AMF® REECE

Better Ideas, Better Made

MODEL S-311

ELECTRONIC EYELET BUTTONHOLE MACHINE

PARTS AND SERVICE MANUAL

MACHINE SERIAL No.

PART NUMBER 97. 1930.0.002

This manual is valid from the machine serial No.: N 190801
(version ACL: No. : N 190791)

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10/2012

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LIMITED WARRANTY ON NEW AMF REECE EQUIPMENT

Warranty provisions:

A ninety (90) day limited service labor warranty to correct defects in installation, workmanship, or material without charge for labor. This portion of the warranty applies to machines sold as "installed" only.

A one (1) year limited material warranty on major component parts to replace materials with defects. Any new part believed defective must be returned freight prepaid to AMF Reece, Inc. for inspection. If, upon inspection, the part or material is determined to be defective, AMF Reece, Inc. will replace it without charge to the customer for parts or material.

Service labor warranty period shall begin on the completed installation date. Material warranty shall begin on the date the equipment is shipped from AMF Reece, Inc.

Exclusions:

Excluded from both service labor warranty and material warranty are: (1) Consumable parts which would be normally considered replaceable in day-to-day operations. These include parts such as needles, knives, loopers and spreaders. (2) Normal adjustment and routine maintenance. This is the sole responsibility of the customer. (3) Cleaning and lubrication of equipment. (4) Parts found to be altered, broken or damaged due to neglect or improper installation or application. (5) Damage caused by the use of non-Genuine AMF Reece parts. (6) Shipping or delivery charges.

There is no service labor warranty for machines sold as "uninstalled".

Equipment installed without the assistance of a certified technician (either an AMF Reece Employee, a Certified Contractor, or that of an Authorized Distributor) will have the limited material warranty only. Only the defective material will be covered. Any charges associated with the use of an AMF Reece Technician or that of a Distributor to replace the defective part will be the customer's responsibility.

NO OTHER WARRANTY, EXPRESS OR IMPLIED, AS TO DESCRIPTION, QUALITY, MERCHANTABILITY, and FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER IS GIVEN BY SELLER OR SELLER'S AGENT IN CONNECTION HEREWITH. UNDER NO CIRCUMSTANCES SHALL SELLER OR SELLER'S AGENT BE LIABLE FOR LOSS OF PROFITS OR ANY OTHER DIRECT OR INDIRECT COSTS, EXPENSES, LOSSES OR DAMAGES ARISING OUT OF DEFECTS IN OR FAILURE OF THE EQUIPMENT OR ANY PART THEREOF.

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

If a machine is purchased through an authorized AMF Reece, Inc. distributor, warranty questions should be first directed to that distributor. However, the satisfaction and goodwill of our customers are of primary concern to AMF Reece, Inc. In the event that a warranty matter is not handled to your satisfaction, please contact AMF Reece office:

Prostejov, Czech Republic
Phone: (+420) 582-309-286
Fax: (+420) 582-360-608
e-mail: service@amfreece.cz

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Warranty Registration Card

(Please Fax or Mail immediately after installation)

Note: All Warranty Claims Void, unless Registration Card on file at AMF Reece HQ

Machine model number:
(S100, S101, S104, S105, S 311, Deco, S4000 , EBS Mark II, ES505, etc)

Manufacturer‘s serial or production number:

Installation Site Information:

Customer‘s Name:

Customer‘s Mailing Address:

Customer‘s Telephone Number:

Supervising Mechanic‘s or Technician‘s Name:

Signature of Supervising Technician:

AMF Reece Technician‘s Name:

AMF Reece Technician‘s Signature:

Type of garment produced at this location?

Average Daily Production Expected from this machine?
(number of buttonholes, jackets sewn, pants produced, buttons sewn, etc)

Any special requirements required at this location?

What other AMF Reece Machines are at this location?

How can we serve you better?

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TABLE OF CONTENTS

A - INTRODUCTION
1. Basic information 1-1
2. Safety labels and device 1-2
3. General machine parts descriptions 1-3
4. Specification 1-4
5. Buttonhole description 1-6
6. Instructions for operator safety and maintenance of the machine S-311 1-7
7. Special device 1-9
7.1. Working light 1-9
7.2. Manual machine control 1-9
7.3. Ruler 1-9
7.4. Voltage guard - relayHRN35 1-9
7.5. Thread nipper 1-9

B - MACHINE ASSEMBLY
1. Content of the shipping box 1-10
2. Table adjustment 1-10
3. Connection of the machine head with the control box 1-12
S-311 RDE - Pneumatic system connection 1-13
S-311 AF - Pneumatic system connection 1-14
S-311 CT - Pneumatic system connection 1-15
S-311 LTT - Pneumatic system connection 1-16
4. Belt tension 1-17
5. Power and air connection 1-18
6. Thread stand installation 1-19
7. Lubrication 1-20

C - PROPER APPLICATION
1. Power up / home position 1-21
2. Needle installation 1-22
3. Threading 1-23

D - MACHINE CONTROLS
1. Operation 1-26
2. Display information 1-28
3. The buttonhole shape setting 1-29
4. Buttonhole parameters adjustment 1-30
5. Buttonhole parameters adjustment 1-31
6. The sewing speed setting 1-32
7. Sewing speed setting for the round eye (AF, RDE) 1-33
8. Buttonhole counters 1-34

TABLE OF CONTENTS

9. Setting the cutting 1-35
10. The round eye cutting setting 1-36
11. Service mode 1-37
12. Cycle mode 1-38
13. The buttonhole programming 1-39
14. The electronic system error messages 1-40
15. Manual cut mode 1-40
16. PLC adjustment by machine type 1-40

E - STANDARD MACHINE ADJUSTMENT
1. Standard buttonhole shapes set by the manufacturer 1-41
2. The sewing drive sensor plates adjustment 1-42
3. The bedplate home position adjustment 1-43
4. The race mechanism adjustment 1-44
5. The sewing mechanism height control 1-45
6. Mechanism adjustment for material clamping 1-46
7. Spreading of a material 1-47
8. Adjustment of the cutting mechanism 1-48
9. Setting the needle bar height 1-51
10. Spreader and looper cam adjustment 1-52
11. Loopers adjustment 1-52
12. Spreaders adjustment 1-53
13. Adjustment of the bite mechanism 1-54
14. Upper thread trimming mechanism - AF/LTT 1-55
15. Adjustment of the upper thread pick-up height 1-56
16. Upper trimming and lower interception - CT 1-57
17. Mechanismus adjusting for CT gimp 1-60
18. The trimming mechanism adjustment - LTT 1-61
19. Setting the thread tension and thread draw off 1-61
20. Voltage guard 1-65

F - MACHINE MAINTENANCE
1. Cleaning and maintenance of the machine 1-66
2. Periodic maintenance 1-68
3. Scheme of the lubrication distribution 1-69
4. Machine lubrication 1-70
5. Machine disposal 1-72

G - DOCUMENTATION
Pneumatic diagram 1-73
Electrical diagram 1-74

A - INTRODUCTION

1. BASIC INFORMATION

Sewing machine S-311 is determined to sew buttonholes for outwears. Buttonholes type are listed on page no. 1-6. The sewing machine S-311 is designed and produced to be simple for operation and very reliable. Important design goals have been made to provide a safe machine that is simple and inexpensive to maintain.
Sewing machine S-311 has four basic models: AF, CT, LTT and RDE.
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. 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.

Machine types are listed in the table on the manual page no. 1-4, 1-5.

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.

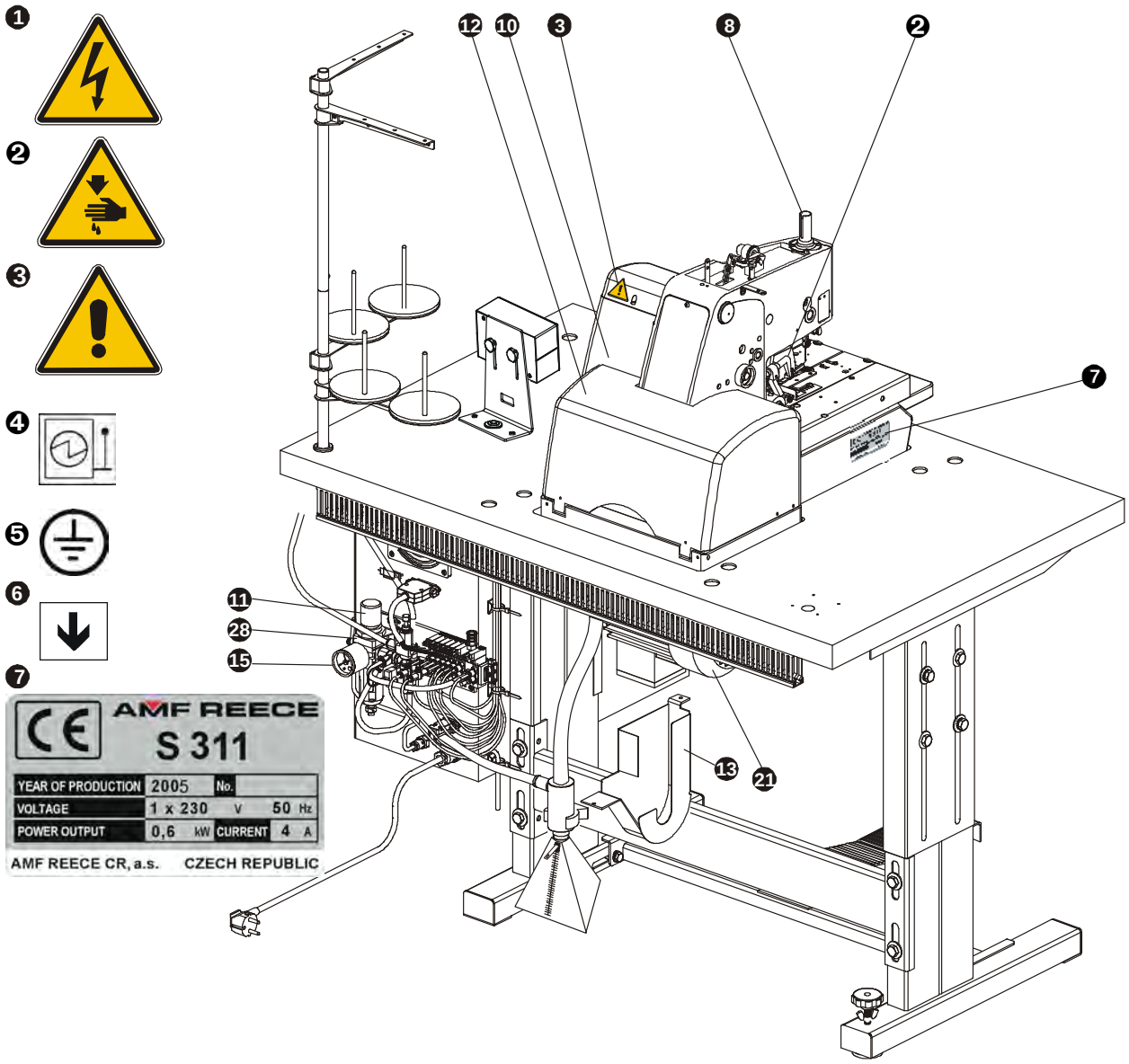
The most effective safety precaution is a well-managed safety program. Be sure those who use this machine are properly trained. Never disable safety equipment.

Always wear safety goggles when operating or servicing the machine.

EXPLANATION OF ABBREVIATIONS IN THE MANUAL TEXT	
CA	Cut After
CB	Cut Before
AF	Adjustable Flybar
CT	Cord Trimming of all threads - short tail of lower thread
LTT	Cord Trimming of all threads - long tail of lower thread
RDE	Round Eyelet

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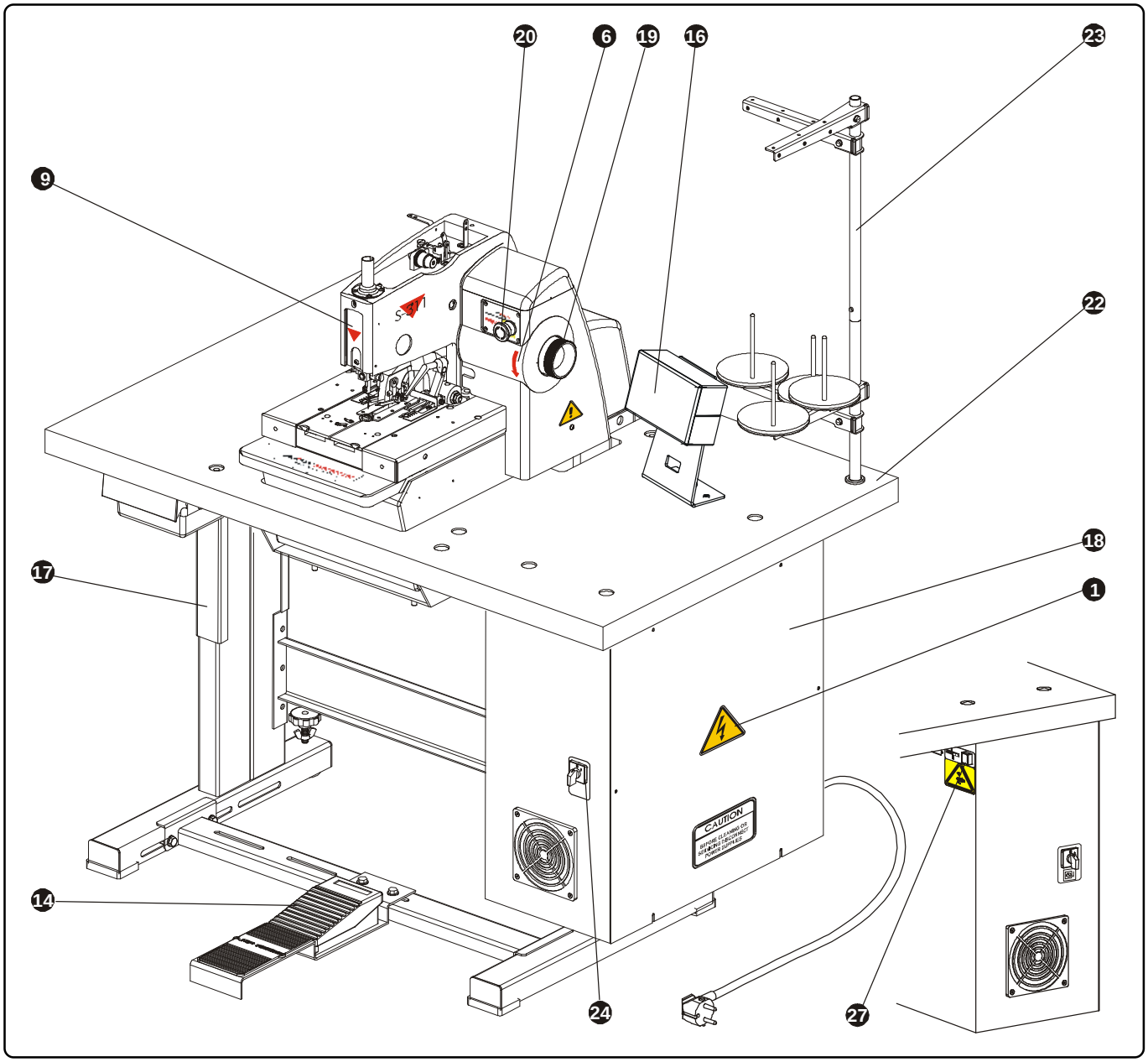
2. SAFETY LABELS AND DEVICE



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

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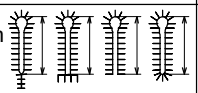
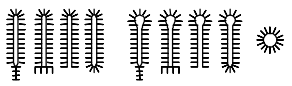
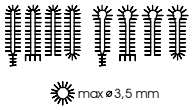
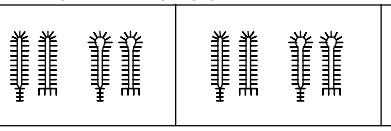
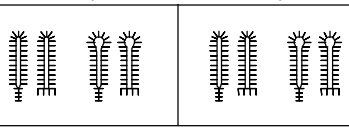
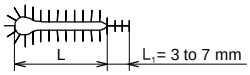
3. GENERAL MACHINE PARTS DESCRIPTIONS



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
27 Cutting activation button
28 Air pressure regulator

4. SPECIFICATION

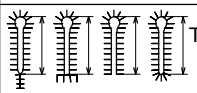
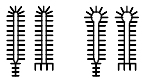
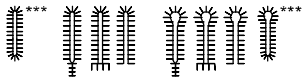
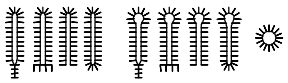
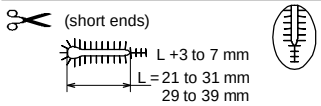
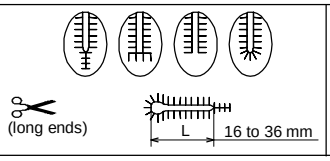
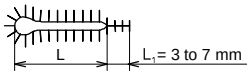
S-311 Elektronic buttonhole machine with chain stitch is possible to use for men`s and women`s wear. Possible to use gimp thread, not in round eye.

Machine type/model	AF	CT 14 - 24 mm	CT 22 - 32mm
Sewing speed	1000 to 2000 stitches/min (500 to 1000 rev/min of the drive shaft)		
The length of hole 	10 to 50 mm	14 to 24mm	22 to 32mm
Stitch Density	0,5 to 2,0 mm (increments of 0,1 mm)		
Number of stitches in the eye	4 to 20		
Bite Range Elecctronic	2,1 mm (AF, LTT); 2,3 mm (CT) (± 0,3 mm electronic); 2,7 mm (± 0,3 mm electronic)		
Bite Range Elecctronic (???)	2,1 mm (AF, LTT); 2,3 mm (CT) (± 0,5 mm electronic); 2,7 mm (± 0,5 mm electronic)		
Buttonhole style 	 max ø3,5 mm		
Eye type	No eye; 2,2 x 3,0 mm; 2,8 x 4,2 mm; 3,0 x 4,6 mm; 3,2 x 5,0 mm; 3,4 x 4,2 mm		
Flybar length	3,0 - 20,0 mm	See section D 3.3	
Length of the cross bar	4 to 8 mm	4 to 6 mm	
Cross bar density	0,5 to 1,5 mm	0,5 to 1,5 mm	
Number of stitches in the round end	4 to 20	—	
Clamp foot height (max)	12 mm		
Maximum work thickness	in 8,0 mm		
Buttonhole Cutting Mode	Cut before (CB), cut after (CA), no cut (OFF)		
Cutting Space	- 0,50 to + 1,2 mm		
Cut position (Y axis)	± 1,5 mm		
Bedplate movement	64 mm		
Needle system	02.0558.0.111 (Nm 100)	02.0558.1.112 (Nm 110)	
Recommended threads*	80, 100, 120, gimp size 30-100	80, 100, 120, gimp size 10-30 standard **	
Upper thread trimming ✂		✂	
Lower thread and gimp trimming  Cutting space ✂	—	✂ (Short ends) 	
		L = 14 to 24mm L+L1 = 21 to 31mm	L = 22 to 32mm L+L1 = 29 to 39mm
Operating Condition	according to IEC 364-3, IEC 364-5-51 temperature from +5℃ to 40℃, relative air humidity from 30 to 8 0%		
Air pressure	0,55 MPa = 80 PSI		
Machine db Level	L_{wA}=86,9db; L_{pfA}=74,8 db; Noise measurement according to EN ISO 3746:1995		
Machine Head Dimension	530 mm (height) x 370 mm (width) x 560 mm (depth)		
Machine Head Weight	64 kg		
Table Dimensions	730 mm (height) x 1100 mm (width) x 700 mm depth) + 150 mm distance		
Machine Weight	175 kg		
Electrical requirements Line Circuit Breaker	1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S Min. 10A Characteristic C (EN60947-2)		

*** *Note:*** If a customer uses thread size 100 and less, the manufacturer recommends to use the left looper 17.0069.4.019 If you use poor quality threads on the machine, the thread can burn at the needle (producer recommend decrease machine´s speed).

** Gimp 10 - 30 → CT Throat Plate 10.4012.5.016
30 - 100 → CT Throat Plate 10.4012.1.016
10.4012.2.014

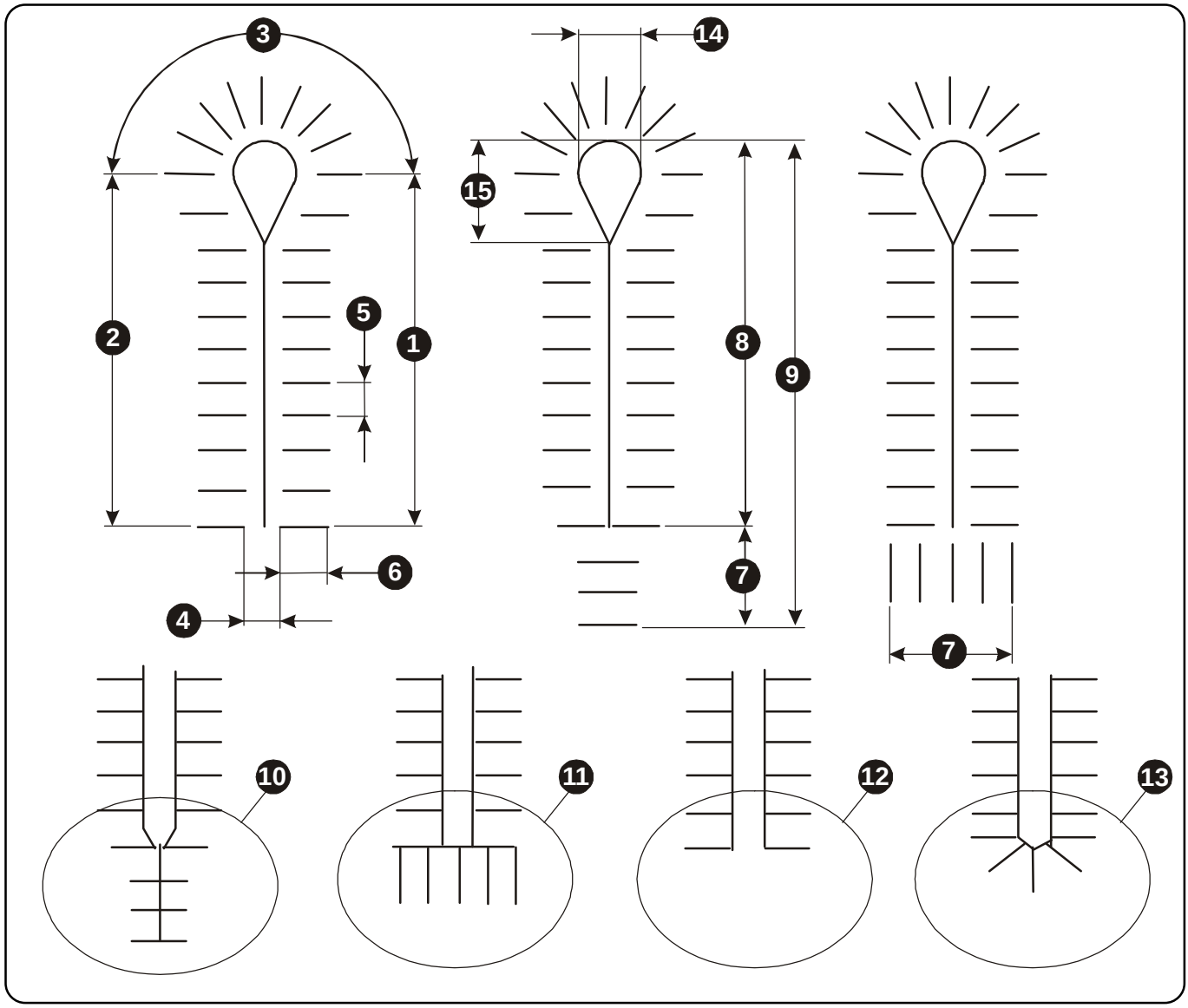
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CT 14 - 32 mm	LTT	RDE	Machine type/model
1000 to 2000 stitches/min (500 to 1000 rev/min of the drive shaft)			Sewing speed
14 to 32 mm	10 to 36 mm	—	 The length of hole
0,5 to 2,0 mm (increments of 0,1 mm)			Stitch Density
4 to 20		8 to 60	Number of stitches in the eye
2,1 mm (AF, LTT); 2,3 mm (CT) (± 0,3 mm electronic); 2,7 mm (± 0,3 mm electronic)			Bite Range Elecctronic
2,1 mm (AF, LTT); 2,3 mm (CT) (± 0,5 mm electronic); 2,7 mm (± 0,5 mm electronic)			Bite Range Elecctronic (???)
			Buttonhole style 
No eye; 2,2 x 3,0 mm; 2,8 x 4,2 mm; 3,0 x 4,6 mm; 3,2 x 5,0 mm; 3,4 x 4,2 mm		⌀ 2 to 7 mm	Eye type
See section D 3.3		—	Flybar length
4-6 mm	4-8 mm		Length of the cross bar
0,5 - 1,5 mm			Cross bar density
—			Number of stitches in the round end
12 mm		5 mm	Clamp foot height (max)
in 8,0 mm		1,5 to 2,5 mm	Maximum work thickness
Cut before (CB), cut after (CA), no cut (OFF)			Buttonhole Cutting Mode
- 0,50 to + 1,2 mm		—	Cutting Space
± 1,5 mm			Cut position (Y axis)
64 mm		62,5 mm	Bedplate movement
0.0558.1.112 (Nm 110)	0.0558.0.111 (Nm 100)		Needle system
80, 100, 120, gimp size 10-30 standard **	80, 100, 120, gimp size 30-100	80, 100, 120	Recommended threads*
			Upper thread trimming
 (short ends) L +3 to 7 mm L = 21 to 31 mm 29 to 39 mm	 (long ends) L 16 to 36 mm	—	Lower thread and gimp trimming  L L_1 = 3 to 7 mm Cutting space 
according to IEC 364-3, IEC 364-5-51 temperature from +5℃ to 40℃, relative air humidity from 30 to 8 0%			Operating Condition
0,55 MPa = 80 PSI			Air pressure
L_{wA}=86,9db; L_{pfA}=74,8 db; Noise measurement according to EN ISO 3746:1995			Machine db Level
530 mm (height) x 370 mm (width) x 560 mm (depth)			Machine Head Dimension
64 kg			Machine Head Weight
730 mm (height) x 1100 mm (width) x 700 mm depth) + 150 mm distance			Table Dimensions
175 kg			Machine Weight
1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S Min. 10A Characteristic C (EN60947-2)			Electrical requirements Line Circuit Breaker

*** When sewing the round end buttonhole with the start in the eye, the machine has to be switched to the AF model and trim med manualy.

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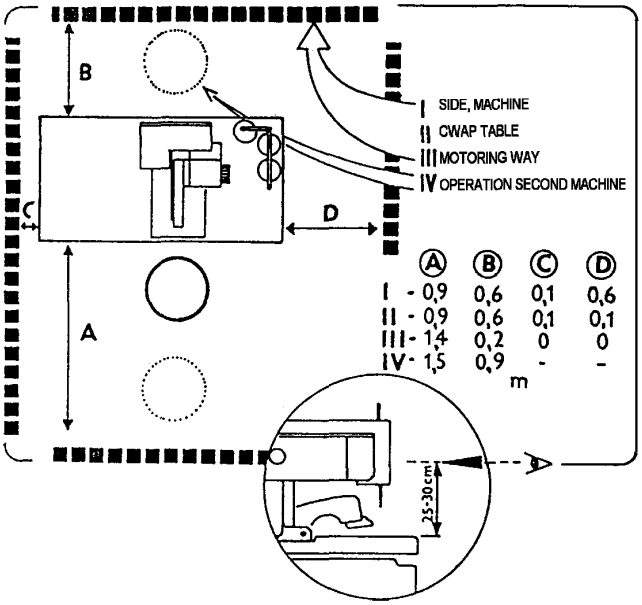
5. BUTTONHOLE DESCRIPTION



1. The first row of stitches
2. The second row of stitches
3. Eye
4. Cutting space
5. Stitch density
6. Bite size
7. The length of a bar
8. The length of cutting
9. The length of buttonhole
10. Fly bar AF
11. Cross bar CRB
12. Open End
13. Round End
14. Buttonhole width
15. Buttonhole lenght

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6. INSTRUCTIONS FOR OPERATOR SAFETY AND MAINTENANCE OF THE MACHINE S-311



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, and 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!

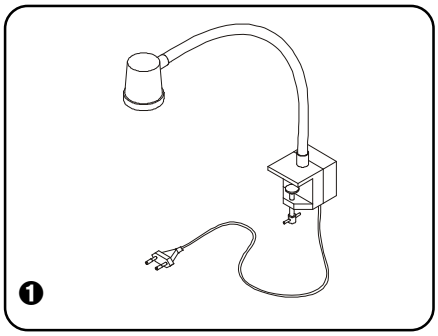
- Perform all regular service as described in this manual.
- If there is any problem with the power supply, turn off the main power switch.
- Do not remove, paint over, damage or in any way change safety labels. If a safety label cannot be easily read, replace it.
- Long hair and loose clothing may be 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.

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7. SPECIAL DEVICE

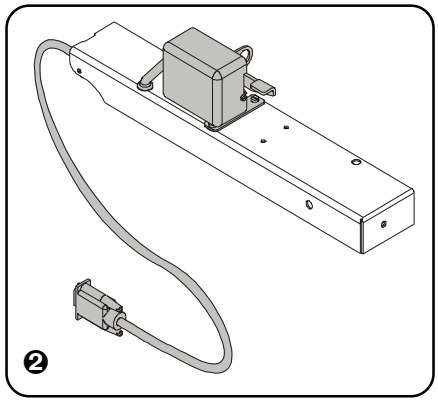
7.1. Working light ❶

- order number 12.0008.4.875



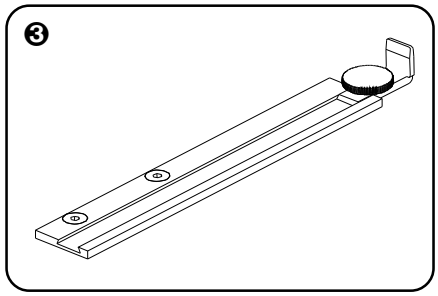
7.2. Manual machine control ❷

- order number 03.5519.0.007
- allows to change the foot machine control for manual by switch installation on the table and changing the cables



7.3. Ruler ❸

- order number 03.5511.0.003



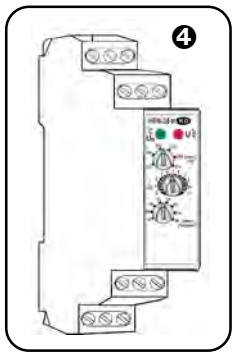
7.4. Voltage control - relay HRN 35 ❹

- order number 06.1900.0.000

The machine operation is ensured when the power supply is in range AC 230V
± 10 % (EN 60204-1). The manufacturer recommends to equip the machine with the relay HRN-35 in case of larger fluctuation of power supply.

It prevents the machine from damage and in case of large decrease of power supply, the operator is informed by error message.

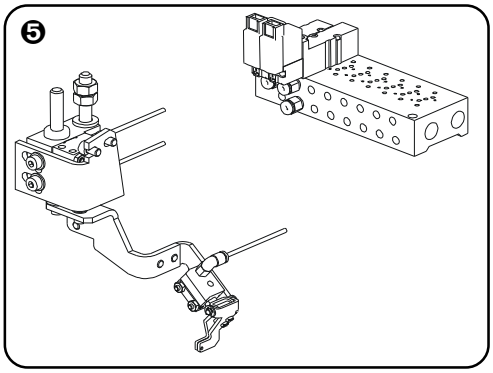
If the power supply range is exceeded - max 250V and min 190V the voltage guard - relay HRN-35 which ensures that machine does not start. After the power supply is in required range, it is possible to start the machine.



7.5. Thread nipper ❺

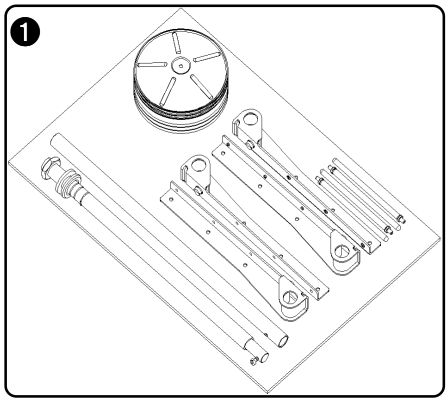
- order number 03.5519.4.013

This equipment is used to hold the upper thread at the beginning of sewing cycle.
It eliminates the skipping of stitches at the beginning of sewn buttonhole, especially when sewing the fly bar.
It is supplied as standard to the following versions: LTT, AF+I and CT+I (Indexer for sewing the jackets).



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1. CONTENT OF THE SHIPPING BOX



1.1. If it is not mentioned otherwise during ordering, the shipping container usually contains:

- assembled machine on the stand with electroinstalation
- box with the accessories (specification in the spare parts section)
- dis-assembled thread stand ❶
- operation manual with the spare parts manual

1.2. When unpacking the container, follow labels which are on a cover.

CAUTION: If the container was damaged during the transport, inform the carrier. Check the contents of the container with order. In the event of an error, immediately inform the manufacturer- late notification of an error in shipment may result in loss of claim.

2. TABLE ADJUSTMENT

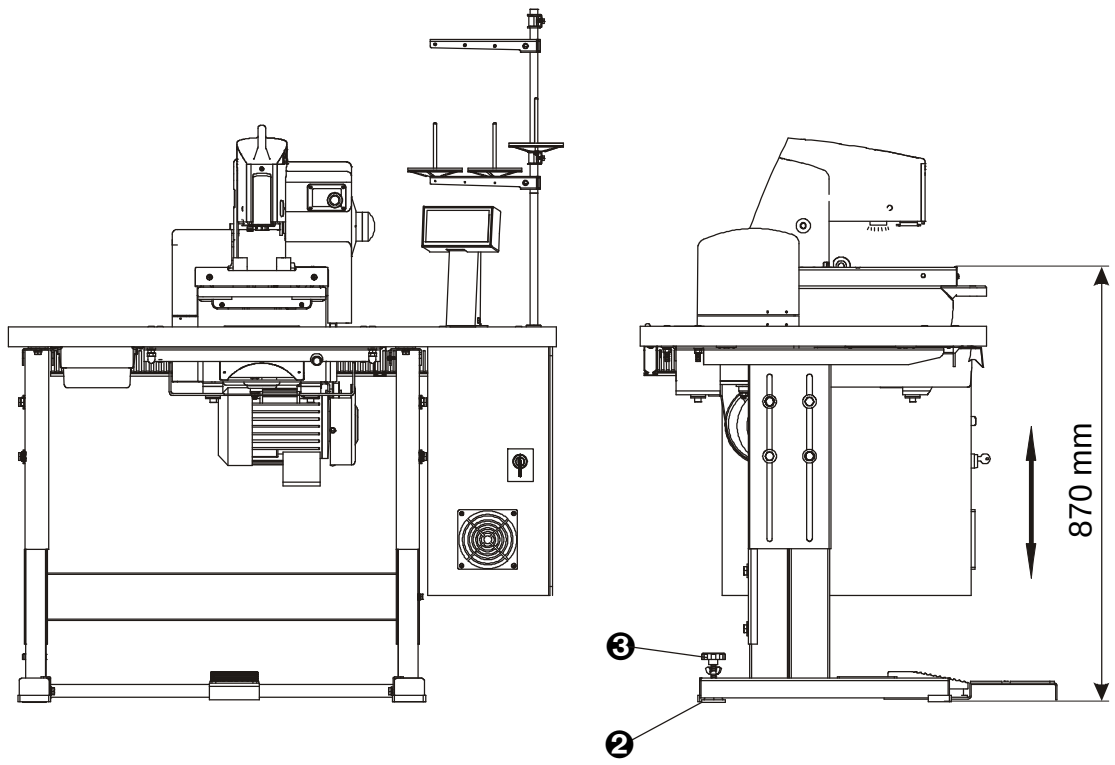
2.1. After you will unpack the machine, move the machine to its appointed place. The machine is supplied with the stand with standart height for working in seat. For another stand implementation is necessary to make an agreement with the customer. The recommended height of the stand (table) is 870 mm. Tighten the screws ❷ very well.

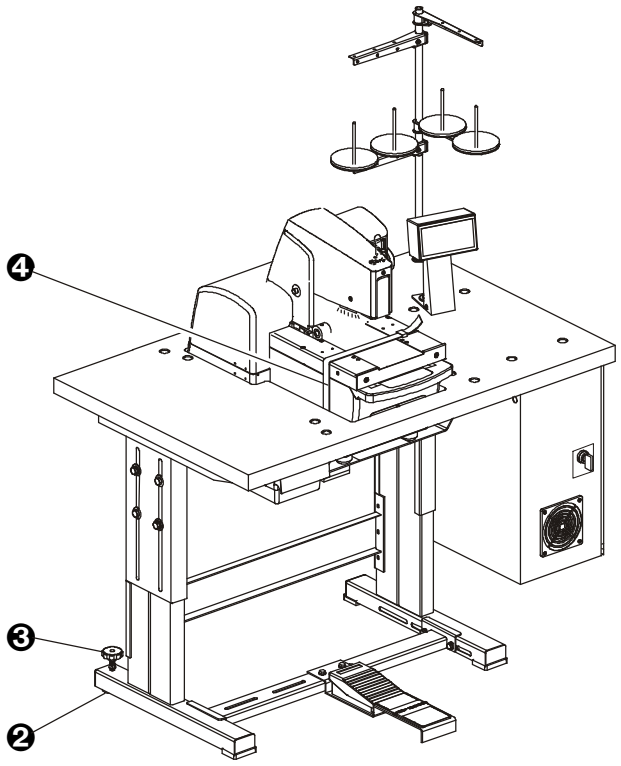
2.2. To stabilize the table, use the floor pads ❸, which are controlled by hand screw ❹. Check the levelness of the adjusted table.

2.3 Eliminate the shipping band ❺, which holds the head in place. If transporting machine to a different location, it is necessary to fasten the table to prevent shifting in transit.

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B - MACHINE ASSEMBLY

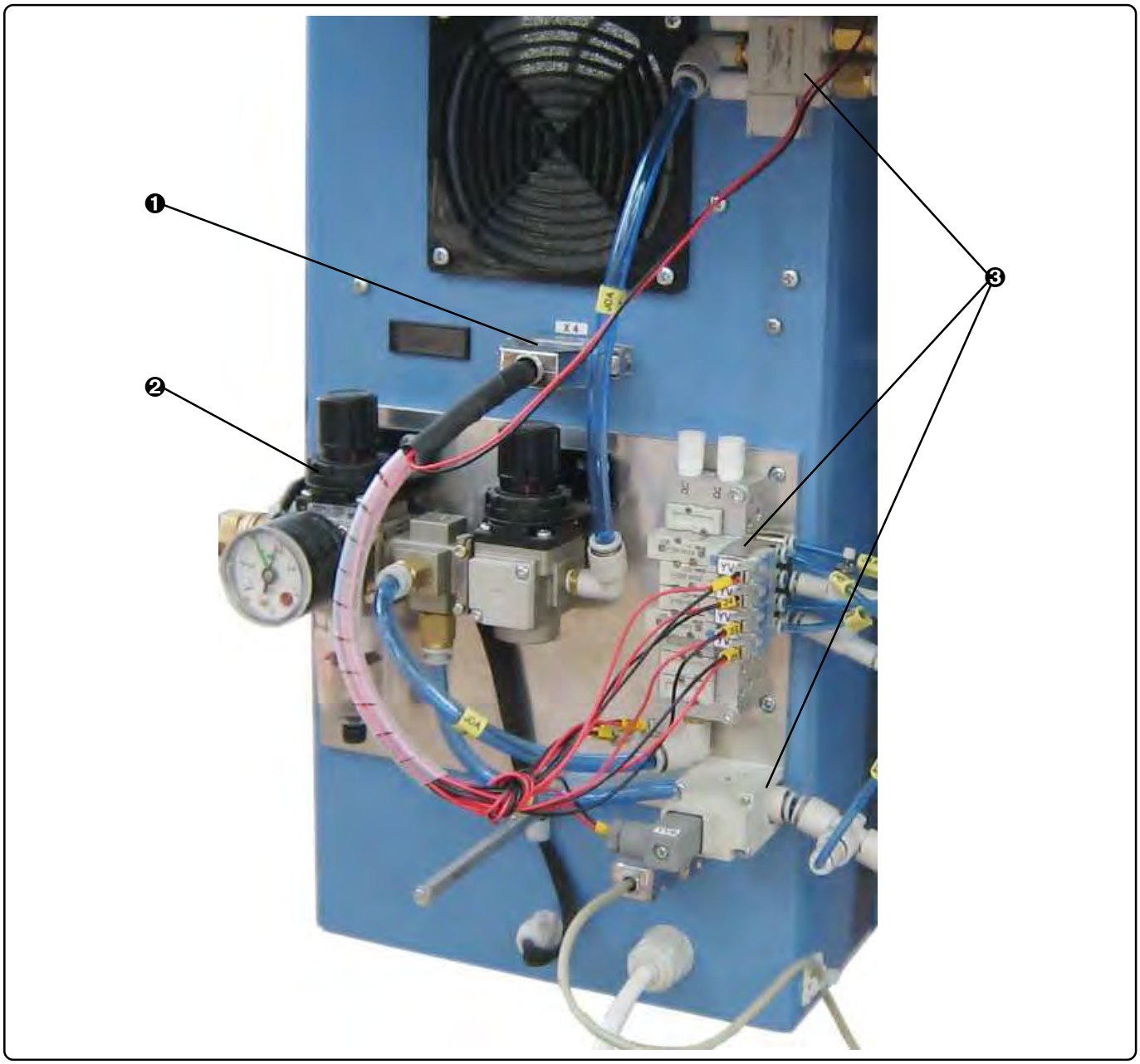




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3. CONNECTION OF THE MACHINE HEAD WITH THE CONTROL BOX

3.1. The control box ❶ contains the control system, regulator ❷ and valve terminal ❸ for controlling the pneumatic cylinders.

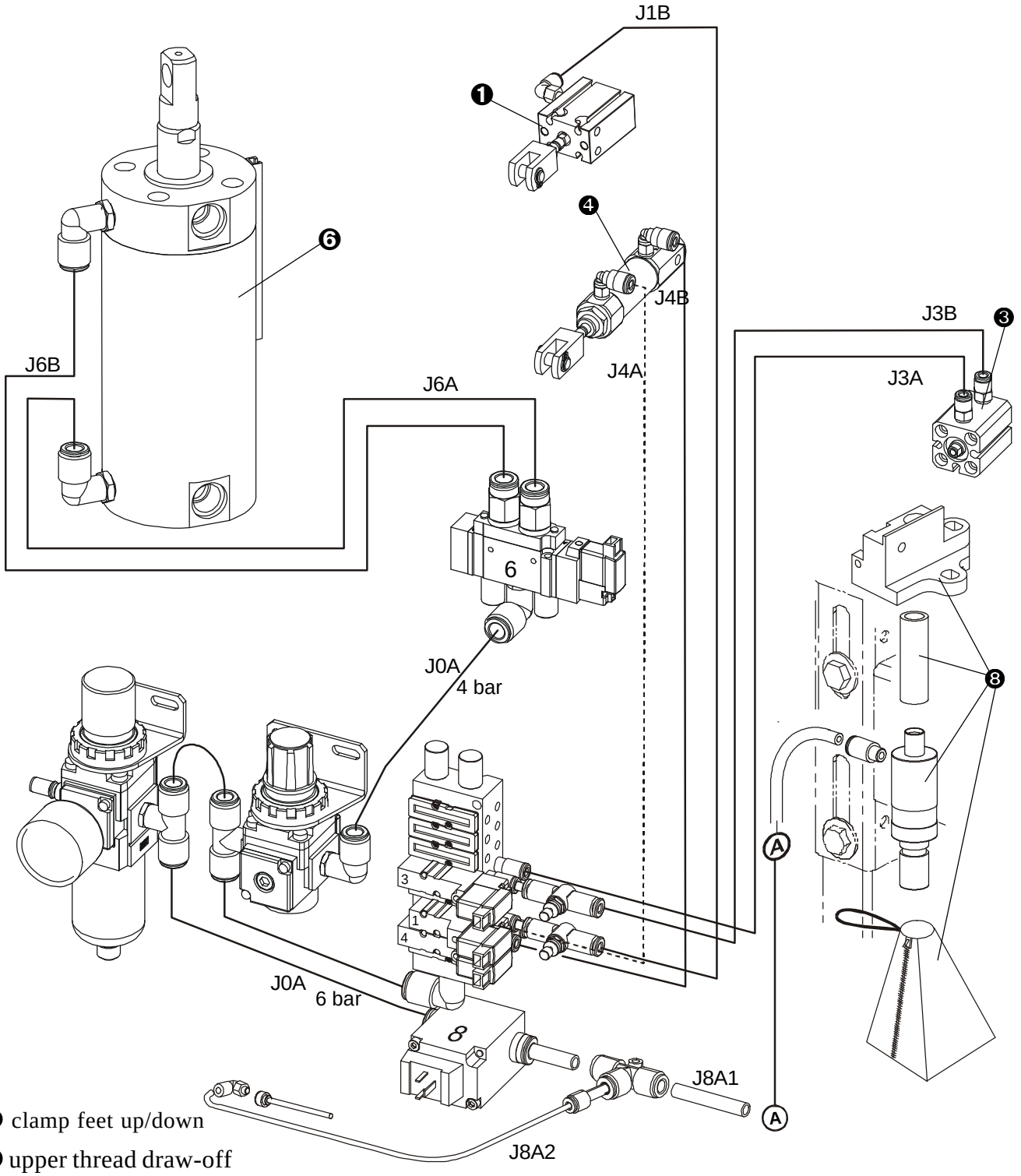


3.2. The machine is connected from the plant. If disassembled, connect the machine as follows:

- blue pneumatic tubes J1A/B — J9A/B connect with equally marked electromagnetic valves.
- cables for stepping motors marked X, Y, R connected with equally marked cables.
- remaining cable is used for sensor and switches connection with box.

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S-311 RDE - PNEUMATIC SYSTEM CONNECTION

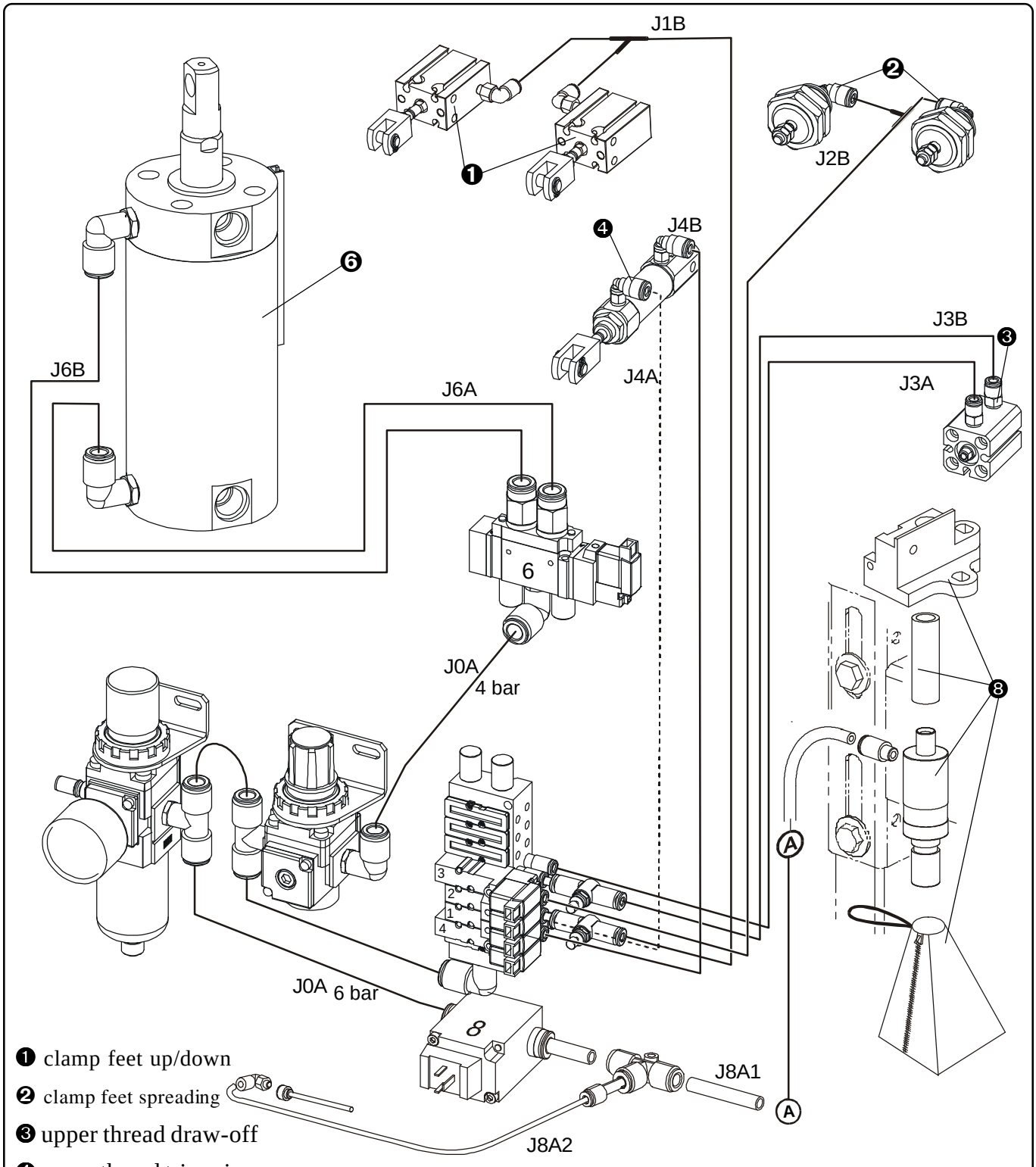


❶ clamp feet up/down
❸ upper thread draw-off
❹ upper thread trimming
❻ cutting
❽ suction

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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S-311 AF - PNEUMATIC SYSTEM CONNECTION



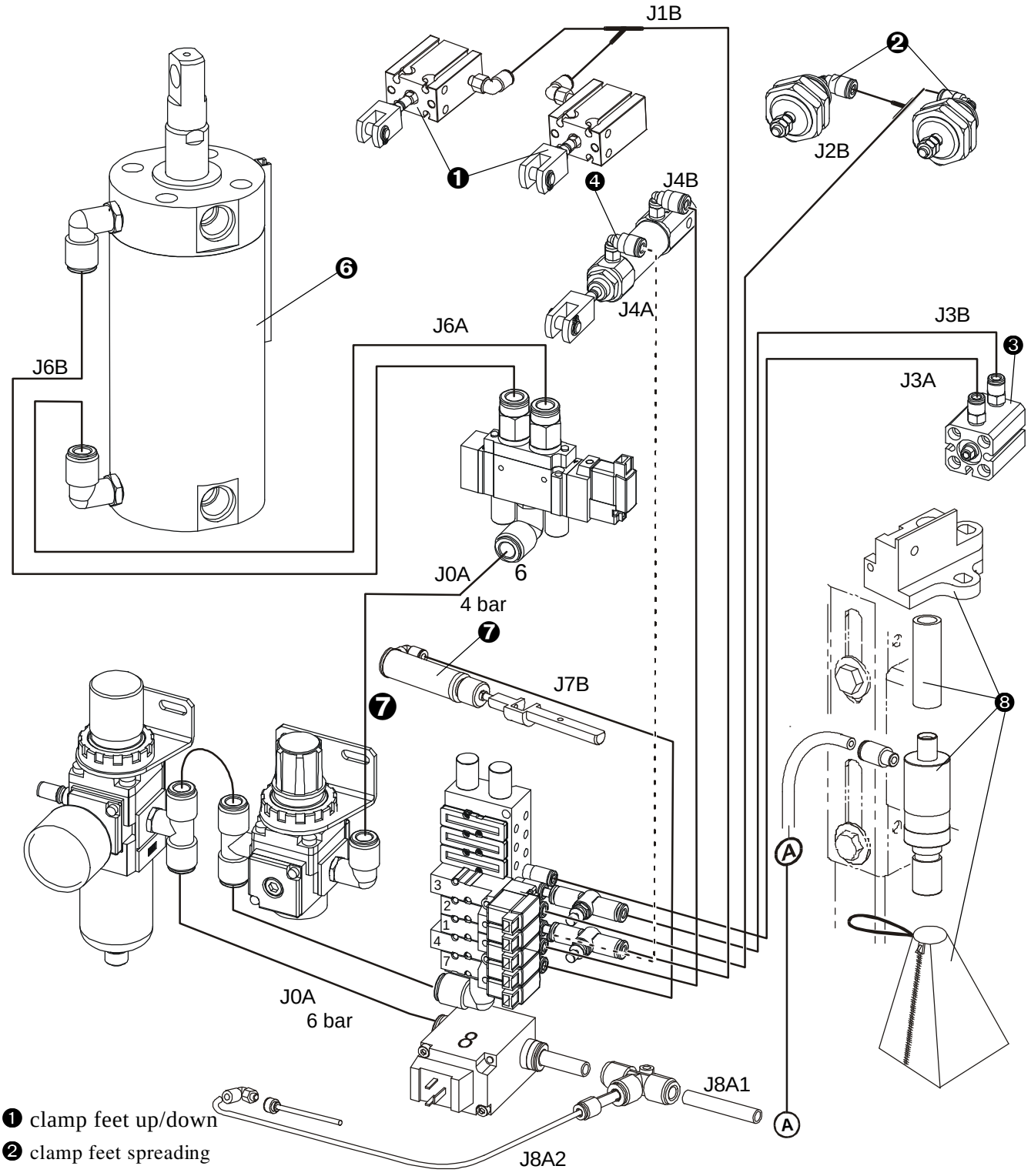
❶ clamp feet up/down
❷ clamp feet spreading
❸ upper thread draw-off
❹ upper thread trimming
❻ cutting
❽ suction

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

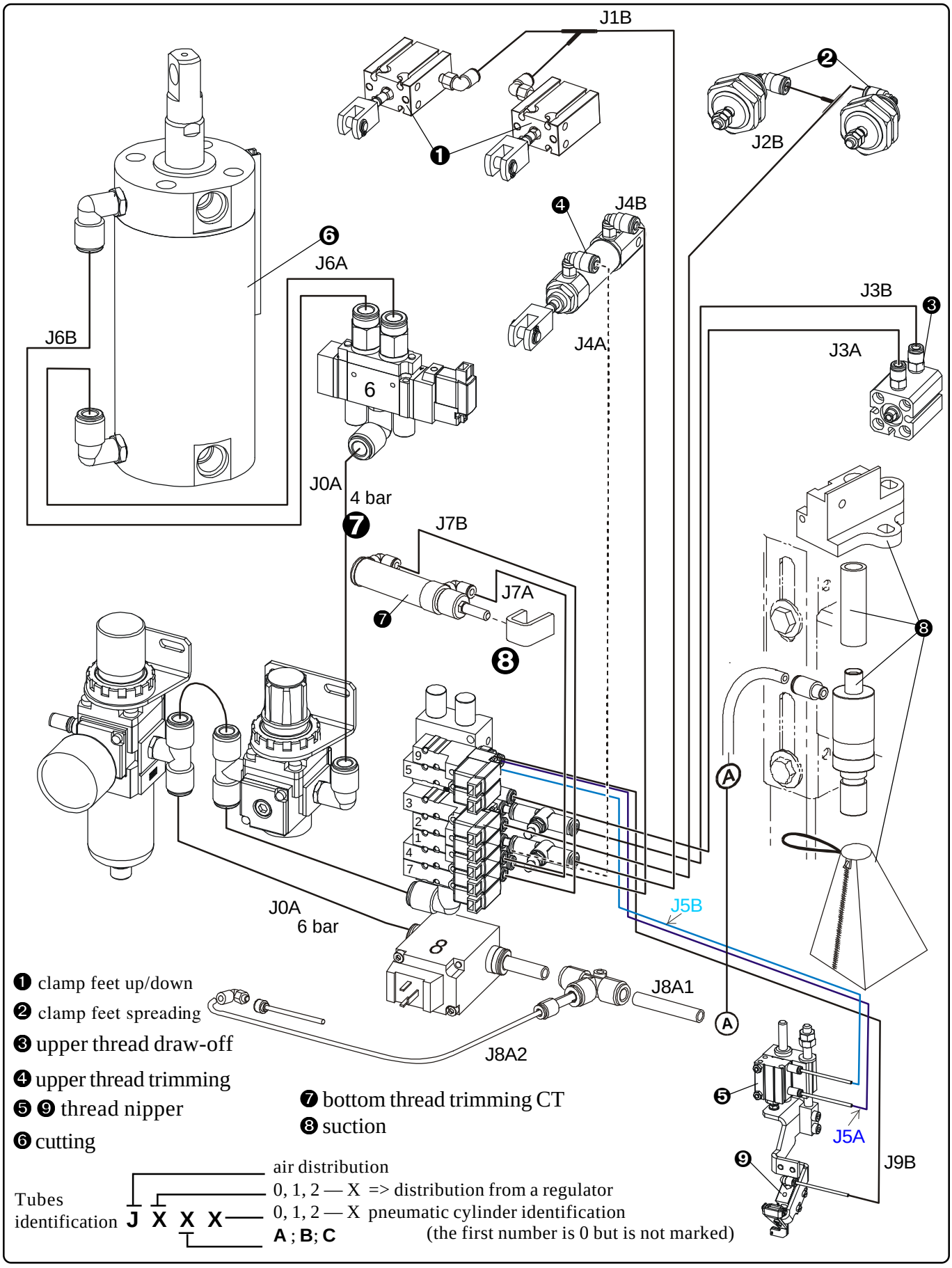
S-311 CT - PNEUMATIC SYSTEM CONNECTION



❶ clamp feet up/down
❷ clamp feet spreading
❸ upper thread draw-off
❹ upper thread trimming
❻ cutting
❼ bottom thread trimming CT
❽ suction

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**

S-311 LTT - PNEUMATIC SYSTEM CONNECTION



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4. BELT TENSION

4.1. Lower belt ❶ of sewing mechanism drive is installed on machine head pulley during the transport. To access 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.

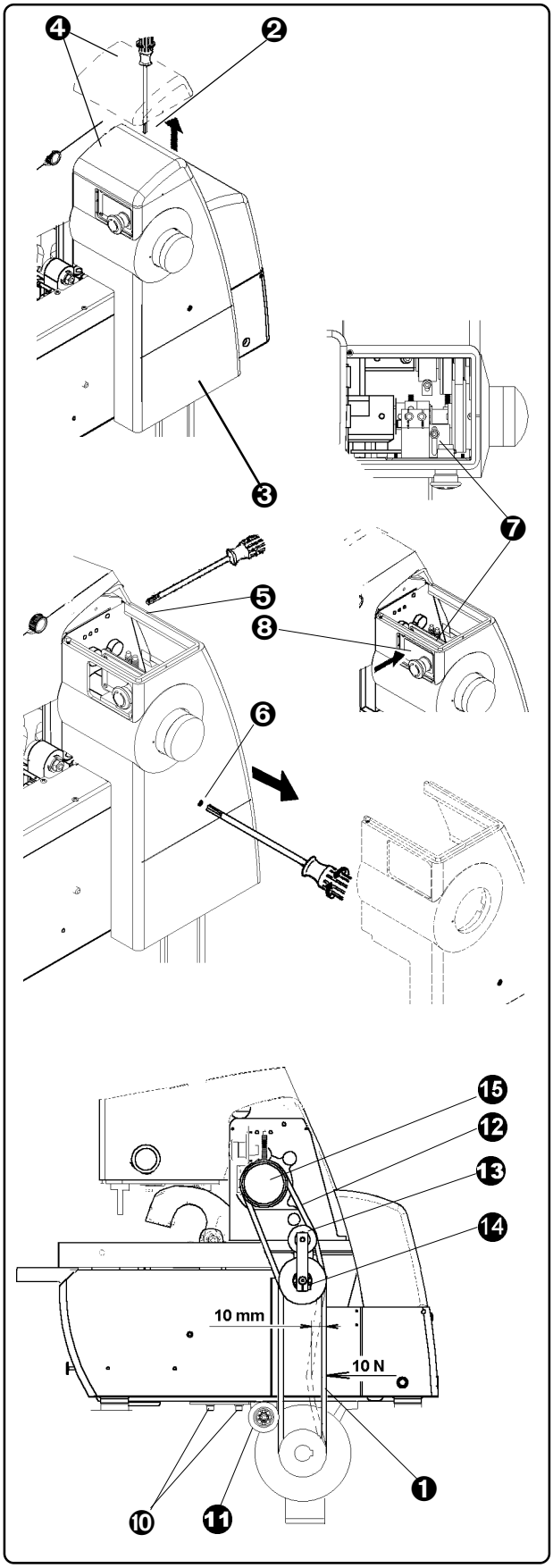
4.2. To remove the cover ❹, loosen the screw ❼. It allows insertion of the panel ❽ with the Emergency Stop button, inside the cover.

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

4.4. Check the tension by pressure approximately 10 N above the plate. The deflection of the belt should be approximately 10 mm.

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

4.6. Install the motor pulley cover and machine covers ❸, ❹ . By turning the hand wheel ⓯ check, whether the belts are clear from all covers.



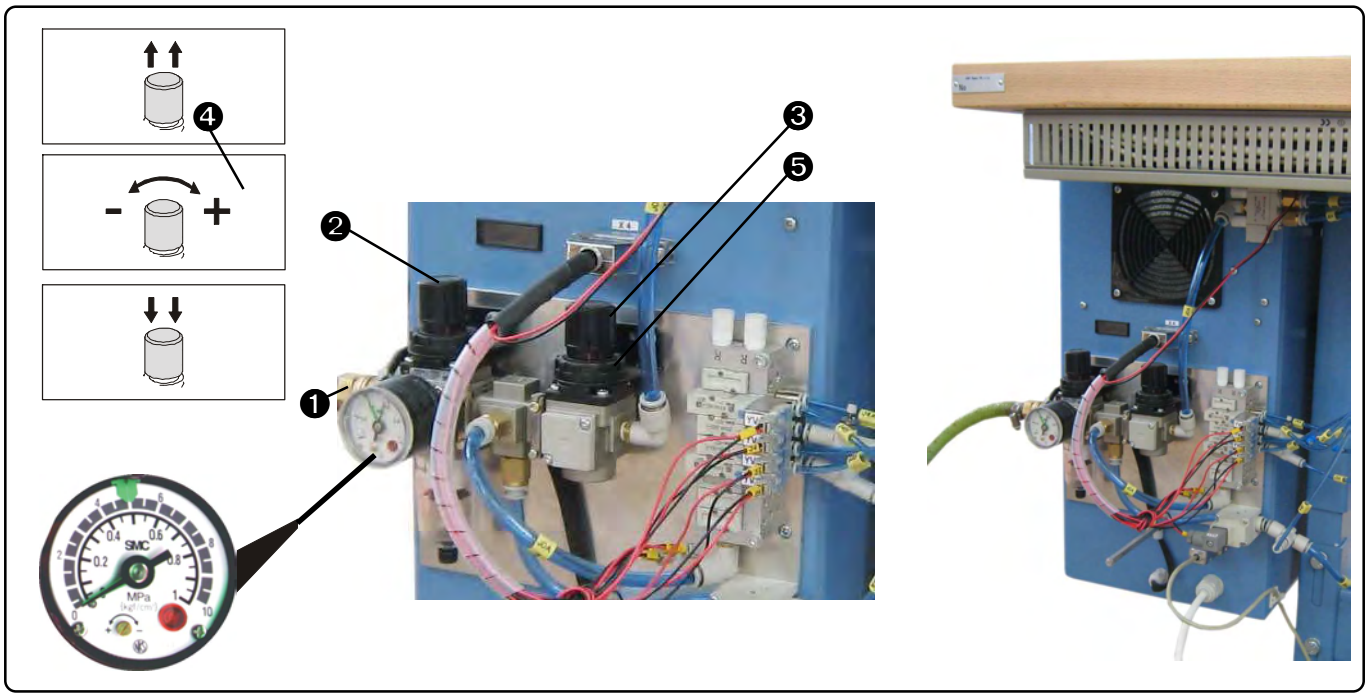
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5. POWER AND AIR CONNECTION

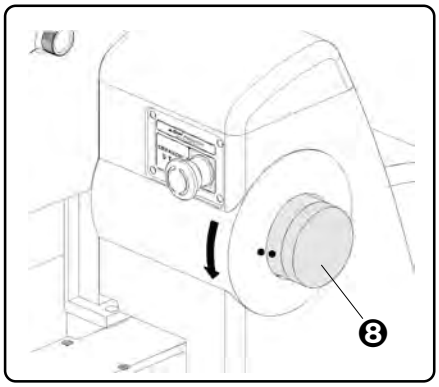
5.1. Simple connection of air lines are made by quick connector. Socket 25 KEAK 13 (order number FESTO 151776 - marking KD 1/4 - S, order number RECTUS 38044) is used as standard. Unithas corresponding input ❶.
Input pressure must minimally be 1 bar (0,1 MPa) greater than output pressure set on regulator. The manufacturer recommends addition of a shut-off valve so that it is possible to close the air supply.

5.2. After air connection check, set the air pressure on the dial of the regulator. It should be in the range 0.45-0.6 MPa. To correct it: pull the stopper ❷ out. To increase the set pressure turn clockwise, to decrease, turn counterclockwise. Tighten the stopper ❷ again. The pressure for the cutting cylinders is set to 0.4 MPa (4bar) from manufacturer by screw ❸ and loosening the nut ❺. If a material is incorrectly cut, check the cutting steel and a pressure on the regulator ❹.

Note: Set lower air pressure for short cutting steels and higher air pressure for long cutting steels.



5.3. Power supply must be 208 to 230 volts 1 phase, 50 or 60 hertz. Receptacle plug must meet requirements of IEC standard 364-4-41, its circuit breaker must be minimal 10A with characteristic C according to the EN 60947-2 (or 16A with characteristic B). No other devices must not be connected to the circuit breaker of the socket. The hand wheel ❽ must turn counter clockwise.
The machine is equipped with a filters which contain capacitors which generate an high frequency leakage current. In order to prevent nuisance tripping, residual current protection device must be protected against these high frequency currents: this is the case for industrial residual current device (example „S“ type).



5.4. To add the LED lights - the provided warranty does not refer to the LED diodes.

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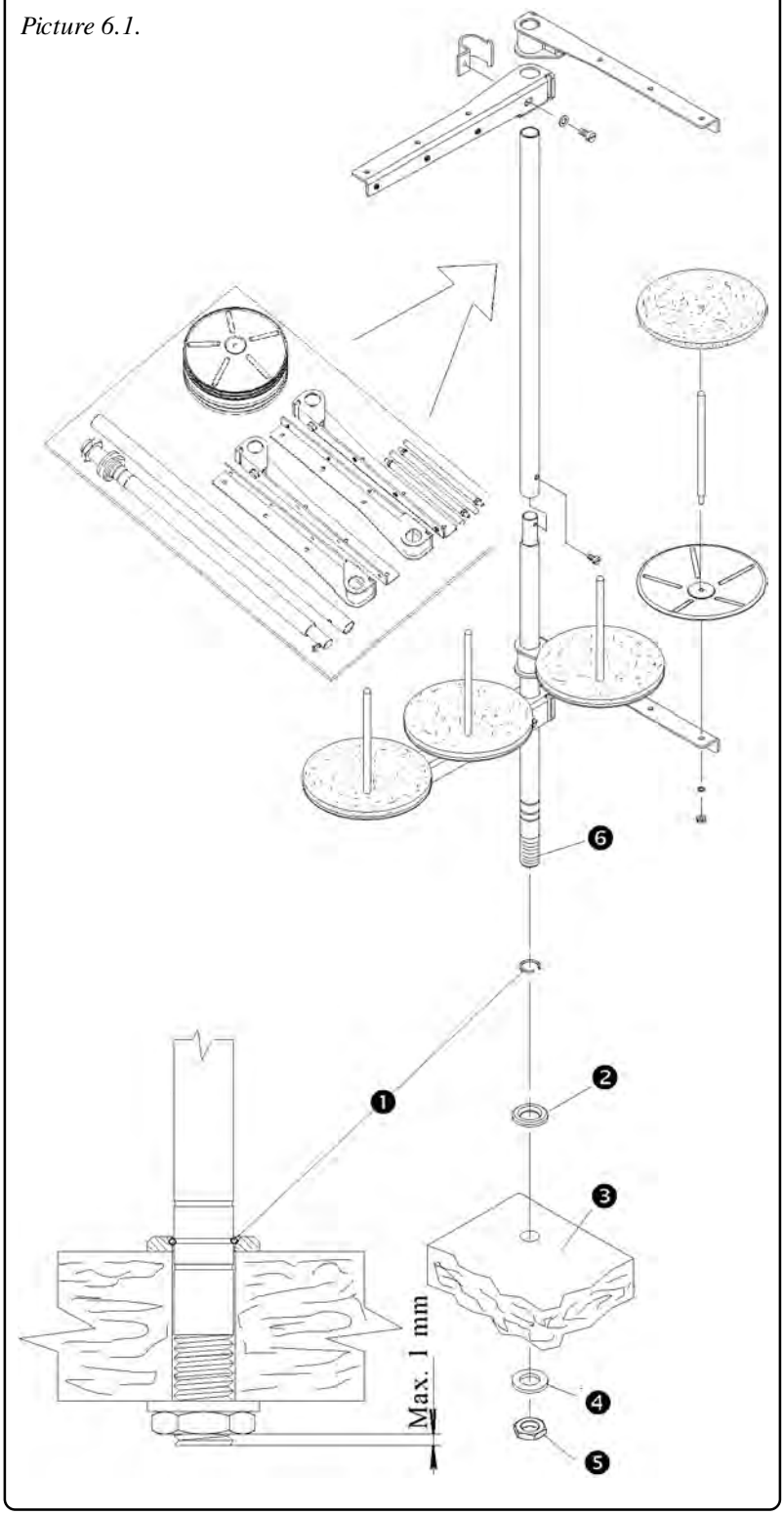
6. THREAD STAND INSTALLATION

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

6.2. 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 through the locking nut ❺.

6.3. 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.

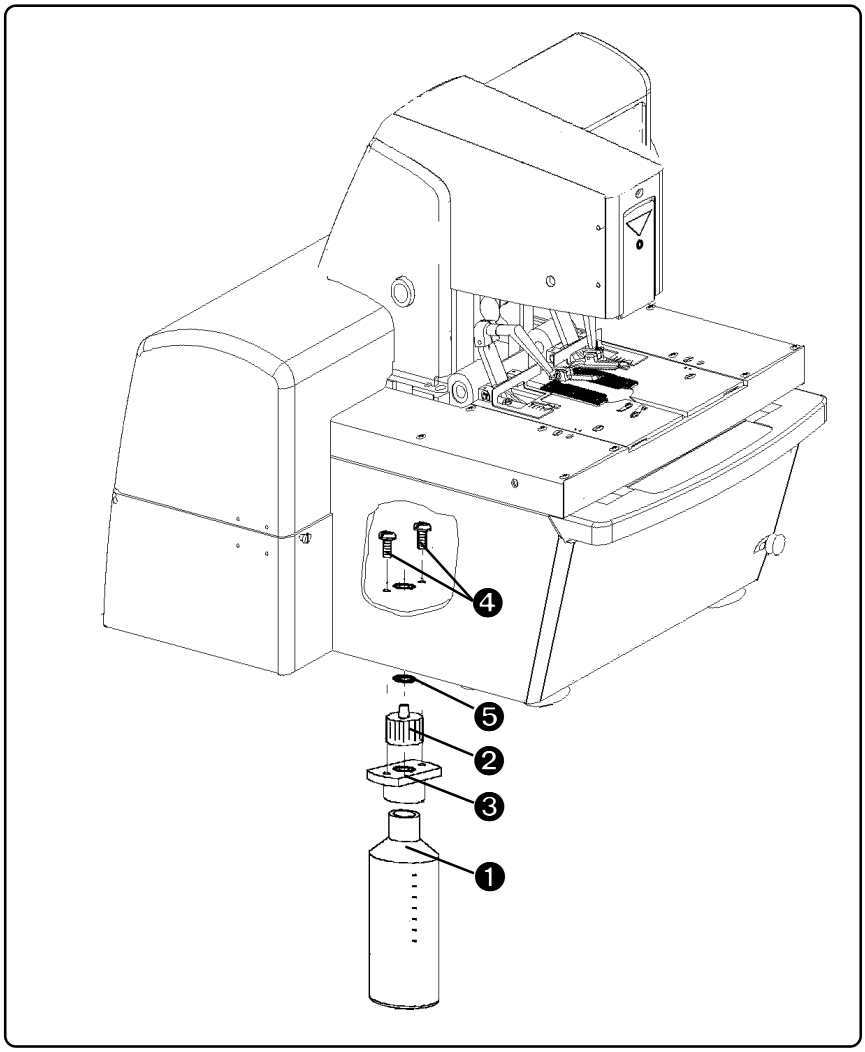
Picture 6.1.



7. LUBRICATION

7.1. There is the fank for oil eycess on the machine ❶.

7.2. For oil tigthness and removal is important,that upper edge of the funnel ❷ inserted to the holder ❸ was on bottom frame area lever ❹ and in holder socket was the rubber ring ❺.



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C - PROPER APPLICATION

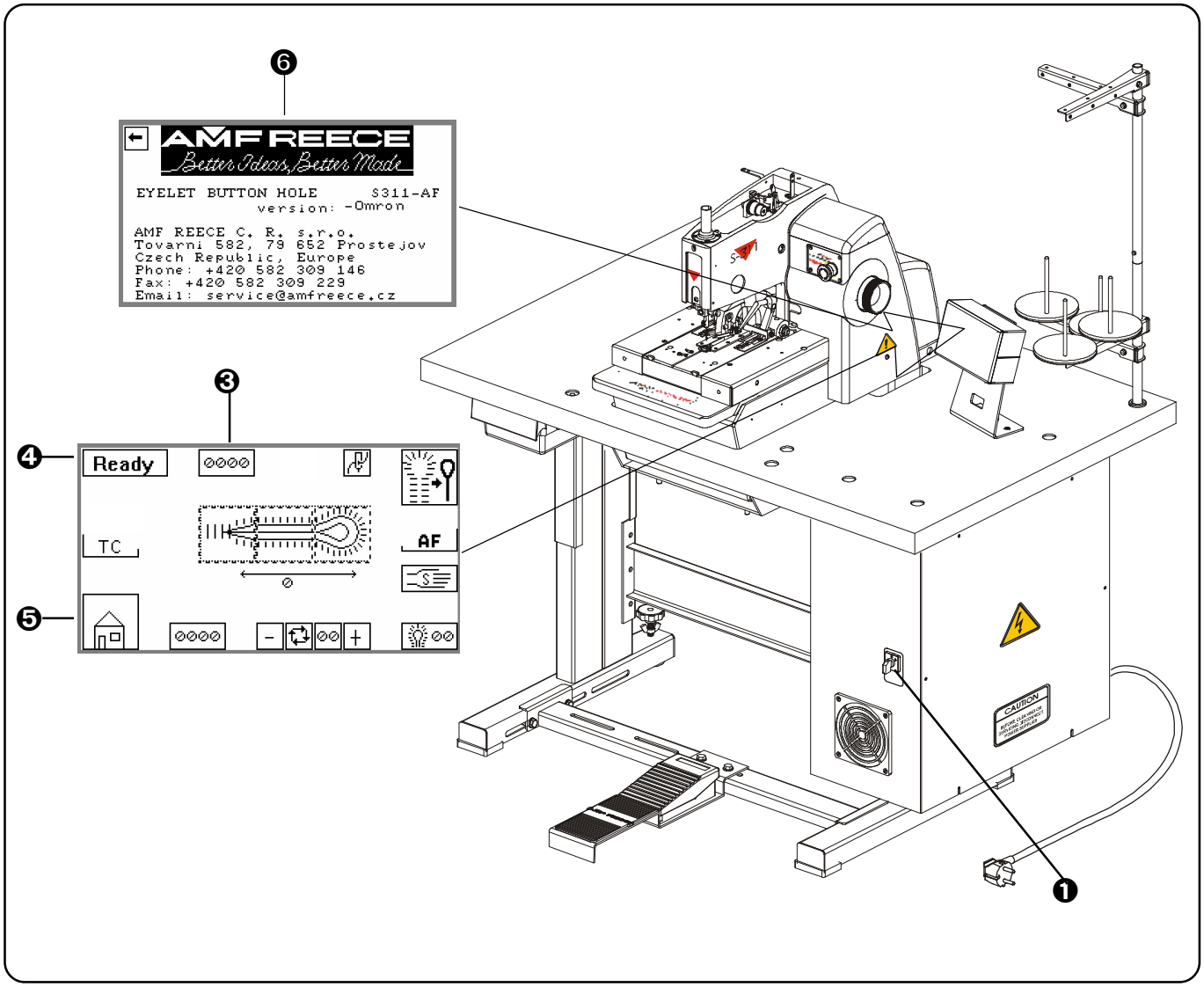
1. POWER UP / HOME POSITION

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

1.2. The display is activated and illuminated. The screen ❻ displays information about manufacturer and version of program installed in the machine. Wait until the main screen ❸ appears on the display.

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

1.4. The machine is ready for operation when **Ready** message appears on the display, in location ❹.
(Display description is on the manual page no. 1-24).



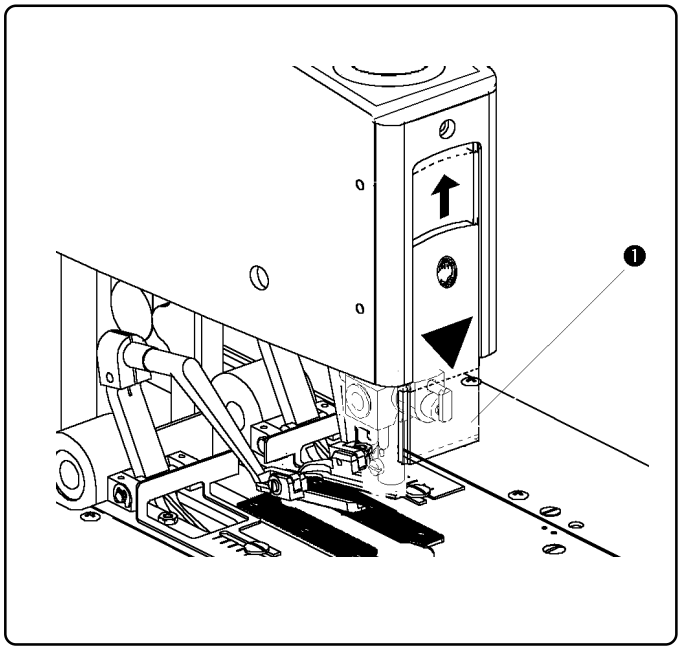
C - PROPER APPLICATION

2. NEEDLE INSTALLATION

Use needles AMF Reece 02.0505.0.111/113…. Nm 90 – 110), loading ∅ needle bard D = 2 mm. Needles 02.0558.1.112 are externally treated and needle shape is adapted for sewing thick material. Thicker needles is not possible to use for standard stitching plates.

2.1. Lift the transparent needle cover up ❶.

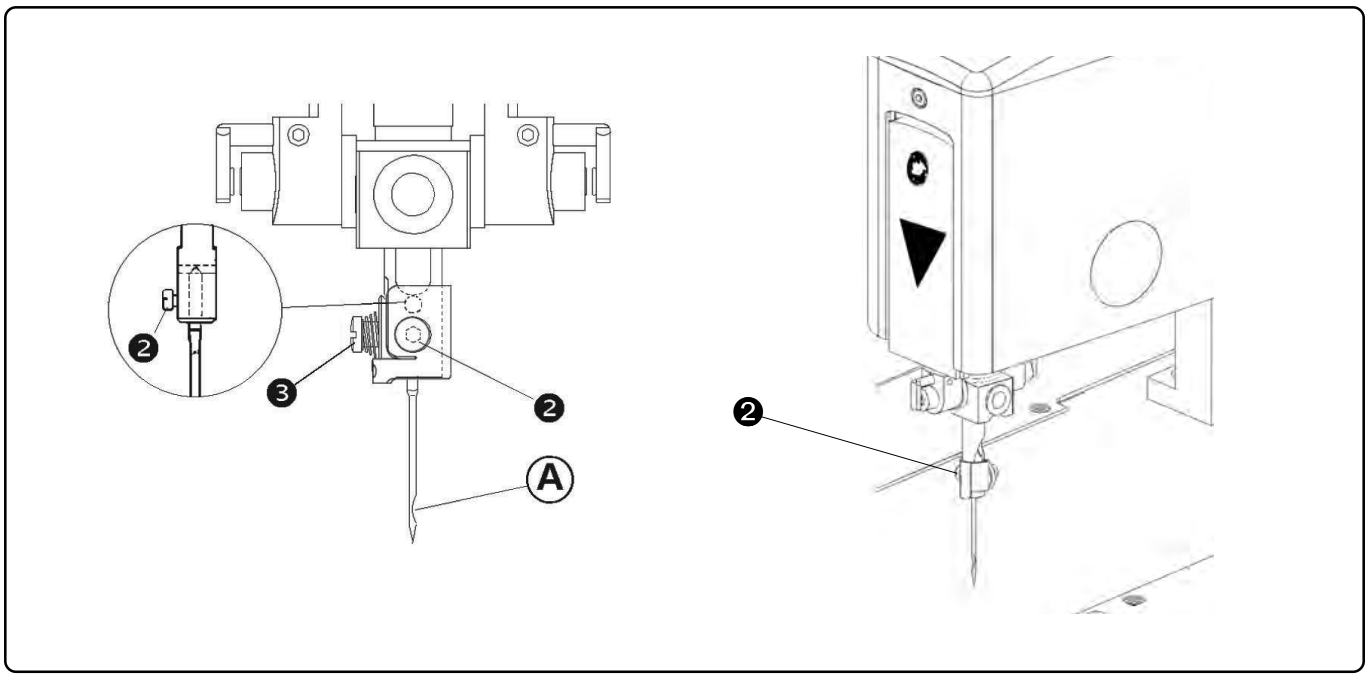
Recommended Threads No.	Needle System (Nm)
120	90
90	90 — 100
80	90 — 110



2.2. Loosen the screw ❷ and remove the needle.

2.3. 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.

2.4. Tighten the screw ❷ well.



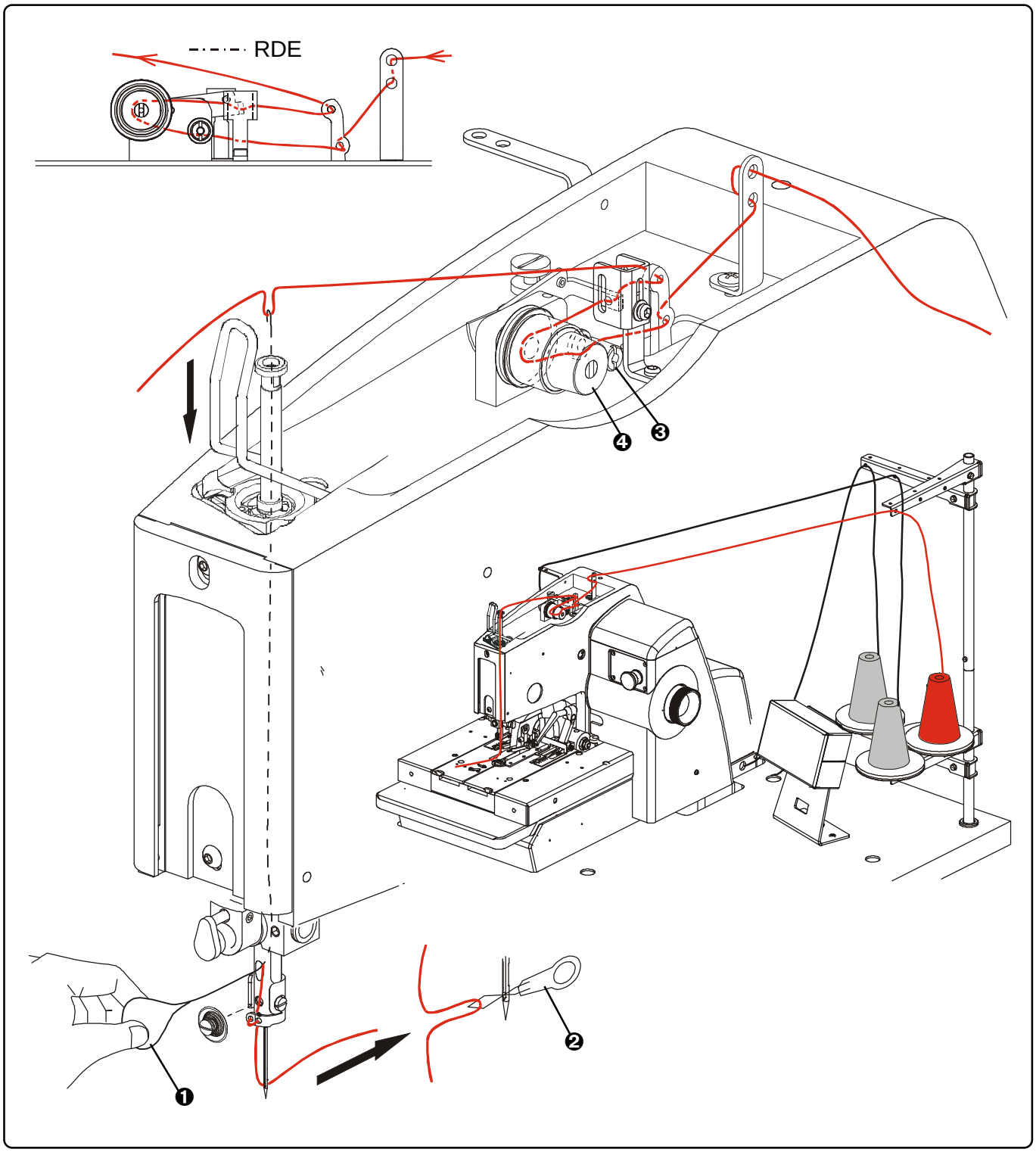
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C - PROPER APPLICATION

3. THREADING

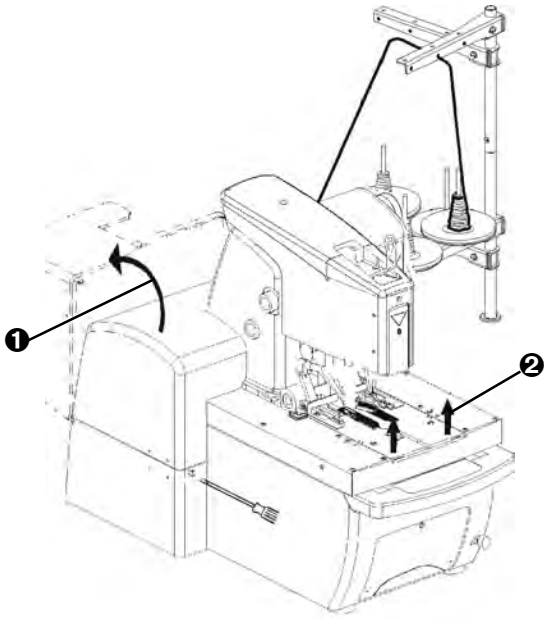
When threading, see the pictures below. For easy threading use threading devic ❶ from accessories kit. It is possible to order the threading device ❷. Adjust the thread tension by knobs ❸, ❹ according to sewing conditions.

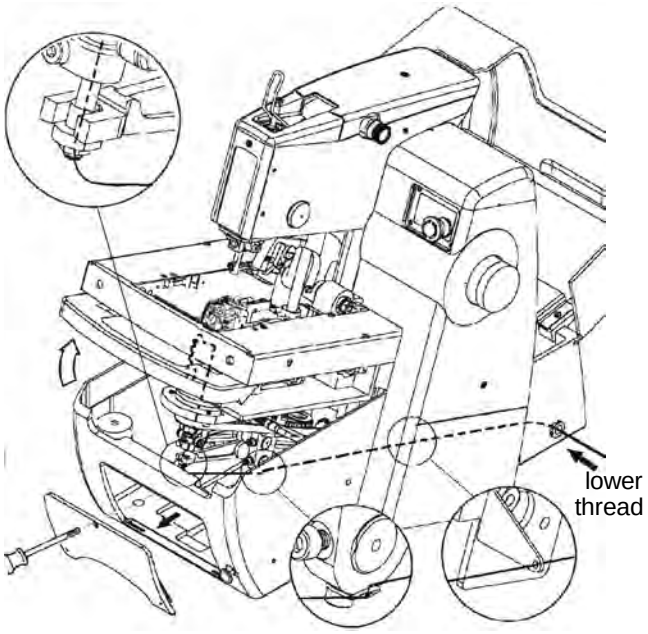
3.1. Needle thread:

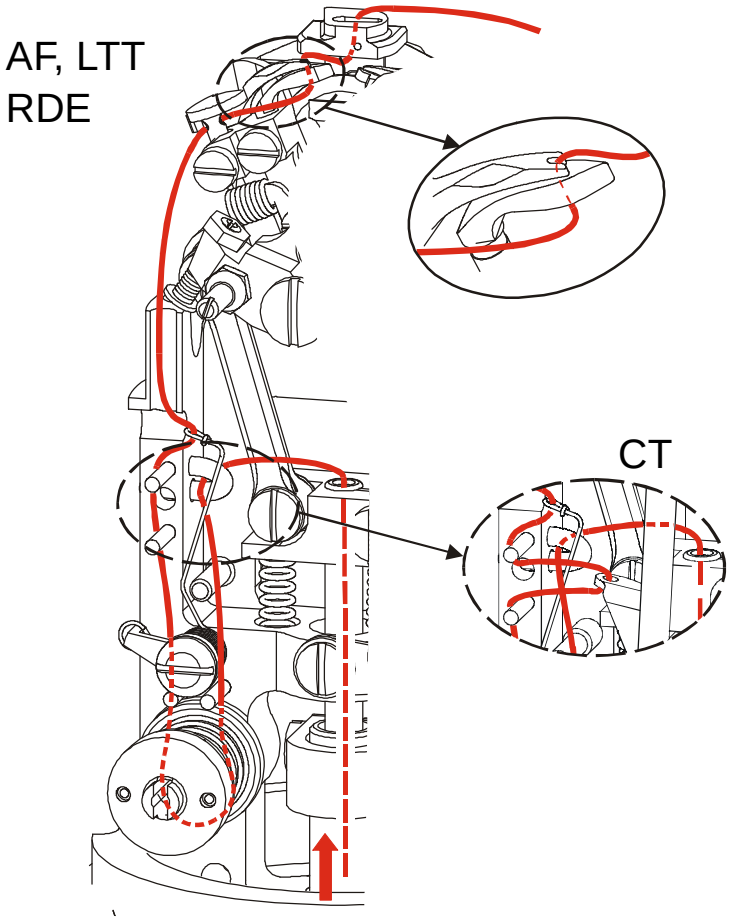


3.2. Lower thread

- tilt back the rear cover ❶ and lift the machine head ❷ to thread the lower thread.



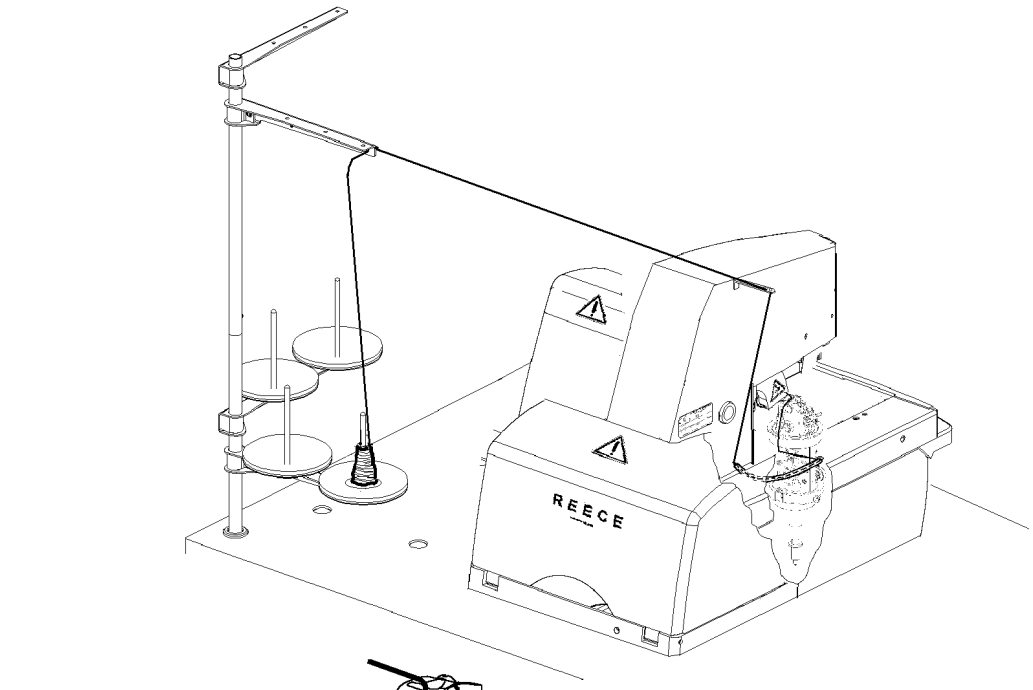


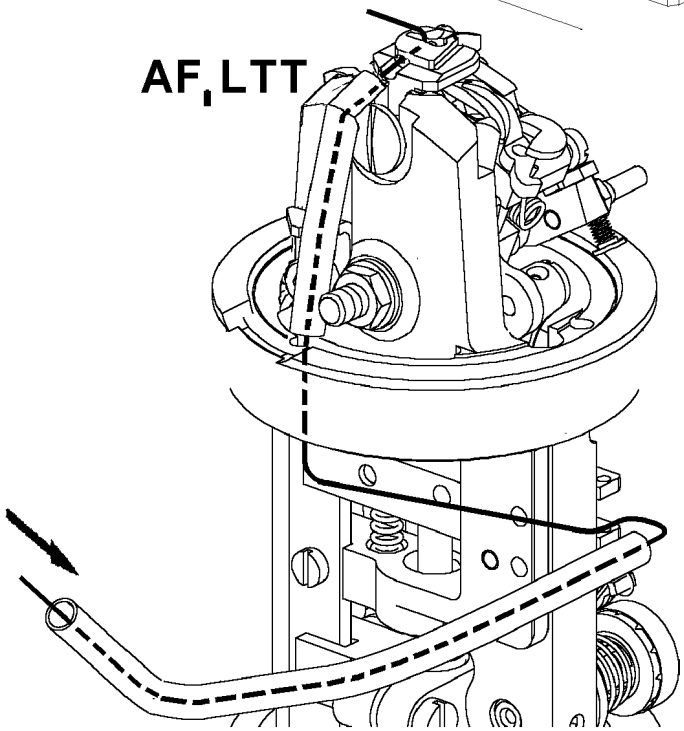


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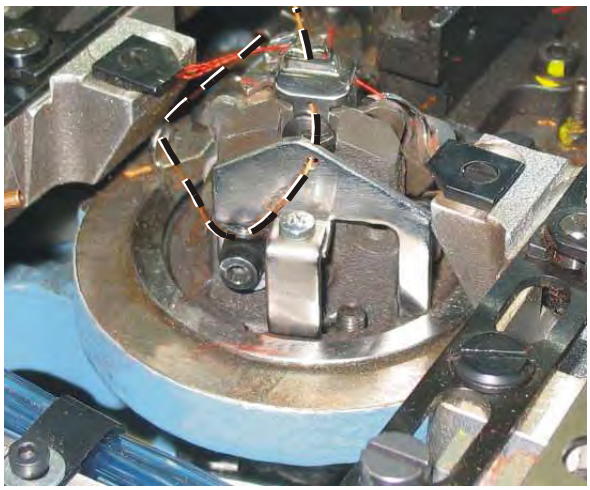
C - PROPER APPLICATION

3.3. Gimp





CT



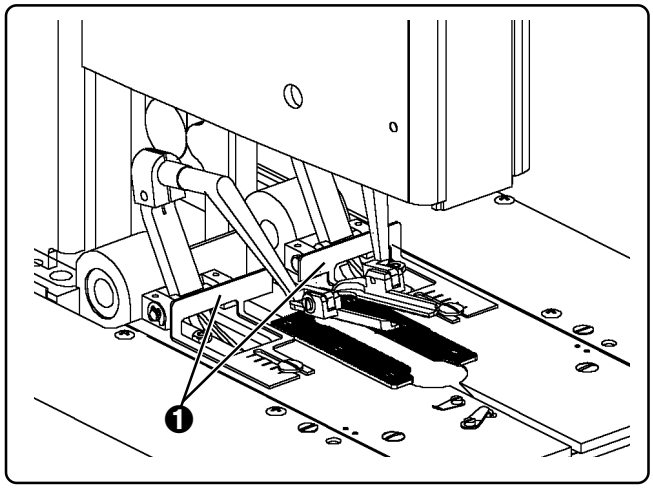
The appearance and quality of the buttonhole may be affected by one or more of the following:

- stitch 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. OPERATION

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



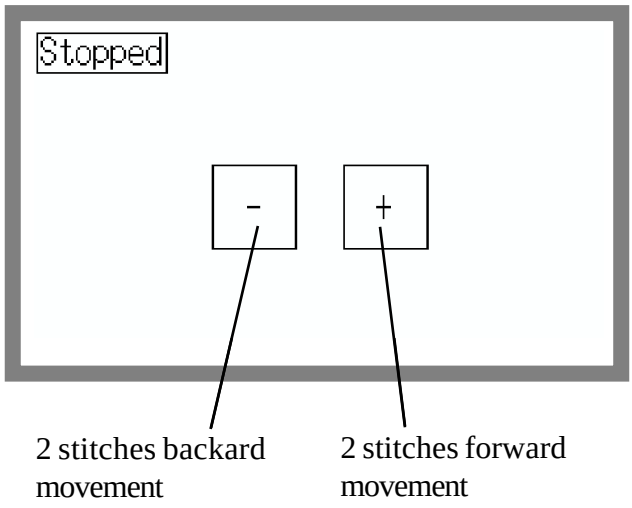
1.2. Be certain that the machine is threaded correctly see section **C3**, and required buttonhole appears on the display. Insert the fabric under the clamp feet. Use the rear stops ❶ to position the buttonhole.

1.3. 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 rise.)

1.4. 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 rise and machine returns to its home position.

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

1.6. Immediate stopping in any place of the cycle is possible by the EMERGENCY STOP button ❸ on the machine head. If the EMERGENCY STOP is released, the machine stops (the flaw E01, see manual section - troubleshooting).



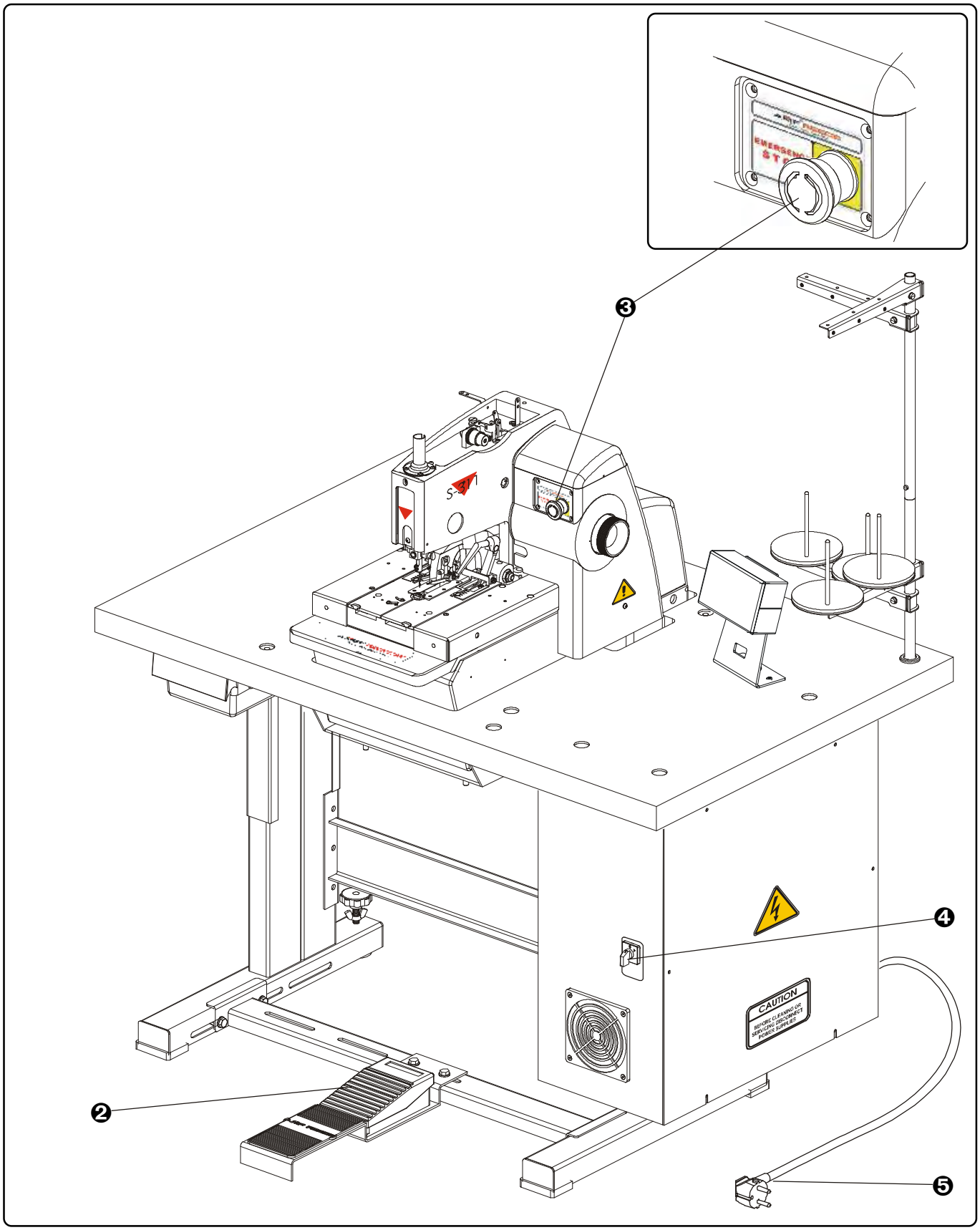
1.7. If the foot pedal ❷ is pressed before the buttonhole is finished, sewing cycle is interrupted, the clamp feet will not rise and the needle will go to the top position. The folowing screen will be displayed: sewing cycle is finished by pressing the pedal again.

NOTICE! Sewing cyccle continues after pressing the pedal!

1.8. When your work is finished, switch off the switch ❹ , pull out the plug ❺ from the socket and close the air supplyand close the air supply.

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D - MACHINE CONTROLS

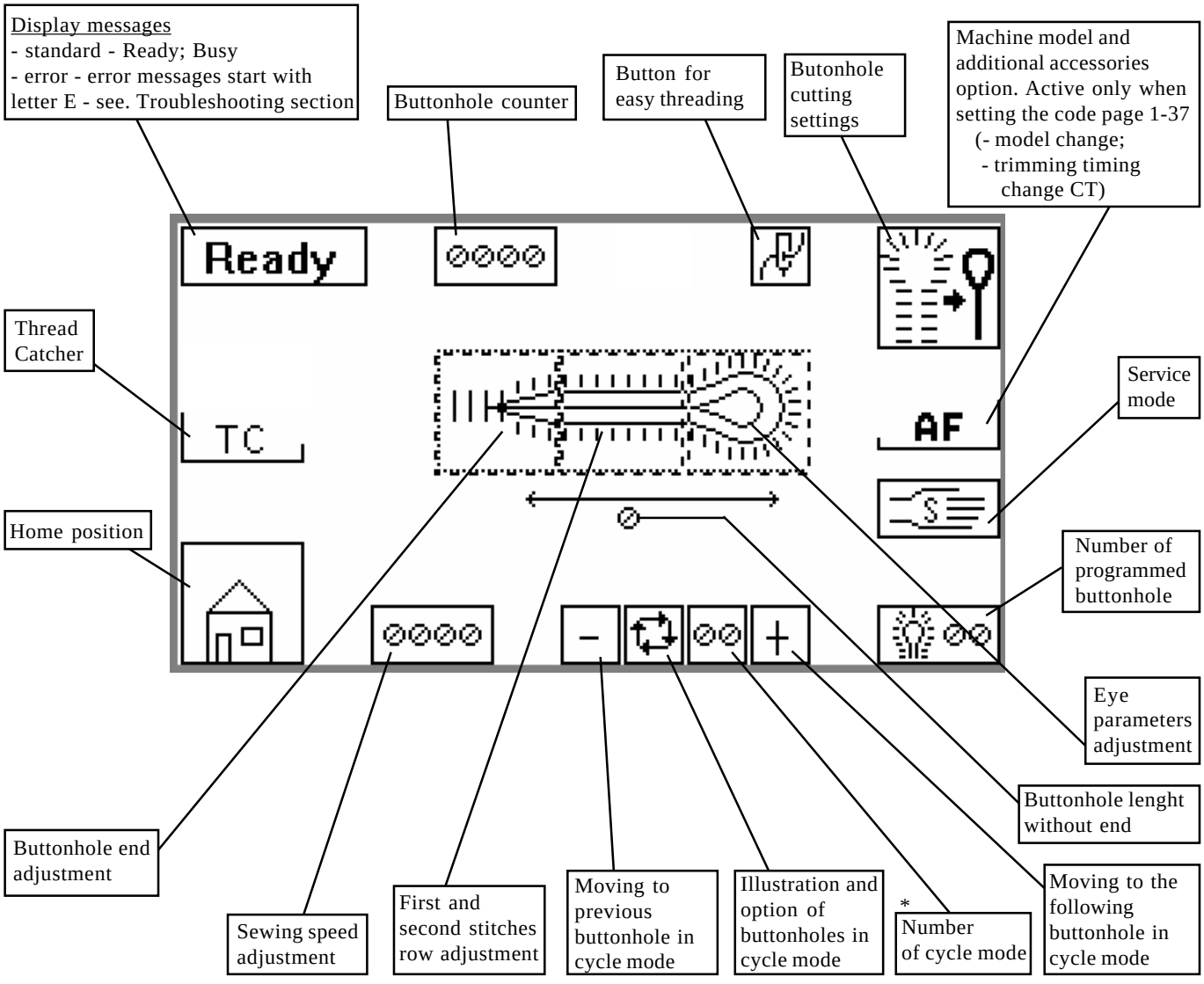


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Caution: Program for S311 machine is universal it allows to sew different buttonhole shapes only by changing the clamp plates. Please ensure that correct machine version (corresponding to clamp plate) is selected on the software.

Be sure you understand the proper setting of the display: the eye shape, the sewing speed change, machine modification change, the cutting space setting and cycle mode use.
Before setting the display parameters, read the following D section - machine controls in the manual.

2. DISPLAY INFORMATION



* 0 → non-functional cycle mode
0,1 - 47 → functional cycle mode

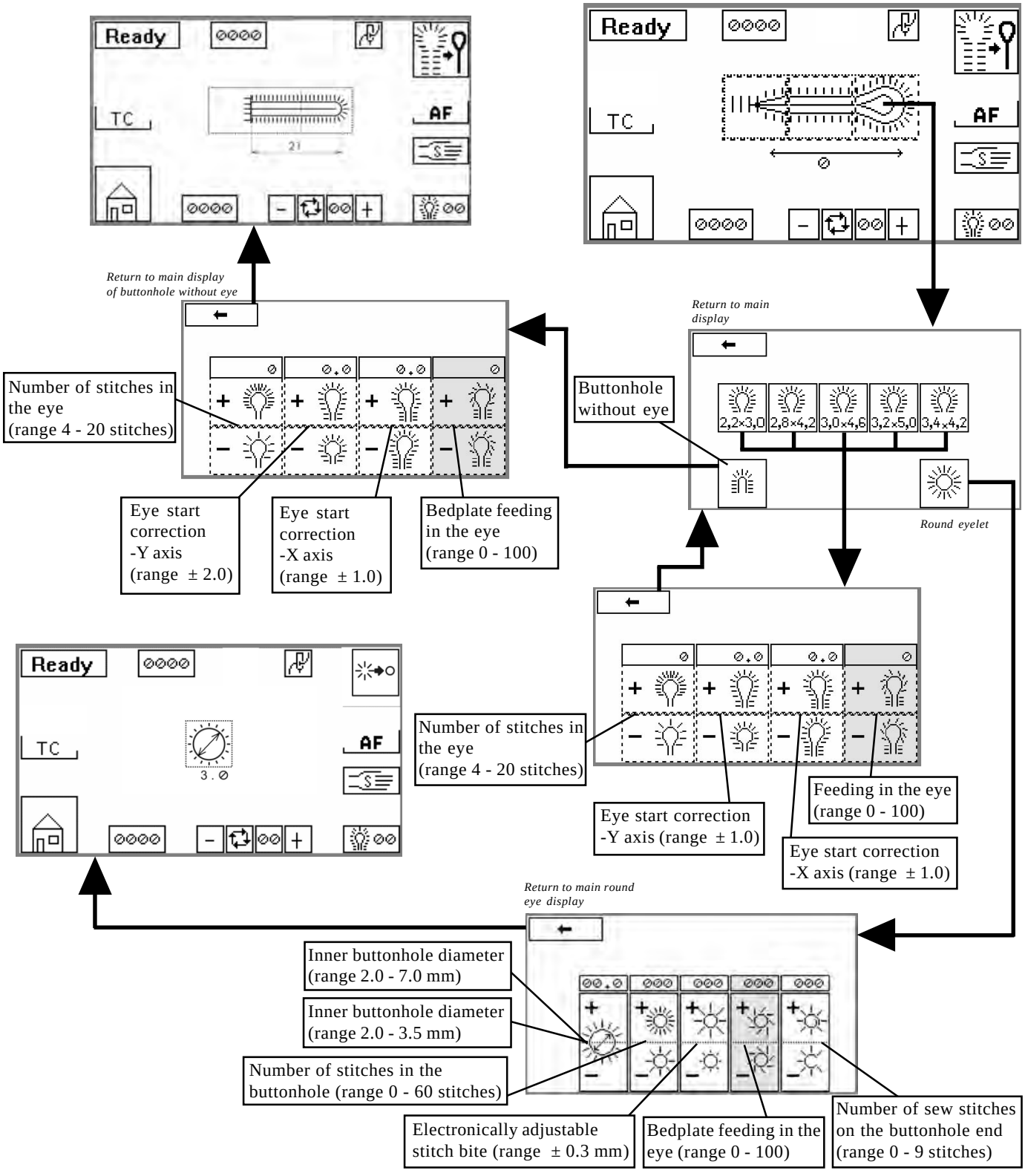
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3. THE BUTTONHOLE SHAPE SETTING

To set the buttonhole, it is necessary to set the parameters of eye, the first and the second row of stitches and the bar.

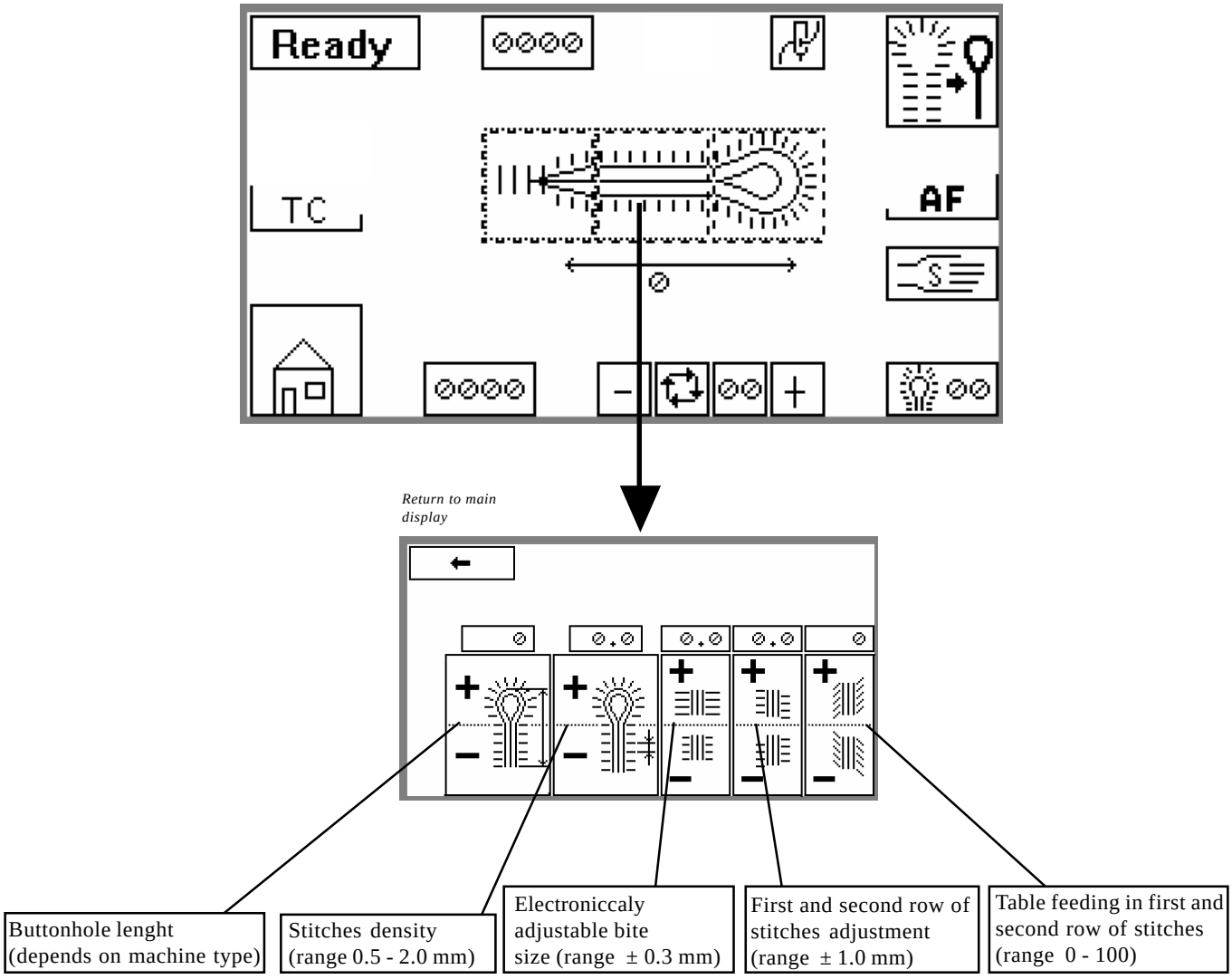
3.1 - setting the parameters of the eye

- possible sizes of eye: 2,2x3,0; 2,8x4,2; 3,0x4,6; 3,2x5,0; 3,4x4,2; *No Eye or* round eye by pressing surface **A.**

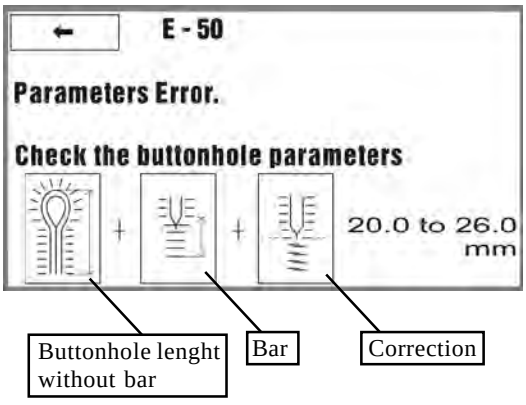


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4. BUTTONHOLE PARAMETERS ADJUSTMENT



Caution!
If E 50 appears on the display, total buttonhole lenght is exceeded.

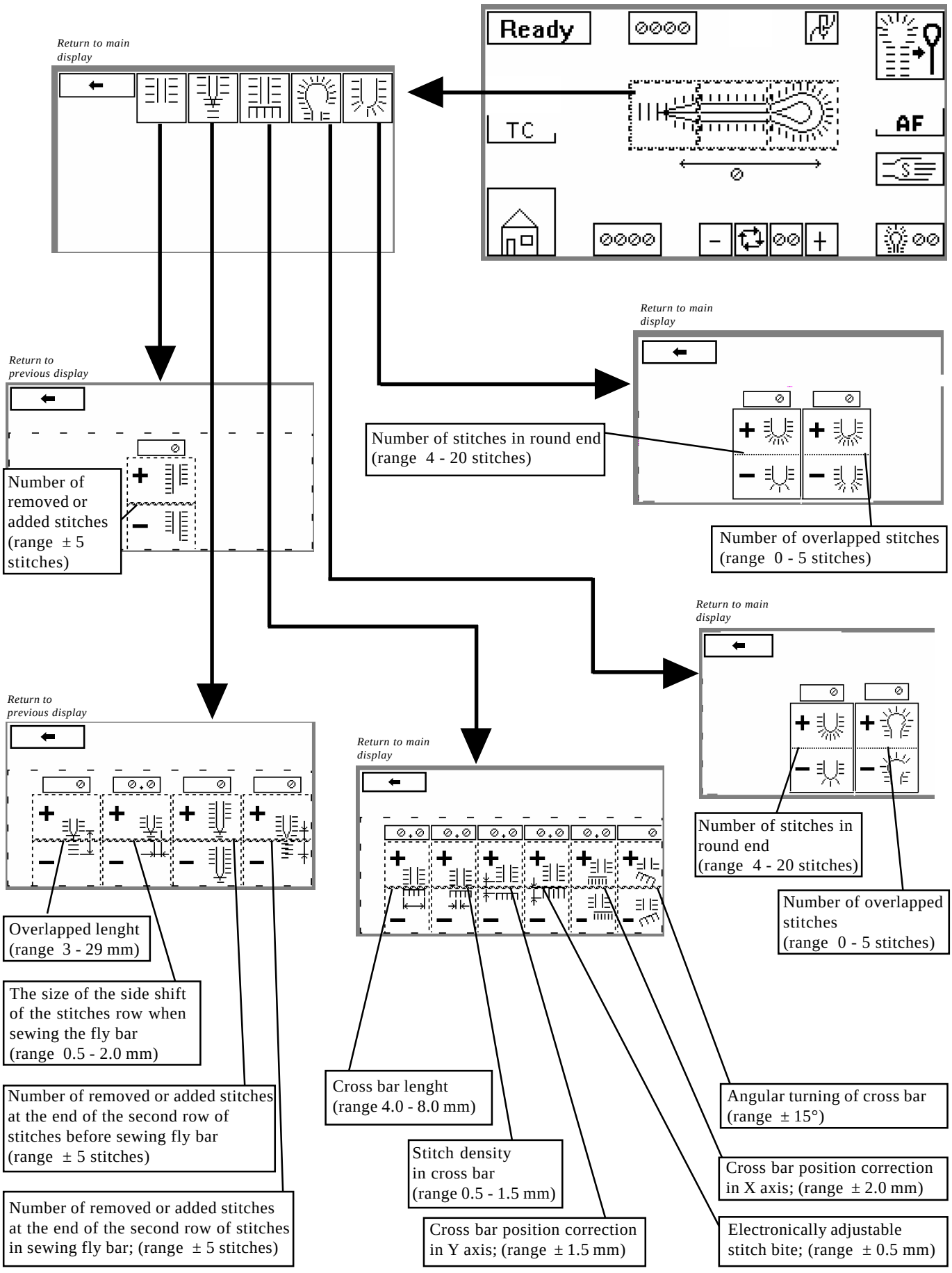


Example:

The S311 CT machine is supplied to sew the buttonholes with flybar and cross bar. The clamp feet are supplied with the machine, according the required CT variant (16-20; 20-24; 24-28; 28-32), on which is the lenght of cutting L1 marked (example 16 - 20 mm). To trim the lower threads, the total buttonhole lenght L in this case can not exceed the lenght stated on display. For example for CT 20.

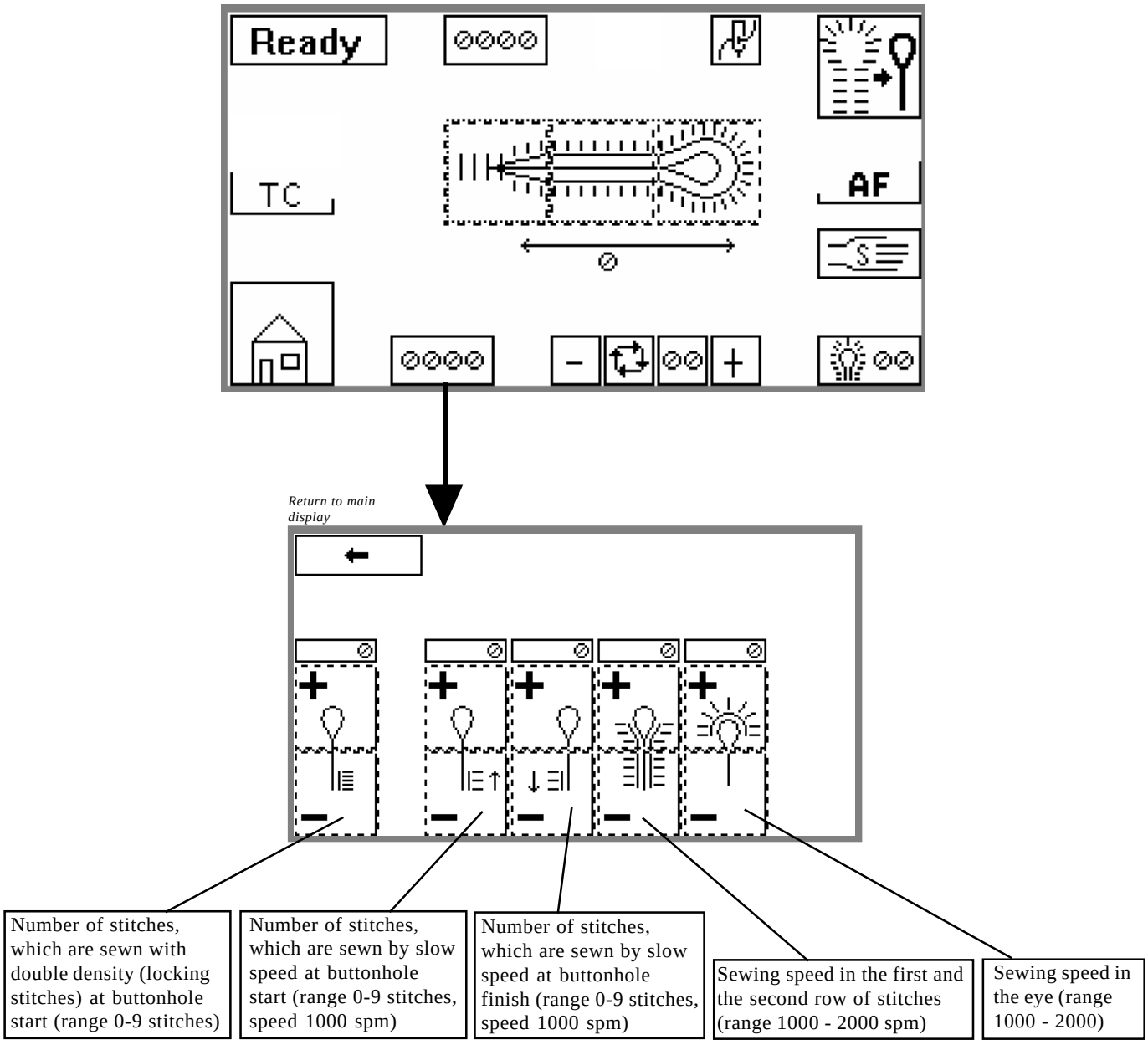
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5. BUTTONHOLE PARAMETERS ADJUSTMENT



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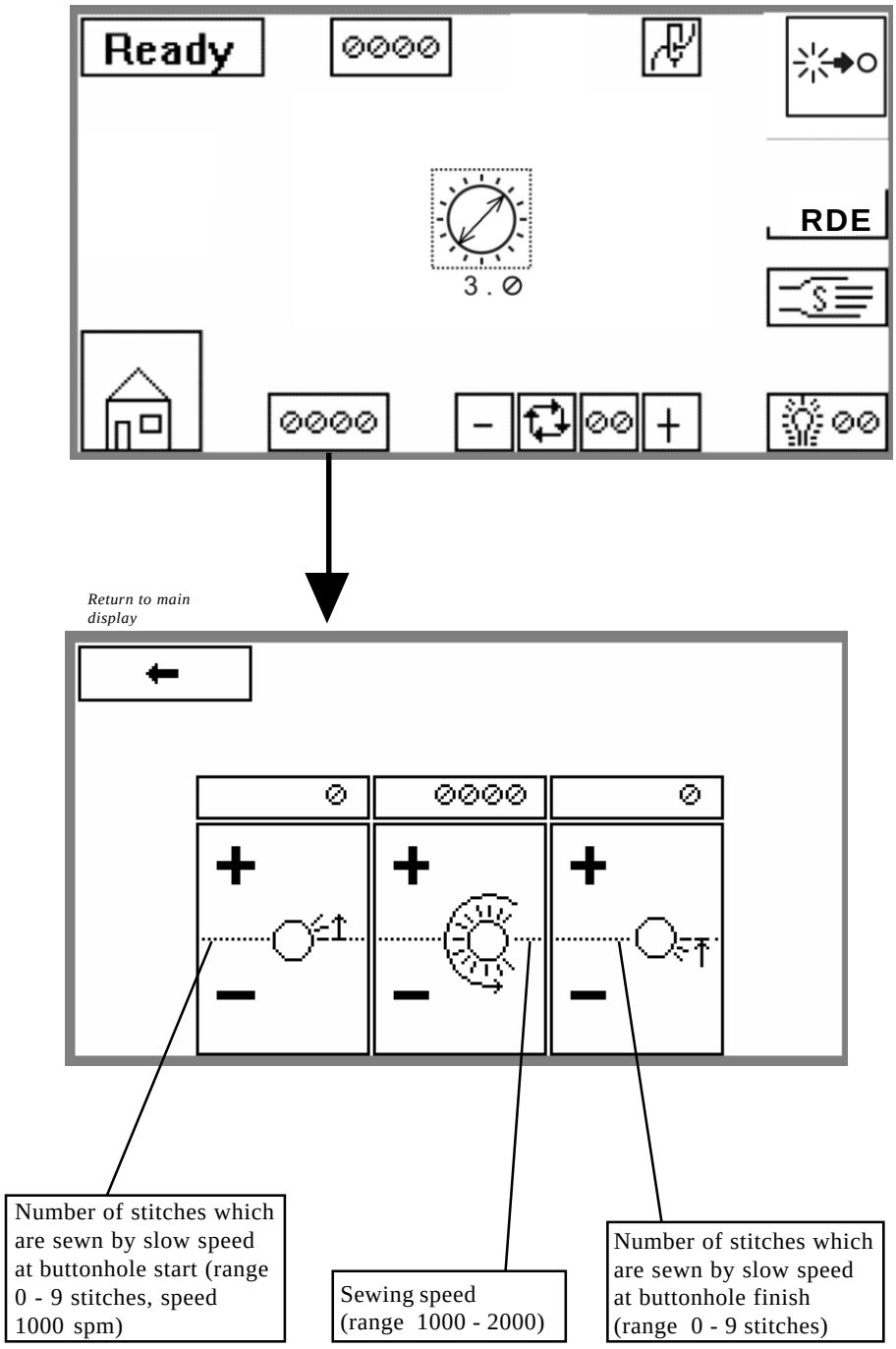
6. SEWING SPEED SETTING



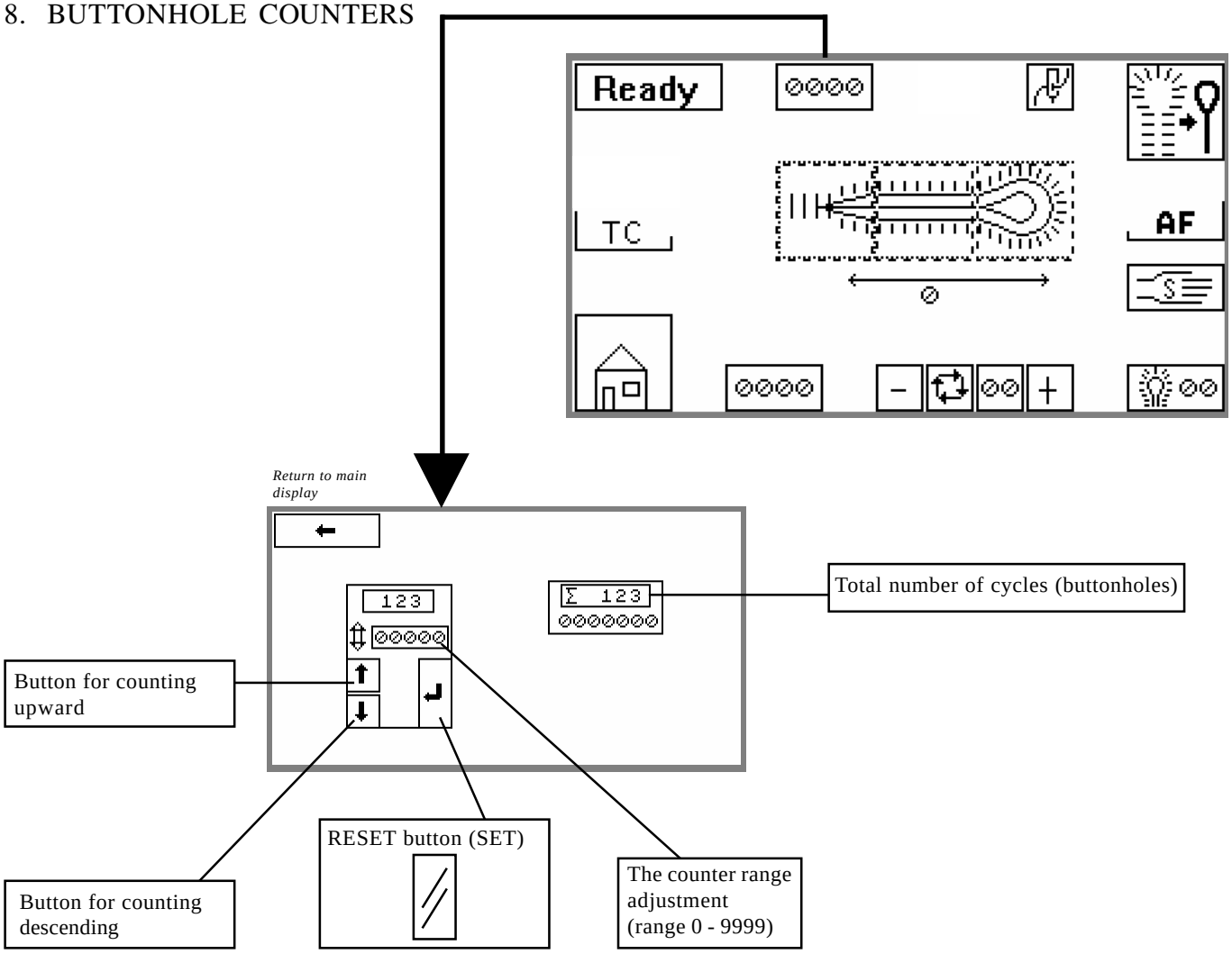
The sewing speed is possible to set in range 1000, 1300, 1600, 1700, 1800, 1900 and 2000 spm.
1 rotation = 1 puncture = 1 stitch

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7. SEWING SPEED SETTING FOR THE ROUND EYE (AF, RDE)



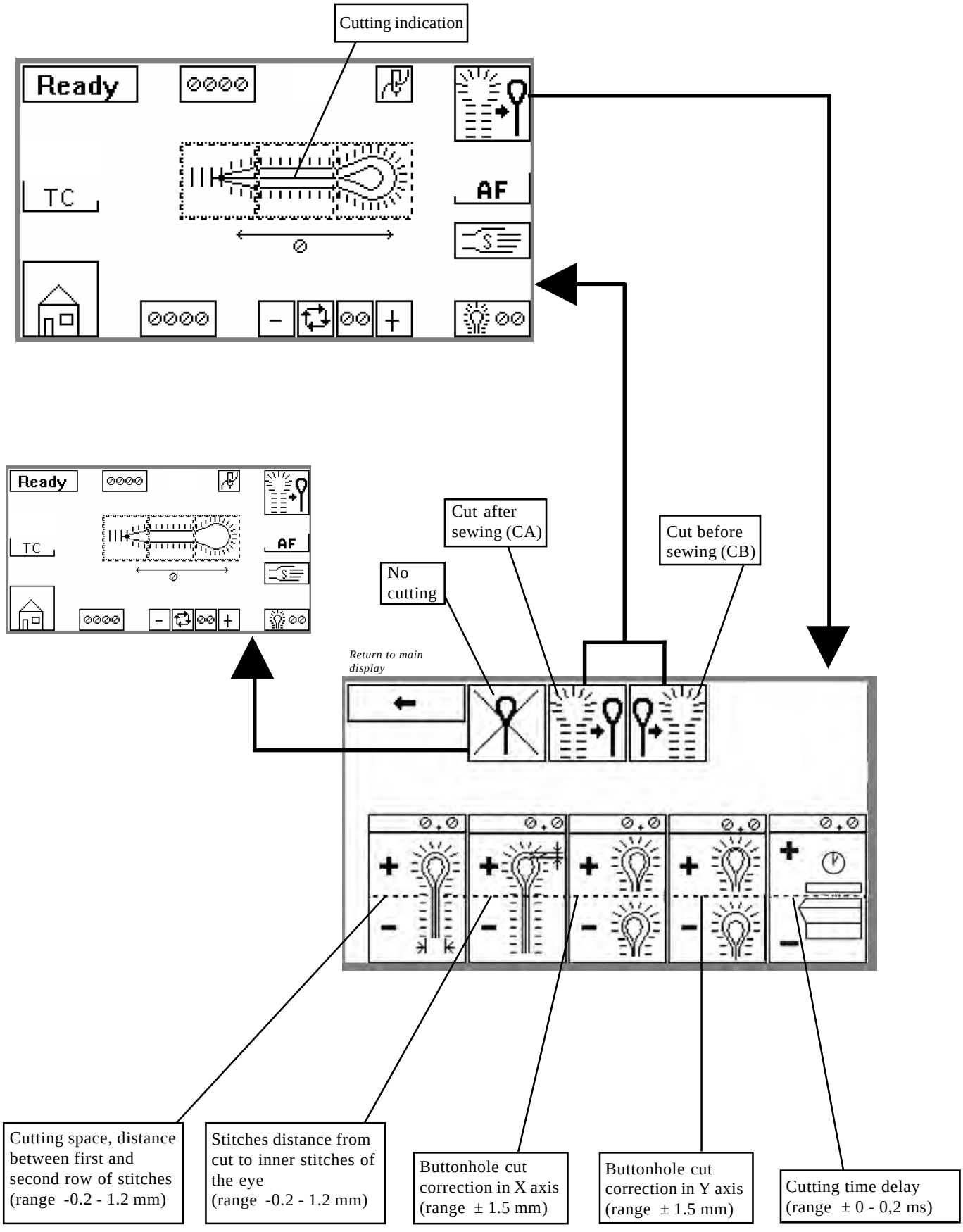
8. BUTTONHOLE COUNTERS



EXPLANATION: A specific number can be entered in the counter which can be counted on ascending or descending form. The machine would step upper ready set number in the counter.

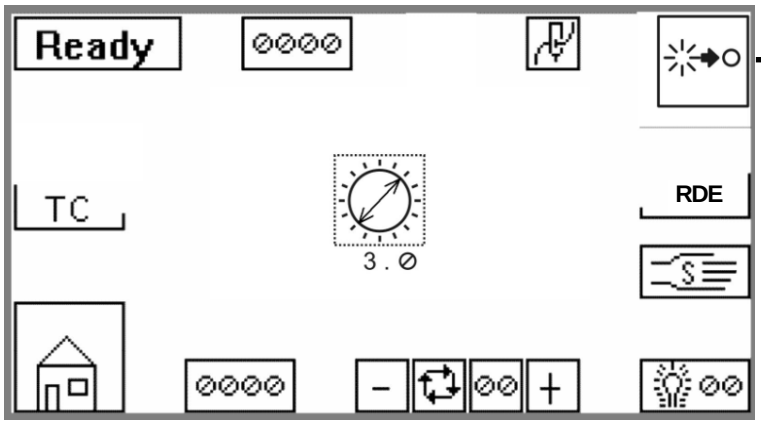
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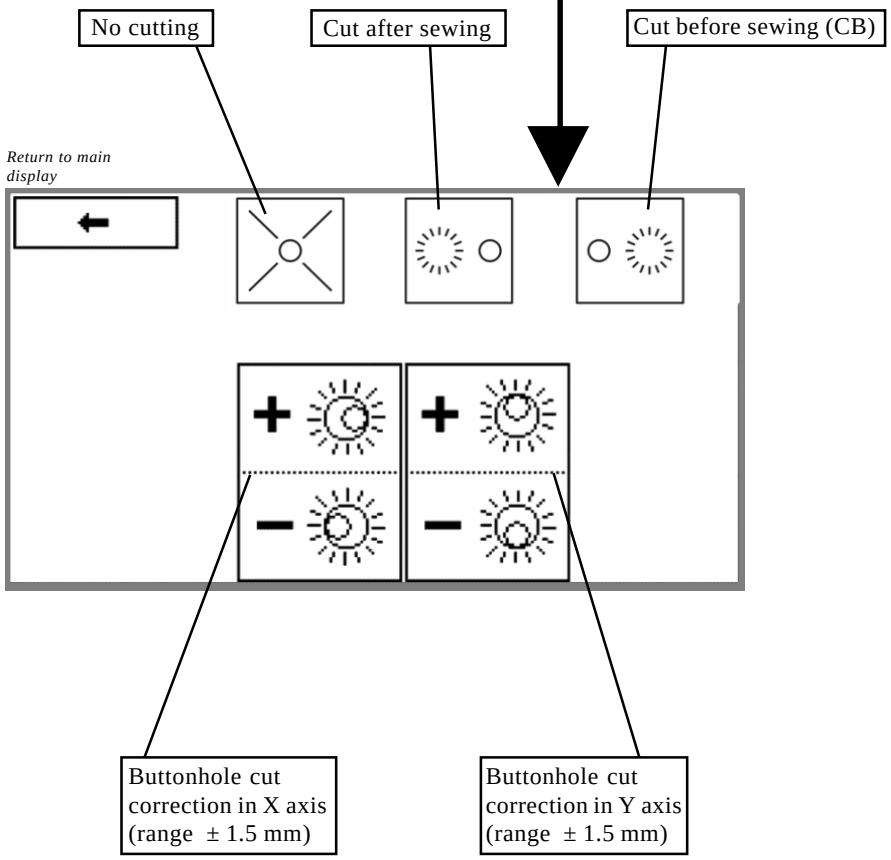
9. SETTING THE CUTTING



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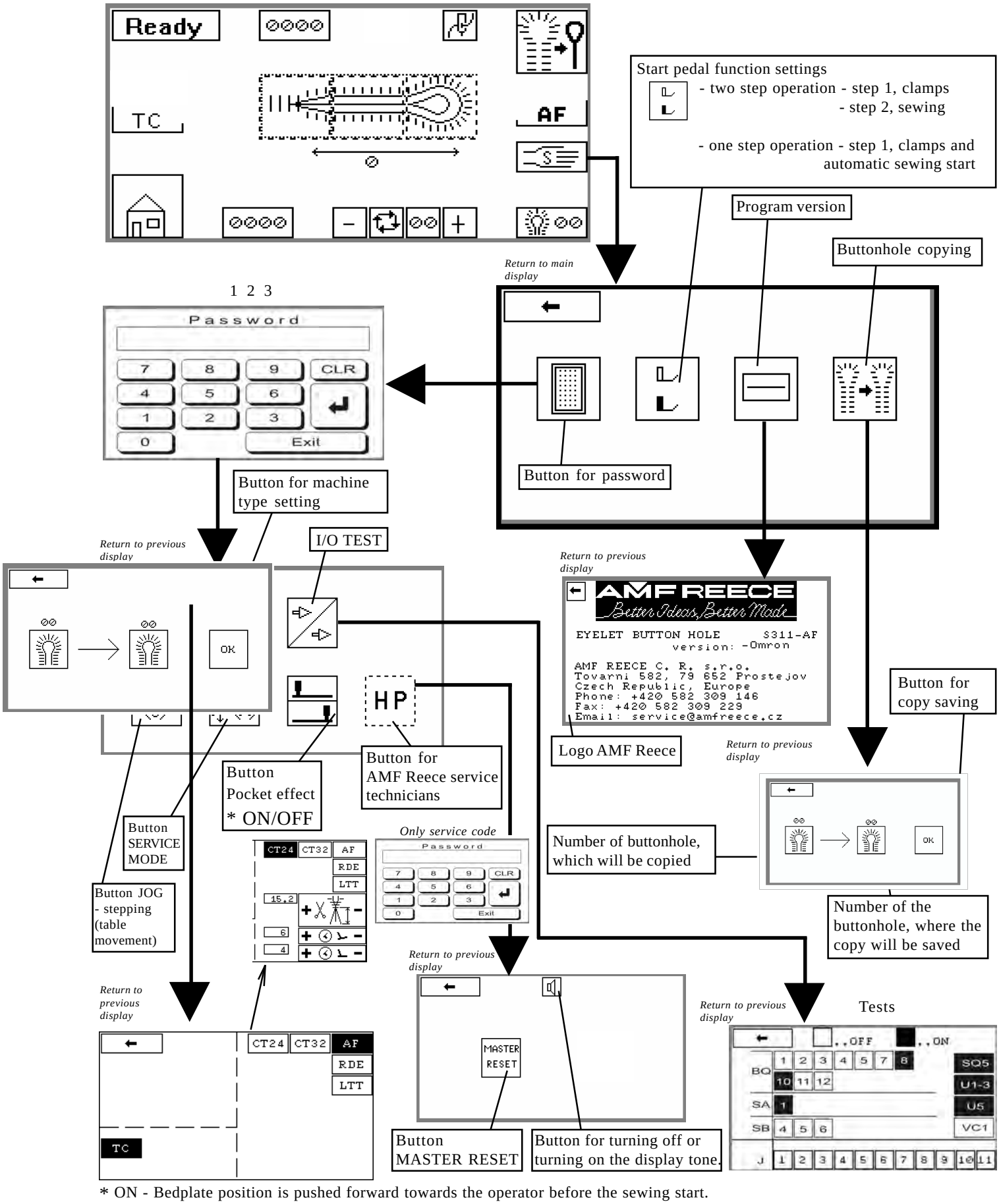
10. ROUND EYE CUTTING SETTING





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11. SERVICE MODE



* ON - Bedplate position is pushed forward towards the operator before the sewing start.

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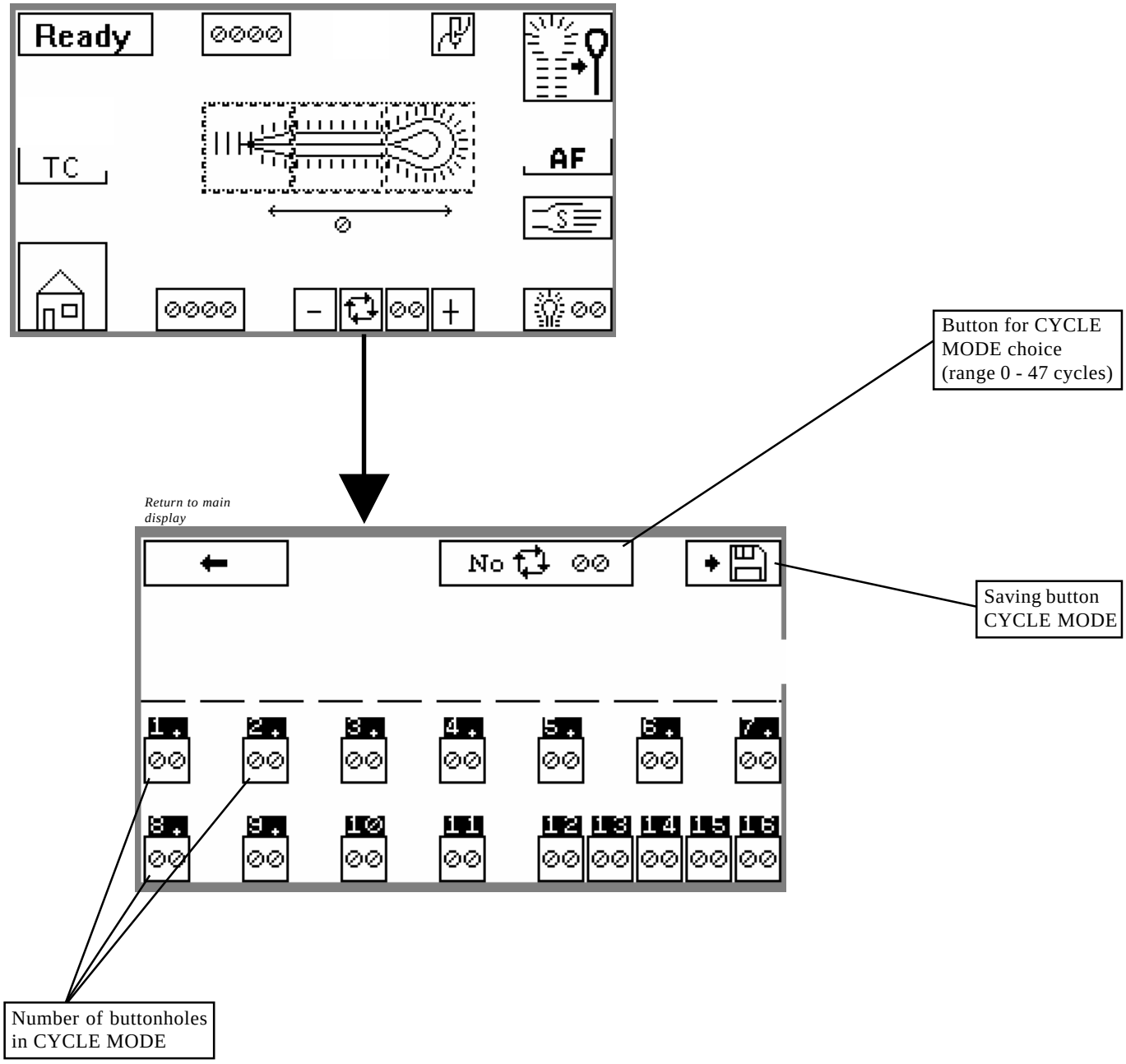
12. CYCLE MODE

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

CAUTION:

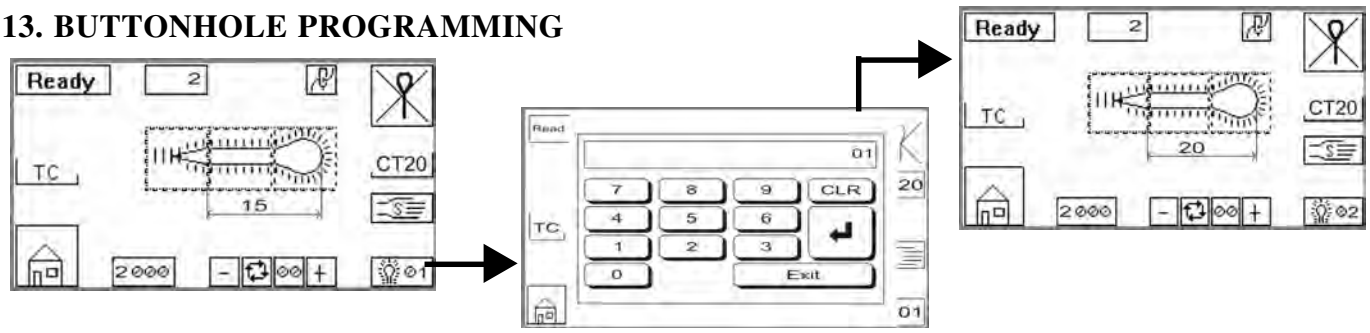
Modification **AF** - it is necessary to use the same cutting length for all buttonholes in one cycle. Imitation (no cut) buttonholes of different length can be included in the sewing cycle.

Modification **CT** - to prevent the machine from damage, the length of buttonholes in one cycle must be the same as the length of a cutting steel in the machine. To trim the lower threads, set the length of a buttonhole according to the installed clamp feet - see section ***D3***.



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13. BUTTONHOLE PROGRAMMING



1. Press the button ⊘1 in the right bottom corner on the screen.The numerical display appears on the screen. Choose the buttonhole number **1** and press ←.

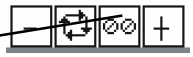
2. Program the buttonhole shape according to the sections - D3, D4, D5.

3. Set buttonhole parameters will be automatically saved under the buttonhole number you have chosen.

Usage of the programmed buttonhole in the CYCLE MODE:

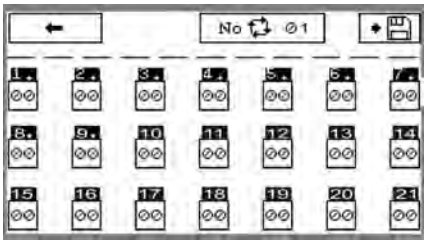
Example:

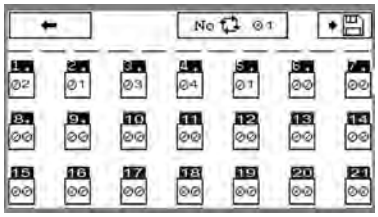
In the program number **1** you want to sew buttonholes in the following order: **2, 1, 3, 4, 1.**

1. Press the button *program number setting* 

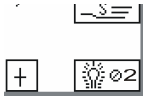
   The numerical display appears on the screen. Choose program number **1** and press ←.

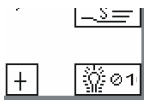
2. Press  button. The screen, where it is possible to set the order of sewn buttonholes, appears on the display. Press the first number and using the numerical display set the buttonhole number **2**, which will be sewn as the first. Press ENT to confirm. Next, press the second number to set the buttonhole number **1**. Follow these 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  to save the set buttonholes to program number **1**. Return to the main screen .

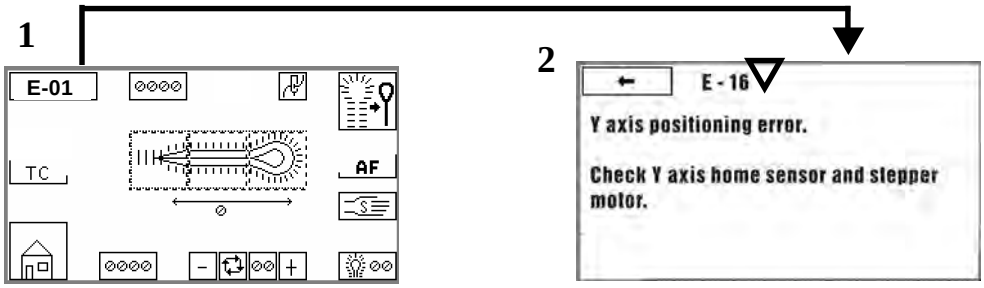
4. Program number 1  and buttonhole number **2**  which will be sewn as first appear on the display.

5. When the buttonhole is sewn, the number of the next buttonhole in the cycle (**1**)  will be displayed.

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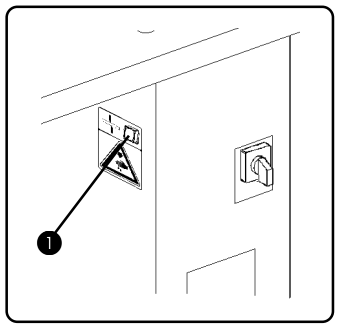
14. ELECTRONIC SYSTEM ERROR MESSAGES

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



15. MANUAL CUT MODE

The green button ❶ outside of the control box, activates cutting independent of the program. It may be used together with pressing the foot pedal to the first position, so the clamps hold the fabric to check if the cut is clean.



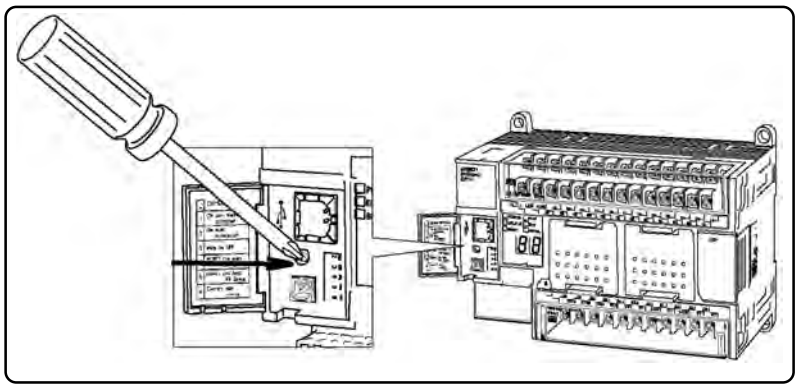
Progress: Insert the fabric under the clamp feet, switch the foot pedal into the first position, hold this pedal in this position and press button ❶. Cutting lever will cut the fabric everytime, when the button ❶ is pressed. Then release the foot pedal.

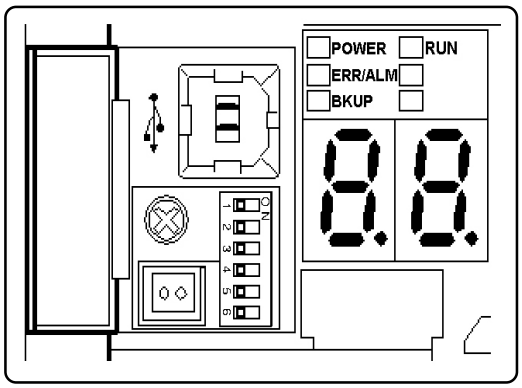
16. PLC ADJUSTMENT BY MACHINE TYPE

When changing PLC in the machine, it is necessary to adjust the potentiometer position by machine type we are using. To adjust to required position, use the cross screwdriver. This adjustment is made on turned on machine in the machine control box. **It is necessary this operation is made by qualified person only!**

MACHINE TYPE ADJUSTMENT:

AF, CT, LTT, RDE	adjust to 28 (range 0-50)
AF+I a CT +I	adjust to 78 (range 51-A0)
AF/ACL, LTT/ACL	adjust to C8 (range A1-FF)





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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. STANDARD BUTTONHOLE SHAPES SET BY THE MANUFACTURER

There are two types of zero buttonhole preset in the program, one type with eye and fly bar for AF, CT, LTT modifications and second type of round eye for RDE modification according to the following overview. Is possible to use the universal program, which allows, after clamp plates and necessary parts replacement, programming of all advertised buttonhole types, by changing zero buttonhole. Rear thoroughly the section “D” for adjustment - machine function control..

Warning: Check every time the number of program is changed, if the needed buttonhole shape is selected properly.

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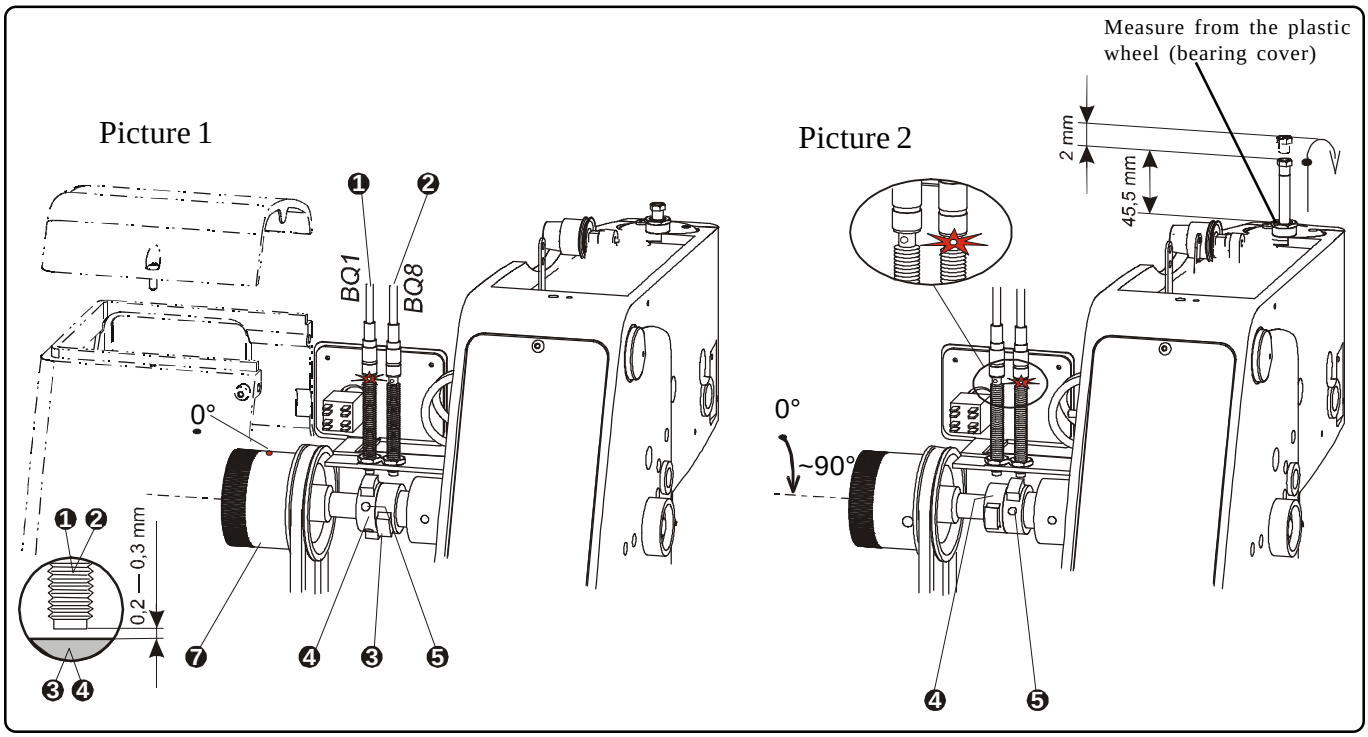
2. THE SEWING DRIVE SENSOR PLATES ADJUSTMENT

It is important that the sensor plates of the sewing drive are properly adjusted. To access these plates, remove the right side cover according to the section B4.The sensors are adjusted from the manufacturing factory and are marked with the colour.
BQ8 - The sensor for needle bar position when the machine is stopped.
BQ1 - The sensor for table feeding when sewing.

2.1. Rotate the hand wheel ❼ until the marking is on the top (white point). The needle bar has to be in the bottom position (can not move). Loose the screw ❺ on the sensor ❹; rotate the sensor until the sensor BQ1 is switched on, tighten the screw ❺.

2.2. Rotate the hand wheel ❼ the way the needle bar lifts for 45,5 mm in front of the top position. Loose the screw ❺ on the sensor ❹; rotate the sensor until the sensor BQ1 is switched on, tighten the screw ❺.

Checking after adjustment: When the machine stops, the right looper has to be turned to the left.



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3. THE BEDPLATE HOME POSITION ADJUSTMENT

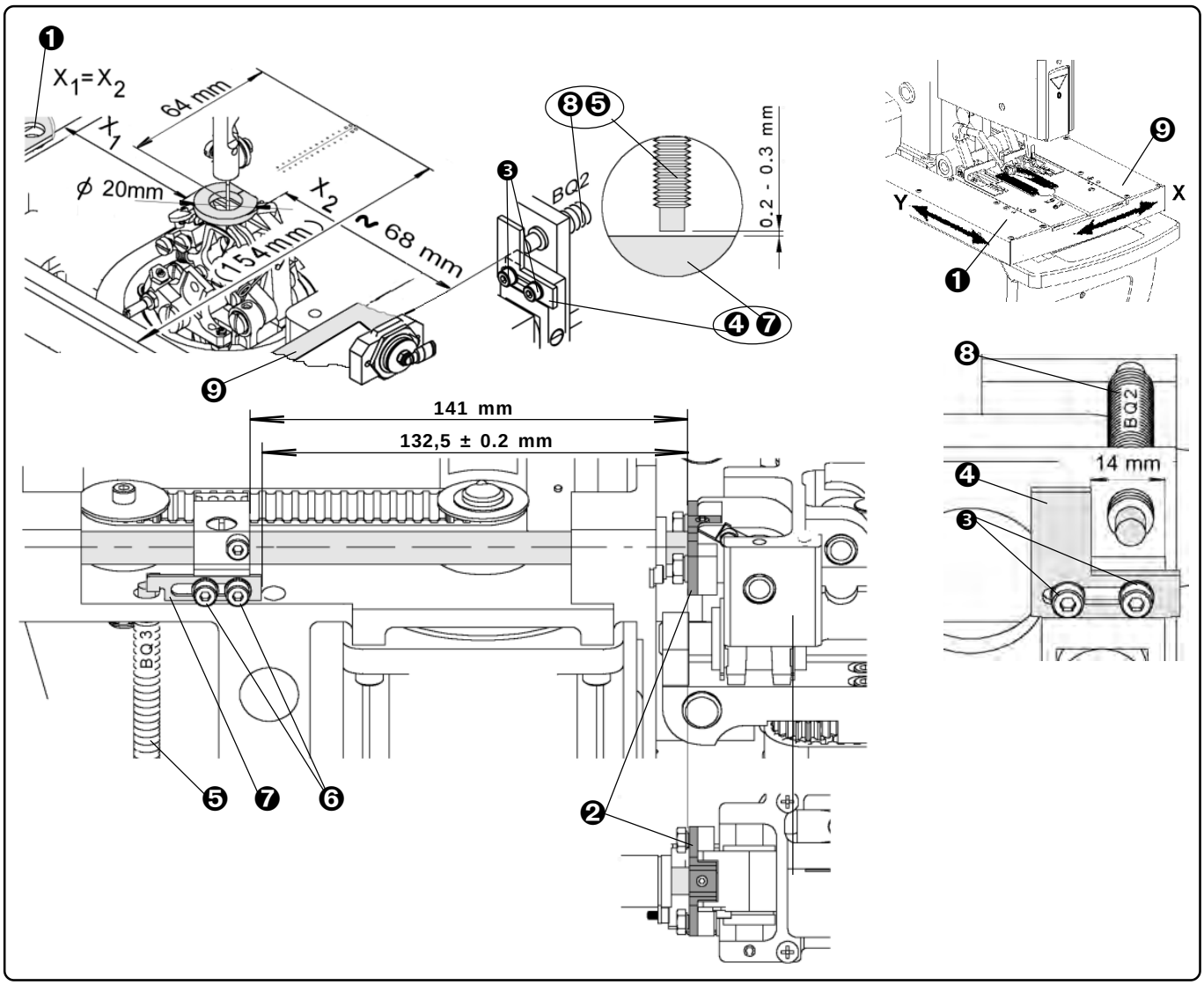
The bedplate home position is given by position of the plates ❹,❼ and sensor BQ2 ❽ for axes X and BQ3 ❺ for Y. Sensor plate screws are painted from the manufacturer, and only a service technician from AMF REECE can perform this operation during the guarantee period .

3.1. Adjust the sensor plate ❹ (BQ2) ❽ after loosening the screws, ❸ to approximately 14 mm. Remove the right cover of the bedplate ❾ to access to the plate ❹.

3.2. After removing the left cover of the table ❶ adjust the sensor (BQ3) ❺. Loosen the screws ❻ to obtain the 132,5 ± 0.2 mm from the shaft holder ❷ to the plate edge - see picture. Belt holder is set to 141 mm from the shaft holder ❷. The plate ❼ should be 32mm long.

3.3. The clearance between the sensor and plate must be 0.2 - 0.3mm. More clearance causes improper sensor function.

3.4. Adjust the position of the sensor plate ❼ if the dimension from inner puncture in the eye top and the centre needle is not 64mm. Approximately 154mm from the adge of the bedplate, see section E8).



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E - STANDARD MACHINE ADJUSTMENT

4. THE RACE MECHANISM ADJUSTMENT

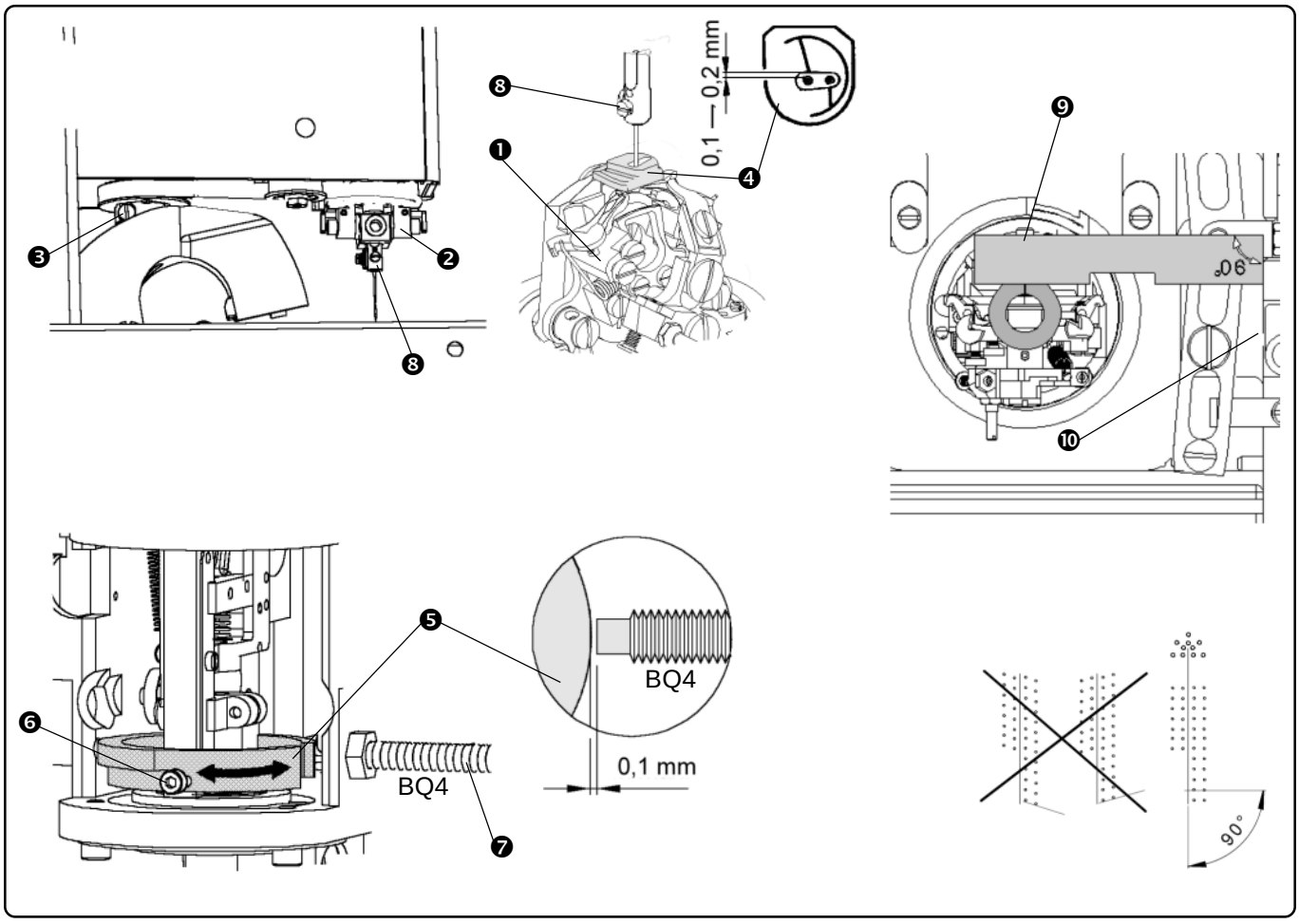
Home position of the working plate is given by position of the plate ❺ and sensor ❼ (BQ4). Screw of the sensor plate ❻ is locked by paint from the manufacturer, that is why only a service technician from AMF REECE can perform this operation during the guarantee period. Make sure there is the buttonholl without eye on the display, stitches inclination 0°, cutting distance 0.0, *see section D3,D6.*

4.1. In the bedplate home position adjust the assembly of the sewing mechanism by the looper beam ❶ to the operator side.

4.2. Adjust the block ❷ of the needle bar, after loosening 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.

4.3. After loosening the screws ❻, turn the plate of sensor ❺ clockwise to the extreme position. The sewing mechanism has to be vertical to the oblong bedplate axis. To check up the adjustment, use the gauge ❾, according to the bedplate edges ❿.

4.4. When the service mode is activated, punch in the buttonhole shape on thepaper. Find if the stitches in the straight part of the buttonhole are vertical to the buttonhole axis and center stitches are turned by 90°. To correct it, rotate the sensor plate ❺. For better visibility of the centre punctures, adjust the cut distance for large value, for example + 0,5 according to the section D6.



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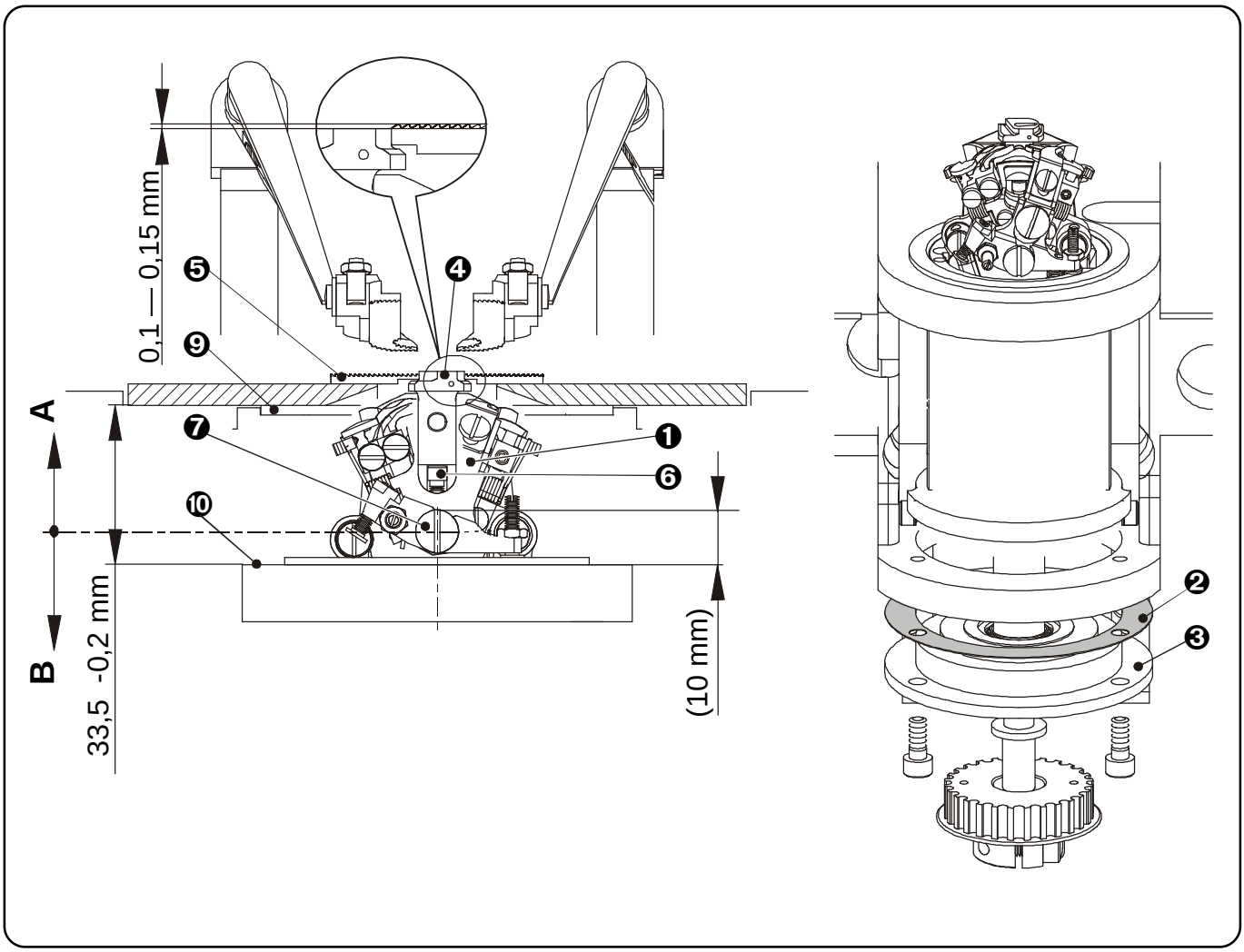
5. THE SEWING MECHANISM HEIGHT CONTROL

Before any other adjustment, we recommend to check, if the height of the sewing mechanism of the loopers, spreaders and stitching plate is adjusted properly.

5.1. The height 6,5 mm of the sewing mechanism support ❶, from the surface for the anvil can be readjusted by inserting or removing the washer ❷ under the bearing flange ❸. The support is decreased, if the washer is added - in B direction, if the washer is removed, the support is increased - in A direction. The washers are supplied with the thickness 0,1 (19.0019.6.405) or 0,2 mm (19.0019.6.404). The adjustment can be checked with the sliding gauge - 10 mm from the top edge of anvil base to ⌀ of the bung ❼.

5.2. After inserting the stitching plate, it is necessary to check the distances between the top edges and the top surface of the clamp plates ❺. This distance is adjusted at the factory with the screw ❻ under the stitching plate for 0,1 — 0,15 mm. The screwis secured with the LOCTITE 243.

5.3. For above mentioned distances, the factory provides the height of the fitting plates surface ❾ from the surface to the anvil ❿ in lange 33,5 -0,2 mm.



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6. MECHANISM ADJUSTMENT FOR MATERIAL CLAMPING

WARNING! Before doing any adjustments, disconnect the air supply and deflate the test of compressed air in the machine.

The basic clamp plates adjustment ❶ with clamp feet ❷ is possible to modify after removing from the machine.

6.1. After loosening the screws ❸ adjust the clamp feet❷ from front to rear (in the Y axis) and after loosening the screws ❺ from left to right (in the X axis)

6.2. The adjust feet ❷ clamp against the plates ❾ for 1,2 - 2,0mm overlap.

6.3. Remove the side table covers ❻ by removing the screws ❼.

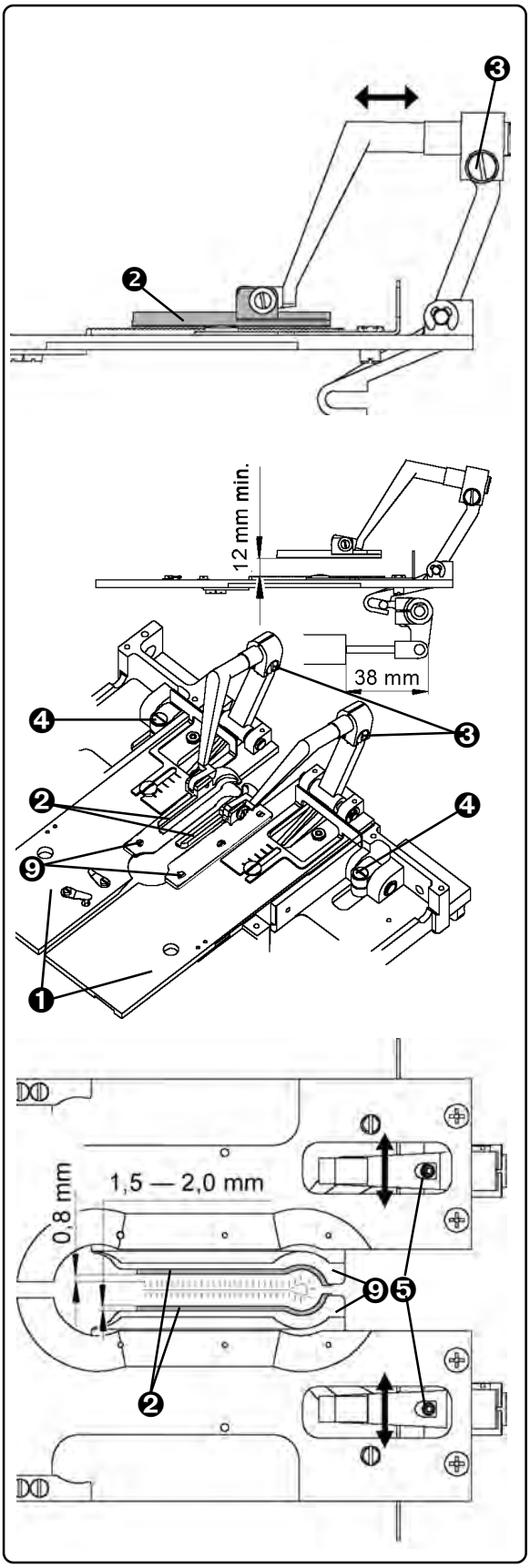
6.4. Insert the clamp plates ❶ into the machine.

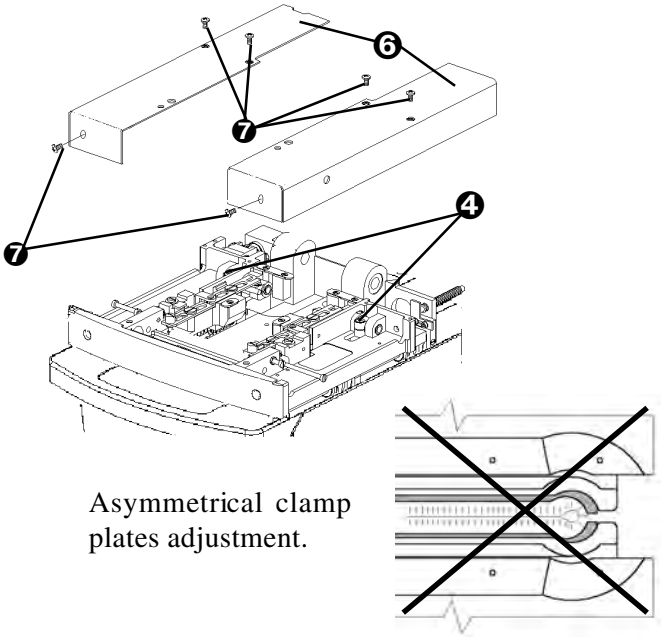
6.5. Adjust the plates lift ❷ for 12mm and after loosing the screws ❹ tighten them again.

6.6. Put the side table covers ❻ on and screw them.

6.7. Check the proper adjustment when sewing.

Recommended space between the clamp foot and needle during the outer penetration is 1 mm. 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.





Asymmetrical clamp plates adjustment.

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7. SPREADING OF A MATERIAL

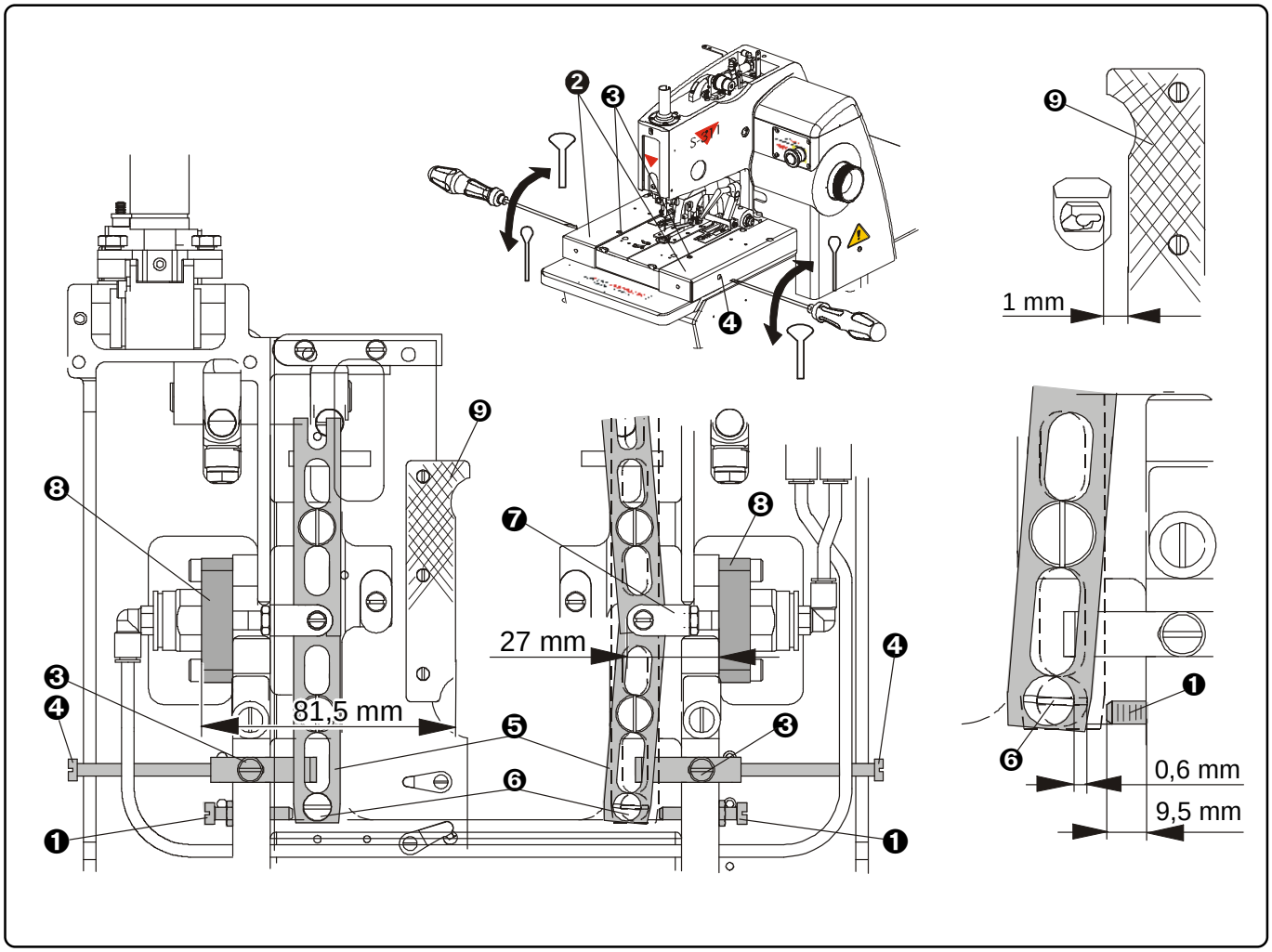
Loose fabric, especially thin, can cause missing stitches unless it is spread. The machine is equipped by a mechanism to control the extent of fabric spreading. It is possible to adjust the mechanism after removing the table covers. Size of the spreading is possible to adjust with covered table.

7.1. After loosening 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 , counterclockwise increases, maximum is 2,5 mm on one clamp plate.
Check it with stepping (section D2) to the place, where is the stitching plate between the clamp plates. The edge of the plats ❾ has to be 1mm from the stitching plate.

7.2. 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 (81.5 mm when the plate is inserted and spread).

7.3. Basic measure for a control yoke ❼ adjustment is 27 mm from base for the cylinder holder ❽ by maximum spreading (loosing the screws ❸ ❹).

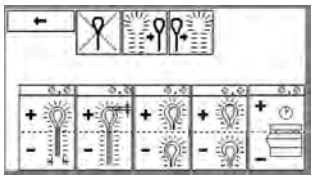
7.4. The manufacturer recommends to adjust approximately. 0,6 mm. It is difference between the lever stud ❻ distances before and after spreading.



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8. ADJUSTMENT OF THE CUTTING MECHANISM

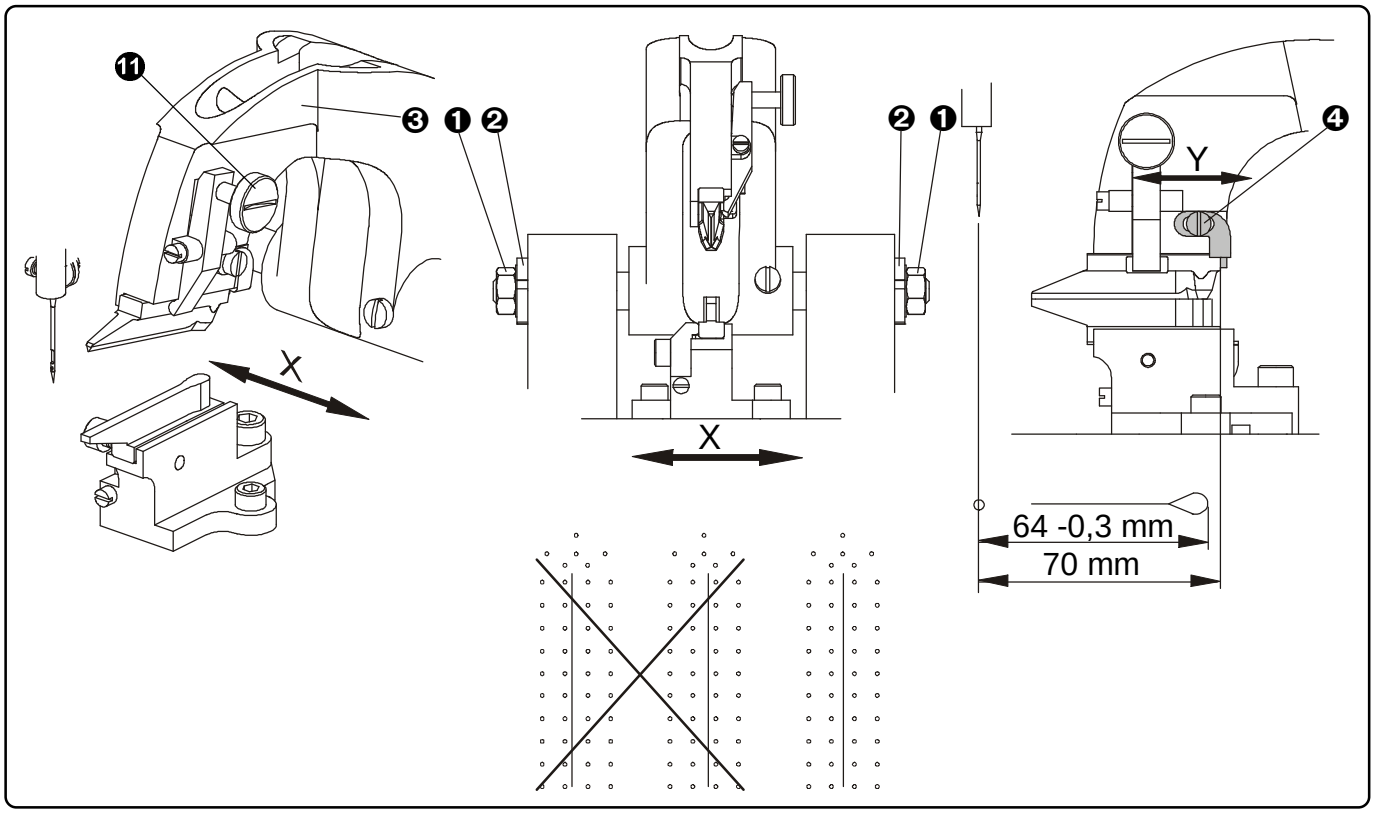
Caution : Before doing the adjustment, it is necessary that the parameters, especially the cutting space and correction was adjusted on 0 - section D9, buttons



The cut position is given by the point of departure of the stepping motors adjustment. The sensor plates screws are painted against the spontaneous rearrangement. If the cut position needs to be changet, it is possible to adjust the knife position in the program.
Be sure to use the same size of the knife eye. When using the different eye size, the buttonhole will deform, or the eye stitches can be damaged.
The point of departure for the cutting mechanism adjustment is the needle and sewing mechanism. The process is choosed by installing the knife, either to the cutting lever or to the anvil.

8.1. ***The knife installed into the cutting lever*** ❸,adjust in the axis X after loosing the nuts ❶, tighten the nut ❷, on which side the cutting lever should be shifted. Zero position for adjustment is set by the manufacturer. To check the cut use the paper sheet.

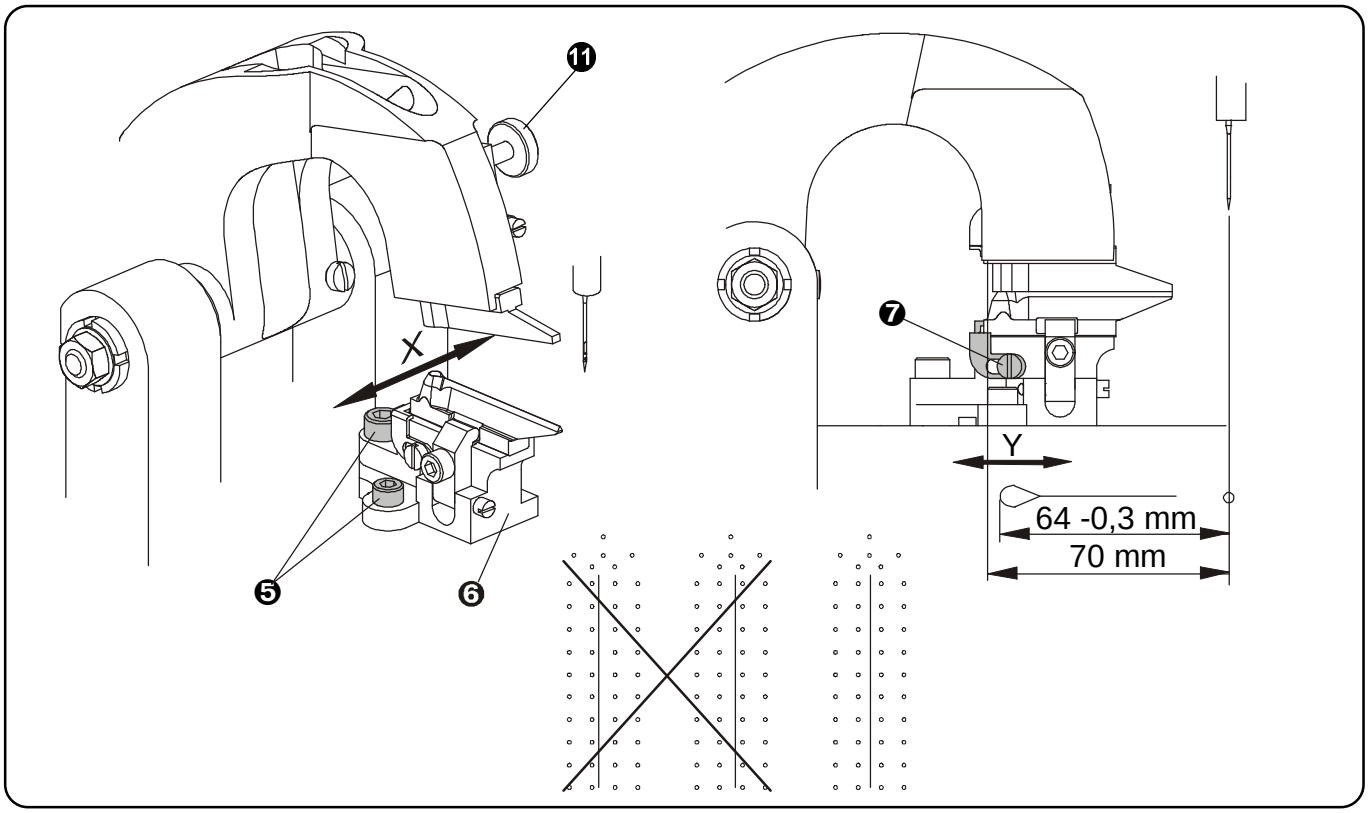
8.2. ***The knife stop adjustment in the axis Y*** in the cutting lever, adjust for 68mm after loosing the screws ❹. Check by needle puncture on the paper in basic position with the button for cutting. The distance from the eye top to the puncture has to be 64-0,3 mm.



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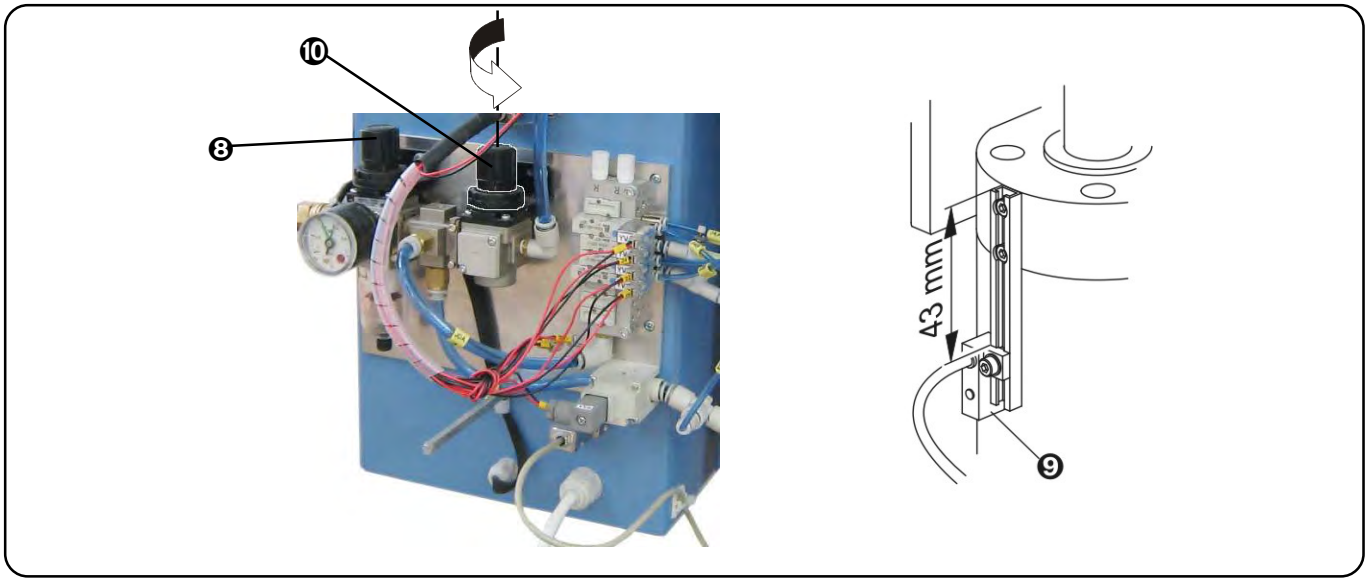
8.3. ***The knife in the axis X in the anvil*** ❻ loosing the screws ❺ and change safely the position, to the right or to the left. Tighten the screws.

8.4. ***The knife stop in the anvil*** ❻ adjust for 70 mm after loosing the screws ❼.



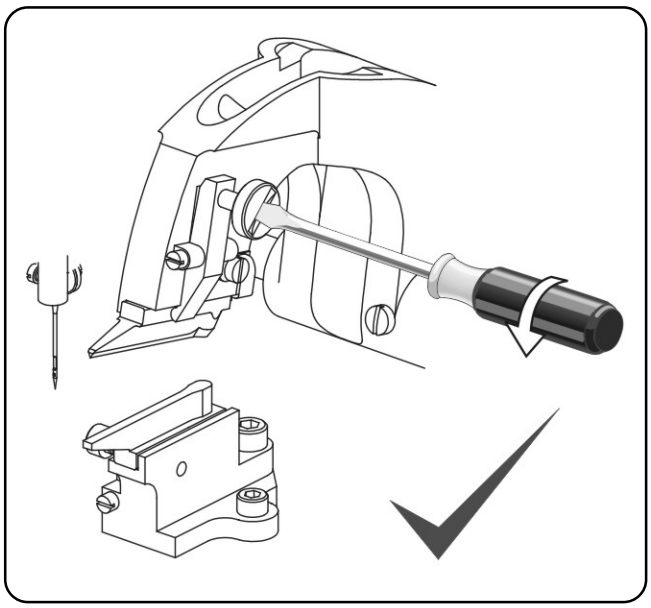
8.5. The pressure of the pneumatic system is adjusted with the regulator ❽ for 0,6 MPa. The pressure for cutting knife is adjusted with the regulator ❿ (0,4 MPa). This pressure is suitable for all materials for cut lengths to 30mm. For difficult cut, increase the pressute for 1/2 rotation anticlockwise.

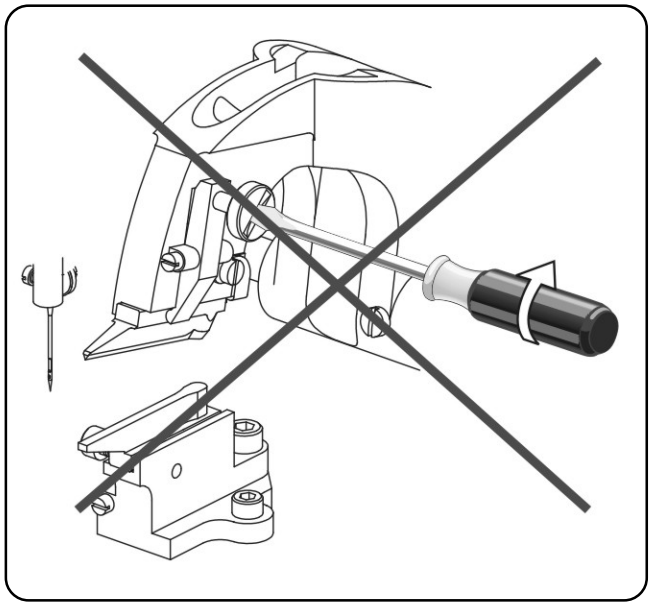
8.6. The sensor ❾ on the cutting cylinder is adjusted approx. for 43 ± 1mm (according the machine tolerances).

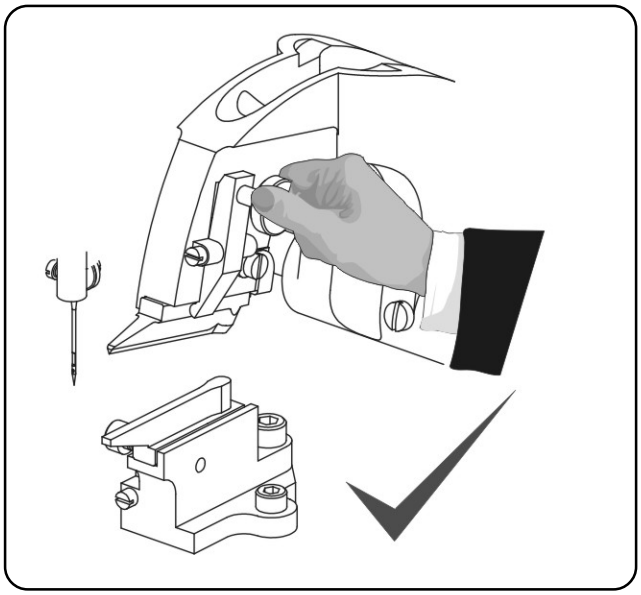


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8.7. The knife attachment into cutting steel with the screw needs to be done **only manualy!** The tool is used only for loosing too tight setting screw.







Warning: When changing the knife, pay attention to the tightening the screw.

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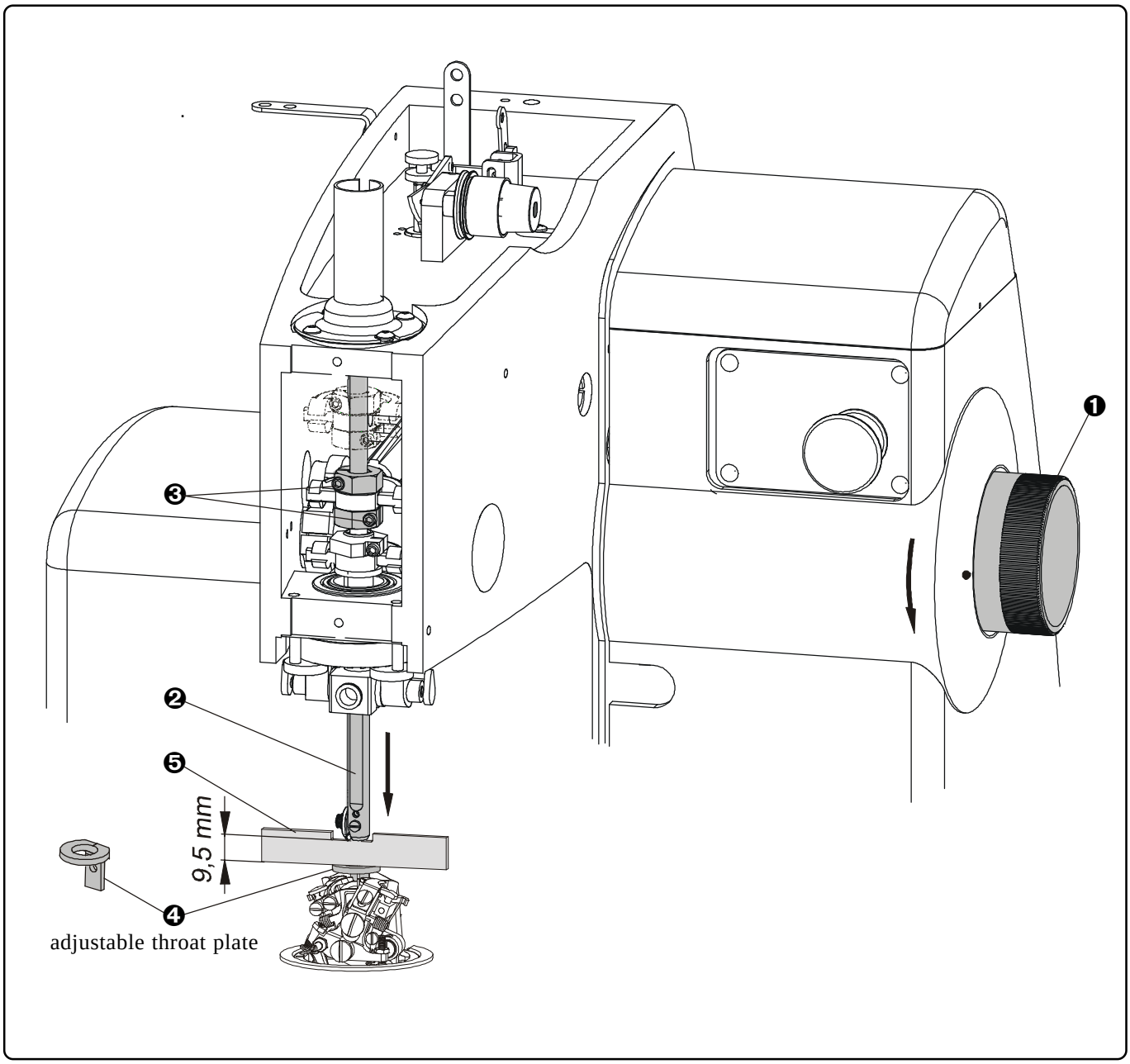
9. SETTING THE NEEDLE BAR HEIGHT

9.1. Remove the machine head front cover.

9.2. Turn the handwheel ❶ and adjust the needle bar ❷ to the lowest position.

9.3. Insert the gauge ❺, height 9,5 mm, between the needle bar and bedplate.

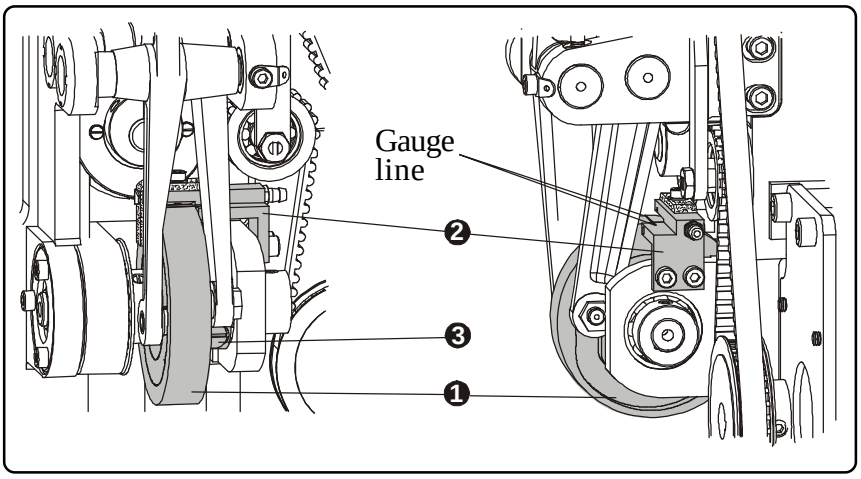
9.4. If incorrect, loosen the screws ❸ and move the needle bar up or down to obtain correct distance. Tighten the screws.



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10. 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 ❸.



11. LOOPERS ADJUSTMENT

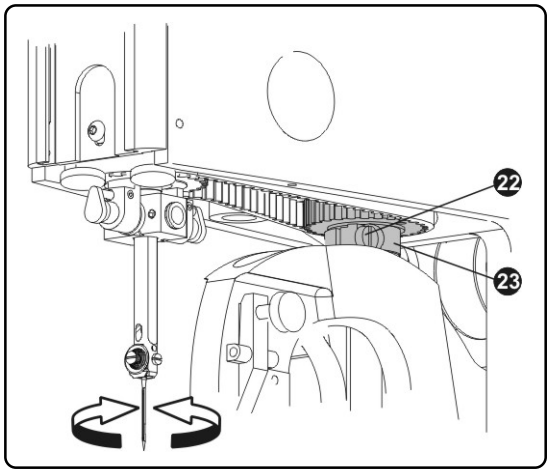
11.1. To perform this adjustment, remove the plates and holder ⓳ by loosening the screw ⓴.

11.2. After the loosening 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 ❹ by its higher end between gauge support and the needle bar end.

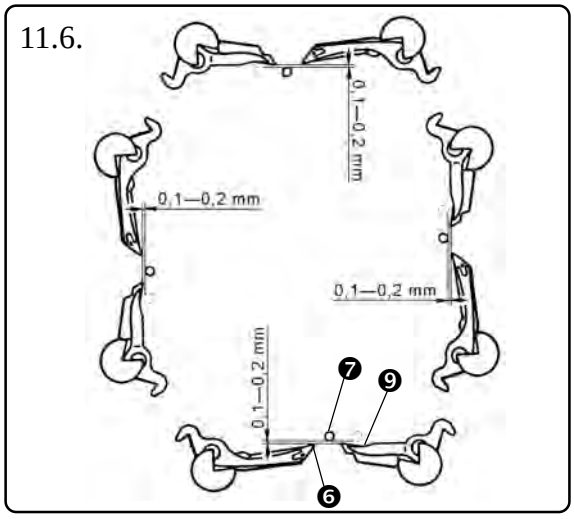
11.3. After loosening the screw ❽ adjust the distance 0.1 - 0.2 mm between the needle and looper tip ❻. Tighten the screw again.

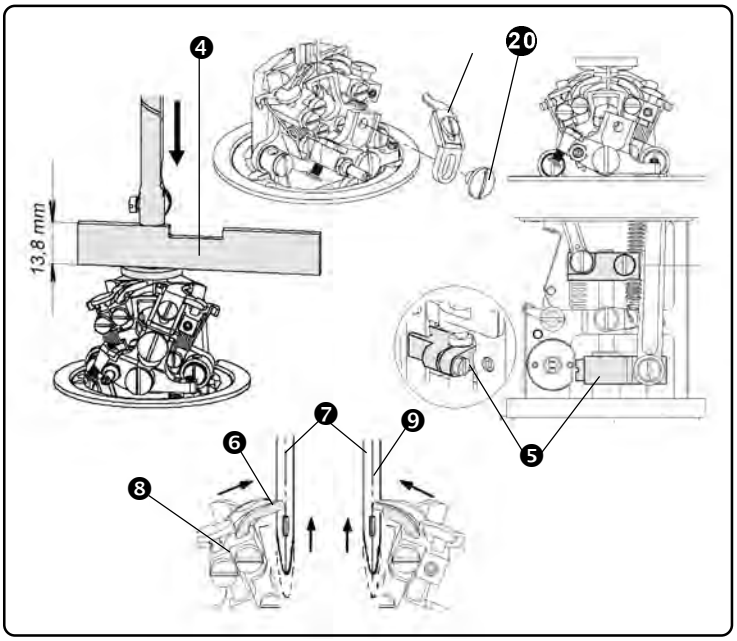
11.4. Adjust the same space on the right looper ❾ when it passes the needle. To perform it, turn the hand wheel.

11.5. It is important to check the looper distance, according to the point 11.3. Different distance is necessary to adjust by turning the needle bar after loosing the screw ㉒ of the wheel ㉓.



11.6. The correct distance between the loopers and needle has to be checked in 4 positions of needle bar plus race. Please see the drawing above.





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12. SPREADERS ADJUSTMENT

To reach this, rotate the hand wheel.

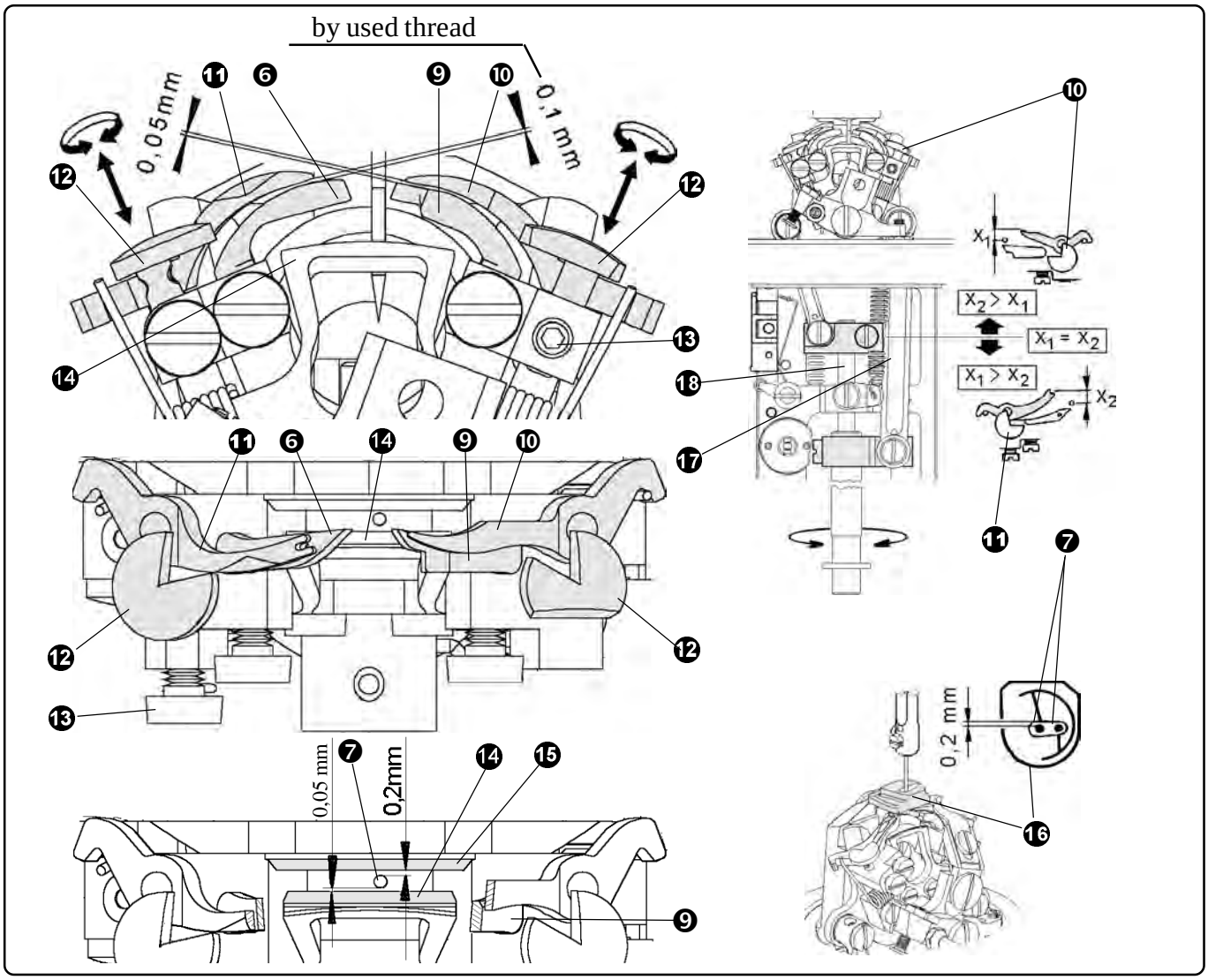
12.1. Adjust the right spreader ❿ to the right looper edge ❾, the left spreader ⓫ with the groove on the hole of the left looper ❻. To adjust, loosen the screws ⓭ and adjust the stops ⓬. The stops can not slacken.

12.2. Check the clearance between the loopers and spreaders (it must be minimal).
Right - 0,05 mm maximum, so the sewing thread does not go between the right looper and spreader.
Left - 0,01 mm minimum, so the sewing thread goes between the right looper and spreader.

12.3. Check clearance between needle ❼ and support ⓮. Tilt the support to obtain 0,05 mm, clearance between the needle and looper carrier ⓯ should be 0,2 mm, for needle Nm 100.

12.4. Check the clearance between the needle ❼ and the stitching plate ⓰.

12.5. The position of the left spreader ⓬ and right spreader ❿, loosen the screw ⓱ and carefully place the bracket ⓲ by turning the spreader rod. The right spreader must be at the home position at the moment when returning to buttom dead position. This adjustment affects stretching out of the left spreader.



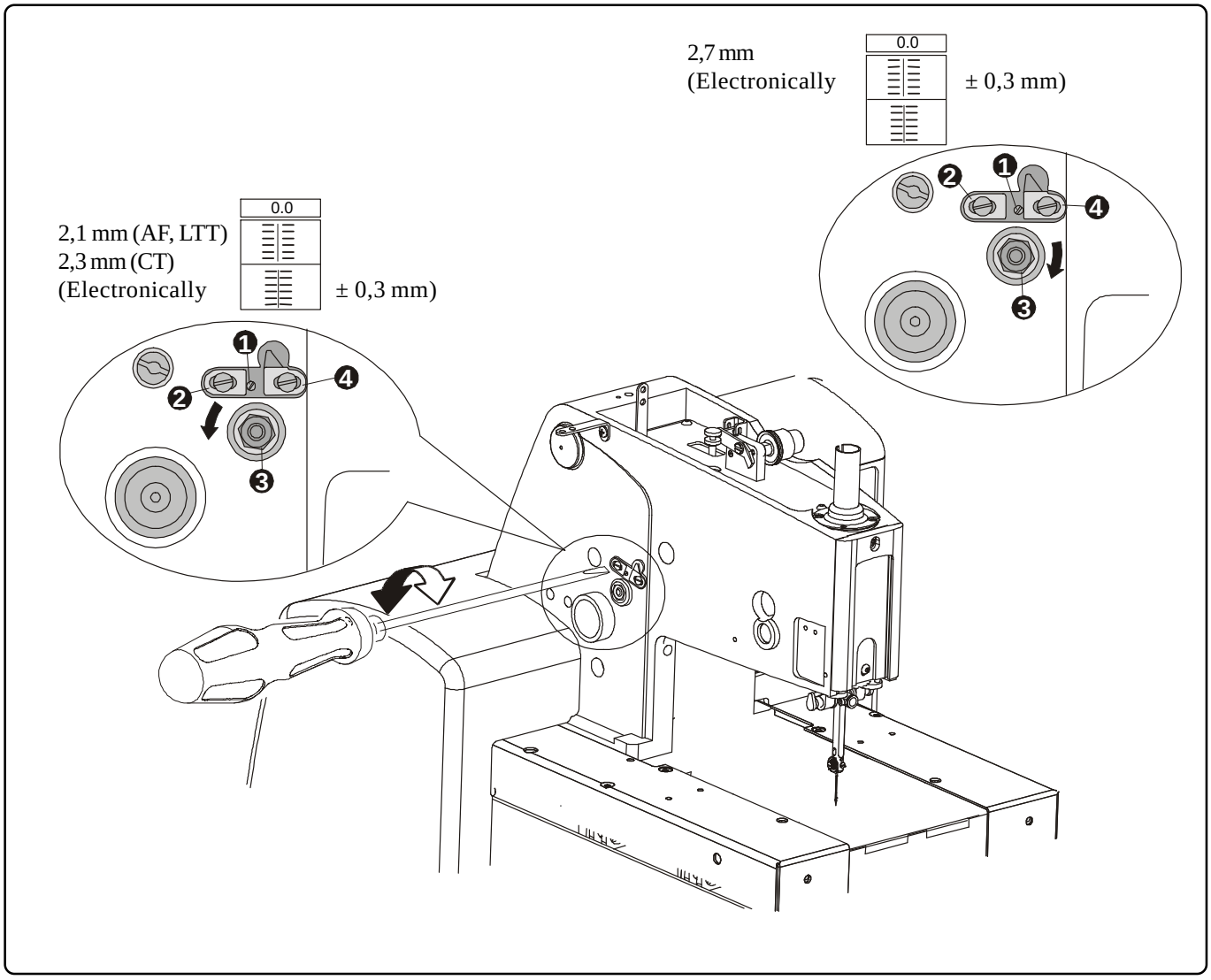
13. ADJUSTMENT OF THE BITE MECHANISM

S 311 machine is equipped with a mechanism to change electronically the width of buttonhole seaming. The mechanism can be set up for 2 main seaming widths – 2,1mm and 2,7mm. Changing the values electronically on the display, it is possible to modify the main width in the range of ± 0,3mm. The mechanism adjustment is such:

13.1. To set the bite to 2,1mm (2,3 mm CT), loose the nut ❸ and move the pin ❶ to the left all the way to the end stop towards the edge of the stop ❷.

13.2. To set the bite to 2,7mm, loose the nut ❸ and move the pin ❶ to the right all the way to the end stop towards the edge of the stop ❹.

13.3. In case of 3,4mm bite, remove the right stop ❹ and use the stop supplied in the accessory of the machine. It is necessary to pull the stop to the right into the radius gap and guard it with a screw. After this step, exchange the throatplate for this bite and adjust loopers again. If the throatpalte is not exchanged, the machine can get damaged!



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14. UPPER THREAD TRIMMING MECHANISM - AF/LTT

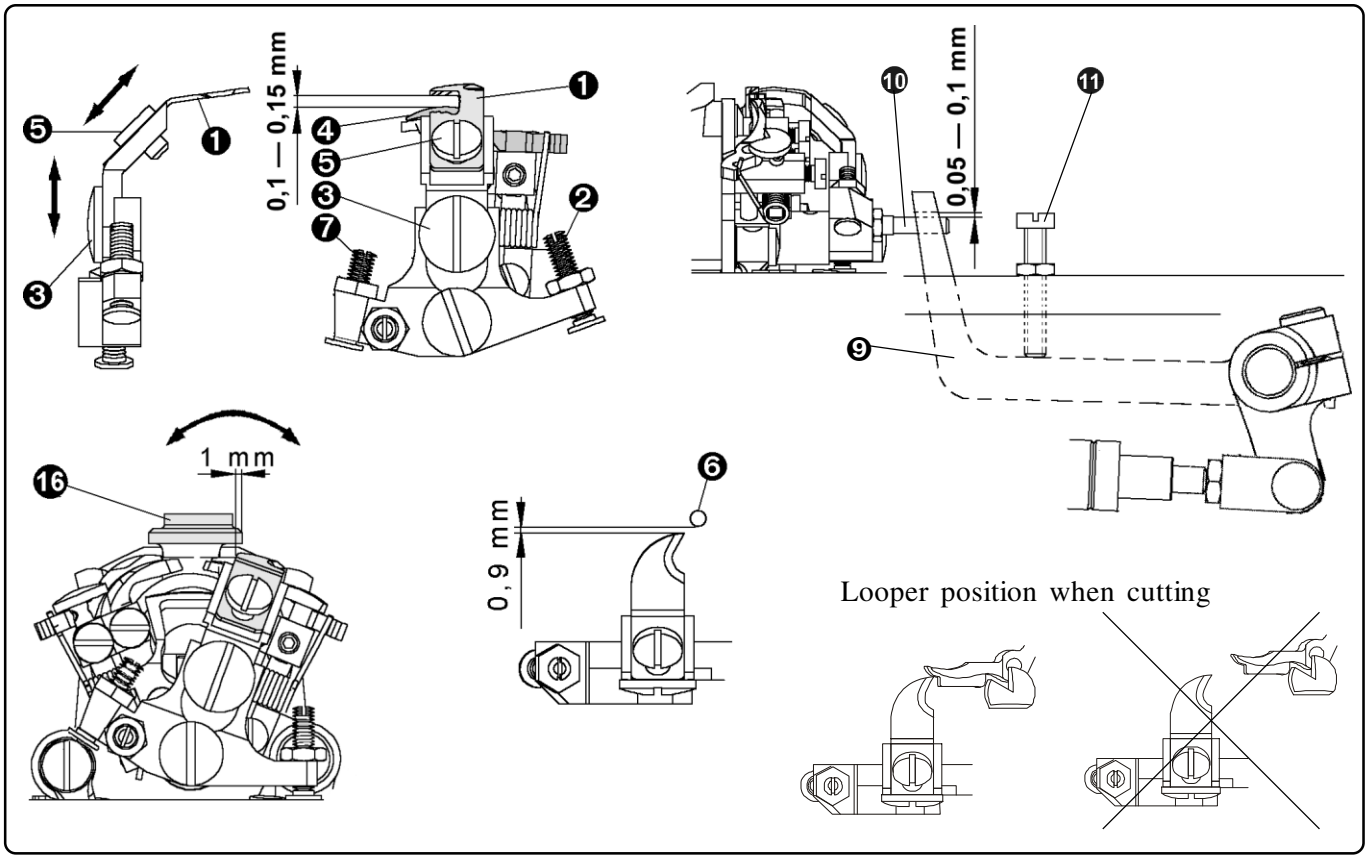
14.1. After installation of the holder with trimming knife ❶ adjust the trimming knife after loosening the screw ❸ to obtain the clearance 0,1 — 0,15 mm above the right spreader ❹.

14.2. 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.

14.3. Position the tip of the trimming knife ❶ 0.9 mm in front of the needle ❻ by loosening screw ❺. Check the adjustment for keeping the clearance according to the ***point 14.2.***

14.4. The normal home position of the trimming mechanism ❶ is adjusted using screw ❼. Correct adjustment prevents cutting of the looper thread ❽ (See diagram).

14.5. Adjust the initial position of the control lever ❾ to the space 0,05 — 1 mm from stud ❿ by the screw ⓫ after loosening its nut.



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15. ADJUSTMENT OF THE UPPER THREAD PICK-UP HEIGHT

Is used on the LTT machine as standard. Possible to order for any S-311 machine version.

15.1. The machine needs to be in home position.

15.2 Adjust the clereance 0,5 mm between the nut ❶ and the holder ❷ .

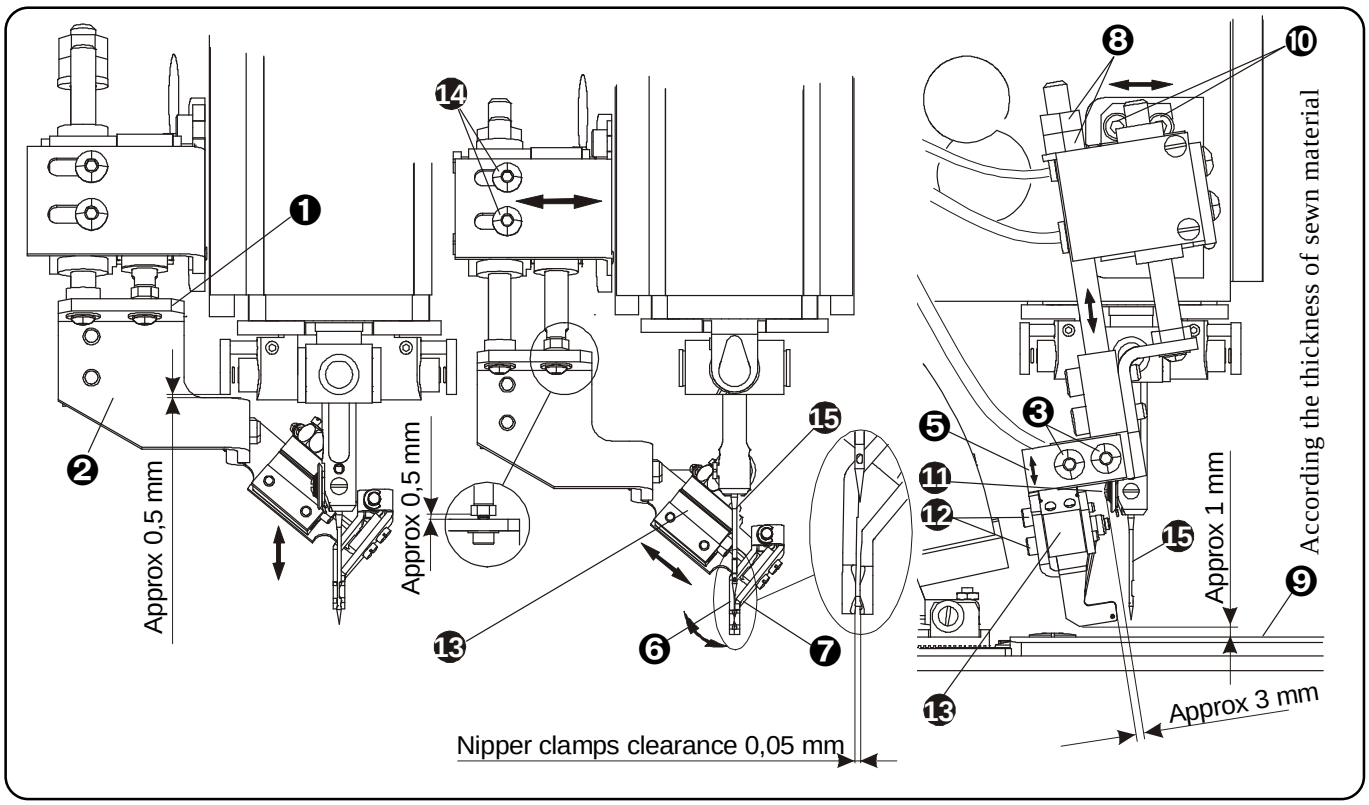
15.3. Loose the screws ❸ to adjust the clereance between of the retainer ❹ and the holder ❺ for the distance 0,5 mm.

15.4 When the clamps of the nipper ❻ ❼ are in the bottom position, adjust them with the nuts ❽ for distance 1 mm from the cover of the clamp plate ❾. *(When sewing the thicker materials, it is possible to increase this distance)*

15.5 Loose the screws ❿ to adjust the clereance between clamps of the nipper ❻ ❼ and the screw ⓫ for the distance 3 mm.

15.6 Adjust the clereance between the clamps of the nipper ❻ ❼ for distance 0,05 mm. Loose the screws ⓬, insert the gauge between the jaws of the nipper. Move the pneumatic cylinder ⓭ so they hold the gauge smoothly and tighten the screws ⓬.

15.7 The machine needs to be in home position. Loose the screws ⓮ and adjust the clamps so the distance 0,05 mm will be in the center of the needle ⓯ or at that position, which would be ideal for sewing the thread from the first part of the buttonhole, so the thread tail is not protruding. After the adjustment tighten screws ⓮.



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16. UPPER TRIMMING AND LOWER INTERCEPTION - CT

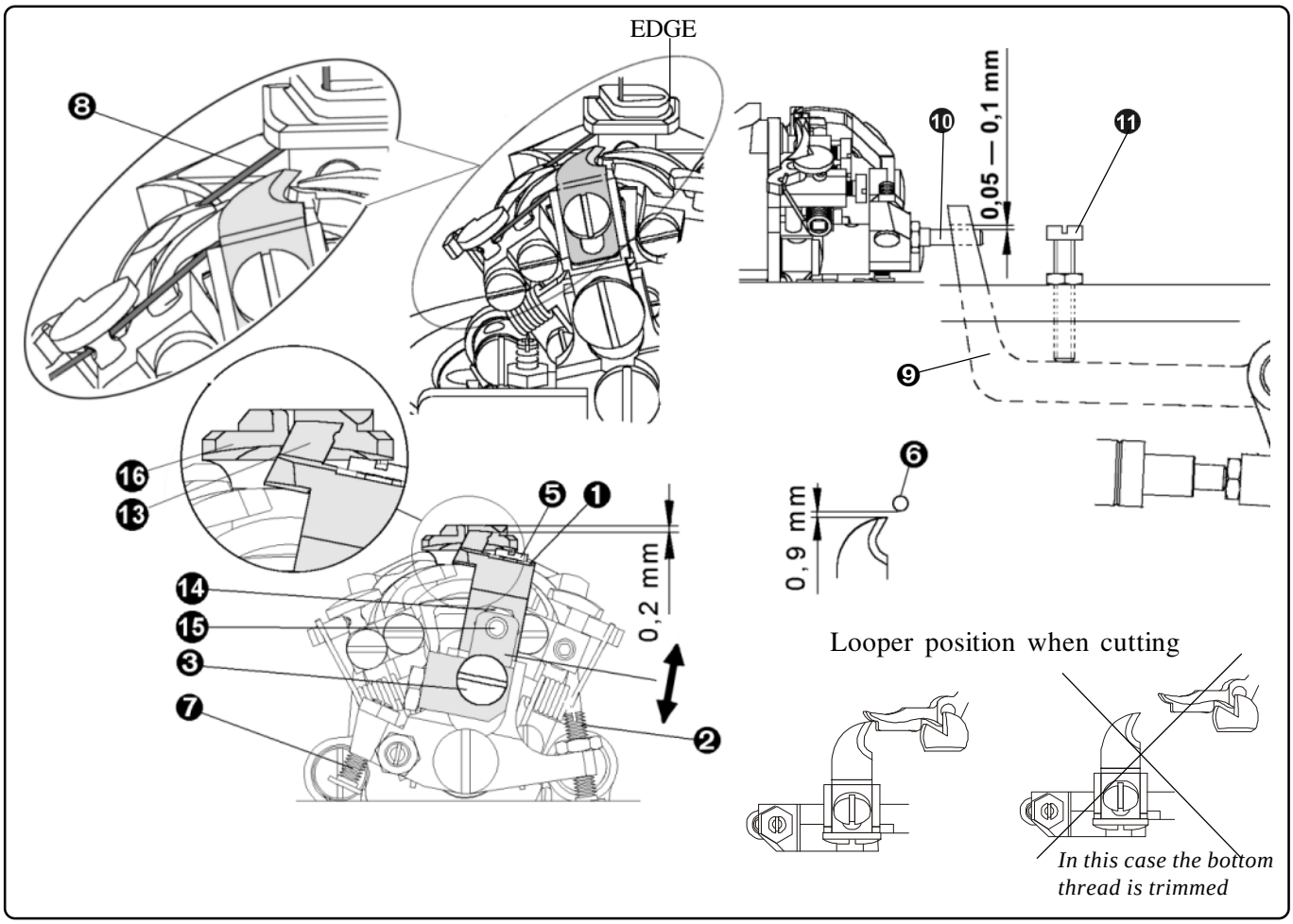
16.1 After installation of the thread retainer ⓭ with trimming knife ❶, adjust the height of the thread retainer ⓭ to within 0.2 mm of the top of the throat plate.

16.2. Using the screw ❷ adjust the trimming knife ❶ so that the right edge of the nipper is covered with the stitching plate edge ⓰ (see picture). The thread holder must lean on the front side of the throat plate to catch and hold the lower thread for next buttonhole sewing. When the trimming knife moves, the thread holder must move over the throat plate without binding. To adjust - loosen the nut of the screw ⓮ and screw out or in the adjusting screw ⓯. Tighten the nut.

16.3. Position the tip of the trimming knife ❶ 0.9 mm in front of the needle ❻ by loosening screw ❺. Check the adjustment for keeping the clearance according to the ***point 16.2.***

16.4. The normal home position of the trimming mechanism ❶ is adjusted using screw ❼. Correct adjustment prevents cutting of the looper thread ❽ (See diagram).

16.5 Adjust the initial position of the control lever ❾ to the space 0,05 — 1 mm from stud ⓾ by the screw ⓫ after loosening its nut.



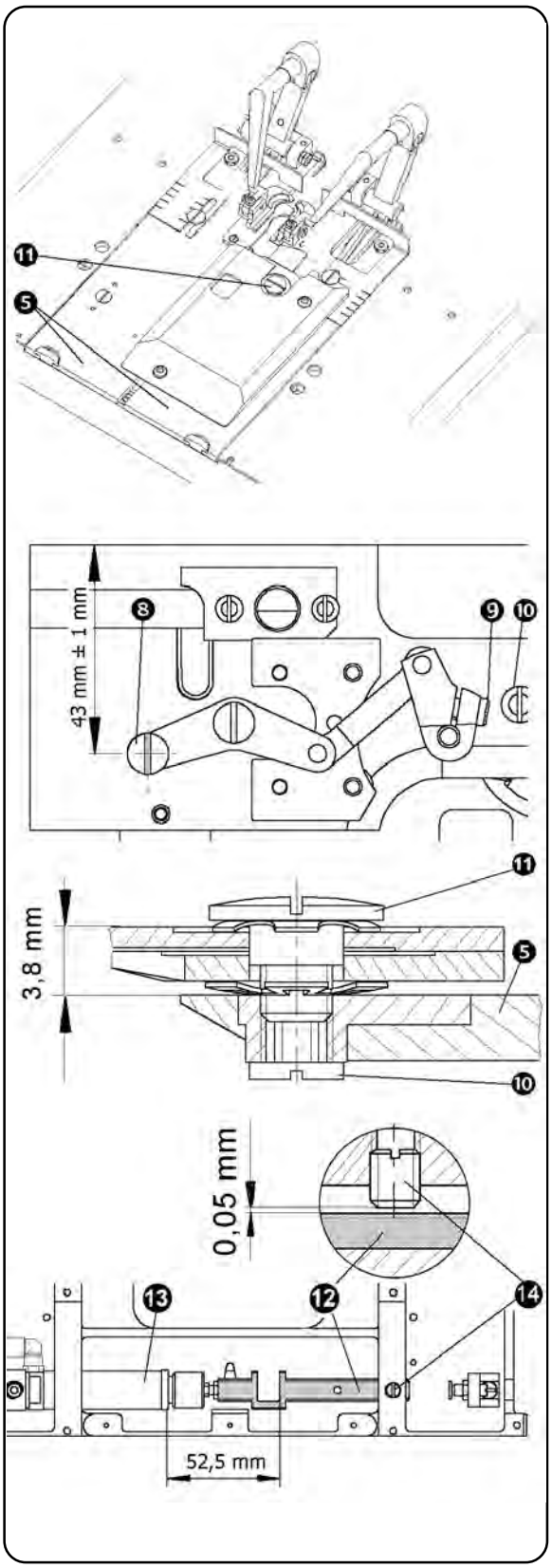
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16.7. *Shears adjustment*

There is a trimming mechanism on the right clamp plate. Loosen the screw ❾ and adjust the center of the roller ❽ to 43 mm from the edge of the clamp plate. Tighten the screw ❾. To adjust the shears, loosen the screws ❿ and ⓫, and measure 3,8 mm from the top shear to the top of the clamp plate ❺ by loosening or tightening screw ⓫. Tighten the screw ❿ and test the cutting of thread. If trimming is not correct, change the dimension to 3.5 mm. Properly adjusted, the shears should show no scratches but trim positively and return to the full open position. If not, check for damage and replace if needed.

16.8. *Lower thread and gimp trimming mechanism*

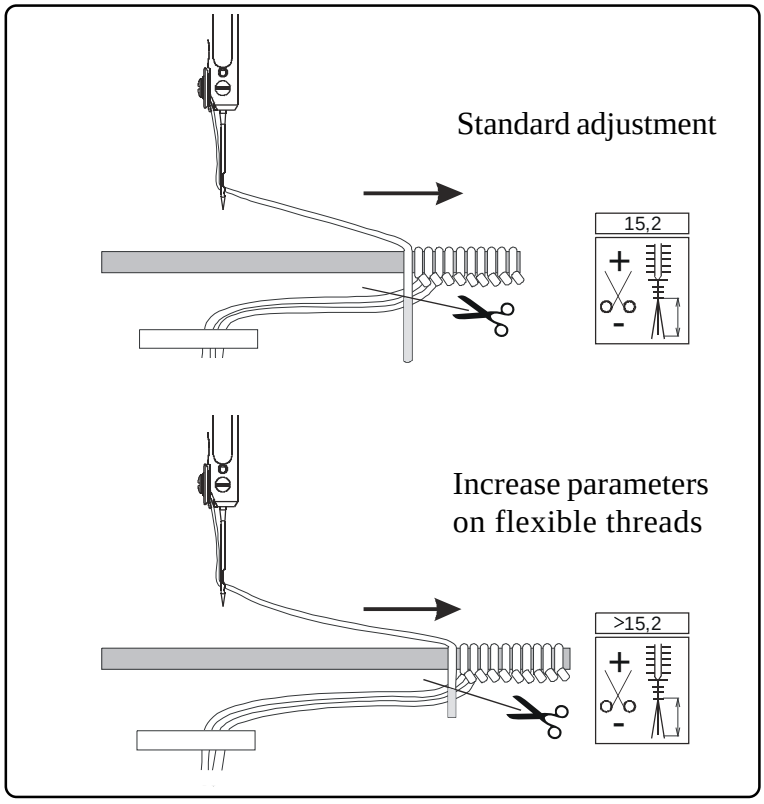
Adjust the distance 33.5 mm between the rod ⓬ and the air cylinder ⓭ . Adjust the adjusting screw ⓮ (locked by LOCTITE 243) to the minimal clearance 0.05 mm, to allow the free movement of the rod ⓬.



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16.9. *Elektronic adjustment of the CT parameters*

a) Electronic adjustment of trimmed threads tails



b) Electronic adjustment of the clamp feet elevation during the lower thread and gimp trimming

4 - Time for the clamp feet elevation before trimming knives activation (range 0 – 10, i. e. 0 – 100 ms); initialization = 4.

6 - Time for the clamp feet elevation during trimming knives activation (range 0 – 10, i. e. 0 – 100 ms); initialization = 4.

When thick materials are sewn, times for the clamp feet elevation need to be adjusted so that trimming knives can pass under the sewn material freely and trim the lower thread and the gimp (low values for thin materials, high for thick materials).

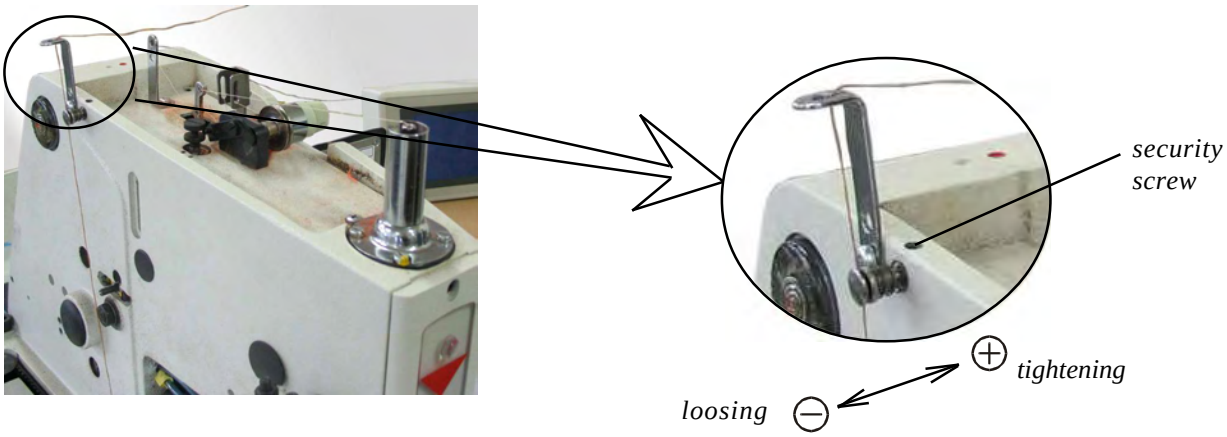
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17. MECHANISMUS ADJUSTING FOR CT GIMP

Gimp auxiliary stretcher adjusting:

Adjusting performed as follows: the stretcher slightly holds the gimp and when turning the race in the end of buttonhole where the gimp does not run from the coil but the thread end is shorter after the throat plate trimming

Over tension in stretcher might cause the buttonhole deformation in eye.



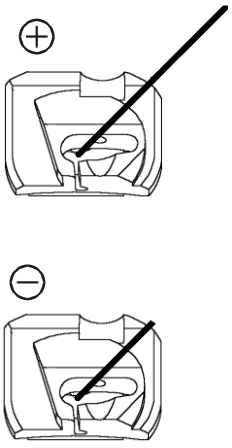
The gimp guide adjustment in base:

Thanks to adjusting gimp guide in base we can extend or reduce the gimp length after the trim in throat plate.

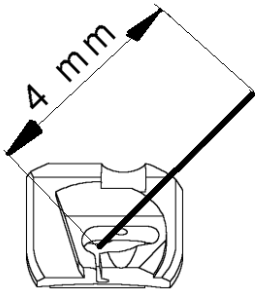
By moving the guide in direction to the machine operator, the gimp length is reduced after the trim and moving the guide in opposite direction from the machine operator the length is extended.

The correct gimp length after the trim is 4mm (in basic machine position).





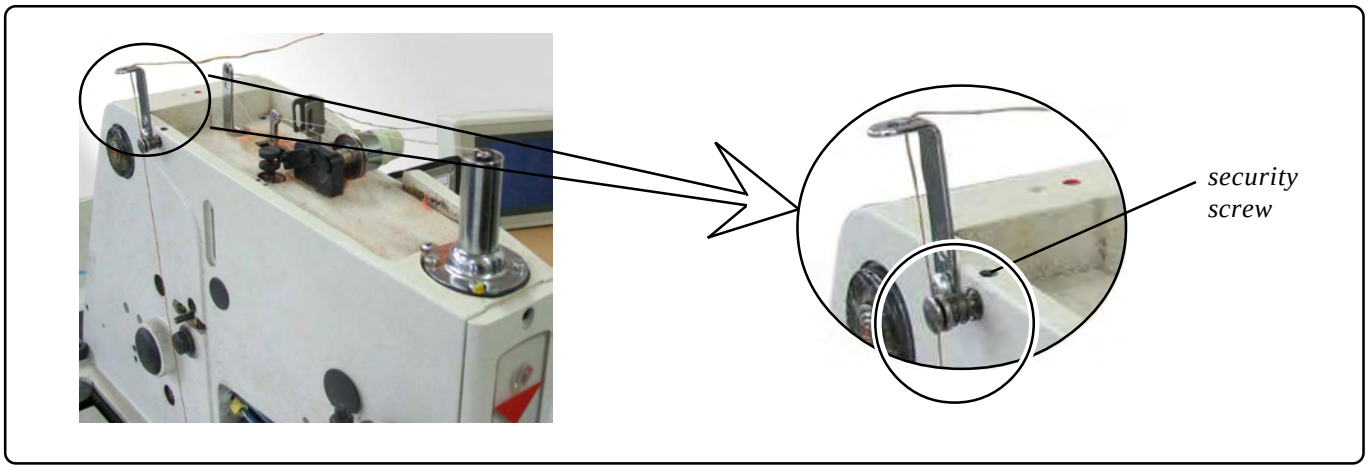
Factory setting



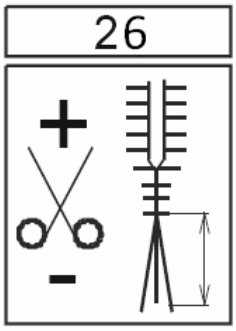
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18. PRACTICAL RECOMMENDATION FOR SEWING ROUND EYELET

18.1. Pull out gimp thread from guide with spring (gimp thread is gotten out from thread plate):



18.2. Parameter for electronic adjustment of trimmed threads tails must be adjusted for 26 mm:



18.3. Gimp thread draw-off guide must be adjusted in backward direction - to ⊕ direction:



18.4. Because sewing round eyelet generated more waste of thread, machine must be cleaned more often.

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19. THE TRIMMING MECHANISM ADJUSTMENT - LTT

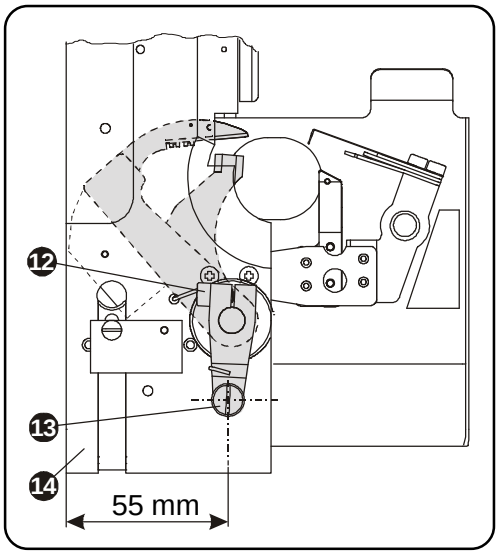
The lower thread and gimp thread are trimmed before the clamp feet are raised.

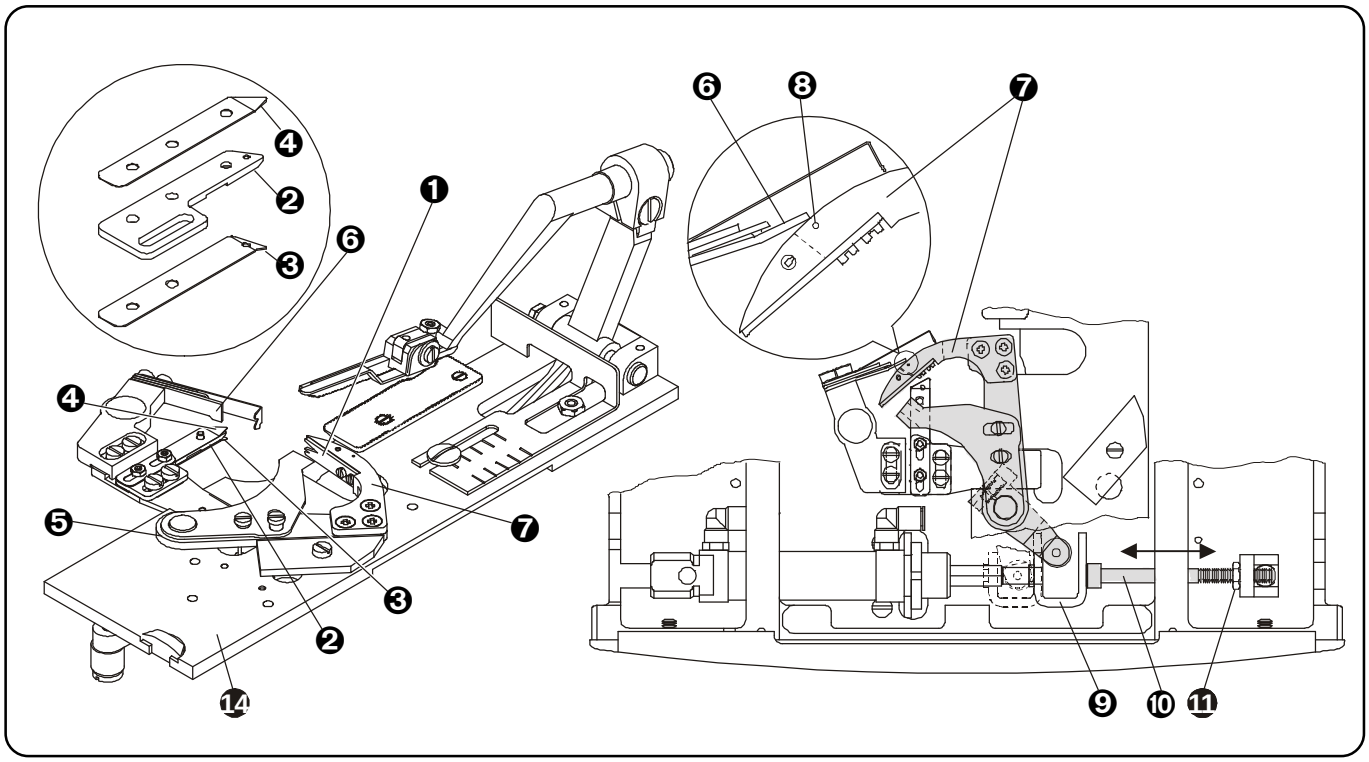
1. Adjust so that looper thread and gimp are separated upward and downward by thread catching plate ❶.

2. The clamp fixing plate ❷ ensures the correct holding of the upper and gimp thread by lower thread clamp ❸ and gimp clamp ❹.

3. Loosen the screw ⓬ and adjust the distance 55 mm between the clamp plate edge ⓮ and the bushing axis ⓭.
   Tighten the screw ⓬.

4. Using the stop screw ❿ adjust the maximal position of the cylinder click ❾ and the actuating arm ❺ so that the fixing knife edge ❻ is aligned with mark ❽ on the knife ❼.
   Fasten the stop screw by nut ⓫.





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a) knives adjustment - LTT

a.1. Loosen the screw ⓲.

a.2. Turn the knife ❼ in direction **A** and adjust the position of the guide plate ⓯ so that the lower edge of the guide plate ⓯ is aligned with knife edge ❼ .

a.3. Turn the knife ❼ in direction **A** and adjust the position of the fixing knife ❻ to obtain no clearance between them. Adjust the upper edge of the fixing knife ❻ to be aligned with knife ❼.

a.4. Align the upper and lower spring ⓰ ⓱ with fixing knife ❻. (Spring boss ⓰ faces towards the fixing knife ❻.)

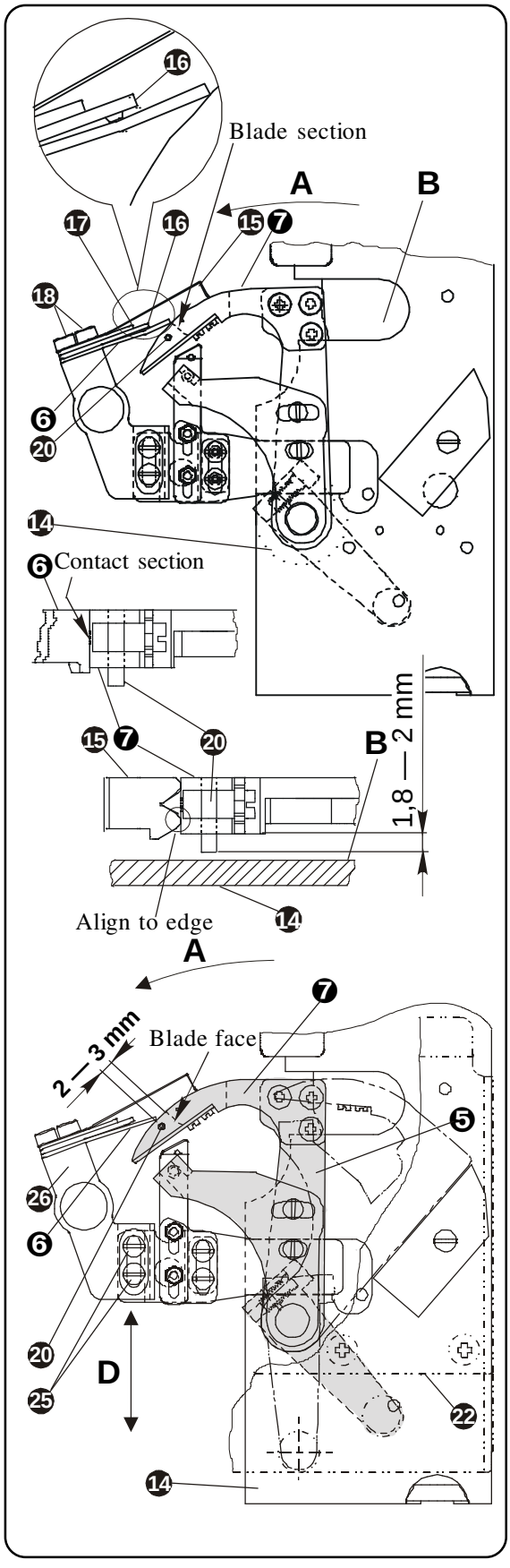
a.5. Tighten the screws ⓲.

a.6. Adjust the pin ⓴ to protrude 1.8 — 2 mm on the lower part of the knife ❼.

a.7. Loosen two screws ㉕.

a.8. Adjust the knife holder ㉖ with fixing knife ❻ in direction **D** so that the fixing knife ❻ touches the knife ❼ in distance 2—3 mm from the blade section (pin ⓴ is aligned with fixing knife face ❻). The larger distance, the bigger pressure on the blade.

a.9. Tighten the screws ㉕



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b) lower thread clamp fixing plate adjustment - LTT

b.1. Loosen two screws ㉔ .

b.2. Turn the knife ❼ in direction **A** to align the fixing knife face ❻ with knife blade section edge ❼. Then make as small as possible clearance **C** (approximately 1mm) between the thread catching plate ❶ and clamp fixing plate ❷ in direction of arrow **B.** Check the clearance **D** between the fixing knife ❻ and screw ⑲, when the fixing knife face ❻ is aligned with mark on the knife ❼.

b.3. Tighten the screws ㉔.

c) lower thread grasping opener - LTT

Turn the knife ❼ in direction **A** to align the fixing knife face ❻ with mark on the knife ❼. The lower thread clamp ❸ is closed in this position and retains lower thread.

d) looper thread hauling — LTT

d.1. Loosen two screws ⑲.

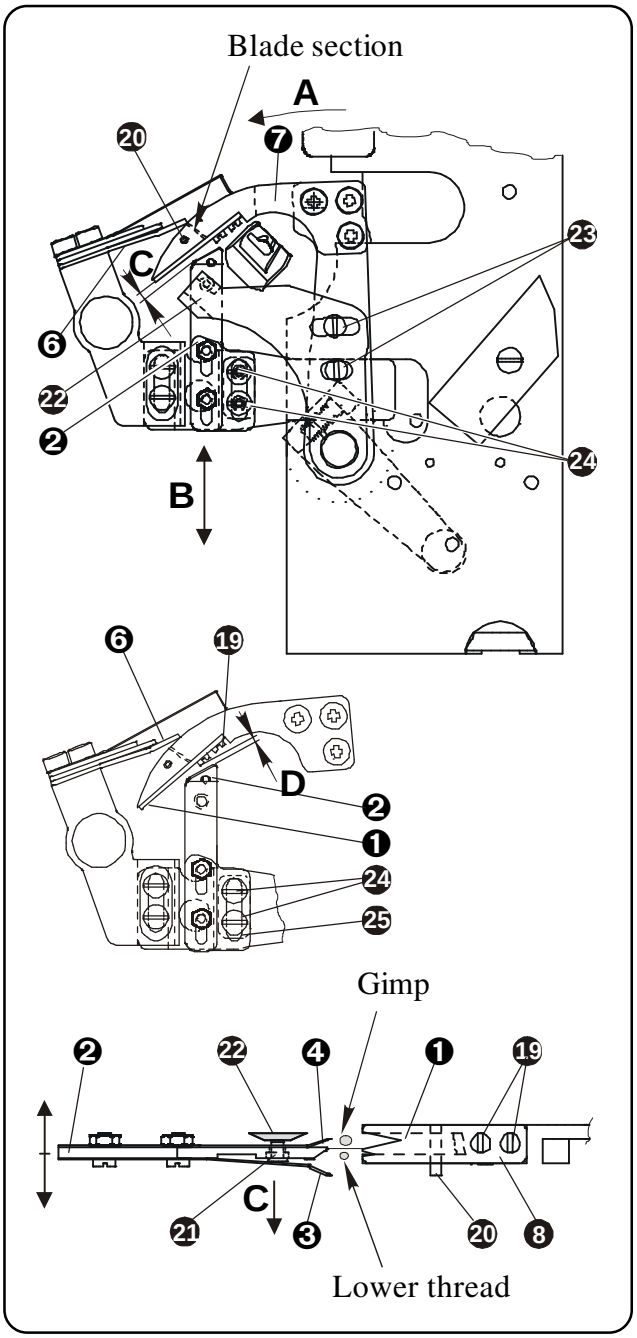
d.2. Turn the knife ❼ in direction of the arrow **A** to align the fixing knife face ❻ with the edge of the knife blade ❼. Align the lower thread fixing plate ❷ with thread hauling plate ❶ in vertical direction - see picture. Then tighten the screws ⑲.

d.3. Sew a sample buttonhole and check if the lower thread is inserted in the lower thread clamp ❸ and gimp is inserted in the gimp clamp ❹.

e) lower thread grasping opener - LTT

e.1. Loosen two screws ㉓.

e.2. Turn the knife ❼ in direction of arrow **A** to align the fixing knife face ❻ with knife blade section edge ❼. Turn the lower thread grasping opener ㉒ so that the lower side (slant) releases the pin ㉑ and lower thread clamp ❸ returns to the closed position. Then tighten the screws ㉓.



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20. 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. Check to be certain all parts that the thread passes through are smooth and polished with no burrs or sharp edges.

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

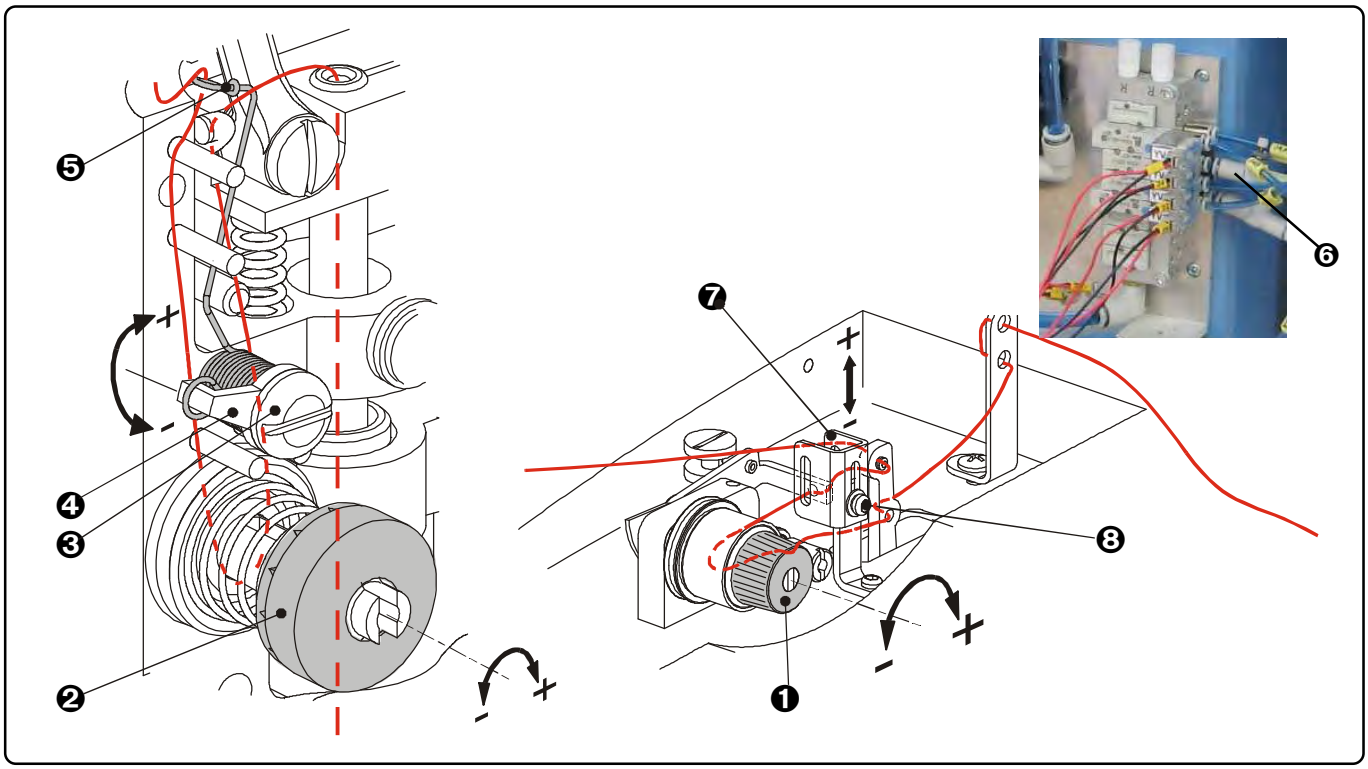
When using lower quality thread it is necessary to exchange the spring with the spare one, which is in the drawer of the machine.

20.1. By turning the tension knob ❶ clockwise, ***the top thread tension*** increases, anti-clockwise decreases.

20.2. 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.

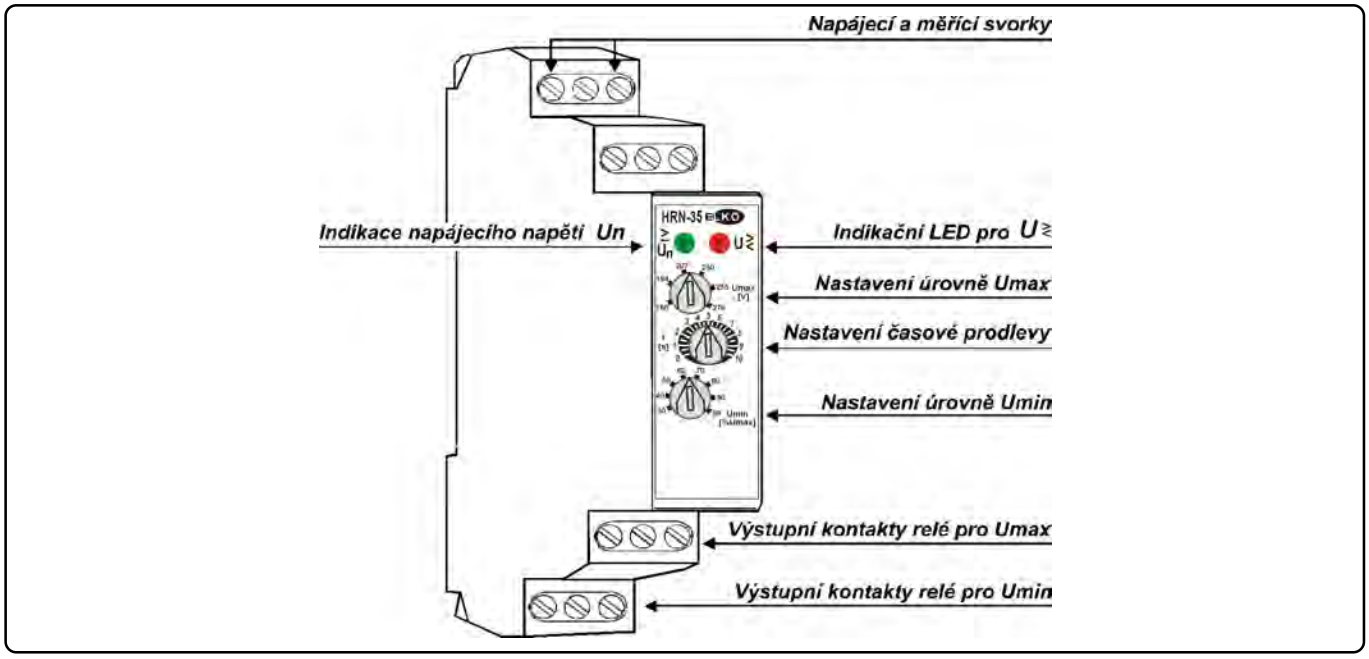
20.3. Increase the stud pressure ❹ by loosening the screw ❸ and moving the bracket ❺. The ends of the threads will be extended during the trimming.

20.4. Thread tension size is possible to adjust after loosing the screw ❽ moving thread guide ❼ up (*increasing*) or down (*reducing*).

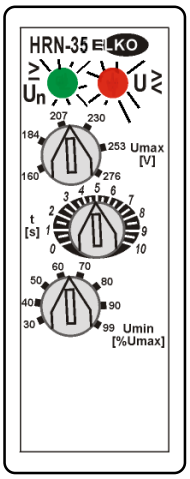


21. VOLTAGE GUARD

The voltage guard - relay HRN-35 (VC1) as an extra accessories is placed in the machine control box. It is adjusted and sealed from a manufacturer. If the supply voltage is in the ***required range***, the ***green*** LED **Un** indicates it on the voltage monitoring relay. If the upper limit (250V) of the supply voltage is exceeded, the ***red*** LED $U_{\gtrless}$, indicates it. If the supply voltage is lower than 190V, the ***green*** LED stops indicating and the ***red*** LED $U_{\gtrless}$. indicates it. If the supply voltage returns to the required range, the ***red*** LED stops indicating.



The upper limit (250V) is exceeded



a) When the power switch  is switched to the position **1**, the red LED . The power supply is disconnected, the display is not light and ***it is not possible to switch the machine on***.

b) If the supply voltage is higher than the upper limit during a sewing, the machine is automatically switched off to prevent control electronics damage. When the voltage level is restored to acceptable levels (190 - 250V), it is possible to start the machine in the standard way

The supply voltage is below the lower limit 190V

a) If the supply voltage is below the lower limit 190V, the message „LOW VOLTAGE“ appears on the display.
b) If the supply voltage drops below the lower limit during the sewing, the machine automatically stops and the „LOW VOLTAGE“ message appears on the display.
When the voltage level is restored to acceptable levels (190-250V), it is possible to start the machine in the standard way.

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F - MACHINE MAINTENANCE

Warning: - Check electrical cables for damage.
- Check if the safety covers are in a good condition. Order or replace damaged covers.
- Keep your hands out from the needle space and cutting mechanism.
- 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

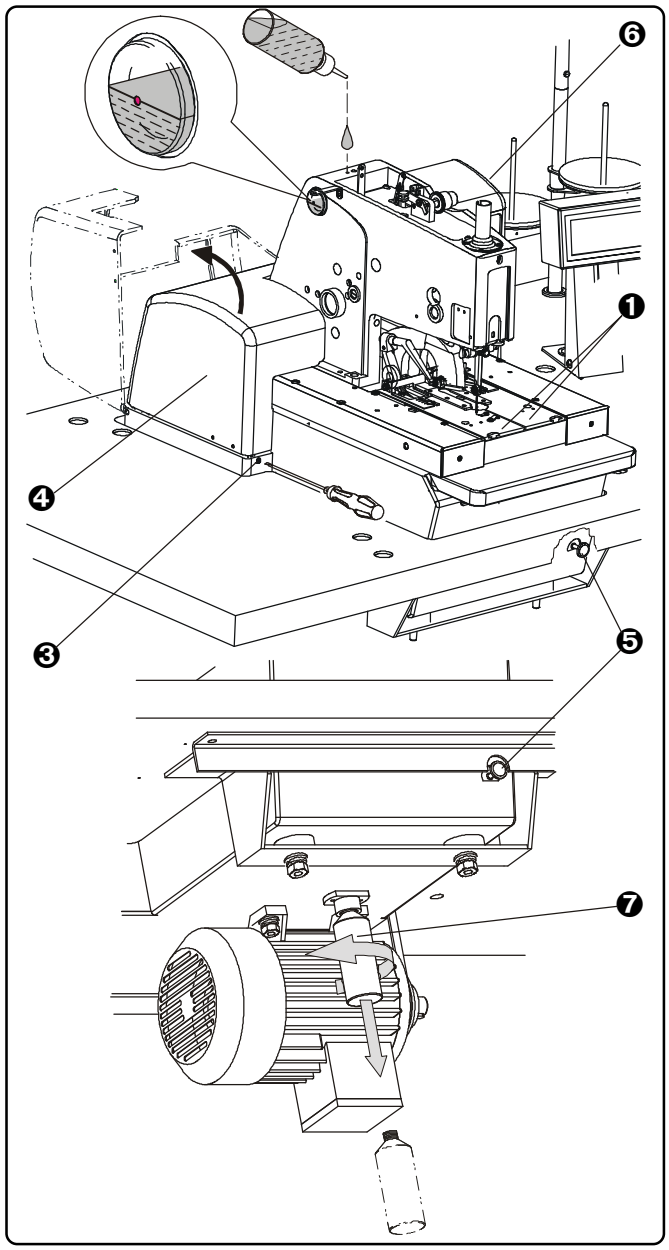
1.1. Switch the power off and disconnect the air supply.

1.2. 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.

1.3. Clean the thread lints and fabric from the sewing area - guides and thread tension. To move the sewing mechanism, turn the hand wheel ❻. 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 ❺.
By pressing the button ❺, the machine can lowered to the working position.
WARNING! Possible serious injury when lowering the machine head.

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

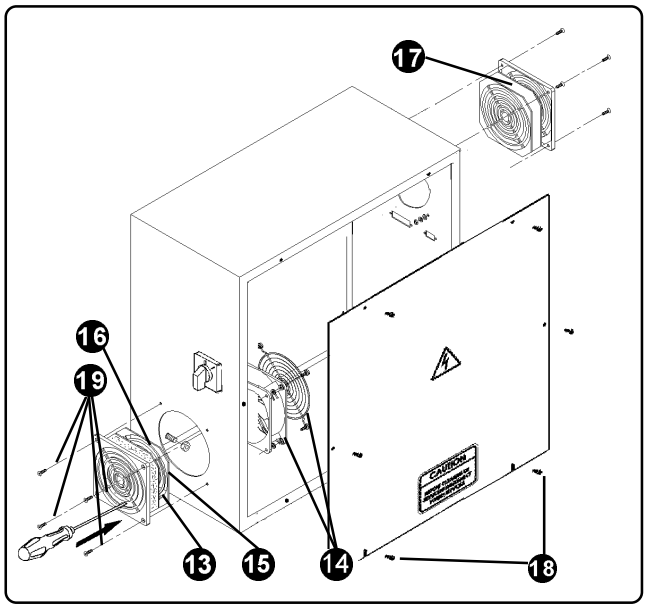
1.5. Check if the oil reservoir ❼, under the machine, is full. It is necessary to liquidate used oil according to the environment regulation.



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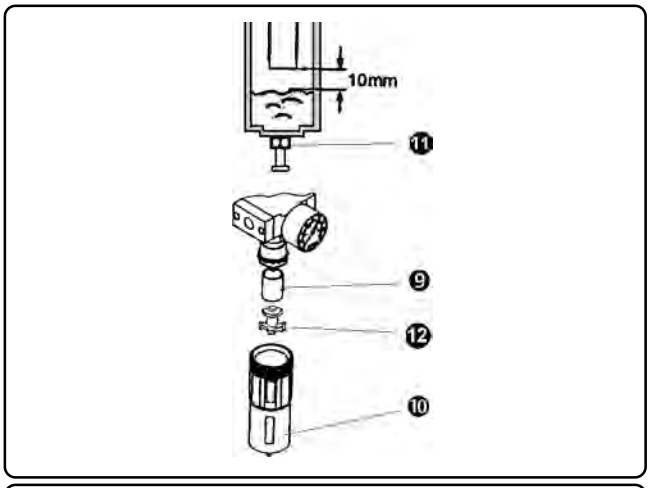
1.6. Using a screwdriver, loosen the locks ⓲ on the control box door. Using a wrench, loosen 4 screws ⓳ on the fan rack ⓭.

CAUTION! When loosening 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.



1.7. 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 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.

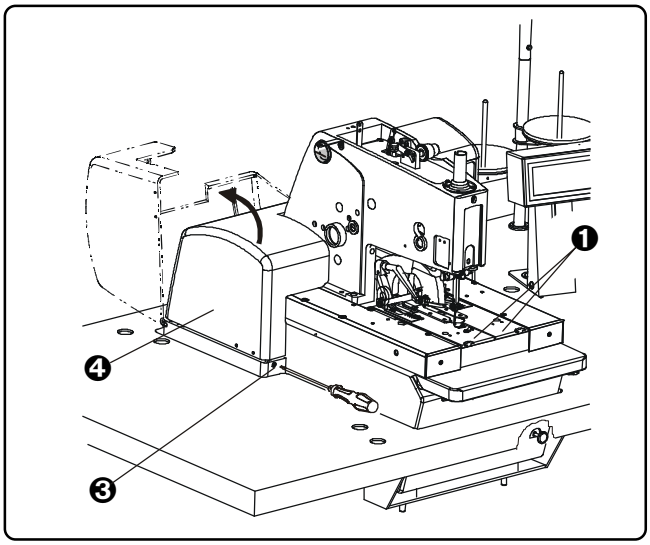


With worse flow despite same pressure setting

replace the filter element ❾ after stopping the air supply. Unscrew desliming receptacle ❿ anticlockwise and ventilate. By unscrewing the nut ⓬, loosen the filter element ❾, place the new one and assemble the device in reverse order.

1.8. Perform visual check of mechanism especially in area of sewing mechanism. Make sure that in this area are not any scraps of threads and fabric.

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



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2. PERIODIC MAINTENANCE

once a day (8 hours of operation)	-	cleaning of the sewing mechanism area and inner frame of the machine
once a week (40 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)

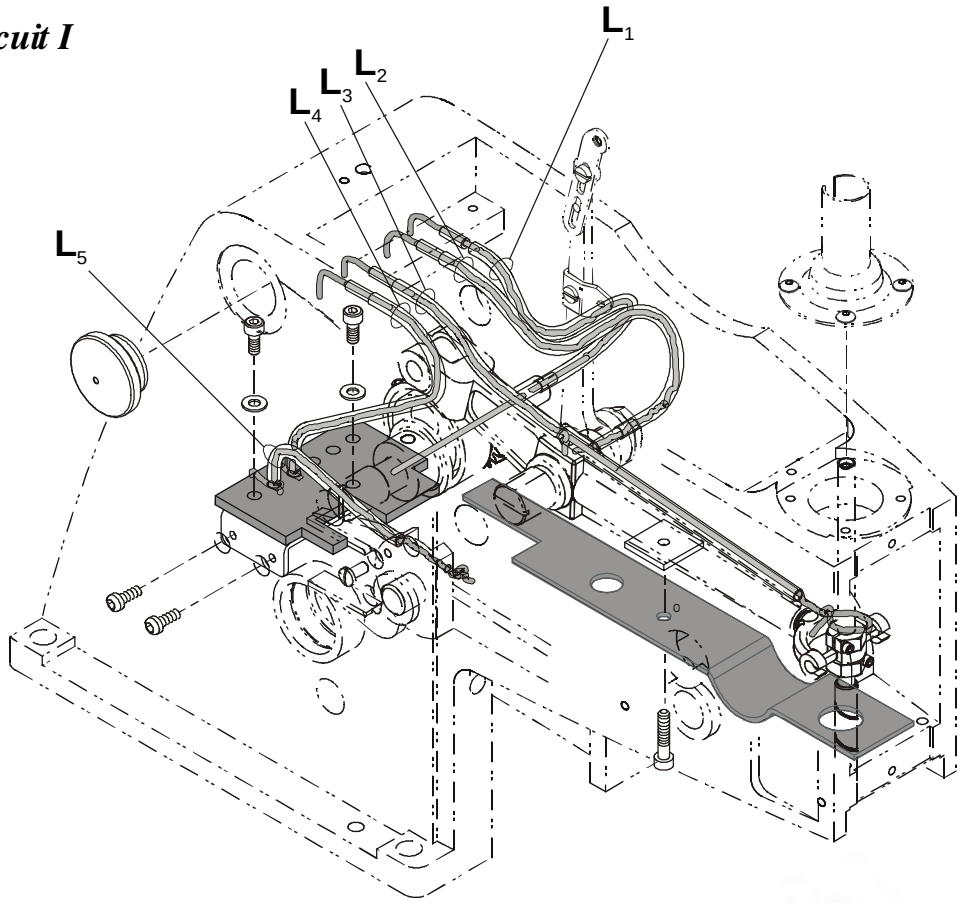
M3	0,5	0,6	0,8
M4	1,2	1,5	2,0
M5	2,5	3,0	4,0
M6	4,0	5,0	7,0
M8		8,0	16,0
M10		10,0	30,0

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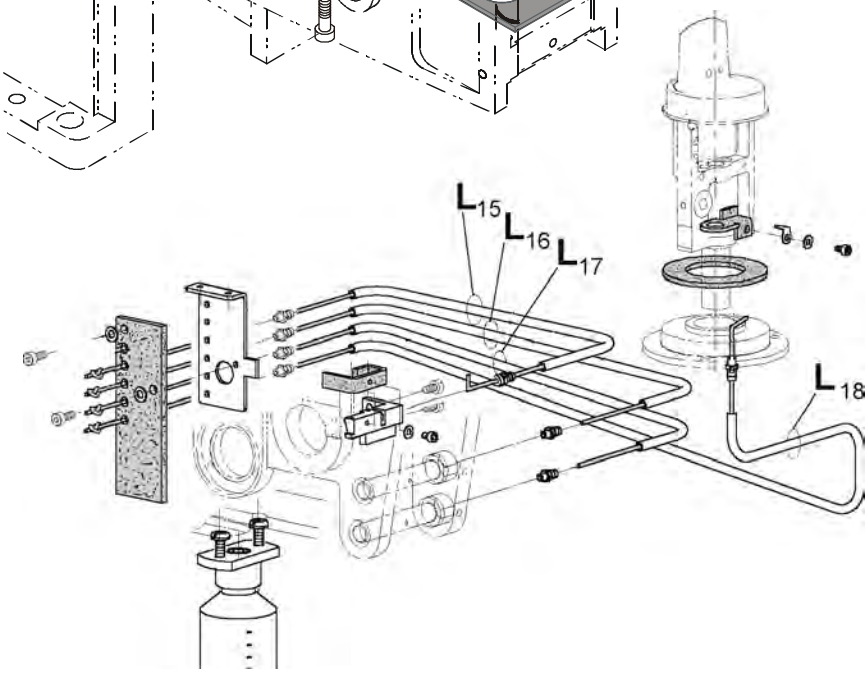
3. SCHEME OF THE LUBRICATION DISTRIBUTION

The machine is equipped with needle and ball bearings, which in combination with two lubrication circuits significantly decrease required maintenance.
Circuit I for lubrication of the arm has oil in reservoir of the barrel. The lubrication of lower unit is made by oil in frame recess - ***circuit II***. In case of replacement of any branch of distribution it is possible to order the tube sets and wicks. Replace according to the illustration below:

Circuit I



Circuit II



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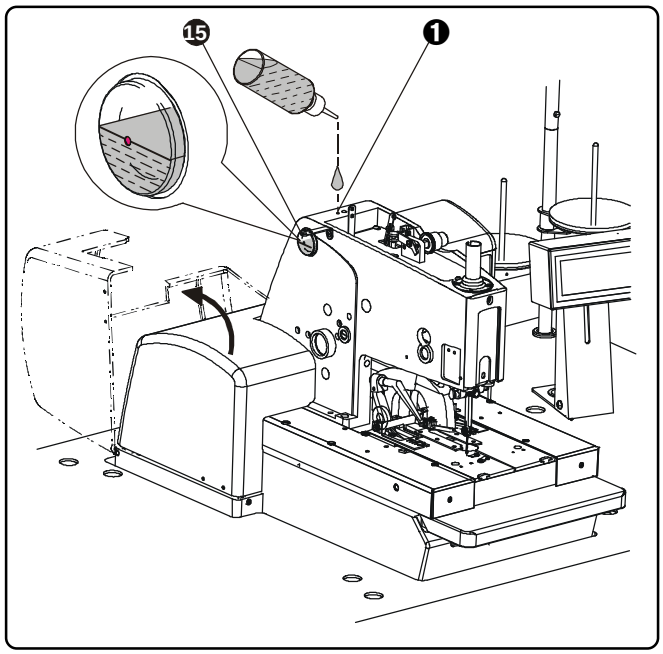
4. MACHINE LUBRICATION

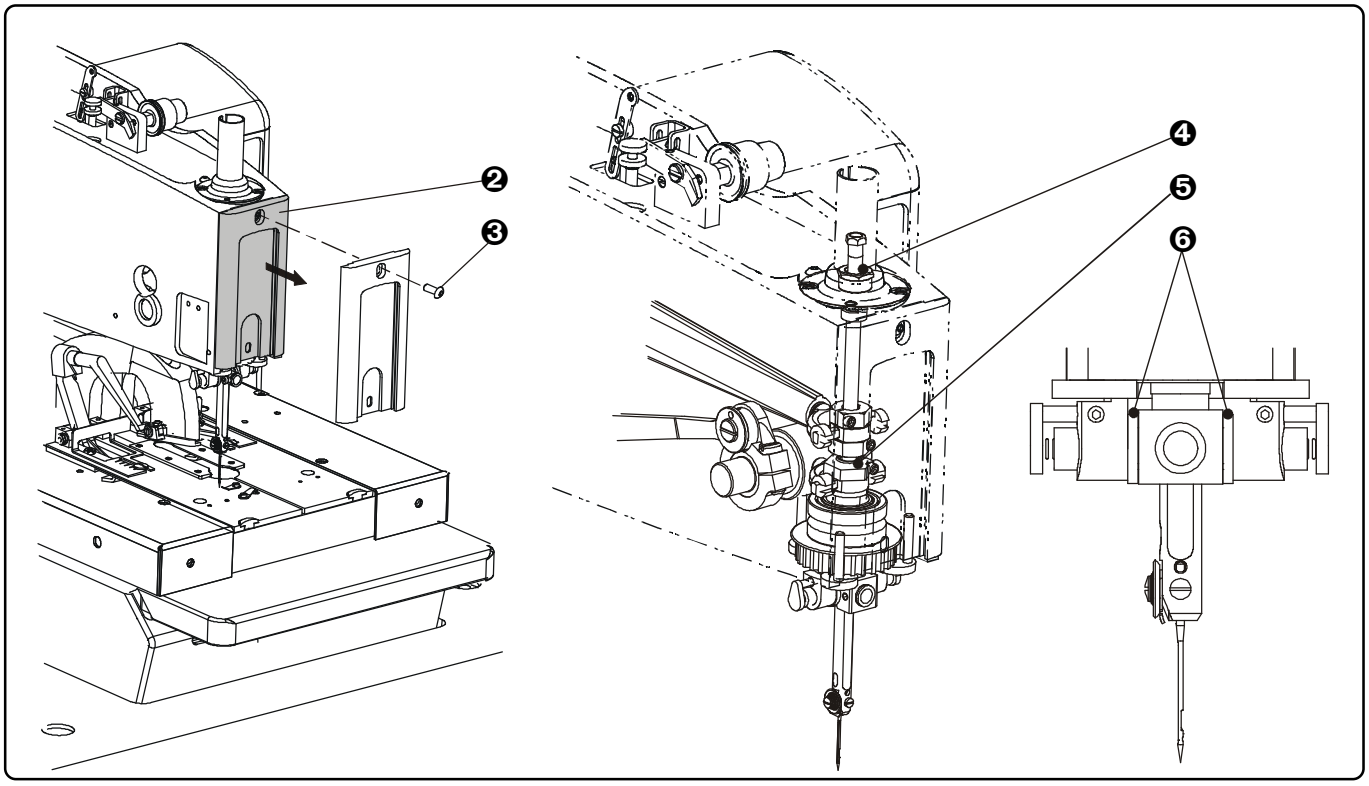
4.1. It is necessary to remove preserve oils and lubricate the places shown below before the machine is switched on for the first time or after a long idle period. Use ESSO TERESSO 32 or similar quality.

4.2. The amount of oil in the reservior ⓯ is indicated by the red mark. Too much oil may cause its overflowing from the base area.

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

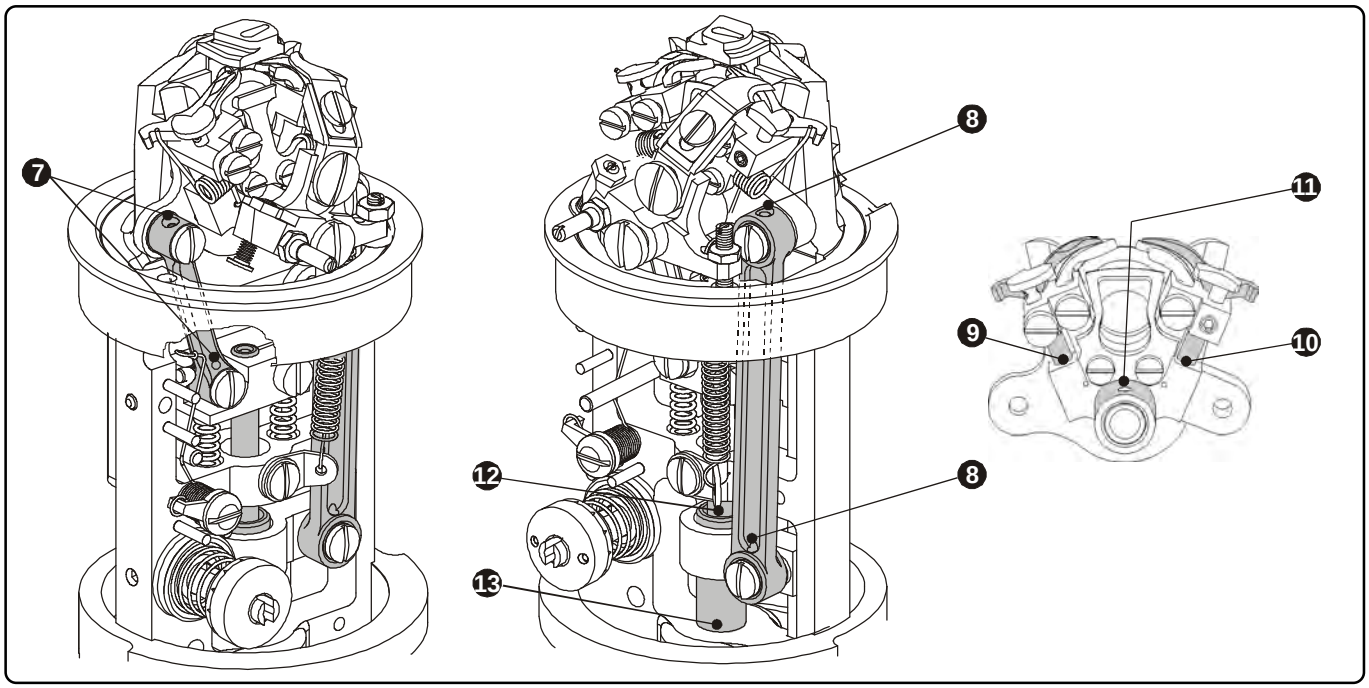
4.4. The lubrication of the needle bar is performed after unscrewing the screw ❸ and removing the cover ❷. Few drops of oil drop on needle bar above the bearing ❹, on the centre of the needle bar ❺ to the area where the spiral lubricating groove is and to the space between the washers ❻ and surface.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



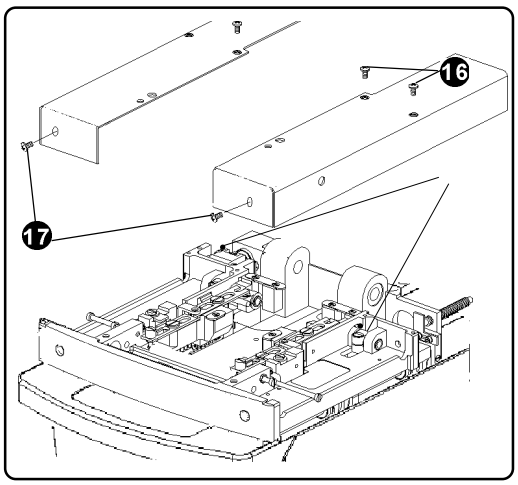


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4.5. Remove the feet plate according to the part ***E2, point 2*** and oil the bushing ❼ and ❽, rod of the spreader ❾ and ❿, stud ⓫ and shafts ⓬, ⓭ by one or two drops of oil to the marked places on the drawing shown and on the machine are those places marked by red dors. 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.***



4.6. 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 .



4.7. 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.

4.8. Reassemble all removed parts, fix the feet plates again.

4.9. 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.

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5. MACHINE DISPOSAL

5.1. 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.

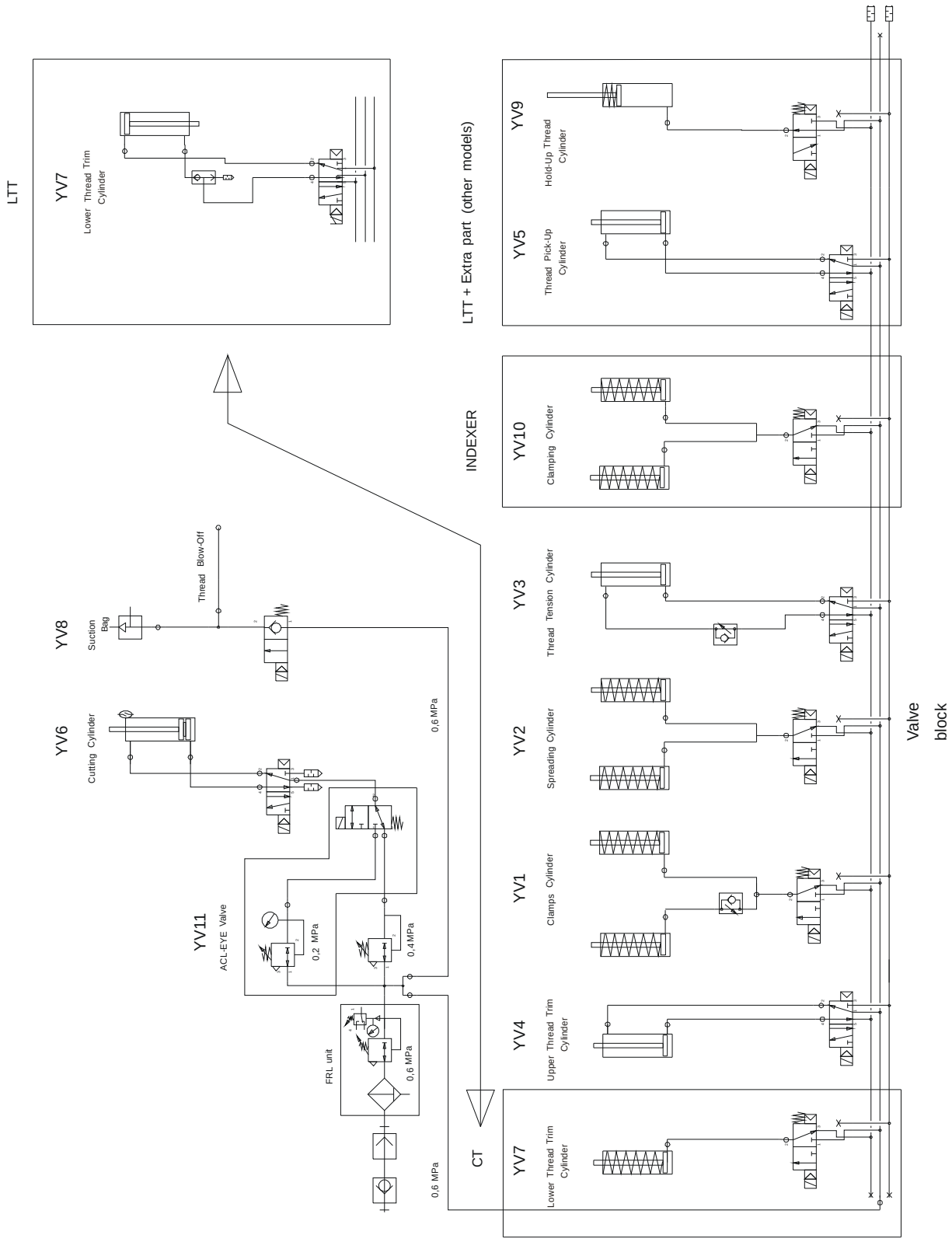
5.2. Aluminium and duralumin parts must be treated separately, also nonferrous metal parts and plastic parts.

5.3. 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

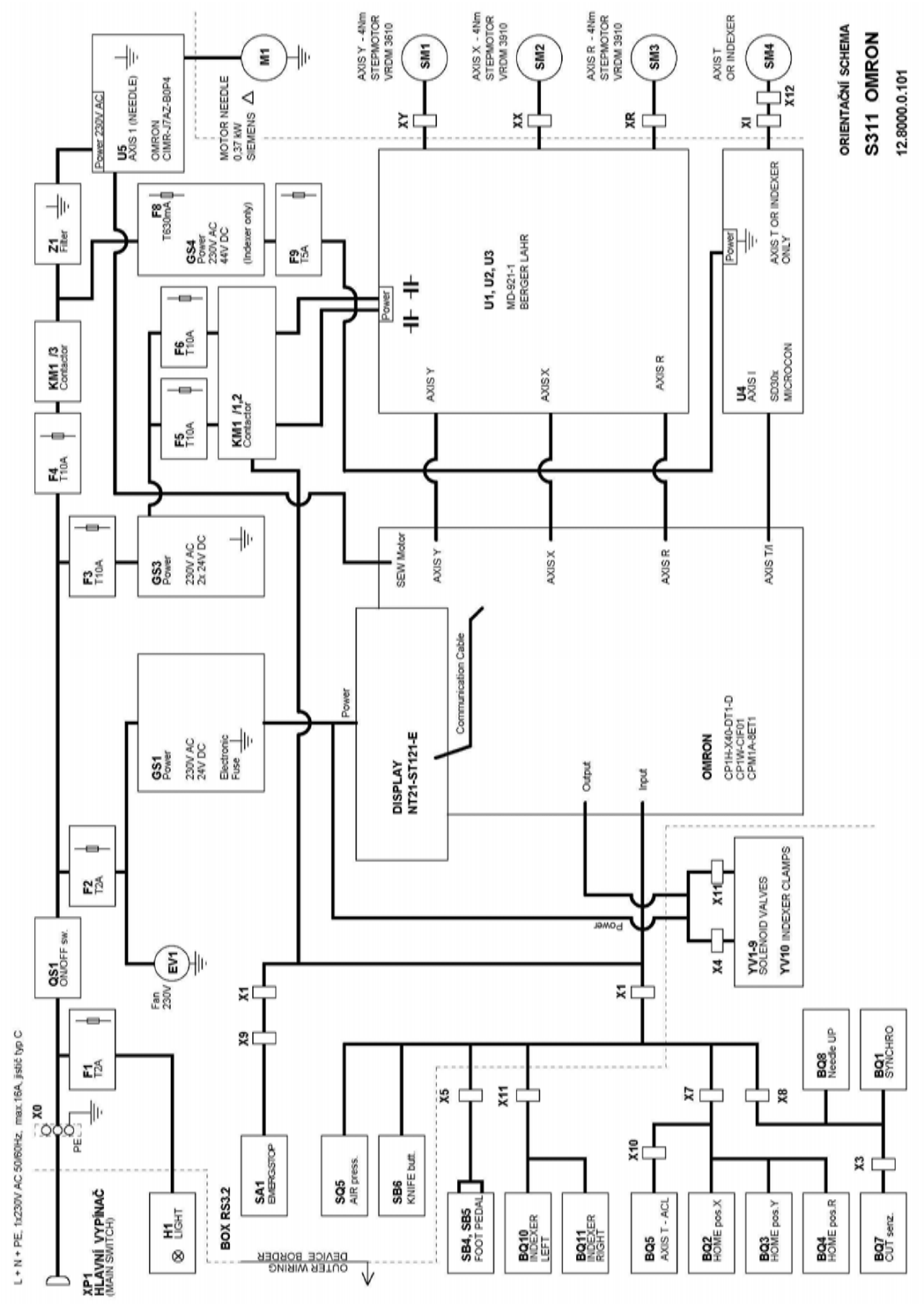
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PNEUMATIC DIAGRAM



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ELECTRICAL DIAGRAM



TROUBLESHOOTING

TABLE OF CONTENTS

Page

1. INTRODUCTION 2-2

2. FAULTS WITHOUT ERROR MESSAGES 2-3

3. THE ELECTRONIC SYSTEM ERROR MESSAGES 2-6

4. ELECTRICAL FAULTS 2-9

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 **S-311** 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.	**E19**
	Damaged loopers, spreaders, or throat plate.	Replace damaged parts. Congested girders and tube in openers.	
	Incorrect needle and sewing mechanism adjustment.	Correctly adjust the needle bar, loopers, openers and tension.	**E4, E10, E7, E11, E12, page 1-51,52**
	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. Damaged loopers. Threads not threaded properly.	Roll the needle on a smooth flat surface, if bent, replace the needle. Threading control.	
	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.	**page 1-51** **page 1-52**
Skip stitches.	Incorrectly adjusted thread draw-off.	Correctly adjust the sewing mechanism	**E12**
	Bent needle or damaged stitch forming parts. Loopers, openers.	Replace the damaged parts.	
	Incorrectly adjusted sewing mechanism. Incorrect needle guard distance.	Correctly adjust the sewing mechanism. Set the distance to 0.05 mm.	**E10, E11** **page 1-51** **page 1-52**
	Defective spreader return springs	Replace the springs.	
Sewn fabric is incorrectly cut.	Knife and cutting steel are incorrectly installed. Sensor for cutting returns cutting lever too early	Check the knife impression on the cutting steel, adjust or replace as needed. Check the knife. Replace if damaged. Adjust the sensor for cutting	
	Cutting cylinder pressure is too low.	Tighten the adjusting screw by 1/2 rotation and check the cutting.	**8.5 - 8.6** **page 1-49**
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.	**E13 page 1-54**

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION	SERVICE SECTION
The lower thread is not caught in the thread retainer after sewing the buttonhole	Big clearance between holder and throat plate.	Choked slot in throat plate. Adjust the clearance between the holder and throat plate	**page 1-56**
In case looper 03.5519.3.013 is assembled			
The top thread is trimmed, but is held in the material	The thread retainer is adjusted incorrectly. Big clearance between clamps.	Re-adjust the thread holder. Reduce upper thread tension, adjust the clearance between clamps 0,005 mm.	**E13** **page 1-56** **page 1-48**
In case looper 03.5519.4.013 is assembled			
Thread pick-up does not catch the upper thread	Knife for trimming the upper thread is damaged	Check the knife, re-adjust, adjust constant tension	**E13**
The lower thread is not trimmed	Check the shears on the clamp plate for dullness or damage, and valves are working properly.	Grind or replace	
	Low air pressure	Set the air pressure to 0.45 MPa and higher	**B7**
Broken needle	Incorrectly set parameters for length of a buttonhole and flybar length	Length of a buttonhole and flybar length must be set in accordance with installed clamp plates	**D3**
	Loopers are incorrectly adjusted	Re-adjust	**page 1-51** **page 1-52**
	The shears on the clamp plate do not operate the right way	Check the shears, clean or lubricate	
The machine switched off when sewing the buttonhole	The power supply was disconnected	Switch the machine on and continue according to section **C1**	
When sewing the next buttonhole first stitches are loose	The top thread is loose	It is recommended to equipped the machine with the thread nipper for the following 03.5519.3.013	

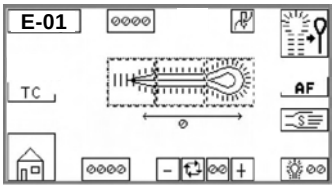
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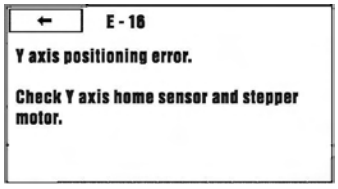
TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION	SERVICE SECTION
Indexer clamp plates do not close.	Air supply is not connected.	Check air supply.	
Clamp plates do not hold the material properly.	Low pressure.	Check air pressure (0,5 min. Bar) E1-S-311+I.	
	Clamp plate height is not adjusted properly.	Adjust clamp plate height for 19 mm.	
Indexer clamps hit into clamp plate of sewing head.	Indexer sensor screens are not adjusted properly.	Adjust proper sensor position. (sensor E2-S311+I).	
	Faulty sensor.	Ceck in tests the input BQ10 and BQ11. (sensor 12.0010.4.038)	
	Defective cable.	Cable replacement.	
	Shifted cables to sensor BQ10 and BQ11.	Change cables.	
Irregular distances between buttonholes.	Small clearrance 0,5-0,7 mm E1-S311+I	Adjust clearance 0,5-0,7mm E1-S311+I	
	Incorrect CT trim or upper thread trim.	Check the knives, eventually replace	
Irregular buttonhole distances from the material edge.	The Indexer left clamp plate and thread nipper impact.	Check the nipper position.	
Not possible to sew required applicationon the machine.	The Indexer right clamp plate is not pre-set.	Adjust proper position of the right clamp plate E3-S-311+I.	
	Exceeded Indexer range.	Check the specification.	

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	Machine is not in home position.	Press 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.
E-04	Low air pressure. Air pressure is below 3,5 bar.	Check the air supply.
E-05	Cutting lever error.	Check BQ7 sensor and the air supply. Press and release Emergency stop button to reset this error message.
	Cutting lever error during cutting	Check BQ7 sensor and air supply.
E-06	Cutting lever is not home.	Check BQ7 sensor and air supply.
E-07	Low voltage.	Check power supply & voltage.
E-10	X axis error.	Press buton.
E-11	Y axis error.	Press buton.
E-12	R axis error.	Press buton.
E-15	X axis positioning error.	Check X axis home sensor BQ2 and stepper motor.
E-16	Y axis positioning error.	Check Y axis home sensor BQ3 and stepper motor.

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TROUBLESHOOTING

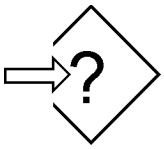
SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
E-17	R axis positioning error.	Check R axis home sensor BQ3 and stepper motor.
E-18	I axis positioning error.	Check I axis home sensor BQ10, BQ11 and stepper motor.
E-19	T axis positioning error.	Check T axis home sensor BQ5 and stepper motor.
E-20	Sewing motor error.	Check the frequency inverter.
E-21	Stepper motors driver error (axes X, Y, R).	Check the stepper motor driver.
E-40	Service mode.	Press and release the Emergency stop button and press  buton.
E-50	Parameters Error.	Check the buttonhole parameters setting according to sewing range of machine type.
E-51	Buttonhole length parameter error.	Check the buttonhole lenght parameters setting according to sewing range of machine type.
E-52	Fly bar length parameter error.	Check the fly bar lenght parameters according to sewing range of machine type.
E-53	Fly bar buttonhole total lenght error.	Check the buttonhole lenght and fly bar parameters according to sewing range of machine type.
E-54	Cross bar buttonhole total lenght error.	Check the buttonhole lenght and cross bar parameters according to sewing range of machine type.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
E-56	ACL-LP lapel cutting lenght parameter error.	Check the lapel cutting length according to moveable support plate range of machine type
E-57	ACL-LP lapel cutting parameters error.	Check the lapel cutting length and position according to moveable support plate range of machine type.
E-58	ACL-LPE eye cutting length parameter error.	Check the eye cutting length as to be longer then eye length and shorter than buttonhole length
E-60	Indexer Buttonhole parameters setting error.	Check the parameters for Buttonhole marked Err.
E-61	Indexer total buttonhole length setting error.	Adjust the buttonhole lenghts according the indexer sewing range.
E-62	Two buttonhole lenght settings error in indexer program.	Adjust the buttonhole lenght as to be in range 7-16 mm.
E-70	Moveable support plate did not move into required position.	Wait until the moveable support plate moves to relevant position.
E-99	Emergency stop button.	Release the Emergency Stop button.

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TROUBLESHOOTING



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

4. ELECTRICAL FAULTS

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
When 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, F2 failure (T2A)	Replace fuse PN 12.0008.4.665
	Power switch QS1 damaged	Replace the switch 12.0008.4.835
After the machine is switched on, display does not light	GS1 Power damaged	Replace the power 12.0010.4.168
	Cable from the display disconnected	Check the display connection
	Display or its control damaged	Replace display or control units, call AMF Reece Service
When sewing operation started, motor does not operate. Frequency inverter U5 error - check its display - does not light. Contactor KM1 switched on.	Fuse F4 failure (T10A)	Replace fuse PN 12.0008.4.664
	Contactor KM1 damaged	Replace contactor 12.0008.4.833
	Frequency inverter U5 19.8001.0.008 error or filter Z1 error	Call AMF Reece service
When sewing operation started, motor fails to operate. Frequency inverter U5 error - check its display - does not light. Contactor KM1 switched off.	Contactor KM1 damaged	Replace contactor 12.0008.4.833
	Emergency stop turned off	Turn on Emergency stop
	Defective Emergency stop button	Change the stop button PN 12.0008.4.563
	Disconnected girth Em. stop	Check the girth button
Indexer motor does not hold its position.	Motor driver defect	Change 12.0008.4.754
	Disconnection of stepping motor supply	Check of motor driver connection 06.1900.0.005
	Stepping motor defaut	Change motor 06.1900.0.003

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
When sewing operation started, air valves do not operate. The air pressure correct.	Contactor KM1 damaged	Replace contactor 12.0008.4.833
Incorrect function of the air valves	Inadequate contact of contactor KM1,or sockets X4	Replace contactor 12.0008.4.833 Check the main power supply with socket X4
Stepping motors do not hold their position	Fuse F3 failure. ((No LED light is on the stepping motor driver) (T10A)	Replace fuse PN 12.0008.4.664
	Contactor KM1 fault.(No LED light is on the stepping motor driver)	Replace contactor PN 12.0008.4.833
Some part of one of the stepping motor does not keep its position	Driver error	Change the driver PN 12.0008.4.891
	Stepping motor supply is connected (cables replacement)	Check a connection: motor - driver
	Stepping motor fault	Change motor 19.0007.9.462
	Contactor KM1 damaged (Only some LED light is on the stepping motor drive)	Replace contactor PN 12.0008.4.833
	Burned fuse F5, F6 (Only some LED light is on the stepping motor drive) (T10A)	Replace fuse PN 12.0008.4.664
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 HOME button to bring the machine to the home position.

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