



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)



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) 582-309-275
Fax: (+420) 582-360-608
e-mail: service@amfreece.cz



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:

(S101, S100, S104, S105, S311, Decostitch, S4000, EBS Mark II, 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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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.

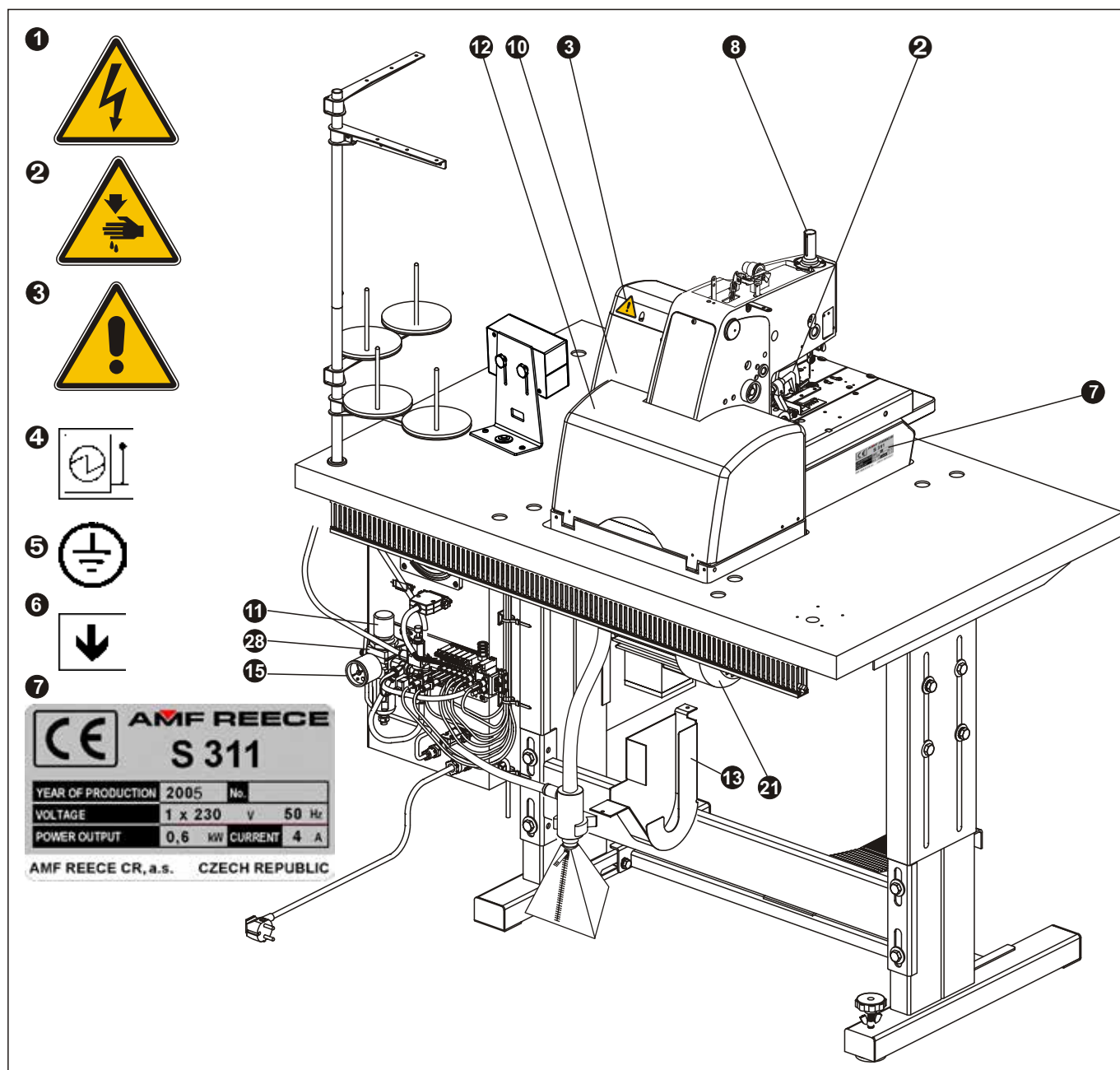
The most effective safety precaution is a well-managed safety program. Be sure those who use this machine are properly trained. Never disable safety equipment.

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

A - INTRODUCTION

2. SAFETY LABELS AND DEVICE

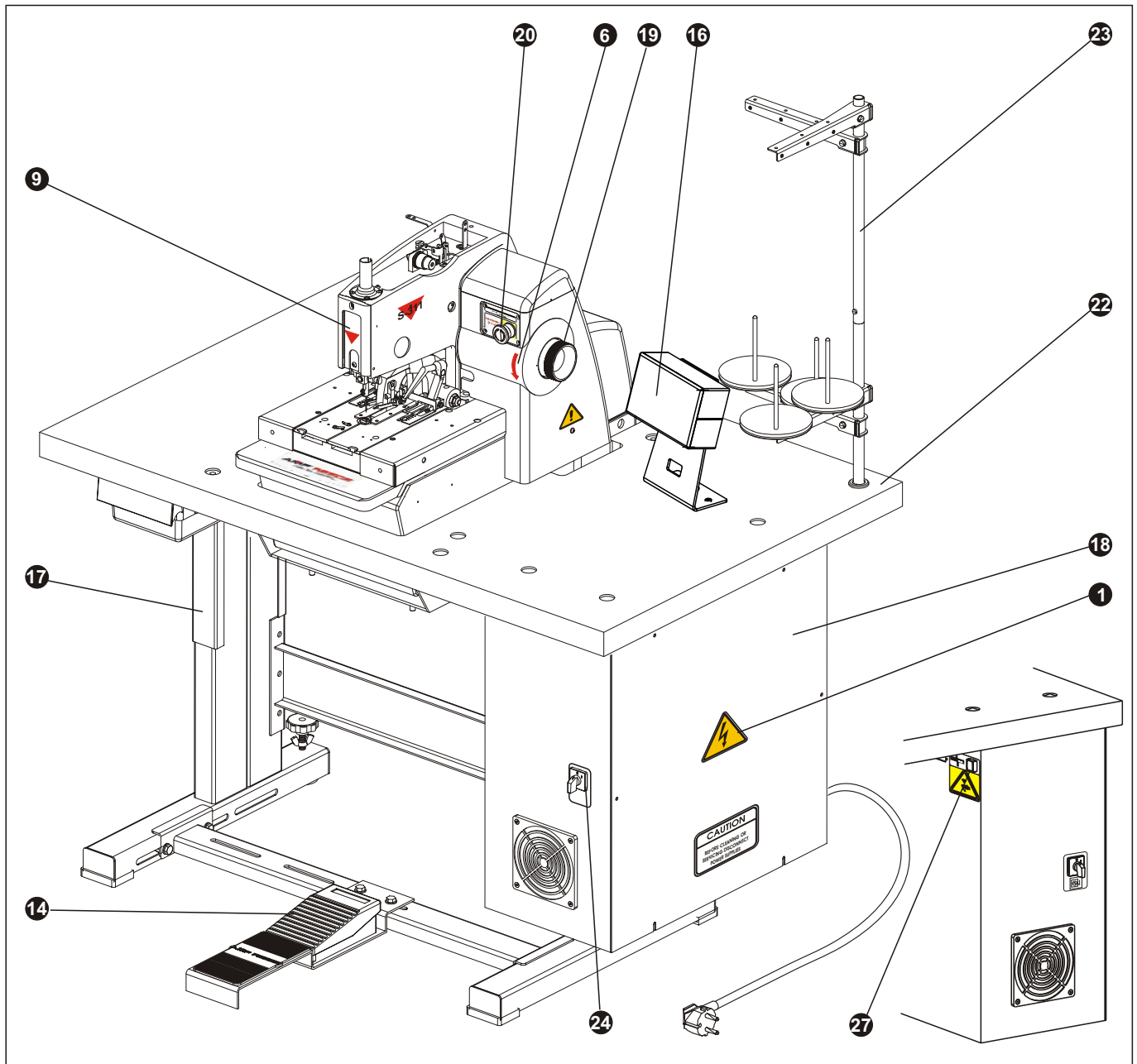


- ① Warning
- ② Danger possible injury
- ③ Covers removed possible injury
- ④ Switch
- ⑤ Grounding
- ⑥ Rotational direction
- ⑦ Standard label

- 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

A - INTRODUCTION

3. GENERAL MACHINE PARTS DESCRIPTIONS

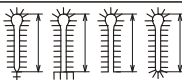
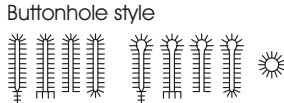
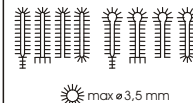
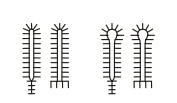
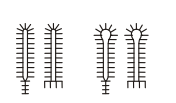
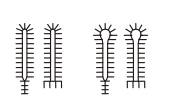
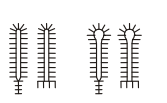
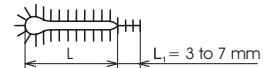


- 16 Display
- 17 Table
- 18 Control box
- 19 Hand wheel
- 20 Emergency Stop button
- 21 Motor
- 22 Table top
- 23 Thread stand
- 24 Main power switch
- 27 Cutting activation button
- 28 Air pressure regulator

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4. SPECIFICATION

S-311 Elektronik 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.

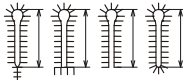
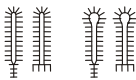
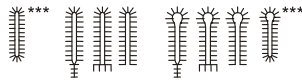
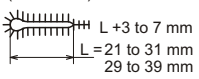
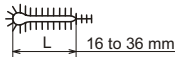
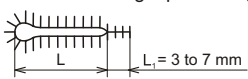
Machine type/model	AF	CT 14 - 24 mm		CT 22 - 32mm	
Sewing speed	1000 to 2000 stitches/min (500 to 1000 rev/min of the drive shaft)				
The length of hole 	10 to 50 mm	14 to 24mm		22 to 32mm	
Stitch Density	0,5 to 2,0 mm (increments of 0,1 mm)				
Number of stitches in the eye	4 to 20				
Bite Range Elecctronic	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 					
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 	—	 (Short ends)			
Cutting space 		L = 14 to 24mm L+L ₁ = 21 to 31mm		L = 22 to 32mm L+L ₁ = 29 to 39mm	
Operating Condition	according to IEC 364-3, IEC 364-5-51 temperature from +5°C to 40°C, relative air humidity from 30 to 80%				
Air pressure	0,55 MPa = 80 PSI				
Machine db Level	L _{WA} =86,9db; L _{pA} =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	1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S				
Line Circuit Breaker	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

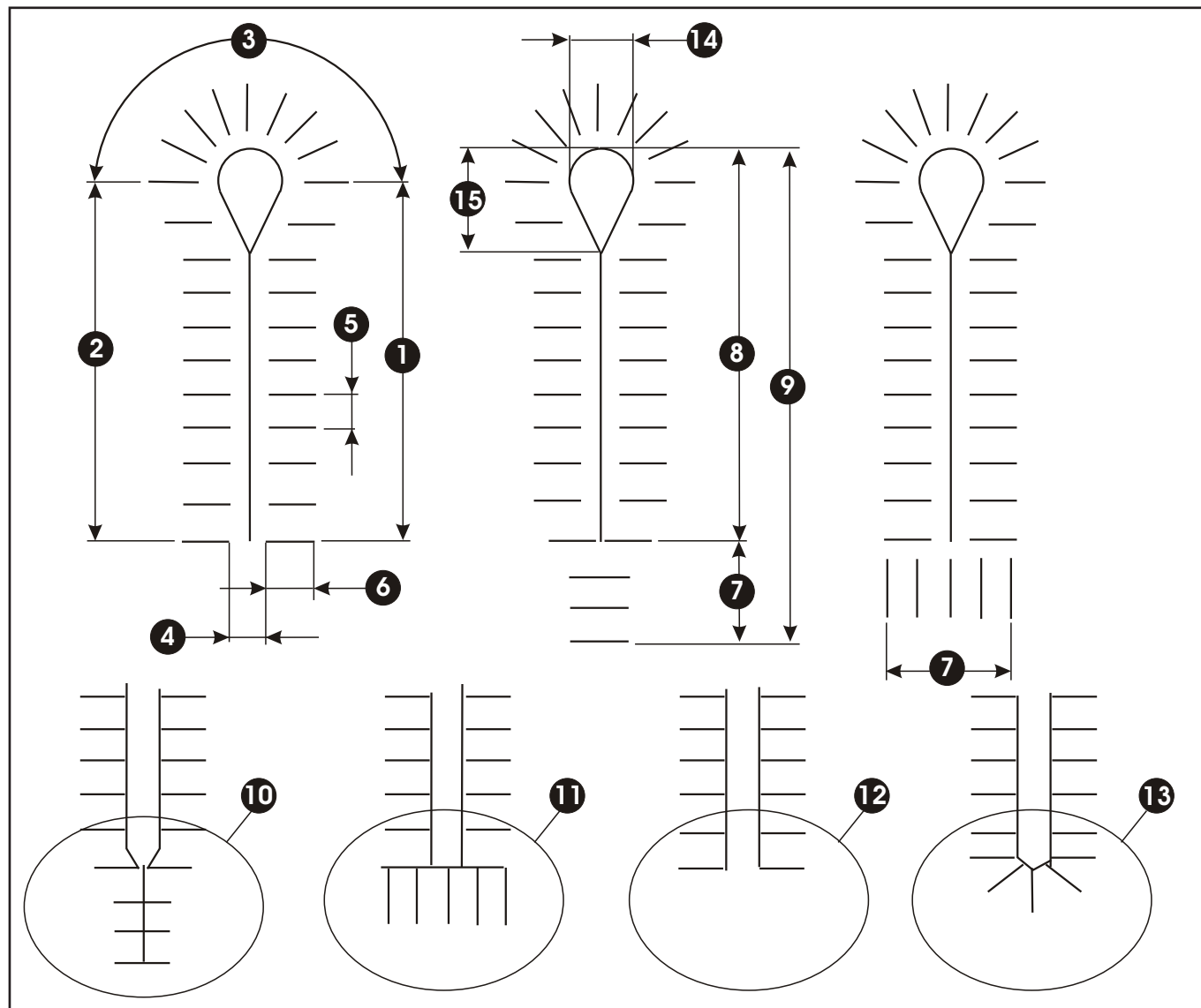
A - INTRODUCTION

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 Electronic
2,1 mm (AF, LTT); 2,3 mm (CT) (± 0,5 mm electronic); 2,7 mm (± 0,5 mm electronic)			Bite Range Electronic (???)
			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		ø 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) 	  (long ends) 		Lower thread and gimp trimming
Cutting space 			
according to IEC 364-3, IEC 364-5-51 temperature from +5°C to 40°C, relative air humidity from 30 to 80%			Operating Condition
0,55 MPa = 80 PSI			Air pressure
L _{WA} =86,9db; L _{plA} =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 manually.

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5. BUTTONHOLE DESCRIPTION

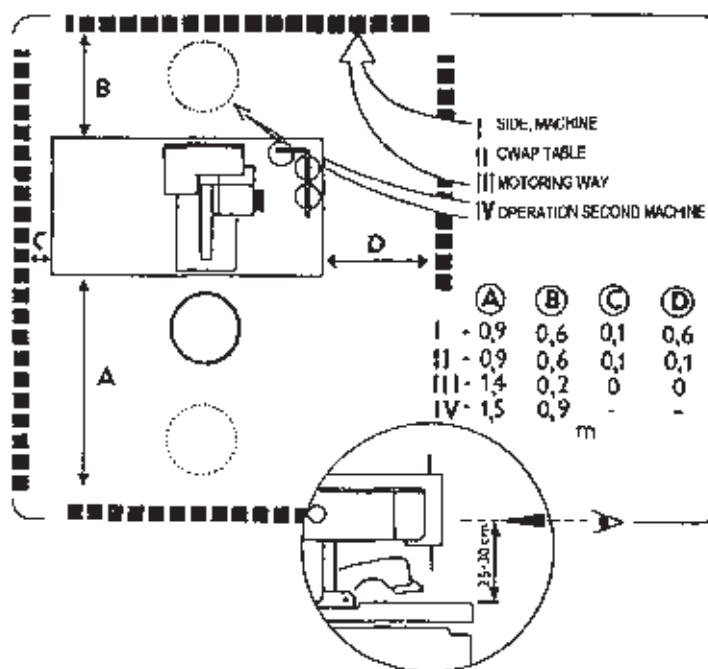


- ① The first row of stitches
- ② The second row of stitches
- ③ Eye
- ④ Cutting space
- ⑤ Stitch density
- ⑥ Bite size
- ⑦ The length of a bar
- ⑧ The length of cutting

- ⑨ The length of buttonhole
- ⑩ Fly bar AF
- ⑪ Cross bar CRB
- ⑫ Open End
- ⑬ Round End
- ⑭ Buttonhole width
- ⑮ Buttonhole length

A - INTRODUCTION

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!

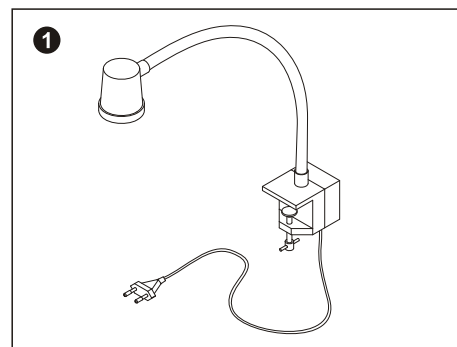
- Perform all regular service as described in this manual.
- If there is any problem with the power supply, turn off the main power switch.
- Do not remove, paint over, damage or in any way change safety labels. If a safety label cannot be easily read, replace it.
- Long hair and loose clothing may be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

A - INTRODUCTION

7. SPECIAL DEVICE

7.1. Working light ①

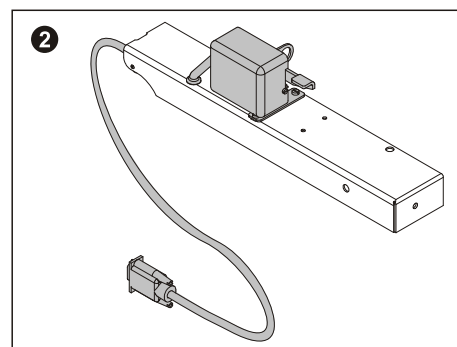
- order number 12.0008.4.875



7.2. Manual machine control ②

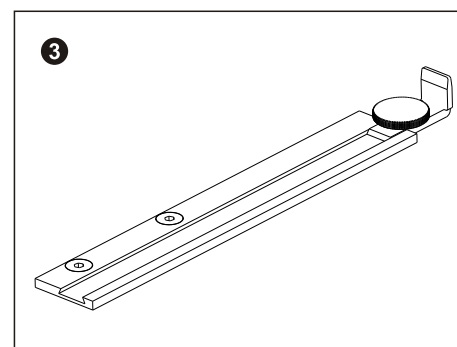
- order number 03.5519.0.007

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



7.3. Ruler ③

- order number 03.5511.0.003



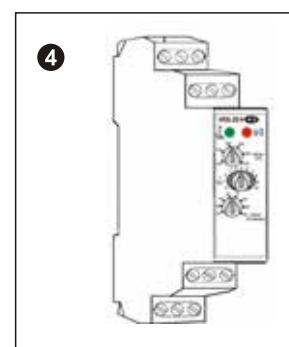
7.4. Voltage control - relay HRN 35 ④

- order number 06.1900.0.000

The machine operation is ensured when the power supply is in range AC 230V $\pm 10\%$ (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.



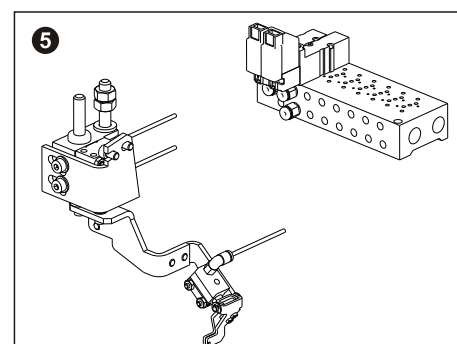
7.5. Thread nipper ⑤

- 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).



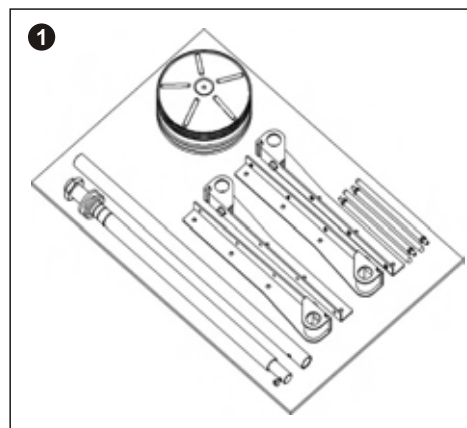
B - MACHINE ASSEMBLY

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.

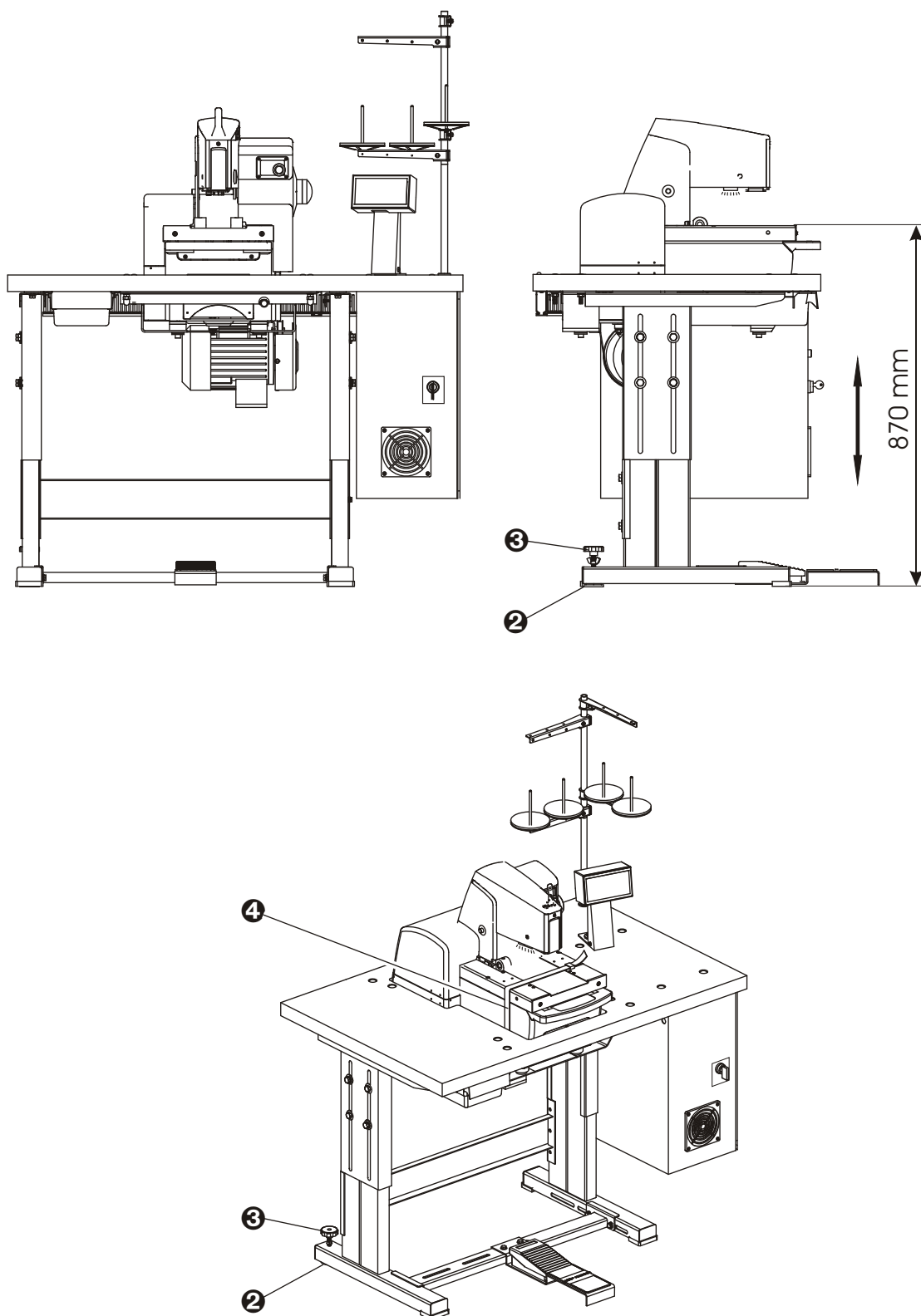
2. TABLE ADJUSTMENT

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.

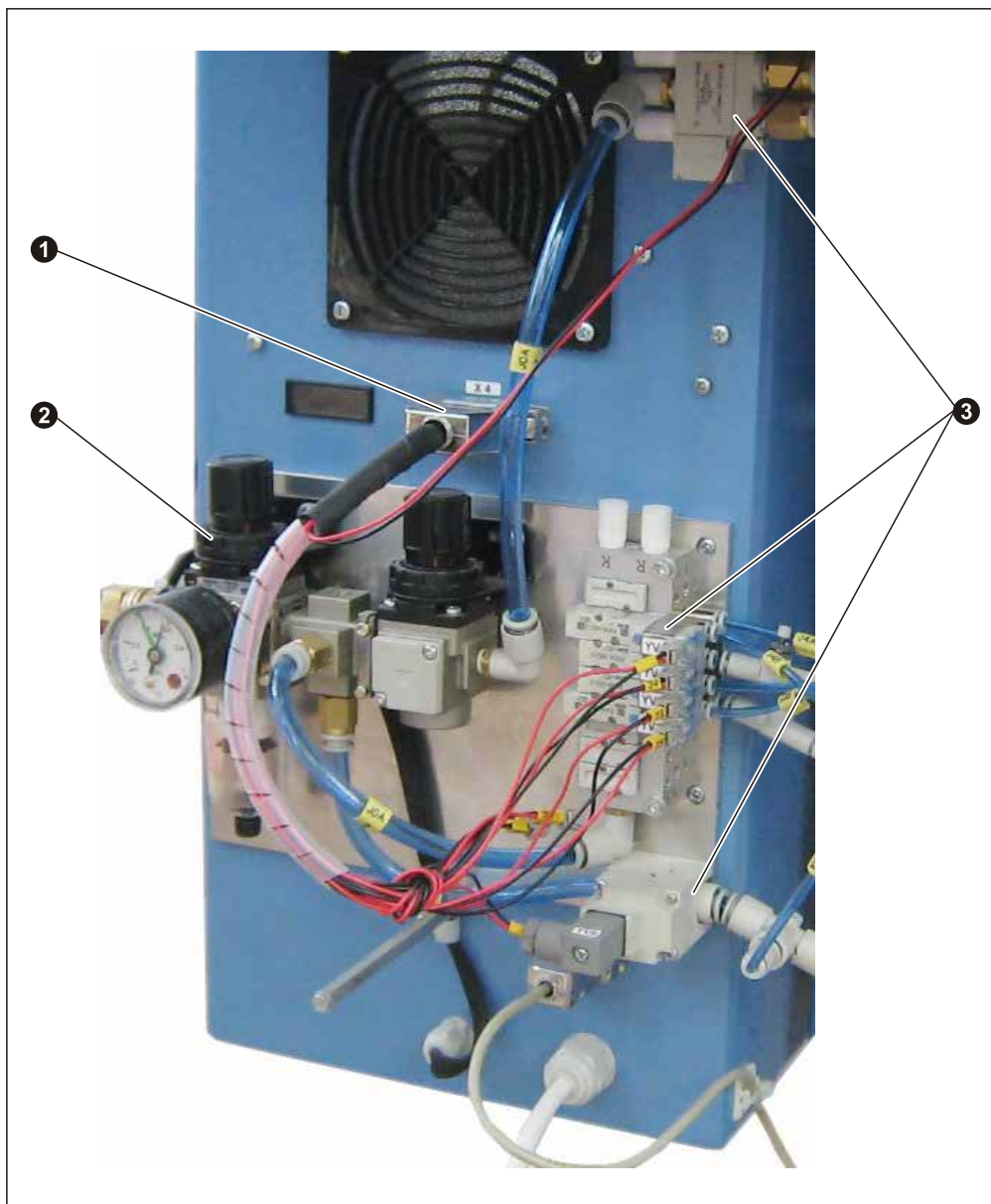
B - MACHINE ASSEMBLY



B - MACHINE ASSEMBLY

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.

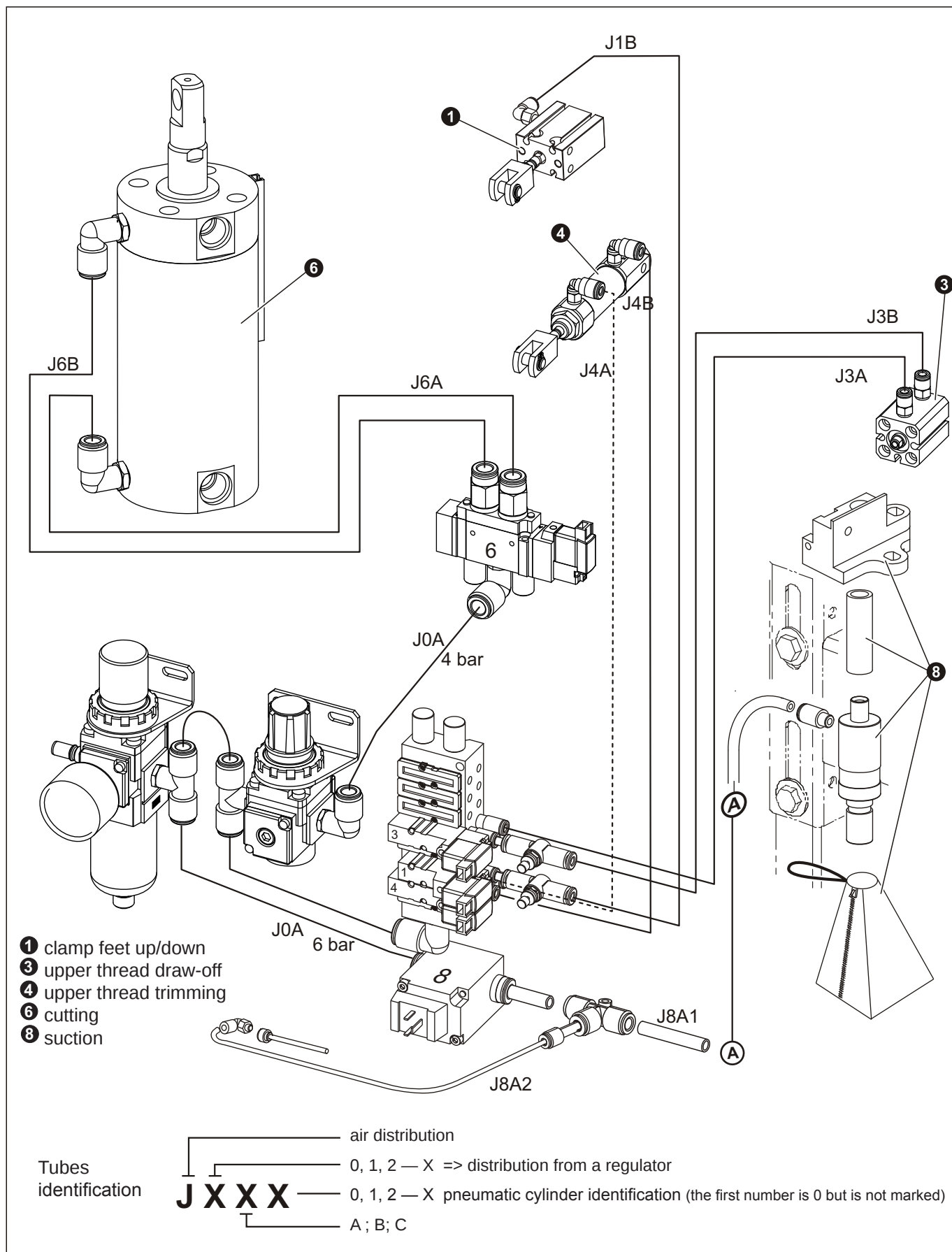


3.2. The machine is connected from the plant. If disassembled, connect the machine as follows:

- 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.

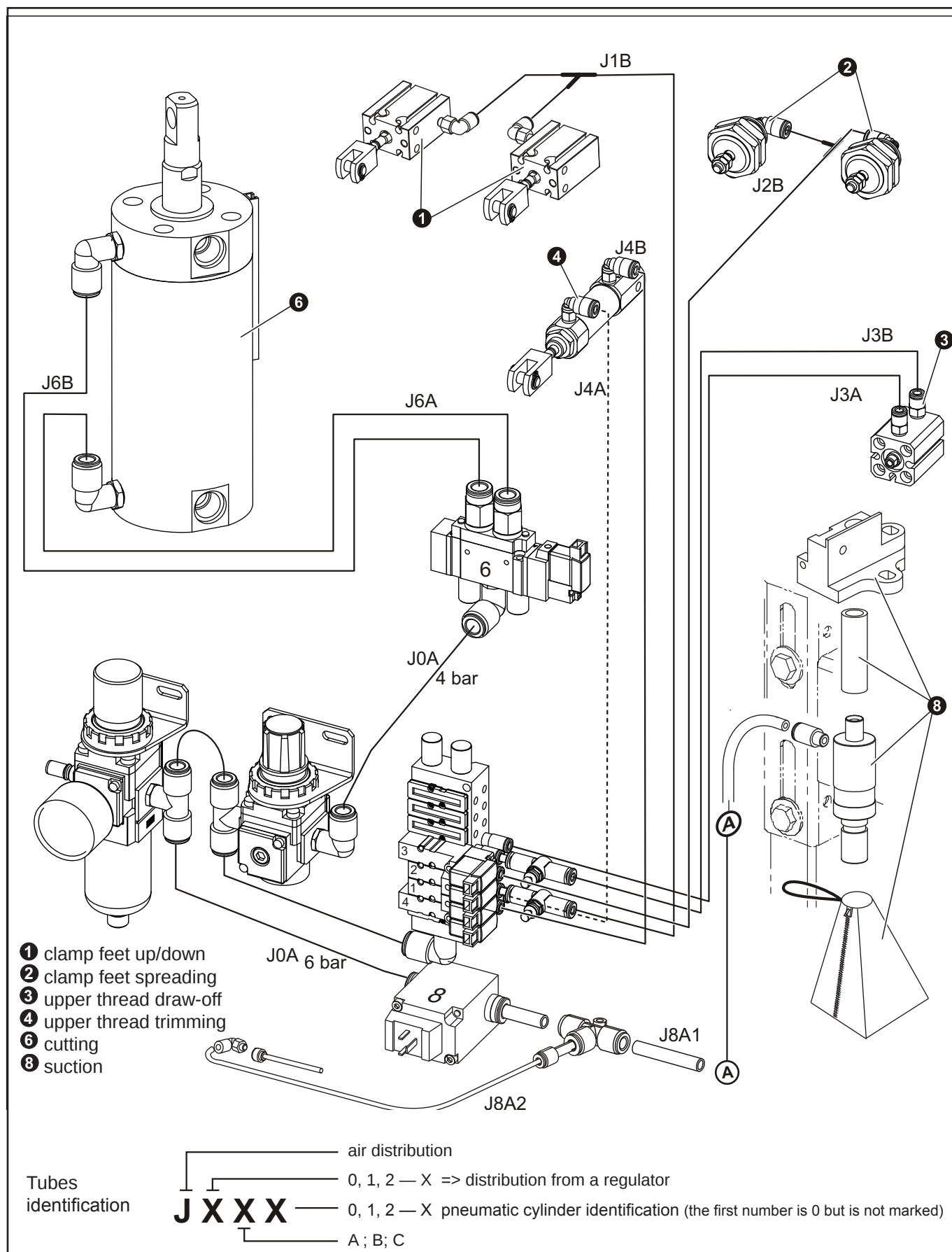
B - MACHINE ASSEMBLY

S-311 RDE - PNEUMATIC SYSTEM CONNECTION



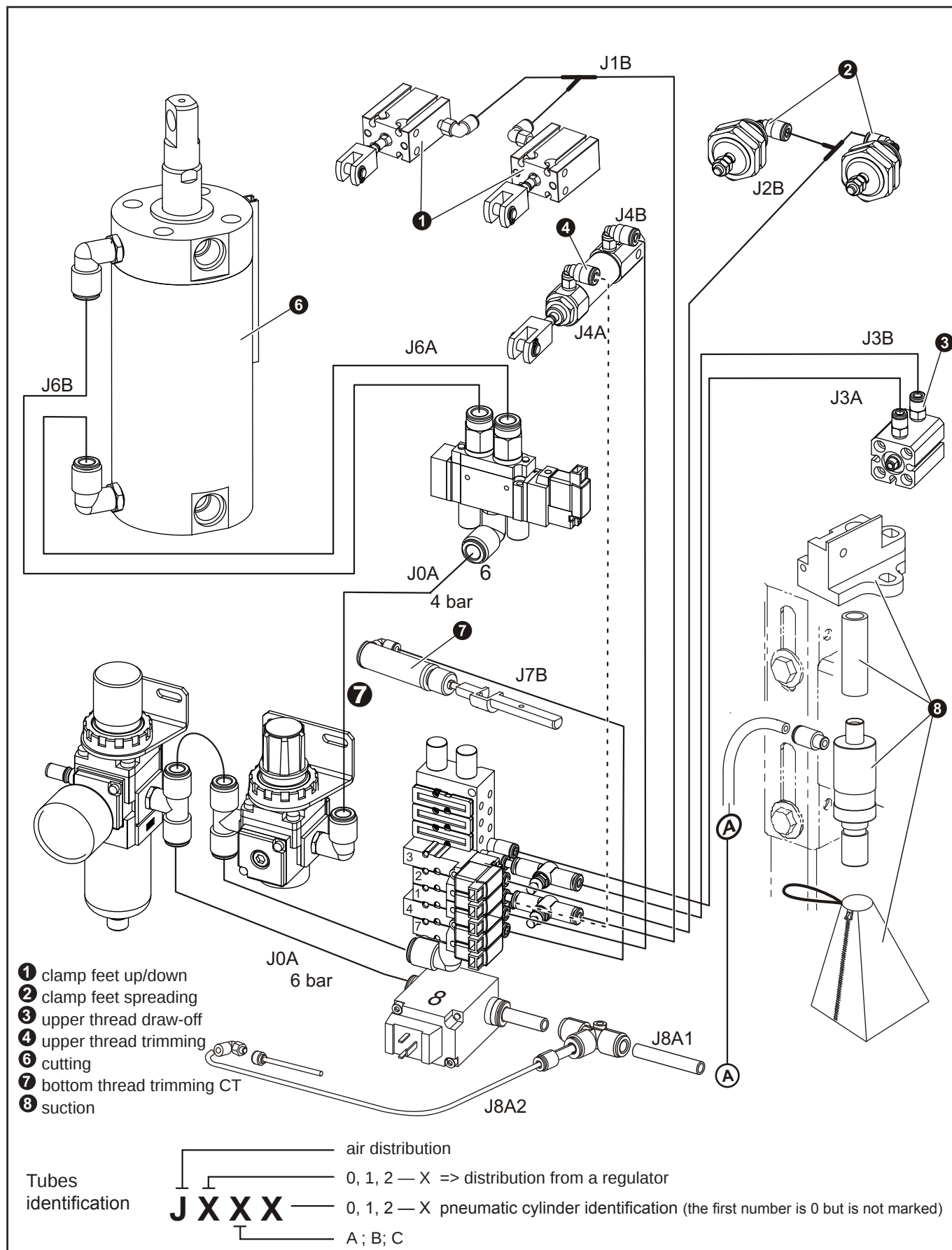
B - MACHINE ASSEMBLY

S-311 AF - PNEUMATIC SYSTEM CONNECTION



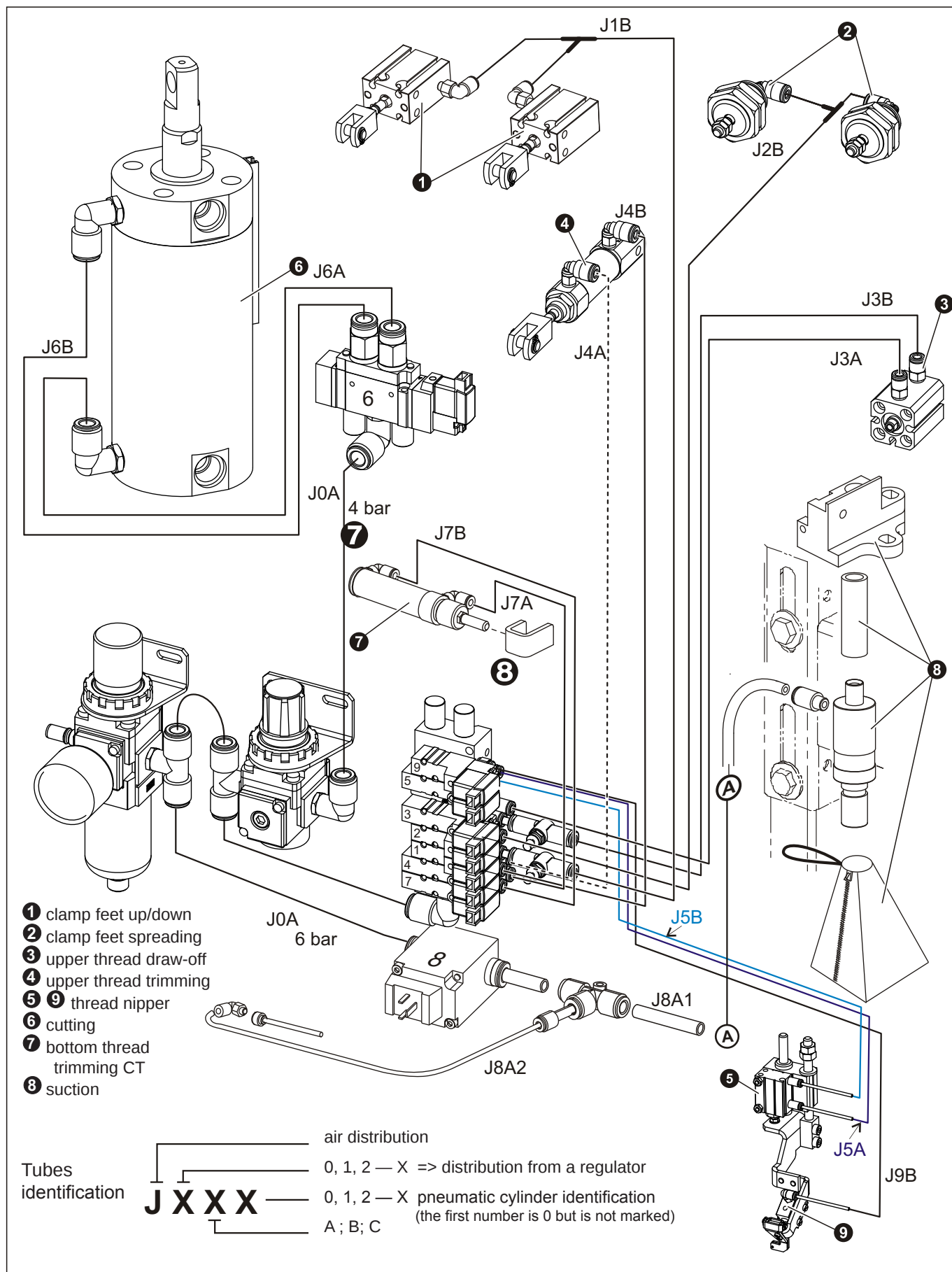
B - MACHINE ASSEMBLY

S-311 CT - PNEUMATIC SYSTEM CONNECTION



B - MACHINE ASSEMBLY

S-311 LTT - PNEUMATIC SYSTEM CONNECTION



B - MACHINE ASSEMBLY

4. BELT TENSION

4.1. Lower belt **1** of sewing mechanism drive is installed on machine head pulley during the transport. To access this pulley: loosen screw **2** on drive belt cover **4**, shift the cover aside and remove the cover. Then loosen two screws **5** and screw **6** of the drive belt cover **3**.

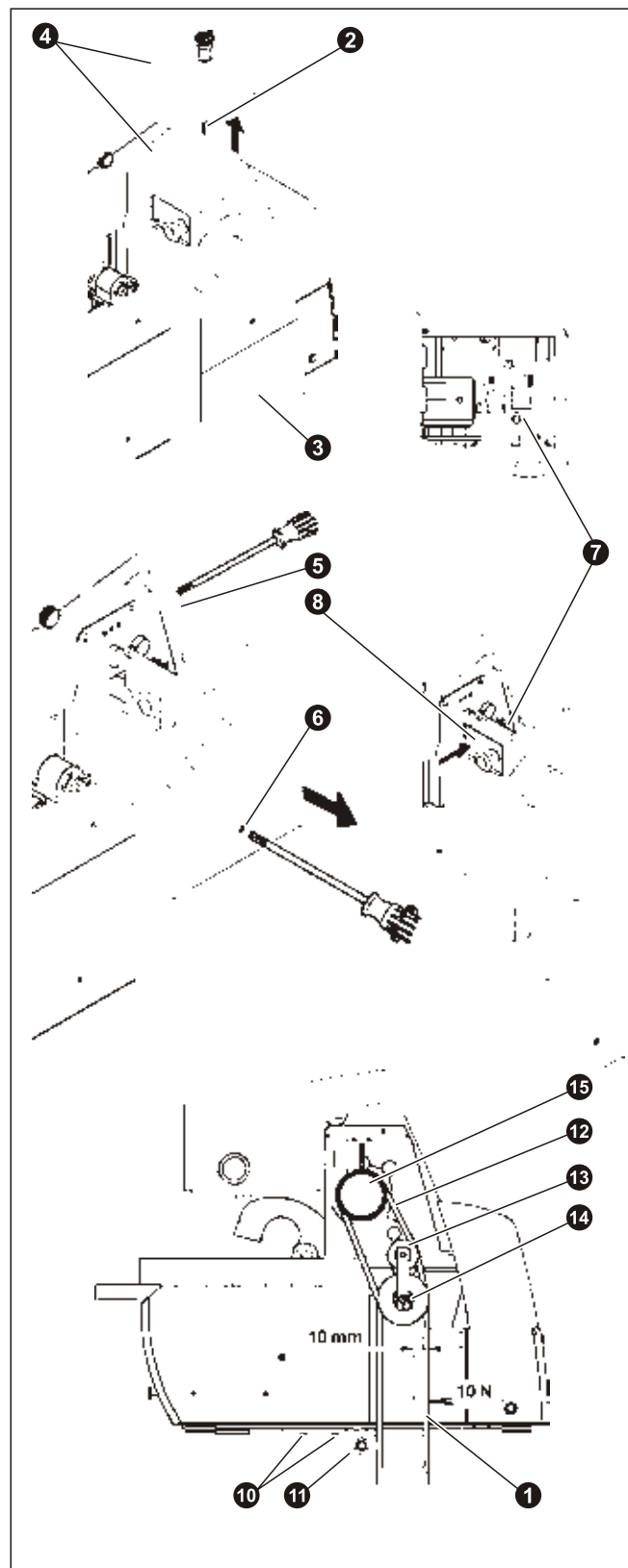
4.2. To remove the cover **4**, loosen the screw **7**. It allows insertion of the panel **8** with the Emergency Stop button, inside the cover.

4.3. After loosening the screws **10** of the tension pulley **11**, 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 **14**, it is possible to stretch the upper drive belt **12** using the pulley **13**.

4.6. Install the motor pulley cover and machine covers **3**, **4**. By turning the hand wheel **15** check, whether the belts are clear from all covers.



B - MACHINE ASSEMBLY

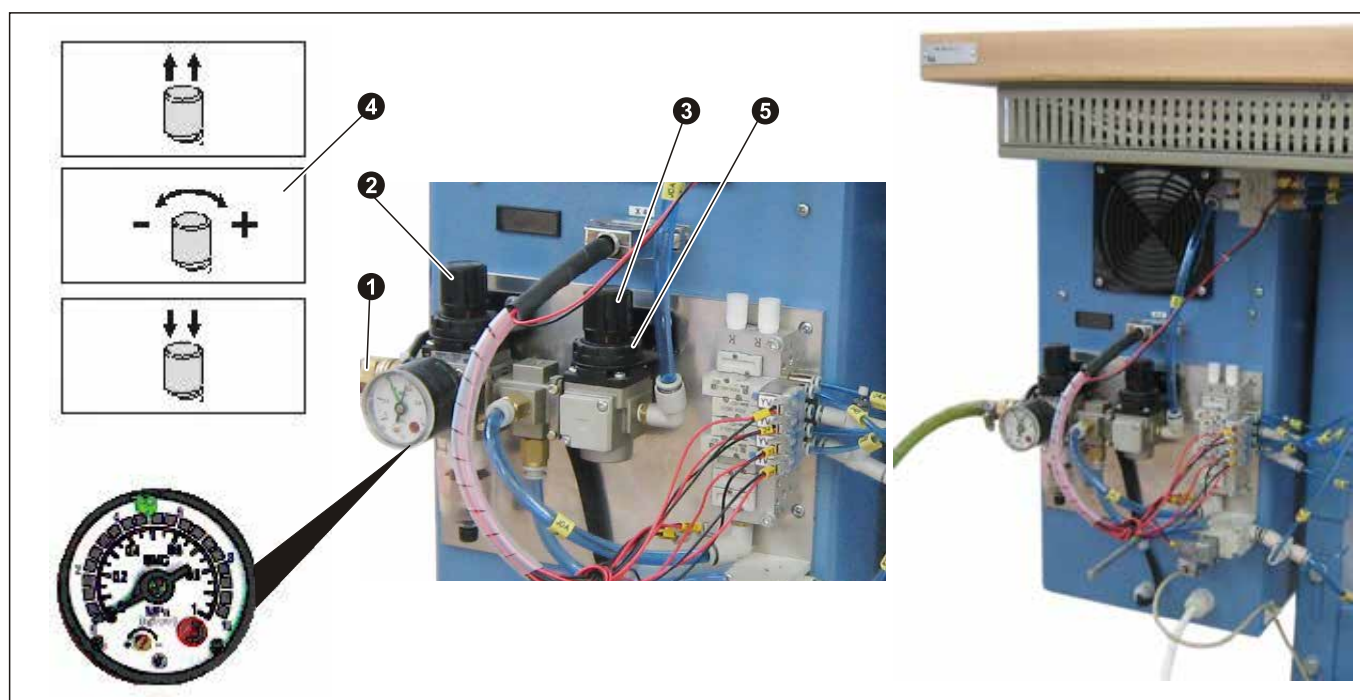
5. POWER AND AIR CONNECTION

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 **1**.

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 **2** out. To increase the set pressure turn clockwise, to decrease, turn counterclockwise. Tighten the stopper **2** again. The pressure for the cutting cylinders is set to 0.4 MPa (4bar) from manufacturer by screw **3** and loosening the nut **5**. If a material is incorrectly cut, check the cutting steel and a pressure on the regulator **4**.

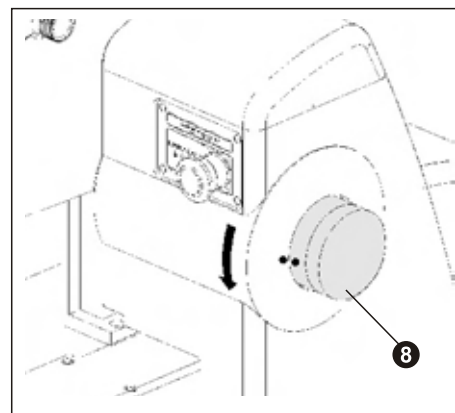
Note: Set lower air pressure for short cutting steels and higher air pressure for long cutting steels.



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 **8** 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.



B - MACHINE ASSEMBLY

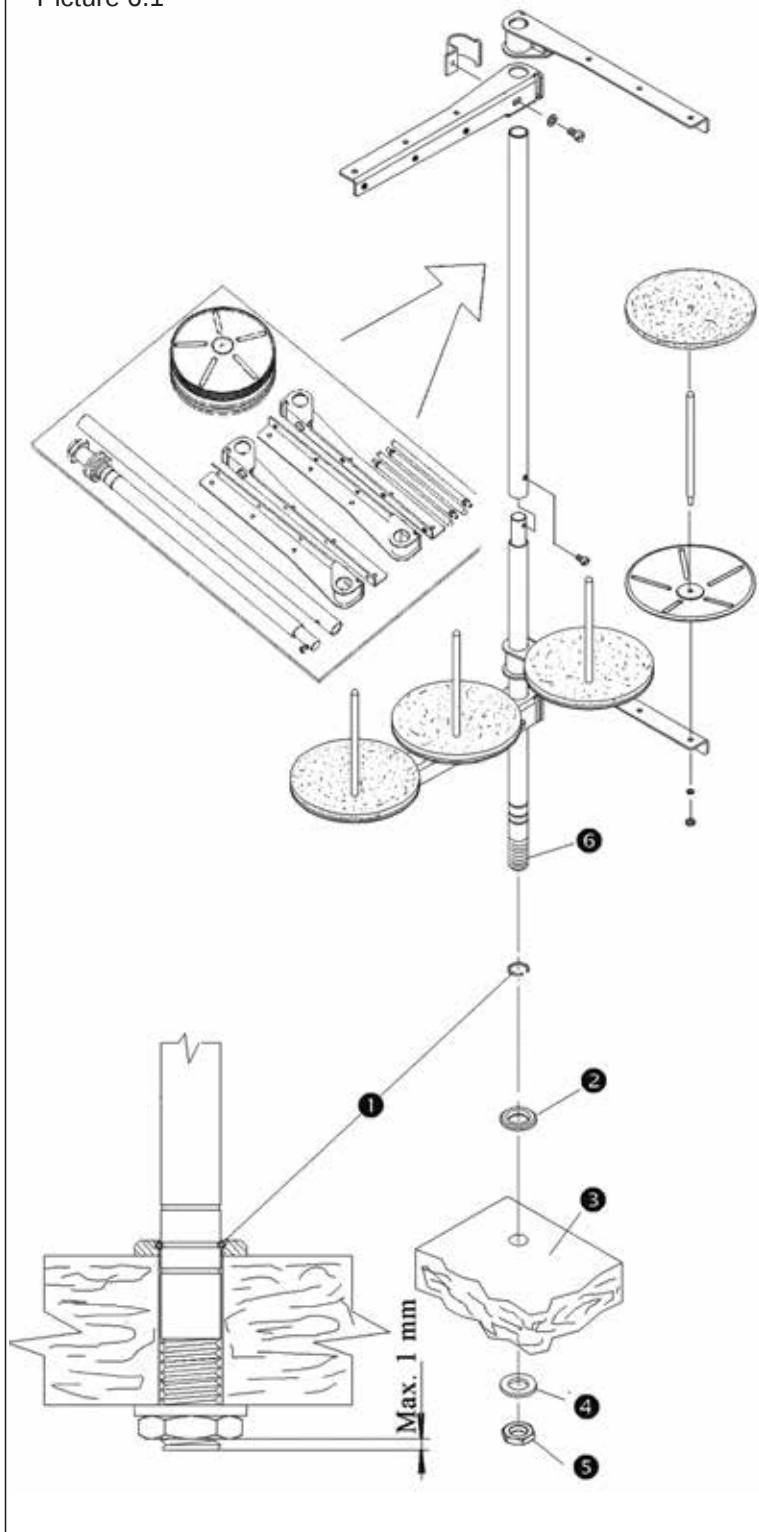
6. THREAD STAND INSTALLATION

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

6.2. Position of the locking ring **1** allows assembly of the thread stand for various thickness of the table top. Threaded end of the post **6** must not extend more than 1 mm through the locking nut **5**.

6.3. Insert the washer **2** and the post into the hole provided in the right rear of the table top **3**. Insert the washer **4** and tighten the nut **5**.

Picture 6.1

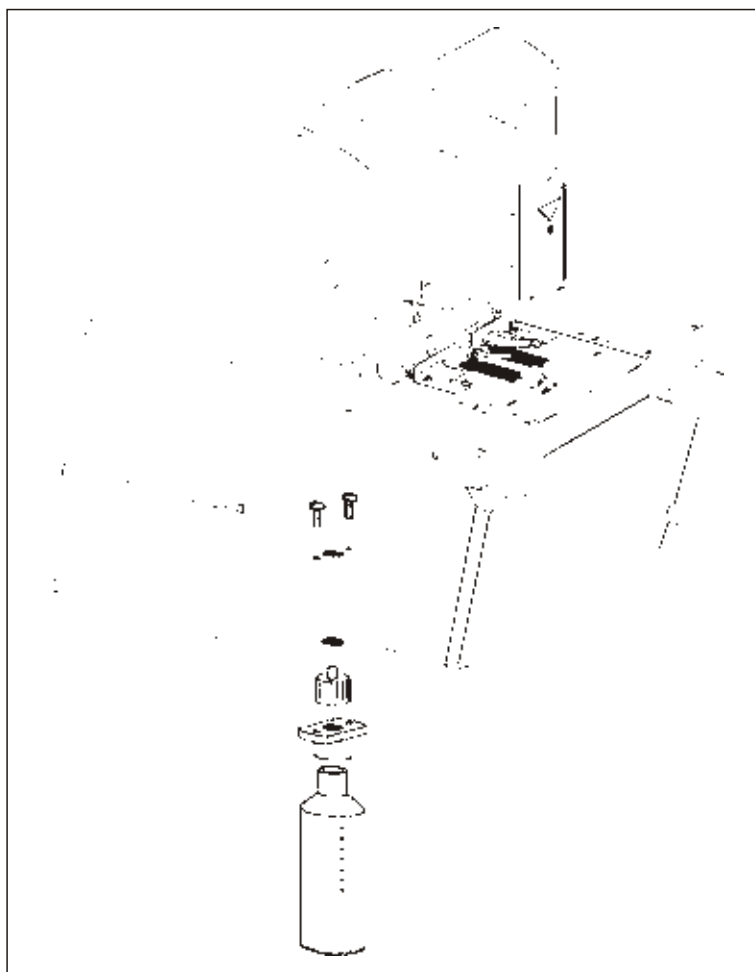


B - MACHINE ASSEMBLY

7. LUBRICATION

7.1. There is the tank for oil excess on the machine ❶.

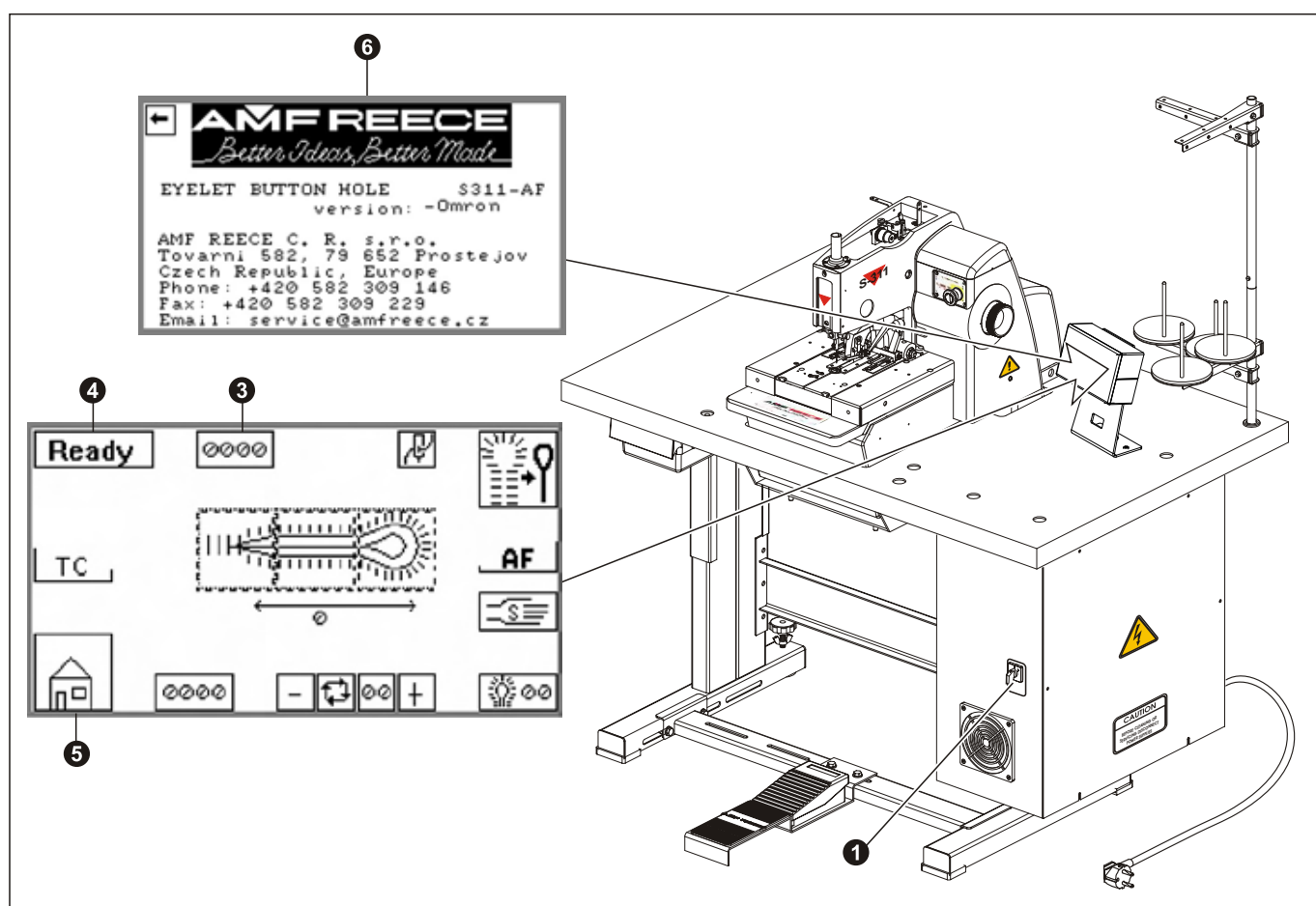
7.2. For oil tightness and removal is important, that upper edge of the funnel ❷ inserted to the holder ❸ was on bottom frame area lever ❹ and in holder socket was the rubber ring ❺.



C - PROPER APPLICATION

1. POWER UP / HOME POSITION

- 1.1. Turn the main power switch on **①** by turning clockwise to the „I“ position.
- 1.2. The display is activated and illuminated. The screen **⑥** displays information about manufacturer and version of program installed in the machine. Wait until the main screen **③** appears on the display.
- 1.3. If the error message **E01** **④** (machine is not in the home position) appears on the display press the  button **⑤**. 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 **④**.



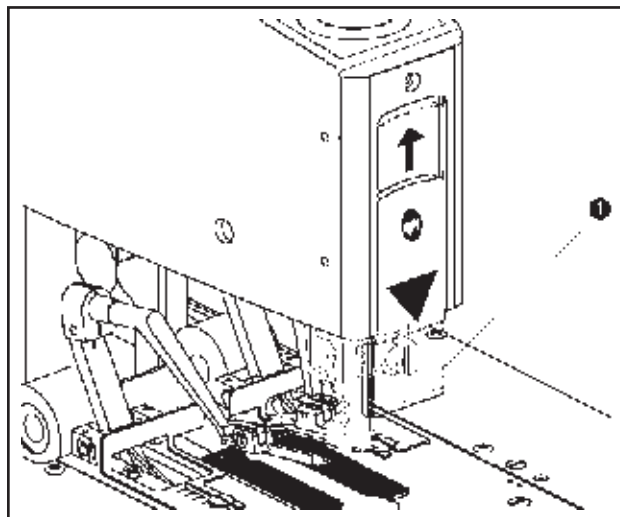
C - PROPER APPLICATION

2. NEEDLE INSTALLATION

Use needles AMF Reece 02.0505.0.111/113.... Nm 90 – 110), loading Ø 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 **①**.

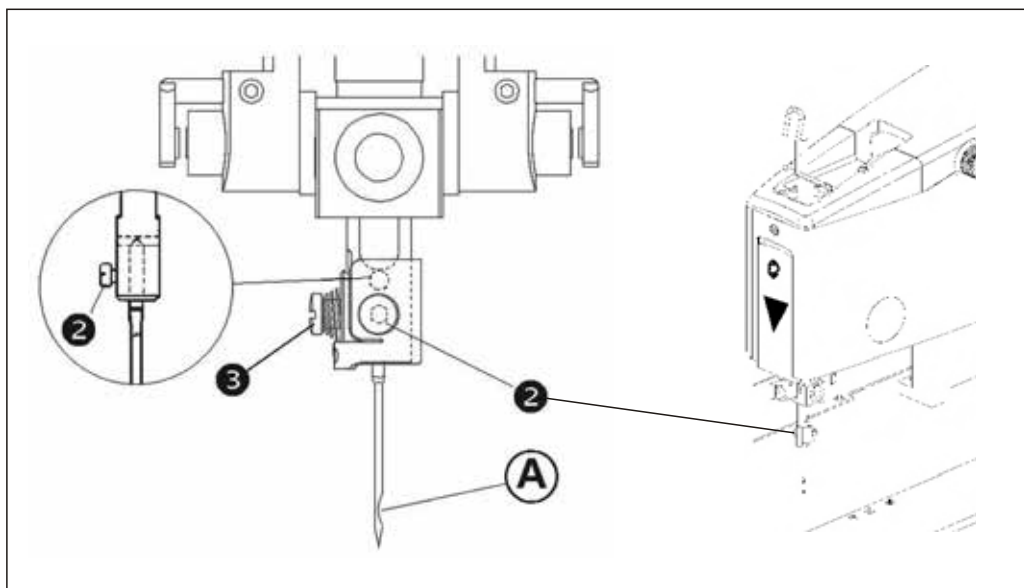
Recommended Threads No.	Needle System (Nm)
120	90
90	90 - 100
80	90 - 110



2.2. Loosen the screw **②** and remove the needle.

2.3. Insert the new needle so that the needle scarf A is on opposite side from screw **③** 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 **②** well.

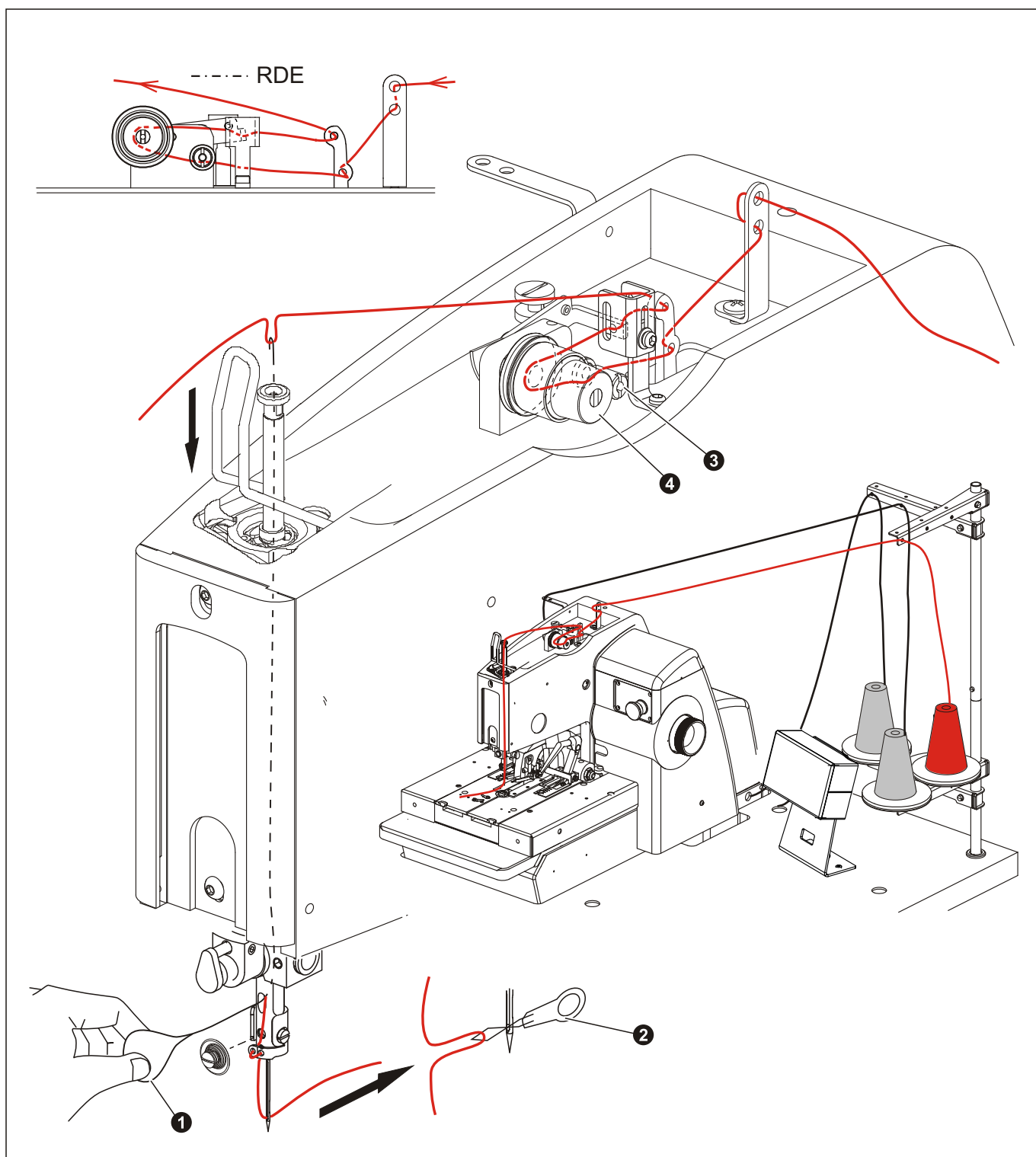


C - PROPER APPLICATION

3. THREADING

When threading, see the pictures below. For easy threading use threading device **1** from accessories kit. It is possible to order the threading device **2**. Adjust the thread tension by knobs **3**, **4** according to sewing conditions.

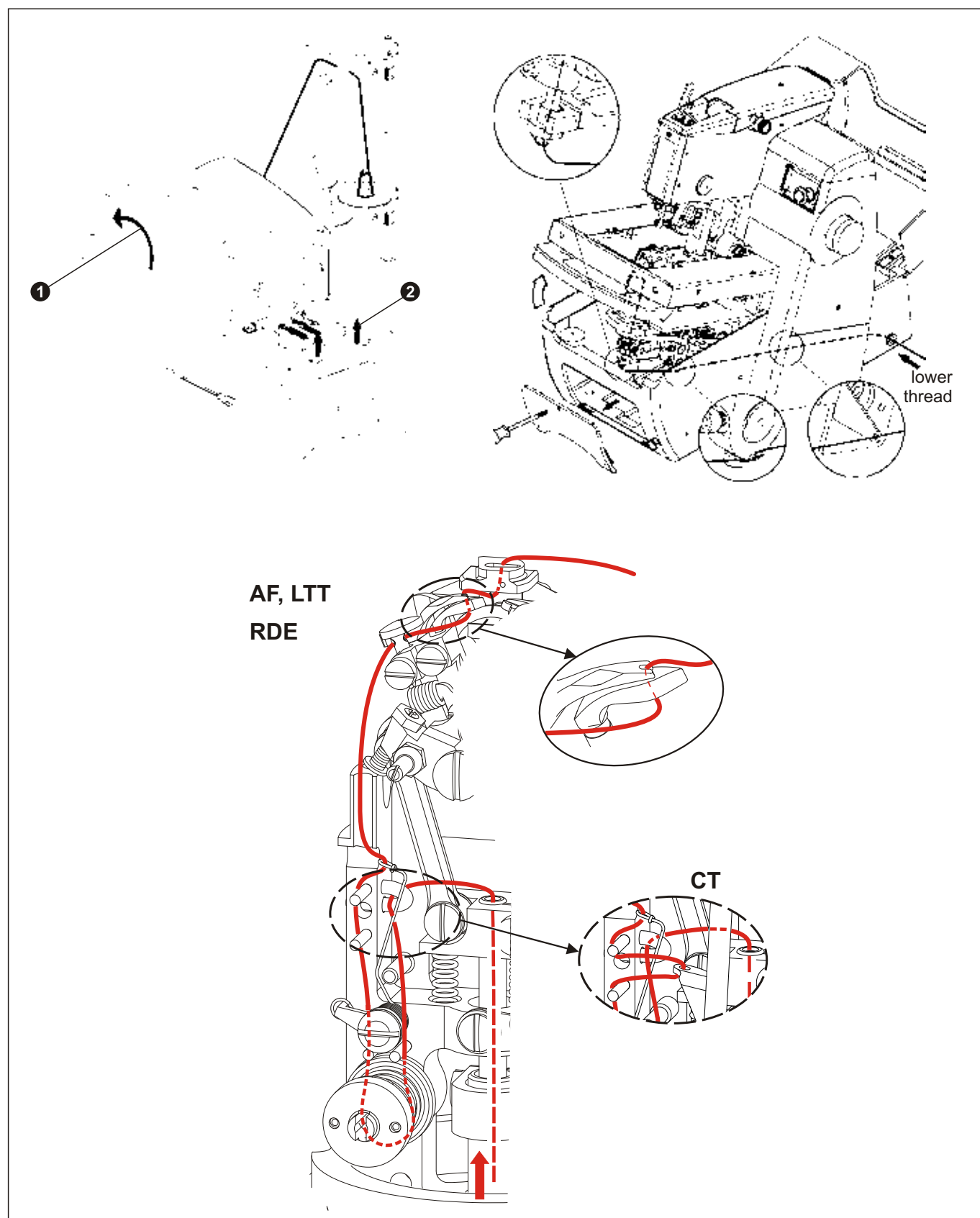
3.1. Needle thread:



C - PROPER APPLICATION

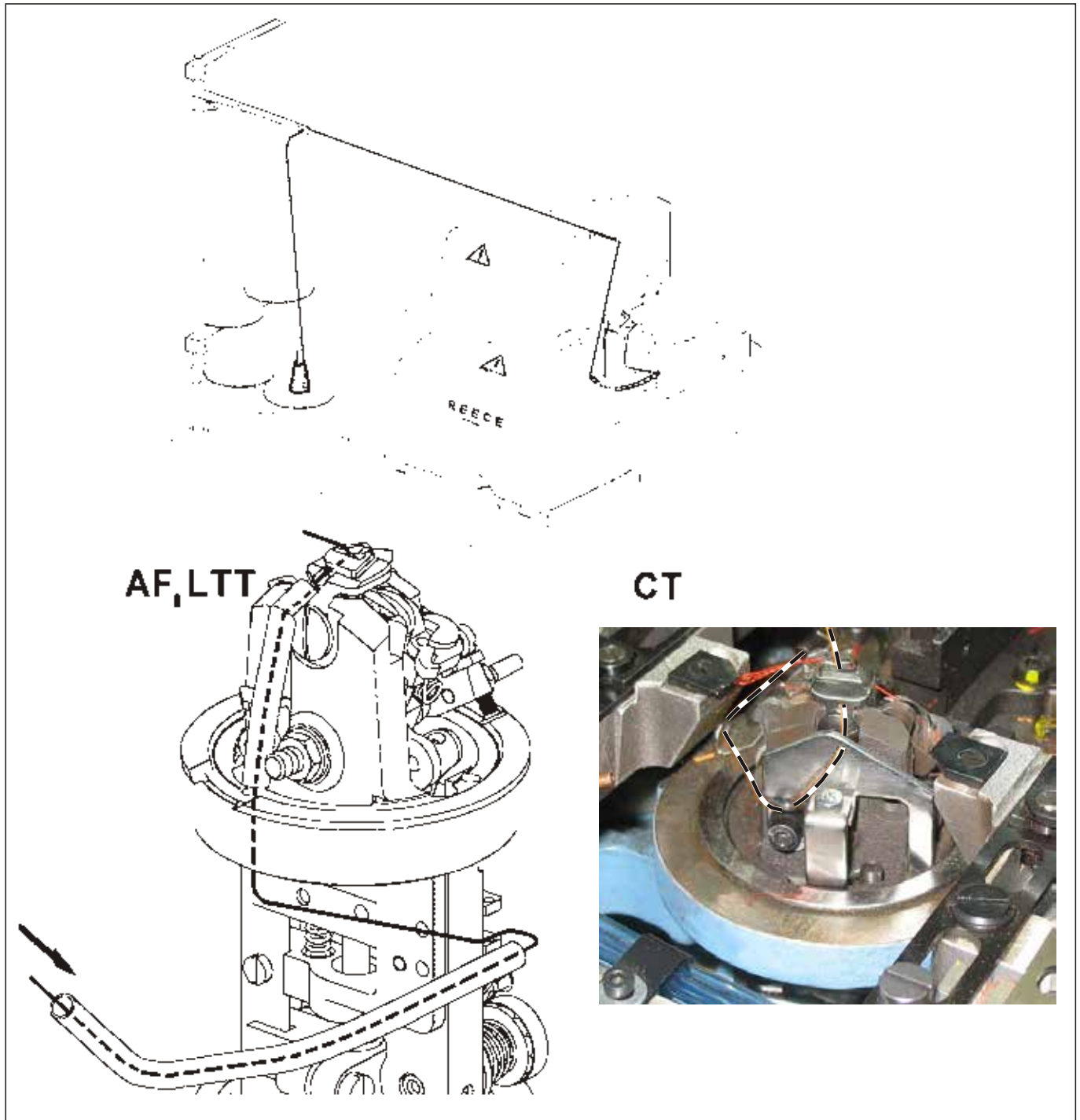
3.2. Lower thread

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



C - PROPER APPLICATION

3.3. Gimp



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)

D - MACHINE CONTROLS

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 c o r r e c t l y see section **C3**, and required buttonhole appears on the display. Insert the fabric under the clamp feet. Use the rear stops **1** to position the buttonhole.

1.3. When the foot pedal **2** 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.

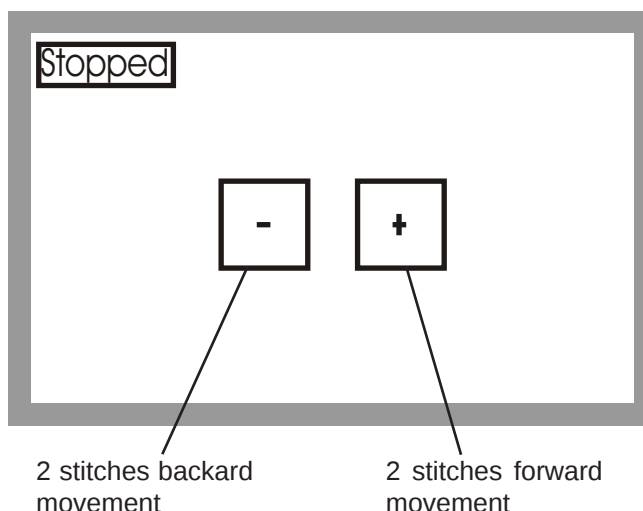
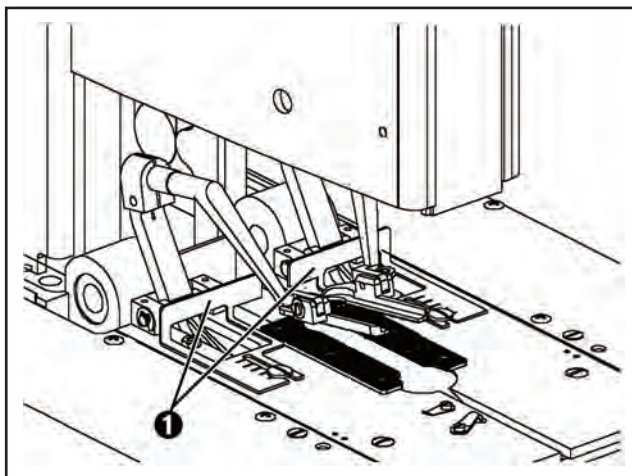
1.5. When the clamp feet are up, it is possible to move the fabric for sewing the next buttonhole.

1.6. Immediate stopping in any place of the cycle is possible by the EMERGENCY STOP button **3** on the machine head. If the EMERGENCY STOP is released, the machine stops (the flaw E01, see manual section - troubleshooting).

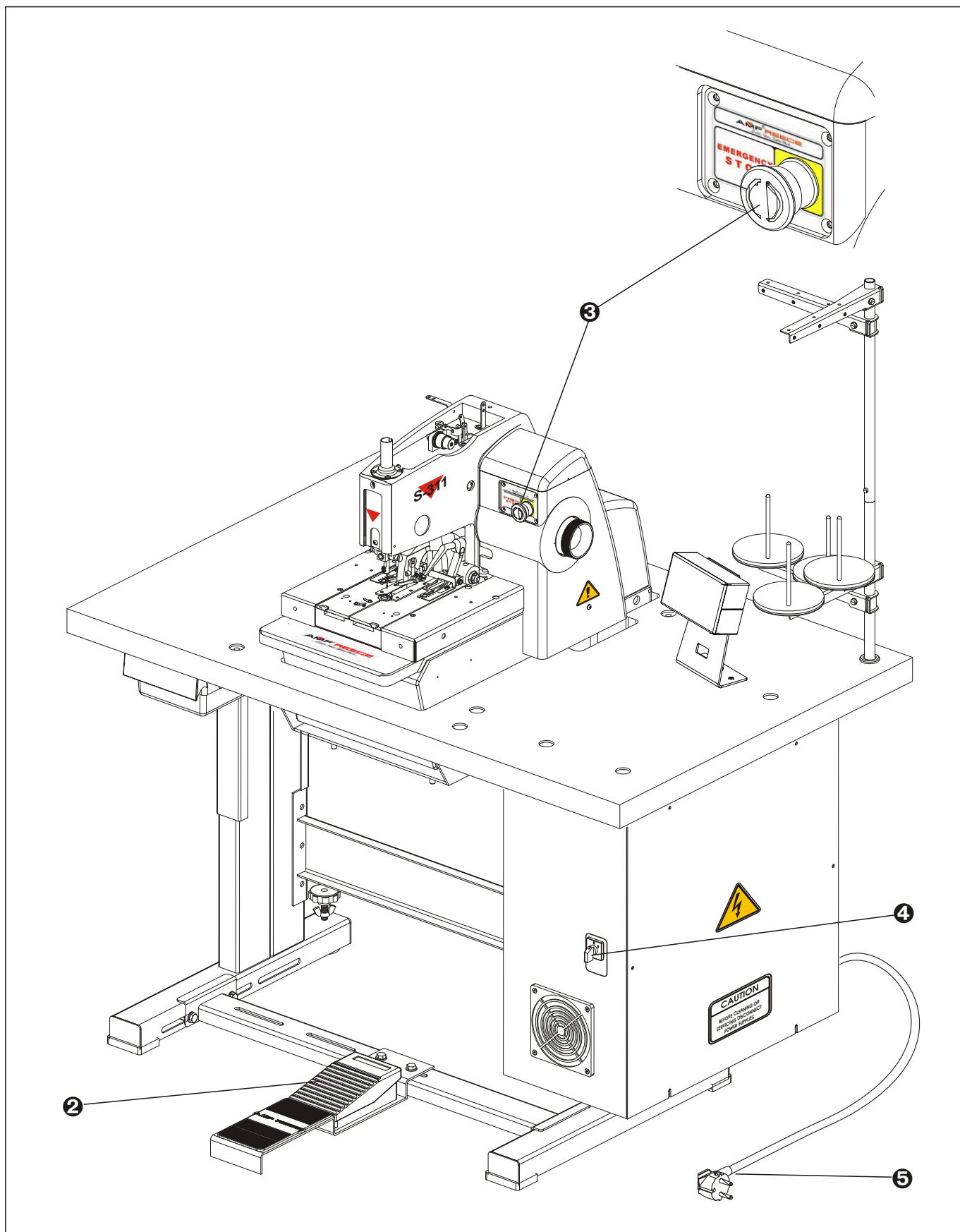
1.7. If the foot pedal **2** is pressed before the buttonhole is finished, sewing cycle is interrupted, the clamp feet will not rise and the needle will go to the top position. The following screen will be displayed: sewing cycle is finished by pressing the pedal again.

NOTICE! Sewing cycle continues after pressing the pedal!

1.8. When your work is finished, switch off the switch **4**, pull out the plug **5** from the socket and close the air supply and close the air supply.



D - MACHINE CONTROLS



D - MACHINE CONTROLS

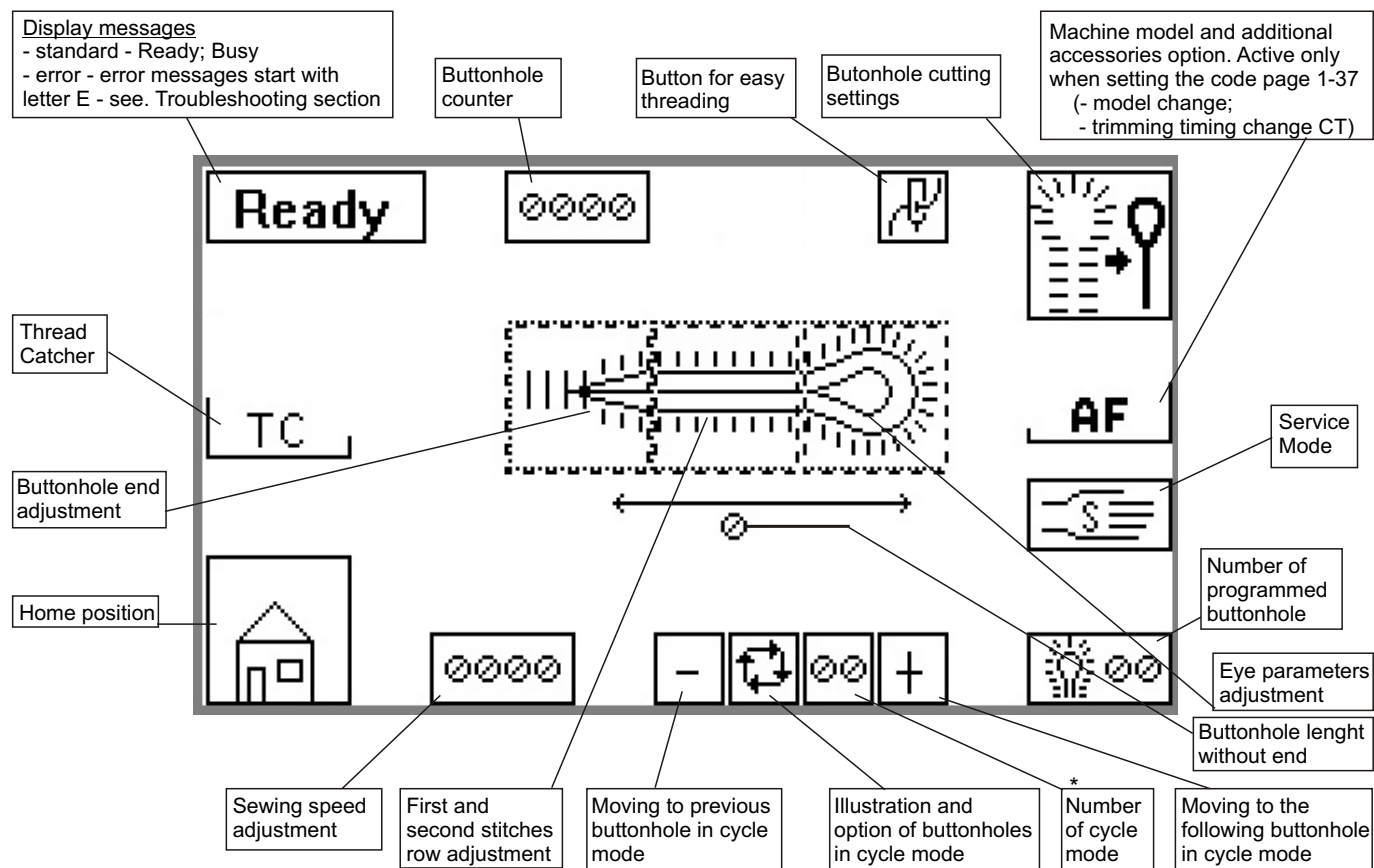
Caution:

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

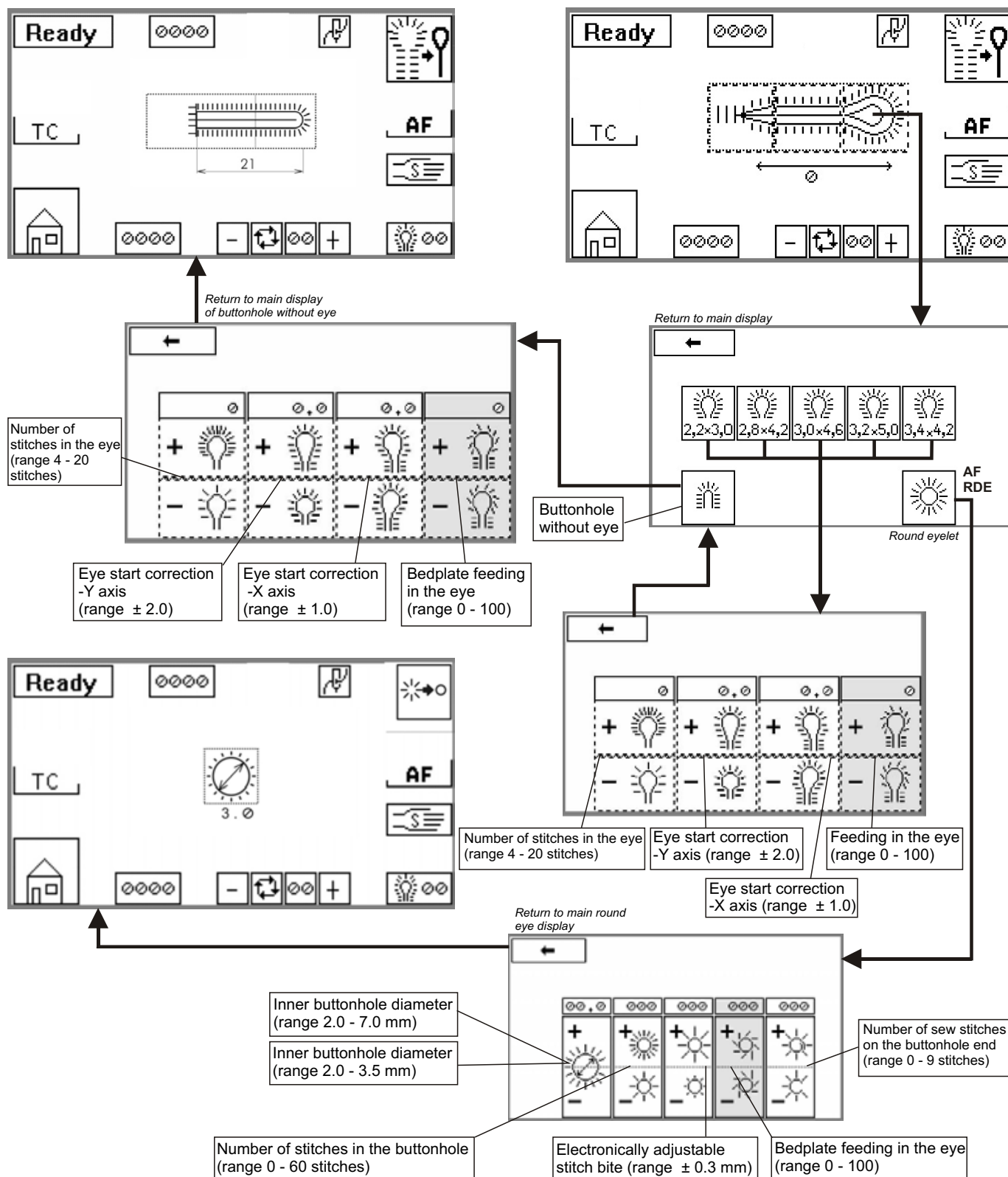
D - MACHINE CONTROLS

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.

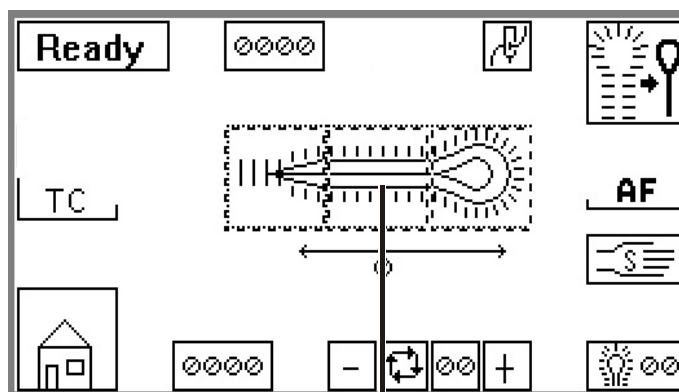
3.1 - setting the parameters of the eye

- 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.

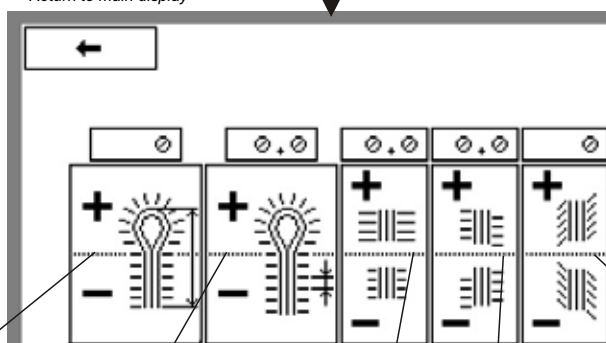


D - MACHINE CONTROLS

4. BUTTONHOLE PARAMETERS ADJUSTMENT



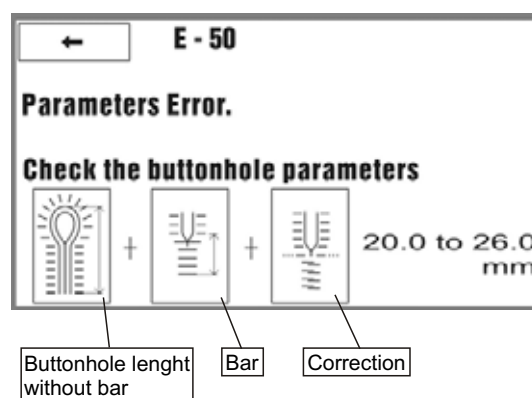
Return to main display

Buttonhole length
(depends on machine type)Stitches density
(range 0.5 - 2.0 mm)Electronically
adjustable bite
size (range ± 0.3 mm)First and second row
of stitches adjustment
(range ± 1.0 mm)Table feeding in first and
second row of stitches
(range 0 - 100)**Caution!**

If E 50 appears on the display, total buttonhole length 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 length of cutting L1 marked (example 16 - 20 mm). To trim the lower threads, the total buttonhole length L in this case can not exceed the length stated on display. For example for CT 20.

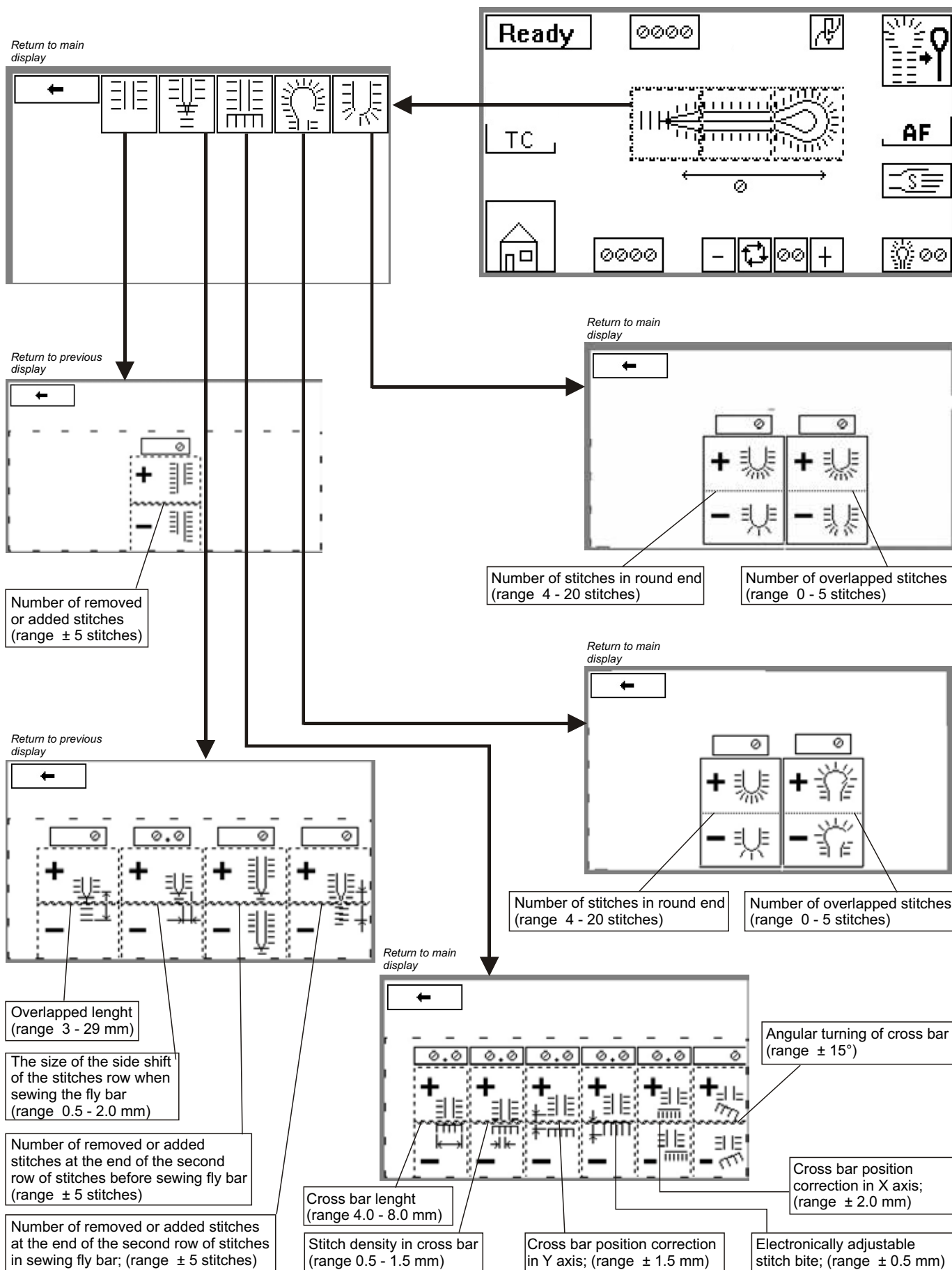
Buttonhole length
without bar

Bar

Correction

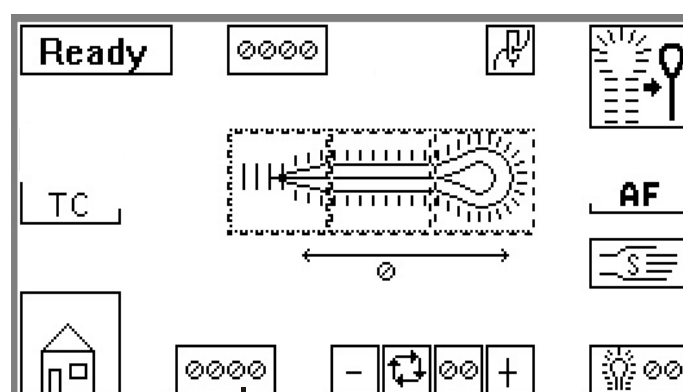
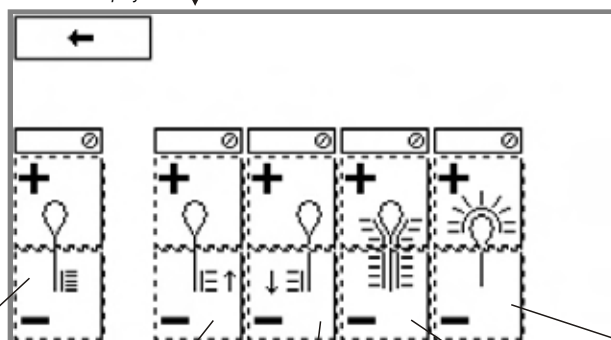
D - MACHINE CONTROLS

5. BUTTONHOLE PARAMETERS ADJUSTMENT



D - MACHINE CONTROLS

6. SEWING SPEED SETTING

Return
to main display

Number of stitches, which
are sewn with double
density (locking stitches)
at buttonhole start
(range 0-5 stitches)

Number of stitches, which
are sewn by slow speed at
buttonhole start (range 0-9
stitches, speed 1000 spm)

Number of stitches, which
are sewn by slow speed at
buttonhole finish (range 0-9
stitches, speed 1000 spm)

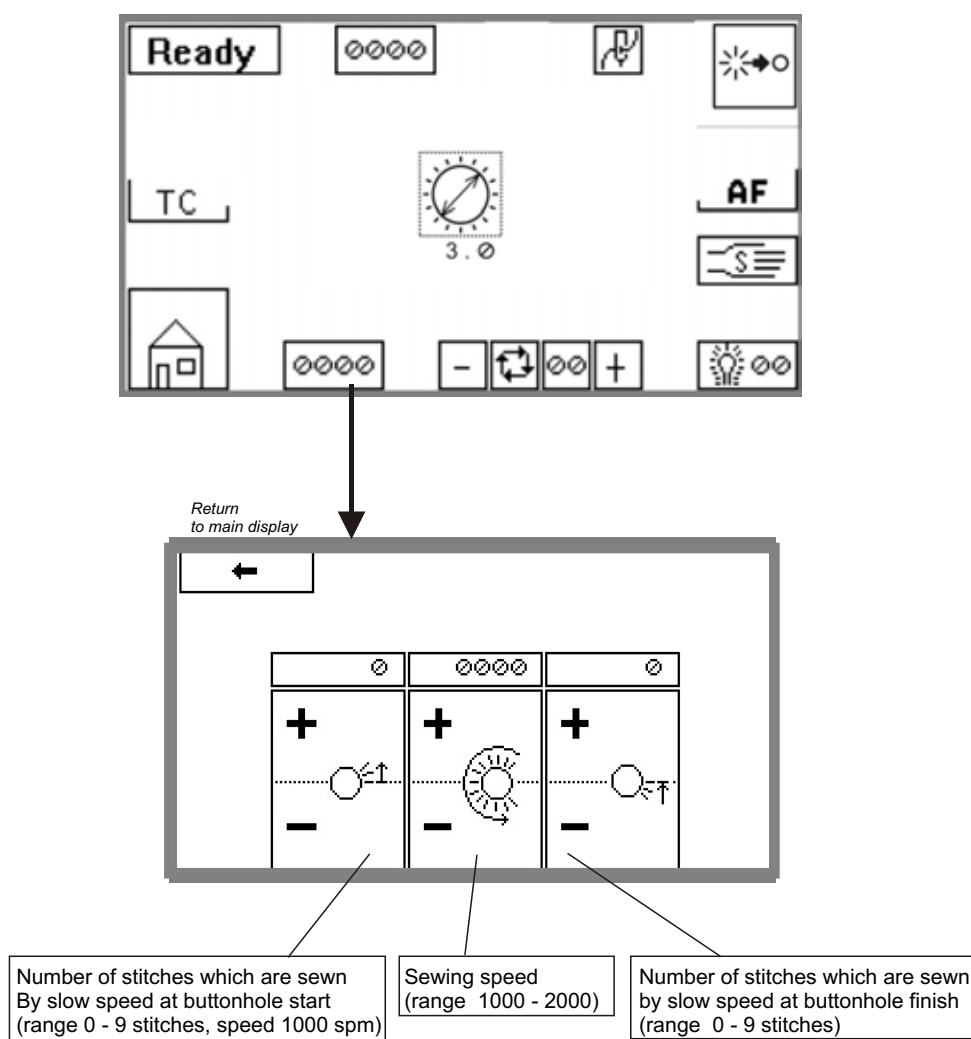
Sewing speed in the first and
the second row of stitches
(range 1000 - 2000 spm)

Sewing speed
in the eye (range
1000 - 2000)

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

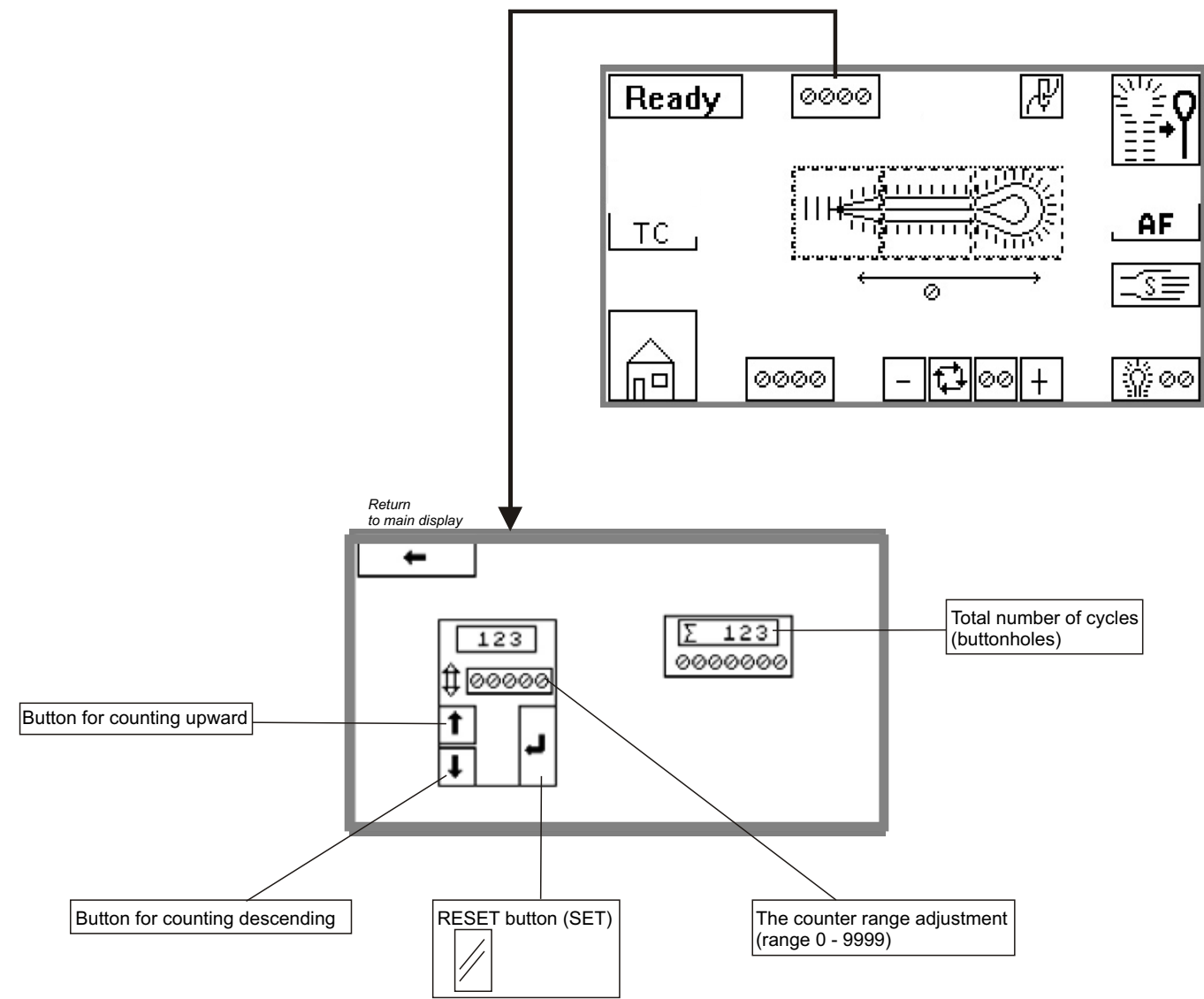
D - MACHINE CONTROLS

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



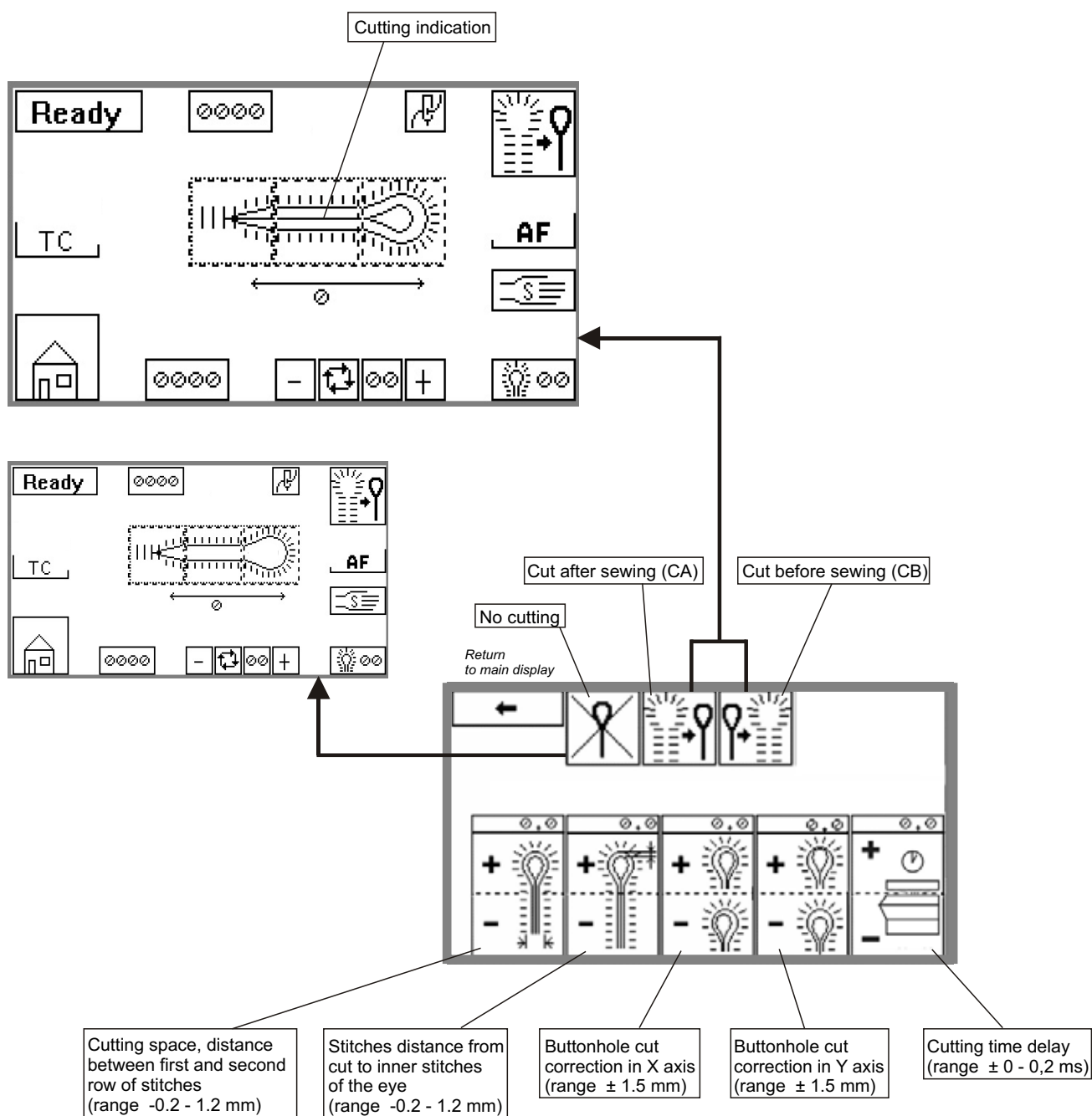
D - MACHINE CONTROLS

8. BUTTONHOLE COUNTERS



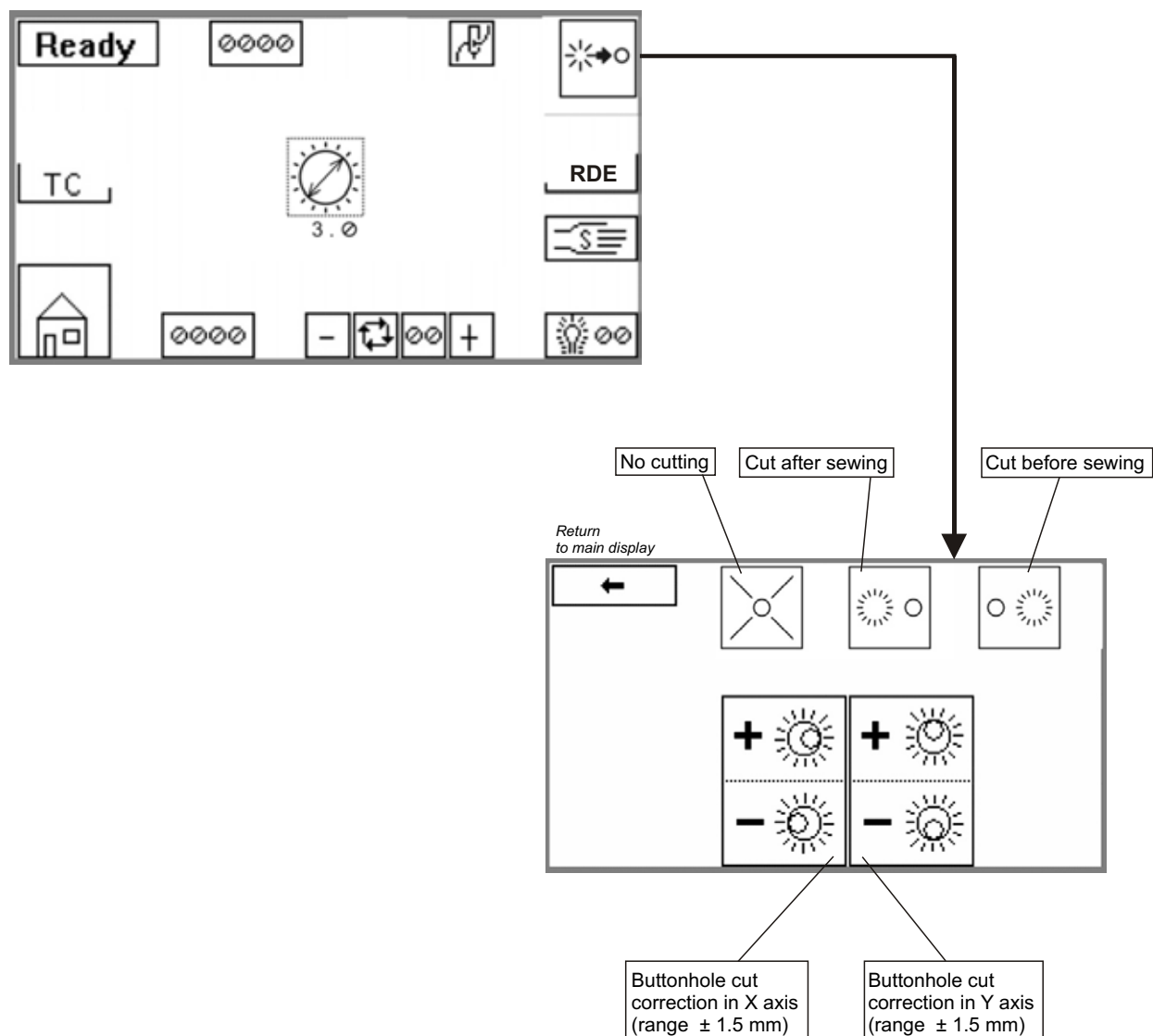
D - MACHINE CONTROLS

9. SETTING THE CUTTING



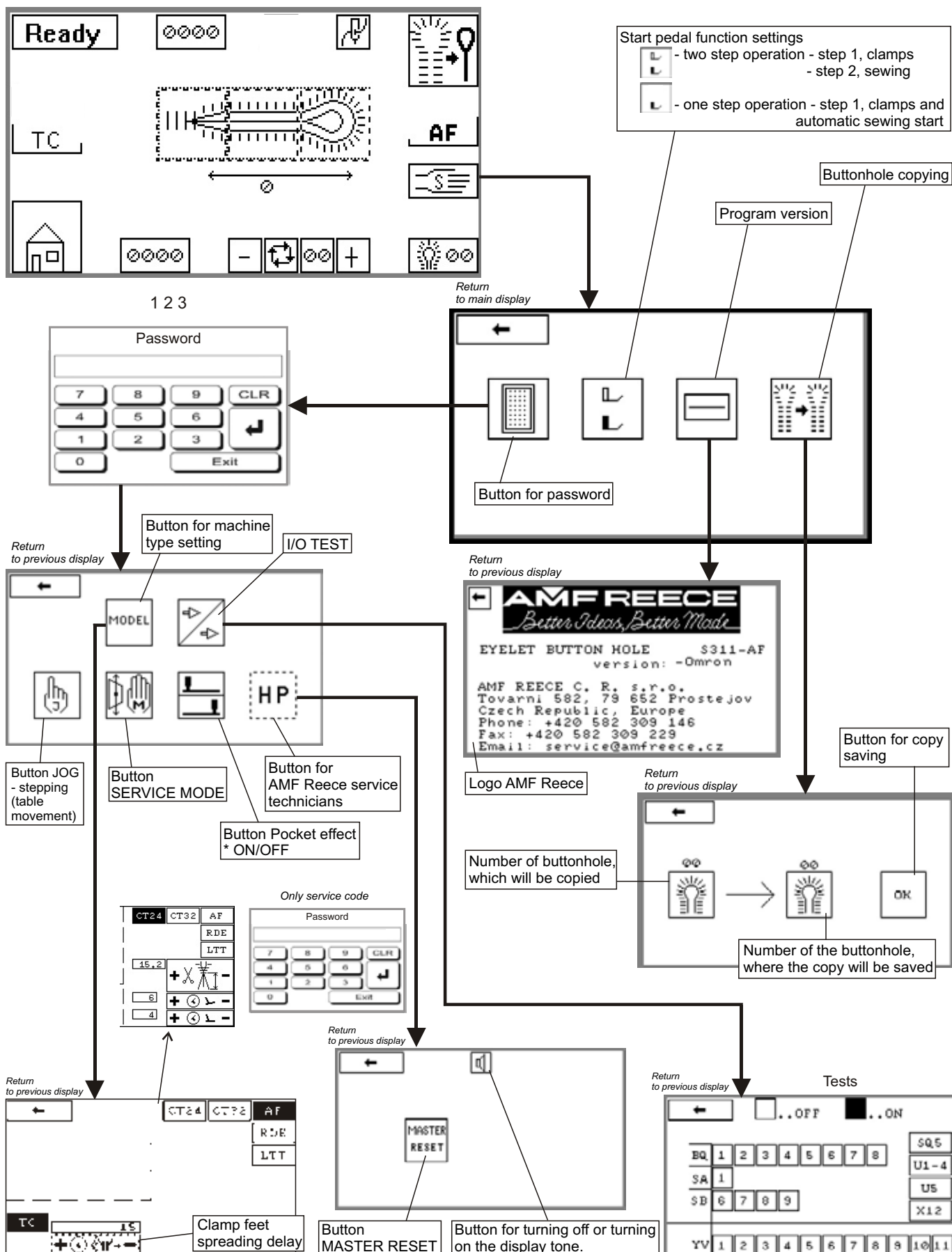
D - MACHINE CONTROLS

10. ROUND EYE CUTTING SETTING



D - MACHINE CONTROLS

11. SERVICE MODE



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

D - MACHINE CONTROLS

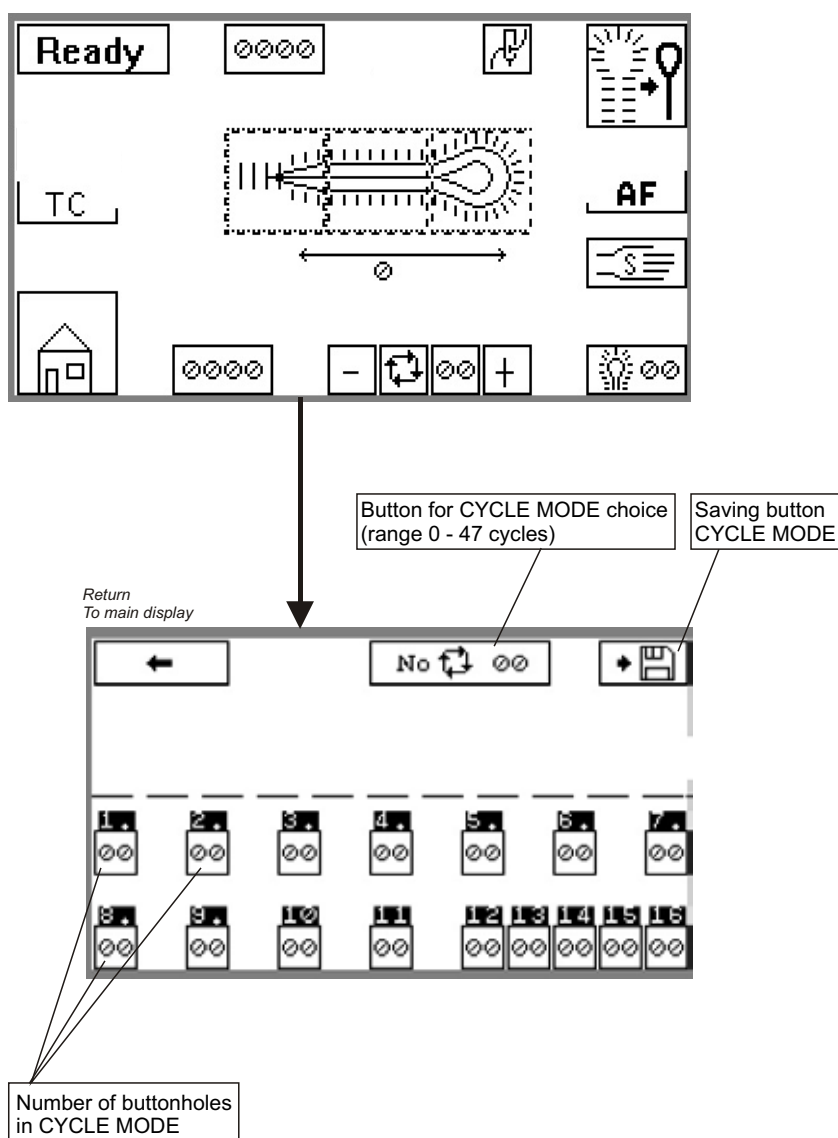
12. CYCLE MODE

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

CAUTION:

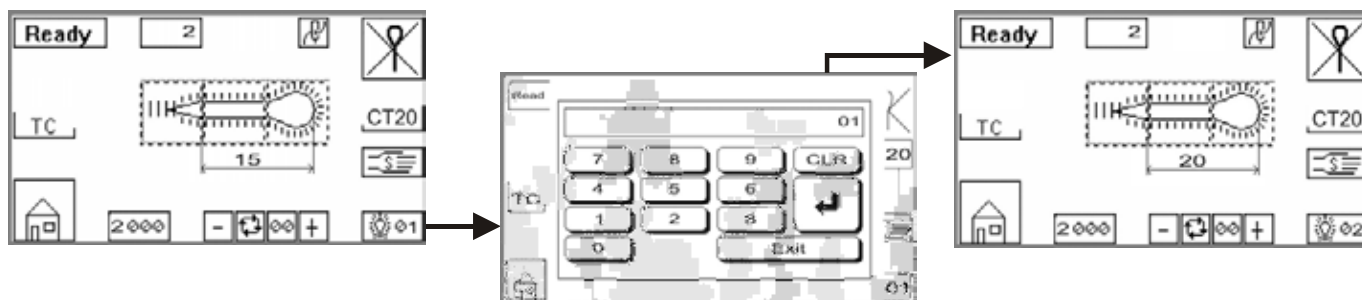
Modification **AF** - it is necessary to use the same cutting length for all buttonholes in one cycle. Imitation (no cut) buttonholes of different length can be included in the sewing cycle.

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**.



D - MACHINE CONTROLS

13. BUTTONHOLE PROGRAMMING

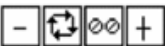


1. Press the button  in the right bottom corner on the screen. The numerical display appears on the screen. Choose the buttonhole number **1** and press .
2. Program the buttonhole shape according to the sections - D3, D4, D5.
3. Set buttonhole parameters will be automatically saved under the buttonhole number you have chosen.

Usage of the programmed buttonhole in the CYCLE MODE:

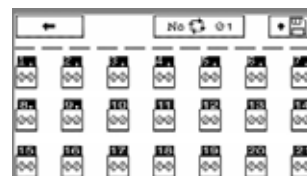
Example:

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

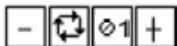
1. Press the button  program number setting _____

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 .

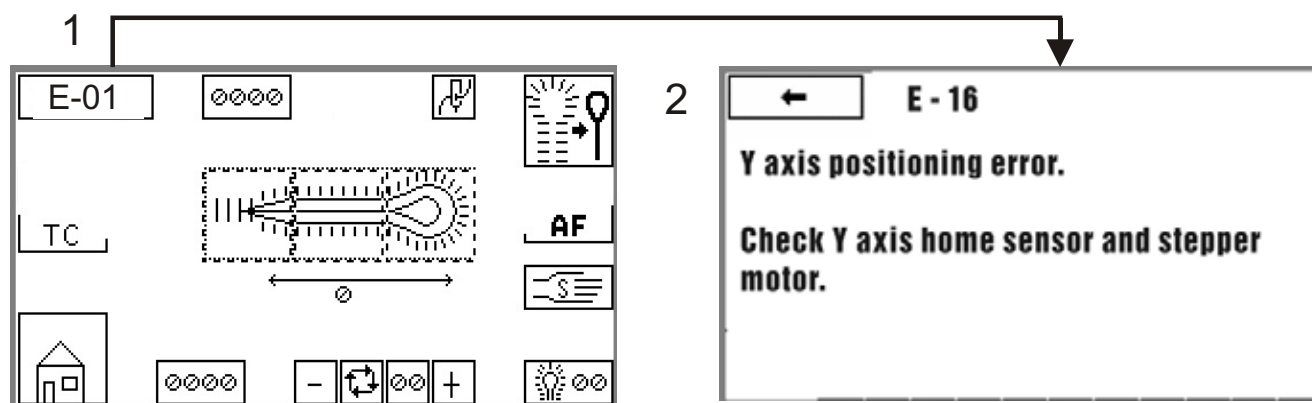
4. Program number **1**  and buttonhole number **2**  which will be sewn as first appear on the display.

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

D - MACHINE CONTROLS

14. ELECTRONIC SYSTEM ERROR MESSAGES

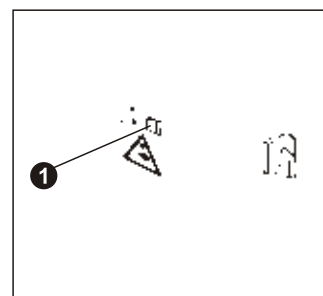
If an error message appears on the display, press it **1** The screen **2** with a description and a correction of an error message appears on the display (see Troubleshooting).



15. MANUAL CUT MODE

The green button **1** 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 **1**. Cutting lever will cut the fabric everytime, when the button **1** is pressed. Then release the foot pedal.



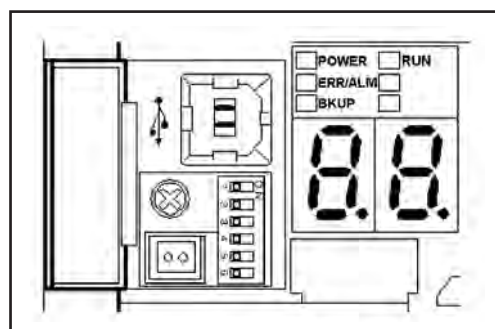
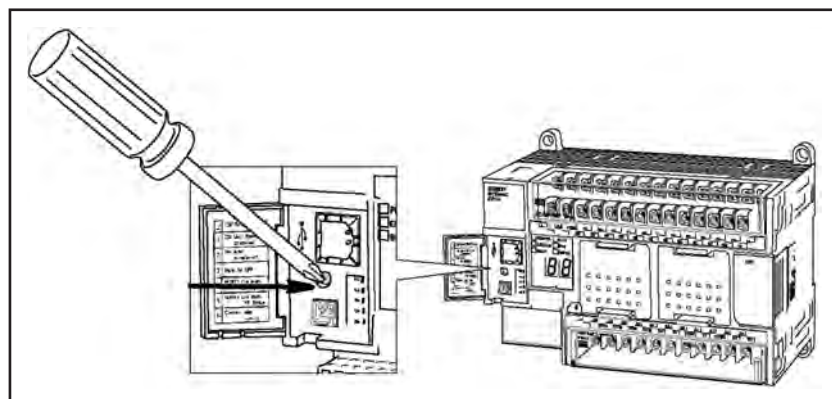
16. PLC ADJUSTMENT BY MACHINE TYPE

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!**

AF, CT, LTT, RDE
AF+I a CT +I
AF/ACL, LTT/ACL

Machine type adjustment:

adjust to 28 (range 0-50)
adjust to 78 (range 51-A0)
adjust to C8 (range A1-FF)



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.

E - STANDARD MACHINE ADJUSTMENT

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.

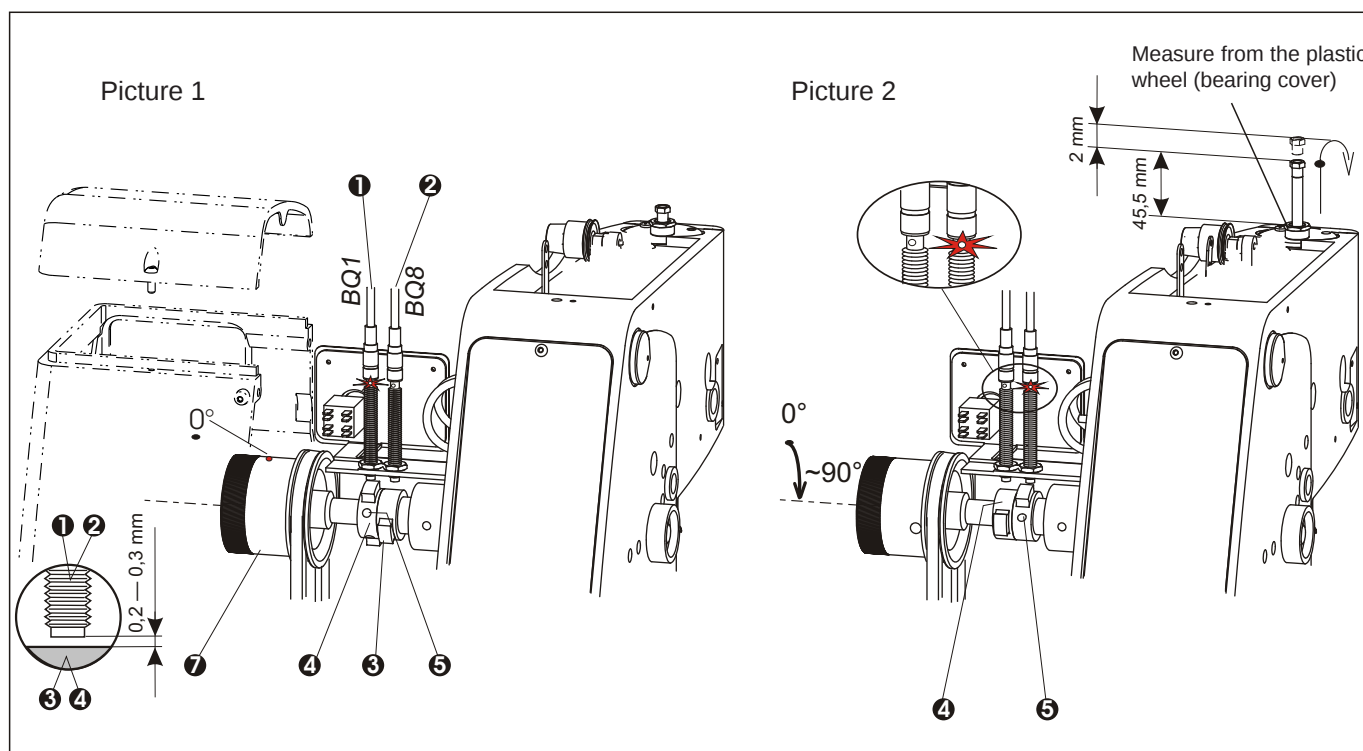
BQ8 - The sensor for needle bar position when the machine is stopped.

BQ1 - The sensor for table feeding when sewing.

2.1. Rotate the hand wheel **7** 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 **5** on the sensor **4**; rotate the sensor until the sensor BQ1 is switched on, tighten the screw **5**.

2.2. Rotate the hand wheel **7** the way the needle bar lifts for 45,5 mm in front of the top position. Loose the screw **5** on the sensor **4**; rotate the sensor until the sensor BQ1 is switched on, tighten the screw **5**.

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



E - STANDARD MACHINE ADJUSTMENT

3. THE BEDPLATE HOME POSITION ADJUSTMENT

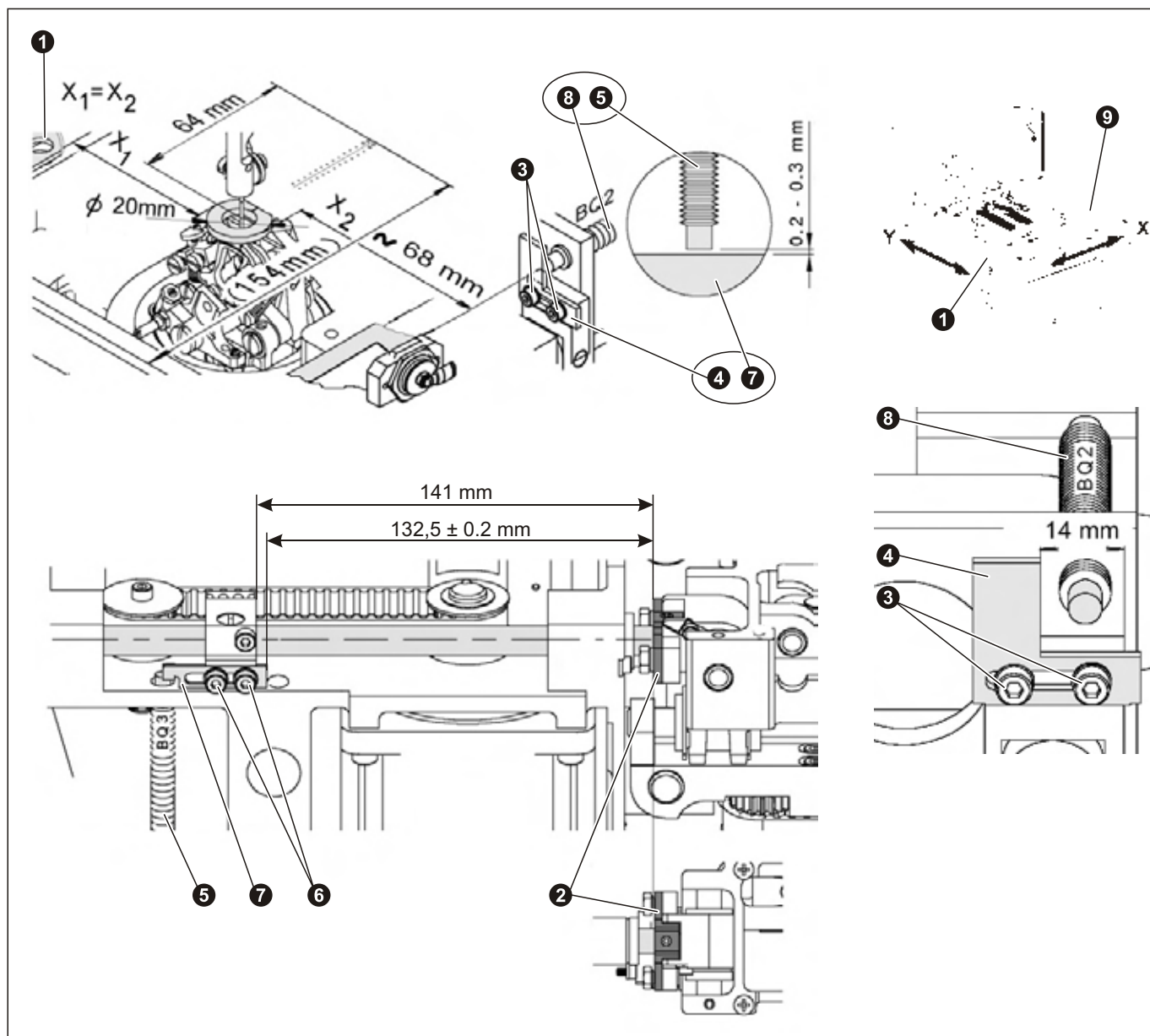
The bedplate home position is given by position of the plates **4**, **7** and sensor BQ2 **8** for axes X and BQ3 **5** for Y. Sensor plate screws are painted from the manufacturer, and only a service technician from AMF REECE can perform this operation during the guarantee period.

3.1. Adjust the sensor plate **4** (BQ2) **8** after loosening the screws, **3** to approximately 14 mm. Remove the right cover of the bedplate **9** to access to the plate **4**.

3.2. After removing the left cover of the table **1** adjust the sensor (BQ3) **5**. Loosen the screws **6** to obtain the $132,5 \pm 0.2$ mm from the shaft holder **2** to the plate edge - see picture. Belt holder is set to 141 mm from the shaft holder **2**. The plate **7** 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 **7** 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).



E - STANDARD MACHINE ADJUSTMENT

4. THE RACE MECHANISM ADJUSTMENT

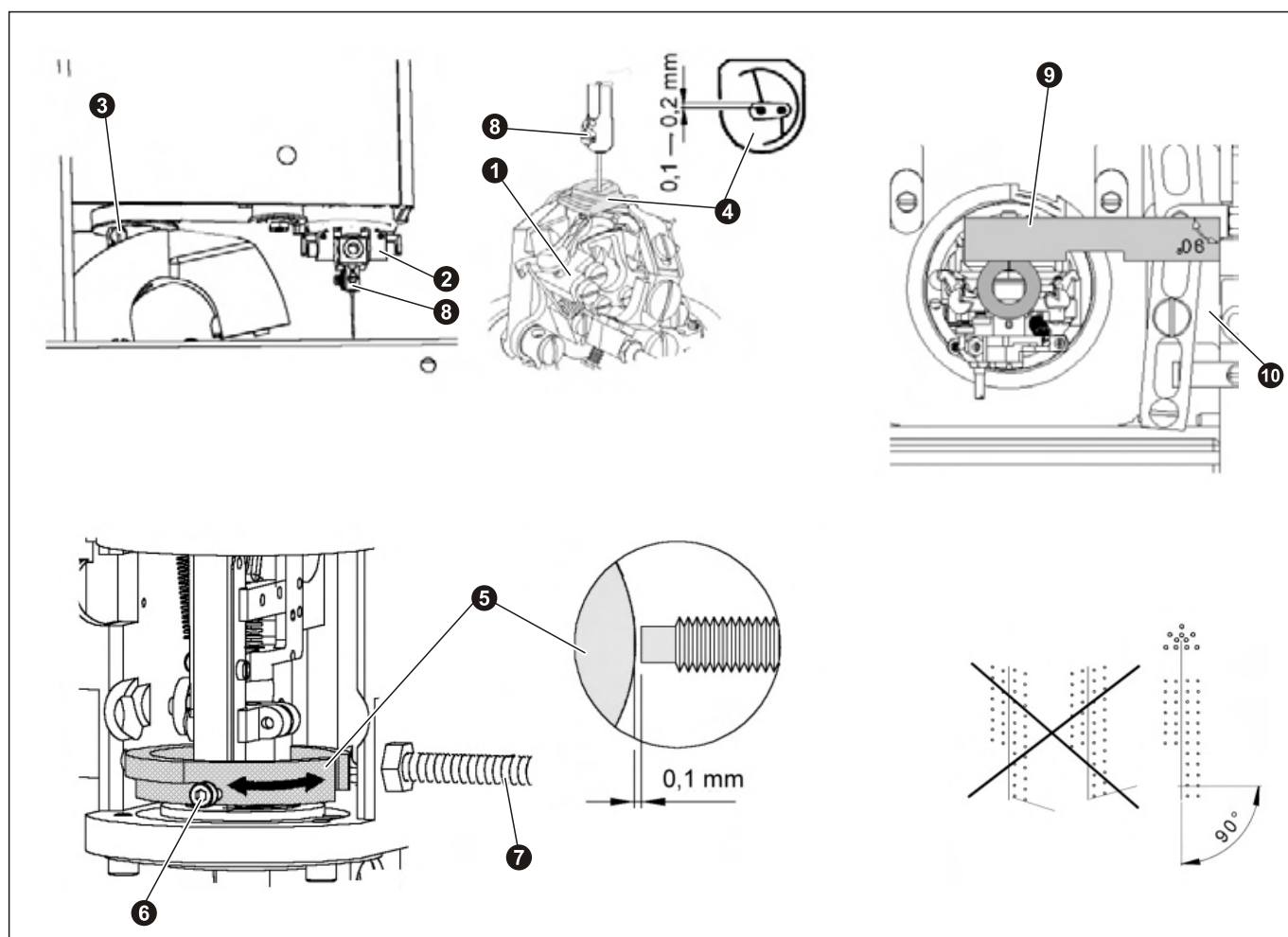
Home position of the working plate is given by position of the plate **5** and sensor **7** (BQ4). Screw of the sensor plate **6** is locked by paint from the manufacturer, that is why only a service technician from AMF REECE can perform this operation during the guarantee period. Make sure there is the buttonhole 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 **1** to the operator side.

4.2. Adjust the block **2** of the needle bar, after loosening the screws **3** of the bevel gear, so that screw **8** 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 **4** must be the same as when sewing a centre stitch.

4.3. After loosening the screws **6**, turn the plate of sensor **5** 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 **9**, according to the bedplate edges $\bar{O}$.

4.4. When the service mode is activated, punch in the buttonhole shape on the paper. 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 **5**. For better visibility of the centre punctures, adjust the cut distance for large value, for example + 0,5 according to the section D6.



E - STANDARD MACHINE ADJUSTMENT

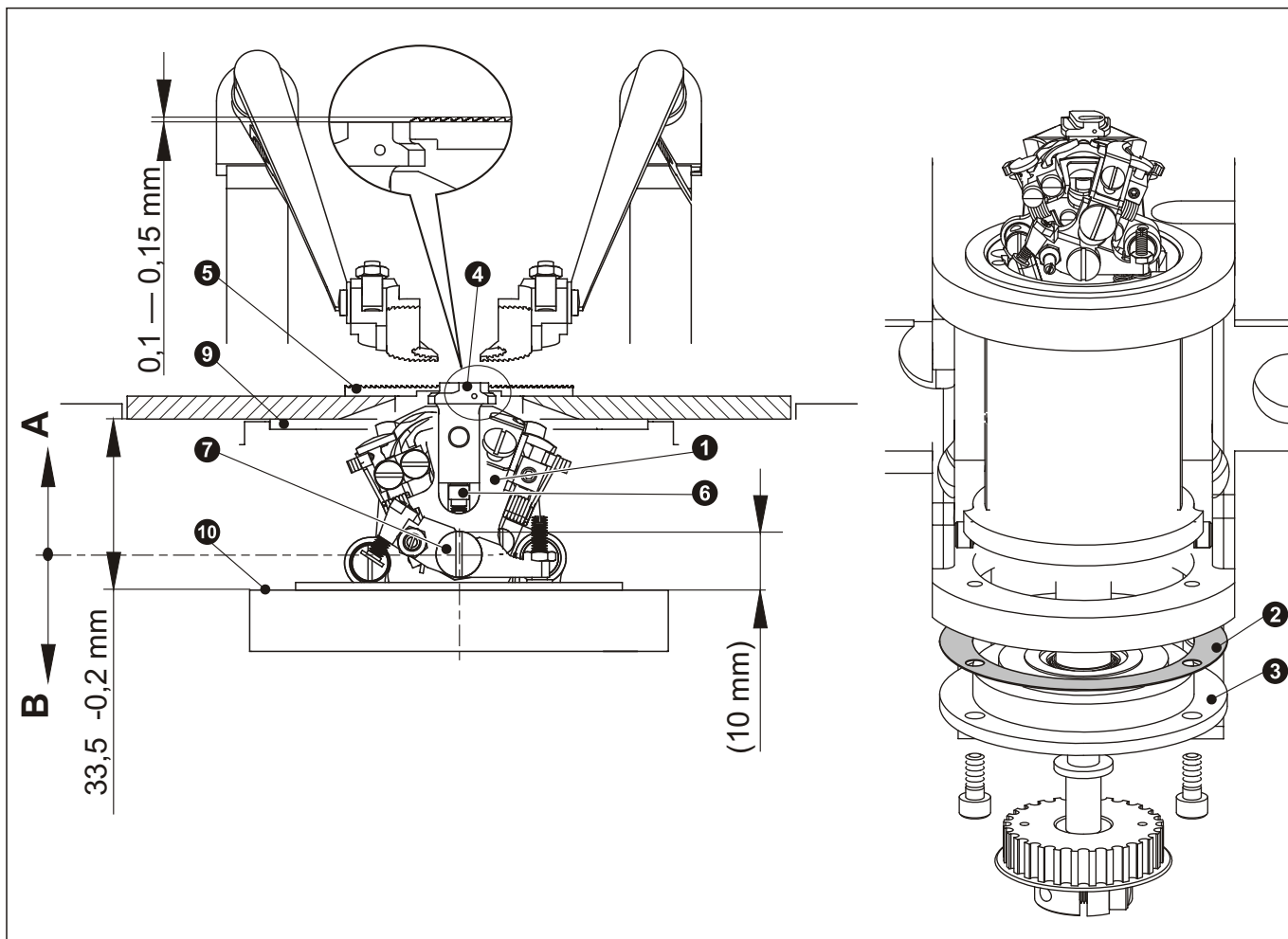
5. THE SEWING MECHANISM HEIGHT CONTROL

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 **1**, from the surface for the anvil can be readjusted by inserting or removing the washer **2** under the bearing flange **3**. 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 Ø of the bung **7**.

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 **5**. This distance is adjusted at the factory with the screw **6** under the stitching plate for 0,1 — 0,15 mm. The screws are secured with the LOCTITE 243.

5.3. For above mentioned distances, the factory provides the height of the fitting plates surface **9** from the surface to the anvil **10** in range 33,5 - 0,2 mm.



E - STANDARD MACHINE ADJUSTMENT

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 ① with clamp feet ② is possible to modify after removing from the machine.

6.1. After loosening the screws ③ adjust the clamp feet ② from front to rear (in the Y axis) and after loosening the screws ⑤ from left to right (in the X axis)

6.2. The adjust feet ② clamp against the plates ⑨ for 1,2 - 2,0mm overlap.

6.3. Remove the side table covers ⑥ by removing the screws ⑦.

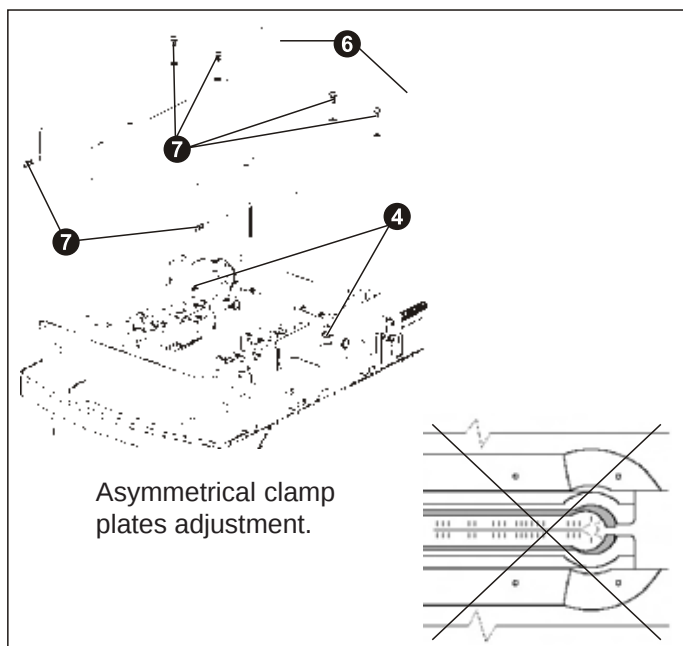
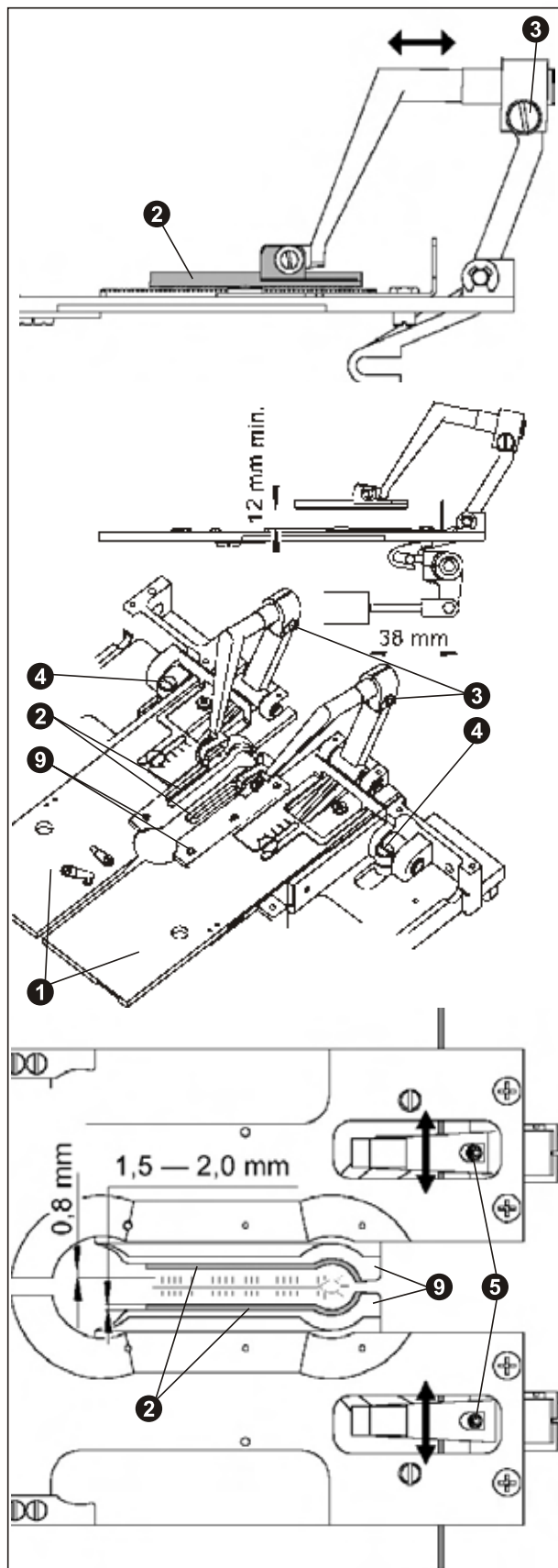
6.4. Insert the clamp plates ① into the machine.

6.5. Adjust the plates lift ② for 12mm and after loosening the screws ④ tighten them again.

6.6. Put the side table covers ⑥ 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 ② over clamp plate ⑨ - measure A to values. Adjust after loosening the screw ⑤ and shifting the clamp plate arm to the correct needed clearance.



E - STANDARD MACHINE ADJUSTMENT

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.

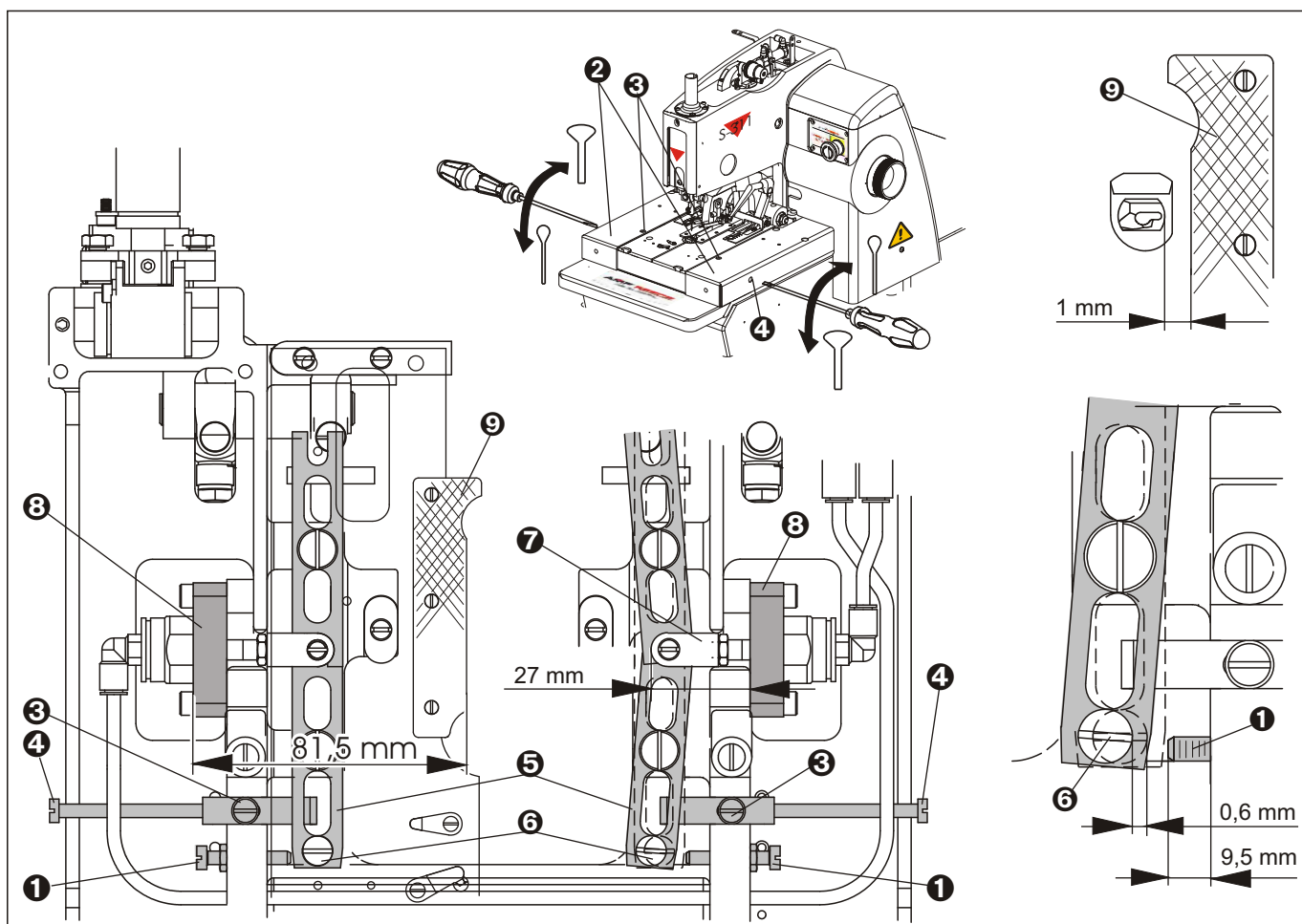
7.1. After loosening the screws **3** is possible to change the spreading size of the every foot clamp separately by the screws **4**. By turning the screws **4** clockwise, decreases spreading, counterclockwise increases, maximum is 2,5 mm on one clamp plate.

Check it with stepping (section D2) to the place, where is the stitching plate between the clamp plates. The edge of the plates **9** has to be 1mm from the stitching plate.

7.2. Home position of the levers in spread state is set by the screw **1** under the table covers **2**. 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 **7** adjustment is 27 mm from base for the cylinder holder **8** by maximum spreading (loosing the screws **3**, **4**).

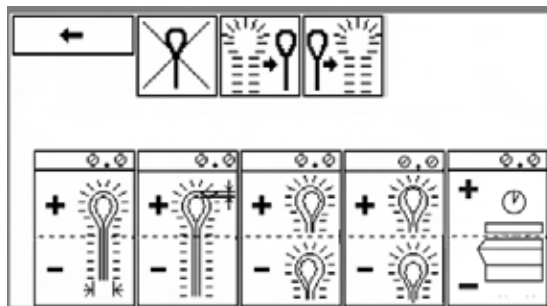
7.4. The manufacturer recommends to adjust approximately 0,6 mm. It is difference between the lever stud **6** distances before and after spreading.



E - STANDARD MACHINE ADJUSTMENT

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



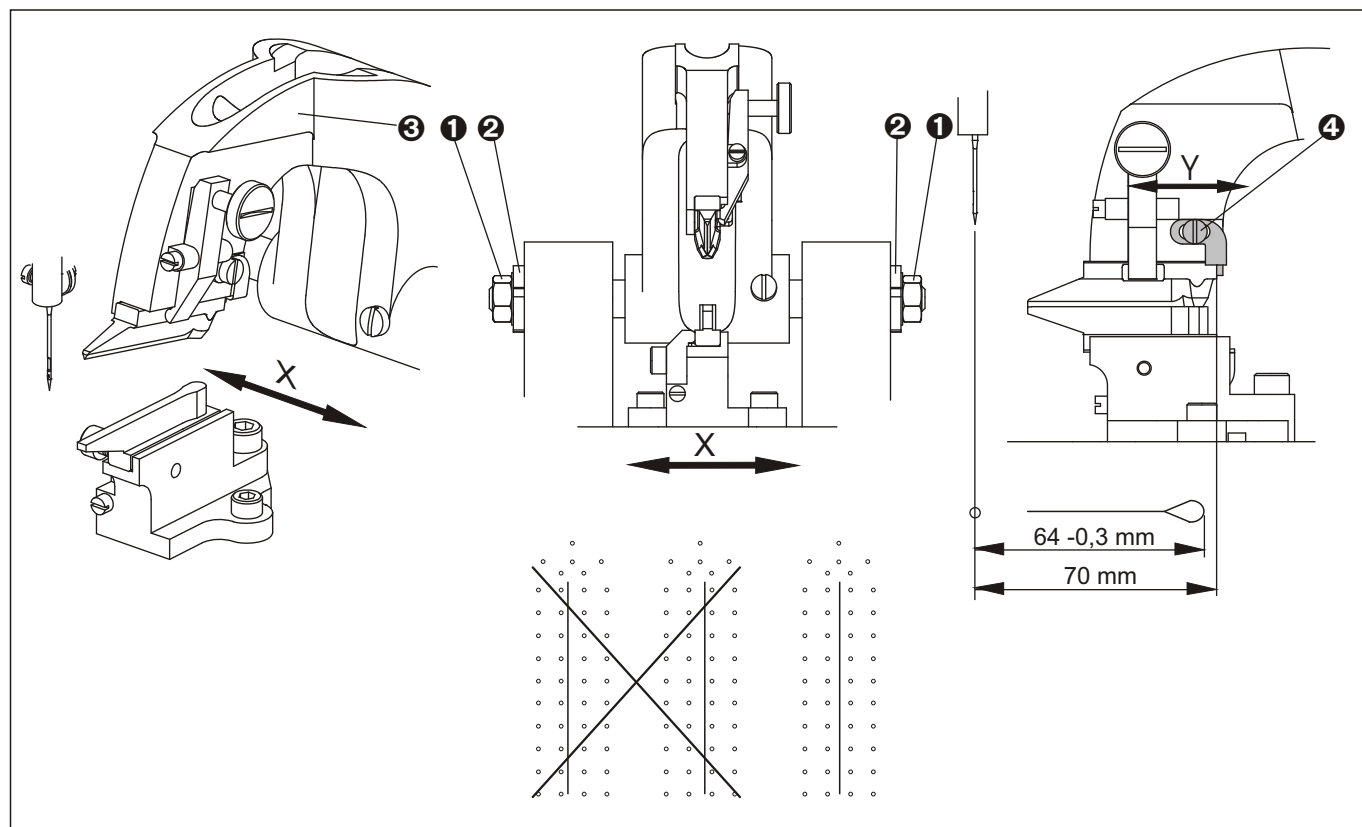
The cut position is given by the point of departure of the stepping motors adjustment. The sensor plates screws are painted against the spontaneous rearrangement. If the cut position needs to be changed, it is possible to adjust the knife position in the program.

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 chosen by installing the knife, either to the cutting lever or to the anvil.

8.1. The knife installed into the cutting lever ③, adjust in the axis X after loosening the nuts ①, tighten the nut ②, 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.

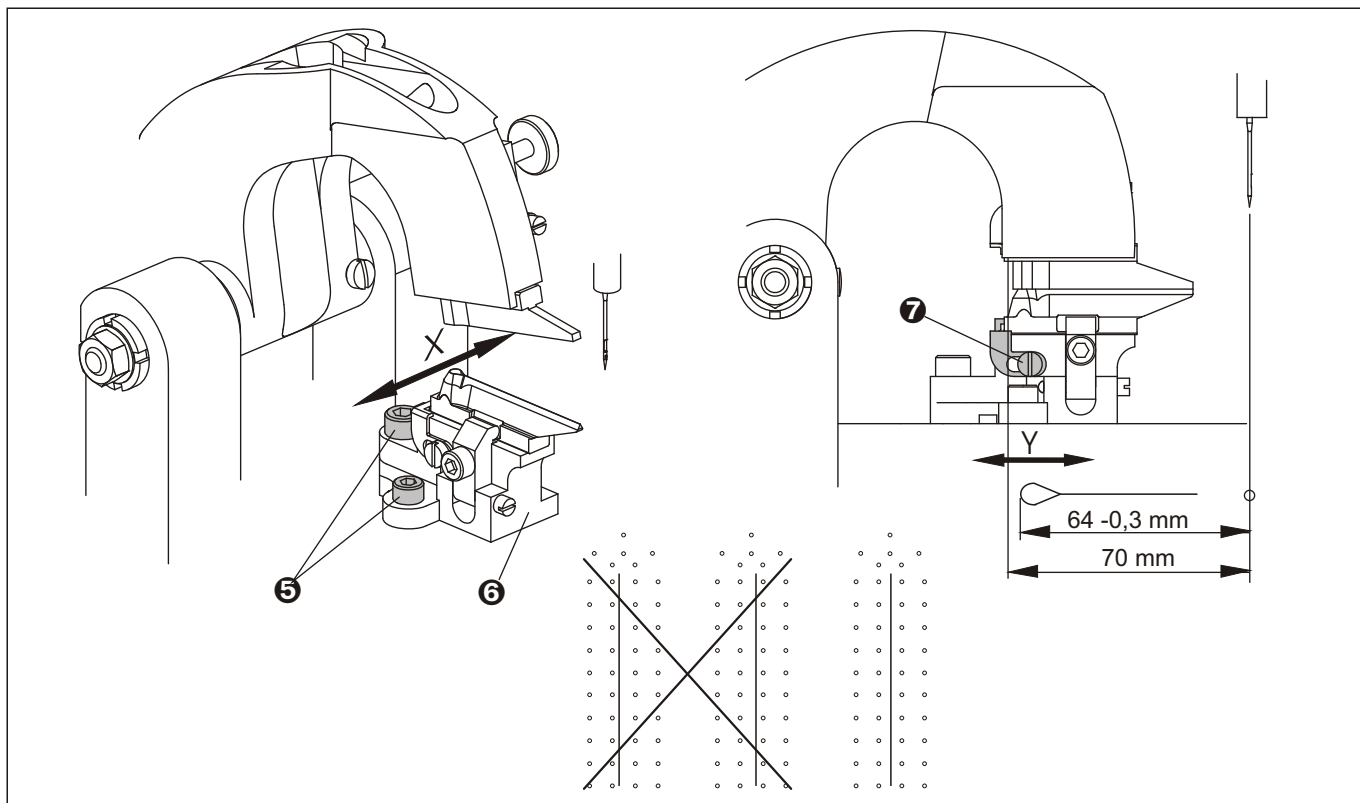
8.2. The knife stop adjustment in the axis Y in the cutting lever, adjust for 68mm after loosening the screws ④. Check by needle puncture on the paper in basic position with the button for cutting. The distance from the eye top to the puncture has to be 64-0,3 mm.



E - STANDARD MACHINE ADJUSTMENT

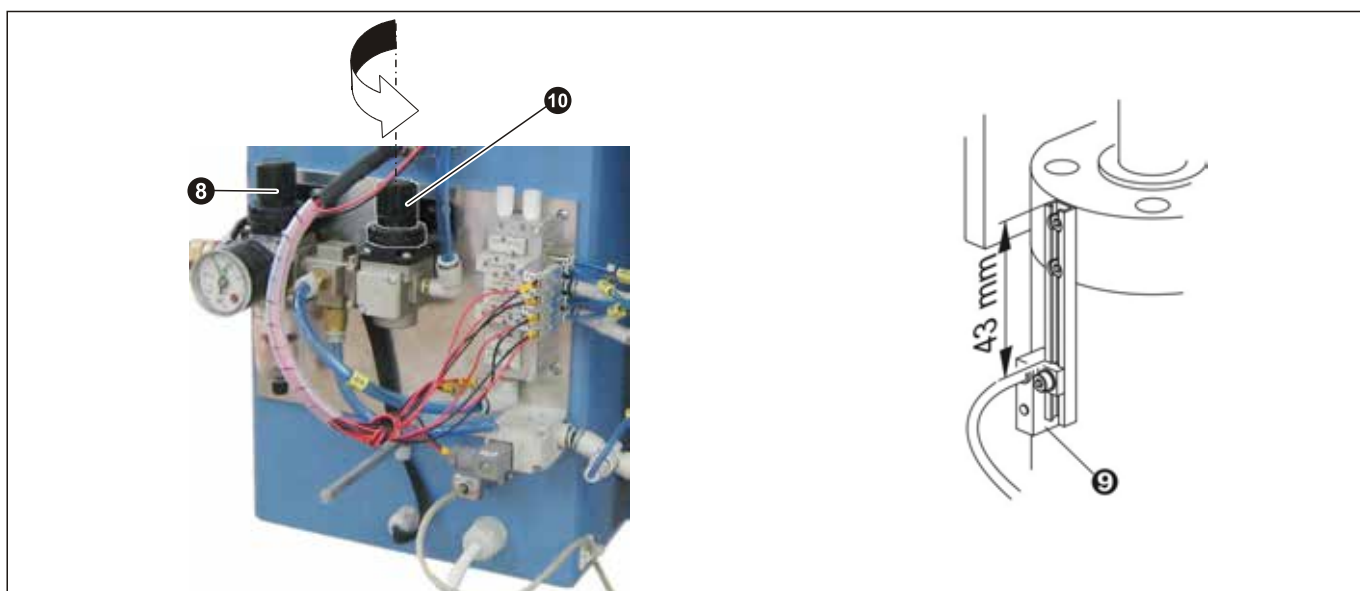
8.3. The knife in the axis X in the anvil **6** loosening the screws **5** and change safely the position, to the right or to the left. Tighten the screws.

8.4. The knife stop in the anvil **6** adjust for 70 mm after loosening the screws **7**.



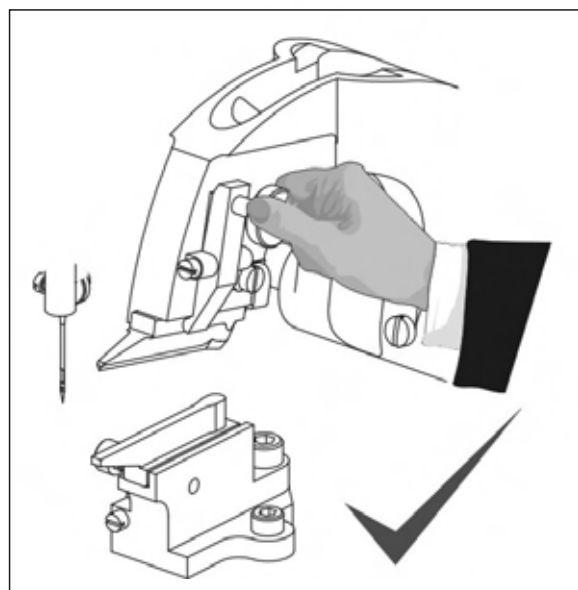
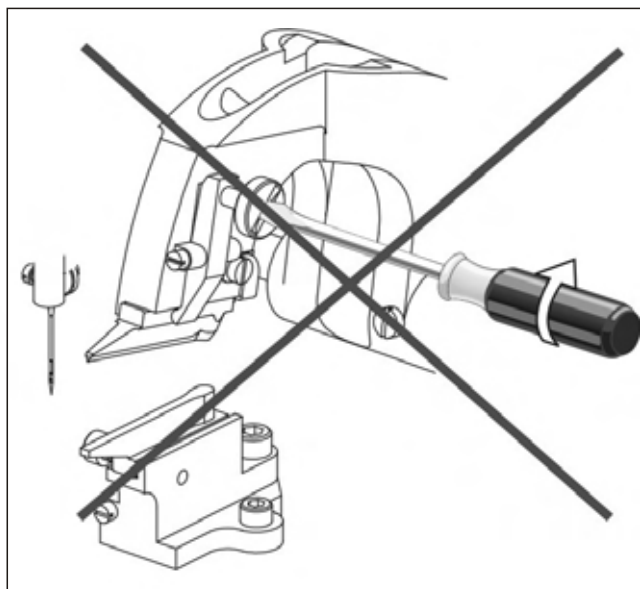
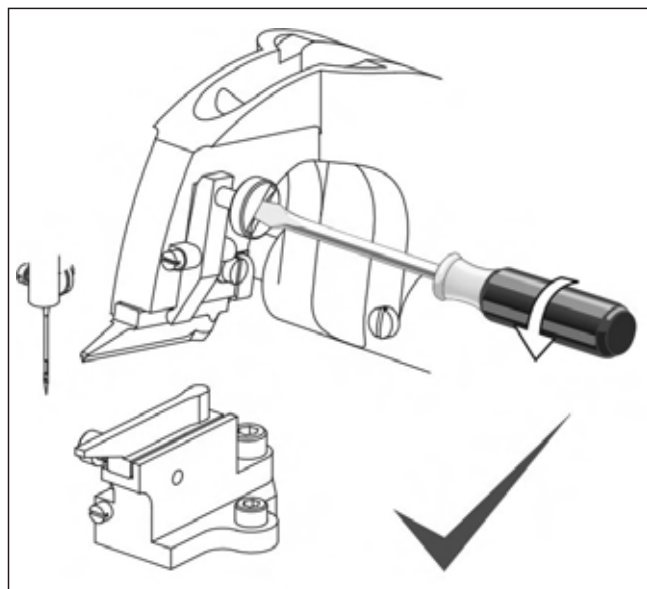
8.5. The pressure of the pneumatic system is adjusted with the regulator **8** for 0,6 MPa. The pressure for cutting knife is adjusted with the regulator **10** (0,4 MPa). This pressure is suitable for all materials for cut lengths to 30mm. For difficult cut, increase the pressure for 1/2 rotation anticlockwise.

8.6. The sensor **9** on the cutting cylinder is adjusted approx. for 43 ± 1mm (according the machine tolerances).



E - STANDARD MACHINE ADJUSTMENT

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

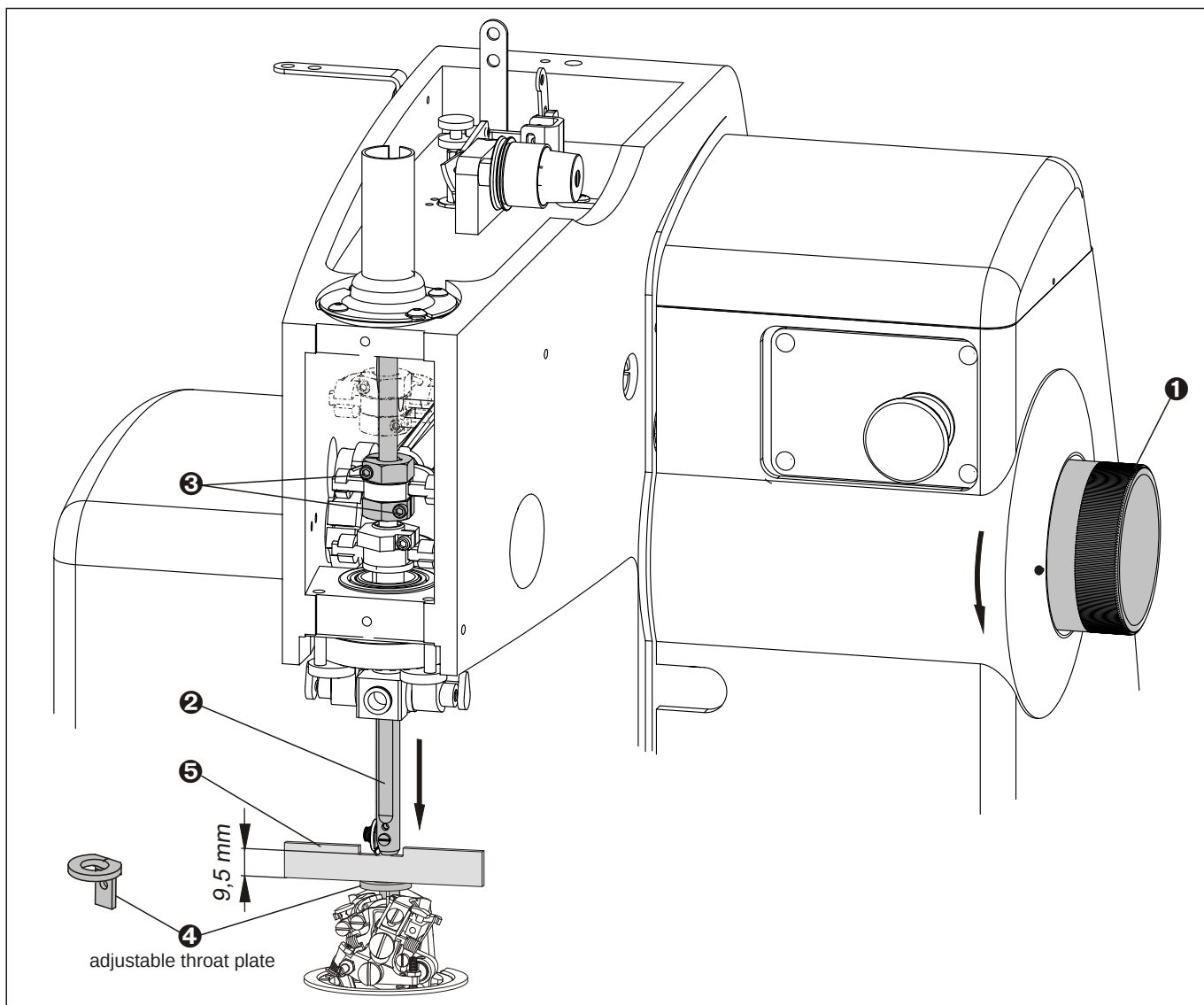


Warning: When changing the knife, pay attention to the tightening the screw.

E - STANDARD MACHINE ADJUSTMENT

9. SETTING THE NEEDLE BAR HEIGHT

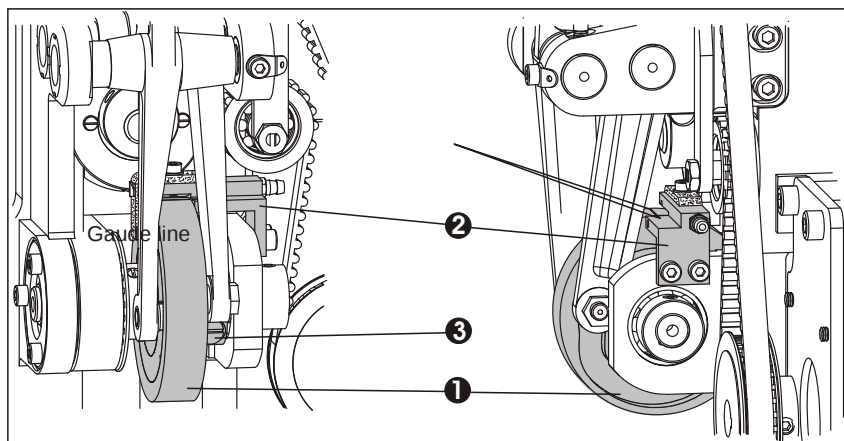
- 9.1. Remove the machine head front cover.
- 9.2. Turn the handwheel **1** and adjust the needle bar **2** to the lowest position.
- 9.3. Insert the gauge **5**, height 9,5 mm, between the needle bar and bedplate.
- 9.4. If incorrect, loosen the screws **3** and move the needle bar up or down to obtain correct distance. Tighten the screws.



E - STANDARD MACHINE ADJUSTMENT

10. SPREADER AND LOOPER CAM ADJUSTMENT

Locate the cam **1** on the holder gauge line **2** when the needle bar is in the lowest position according to the section E3, point 2. To turn a cam, loosen the screw **3**.



11. LOOPERS ADJUSTMENT

11.1. To perform this adjustment, remove the plates and holder **19** by loosening the screw **20**.

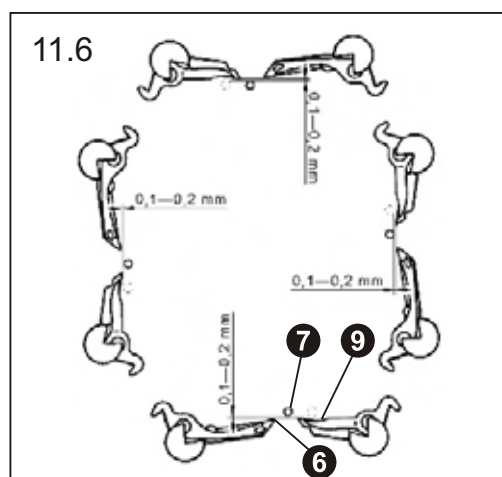
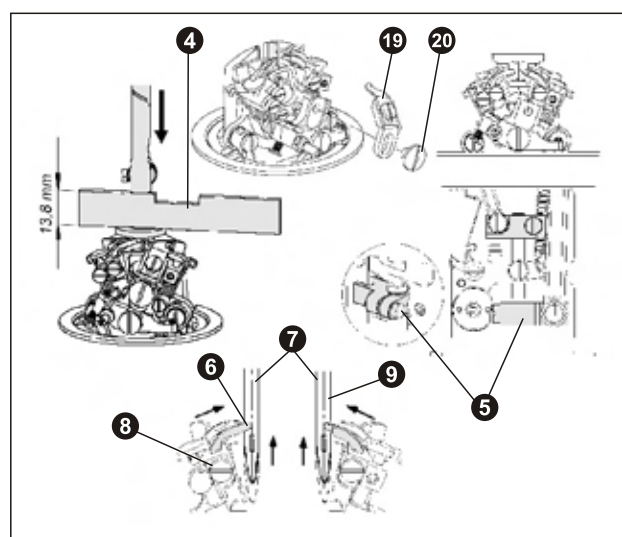
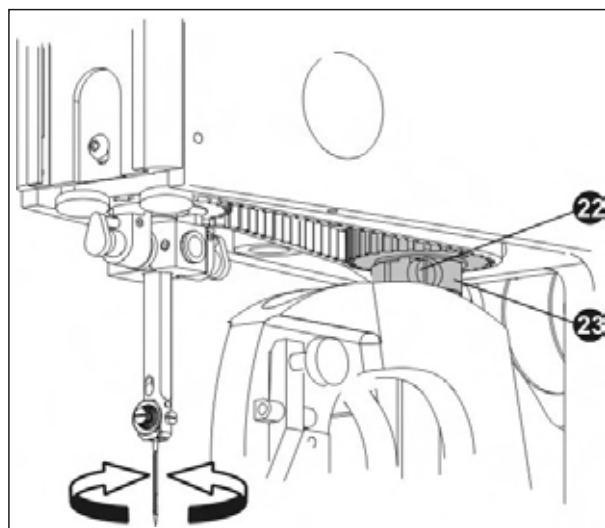
11.2. After the loosening the bracket screws **5**, locate left looper **6** on the axis of the needle **7**. By turning the handwheel, raise the needle bar from the lowest position, to insert a gauge **4** by its higher end between gauge support and the needle bar end.

11.3. After loosening the screw **8** adjust the distance 0.1 - 0.2 mm between the needle and looper tip **6**. Tighten the screw again.

11.4. Adjust the same space on the right looper **9** 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 loosening 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.



E - STANDARD MACHINE ADJUSTMENT

12. SPREADERS ADJUSTMENT

To reach this, rotate the hand wheel.

12.1. Adjust the right spreader **10** to the right looper edge **9**, the left spreader **11** with the groove on the hole of the left looper **6**. To adjust, loosen the screws **13** and adjust the stops **12**. The stops can not slacken.

12.2. Check the clearance between the loopers and spreaders (it must be minimal).

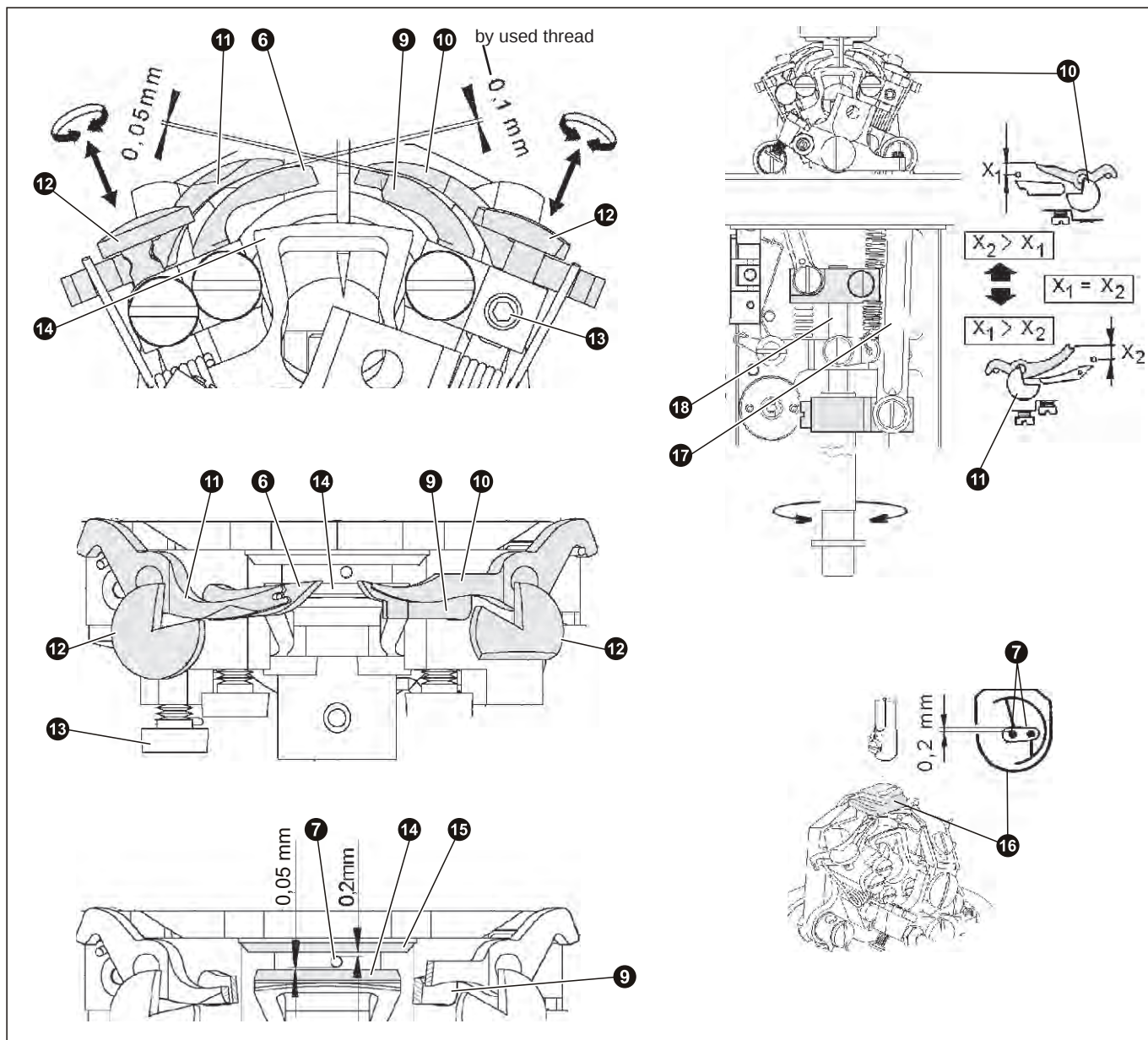
Right - 0,05 mm maximum, so the sewing thread does not go between the right looper and spreader.

Left - 0,01 mm minimum, so the sewing thread goes between the right looper and spreader.

12.3. Check clearance between needle **7** and support **14**. Tilt the support to obtain 0,05 mm, clearance between the needle and looper carrier **15** should be 0,2 mm, for needle Nm 100.

12.4. Check the clearance between the needle **7** and the stitching plate **16**.

12.5. The position of the left spreader **12** and right spreader **10**, loosen the screw **17** and carefully place the bracket **18** by turning the spreader rod. The right spreader must be at the home position at the moment when returning to bottom dead position. This adjustment affects stretching out of the left spreader.



E - STANDARD MACHINE ADJUSTMENT

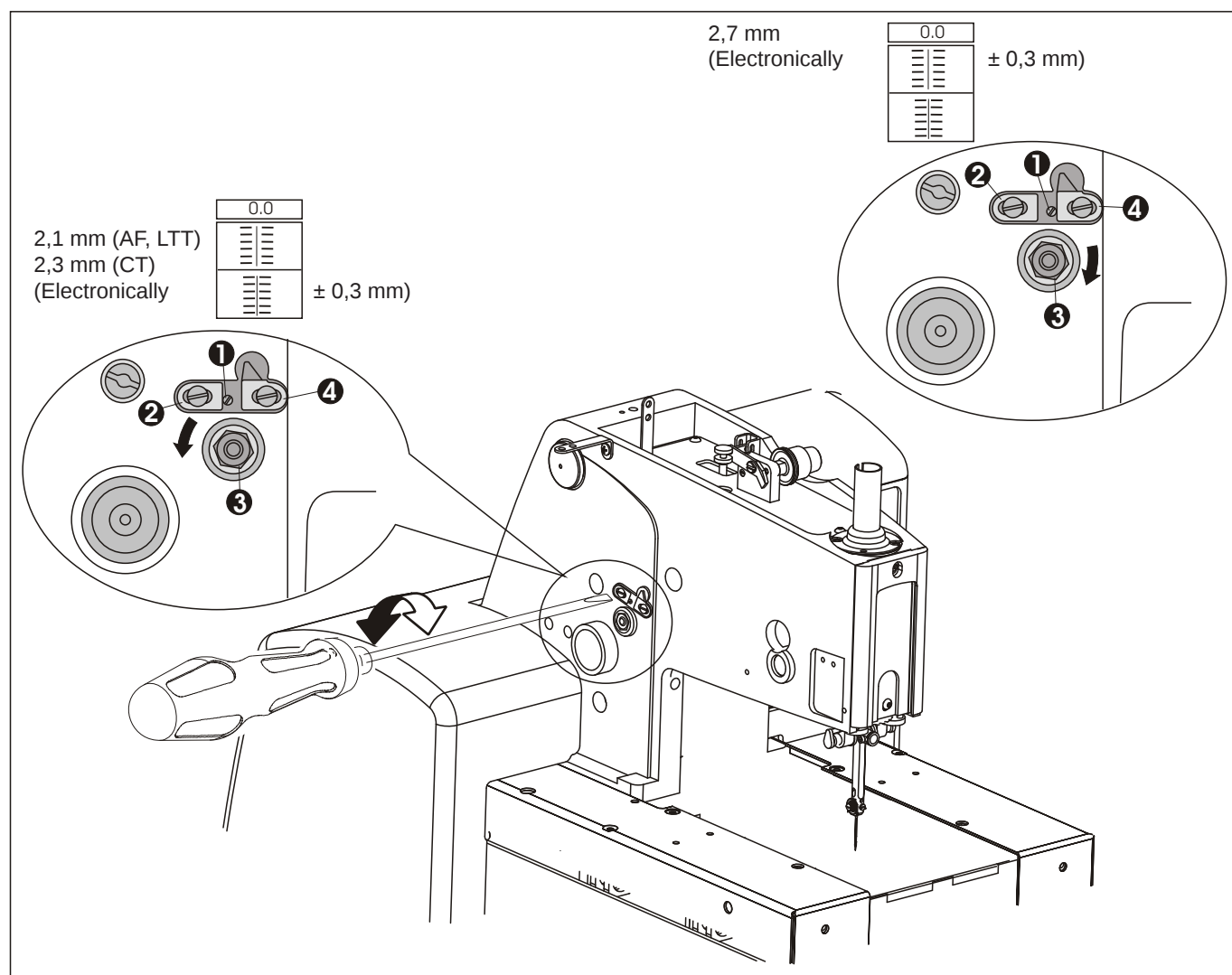
13. ADJUSTMENT OF THE BITE MECHANISM

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 $\pm 0,3$ mm. The mechanism adjustment is such:

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

13.2. To set the bite to 2,7mm, loose the nut **3** and move the pin **1** to the right all the way to the end stop towards the edge of the stop **4**.

13.3. In case of 3,4mm bite, remove the right stop **4** 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 throatplate is not exchanged, the machine can get damaged!



E - STANDARD MACHINE ADJUSTMENT

14. UPPER THREAD TRIMMING MECHANISM - AF/LTT

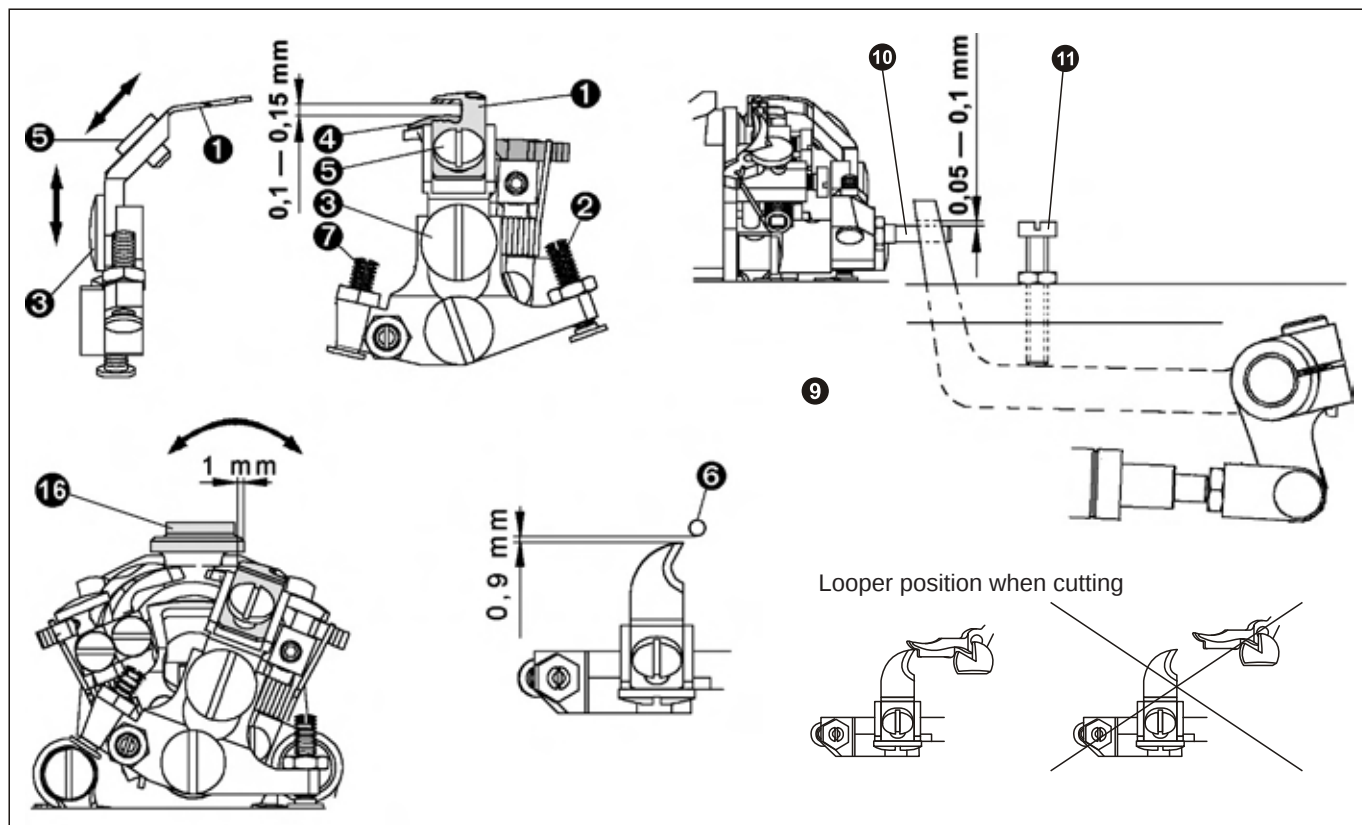
14.1. After installation of the holder with trimming knife **1** adjust the trimming knife after loosening the screw **3** to obtain the clearance 0,1 — 0,15 mm above the right spreader **4**.

14.2. Using the screw **2** adjust the trimming knife **1** 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 **1** 0.9 mm in front of the needle **6** by loosening screw **5**. Check the adjustment for keeping the clearance according to the point 14.2.

14.4. The normal home position of the trimming mechanism **1** is adjusted using screw **7**. Correct adjustment prevents cutting of the looper thread **8** (See diagram).

14.5. Adjust the initial position of the control lever **9** to the space 0,05 — 1 mm from stud **10** by the screw **11** after loosening its nut.



E - STANDARD MACHINE ADJUSTMENT

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 clearance 0,5 mm between the nut **1** and the holder **2**.

15.3. Loose the screws **3** to adjust the clearance between of the retainer **4** and the holder **5** for the distance 0,5 mm.

15.4 When the clamps of the nipper **6** **7** are in the bottom position, adjust them with the nuts **8** for distance 1 mm from the cover of the clamp plate **9**.

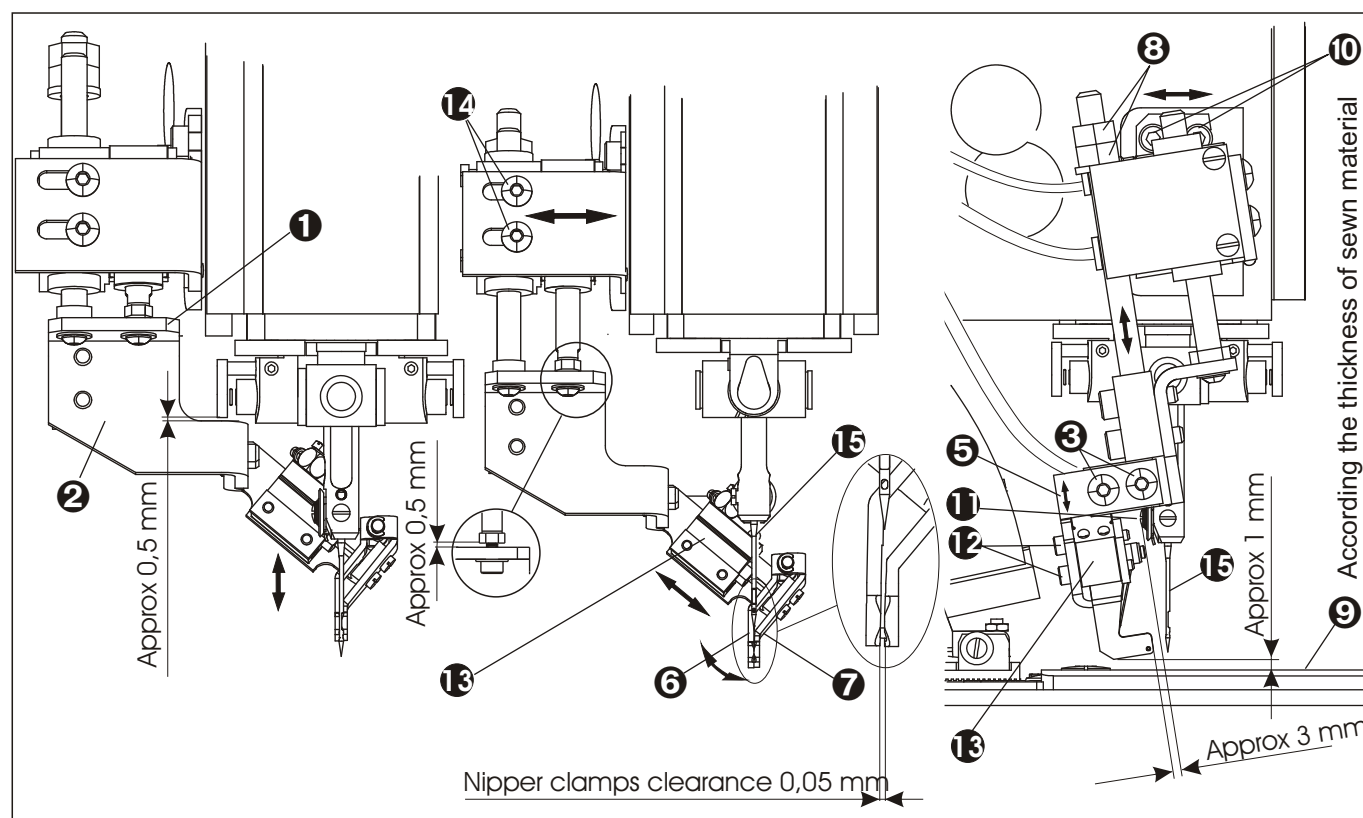
(When sewing the thicker materials, it is possible to increase this distance).

15.5 Loose the screws **10** to adjust the clearance between clamps of the nipper **6** **7** and the screw **11** for the distance 3 mm.

15.6 Adjust the clearance between the clamps of the nipper **6** **7** for distance 0,05 mm. Loose the screws **12**, insert the gauge between the jaws of the nipper. Move the pneumatic cylinder **13** so they hold the gauge smoothly and tighten the screws **12**.

15.7 The machine needs to be in home position. Loose the screws **14** and adjust the clamps so the distance 0,05 mm will be in the center of the needle **15** 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 **14**.



E - STANDARD MACHINE ADJUSTMENT

16. UPPER TRIMMING AND LOWER INTERCEPTION - CT

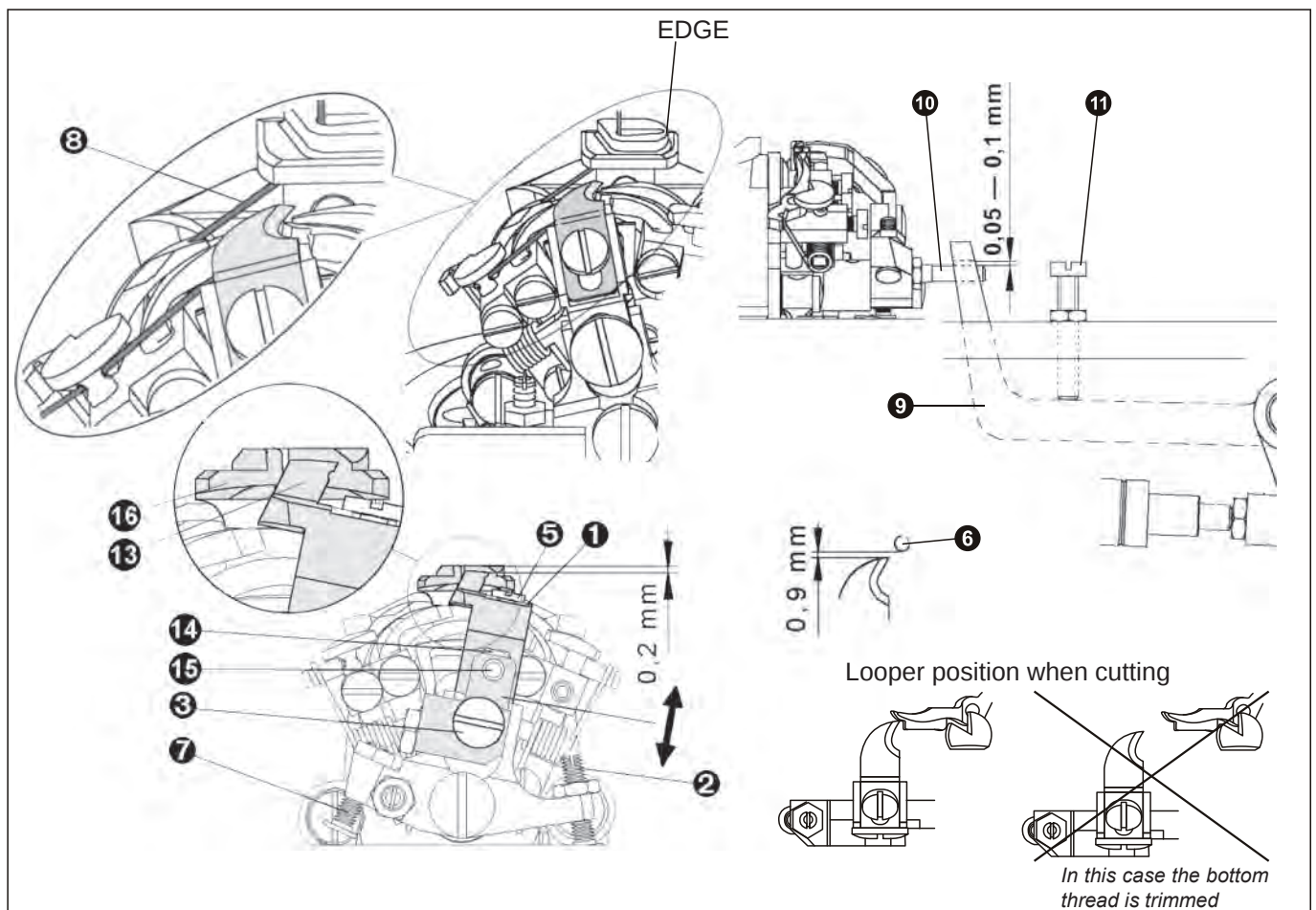
16.1 After installation of the thread retainer 13 with trimming knife 1, adjust the height of the thread retainer 13 to within 0.2 mm of the top of the throat plate 16.

16.2. Using the screw ② adjust the trimming knife ① so that the right edge of the nipper is covered with the stitching plate edge ⑬ (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 ⑭ and screw out or in the adjusting screw ⑮. Tighten the nut.

16.3. Position the tip of the trimming knife **①** 0.9 mm in front of the needle **⑥** by loosening screw **⑤**. 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 ❷. Correct adjustment prevents cutting of the looper thread ❸ (See diagram).

16.5 Adjust the initial position of the control lever **9** to the space 0,05 — 1 mm from stud **10** by the screw **11** after loosening its nut.



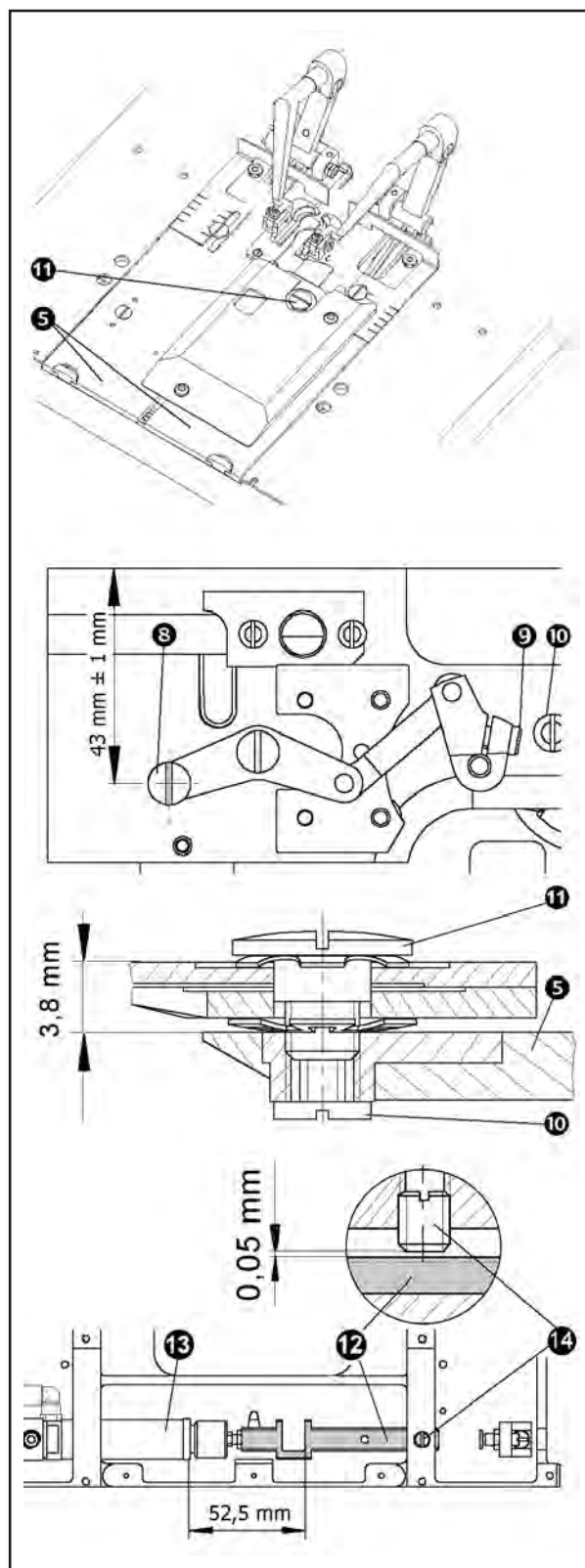
E - STANDARD MACHINE ADJUSTMENT

16.7. Shears adjustment

There is a trimming mechanism on the right clamp plate. Loosen the screw ⑨ and adjust the center of the roller ⑧ to 43 mm from the edge of the clamp plate. Tighten the screw ⑨. To adjust the shears, loosen the screws ⑩ and ⑪, and measure 3,8 mm from the top shear to the top of the clamp plate ⑤ by loosening or tightening screw ⑪. Tighten the screw ⑩ 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

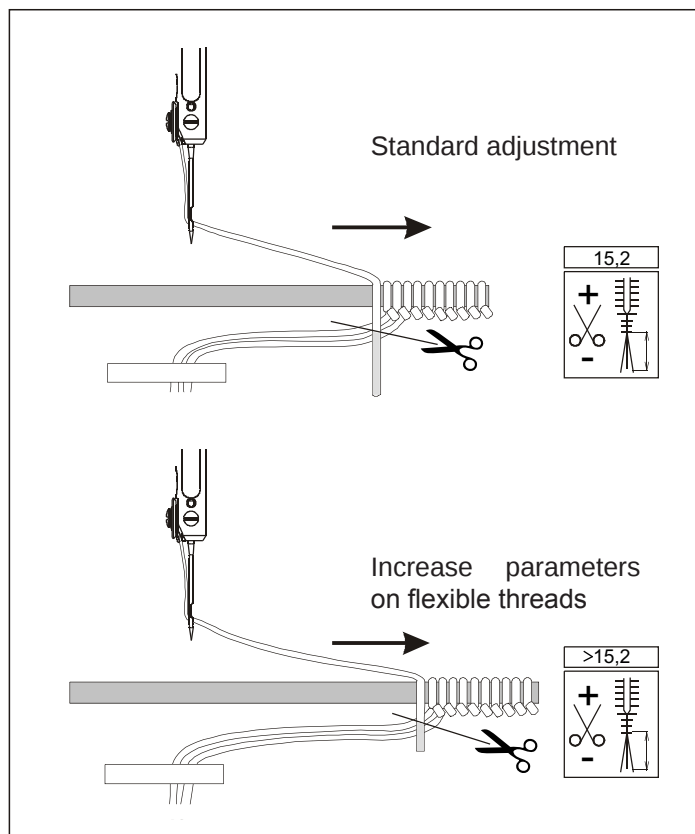
Adjust the distance 33.5 mm between the rod ⑫ and the air cylinder ⑬. Adjust the adjusting screw ⑭ (locked by LOCTITE 243) to the minimal clearance 0.05 mm, to allow the free movement of the rod ⑫.



E - STANDARD MACHINE ADJUSTMENT

16.9. Elektronik 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.

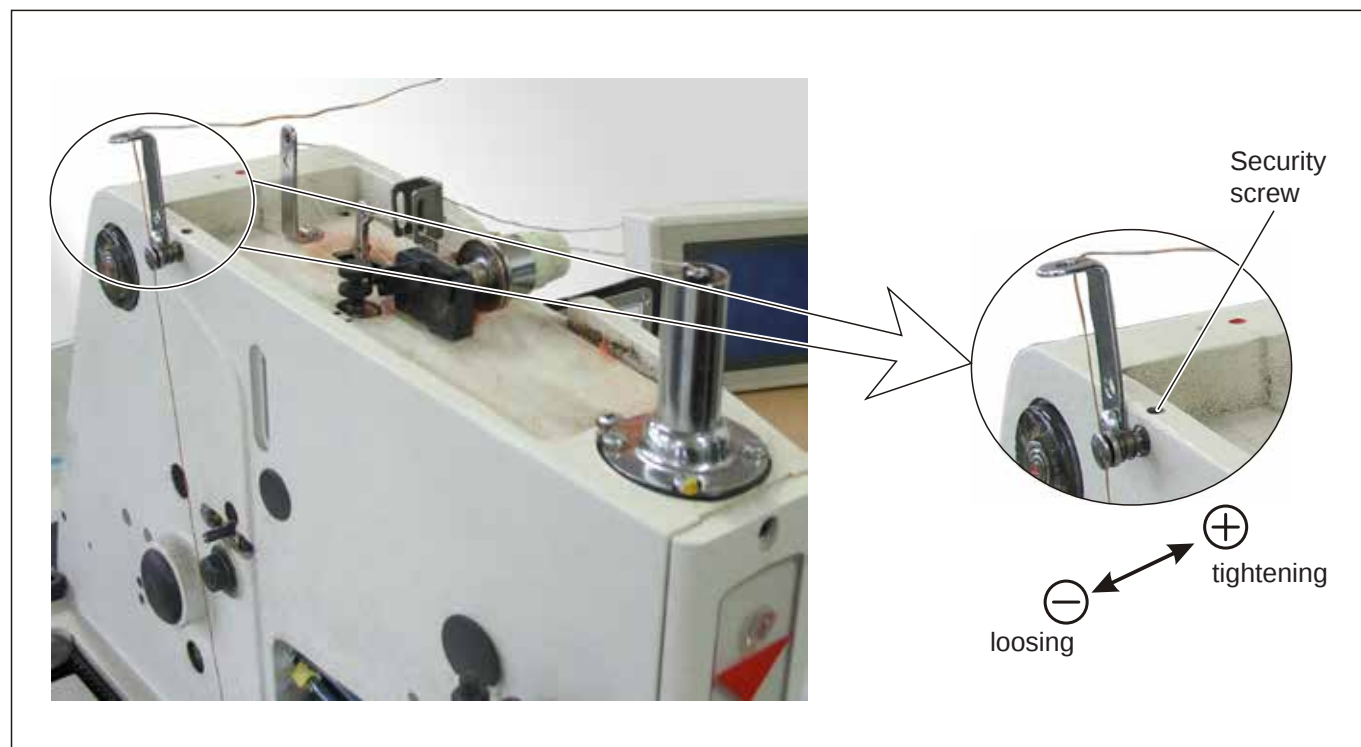
When thick materials are sewn, times for the clamp feet elevation need to be adjusted so that trimming knives can pass under the sewn material freely and trim the lower thread and the gimp (low values for thin materials, high for thick materials).

E - STANDARD MACHINE ADJUSTMENT

17. MECHANISMUS ADJUSTING FOR CT GIMP

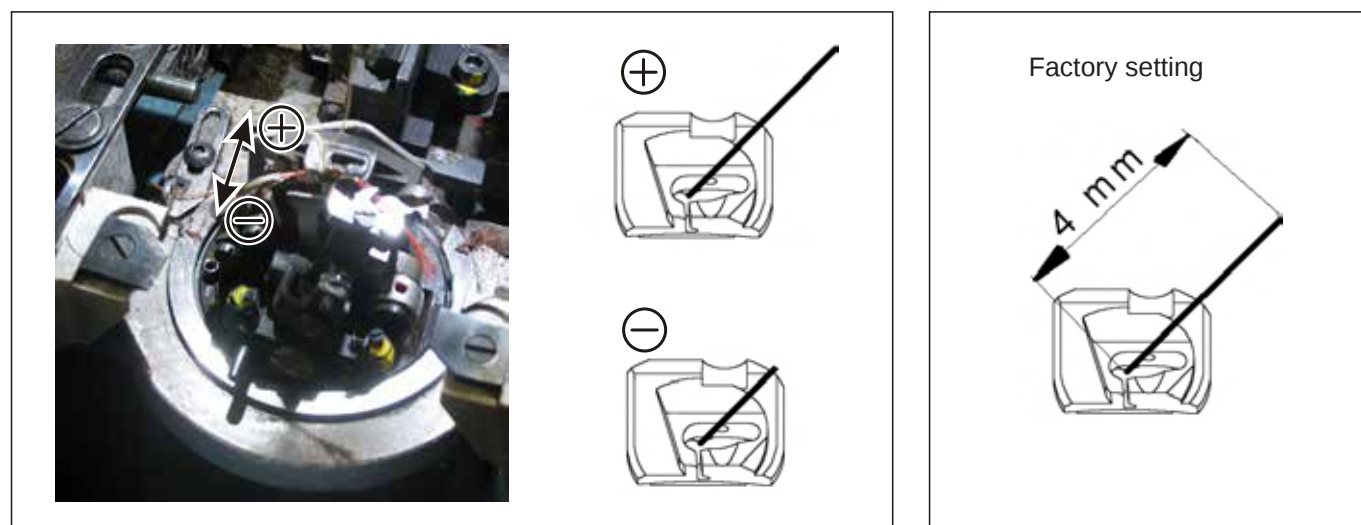
Gimp auxiliary stretcher adjusting:

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:

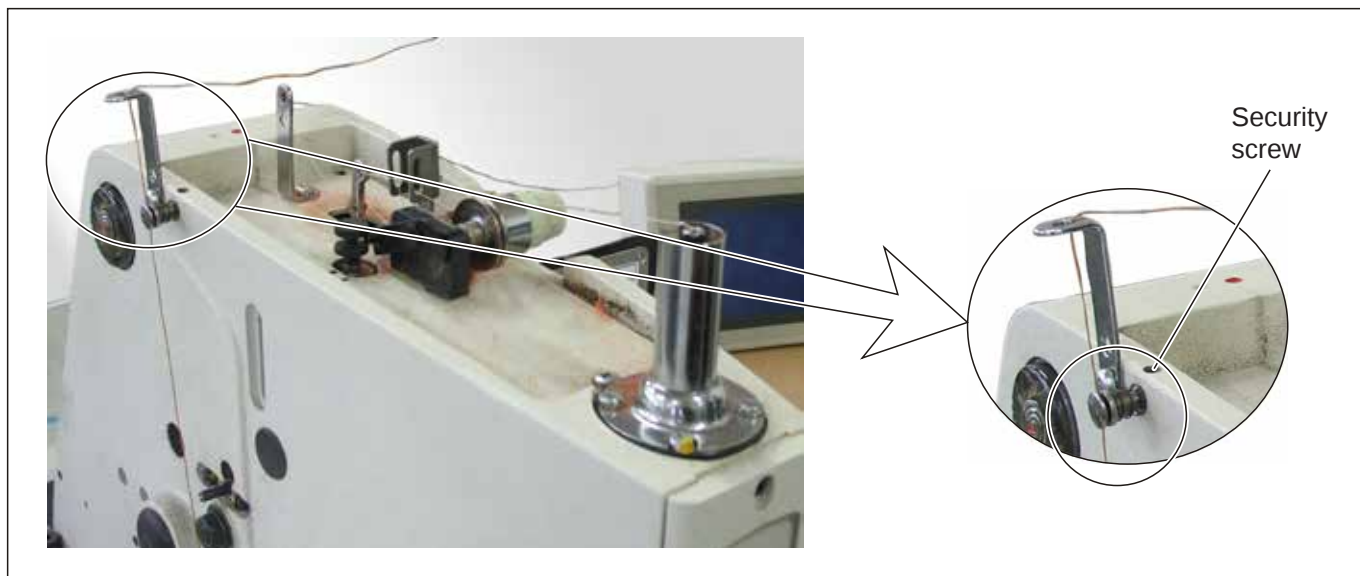
Thanks to adjusting gimp guide in base we can extend or reduce the gimp length after the trim in throat plate. By moving the guide in direction to the machine operator, the gimp length is reduced after the trim and moving the guide in opposite direction from the machine operator the length is extended. The correct gimp length after the trim is 4mm (in basic machine position).



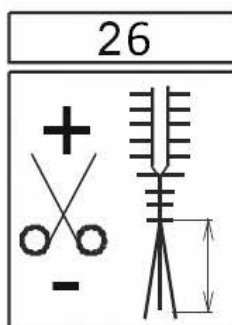
E - STANDARD MACHINE ADJUSTMENT

18. PRACTICAL RECOMMENDATION FOR SEWING ROUND EYELET

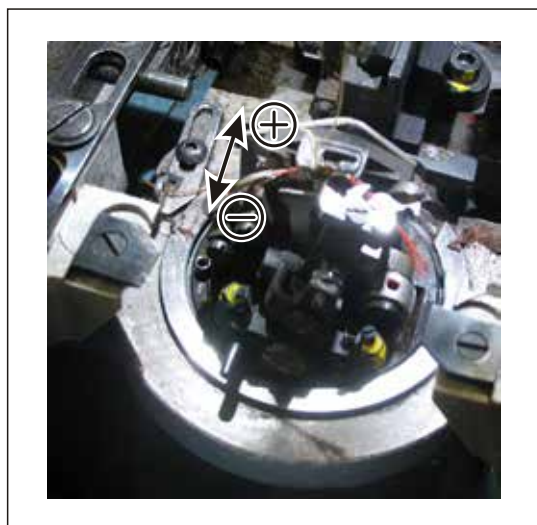
18.1. Pull out gimp thread from guide with spring (gimp thread is gotten out from thread plate):



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:



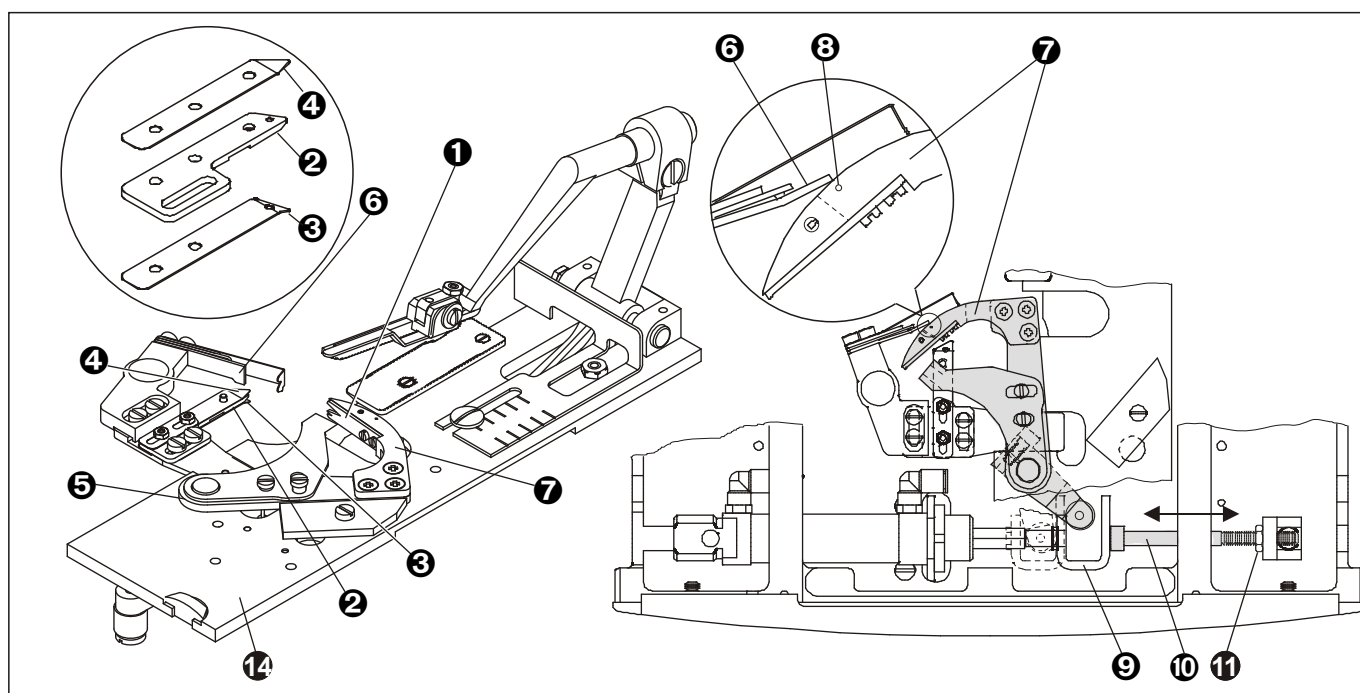
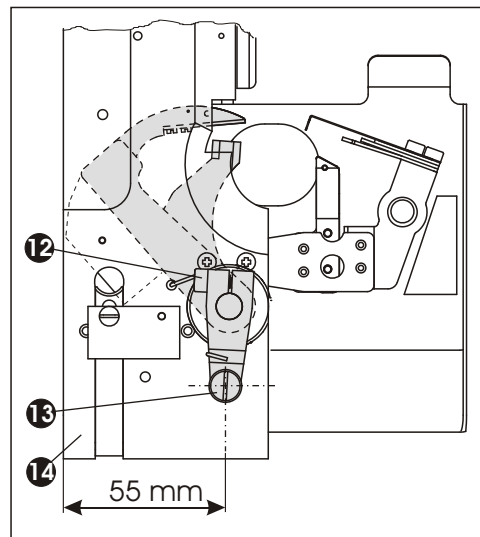
18.4. Because sewing round eyelet generated more waste of thread, machine must be cleaned more often.

E - STANDARD MACHINE ADJUSTMENT

19. THE TRIMMING MECHANISM ADJUSTMENT - LTT

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

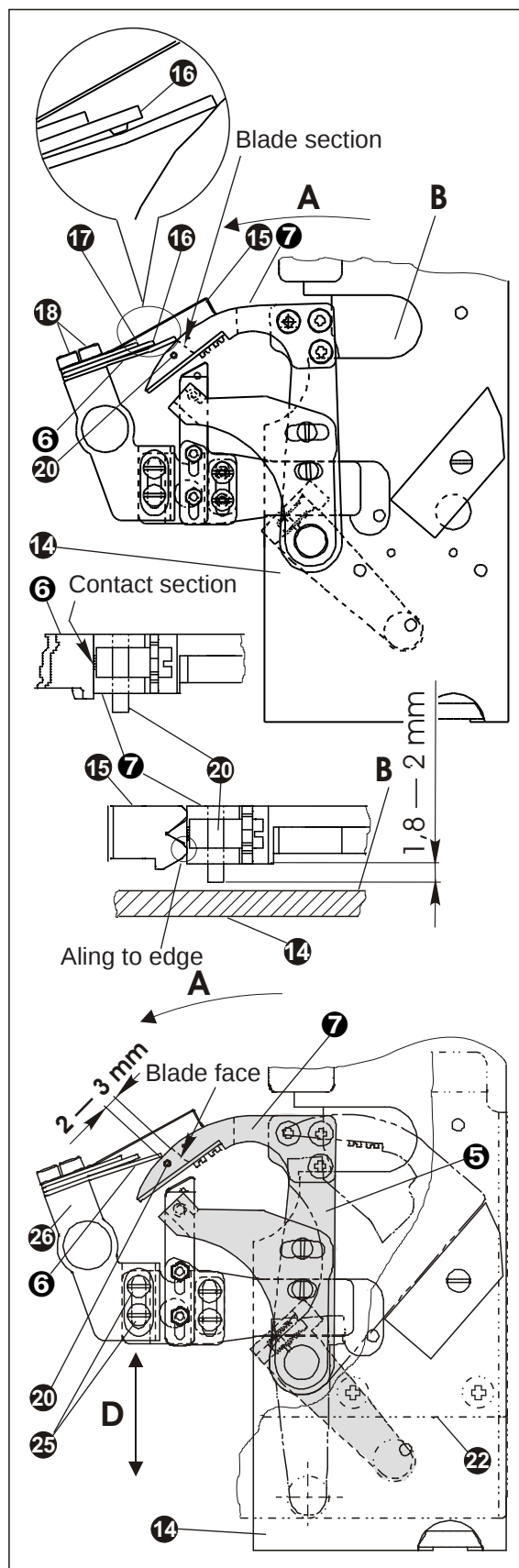
1. Adjust so that looper thread and gimp are separated upward and downward by thread catching plate **1**.
2. The clamp fixing plate **2** ensures the correct holding of the upper and gimp thread by lower thread clamp **3** and gimp clamp **4**.
3. Loosen the screw **12** and adjust the distance 55 mm between the clamp plate edge **14** and the bushing axis **13**.
Tighten the screw **12**.
4. Using the stop screw **10** adjust the maximal position of the cylinder click **9** and the actuating arm **5** so that the fixing knife edge **6** is aligned with mark **8** on the knife **7**.
Fasten the stop screw by nut **11**.



E - STANDARD MACHINE ADJUSTMENT

a) knives adjustment - LTT

- a.1. Loosen the screw 18.
- a.2. Turn the knife 7 in direction A and adjust the position of the guide plate 15 so that the lower edge of the guide plate 15 is aligned with knife edge 7.
- a.3. Turn the knife 7 in direction A and adjust the position of the fixing knife 6 to obtain no clearance between them. Adjust the upper edge of the fixing knife 6 to be aligned with knife 7.
- a.4. Align the upper and lower spring 16 17 with fixing knife 6. (Spring boss 16 faces towards the fixing knife 6.)
- a.5. Tighten the screws 18.
- a.6. Adjust the pin 20 to protrude 1.8 — 2 mm on the lower part of the knife 7.
- a.7. Loosen two screws 25.
- a.8. Adjust the knife holder 26 with fixing knife 6 in direction D so that the fixing knife 6 touches the knife 7 in distance 2—3 mm from the blade section (pin 20 is aligned with fixing knife face 6). The larger distance, the bigger pressure on the blade.
- a.9. Tighten the screws 25.



E - STANDARD MACHINE ADJUSTMENT

b) lower thread clamp fixing plate adjustment - LTT

- b.1. Loosen two screws 24.
- b.2. Turn the knife 7 in direction A to align the fixing knife face 6 with knife blade section edge 7. Then make as small as possible clearance C (approximately 1mm) between the thread catching plate 1 and clamp fixing plate 2 in direction of arrow B. Check the clearance D between the fixing knife 6 and screw 19, when the fixing knife face 6 is aligned with mark on the knife 7.
- b.3. Tighten the screws 24.

c) lower thread grasping opener - LTT

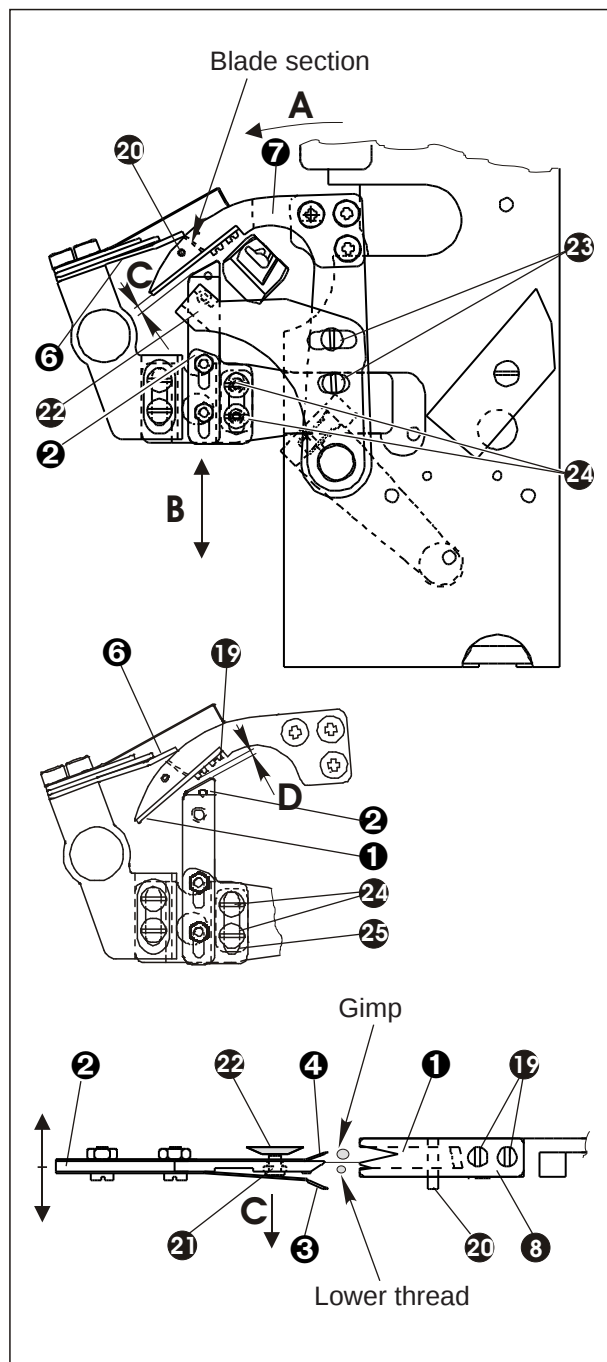
Turn the knife 7 in direction A to align the fixing knife face 6 with mark on the knife 7. The lower thread clamp 3 is closed in this position and retains lower thread.

d) looper thread hauling — LTT

- d.1. Loosen two screws 19.
- d.2. Turn the knife 7 in direction of the arrow A to align the fixing knife face 6 with the edge of the knife blade 7. Align the lower thread fixing plate 2 with thread hauling plate 1 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 3 and gimp is inserted in the gimp clamp 4.

e) lower thread grasping opener - LTT

- e.1. Loosen two screws 23.
- e.2. Turn the knife 7 in direction of arrow A to align the fixing knife face 6 with knife blade section edge 7. Turn the lower thread grasping opener 22 so that the lower side (slant) releases the pin 21 and lower thread clamp 3 returns to the closed position. Then tighten the screws 23.



E - STANDARD MACHINE ADJUSTMENT

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.

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

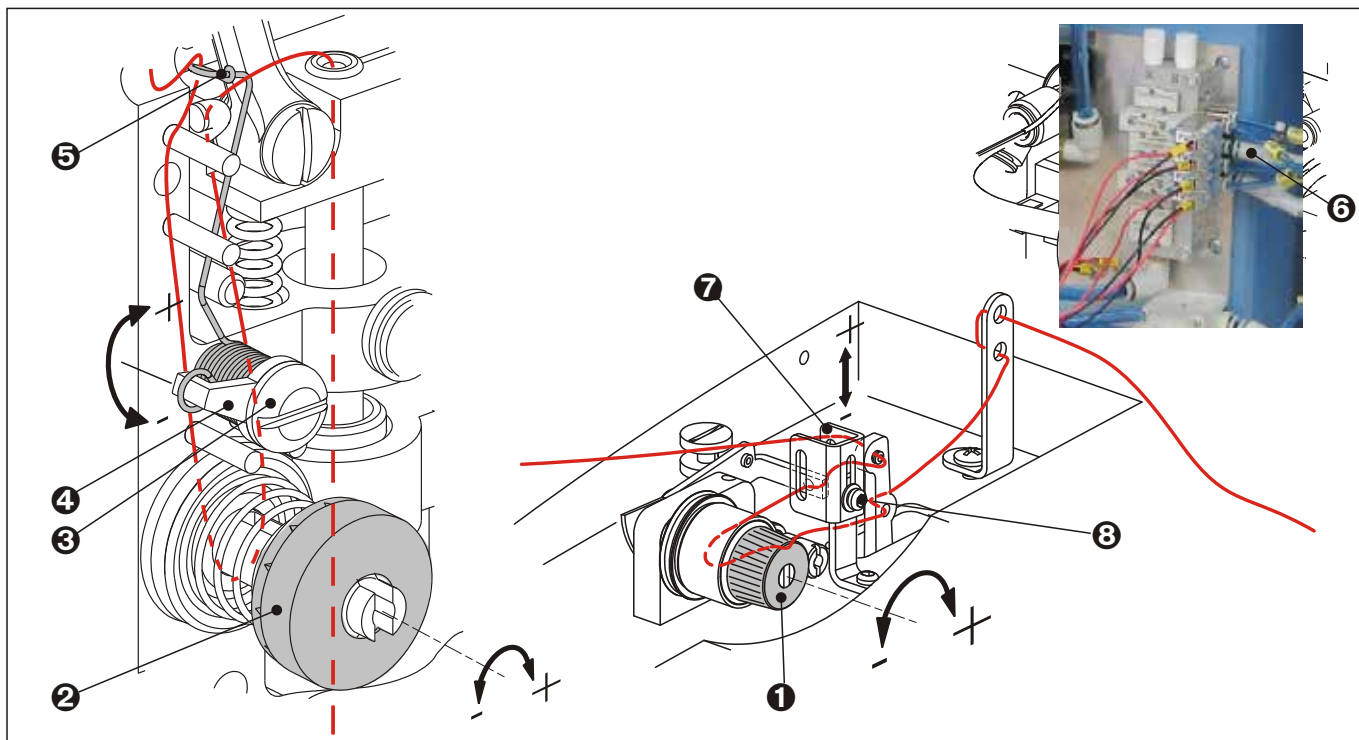
When using lower quality thread it is necessary to exchange the spring with the spare one, which is in the drawer of the machine.

20.1. By turning the tension knob **①** clockwise, **the top thread tension** increases, anti-clockwise decreases.

20.2. By turning the tension knob **②** clockwise, **the bottom thread tension** increases, anti-clockwise decreases. After loosening the screw **⑥**, it is possible to adjust the preloading of the take-up spring **⑧** by turning the lever **⑦**.

20.3. Increase the stud pressure **④** by loosening the screw **③** and moving the bracket **⑤**. The ends of the threads will be extended during the trimming.

20.4. Thread tension size is possible to adjust after loosing the screw **⑧** moving thread guide **⑦** up (*increasing*) or down (*reducing*).



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 **1**. Lift the clamp feet and pull it to the operator. Remove the locking screw **3** and fold the rear cover **4**.

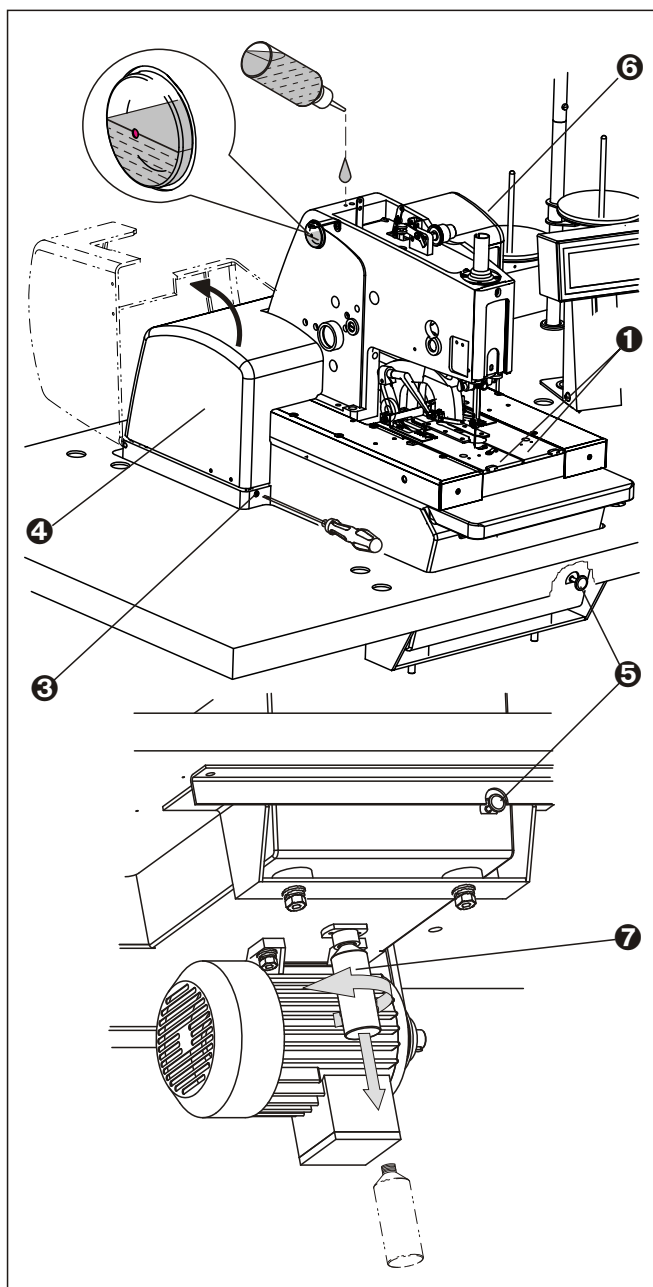
1.3. Clean the thread lints and fabric from the sewing area - guides and thread tension. To move the sewing mechanism, turn the hand wheel **6**. It is also possible to turn the race by hand. The machine head can be raised to the position where it is locked by a strut which is controlled by a button **5**. By pressing the button **5**, the machine can be 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 **7**, under the machine, is full. It is necessary to liquidate used oil according to the environment regulation.

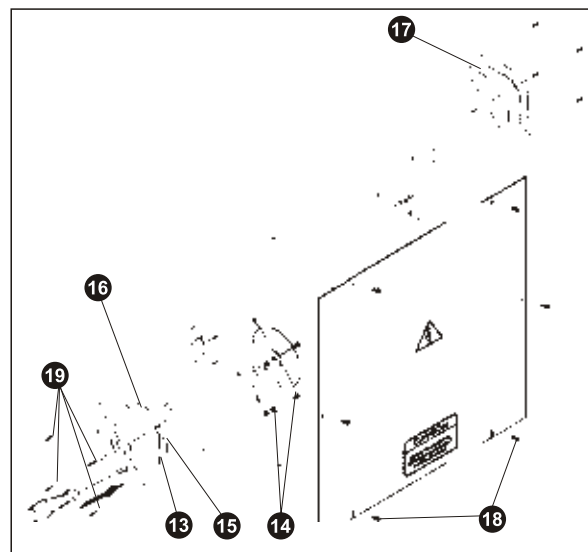


F - MACHINE MAINTENANCE

1.6. Using a screwdriver, loosen the locks **18** on the control box door. Using a wrench, loosen 4 screws **19** on the fan rack **13**.

CAUTION!

When loosening the last screw, hold the fan **14** by hand inside the control box to prevent it from dropping into the control box. Insert the screwdriver into the rack **13** and by pushing the screwdriver through the cleaning pad **15** remove the plastic cover **16**. 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 **17**.

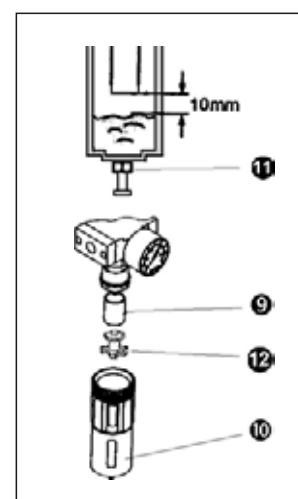


1.7. Maintenance of air regulator contains **check of the condensate** and possible replacement of the filter element **9**. The level of condensate must be 10 mm below the filter inside of the desliming receptacle **10**. Lower ring of the nut **12** signalizes this height.

Open the bleeder screw **11** by turning it counter clockwise. The condensate can then flow out. Tighten the screw again.

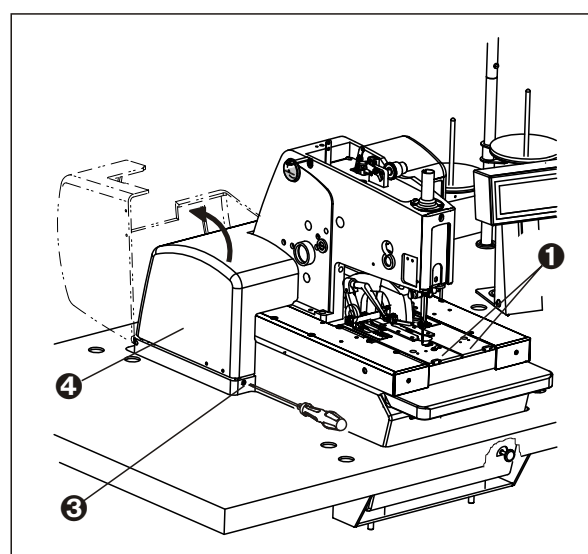
With worse flow despite same pressure setting

replace the filter element **9** after stopping the air supply. Unscrew desliming receptacle **10** anticlockwise and ventilate. By unscrewing the nut **12**, loosen the filter element **9**, 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 **4**, folding cover lock by the locking screw **3**, put back the clamp plates and lock them by clamp support plates **1**, then continue with work.



F - MACHINE MAINTENANCE

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

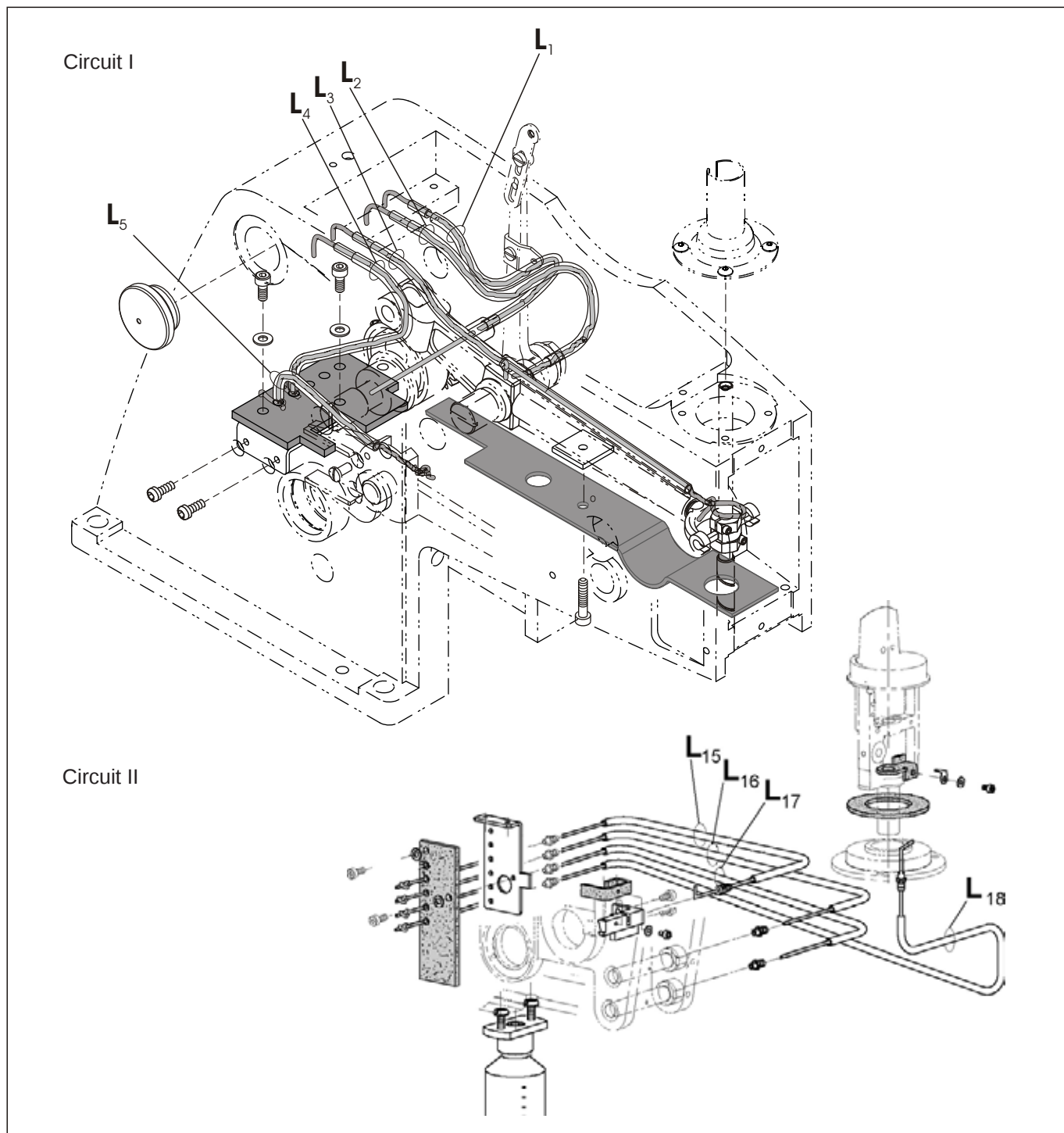
Recommended values for screws tightening (Nm)			
			
M3	0,5	0,6	0,8
M4	1,2	1,5	2,0
M5	2,5	3,0	4,0
M6	4,0	5,0	7,0
M8		8,0	16,0
M10		10,0	30,0

F - MACHINE MAINTENANCE

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:



F - MACHINE MAINTENANCE

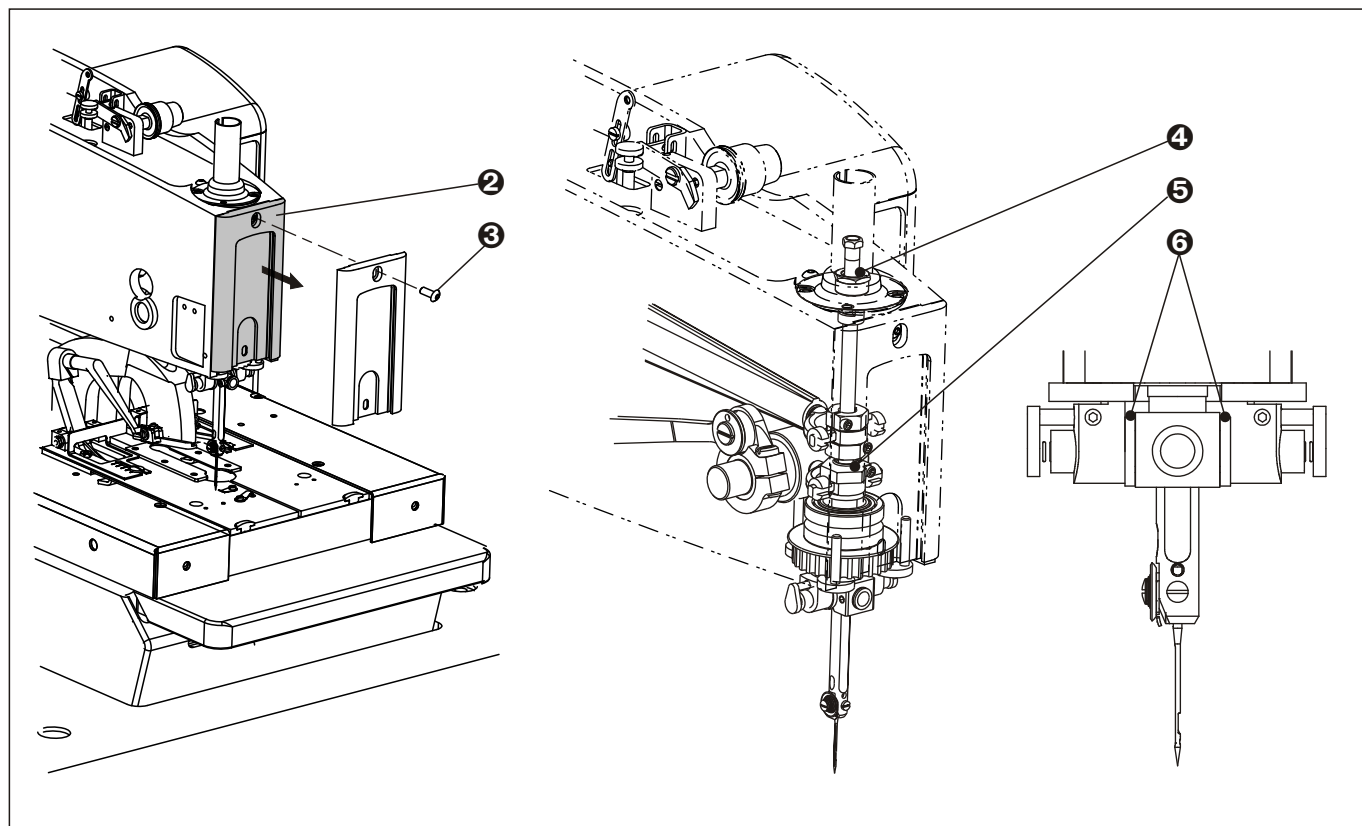
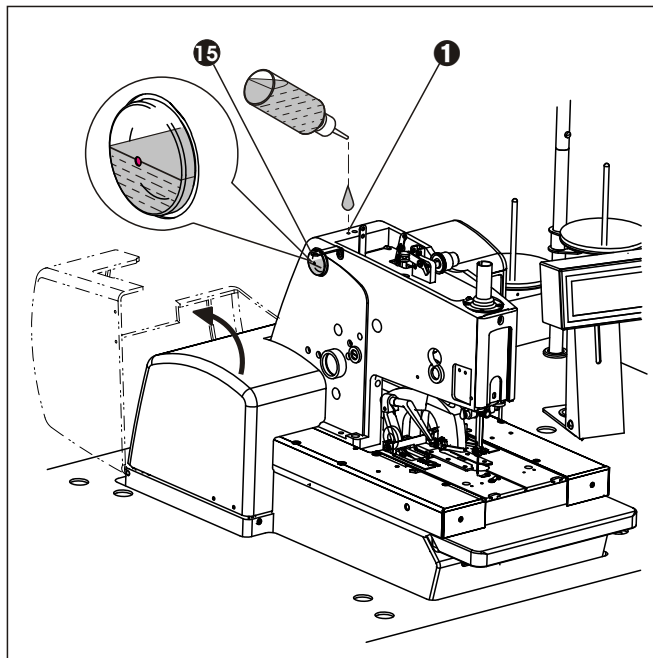
4. MACHINE LUBRICATION

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 reservoir **15** is indicated by the red mark. Too much oil may cause its overflowing from the base area.

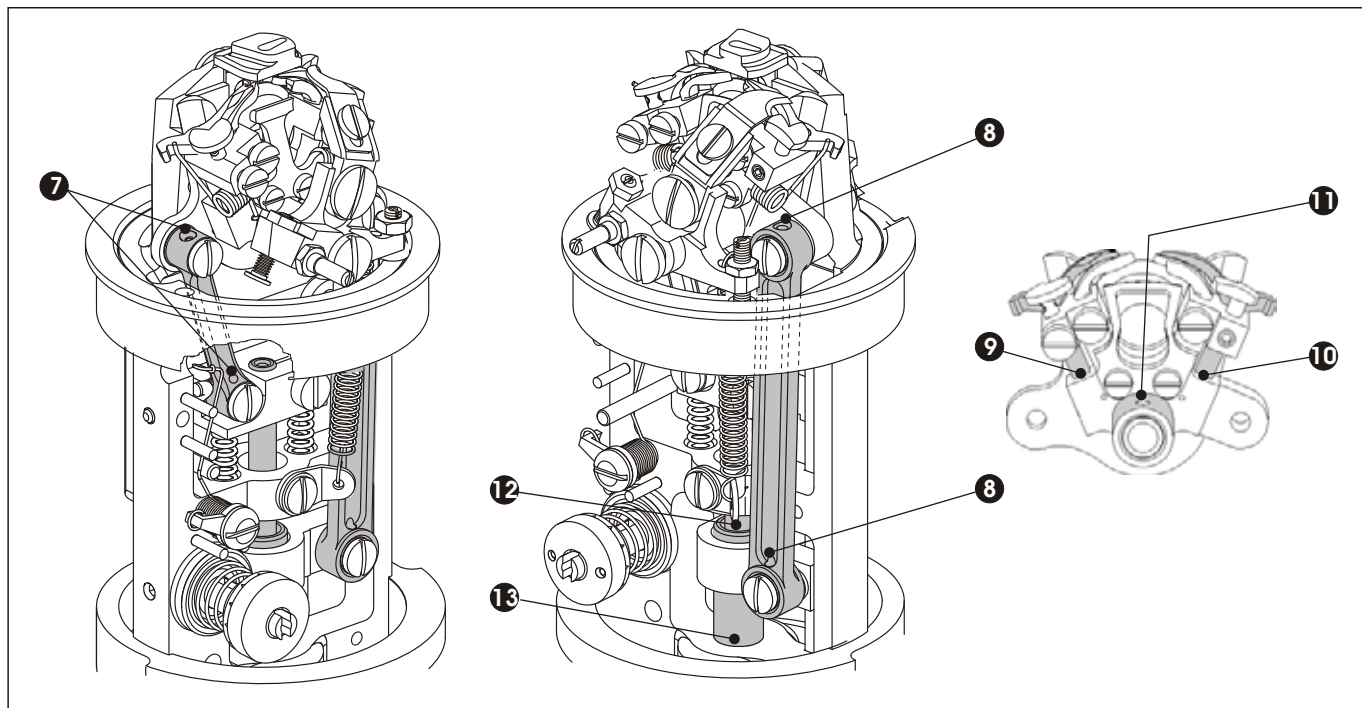
4.3. The reservoir is filled by approximately 10 cm³ of oil through filling opening **1**.

4.4. The lubrication of the needle bar is performed after unscrewing the screw **3** and removing the cover **2**. Few drops of oil drop on needle bar above the bearing **4**, on the centre of the needle bar **5** to the area where the spiral lubricating groove is and to the space between the washers **6** and surface. Install the cover **2**.



F - MACHINE MAINTENANCE

4.5. Remove the feet plate according to the part E2, point 2 and oil the bushing ⑦ and ⑧, rod of the spreader ⑨ and ⑩, stud ⑪ and shafts ⑫, ⑬ 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 dots. 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**.

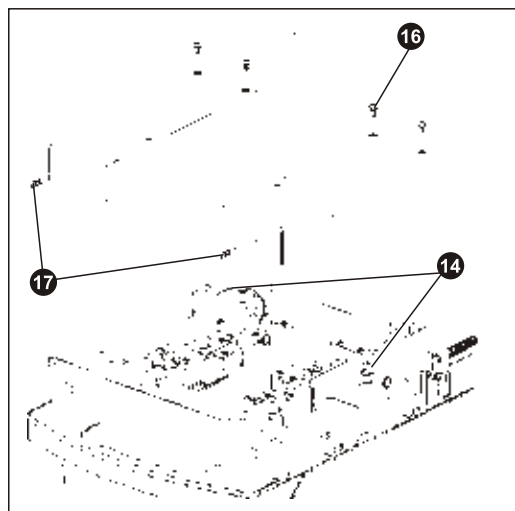


4.6. Remove the side covers, unscrew the screws ⑯ and loosen the screws ⑰. Apply several drops of oil on the side edges of the clamp feet closing levers and to the marked lubrication holes ⑭.

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.



F - MACHINE MAINTENANCE

5. MACHINE DISPOSAL

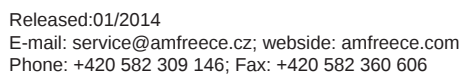
5.1. To ensure machine ecological disposal it is necessary to remove especially nonmetallic parts from the machine. To take these parts out, it is necessary to perform the partial dismantling of the machine, remove covers, dismantle the machine arm and remove the frame.

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:

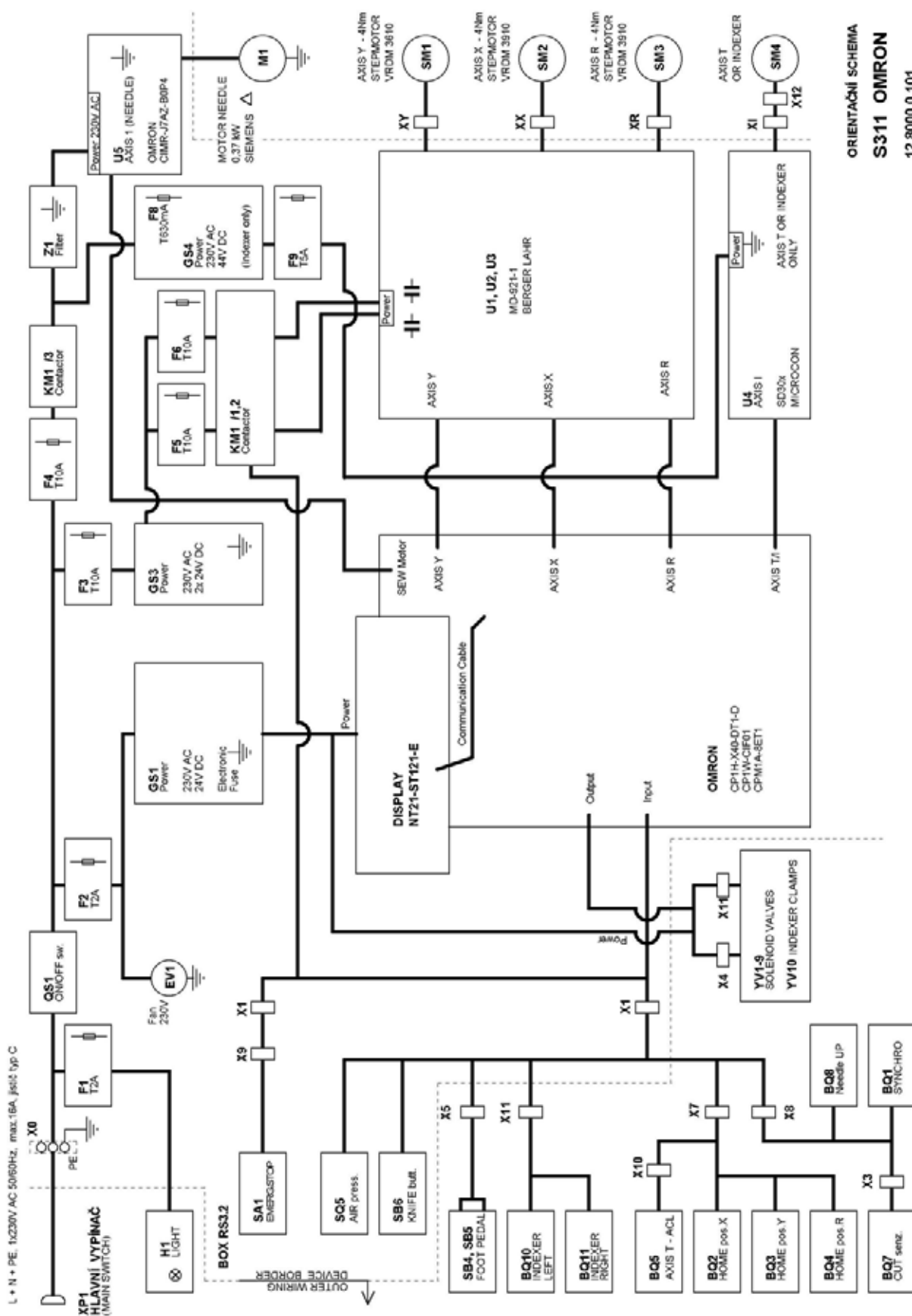
- aluminium parts
- non-ferrous metal parts
- plastic and non-metallic parts

PNEUMATIC DIAGRAM



G - DOCUMENTATION

ELECTRICAL DIAGRAM



ORIENTAČNÍ SCHEMA
S311 OMRON
12.8000.0.101

MODEL S-311+ACL

OPERATING INSTRUCTIONS



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A - INTRODUCTION

1. GENERAL INFORMATION

Electronical eyellet buttonhole machine with a cutting block enables sewing of buttonholes within the range 13-38 mm (limitations given by the machine type) and without the need to change the cutting block . The device is supplied with AF and LTT models.

Machine models with ACL device:

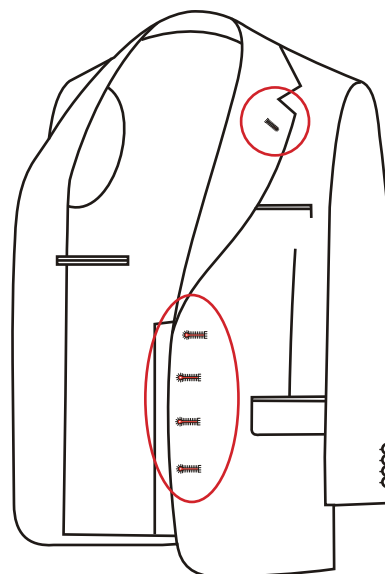
- | | |
|---------------|----------------|
| a) AF/ACL | e) LTT/ACL |
| b) AF/ACL-LP1 | f) LTT/ACL-LP1 |
| c) AF/ACL-LP2 | g) LTT/ACL-LP2 |
| d) AF/ACL-LPE | h) LTT/ACL-LPE |

1. AF/ACL and LTT/ACL handles the widest range of sewing **13-38 mm** without change of cutting steel.

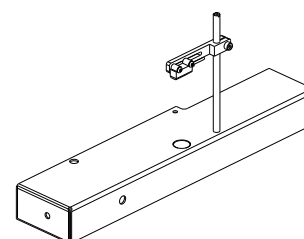
2. AF/ACL-LP1 and LTT/ACL-LP1 handles the range of sewing **13-26 mm**. This application enables automatic sewing of buttonholes on the front of jackets. The device is also able to cut the straight part of the buttonhole on the jacket lapel within the range **8-21 mm**.

3. AF/ACL-LP2 and LTT/ACL-LP2 handles the range of sewing **13-30 mm**. This device is also able to cut the straight part of the buttonhole on the jacket lapel within the range **12-25 mm**.

4. AF/ACL-LP2 and LTT/ACL-LPE handles the range of sewing **13-30 mm**. This device is also able to cut the straight part of the buttonhole on the jacket lapel within the range **6-25 mm**.



It is possible to order the optical sensor kit (**03.5519.3.004**) for **LP1, LP2 and LPE** versions as an additional accessory. It can automatically identify the type of buttonhole sewn on the jacket front (button hole or lapel hole)

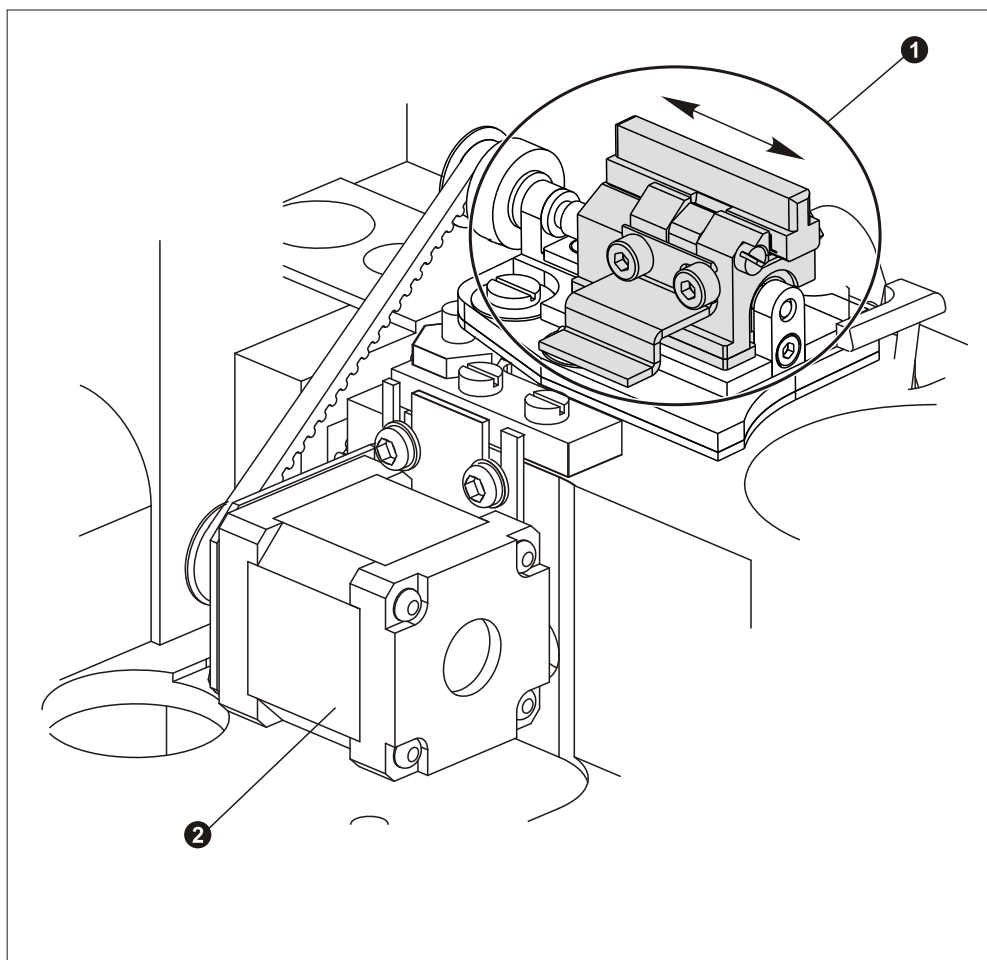


ABBREVIATIONS USED IN THE MANUAL

AF	Adjustable flybar
LTT	Long Tail Trimmer – all thread are trimmed long
ACL	Adjustable Cutting Length
ACL-LP1	Adjustable Cutting Length – application on jackets - Lapel 1
ACL-LP2	Adjustable Cutting Length – application on jackets - Lapel 2
ACL-LPE	Adjustable Cutting Length – application on jackets
OS-LP	Lapel optical sensor to identify buttonhole being sewn

A - INTRODUCTION

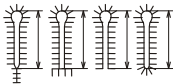
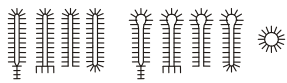
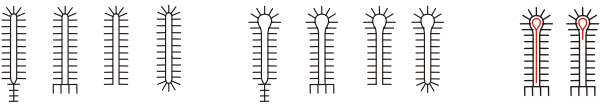
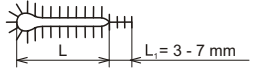
2. TERMINOLOGY OF MACHINE PARTS



- ❶ Sliding block
- ❷ Motor

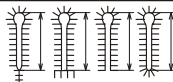
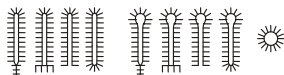
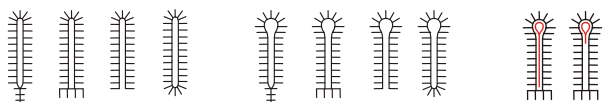
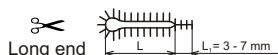
A - INTRODUCTION

3. TECHNICAL SPECIFICATION

Machine type/model	AF/ACL	AF/ACL-LP1	AF/ACL-LP2	AF/ACL-LPE
Performance of the machine	1000 - 2000 stitches per minute (500 - 1000 rotation per minute of the drive shaft)			
Buttonhole lenght 	13 - 38 mm	13 - 26 mm	13 - 30 mm	13 - 30 mm
Cutting lenght	13 - 38 mm	5 - 21 mm	12 - 25 mm	6 - 30 mm
Stitch density	0,5 - 2,0 mm (each step 0,1 mm)			
Number of stitch in the eye	4 - 20			
Electronic bite (width of sewing)	2,1 mm (AF, LTT), (± 0,3 mm elektronically); 2,7 mm (± 0,3 mm elektronically)			
Electronic bite (cross bar)	2,1 mm (AF, LTT), (± 0,5 mm elektronically); 2,7 mm (± 0,5 mm elektronically)			
Type of buttonhole 				
Type of eye	Without 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			
Lenght of fly bar	3,0 - 20,0 mm		See section D 5 (manual S-311)	
Lenght of cross bar	4 - 8 mm			
Density of cross bar	0,5 - 1,5 mm			
Number of stitches in round end	4 - 20			
Upstroke of clamp feet (max)	12 mm			
Thickness of the work piece (max)	Up to 8,0 mm			
Cutting	Cut before (CB), cut after (CA), no cutt (OFF), partial cutting (LP1 a LP2)			
Cutting space	From - 0,50 up to + 1,2 mm			
Correction of cutting lenght	± 1,5 mm			
Movement of the bedplate	64 mm			
Needle	02.0558.0.111 (Nm 100)			
Recommendet threads*	80, 100, 120, gimp 30-100.			
Upper thread trimming 				
Bottom thread and gimp timing 				
Trimming range 				
Operational conditions	According to IEC 364-3, IEC 364-5-51 temperature from +5°C to 40°C, relative humidity from 30 to 80%			
Air pressure	0,55 MPa = 80 PSI			
Noise level	L _{WA} =86,9db; L _{p(A)} =74,8 db; measured according EN ISO 3746:1995			
Dimension of the machine head	530 mm (hight) x 370 mm (width) x 560 mm (depth)			
Weight of the machine head	64 kg			
Dimension of the machine stand	730 mm (hight) x 1100 mm (width) x 700 mm (depth) + 150 mm uplift			
Total weight of the machine	175 kg			
Electricity power connection	1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S			
Circuit breaker	Min. 10A Charakteristik C (EN60947-2)			

*** Note:** If you use threads 100 or less strong, the manufacturer recommends using left looper (order number 17.0069.4.019). If you use low quality threads, they can burn in the needle area (in such case the manufacturer recommends lowering machine speed - rotation).

A - INTRODUCTION

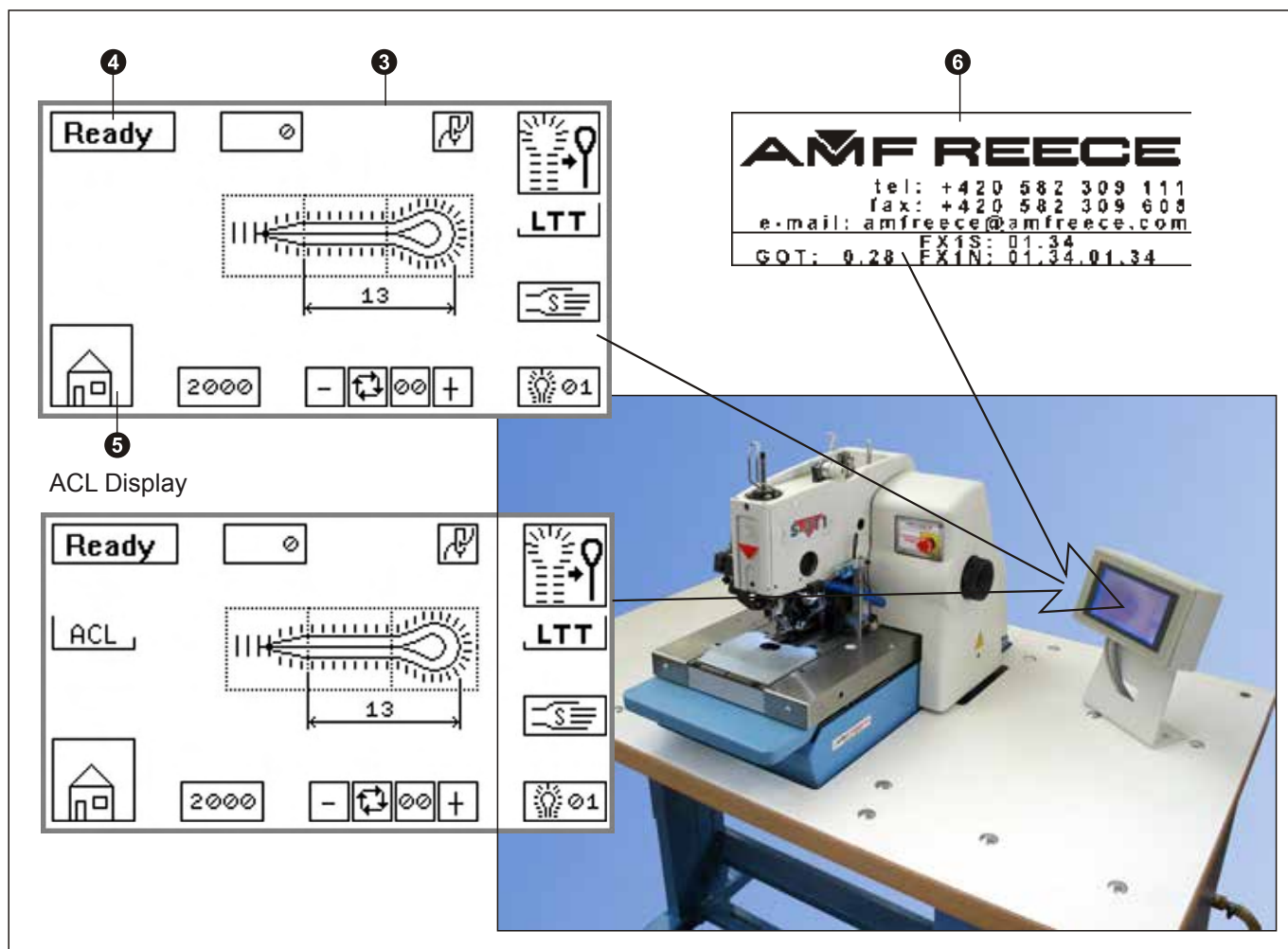
Machine type/model	LTT/ACL	LTT/ACL-LP1	LTT/ACL-LP2	LTT/ACL-LPE
Performance of the machine	1000 - 2000 stitches per minute (500 - 1000 rotation per minute of the drive shaft)			
Buttonhole lenght 	13 - 38 mm	13 - 26 mm	13 - 30 mm	13 - 30 mm
Cutting lenght	13 - 38 mm	5 - 21 mm	12 - 25 mm	6 - 30 mm
Stitch density	0,5 - 2,0 mm (each step 0,1 mm)			
Number of stitch in the eye	4 - 20			
Electronic bite (width of sewing)	2,1 mm (AF, LTT), (± 0,3 mm elektronically); 2,7 mm (± 0,3 mm elektronically)			
Electronic bite (cross bar)	2,1 mm (AF, LTT), (± 0,5 mm elektronically); 2,7 mm (± 0,5 mm elektronically)			
Type of buttonhole 				
Type of eye	Without 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			
Lenght of fly bar	3,0 - 20,0 mm	See section D 5 (manual S-311)		
Lenght of cross bar	4 - 8 mm			
Density of cross bar	0,5 - 1,5 mm			
Number of stitches in round end	4 - 20			
Upstroke of clamp feet (max)	12 mm			
Thickness of the work piece (max)	Up to 8,0 mm			
Cutting	Cut before (CB), cut after (CA), no cutt (OFF), partial cutting (LP1 a LP2)			
Cutting space	From - 0,50 up to + 1,2 mm			
Correction of cutting lenght	± 1,5 mm			
Movement of the bedplate	64 mm			
Needle	02.0558.0.111 (Nm 100)			
Recommendet threads*	80, 100, 120, gimp 30-100.			
Upper thread trimming 				
Bottom thread and gimp timing 	 			
Operational conditions	According to IEC 364-3, IEC 364-5-51 temperature from +5°C to 40°C, relative humidity from 30 to 80%			
Air pressure	0,55 MPa = 80 PSI			
Noise level	L _{WA} =86,9db; L _{pA} =74,8 db; measured according EN ISO 3746:1995			
Dimension of the machine head	530 mm (hight) x 370 mm (width) x 560 mm (depth)			
Weight of the machine head	64 kg			
Dimension of the machine stand	730 mm (hight) x 1100 mm (width) x 700 mm (depth) + 150 mm uplift			
Total weight of the machine	175 kg			
Electricity power connection	1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S			
Circuit breaker	Min. 10A Charakteristik C (EN60947-2)			

**** Note:** When sewing the round end buttonhole and starting the sewing in the eye, it is necessary to change the machine into the AF model and trim the treads manually.

B - CORRECT USAGE

1. SETTING UP THE MACHINE INTO HOME POSITION TO GET READY FOR SEWING

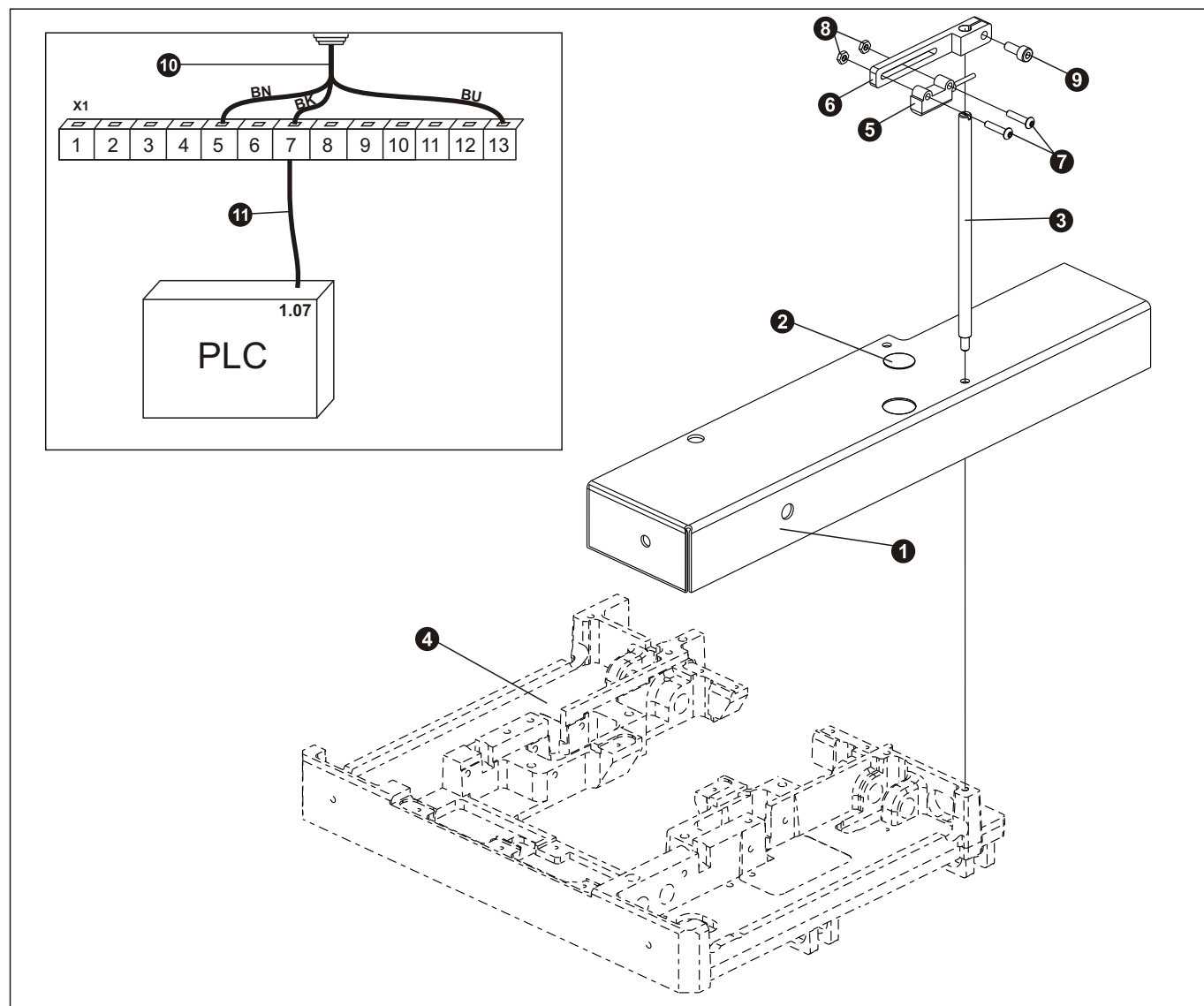
1. Turn the switch clockwise into the "on" I.
2. The display is activated and illuminated. The screen **6** with information about the manufacturer and program numbers downloaded in the machine show up. Wait until the machine show up. Wait until the main screen **3** appears.
3. If the error message **E01** appears in the panel **4** (machine not in home position), press  **5**. If other error message appears on the display, see the Trouble shooting section.
4. The machine is ready to operate when the message **Ready** appears on the display in the panel **4**.
(Display description on page 1-28, S-311).
5. If you wish to switch the machine to ACL mode, follow the introduction in section D, chapter 1.
Setting up the ACL display, page 1-7 ACL



C - MACHINE INSTALLATION

1. OPTICAL SENSOR INSTALATION

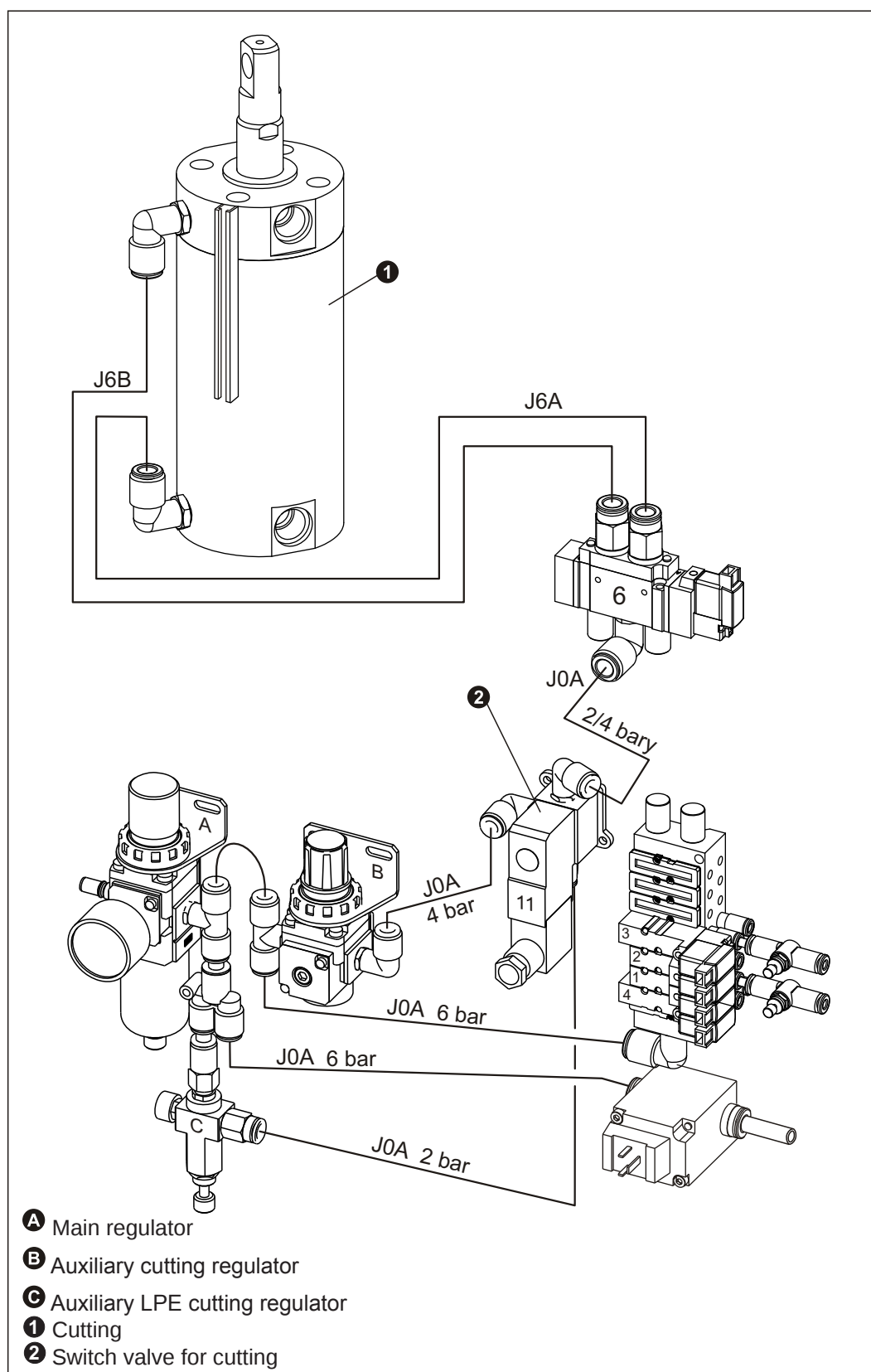
1. Dismantle the right cover of the machine bedplate and replace it with the new cover **1** supplied in the kit.
2. Place and seal the reflective foil **2** into the hole already made in the bedplate.
3. Put the vertical holder of the sensor **3** through the opening in the cover and fit it onto the machine bedplate **4**.
4. Mount the sensor **5** onto the horizontal holder **6** using screws **7** and nuts **8**.
5. Place the kit onto the vertical holder **3** and secure it with the screw **9**.
6. Put the sensor cable **10** through the gap in the cover of the machine sewing head.
7. Fit the leading wires **10** into the clamps provided in the switch board.
8. Connect cable **11** trough distribution frame and PLC entry 1.07.



C - MACHINE INSTALLATION

2. KIT ACL-LPE INSTALATION

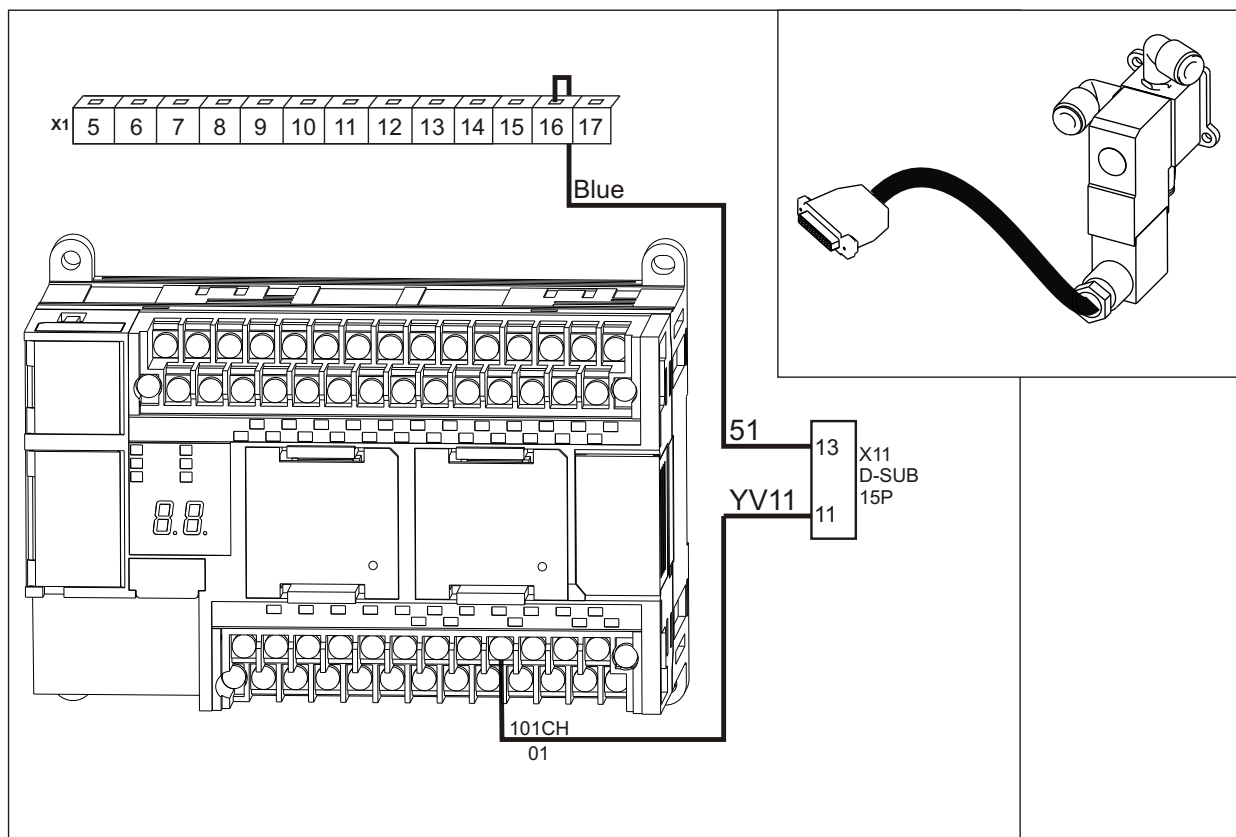
To connect the pneumatic follow the instruction in this schema.



C - MACHINE INSTALLATION

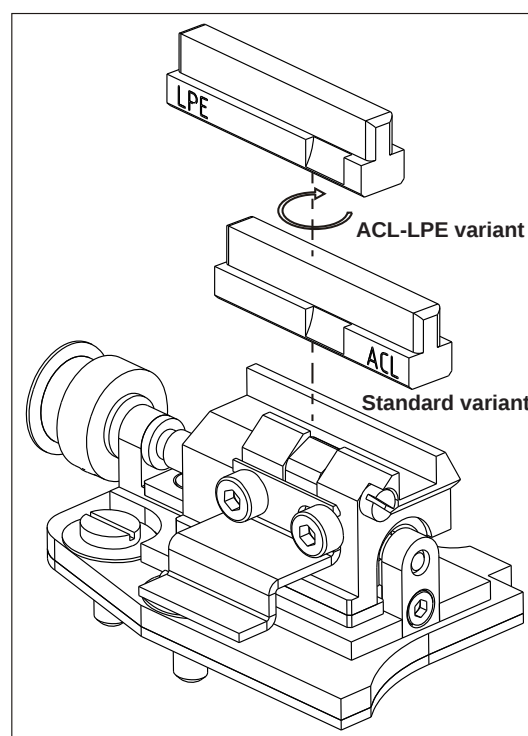
2.1 FEED CABLE INSTALLATION FOR SWITCH VALVE OF CUTTING

1. Connect cable 06.1900.0.015 into marked terminal in electrobox.
2. Connect cable 06.1900.0.016 into valve connector
3. Fasten then opposite cable end into the plug on electrobox and lock with screws.



2.2 LPE CUTTING BLOCK INSTALLATION

Take out the existing cutting block supplied as standard with ACL version, turn for 180°, so on left side (from operator view) on the block was LPE sign seen. Fasten turned cutting block back to moveable cutting block mechanism.



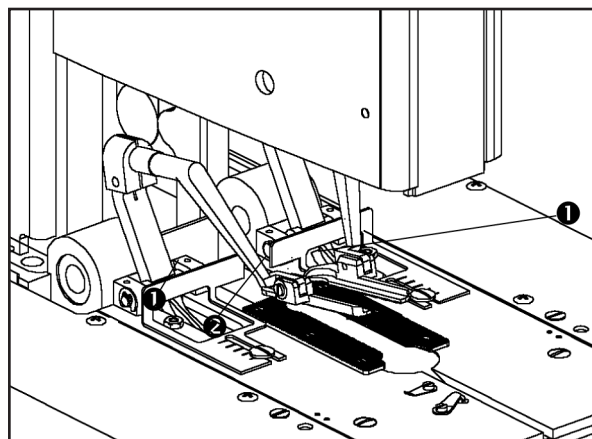
D - OPERATING THE MACHINE FUNCTIONS

1. SEWING A BUTTONHOLE

1. Set up the machine into home position for sewing as in chapter **C1** in this section. It is recommended to leave the machine in that state for 3 minutes to warm up before sewing.

2. Check that the threads are threaded correctly as described in chapter **C3** and place the work piece under the machine clamp feet. Front stoppers **1** on the clamp feet help to place the buttonhole correctly. They are adjustable in length.

3. Pressing slightly the pedal **2** into the first position, the work piece is clamped. (Loosing the pedal the clamp feet lift up).



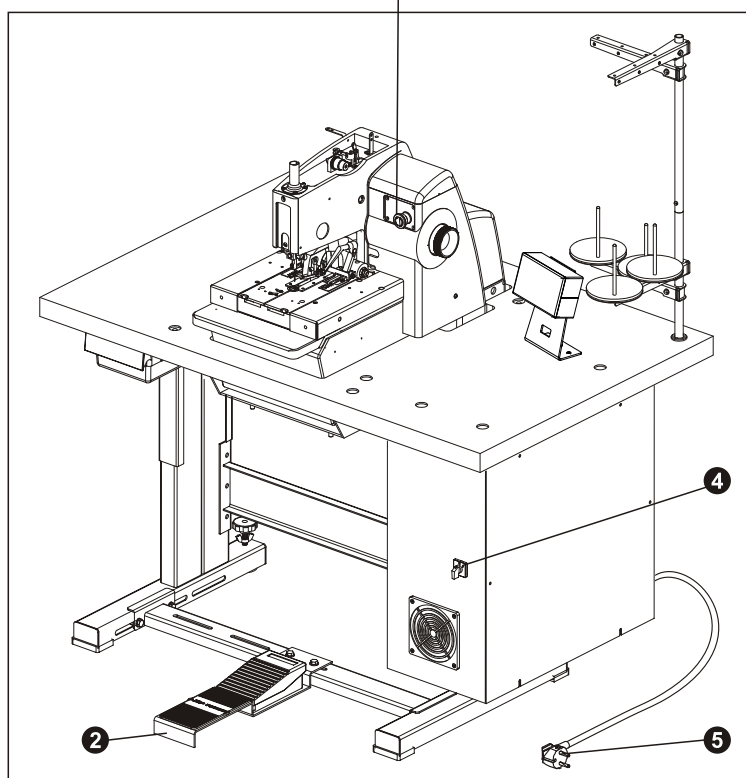
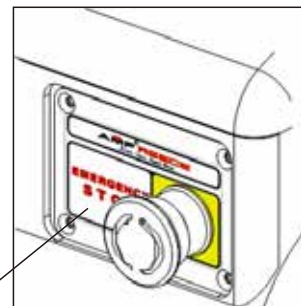
4. Pressing the pedal down into the second position starts sewing of the buttonhole shape selected in the program. Once the buttonhole is sewn, the fabric cut and upper thread trimmed, the clamp feet lift up and the machine moves back to the home position.

5. When the clamp feet have been already lifted up, the work piece can be moved to sew next buttonhole.

6. Using the STOP button **3** placed on the machine arm stops the cycle immediately. The machine does not operate after the button being released (error E01, see section Trouble shooting).

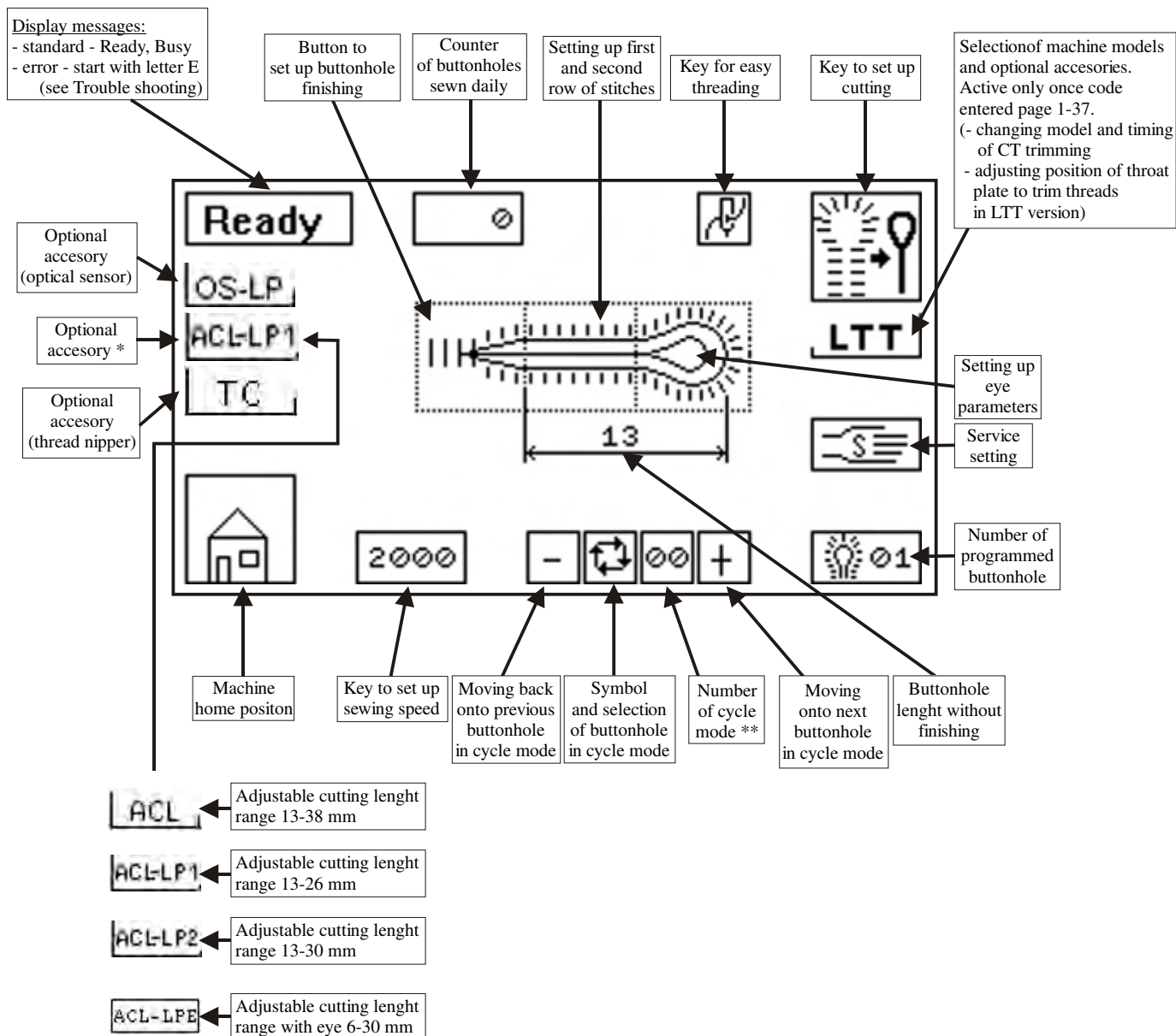
7. Pressing the foot pedal **2** before the buttonhole is finished does not let the clamp feet go up and the machine sews the button again.

8. When you have finished working, switch the machine off with the button **4**. For security reason, we also recommend disconnecting the cable **5** from the socket and closing the air supply.



D - OPERATING THE MACHINE FUNCTIONS

2. DESCRIPTION OF THE ACL SCREEN



* The optional accessory (optical sensor) is in operation only when ACL/LP1, ACL/LP2, ACL-LPE models are activated.

** 1 - 47 Cycle mode in operation.

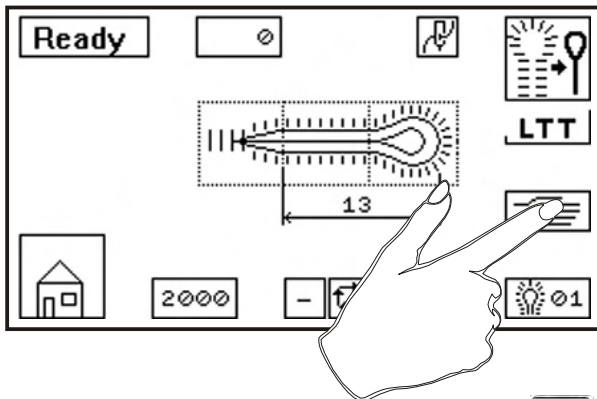
0 - Cycle mode not in operation (when "0" set up, the machine sews only one buttonhole).

Sections dealing with **buttonhole shape and parameters set up, sewing speed, cycle counter, cutting, service set up, cycle mode, buttonhole programming and error messages** can be found on pages 1-29 – 1-40 in S 311 manual.

D - OPERATING THE MACHINE FUNCTIONS

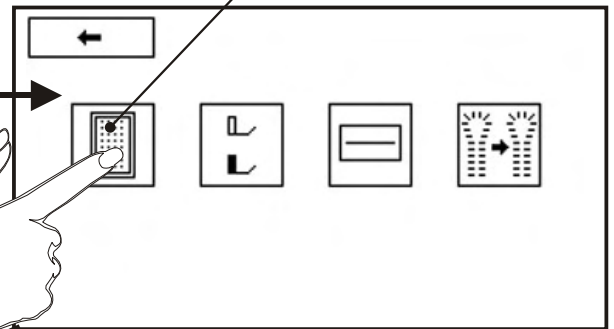
3. SETTING UP ACL DISPLAY

S-311 Main screen



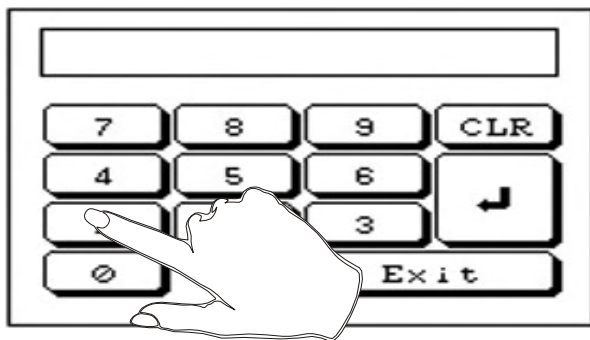
Back to
main screen

Press key
to select the code



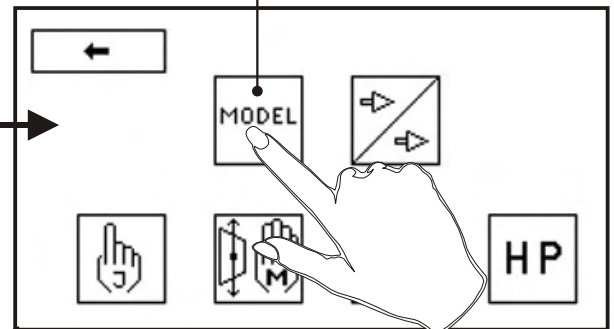
Password: 1 2 3

To confirm your selection, press

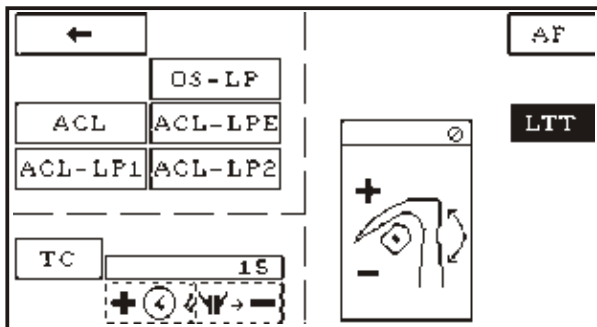


Back to
main screen

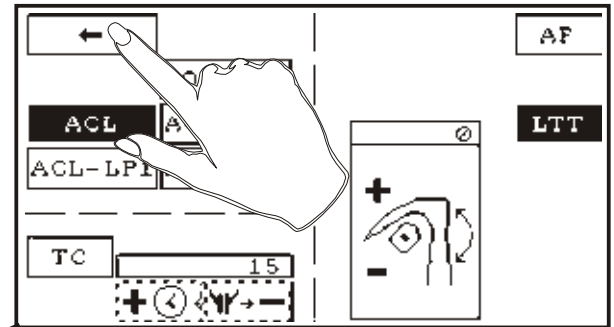
Key to select
the machine mode



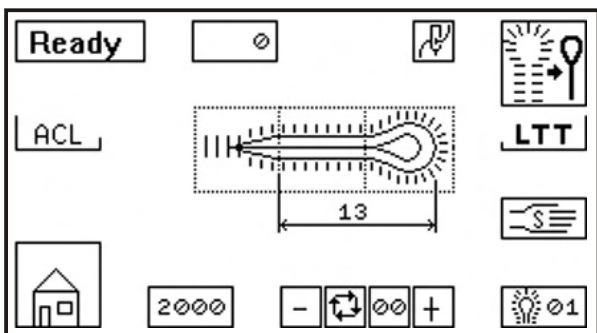
Back to
main screen



Back to
main screen



ACL display main screen

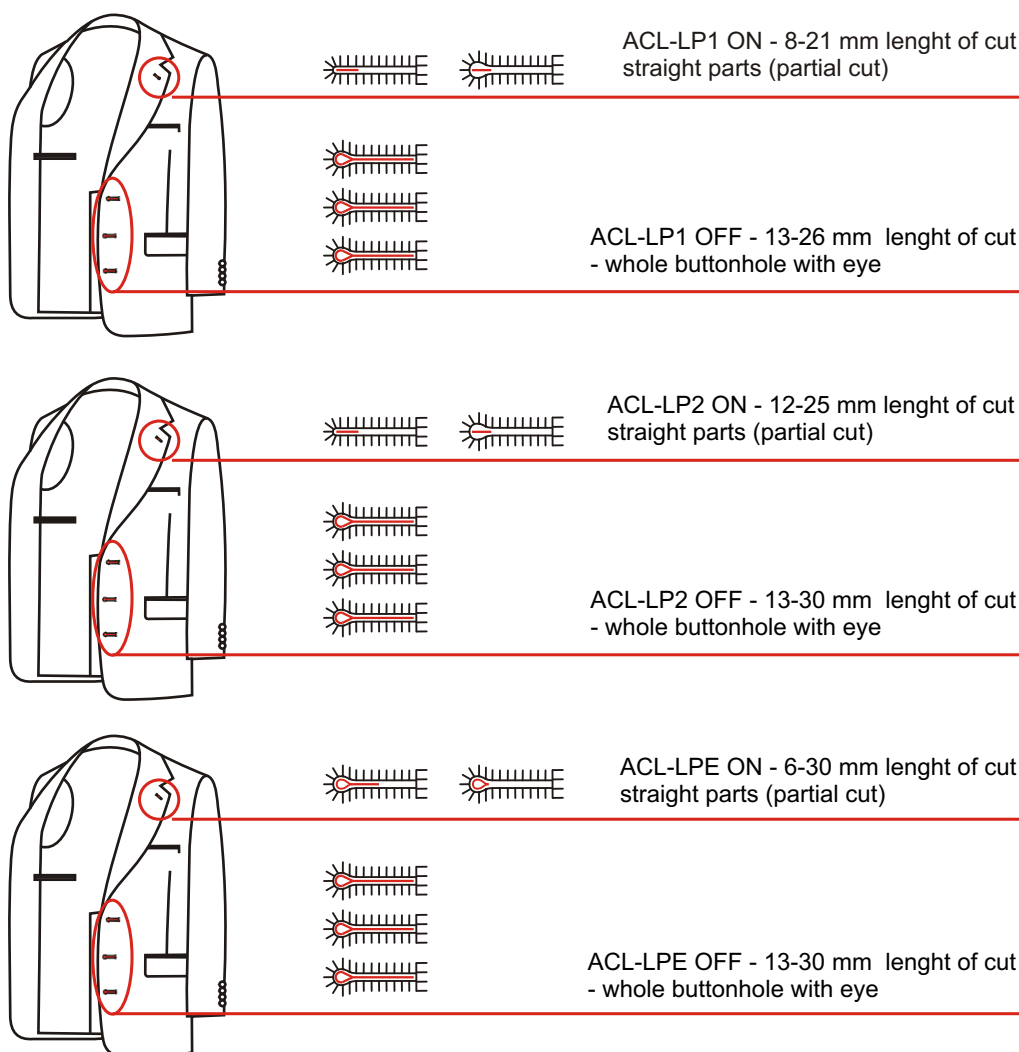


D - OPERATING THE MACHINE FUNCTIONS

4. LAPEL SYSTEM – OPTIONAL ACCESSORY TO ACL MECHANISM

Lapel system provides the operator with greater freedom when selecting the buttonhole dimensions. The operator can sew a buttonhole with eye cut and a buttonhole without eye cut during one sewing cycle and does not need to change the cutting knife. Another advantage of this device is the possibility to program the length and position of cuts. Lapel system can be fitted to the S311 AF and LTT models with integrated ACL system. There are three versions **ACL-LP1**, **ACL-LP2** and **ACL-LPE** which differ in the range of cut.

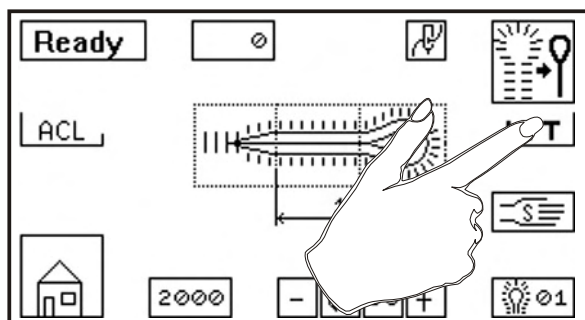
LAPEL SYSTEM			
Lenght of cut	ACL-LP1	ACL-LP2	ACL-LPE
Lenght of cut in buttonhole with eye	13-26 mm	13-30 mm	13-30 mm
Lenght of cut in lapel buttonhole	08-21 mm	12-25 mm	6-25 mm
Knife	3,2x5,0 (26 mm) 19.0087.0.442	3,2x5,0 (30 mm) 19.0087.0.443	3,2x5,0 (30 mm) 19.0087.0.443
Cutting block	26 mm 19.0064.5.959	30 mm 19.0064.5.964	Standard ACL 19.0064.5.958
Pneumatic kit			12.0008.3.546
Connecting cables			06.1900.0.015 06.1900.0.016
Air tube			12.0008.3.431



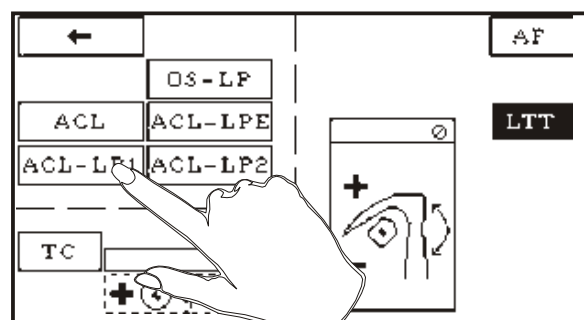
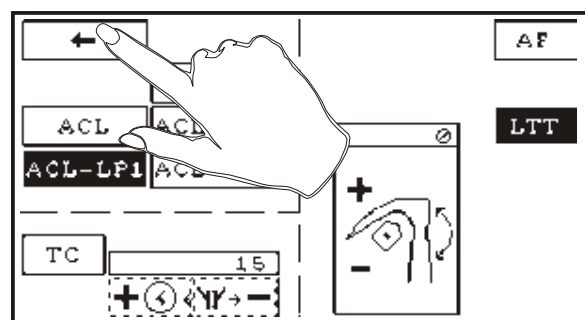
D - OPERATING THE MACHINE FUNCTIONS

4.1. SETTING UP THE MACHINE FOR ACL LP1 (ACL-LP2, ACL-LPE) VERSION

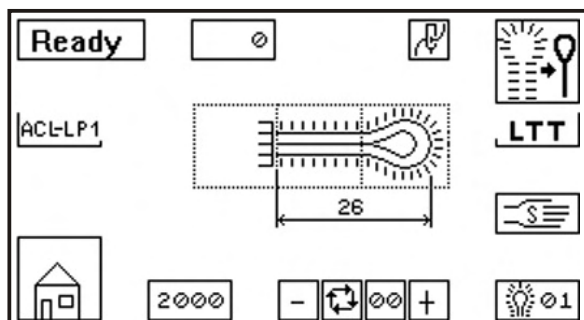
S-311 main screen



Back to main screen



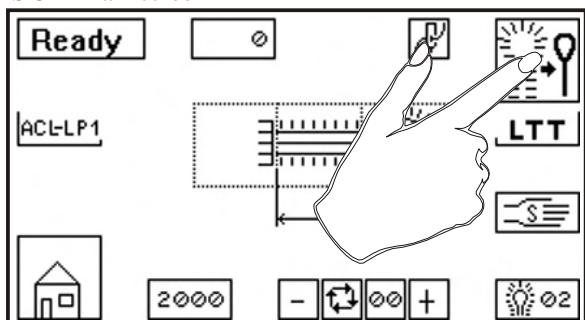
S-311 main screen



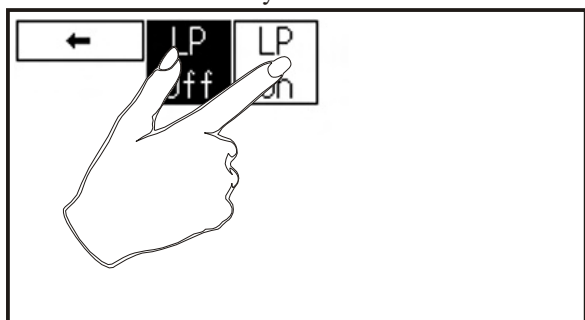
Once the ACL-LP1 system is activated, a buttonhole with eye cut along the whole sewing appears on the display. The length of cut is set up automatically according to the selected model; in this case 13-26 mm. this type of buttonhole is used on jacket front. If you want to modify the buttonhole parameters, follow instructions in chapters on pages 1-29 1-40 in the S311 standard manual.

4.2. SETTING UP THE LAPEL BUTTONHOLE FOR ACL-LP1 (ACL-LP2, ACL-LPE) VERSION

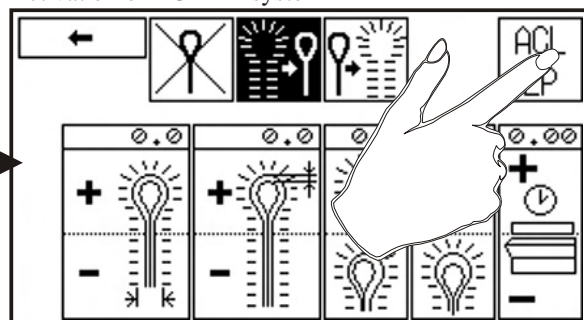
S-311 main screen



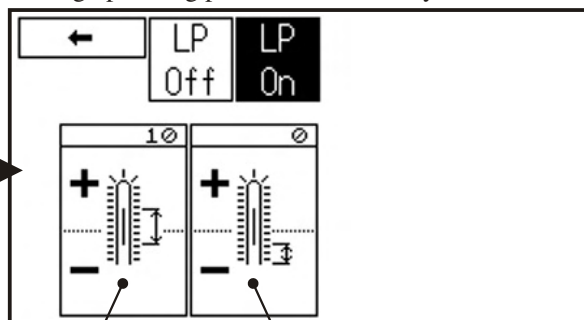
Activation of ACL-LP system



Activation of ACL-LP system



Setting up cutting parameters in ACL system



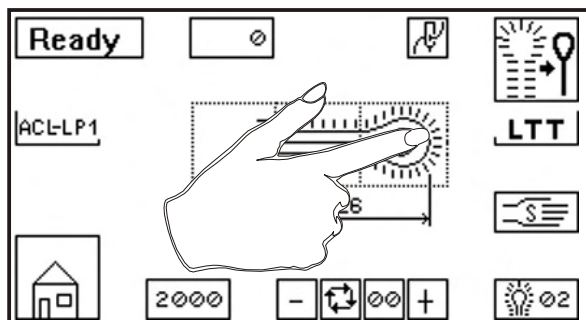
Key to set up length of cut

Key to set up distance of cut from sewing start

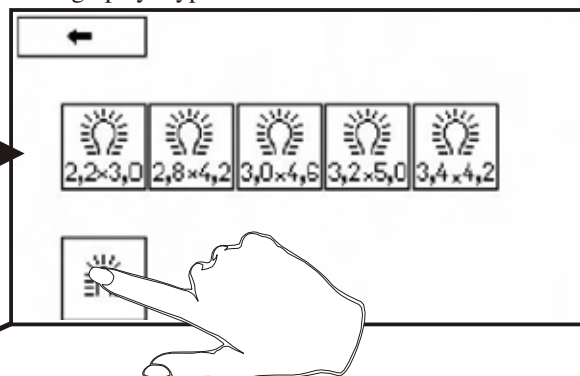
D - OPERATING THE MACHINE FUNCTIONS

4.2. SETTING UP THE LAPEL BUTTONHOLE FOR ACL-LP1 (ACL-LP2, ACL-LPE) VERSION

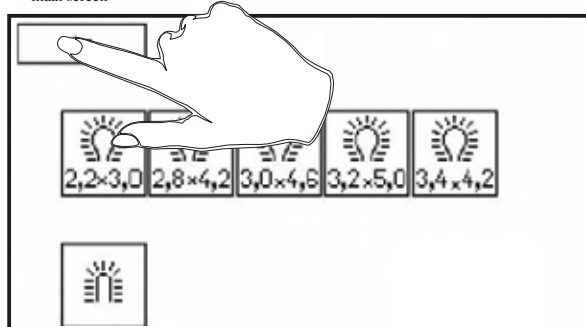
S-311 main screen



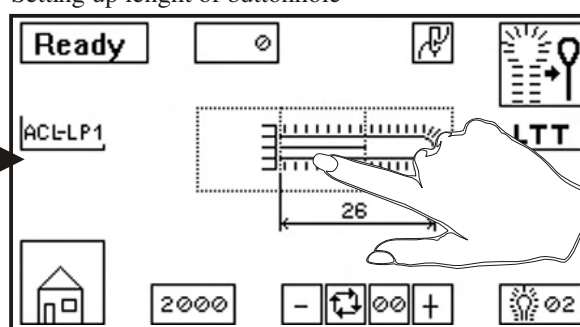
Setting up eye type



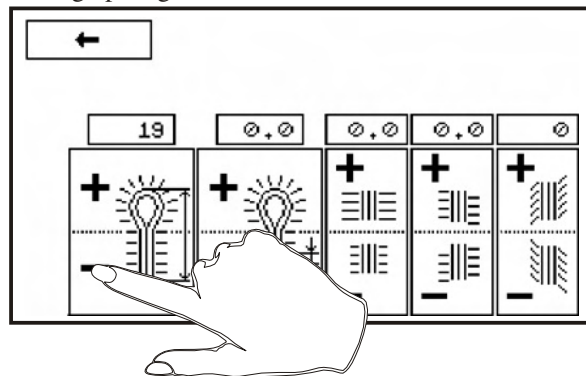
Back to main screen



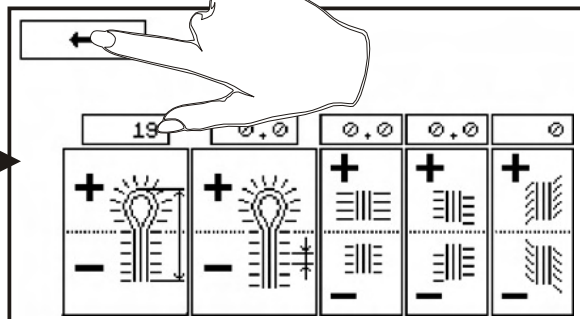
Setting up length of buttonhole



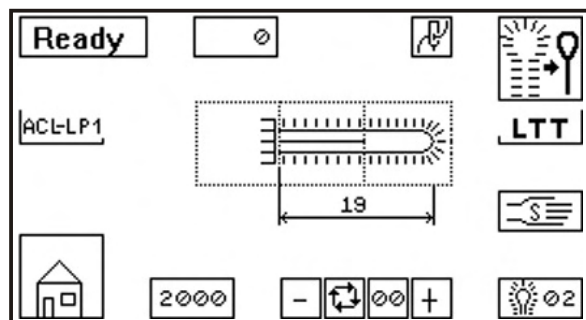
Setting up length of buttonhole



Back to main screen



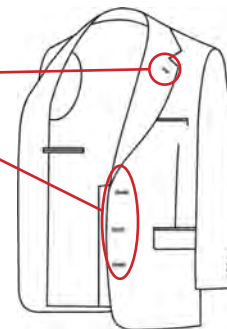
S-311 main screen



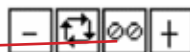
D - OPERATING THE MACHINE FUNCTIONS

4.3. USING THE PROGRAMMED BUTTONHOLE IN CYCLE MODE:

Example: You wish to sew buttonholes in program no 1 in this order: **1, 1, 1, 2.**



1. Press the key for setting up the program number.



Numerical keypad appears. Select the program number **1** and confirm

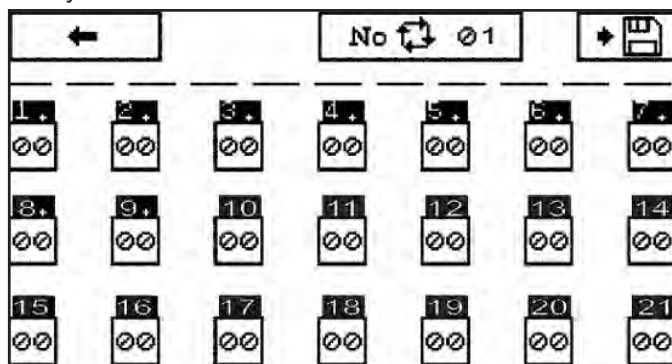


2. Press the key

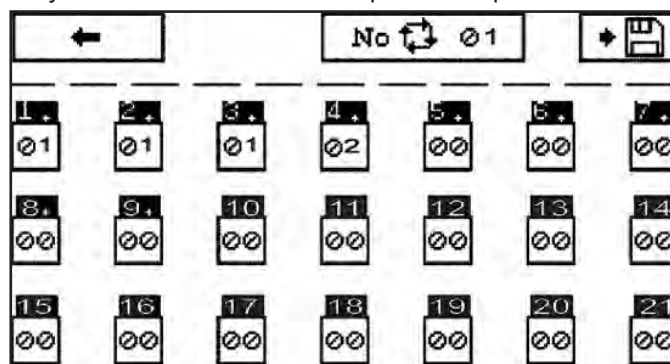


The display shows the screen where you can select the order of buttonholes to be sewn. Press the first number and select the number of buttonhole **1** (buttonhole which is to be sewn first) with the keypad. Confirm by pressing ENT. Then press the second key and select the next buttonhole number in order **1**. Repeat this process until all buttonholes to be sewn are set. If you select **0** at the end, the machine starts sewing from the first selected buttonhole (it means 1).

Cycle mode screen



Cycle mode screen with complete set up



3. Press

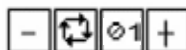


to save the buttonholes set up in the program **1**.

Go back to the main screen



4. The display shows the number of program **1** and the number of the buttonhole **1**, which is to be sewn first.



5. Once the buttonholes



are finished, the buttonhole number changes into the next one that is to be

sewn



, in means **2**



6. If thread breaks during sewing any buttonhole, use **+** and **-** key on the main screen to go back onto the required buttonhole and sew it again.



D - OPERATING THE MACHINE FUNCTIONS

5. OPTICAL SENSOR –OPTIONAL ACCESSORY FOR LAPEL SYSTEM

This special device has been designed in order to automatize the sewing cycle when producing ladies' and men's jackets. The function of the device is to identify the buttonhole type that is to be sewn and make the work easier for the operator. At the same time it reduces errors during work process. The optical sensor consists of two parts; the sensor itself and reflective foil. The sensor is placed on the holder and fitted onto the machine bedplate. The work piece is identified by covering and uncovering the reflective foil. If the foil is covered, the machine sews a button hole. If it is uncovered, the machine sews a lapel hole.

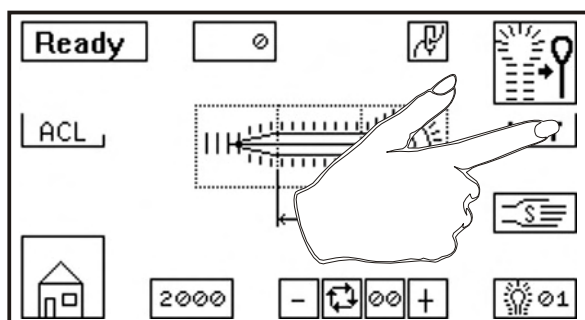


Optical sensor

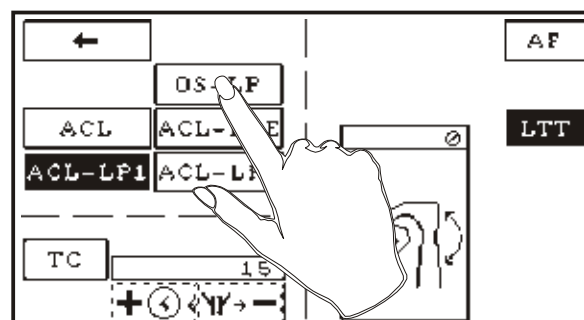
Reflective tape

5.1. OPTICAL SENSOR - DEVICE ACTIVATION

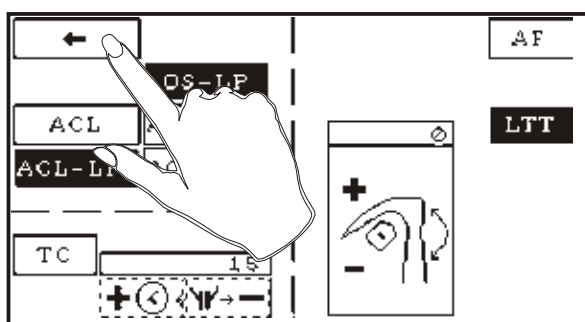
S-311 main screen



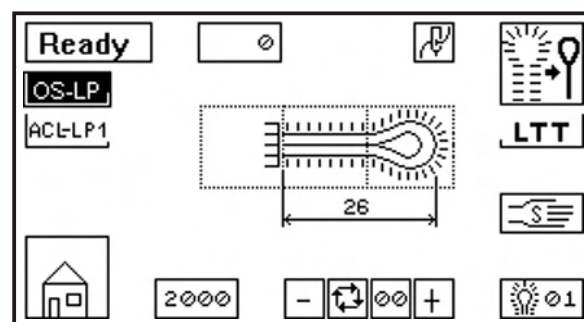
Activation of optical sensor



Back on
main screen



S-311 main screen

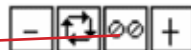


D - OPERATING THE MACHINE FUNCTIONS

5.2. USING THE PROGRAMMED BUTTONHOLE IN CYCLE MODE WITH OPTICAL SENSOR ACTIVATED:

Example: You wish to sew buttonholes in program no **1** in this order: **1,1,1,2**.

1. Press the key for *setting up the program number*.

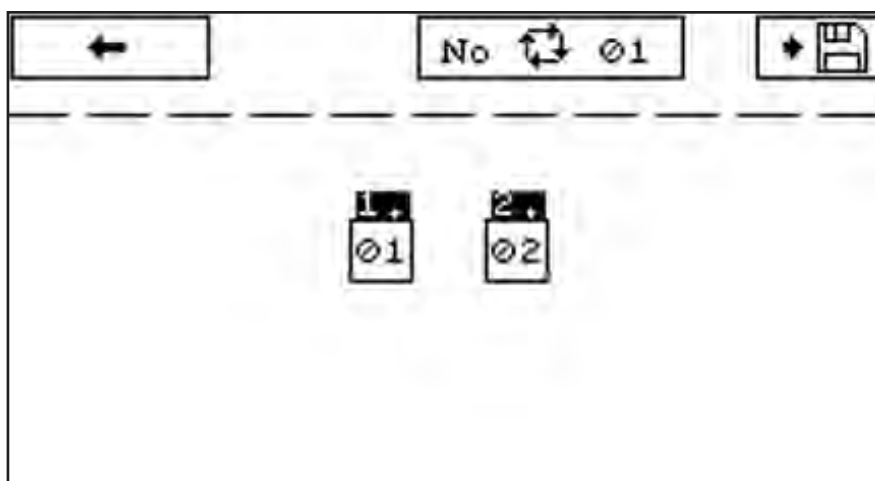


Numerical keypad appears. Select the program number **1** and confirm

2. Press the key

The display shows the screen where you can select only two types of buttonholes. The hole number one is always automatically pre-set as a button hole, the second as a lapel hole. Press the first number and by the keypad select the hole number **1** which is to be sewn first. Confirm by pressing **ENT**. Then press the second key and select the next hole number in order **2**.

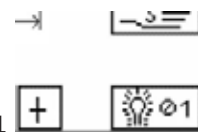
Cycle mode screen with optical sensor activated



3. Press to save the buttonholes set up in the program **1**.

Go back to main screen .

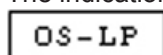
4. The display shows the number of program **1** and the number of buttonhole **1** , which is to be sewn first.



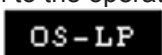
5. Once the buttonholes and are finished, the buttonhole number changes into the next one that is to be

sewn , it means **2** .

6. If threads breaks during sewing any buttonhole, it is not necessary to re-set the buttonholes in the cycle mode with and keys. The optical sensor automatically identifies the type of buttonhole that is being sewn by initial placement of the workpiece into the machine. The buttonhole type changes on the display once the pedal is pressed. The indication on the display provides information to the operator which buttonhole is to be sewn.



The machine will sew a lapel hole,



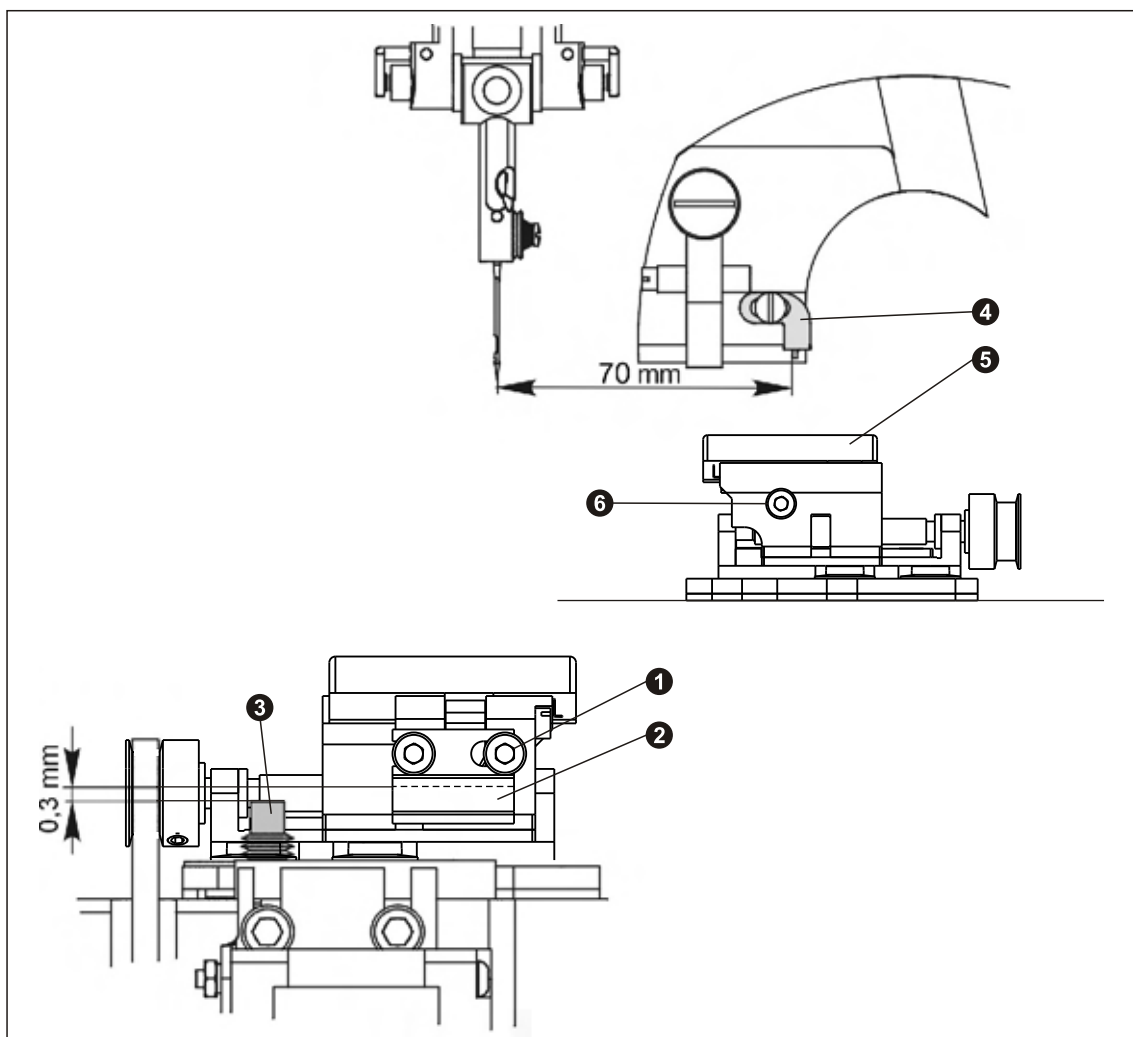
the machine will sew a button hole.

E - STANDARD MACHINE ADJUSTMENT

1. SLIDING BLOCK HOLDER ADJUSTMENT

Correct adjustment of mechanical parts enables changing the cut within a given range when the buttonhole length is changed.

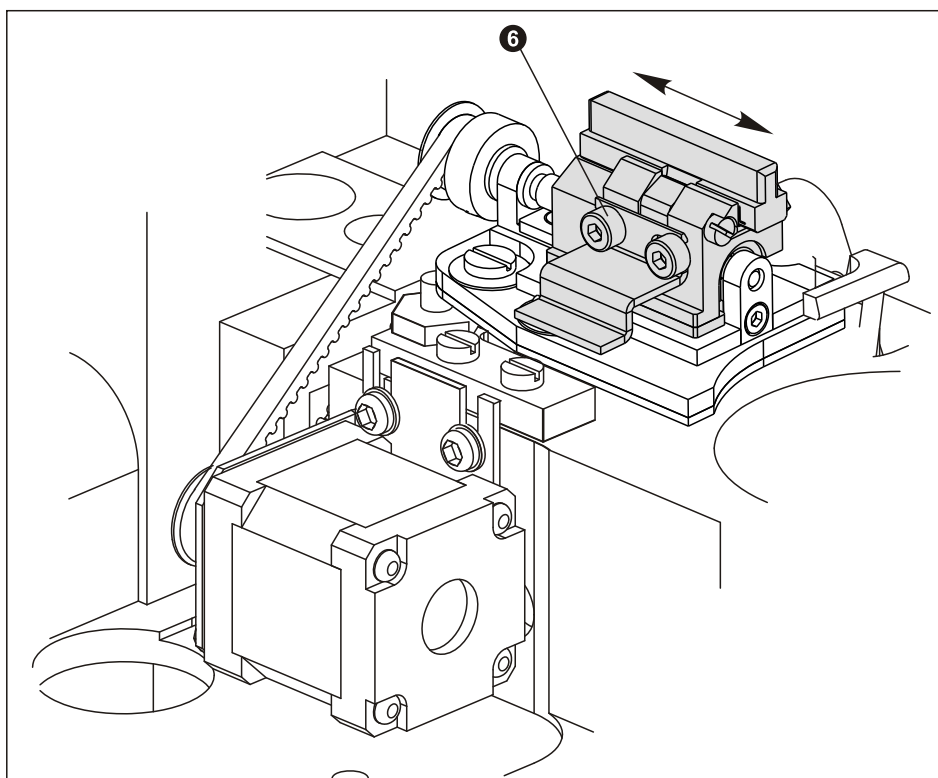
1. Adjust the screening **②** so that its edge stays in the alignment with sliding block edge **①**
2. Distance between the sensor **②** and the sensor **③** must be adjusted to 0,3 mm.
3. Adjust the stopper **④** on the cutting lever to 70 mm from the needle point.
4. Adjust the correct cutting length by moving the cutting block **⑤**; firstly loosen the clamp screw **⑥**.



E - STANDARD MACHINE ADJUSTMENT

2. CUTTING BLOCK POSITION ADJUSTMENT IN ACL MECHANISM

1. Adjust the machine for version ACL - (LP1, LP2, LPE) see section C - 4.1.
2. Adjust the requested cutting length on the display.
3. Insert the paper between knife and block and test the cut with button for cutting.
4. If the adjusted parameters do not match with control cut, correct the cutting block position manually.
5. Loose the clamp screw **6** and shift block into requested position.
6. Tighten the clamp screw **6** to secure the block position and repeat the cut testing.



E - STANDARD MACHINE ADJUSTMENT

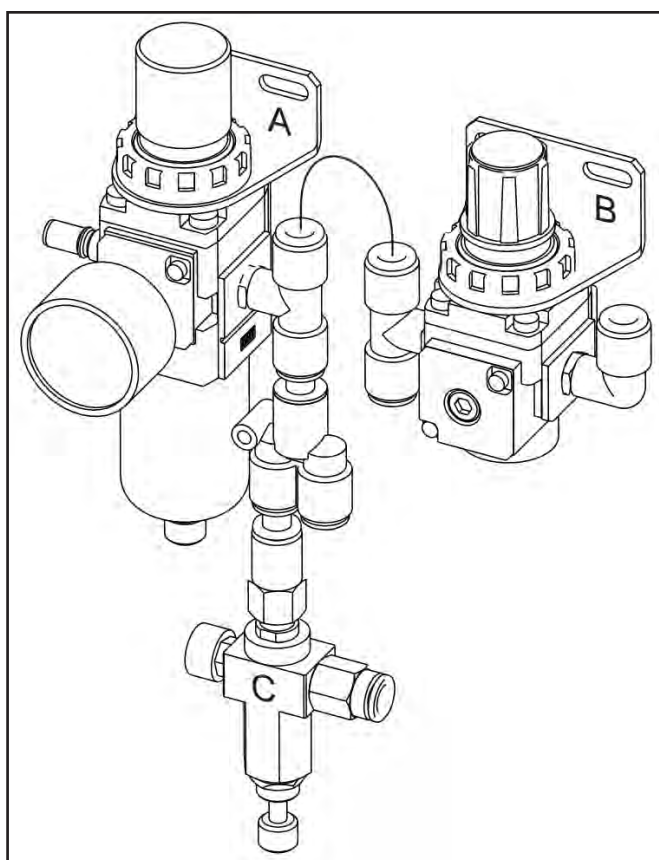
3. PRESSURE ADJUSTMENT ON THE REGULATORS OF THE FILTER UNIT

Correct pressure adjustment affect the cutting knives life cycle.

1. Adjust pressure 0,6 MPa (0,5) MPa on the main regulator **A**.
2. Adjust pressure 0,4 MPa on cutting regulator **B**.
3. Adjust pressure 0,2-0,25 MPa on auxiliary regulator **C**.

Warning!

The knives can be damaged in the case the parameters set by manufacturer on B and C regulators are not observed.



MODEL S-311+I

OPERATING INSTRUCTIONS



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A - INTRODUCTION

1. GENERAL INFORMATION

The electronic eylet buttonhole machine with Indexer enables automatic sewing of buttonholes which can be specified in number and distance between them. Typ stehu, odkaz na modely

Models of S-311 Indexer machine:

a) AF ST JT

This model is designed to be used for sewing single thread chain stitch buttonholes on ready-tailored jacket sleeves. The device enables sewing of various buttonhole types (see S311 section A, chapter 4 Specifications) with or without cut during one sewing cycle. There is a thread nipper attached to the device, which facilitates better quality of finished buttonholes.

Buttonholes commonly used on jackets sleeves:

- buttonhole with an eye
- with cut or without cut
- crossbar or round end

b) CT 16-20mm DT JT

This model is designed to be used for sewing double thread chain stitch buttonholes on ready-tailored jacket sleeves. The device enables sewing of various buttonhole types (see S311 section A, chapter 4 Specifications) with or without cut during one sewing cycle. There is a thread nipper attached to the device, which facilitates better quality of finished buttonholes.

Contrary to the version S311 AF ST JT the length of a buttonhole is limited for sewing within the range of 16-20 mm

Buttonholes commonly used on jackets sleeves:

- buttonhole with an eye
- with cut or without cut
- crossbar or round end

c) CT 16-20mm DT JS, 20-24 DT SJ

This model is designed for sewing double thread chain stitch buttonholes with gimp on trousers or jeans front sections. The device enables sewing of various buttonhole types (see S311 section A, chapter 4 Specifications) with or without cut during one sewing cycle. Contrary to the version S311 AF ST JT the length of a buttonhole is limited for sewing within the range of 16-20 mm/20-24mm.

Buttonholes commonly used on trousers front sections:

- buttonhole with an eye
- with cut
- flybar buttonhole

ABBREVIATIONS USED IN THE MANUAL	
AF	Adjustable flybar
CT	Cord trim - trimming all threads - short tail of bottom thread
ST JT	Single thread chain stitch - used on jackets
DT JT	Double thread chain stitch - used on jackets
DT JS	Double thread chain stitch - used on jeans (trousers)

A - INTRODUCTION

2. SAFETY LABELS AND EQUIPMENT

Indexer

For detailed description, see S-311 (section A, chapter 2, pages 1-2, 1-3).

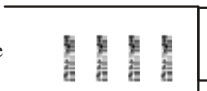
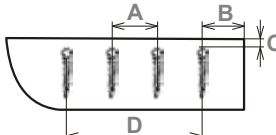
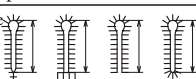
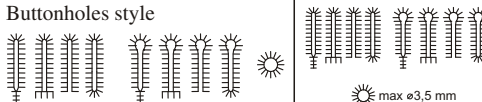
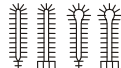
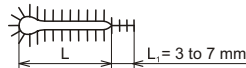


 Indexer

A - INTRODUCTION

3. SPECIFICATIONS

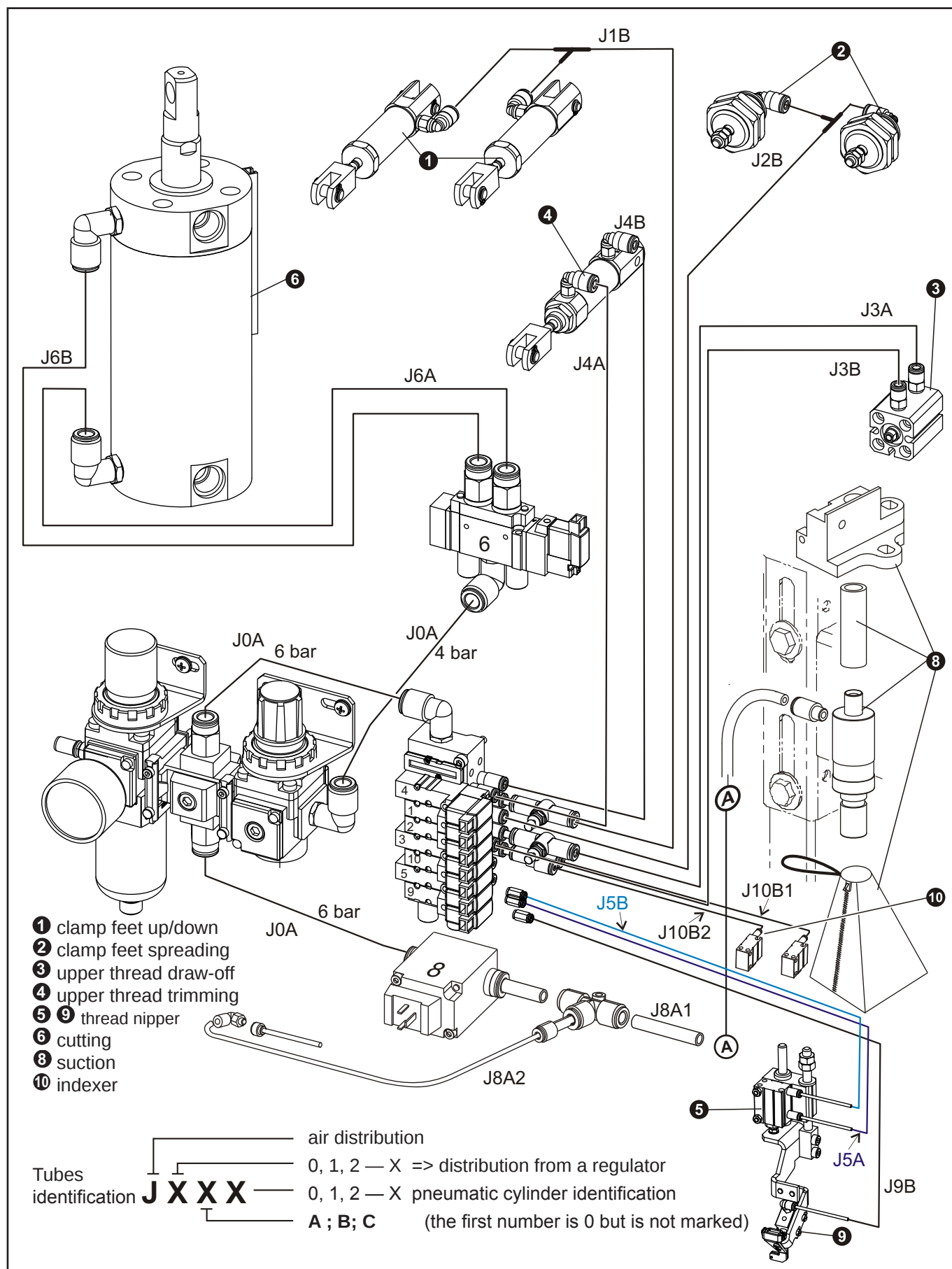
S-311+I

Machine models	AF ST JT	CT 16 - 20 mm DT JT	CT 16 - 20 mm DT JS	CT 20 - 24 mm DT JS
Application	Jacket Sleeve		Jeans Fly Front	
Stitch Type	Single chainstitch	Double chainstitch with or without gimp		
Number of Buttonholes	1 - 6 buttonhole			
Distance between Buttonholes	8 - 160 mm			
Distance from Fabric Edge (horizontal)	31 mm			
Distance from Fabric Edge (vertical)	9 - 19 mm			
Max. Horizontal Feed Amount	160 mm			
				
Thread Nipper	Yes		No	
Sewing Speed	1000 - 2000 stitches/min (500 - 1000 rev/min of the drive shaft)			
Buttonhole Length		10 - 50 mm	16 - 20 mm	20 - 24 mm
Stitch Density	0,5 to 2,0 mm (increments of 0,1 mm)			
Number of Stitches in the eye	4 to 20			
Stitch Bite	2,1 mm (± 0,3 mm electronic adjustment); 2,7 mm (± 0,3 mm electronic adjustment)			
Stitch Bite (Crossbar)	2,1 mm (± 0,3 mm electronic adjustment); 2,7 mm (± 0,3 mm electronic adjustment)			
Buttonholes style				
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			
Fly Bar Length	3,0 - 20,0 mm	See section D 3.3 - manual S-311		
Length of Crossbar	4 - 8 mm	4-6 mm		
Crossbar density	0,5 - 1,5 mm	0,5-1,5 mm		
Number of Stitches in the round end	4 to 20	—		
Clamp Foot Height	12 mm			
Sewing Thickness	in 8,0 mm			
Buttonhole Cutting	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		 (short ends)		
Cutting space		L = 16 to 20 mm L+L ₁ = 23 to 27 mm		L = 20 to 24 mm L+L ₁ = 27 - 31 mm
Operating Condition	According to IEC 364-3, IEC 364-5-51 temperature from +5°C do 40°C, relative air humidity from 30 to 80%			
Air pressure	0,55 MPa = 80 PSI			
Machine db Level	L _{WA} =86,9db; L _{pIA} =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	180 kg			
Electrical requirements	1NPE~60Hz 230 V/TN/S; 1NPE~50Hz 230 V/TN/S			
Line Circuit Breaker	Min. 10A Characteristic C (EN60947-2)			

* **Note:** If a customer uses thread size 100 and less, the manufacturer recommends to use the left loop 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).

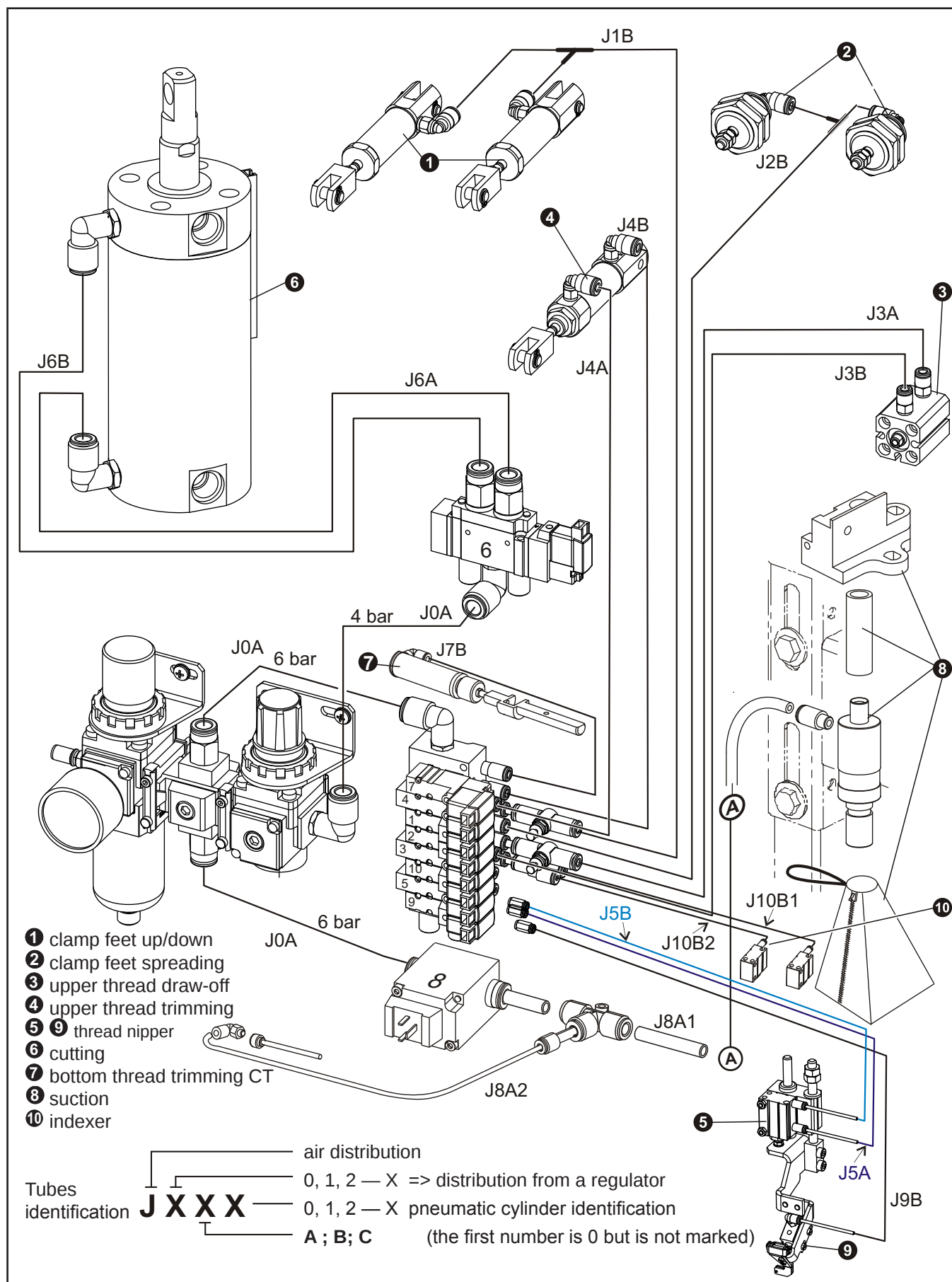
B - MACHINE ASSEMBLY

S-311+I AF - PNEUMATIC SYSTEM CONNECTION



B - MACHINE ASSEMBLY

S-311+I CT - PNEUMATIC SYSTEM CONNECTION



C - PROPER APPLICATION

1. SETTING MACHINE INTO HOME POSITION TO START SEWING

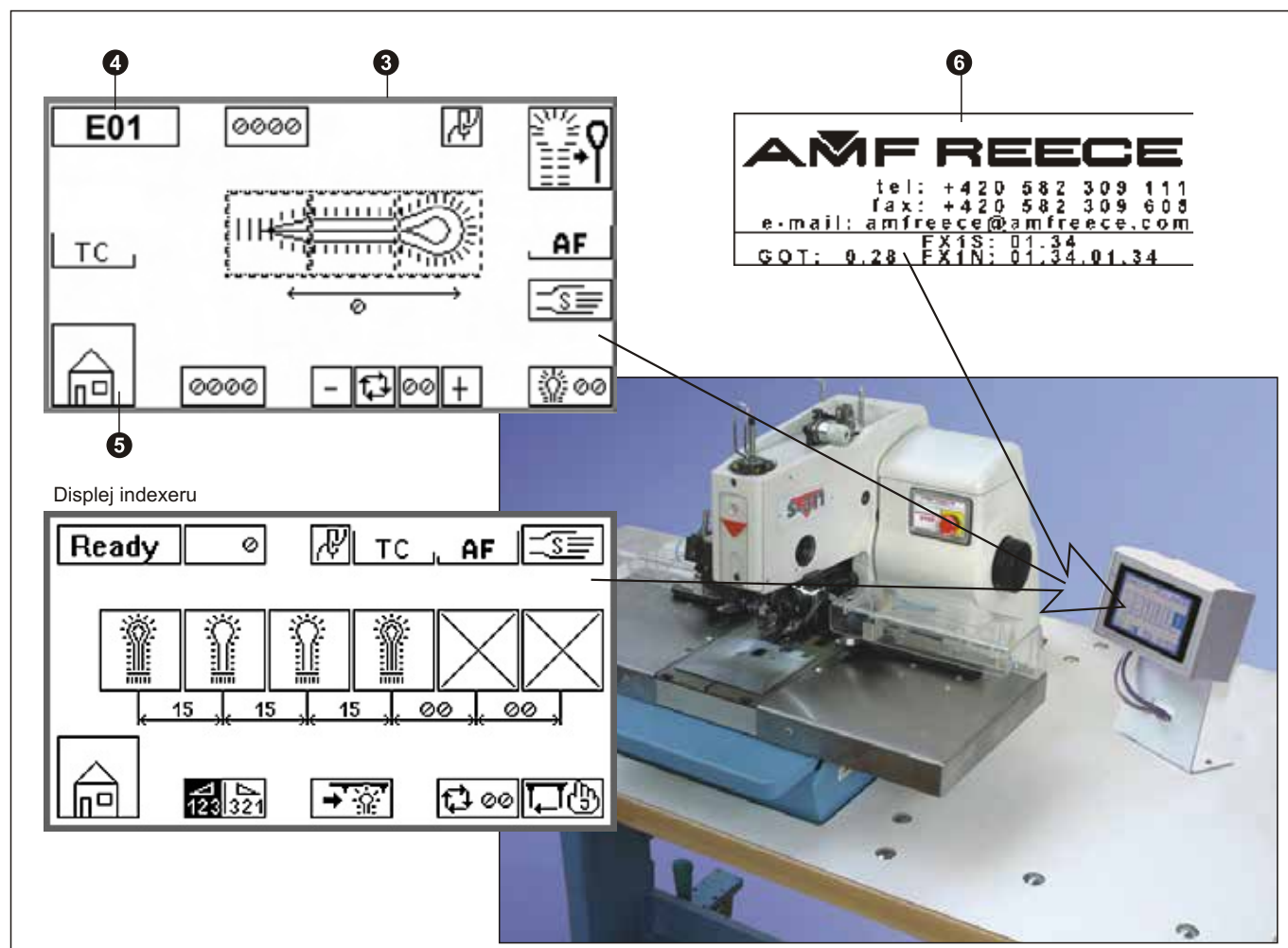
1.1. Turn the switch clockwise to the position **I** to switch it on.

1.2. The display is activated and illuminated. The screen **6** displaying information of the manufacturer and numbers of programs uploaded in the machine appears. Wait until the main screen **3** appears on the display.

1.3. If **E01** error message is shown in the box **4** on the display (the machine is not in the home position), press the button  **5**. If another error message occurs, see the section Troubleshooting.

1.4. The machine is ready to start operation once the **Ready** message on the display in the box **4** is on.
 (Display description on page 1-28, S-311).

1.5. If you wish to operate the machine in the Indexer mode, follow the instructions in section D, chapter 2. Setting Indexer Display, page 1-16 I.

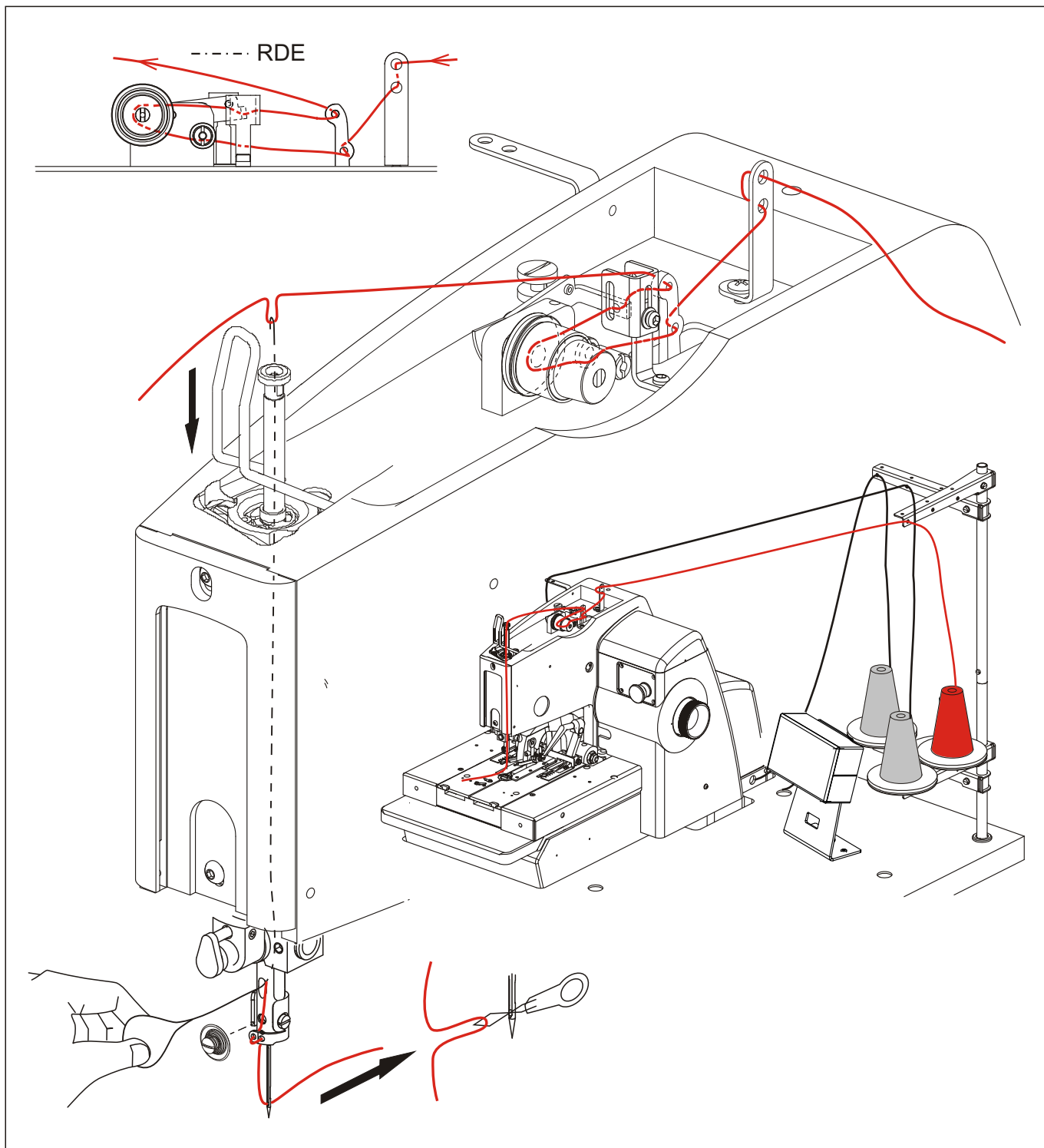


C - PROPER APPLICATION

2. THREADING

Threads are threaded as shown in the pictures below. For easy threading use threading device **1** from the machine accessory. Threading device **2** can be ordered separately (order number 12.0008.6.200). Thread tension can be adjusted with nuts **3**, **4** according to sewing conditions as needed.

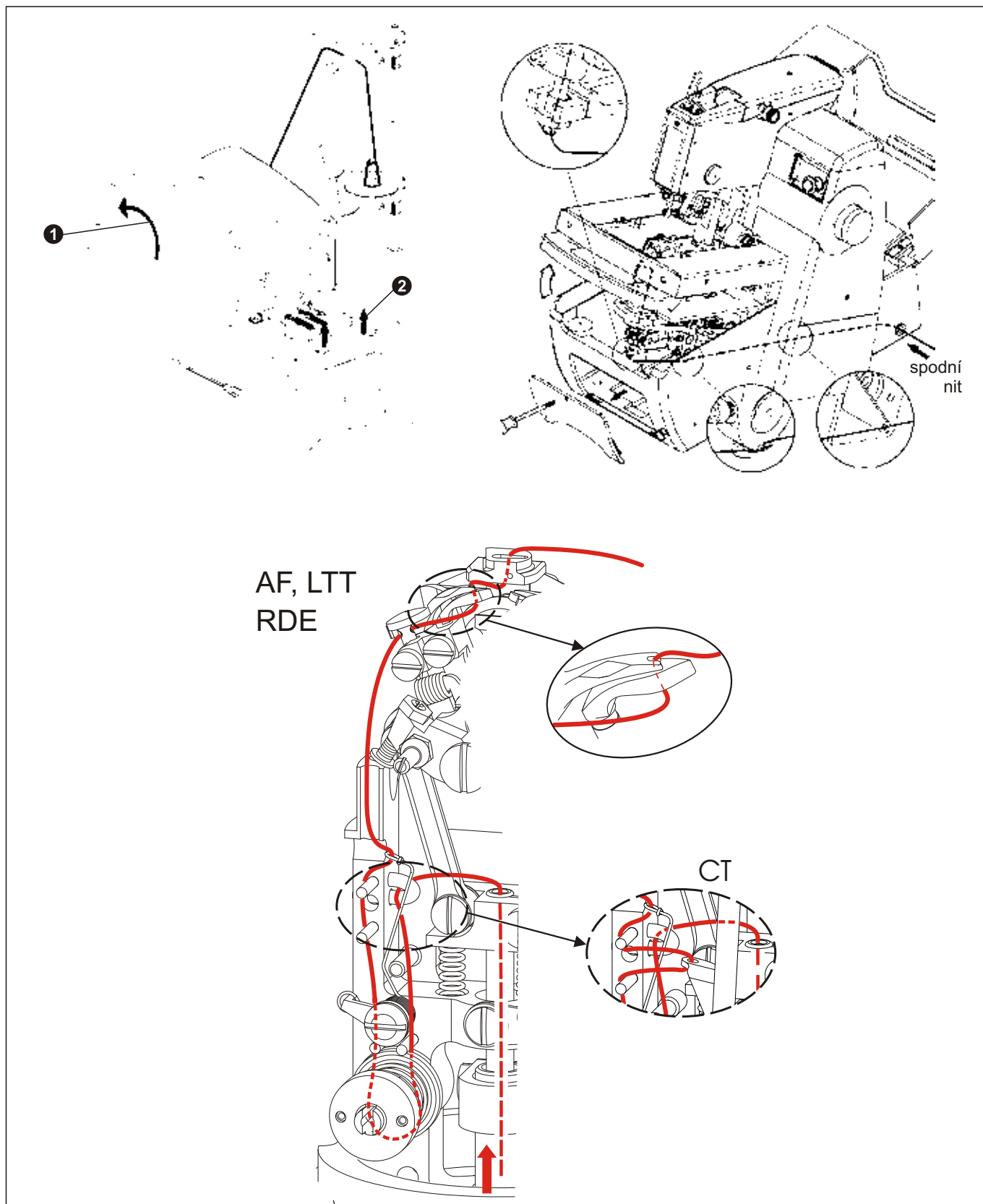
2.1. Upper thread threading



C - PROPER APPLICATION

2.2. Lower thread threading

— can be done after tilting the back cover ❶ and lifting the machine arm ❷.



C - PROPER APPLICATION

2.3. Threading the machine S-311 CT+I

If you thread lower thread or gimp for the first time, it is necessary to dismantle the Indexer.

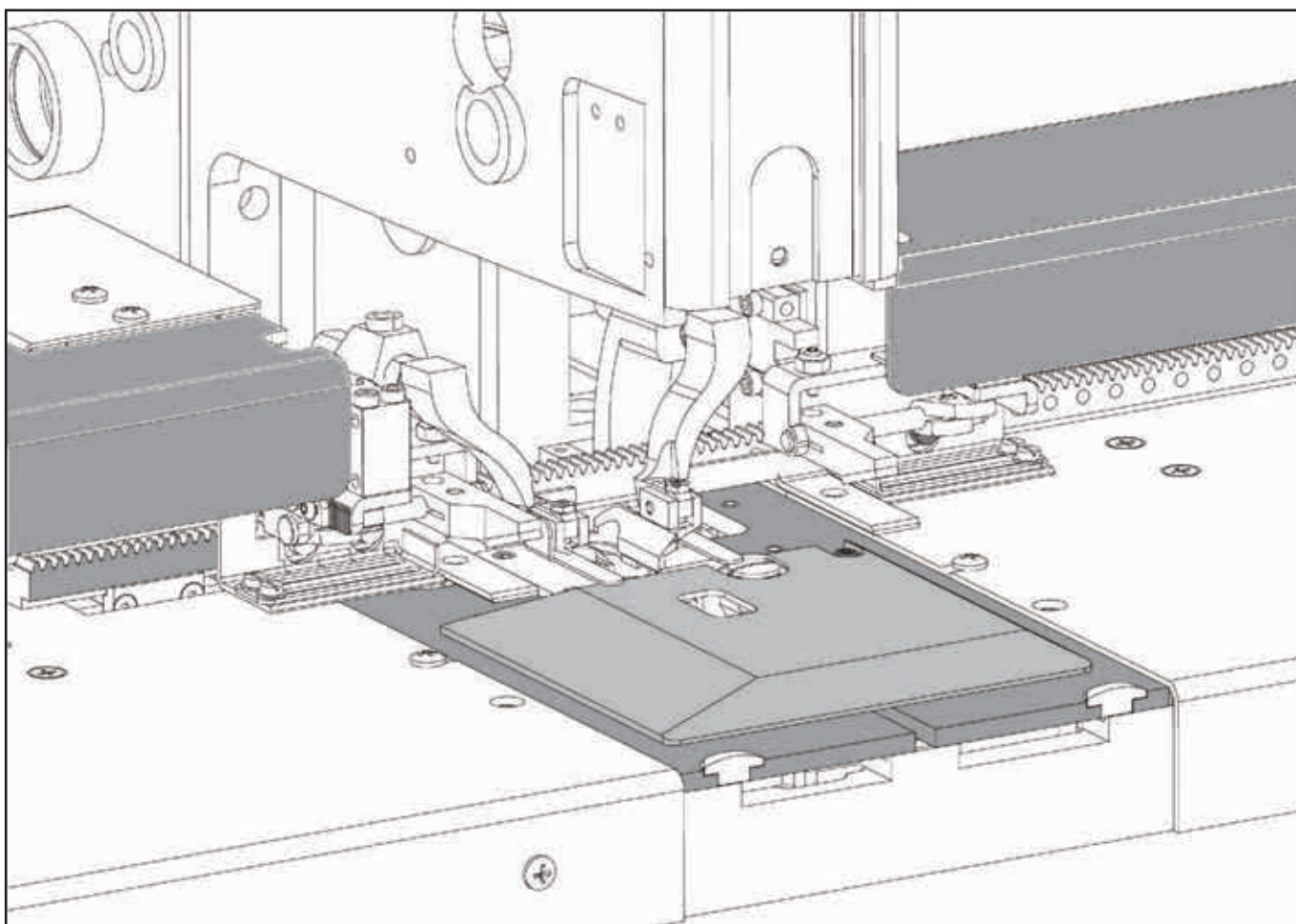
- a) Loose screws and remove safety covers **1**.
- b) Disconnect air pipes from cylinders.
- c) Loose screws **2** of the right side feet holder and take it out.
- d) Hold the device **3** and pull it to the left to take it out.
- e) Remove the clamp plates **4** and thread lower thread or gimp.
- f) Mount the mechanism back into the machine.

Note:

When assembling the right clamp foot, it is necessary to keep minimal distance of 0,5 mm.

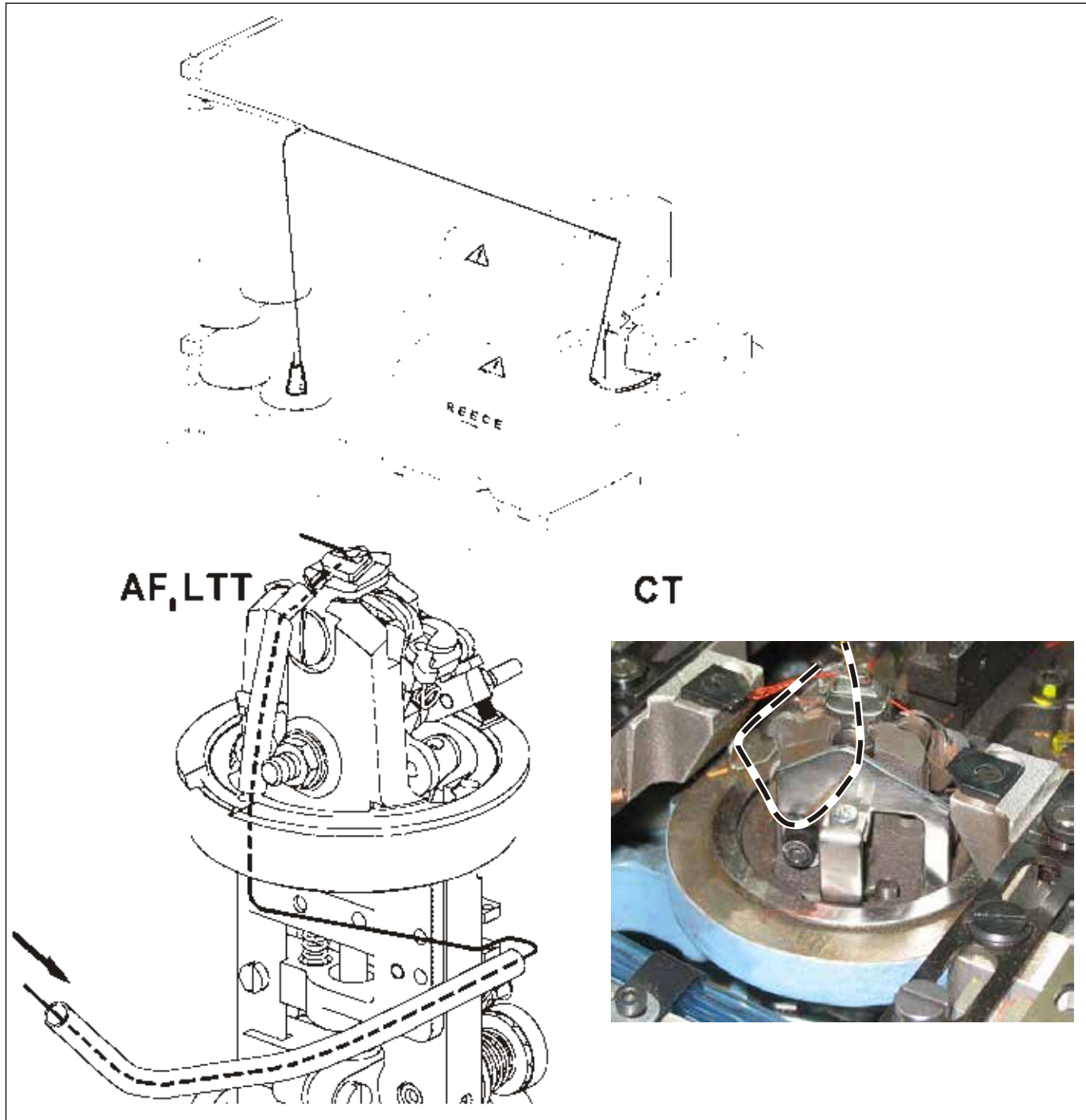
See section E, chapter 1.

If the lower thread has just slipped out of the stitching plate, loose the screw **5** and remove the clamp feet cover **6**.



C - PROPER APPLICATION

2.4. Gimp threading



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)

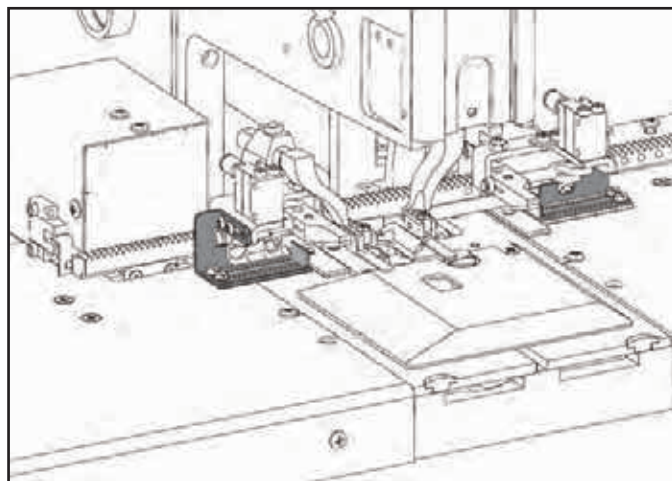
D - MACHINE CONTROLS

1. SEWING A BUTTONHOLE

1.1. Set the machine into the home position as in section **C1** of this chapter. Before starting sewing, let the machine warm up in this condition for about 3 minutes.

1.2. Check, if threads are correctly threaded as indicated in section **C3**, and place the work piece under the machine clamps. Correct placement of the buttonhole on the work piece will facilitate front stopper **①** and side stopper **②** that have adjustable lengths.

1.3. Pressing slightly the foot pedal into the first position will activate clamping and the work piece will be clamped. (Releasing the foot pedal will lift the clamps up again).



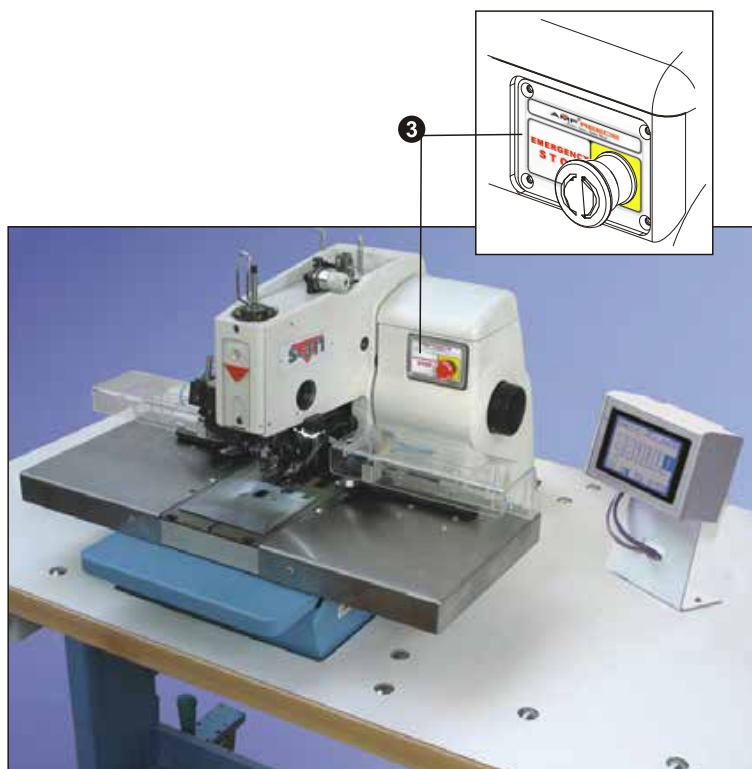
1.4. Pressing the foot pedal down (into the second position) will start sewing the buttonhole, which has been selected in the program. Once the buttonhole is sewn, fabric cut and upper thread trimmed, the clamps go up and the machine comes back into the home position.

1.5. Once the clamps are lifted up, it is possible to move the work piece in order to sew another buttonhole. If the Indexer device is activated, the fabric is moved automatically.

1.6. The machine can be stopped by the button STOP **③** which is located on the machine arm, at any phase of the cycle.

Releasing this button will stop the machine (Error E01, see section Troubleshooting).

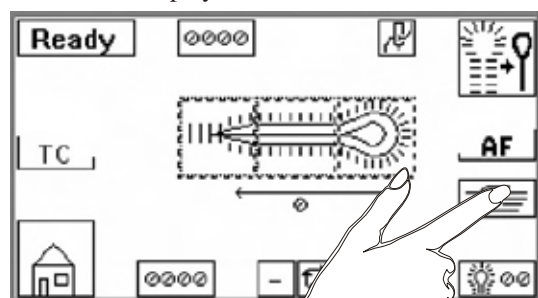
1.7. Once sewing finished, switch the machine off. We also recommend unplugging the power cable from the socket and shutting the air supply off.



D - MACHINE CONTROLS

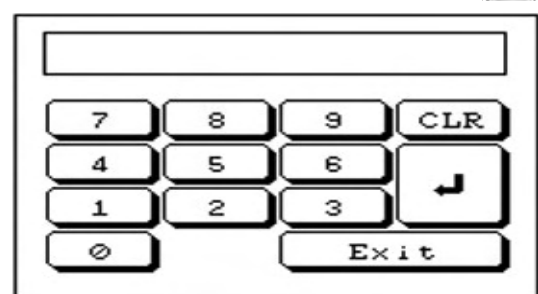
2. SETTING UP THE INDEXER DISPLAY

S-311 Main display

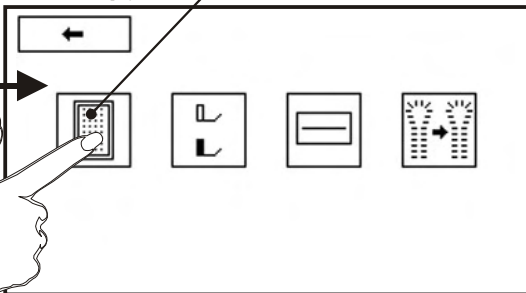


Password: 1 2 3

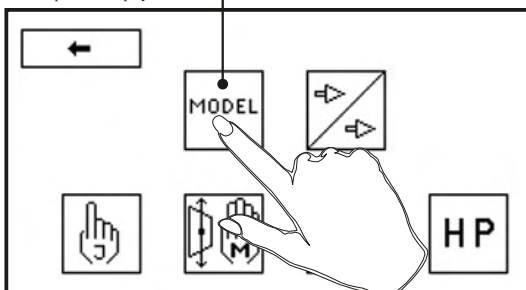
Enter code and confirm by pressing button

Button for
setting up the code

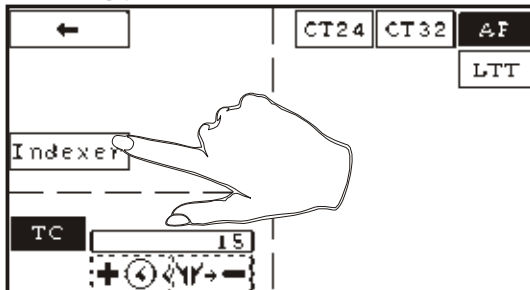
Back to main display

Button for machine
version selection

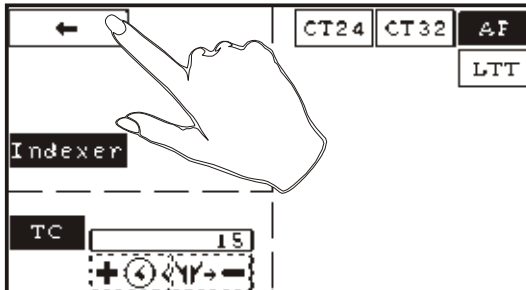
Back to previous display



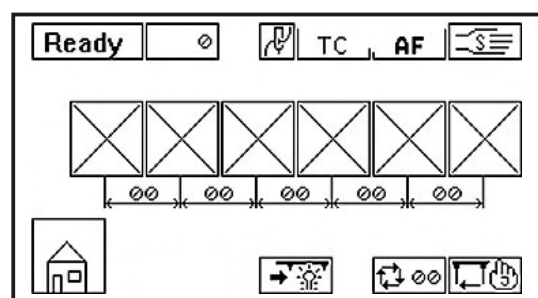
Back to main display



Back to main display

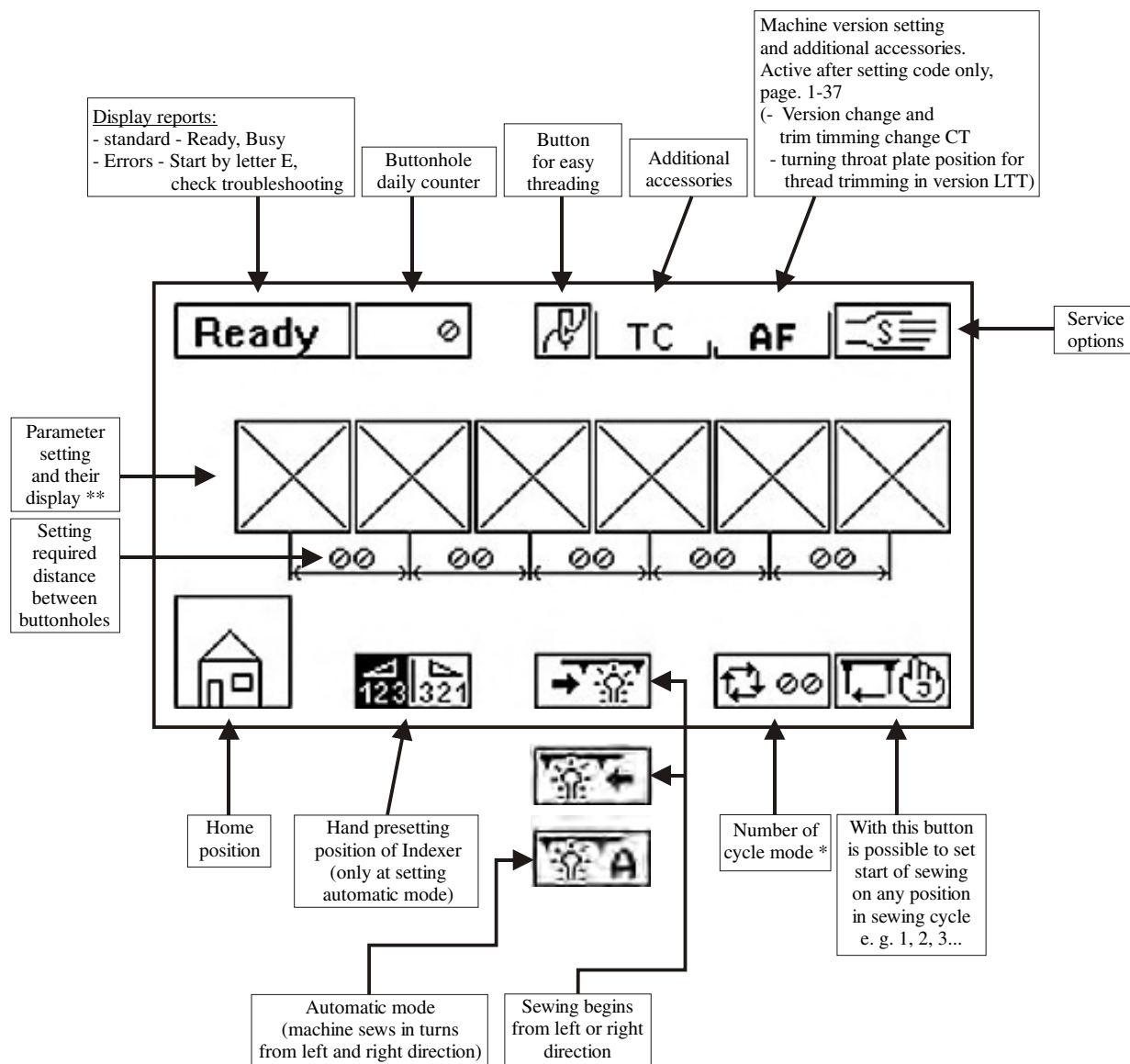


Indexer main display



D - MACHINE CONTROLS

3. INDEXER SCREEN DESCRIPTION



* 1 - 50 Function cycle mode

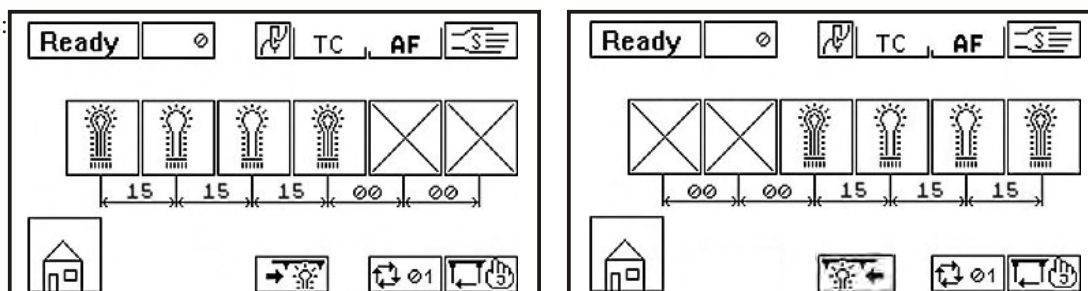
0 - Disfunction cycle mode (at setting "0" machine sews only one buttonhole, without Indexer move.

** Buttonholes are represent on display the way they will be sewn in reality.

If we change direction of sewing, buttonholes are automatically displaced to the opposite position.

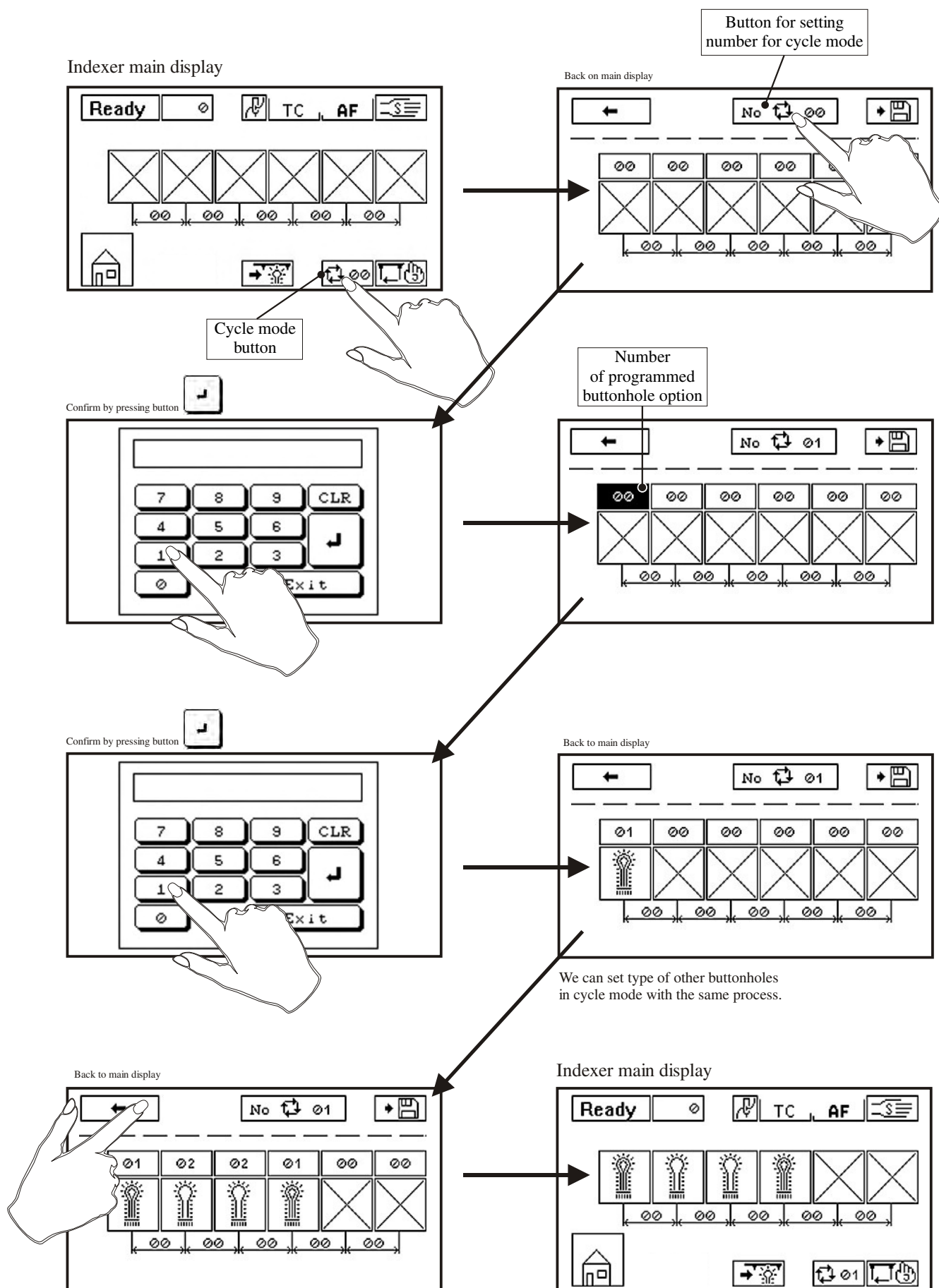
E. g.: Right and left sleeve application.

Example:



D - MACHINE CONTROLS

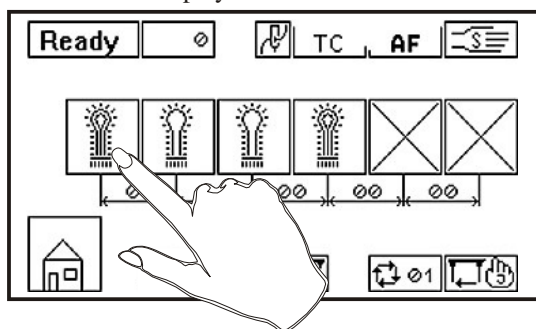
4. BUTTONHOLE TYPE SETTING



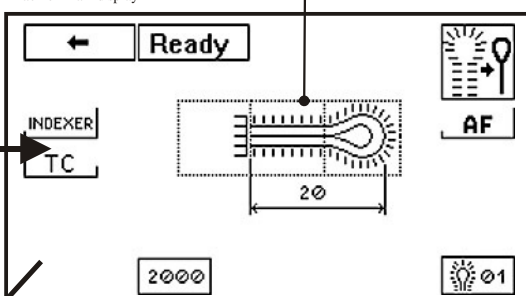
D - MACHINE CONTROLS

5. CHANGE OF BUTTONHOLE PARAMETERS SETTING

Indexer main display

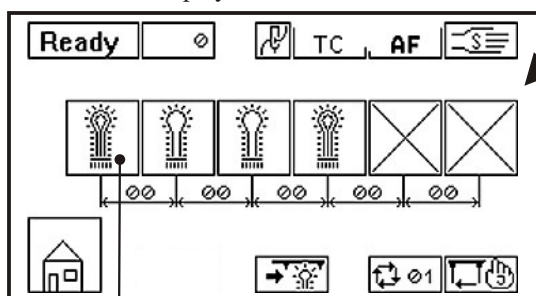


Back on main display



After parameters change press button to switch back to main display.

Indexer main display



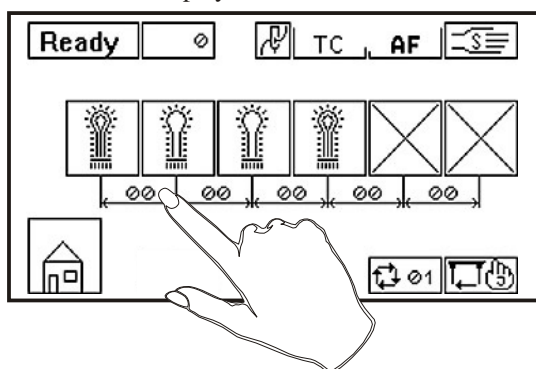
- with cutting



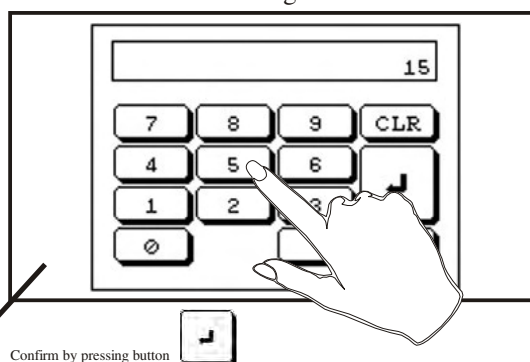
- without cutting

6. BUTTONHOLE DISTANCE SETTING

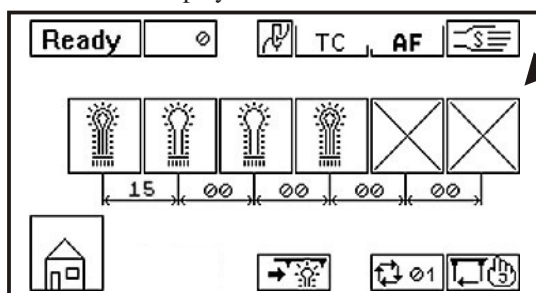
Indexer main display



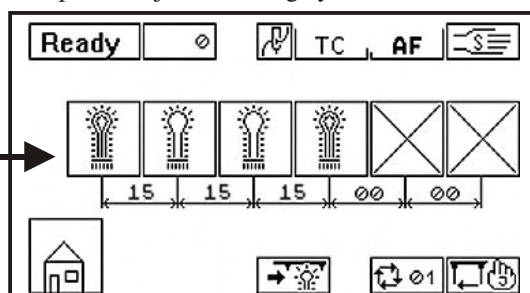
Buttonhole distance setting



Indexer main display



Completed adjusted sewing cycle

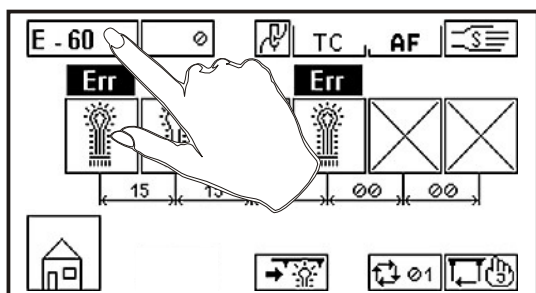


We can set distance for other buttonholes in cycle mode with the same process.

D - MACHINE CONTROLS

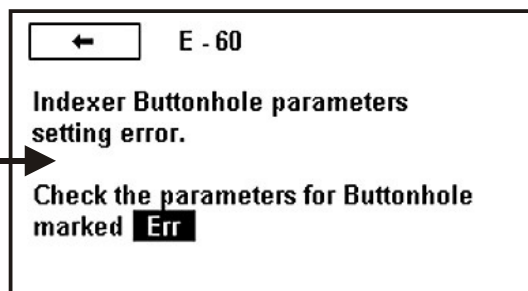
7. INDEXER ERROR REPORTS

Indexer main display



If we see on display error message
press button  for display detailed
information about trouble and its removing.

Back to main display



After parameters change press button  to switch to main display.

For detailed trouble description and its removing see the troubleshooting section.

E - STANDARD MACHINE ADJUSTMENT

1. SETTING UP THE HEIGHT OF CLAMPING FEET

In order for the Indexer to function correctly, it is important to set up correct height of Indexer clamping feet above the desktop.

1.1. Loose clamp holders screws ❶ on the left and right side of the Indexer.

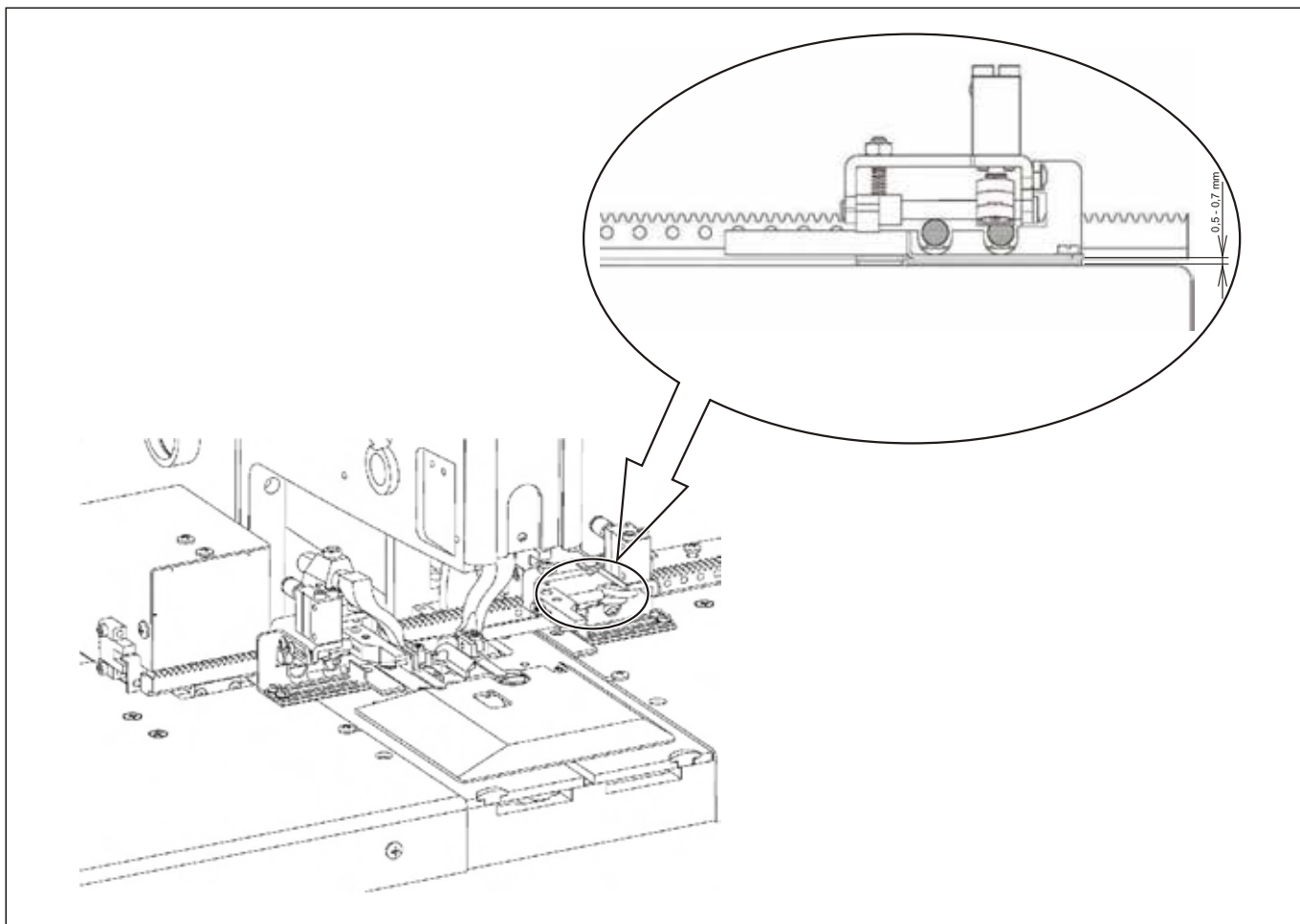
1.2. Set up a gap of 0,5 - 0,7 mm between feet and desktop (feeler gauge can be used).

1.3. Verify the setting by pressing the button . The device must move freely without stopping.

1.4. If the device stops, it is necessary to increase the gap between feet and desktop according to instructions in 1.1, 1.2.

Note:

The above-mentioned adjustment is necessary every time you change the distance between the clamping feet according to the size of workpiece and number of buttonholes sewn.



E - STANDARD MACHINE ADJUSTMENT

2. SETTING UP MINIMAL PLAY BETWEEN INDEXER FEET AND CLAMPING MAT

It is important to set up the minimal play between Indexer feet **①** and clamping mat **②** correctly so that the spreading mechanism on the sewing head operates correctly. It is necessary to hold the minimal play.

2.1. Check, whether the play on the machine is set onto 2mm in both positions of the Indexer. Use this

display buttons   to make a move.

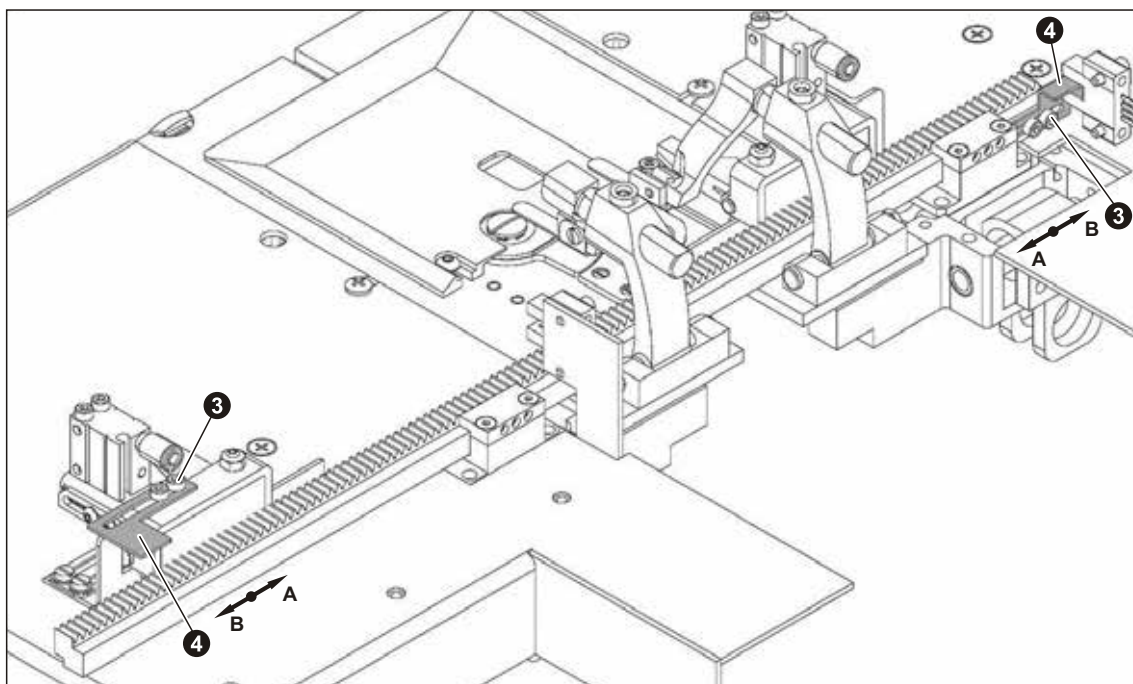
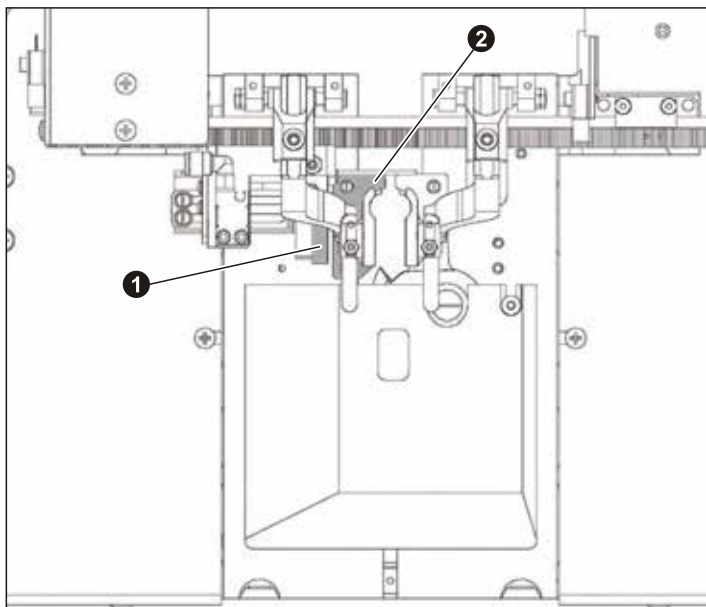
2.2. If the 2-mm distance is not adjusted on the machine, loose screws **③** and move sensors **④** into the required position. The distance increases in the direction of A and decreases in the direction of B.

2.3. Secure the setting by tightening screws **③**.

2.4. Check the setting by pressing the button . The device must move freely without stopping.

Note:

If the distance is smaller than 2 mm, the fabric will not be properly stretched during sewing an eye!



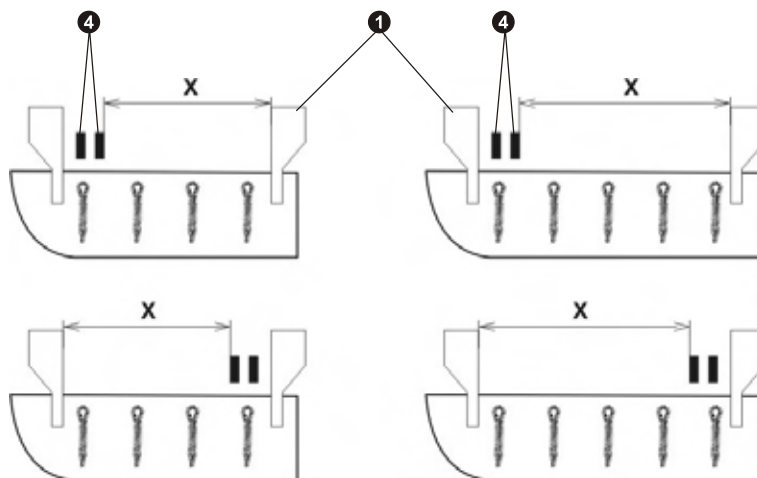
E - STANDARD MACHINE ADJUSTMENT

3. SETTING UP THE DISTANCE BETWEEN CLAMPING FEET

Change the distance between clamping feet **1** if you want to change workpiece or number of buttonholes to be sewn.

3.1. Take out screws **2** of the right holder **3** and adjust the required distance X between the Indexer clamping feet **1** and clamping mats **4** of the sewing head feet.

3.1.1. The minimal distance X can be found in display pre-set parameters.



Example:

You wish to sew 4 buttonholes with the distance of 25 mm between them. The total length is 75 mm (the first buttonhole is always sewn in indexer home position).

$X = (\text{number of buttonholes} - 1 \text{ fixed in place}) \times \text{distance between them} + 2 \text{ mm (minimal play between Indexer feet and clamping mat of the sewing head; see chapter 2)}.$

$$X = (4-1) \times 25 + 2 = 77 \text{ mm}$$

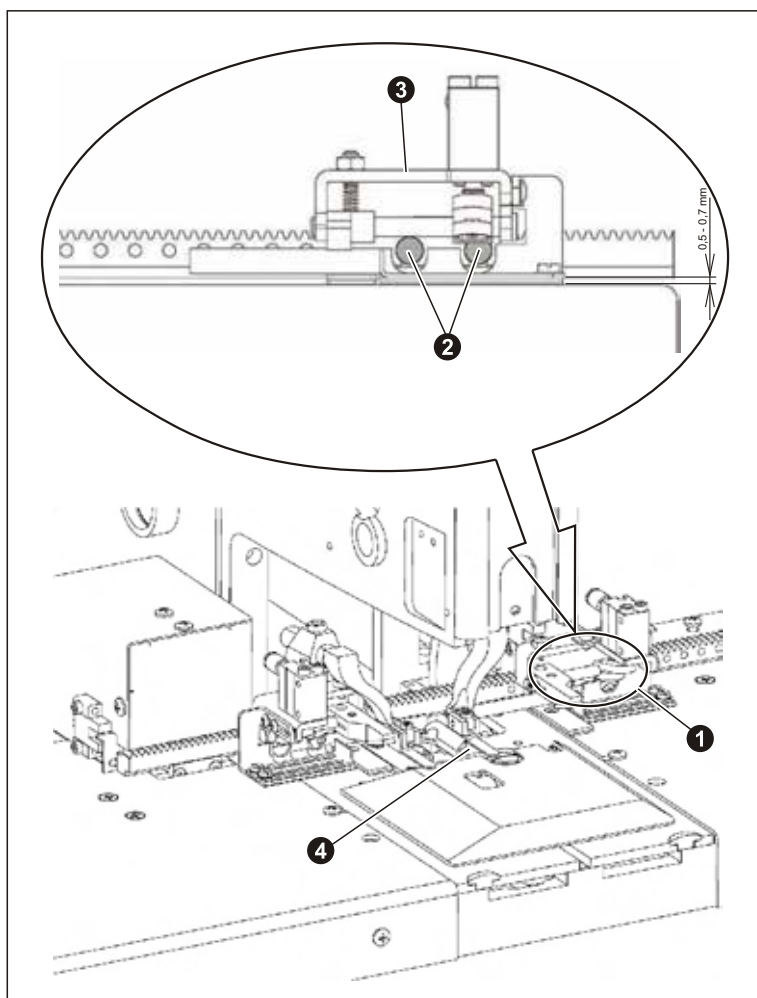
Minimal distance must be adjusted to 77 mm. If the minimal distance is shorter, the display signals an error message **E-61** – the required operation cannot be performed.

3.2. Secure the correct position by screws. Do not forget to adjust the play between a clamping foot and desktop (see chapter 1).

3.3. Check the setting by pressing the button . The device must move freely without stopping.

Note:

Setting up the distance between clamping feet needs to be done always by changing the position of the right clamping foot of the Indexer only!



TROUBLESHOOTING

TABLE OF CONTENTS

1. Introduction.....	2-2
2. Faults without error messages.....	2-3
3. The electronic system error messages.....	2-5
4. Electrical faults.....	2-7

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 not 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 to 0.004")
- 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

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
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

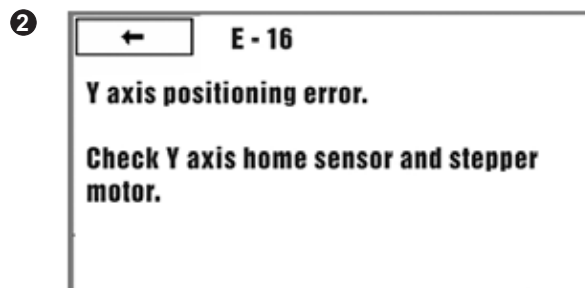
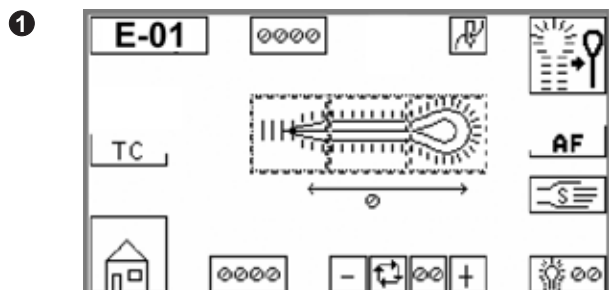
TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION	SERVICE SECTION
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.	
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 clearance 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 application on 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.	

TROUBLESHOOTING

3. THE ELECTRONIC SYSTEM ERROR MESSAGES

If an error message appears on the display (see picture ①), press it. The screen with a description and a correction of an error message appears on the display (see picture ②).



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.
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.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
E-51	Buttonhole length parameter error.	Check the buttonhole length parameters setting according to sewing range of machine type.
E-52	Fly bar length parameter error.	Check the fly bar length parameters according to sewing range of machine type.
E-53	Fly bar buttonhole total length error.	Check the buttonhole length and fly bar parameters according to sewing range of machine type.
E-54	Cross bar buttonhole total length error.	Check the buttonhole length and cross bar parameters according to sewing range of machine type.
E-56	ACL-LP lapel cutting length 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-60	Indexer Buttonhole parameters setting error.	Check the parameters for Buttonhole marked Err.
E-61	Indexer total buttonhole length setting error.	Adjust the buttonhole lengths according the indexer sewing range.
E-62	Two buttonhole length settings error in indexer program.	Adjust the buttonhole length 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.

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 default.	Change motor 06.1900.0.003.
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.

