearance 0,1 ... 0,15 mm (0.004 - 0.006“) above the right spreader ❹.

2. Using the screw ❷ adjust the trimming knife ❶ so that the left side of the knife was covered with the right side of the throat plate.

3. Loosen the screw ❺ to change the position of the trimming knife ❶ for catching the upper thread loop. The knife edge must be 0.9 mm from a needle ❻. Check the adjustment for keeping the clearance according to the ***point 1.***

4. The end position of the trimming knife ❶ is limited by the screw ❼. The trimming knife ❶ must not catch the lower thread ❽.



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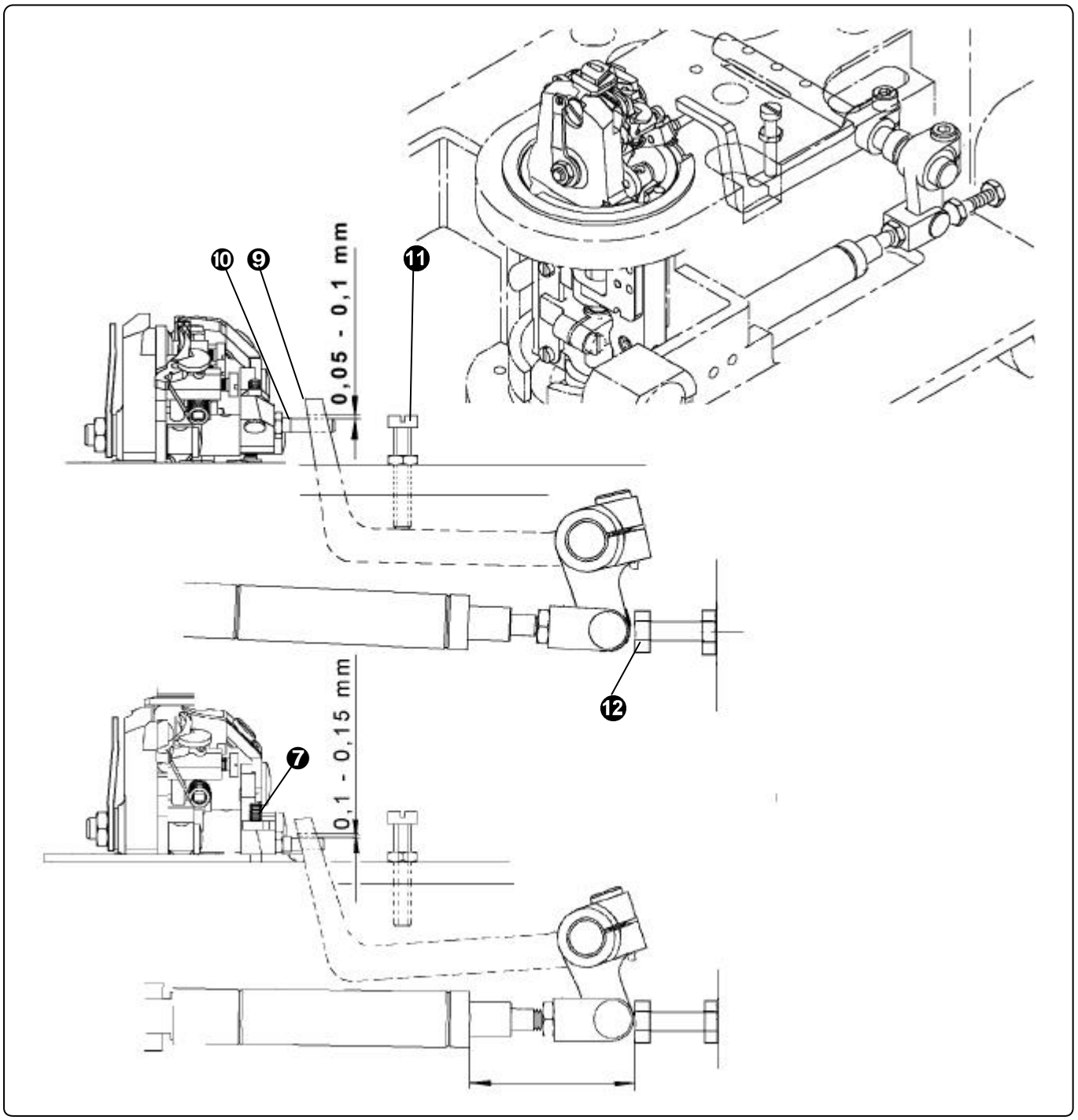
5. Adjust the initial position of the control lever ❾ to the space 0,2 ... 0,3 mm (0.008 - 0.012“) from stud ❿ by the screw ⓫ after loosening its nut.

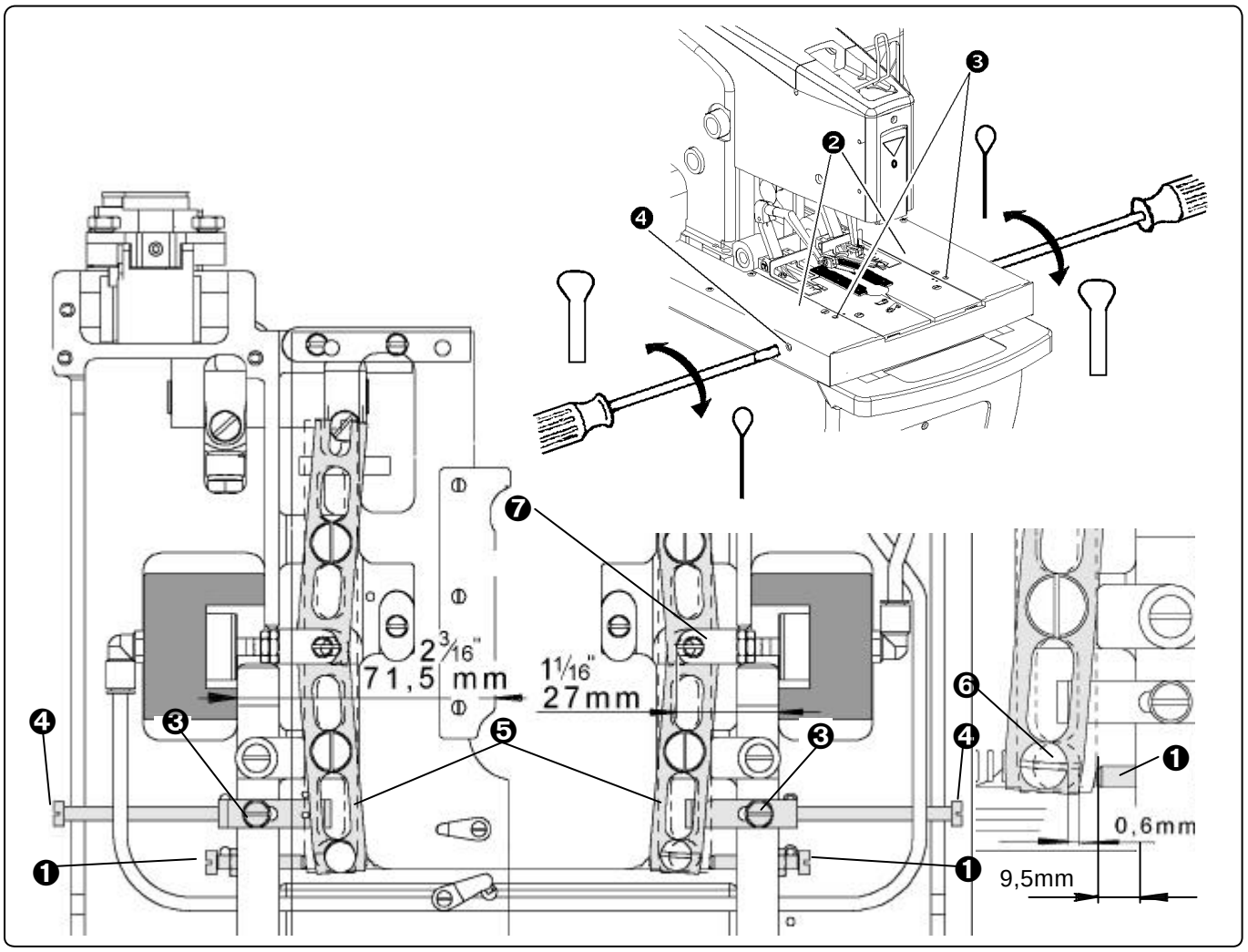
6. Adjust the terminal position of the control lever by stopper ⓬ to the measure 9 ±1 mm to obtain space at least 0,1 ... 0,15 mm (0.004 - 0.006“) between the lever ❾ and stud ❿ during the full tilting of the knife ❶.



14. SPREADING OF A MATERIAL

Loose fabric, especially thin, can cause missing stitches unless it is spread. The machine is equipped by the mechanism to control the extent of fabric spreading. It is possible to adjust the mechanism after removing the table covers. Size of the spreading is possible to adjust with covered table.

1. Home position of the levers in spread state is set by the screw ❶ under the table covers ❷. The screw is locked by the yellow colour from the manufacturer, that is why it is not possible to adjust it during the guarantee period. It is adjusted to the measure approximately 9.5 mm (0.374“) (71.5 mm (2.815“) when the plate is inserted and spread).
2. Basic measure for a control yoke ❼ adjustment is 27 mm (1.063“) from base for the cylinder holder ❽.
3. After loosing the screws ❸ is possible to change the spreading size of the every foot clamp separately by the screws ❹. By turning the screws ❹ clockwise, decreases spreading , anti-clockwise increases, maximum is 2,5 mm (0.098“) on one clamp plate.
4. The manufacturer recommends to adjust approximately. 0,6 mm (0.024“). It is difference between the lever stud ❻ distances before and after spreading.



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F - MACHINE MAINTENANCE

Warning: - Check electrical cables for damage.
- Check if the safety covers are in a good condition. Replace damaged covers!
- Keep your hands out from the needle space.
- Do not modify the machine in any way, which can eliminate its safety parts.

Caution: - Do not neglect periodic maintenance.
- If you have fault in electrical power supply, switch off the operating switch (circuit breaker).
- Do not damage, correct and remove safety labels.
- Do not work with the machine when you are under the influence of drugs or alcohol.
- User has to ensure the lighting of the working area minimal 750 Luxes.

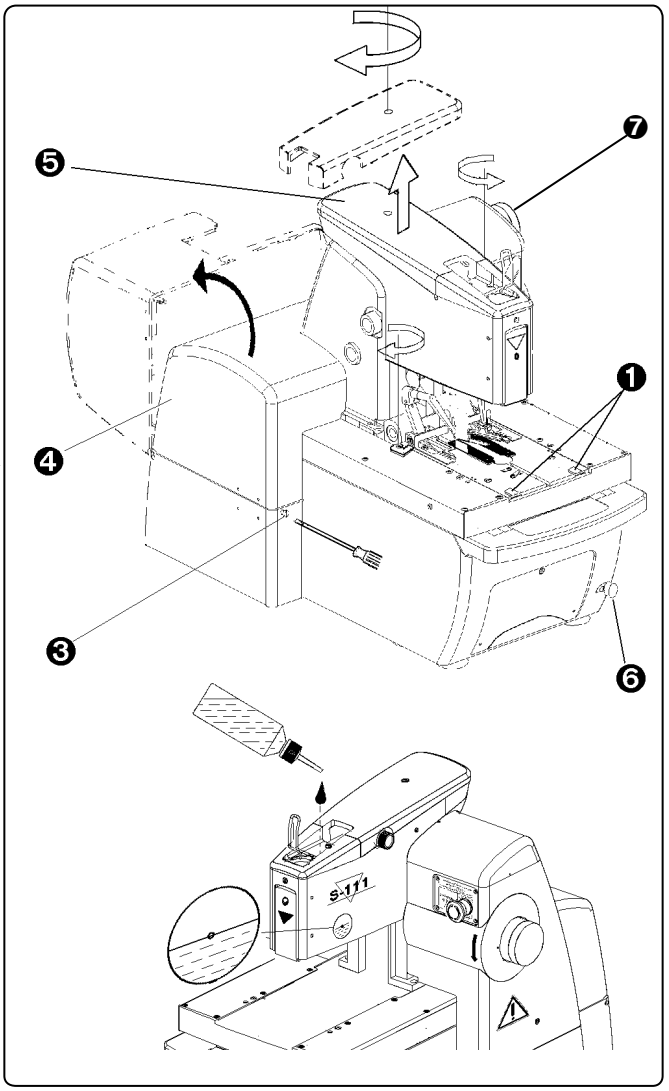
1. CLEANING AND MAINTENANCE OF THE MACHINE

1. Switch the power off and disconnect the air supply.

2. For cleaning and maintenance, remove the clamp feet by removing the protecting latches ❶. Lift the clamp feet and pull it to the operator. Remove the locking screw ❸ and fold the rear cover ❹. Lift up and swing the upper cover ❺ for access to the tension.

3. Clean the thread lints and fabric from the sewing area - guides and thread tension. To move the sewing mechanism, turn the hand wheel ❼. It is also possible to turn the race by hand. The machine head can be raised to the position where it is locked by a strut which is controlled by a button ❻.
   By pressing the button ❻, the machine can lowered to the working position.
   WARNING! Possible serious injury when lowering the machine head.

4. Lubricate the machine according to the section ***F4.***



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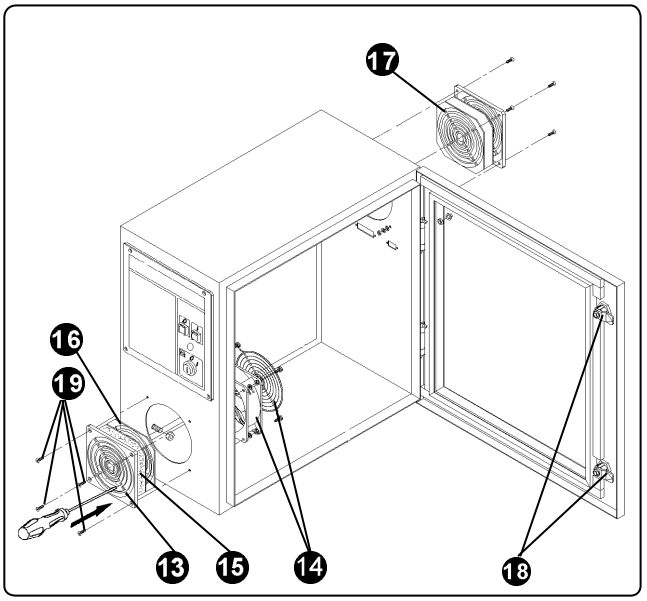
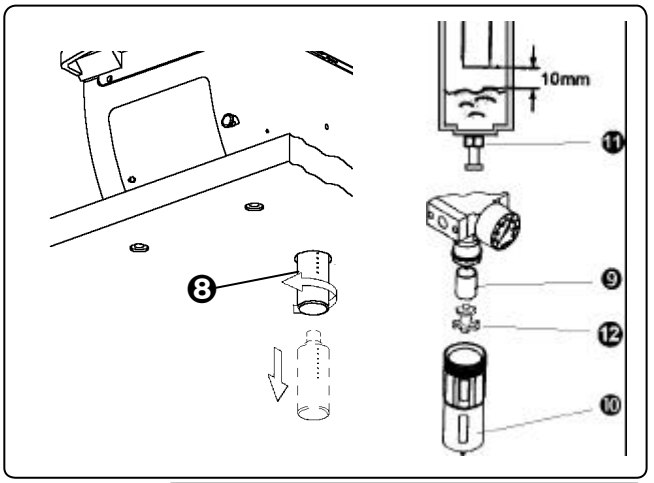
5. Check if the oil reservoir ❽, under the machine, is full. Empty it in this case. Used oil is necessary to liquidate according to the environment regulation.

6. Using a screwdriver, loosen the locks ⓲ on the control box door. Using a wrench, loosen 4 screws ⓳ on the fan rack ⓭.
CAUTION! When loosing the last screw, hold the fan ⓮ by hand inside the control box to prevent it from dropping into the control box. Insert the screwdriver into the rack ⓭ and by pushing the screwdriver through the cleaning pad ⓯ remove the plastic cover ⓰. Remove the cleaning pad.
Remove the dust from the cleaning pad or in case of considerable dirt, wash it using a mild detergent.
Perform the same cleaning on the rear fan ⓱.



7. Maintenance of air regulator contains **check of the condensate** and possible replacement of the filter element ❾. The level of condensate must be 10 mm (0.394“) below the filter inside of the desliming receptacle ❿. Lower ring of the nut ⓬ signalizes this height.

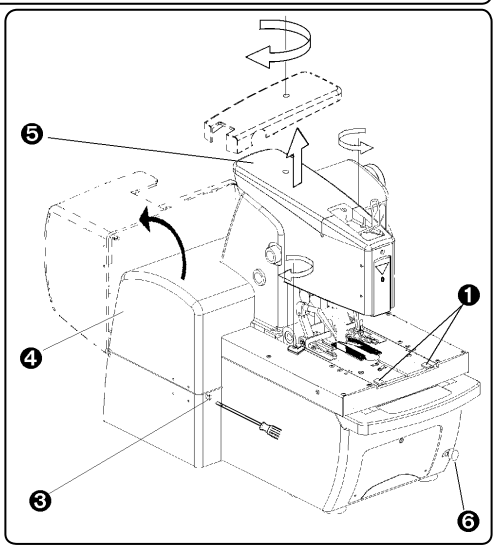
Open the bleeder screw ⓫ by turning it counter clockwise. The condensate can then flow out. Tighten the screw again.



With worse flow despite same pressure setting
replace the filter element ❾ after air supply stopping. Exhaust the desliming receptacle ❿ by loosing the screw ⓫ and unscrew the desliming receptacle ❿ anti-clockwise. By unscrewing the nut ⓬, loosen the filter element ❾, place the new one and assemble the device in reverse order.

8. Perform visual check of mechanism especially in area of sewing mechanism.

9. When the maintenance and checking is finished, close covers ❹, ❺ folding cover lock by the locking screw ❸, put back the clamp plates and lock them by clamp support plates ❶, ❷, then continue with work.



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2. PERIODIC MAINTENANCE

once a day (10 hours of operation)
- cleaning of the sewing mechanism area and inner frame of the machine

once a week (80 hours of operation)
- visual check - external and internal mechanism
- lubrication of needle bar and sewing mechanism
- fill oil into reservoir with oil level indicator

once a month (300 hours of operation)
- check the clearance in sewing mechanism drive
- check the screw connections tightening (obtain values below)
- check the condensate in regulator
- check the waste oil reservoir

Recommended values for screws tightening (Nm):

			
M3	0,5	0,6	0,8
M4	1,2	1,5	2,0
M5	2,5	3,0	4,0
M6	4,0	5,0	7,0
M8		8,0	16,0
M10		10,0	30,0

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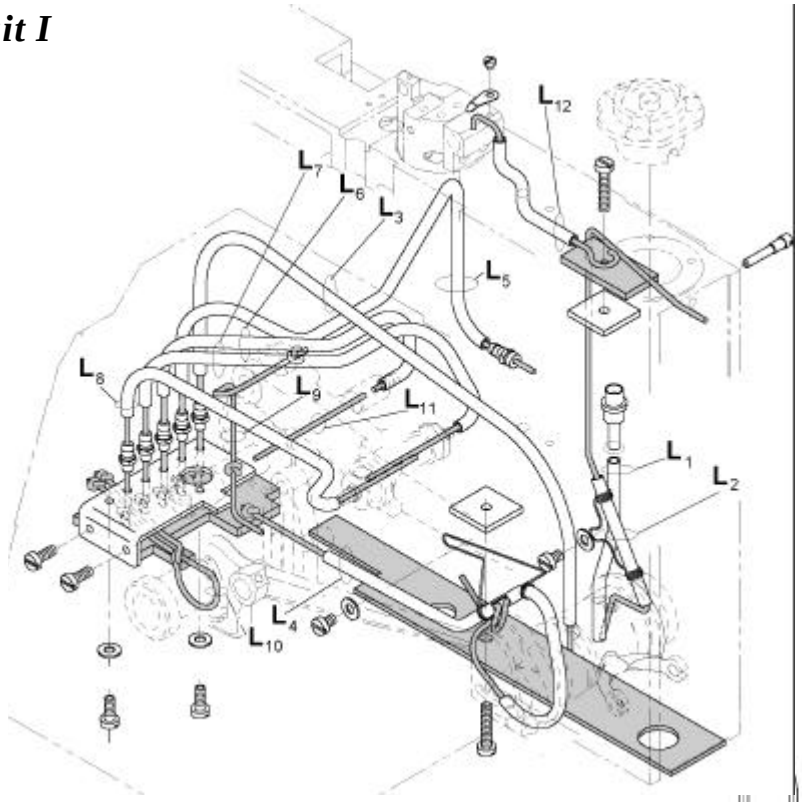
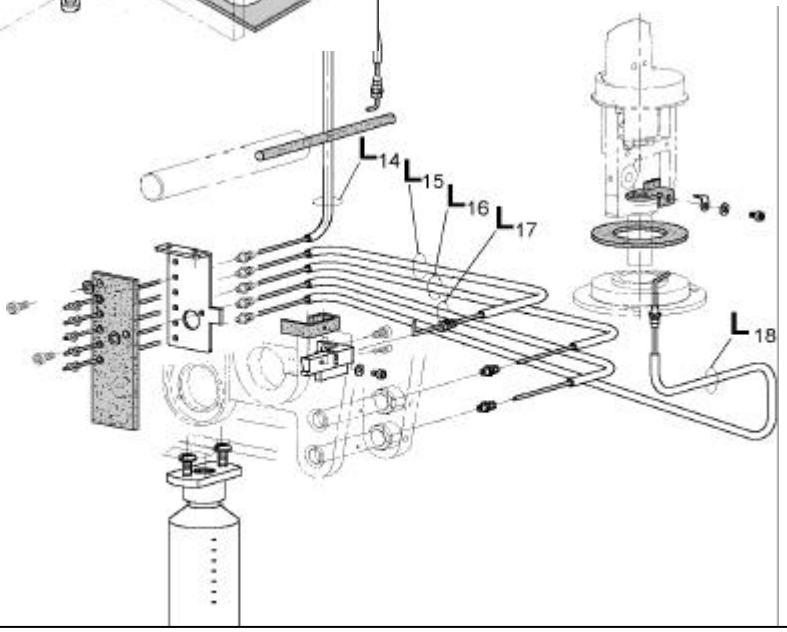
3. SCHEME OF THE LUBRICATION DISTRIBUTION

The machine is mostly equiped with needle and ball bearings, which in combination with two lubrication circuits make the requirements for maintenance smaller.
Circuit I for lubrication of the arm has stock of the oil in reservoir of the barrel. The stock for lubrication of lower box is made by rest oil in frame recess - ***circuit II***. In case of replacement of any branch of distribution is possible to order the tube sets and wicks. Make connection according to the drawings:

Circuit I



Circuit II



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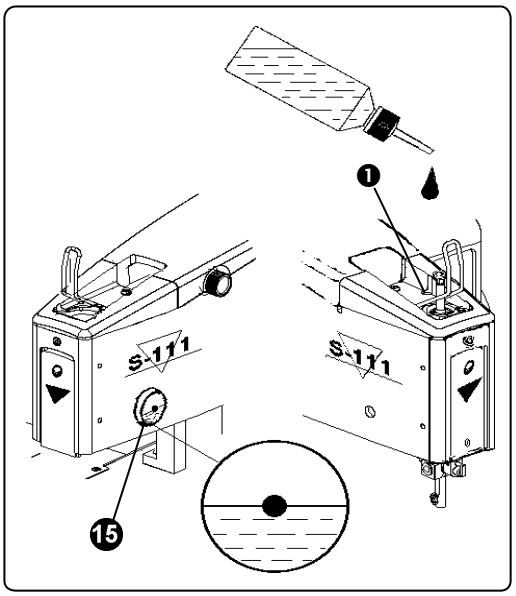
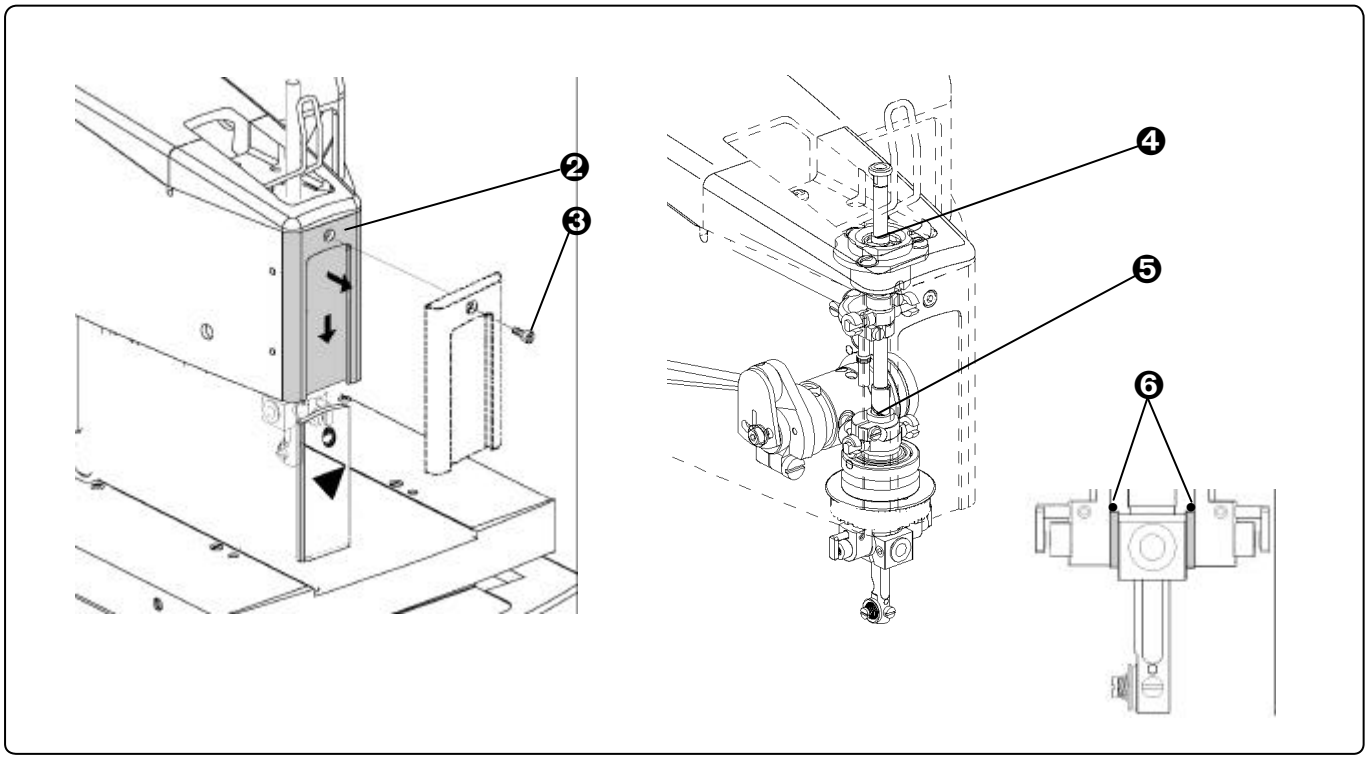
4. MACHINE LUBRICATION

1. It is necessary to lubricate the places shown below before the machine is switched on for the first time or after a long idle period. Use ESSO TERESSO 32 or similar quality.
2. The amount of oil on the reservior ⓯ is indicated by the red mark. Too much oil may cause its overflowing from the base area.



3. **The reservoir is filled by approximately 10** m^3 of oil through filling opening ❶.

4. The lubrication of the needle bar is performed after unscrewing the screw ❸ and removing the cover ❷. Few drops of oil drop on needle bar above the bearing ❹, on the centre of the needle bar ❺ to the area where the spiral lubricating groove is and to the space between the washers ❻ and surface. Install the cover ❷.



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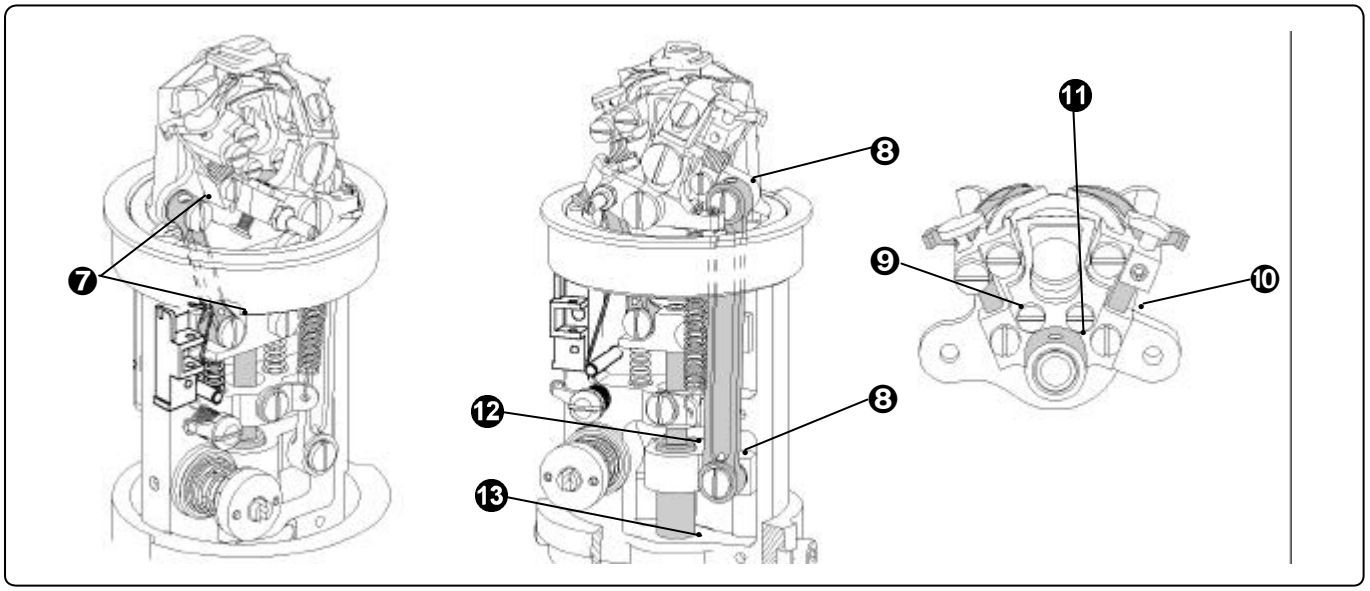
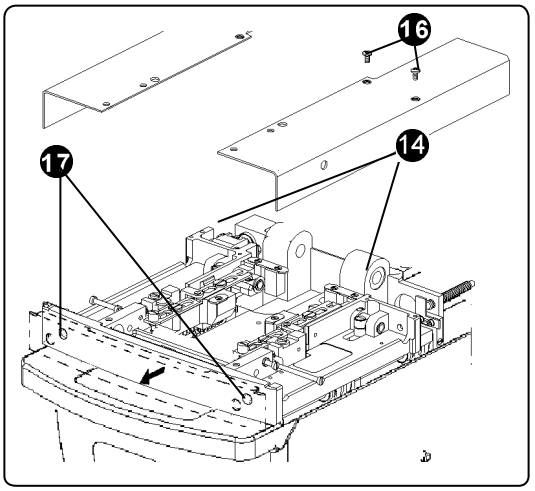
5. Remove the feet plate according to the part ***E2, point 2*** and oil the bushing ❼ and ❽, rod of the spreader ❾ and ❿, stud ⓫ and shafts ⓬, ⓭ by one or two drops of oil to the marked places on the drawing. To access to the shafts, tilt the machine head after opening the rear cover and after turning the race by hand according to the section ***E2 point 2,3.***



6. Remove the side covers, unscrew the screws ⓰ and loosen the screws ⓱. Apply several drops of oil on the side edges of the clamp feet closing levers and to the marked lubrication holes ⓮ .



7. After lubrication it is important to sew a minimum 10 buttonholes on scrap fabric to dispel any excess oil. Wipe all visible excess oil from the mechanism in the work area.
8. Reassemble all removed parts, fix the feet plates again.
9. To lubricate the adjustable cutting length steel, remove the clamp plates and apply one drop of oil on the screw and on the screw bearing.

5. MACHINE DISPOSAL

1. To ensure machine ecological disposal it is necessary to remove especially nonmetallic parts from the machine. To take these parts out, it is necessary to perform the partial dismantling of the machine, remove covers, dismantle the machine arm and remove the frame.
2. Aluminium and duralumin parts must be treated separately, also nonferrous metal parts and plastic parts.
3. Parts mentioned in point 2 can be found in the spare parts manual with these marks:
   - ● aluminium parts
   - ●● non-ferrous metal parts
   - ●●● plastic and non-metallic parts

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TROUBLESHOOTING

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TROUBLESHOOTING

Warning! Inspect the machine on a regular basis and use only quality parts. The manufacturer recommends using original AMF Reece parts, especially needles, loopers, spreaders, and throat plates.

1. INTRODUCTION

The **S111** electronically displays error messages, when worn or damaged parts are detected. If machine problems occur and the error is not displayed, ensure correct needle installation and threading. The other troubles are eliminated according to the detailed descriptions listed.

Adjustments Quick Reference List

Note: Required machine settings are variable according to the fabric and thread variations used. The type of thread and fabric will affect the amount of wear on machine parts. The components marked in yellow are set by manufacturer and do no require further adjustments. Changing the position of components marked in yellow, without the approval of the manufacturer, may cancel the warranty.

To obtain the highest quality buttonhole maintain the following values:

- clearance between the needle and the loopers is 0.05 to 0.1 mm, (0.002 to0.004”)
- clearance between the needle and the needle support is 0.05 to 0.1 mm.
- the same distance of the left spreader tip and the right spreader tip when they pass the needle.
- left looper on the centre of the needle when the stroke is 3.4 mm from the lowest position.
- with the needle bar in the lowest position, the axial clearance is 0.25 mm, (0.010") when the pressure power is 5N
- with the needle bar in the lowest position, the radial clearance is 0.05 mm, (0.002") when the pressure power is 5N
- looper holder axial clearance is 0.05 to 0.1 mm, (0.002 to 0.004”).
- looper holder radial clearance is 0.1 to 0.2 mm (0.004 to 0.008”).
- looper holder angular clearance is 1.2 on the arm 28.5 mm when the pressure power is 5N.
- distance between the flags and sensors BQ1, BQ2, BQ3, BQ8 to 0.5 mm on the sensor BQ4 to 0.3 mm.
- air pressure regulator set to 0.45 MPa.
- BQ1 is activated when the needle bar raises 22 mm above the lowest position
- BQ8 is activated when the needle bar raises 32 mm above the lowest position

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TROUBLESHOOTING

2. FAULTS WITHOUT ERROR MESSAGES

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION	SERVICE SECTION
Thread breakage.	Thread draw-off is too tight	Reduce thread tension.	**E11**
	Damaged loopers, spreaders, or throat plate.	Replace damaged parts.	
	Incorrect needle and sewing mechanism adjustment.	Correctly adjust the needle bar, loopers, openers and tension.	**E3,E9,E6, E10,E11**
	Poor thread quality.	Replace thread.	
	Thread holes in the needle and the looper are too small.	Use correct parts.	
The machine does not sew.	Bent or broken needle.	Roll the needle on a smooth flat surface, if bent, replace the needle.	
	Needle track on a looper.	Deburr or replace the looper.	
	Damaged throat plate.	Deburr or replace the throat plate.	
	Incorrect sewing system adjustment	Correctly adjust.	
Skip stitches.	Incorrectly adjusted thread draw-off.	Correctly adjust the sewing mechanism	**E11**
	Bent needle or damaged stitch forming parts.	Replace the damaged parts.	
	Incorrectly adjusted sewing mechanism. Incorrect needle guard distance.	Correctly adjust the sewing mechanism. Set the distance to 0.05 mm.	**E9,E10**
	Defective spreader return springs	Replace the springs.	
Sewn fabric is incorrectly cut.	Knife and cutting steel are incorrectly installed.	Check the knife impression on the cutting steel, adjust or replace as needed. Check the knife. Replace if damaged.	
	Cutting cylinder pressure is too low.	Tighten the adjusting screw by 1/2 rotation and check the cutting.	**B7**
Top thread is not trimmed.	Damaged knife.	Replace the knife.	
	Knife does not return.	Adjust or replace the spring.	
	Knife incorrectly installed.	Correctly install the knife.	**E12**

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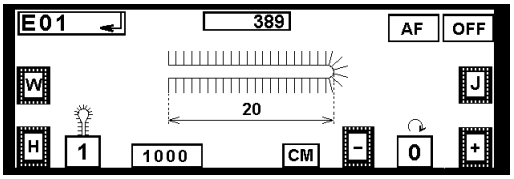
TROUBLESHOOTING

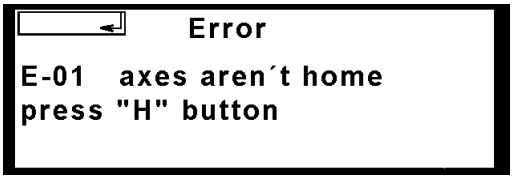
3. THE ELECTRONIC SYSTEM ERROR MESSAGES

If an error message appears on the display (see picture ❶), press it. The screen with a description and a correction of an error message appears on the display (see picture ❷).

❶



❷



SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
E-01	Axes are not home	Press “H” button to bring the machine to the home position
E-02	Needle is not in the upper position and the marks on the handwheel and the cover are not aligned.	Turn the handwheel to align marks. Ensure the needle is in the left position.
E-03	Rear cover is open	Close the cover. Ensure, the locking screw is tightened.
E-04	Low air pressure. Air pressure is below 3,5 bar	Check an air supply
E-06	The cutting lever is not home.	Check BQ7 sensor and an air supply
E-07	Low voltage	Check a power supply, voltage.
E-10	X axis error	Press “H” button
E-11	Y axis error	Press “H” button
E-12	R axis error	Press “H” button
E-14	ACL error	Press “H” button
E-20	Sew motor error	Check a frequency inverter
E-24	Stepping motor driver error	Check stepping motor driver
E-40	Service mode	Press and release the Emergency stop button and then “H” button
E-99	Emergency Stop button	Release an Emergency Stop button

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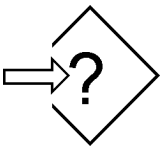
TROUBLESHOOTING



Length of a buttonhole and length of flybar parameters are incorrectly set	Set correct parameters - see section ***D3***. The total can not exceed 50.

4. ELECTRICAL FAULTS

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
When key switch in position **I**, neither the work light or the cooling fan operate	No power supply	Check main power supply or voltage in the socket
	Fuse F1 failure	Replace fuse PN 12.0008.4.063
	Power switch QS1 damaged	Replace the switch 12.0008.4.717
After pressing button, it does not light, machine does not start operation	Fuse F2 failure	Replace fuse PN 12.0008.4.063
	The supply voltage is above 255 V (red LED lights on relay VC1)	Call electronic engineer in the plant
	SB1 (Stop) button or SB2 (Start) button damaged	Replace the buttons (12.0008.4.612, 12.0008.4.698)
	Relay VC1 damaged	Replace the relay 12.0008.4.690
After pressing button, it does not light	LED HL1 damaged	Replace the LED 12.0008.4.614
After the machine is switched on, display does not light	Fuse F4, F5, F7 or F8 failure	Replace the fuse (12.0008.4.063 (F4, F5), 12.0008.4.665 (F7, F8))
	GS1, GS2 Power damaged	Replace the power 12.0008.4.709
	Cable from the display disconnected	Check the display connection
	Display or its control damaged	Replace display or control units, call AMF Reece Service
After starting the sewing, motor fails to operate - check frequency inverter	Error in sewing motor circuit	Switch the machine off for 1 minute, or restart it, alternatively call AMF Reece service

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TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
When sewing operation started, motor does not operate. Frequency inverter U5 error - check its display - does not light. Contactor KM2 switched on.	FA1 circuit breaker switched off	Switch the circuit breaker on
	Frequency inverter U5 error or filter Z2 error	Call AMF Reece service
When sewing operation started, motor fails to operate. Frequency inverter U5 error - check its display - does not light. Contactor KM2 switched off.	Fuse F3 failure	Replace fuse PN 12.0008.4.063
	Contactor KM2 damaged	Replace contactor 12.0008.4.488
	Relay KA1 does not switch on	Check KA1 relay and its circuits 12.0008.4.720
When sewing operation started, air valves do not operate. The air pressure correct.	Fuse F5 or F8 failure	Replace fuse 12.0008.4.063, 12.0008.4.665
	GS2 Power damaged	Replace the power 12.0008.4.709
Incorrect function of the air valves	Fork is not fitted properly into connector X4	Check the connector connection
Some of a stepping motor does not keep its position	Driver error	Change a driver 12.008.4.754 - see page 3-54
	Stepping motor supply is connected	Check a connection: motor - driver
	Stepping motor fault	Change motor
After the machine is in the home position, the bedplate shakes in one place. It is not possible to sew next buttonhole.	Incorrect indication of the home position.	Press Emergency Stop button. Manually move the bedplate so it is out of a table sensors. Release Emergency Stop button and press „H“ button to bring the machine to the home position.

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