AMF® REECE

Better Ideas, Better Made

MODEL S-4000 TKF, LS Omron

TACKER AND LABEL SEWER

PARTS AND SERVICE MANUAL

MACHINE SERIAL No.:

PART NUMBER 97.2441.1.001

This manual is valid from the machine serial number M241428

07/2012

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LIMITED WARRANTY ON NEW AMF REECE EQUIPMENT

Warranty provisions:

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

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

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

Exclusions:

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

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

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

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

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

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

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

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Warranty Registration Card

(Please Fax or Mail immediately after installation)

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

Machine model number:
(S101, S100, S104, S105, S311, Decostitch, S4000 BH, 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?

Tovární 837, 798 11 Prostìjov, Czech Republic
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A - INTRODUCTION

1. BASIC INFORMATION

The sewing machines S4000 TKF and S4000 LS are designed and produced to be very reliable. Important design goals have been achieved to provide a safe machine that is simple and inexpensive to maintain.

The patented rotary needle bar shaft drive, a major benefit, delivers longer needle bar life. The added benefits of lower vibration and less noise, translate into less operator fatigue.

Simple buttonhole length adjustment located outside the machine, eliminates the need for tilt back, while the quick stop repair function delivers safety and makes repairs easier.

A halogen work light is included with the S-4000 TKF and LS, to enhance operator safety and product quality.

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 an emergency off switch. There is a low air pressure detector that will not permit machine operation if air pressure is dangerously low.

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

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

DANGER! Possible loss of life.

WARNING! Possible serious injury or machine damage.

NOTICE! Possible injury or machine damage.

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

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

Always wear safety goggles when operating or servicing the machine.

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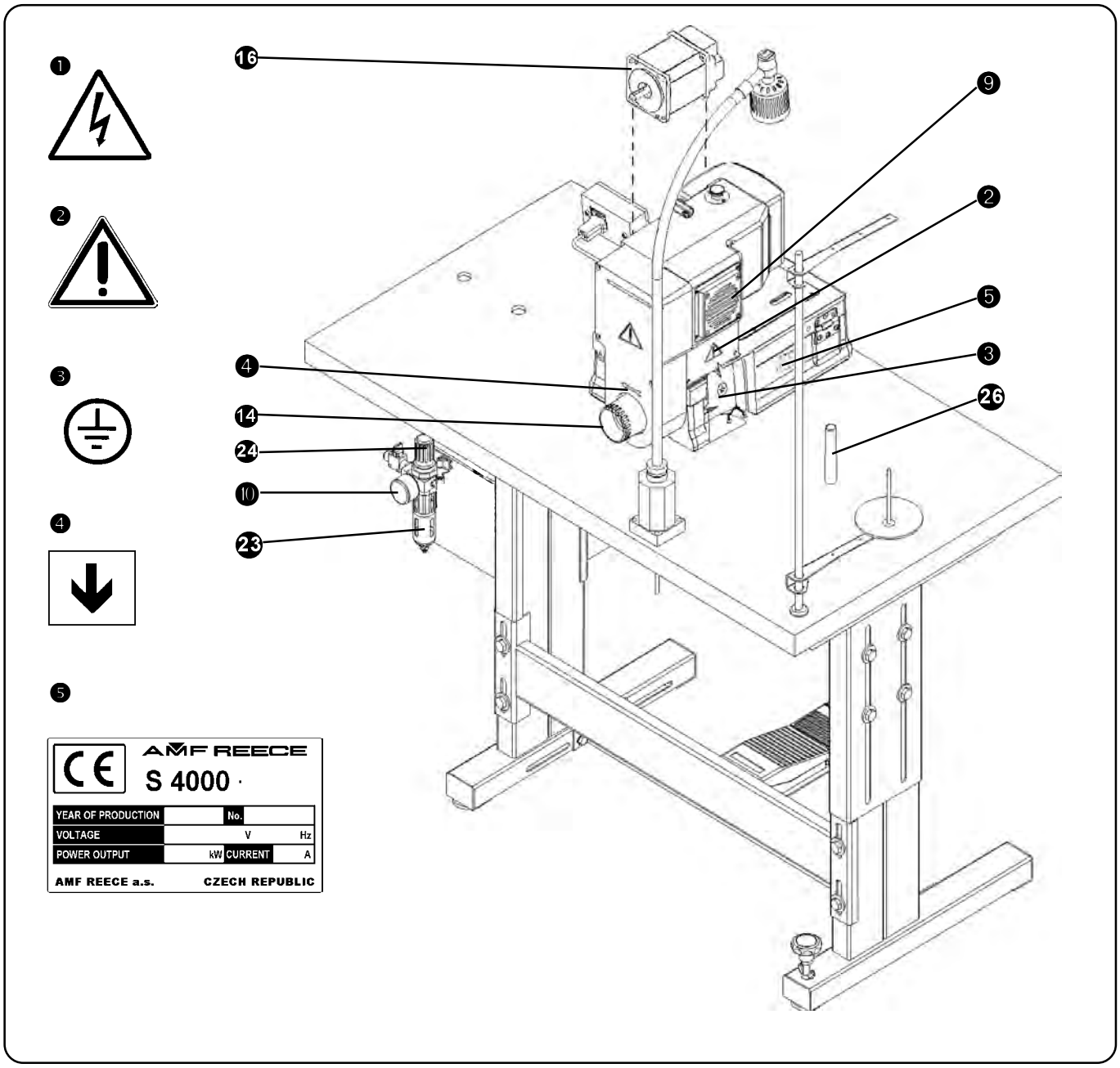
2. SAFETY DEVICE AND LABELS



1. Warning
2. Covers removed, possible injury
3. Grounding
4. Rotational direction
5. Standard Label
6. Needle bar cover
7. Eye guard
8. Head cover
9. Fan cover
10. Manometer with pressure sensor
11. Machine head
12. Table Frame

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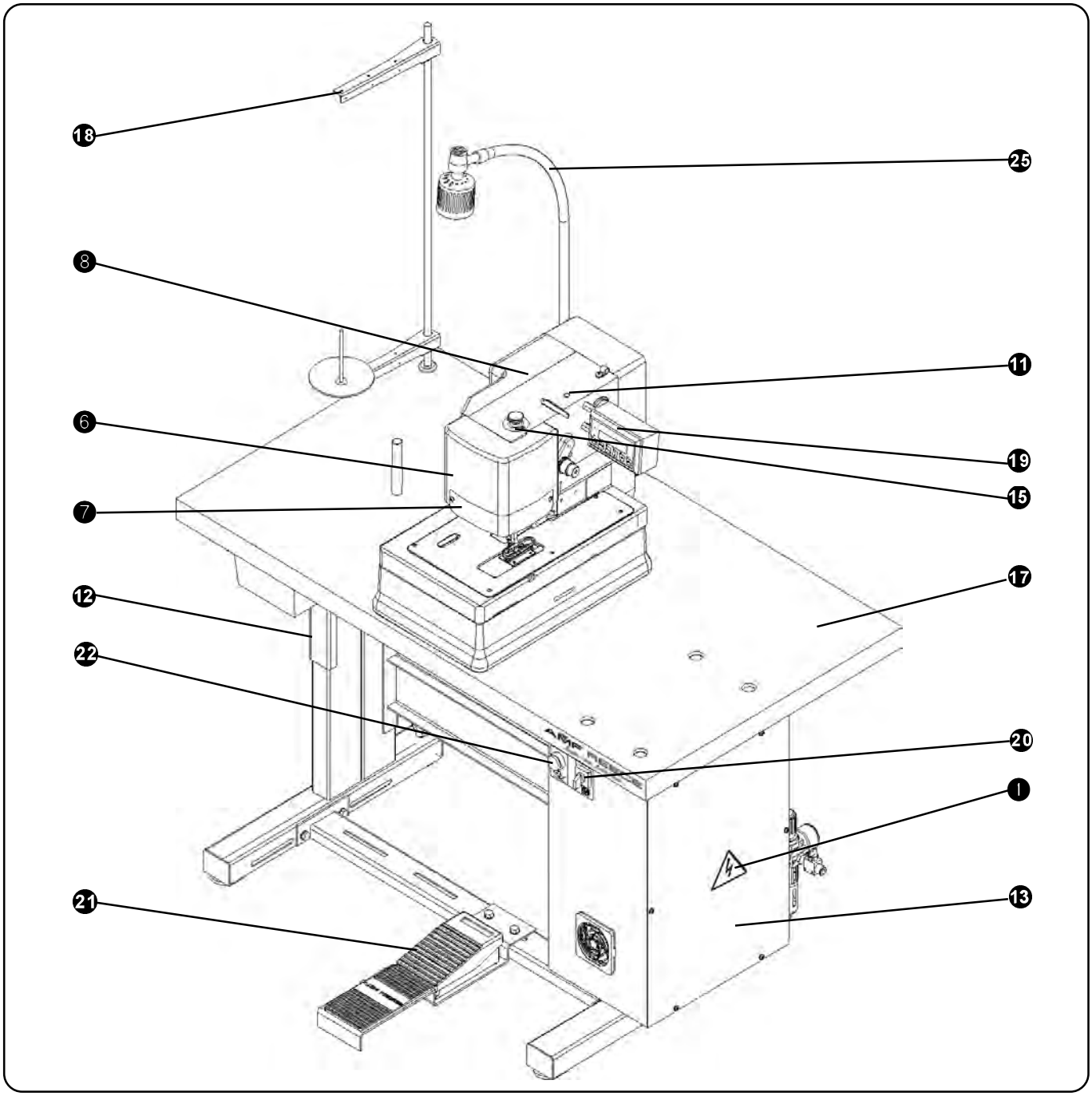
A - INTRODUCTION

3. GENERAL MACHINE PARTS DESCRIPTION



13 Control box
14 Hand wheel
15 Emergency Stop Button
16 Motor
17 Table Top
18 Thread Stand
19 Control Panel
20 Main switch
21 Foot pedal
22 Clamps Up/Down button
23 Air pressure regulator
24 Air pressure adjustment knob
25 Halogen Lamp
26 Rest Pin

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4. SPECIFICATIONS

Machine type		S 4000 TKF	S4000 LS
Description		electronic controlled machine for sewing the tacks on various clothes	electronic controlled machine for sewing the labels on various clothes
Sewing speed		1500-3800 stitches/min	
Stitch density		3-14 stitches/cm	
Machine clamp foot height		12.7 mm (1/2")	
Sewing length	one row	6-40 mm	
	two rows	9-43 mm	
Maximum work thickness		to 4 mm (5/32")	
Bite range		1,7 - 3,0 mm	
Recommended thread		thread size 80, 100, 120 (Tex 40-60)	
Needle system		Needle 750 SC 90/14 (it is possible to order 80/12 and 70/10)	
Lubrication		semi-automatic	
Operating Conditions		according to IEC 364-3, IEC 364-5-51 temperature from +5℃ to 40℃, relative air humidity from 30 to 80 %	
Air pressure		0.55 MPa (80 PSI)	
Machine db level		Laeg = 74dB; LWA = 87dB; LpC, peak = 103dB	
Machine head dimension		340 mm (height) x 470 (width) x 250 mm (length)	
Machine head length		62 kg	
Table dimension		700 mm (height) x 600 mm (width) x 1100 mm (length)	
Table types		Parallel, Crosswise, Universal	
Electrical Requirements		1NPE~60Hz 230V/TN-S (according to EN 60204-1) 1NPE~50Hz 230V/TN-S (according to EN 60204-1)	
Line Circuit Breaker		10A charakteristic C (according to EN 60947-2) 16A charakteristic B (according to EN 60947-2)	

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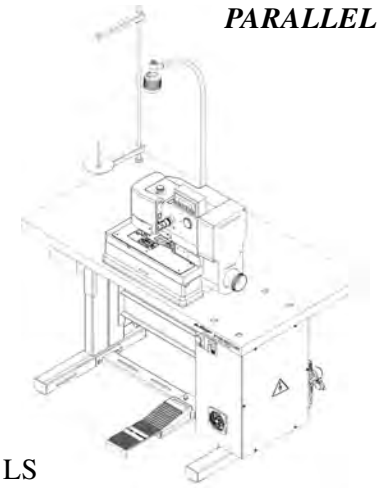
5. TABLE TYPE

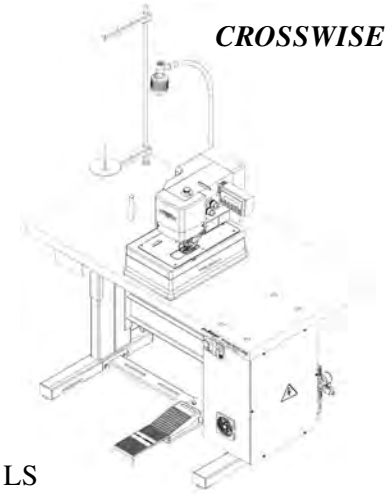
1. Parallel
2. Crosswise
3. Crosswise embedded
4. Universal - possible adjustable: parallel/crosswise

❶ *PARALLEL*



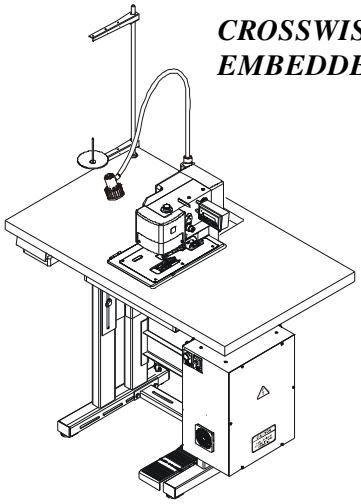
TKF, LS

❷ *CROSSWISE*



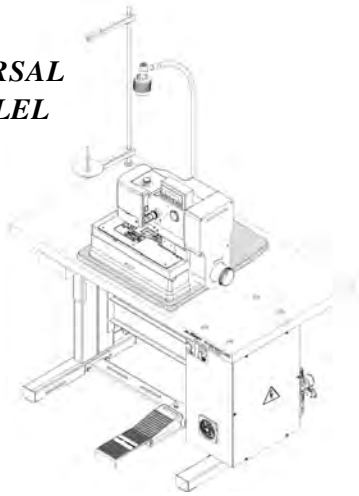
TKF, LS

❸ *CROSSWISE EMBEDDED*

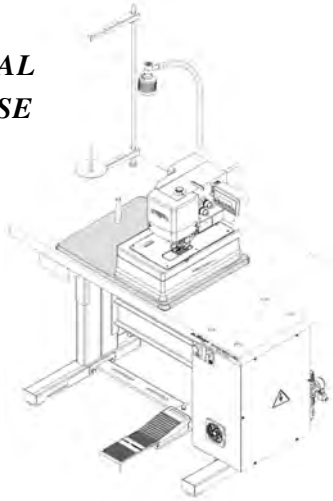


TKF

❹ *UNIVERSAL PARALLEL*



UNIVERSAL CROSSWISE



TKF, LS

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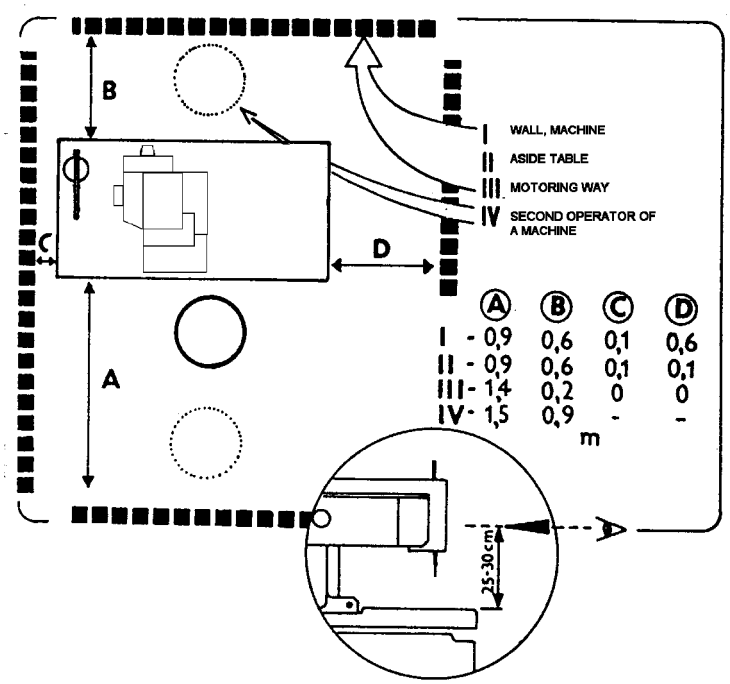
6. INSTRUCTIONS FOR OPERATOR SAFETY AND MAINTENANCE



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

DANGER!

- Before connecting the machine to the power supply, be positive that all safety covers are correctly installed.
- Always engage the power lockout switch, or disconnect the main power supply, before removing any safety covers.

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 supply lines 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.
- 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.

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A - INTRODUCTION

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.

7. SPECIAL ACCESSORIES

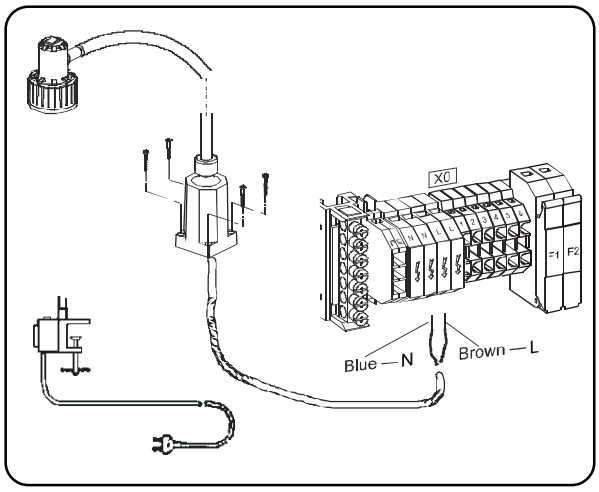
- machine device, which is not included in the standard equipment of the machine and can be ordered by the customer

Light

- customer can order - no. 12.0008.4.403
- connection according to chart (terminal connectors X0;cable clamps 3,4)

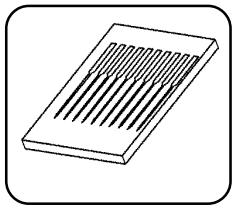
Warning: When turning on the light on the machine, disconnect the machine from the power supply.

- in case, you do not want to interfere into the machine wiring, it is possible to order the work light LBH-T65, order no. 12.0008.4.875, which contains its own clip fork the table and supply conductor with foprk (plug) CEE7for connection to the power supply ~ 230 V.



Needles 750 SC 80/12, 70/10

- the manufacturer recommends to use these needles when sewing thin material
- part numbers 02.0750.2.100 (80/12), 02.0750.2.109 (70/10)



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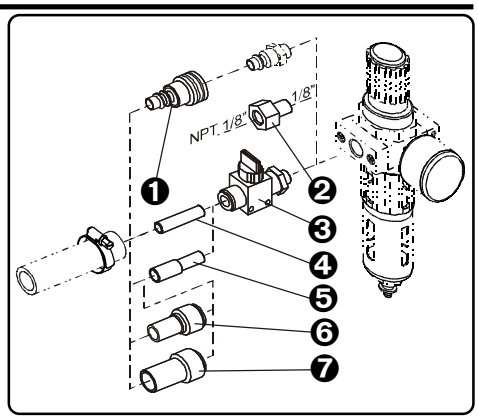


Connector Ø 8 ❶

- order it if the connecting tube has the inner diameter 8 mm. The connector Ø 10 is supplied with the machine.
- part number is 12.0008.3.607

Pneumatic Adapter ❷

- order it if using 1/8“ NPT
- part number 12.0008.3.081

Hand valve ❸

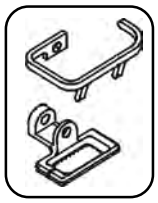
- to dissipate any air from the machine, order it (air circuit is bled). It is necessary to order the connectors (see below) to the hand valve for connection to the air tubes.
- part number 12.0008.3.463

Connectors

❹	12.0008.3.464	Ø 8	for connection to the tube with inner Ø 8 mm
❺	12.0008.3.466	Ø 10	for connection to the tube with inner Ø 10 mm
❻	12.0008.3.467	Ø 12	for connection to the tube with inner Ø 12 mm*
❼	12.0008.3.465	Ø 16	for connection to the tube with inner Ø 16 mm*

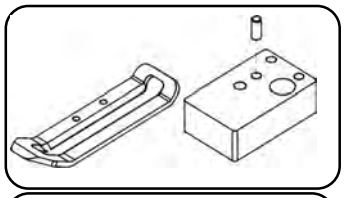
* To connect the tube with inner Ø 12 and Ø 16, it is also necessary to order Ø 10

Needle guard and clamp foot 3/8“ a 3/4“ kit (for machine S4000 TKF only)



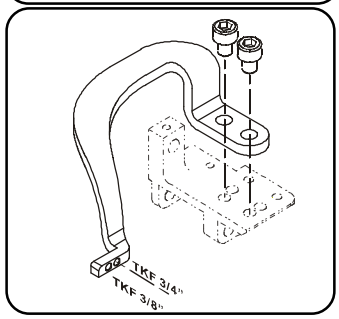
- to sew in range 6,3 - 9,5 mm, use needle guard 3/8“ and clamp foot 3/8“
- to sew in range 9,5 - 19 mm, use needle guard 3/4“ and clamp foot 3/4“
- ordering numbers: needle guard 3/8“ - 20.0767.1.002
  clamp foot 3/8“ - 20.0650.0.240
  needle guard 3/4“ - 20.0767.1.003
  clamp foot 3/4“ - 20.0650.0.340

Clamp foot assembly (for machine S4000 LS only)



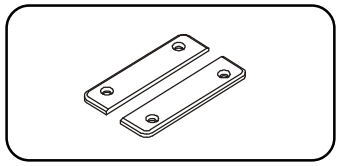
- to sew maximum length 43 mm, order it
- part number 24.9920.9.989

Clamping Arm (for S4000 TKF)



- necessary to order, easier insertion of work
- for clamps 3/4“ a 3/8“ (order no. 24.3208.0.000)

Smooth clamp washer



- necessary to order, for sewing the fine material (order no. 20.0649.1.042)

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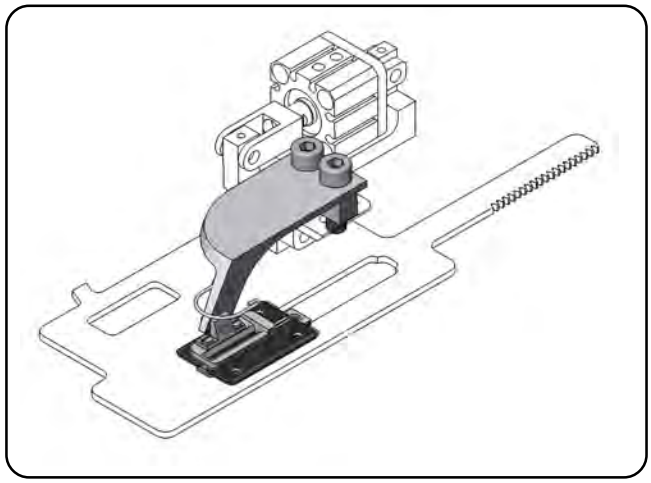
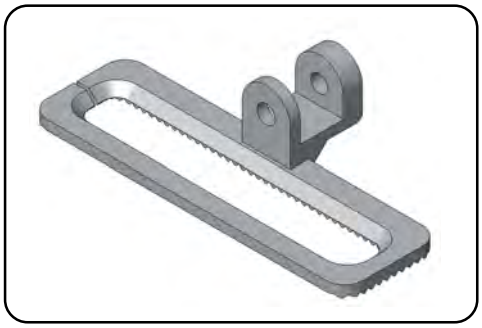
Clamping-bite 1,5 - 2 mm

- possible to order, for TKF
  (order no. 03.5524.0.032)



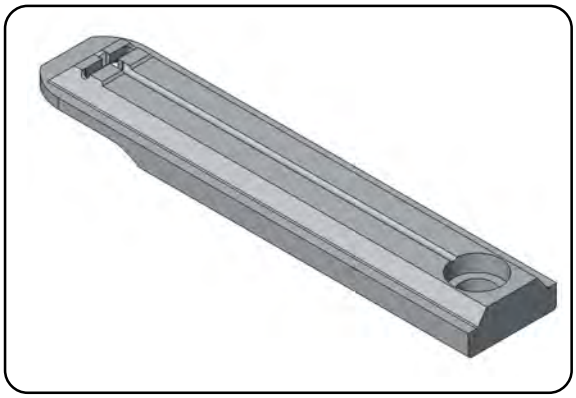
Clamping foot-bite 4 mm

- possible to order, for TKF
  24.3211.0.000 Clamp foot 1 1/2
  24.3212.0.000 Clamp foot 3/4
  24.3213.0.000 Clamp foot 3/8



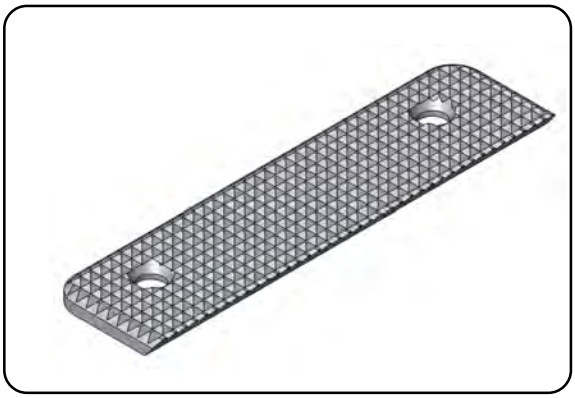
Throat plate-bite 4 mm

- possible to order, for TKF
  24.3214.0.000



Clamp mat-bite 4 mm

- possible to order, for TKF
  24.3220.0.000



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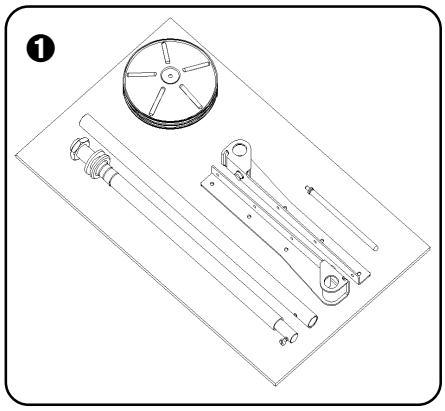
B - MACHINE ASSEMBLY

1. CONTENT OF THE SHIPPING BOX

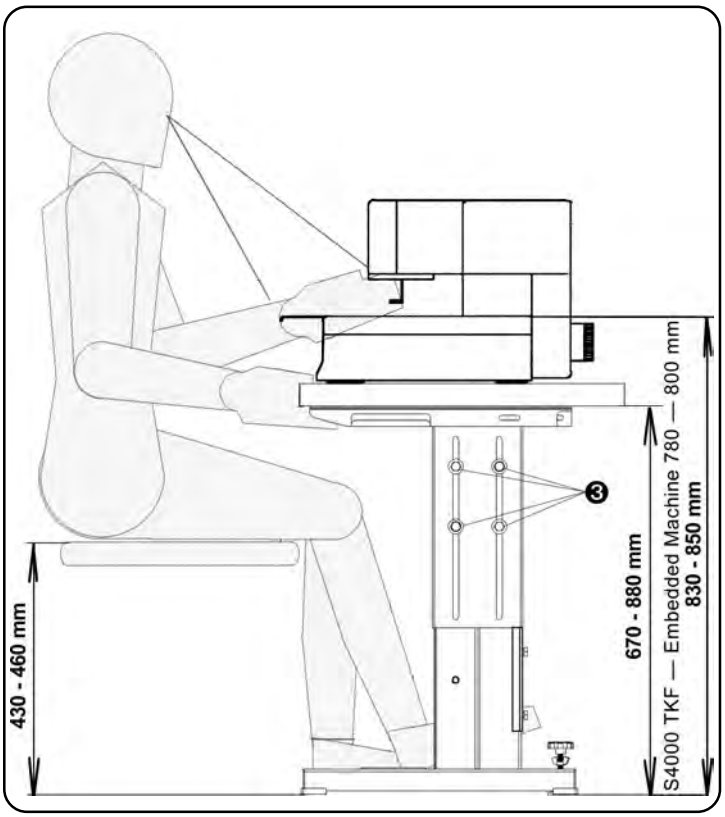
1. The shipment contains one box.
2. There is a carton with accessories, service manual with parts section and thread stand ❶ in the box.
3. During unpacking the shipment, follow the labels which are on a cover.



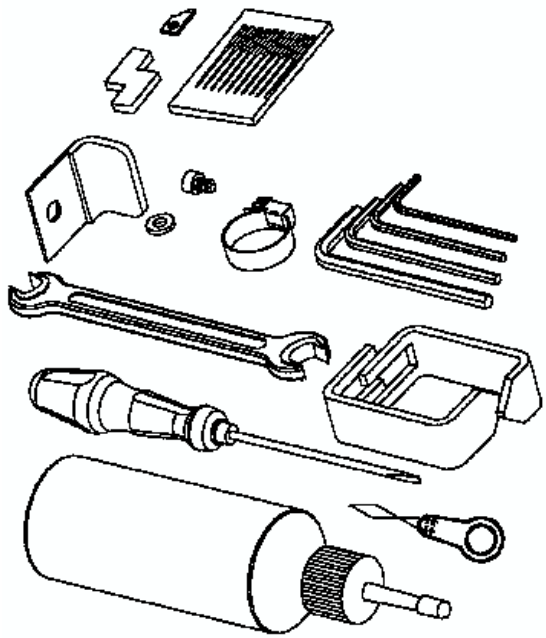
CAUTION: If the machine or crate was damaged in shipment inform the freight company immediately. Check the contents of the crate immediately and report any damage or missing items to the manufacturer immediately, late reports will not be considered!

2. ACCESSORIES

A package of accessories is supplied with the machine, please refer to page 3-48 for detailed descriptions. The height of the working area is normaly set in range 830 - 850 mm from the manufacturer (and embedded) S4000TKF is in range 780 — 800 mm.. When using this height of the working area, recommended height of the operator seat is in range 430 - 460 mm. The height of the table can be set in range 670 - 880 mm by screws ❸.



STANDARD ACCESSORIES



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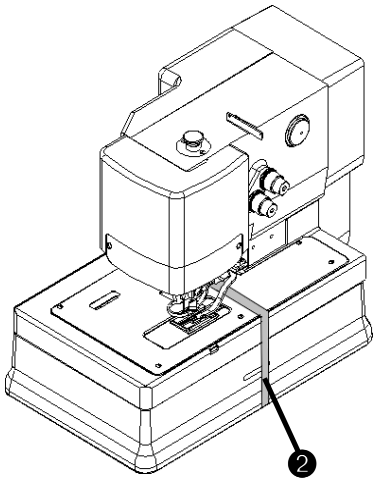
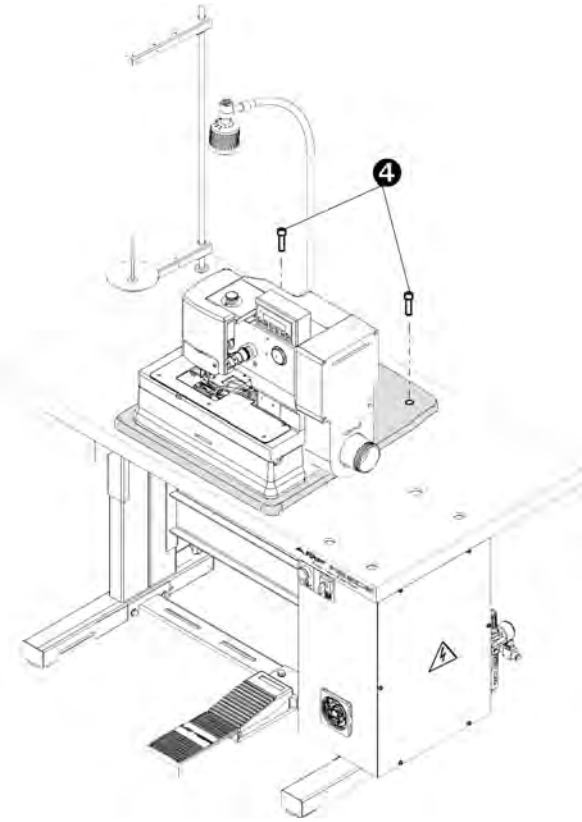
B - MACHINE ASSEMBLY

Remove the shipping strap ❷ after unpacking the machine, the use of this strap is recommended anytime the machine is transported
(This is valid for all types of tables - parallel, crosswise, universal).



If a customer has ordered the ***universal table***, and requires to change the parallel table to the crosswise table, it is necessary to remove 2 locking screws ❹ and turn the machine head to the required position. It is also possible to change the display positon.



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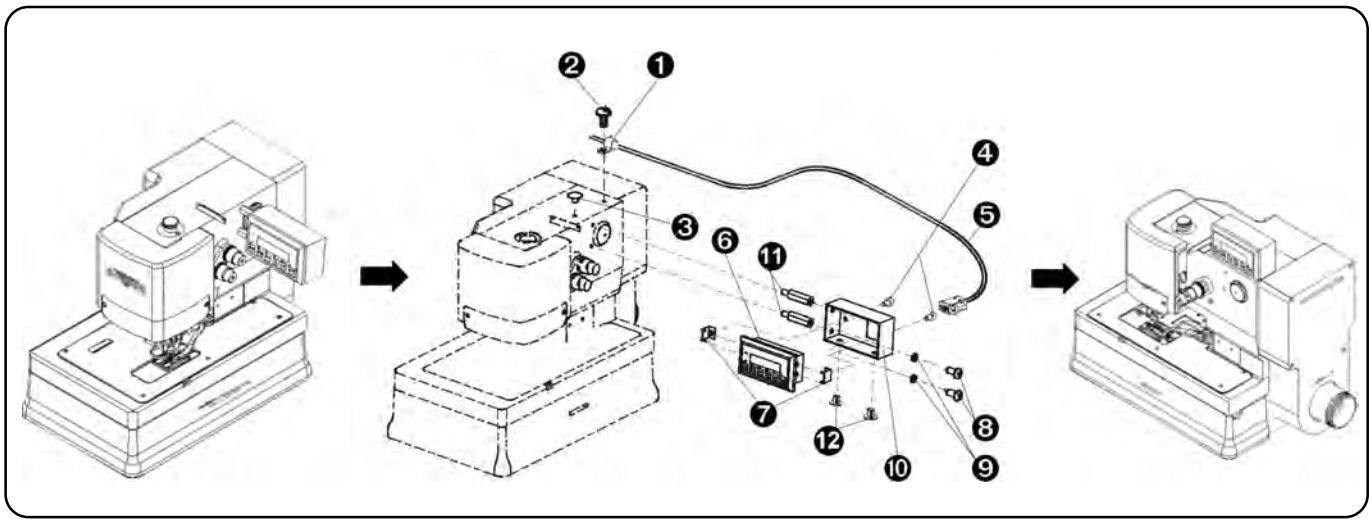
3. THE DISPLAY POSITION CHANGE WHEN THE HEAD POSITION IS CHANGE

(*the universal table only*)

a) To change the crosswise table to the parallel table

1. Remove the cable fitting ❶, screw ❷, plug ❸ and screws ❹.
2. Disconnect the cable ❺ and display ❻.
3. Remove the display holders ❼, cable ❺ and display ❻.
4. Remove the screws ❽, washers ❾ and display box ❿.
5. Remove the nuts ⓫ and insert the plugs ❸ into the holes where the screws were before (one of the plugs is in the drawer of the table).
6. Remove the plugs ⓬ from the lower side of the display box ❿ and place them into the side holes of the display box.
7. Using the screws ❽ and washers ❾, install the display box ❿ on the upper side of the machine head. Place the screws and washers on the lower side of the display box, not on the side as they were before.
8. Insert the display holders ❼ and display ❻ to the display box. Fix it by screws ❹.
9. Connect the cable ❺ and display ❻.

Note: The cable fitting ❶, screw ❷ and nuts ⓫ are not used on the parallel table



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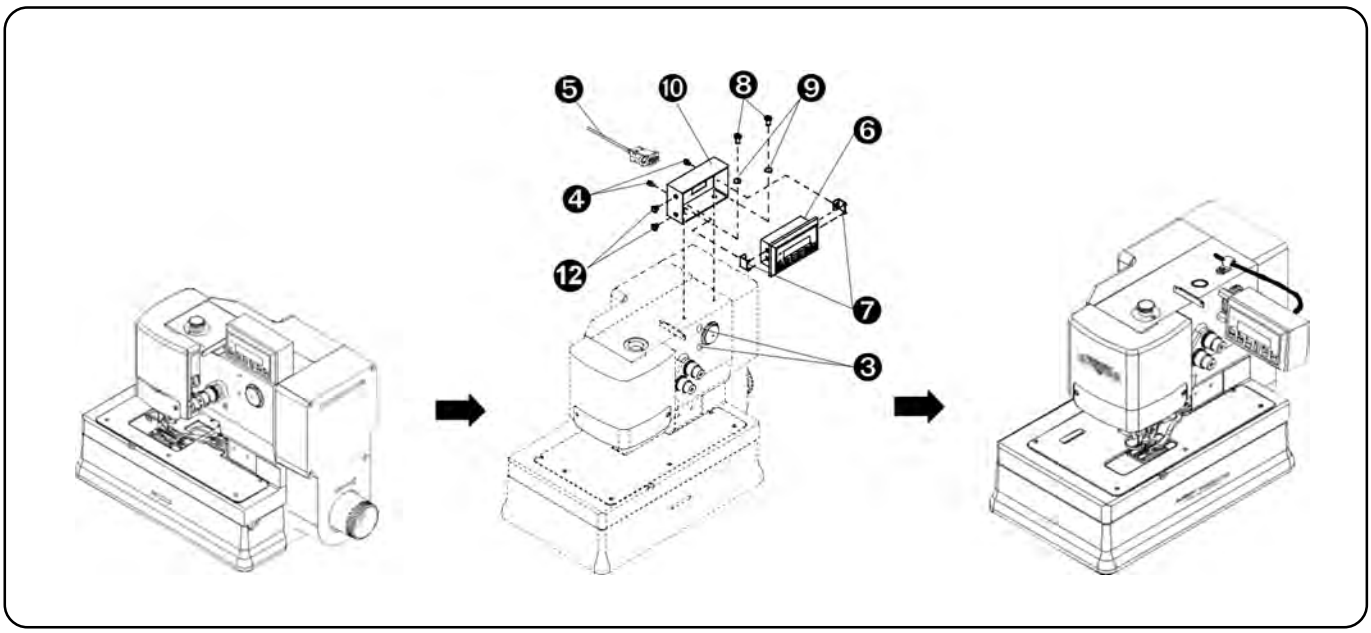
B - MACHINE ASSEMBLY

b) To change the parallel table to the crosswise table

1. Disconnect the cable ❺ and the display ❻.
2. Loosen the screws ❹ and remove the display ❻ with holders ❼.
3. Remove the screws ❽, washers ❾ and display ❼.
4. Remove the plugs ⓬ from the side holes of the display box ❿ and insert them into the lower holes of the display box.
5. Remove the plugs ❸ and insert the one of them into the left hole on the upper side of the machine head. Place the second one into the drawer.
6. Place the nuts ⓫ into the holes where the plugs ❸ were before.
7. Using the screws ❽ and washers ❾, install the display box ❿ on the nuts ⓫.
8. Insert the display ❻ with holders ❼ into the display box and lock it by screws ❹.
9. Connect the cable ❺ and display ❻.
10. Place the cable fitting ❶ and the screw ❷ into the right hole on the upper side of the machine head. Fit the cable ❺ by the cable fitting ❶.



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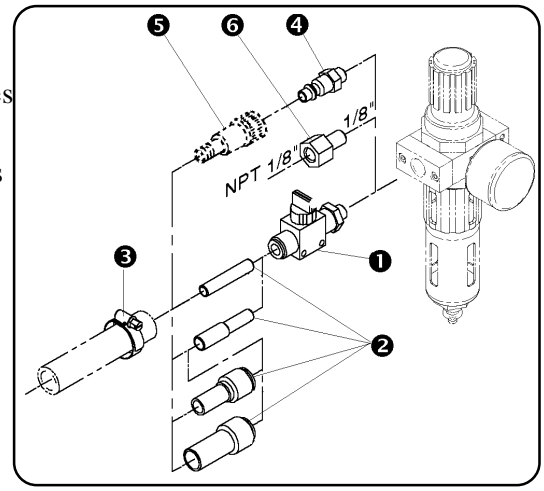
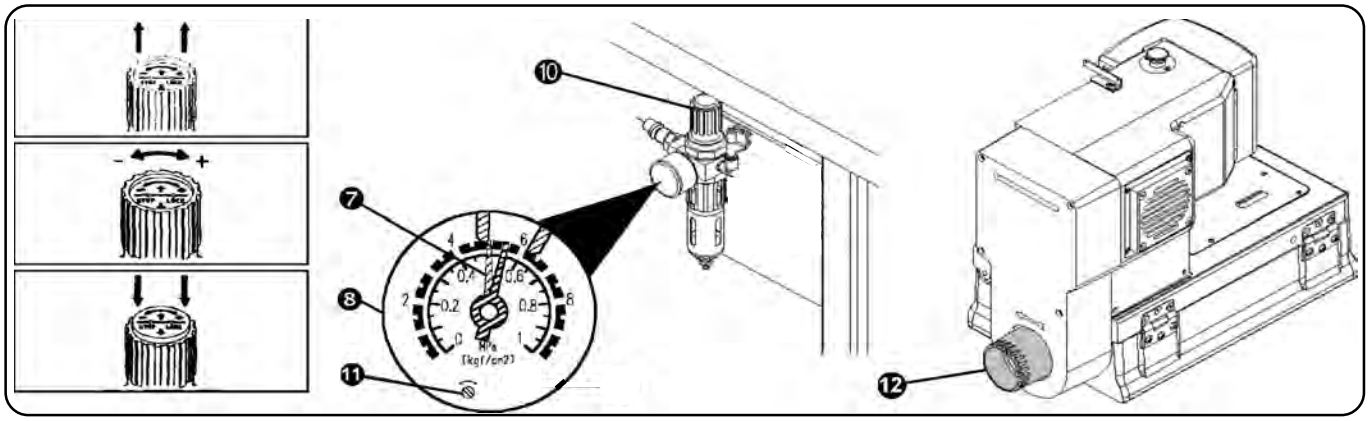
4. POWER AND AIR CONNECTION

1. The machine is equipped with a quick coupler ❹ required with connector for inner ∅ of the tube 10. The connector for inner ∅ of the tube 8 is not supplied with the machine, a customer has to order it. The manufacturer recommends to use connector ❻ for customers who requires to connect the tube with connector NPT.
If a customer needs to use a shut off valve ❶ , which allows fast releasing of the air from the circuit, he must order it.
A variety of connectors ❷ can be used separately or in combination to adapt to the available input supply hose. It depends on type of the tube which is used by a customer. These connectors are not included in the accessories. A tubing clamp ❸ is provided.



NOTE: Parts ❶, ❷, ❺, ❻ are included in Extra Parts - see 3-47.

2. After air connection check the set air pressure on the dial of the regulator. It should be in range 0.5 - 0.6 MPa. The green pointer ❼ indicates the lowest working air pressure 0.5 MPa, which is set from the manufacturer on the regulator ❽. If the air pressure is lower than 0.5 MPa after connecting the machine to the power supply „Low Pressure“ message appears on the control panel display. To adjust the working pressure, loosen the regulator cap lock ❿ and turn the regulator cap clockwise to increase the pressure. Push the regulator cap ❿ down. The LED ⓫ is for setting the minimal operation air pressure.
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 socker. The hand wheel ⓬ 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).



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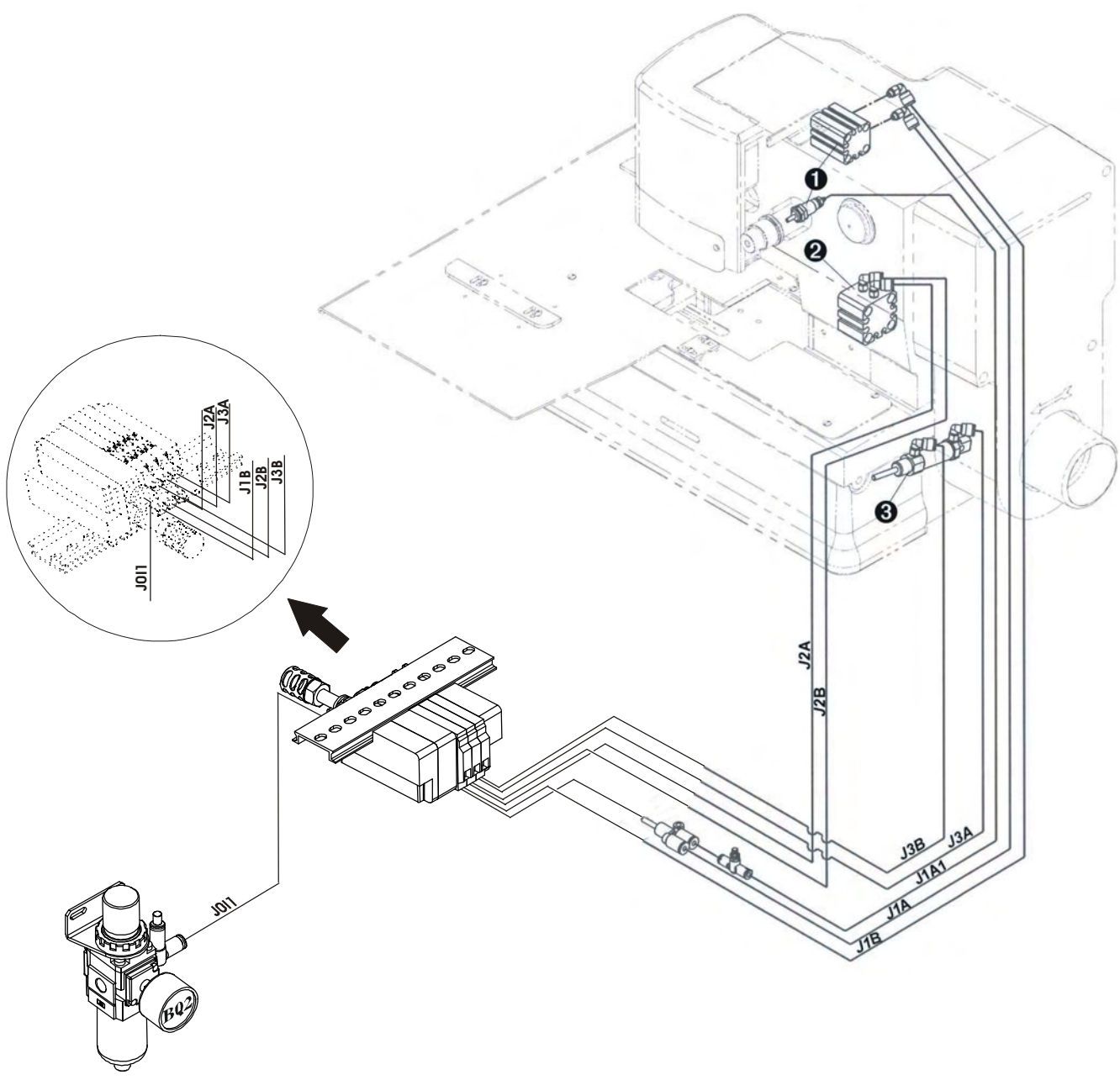
B - MACHINE ASSEMBLY

4. Head Pneumatic



❶ - thread draw-off, tension release

❷ - clamp feet

❸ - thread trim

J0I1 - air input

BQ2 - regulator with air pressure switch

Tubes identification **J X X X**

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

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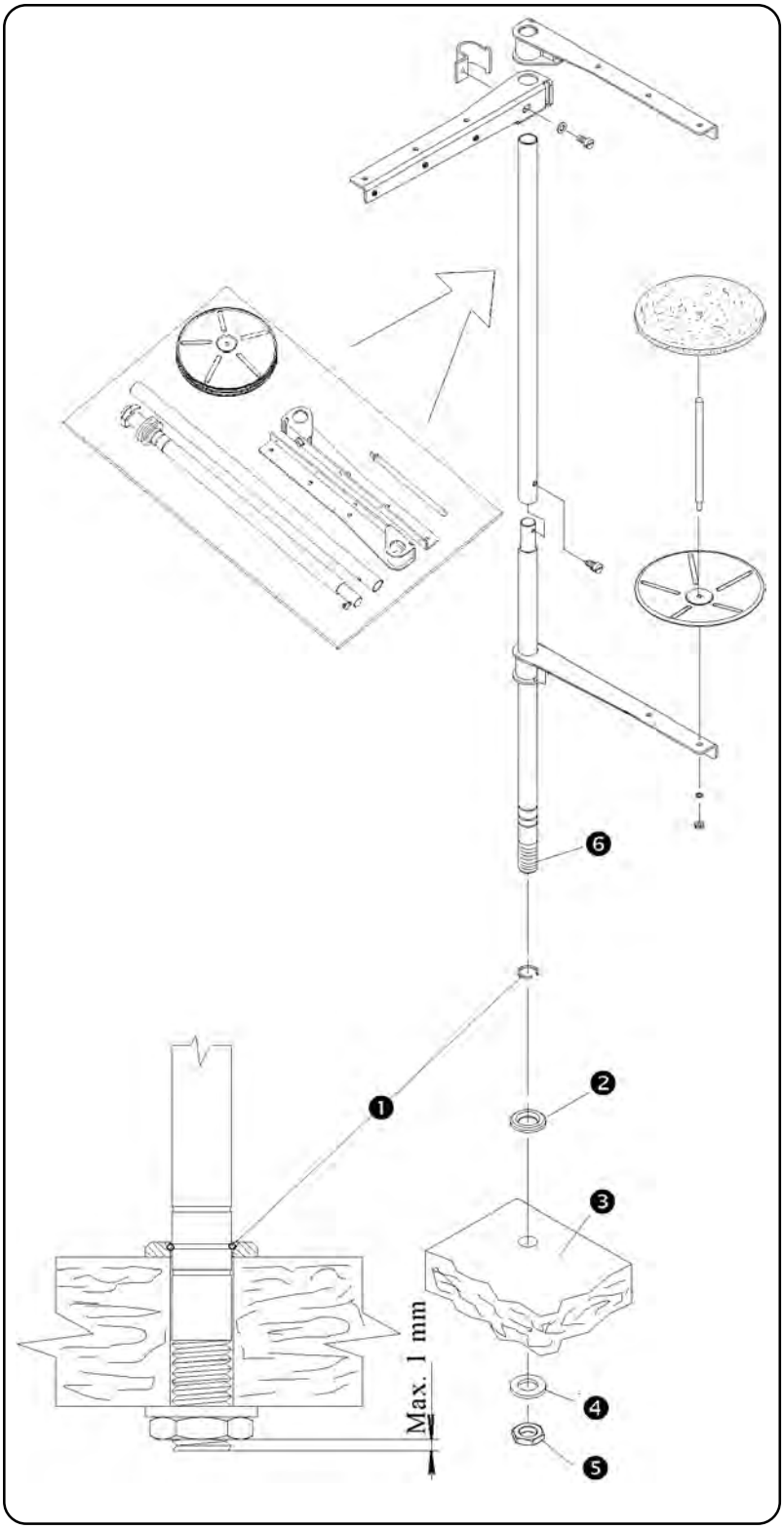
5. THREAD STAND INSTALLATION

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

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

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



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C - PROPER APPLICATION

1. POWER UP/HOME POSITION

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

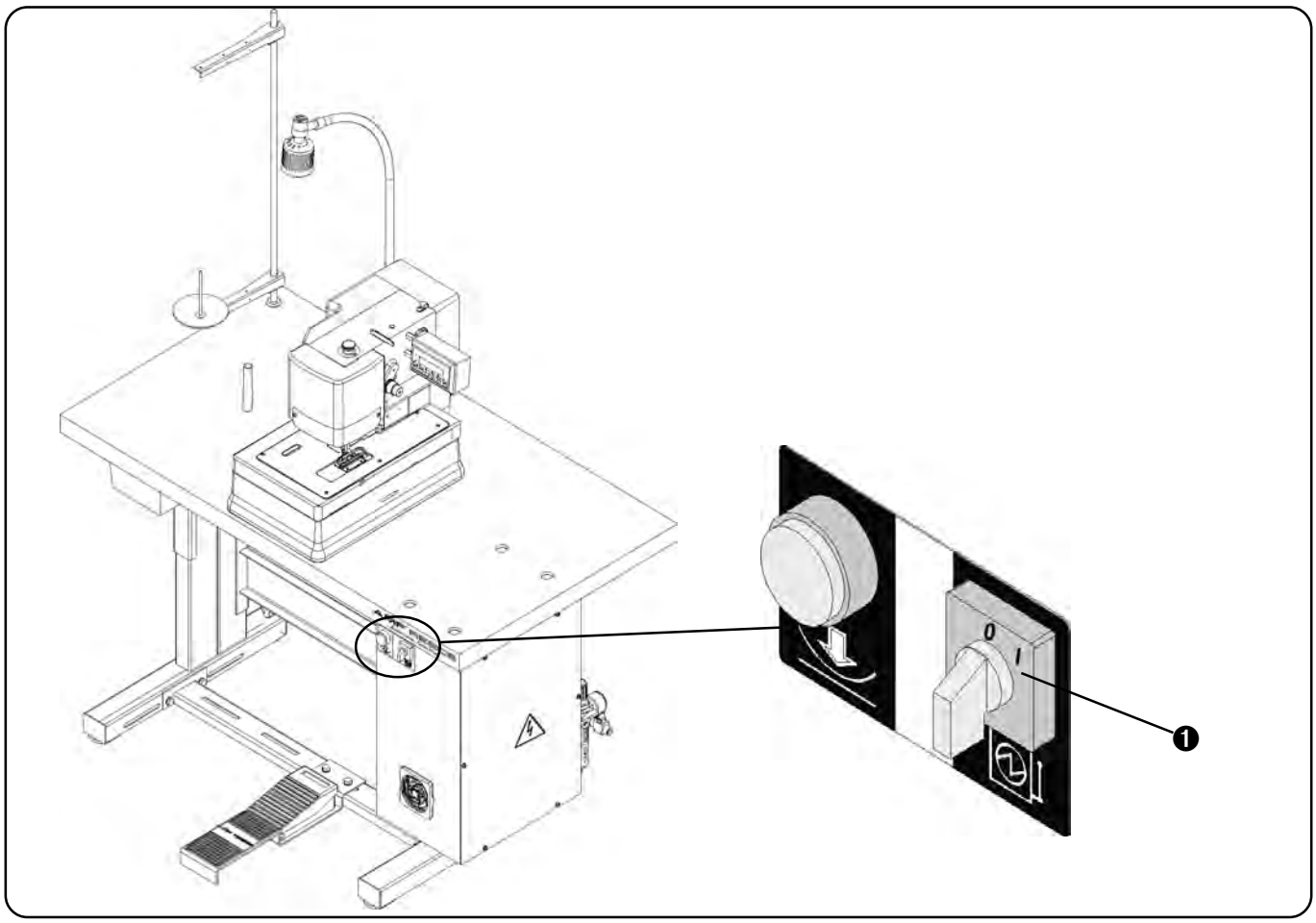
2. The display is illuminated and the screen shows the model number.

3. The machine is ready for operation when the Ready message appears on the display and the green LED lights.

The machine must be in the home position before starting to sew (to be certain, press the foot treadle and sew one buttonhole).

3. The power voltage control (Voltage monitoring relay HRN 35) is installed in the machine control system. This power voltage control cautions a machine operator if the supply voltage is not in the required range (165V - 255V) and the machine could be damaged - see section **E19**.

Note: The power voltage guard is installed in the machine only if a customer has ordered it with the machine.



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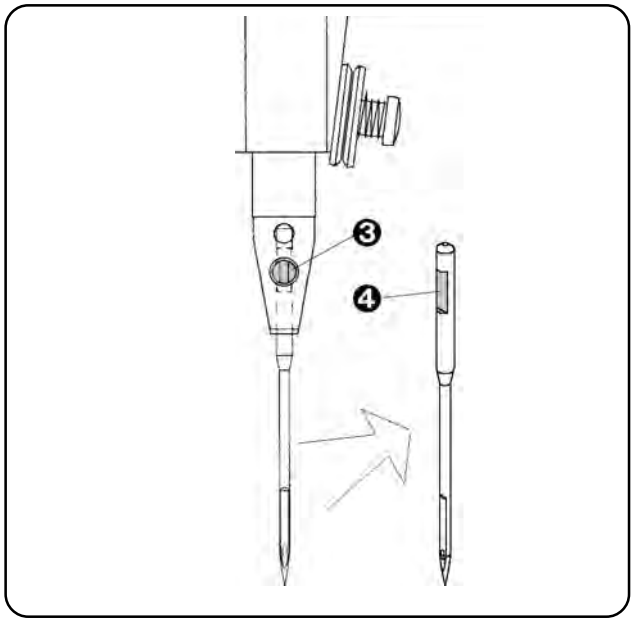
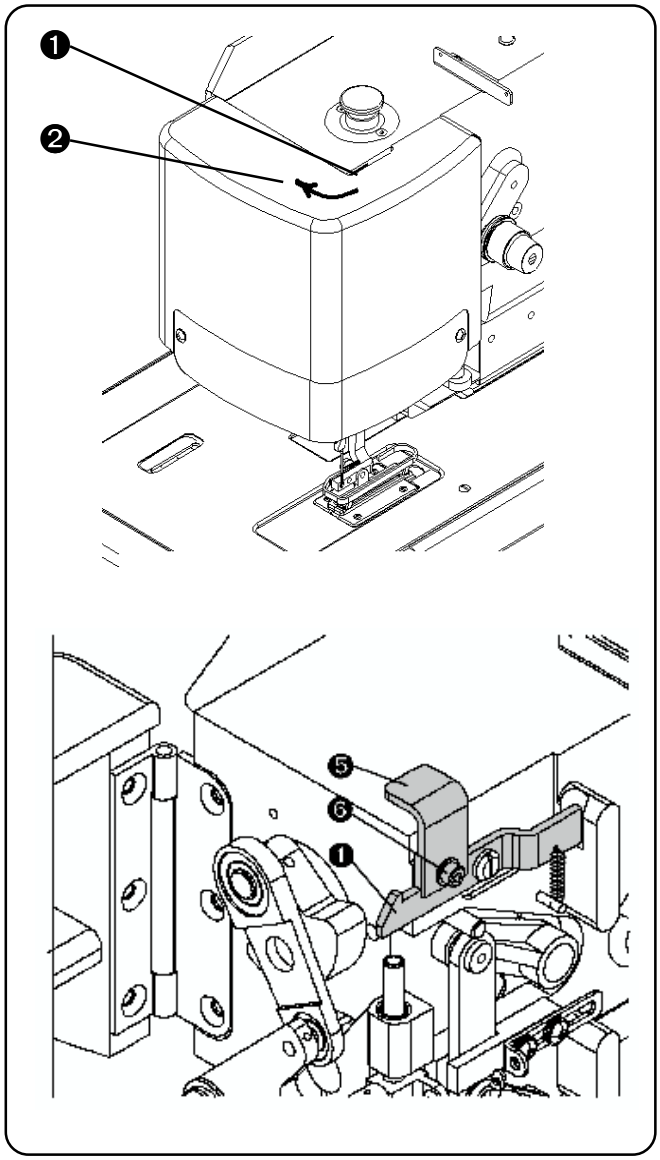
2. NEEDLE INSTALLATION

WARNING! Before performing this adjustment, switch the main machine power off to prevent accidental starting of the machine. Disconnect the air supply and dissipate any stored energy.
Use needles ordering number 02.0750.2.110 (750SC 90/14) only - see accessories.
It is also possible to use needles part number 02.0750.2.100 (750 SC 80/12) and needles part number 02.0750.2.109 (70/10) for sewing the thin materials - these needles are not included in the standard machine equipment.

1. Using the screwdriver push the latch ❶ and open the needle bar cover ❷.
   Note: The accessories contain the lever ❺ (part number 22.0213.0.000) and screw (part number 08.6000.4.005) with washer (08.6850.4.000) ❻, which is possible to fit to the latch. It allows opening of the cover without using the tool.
2. Loosen the screw ❸ and remove the needle.
3. Insert the new needle so that the long thread groove ❹ is in the rear and the spot for the clamping screw ❸ is in line. Do not install a bent or broken needle. Roll the needle on a flat surface to check for straightness.
4. Tighten the screw ❸ well.





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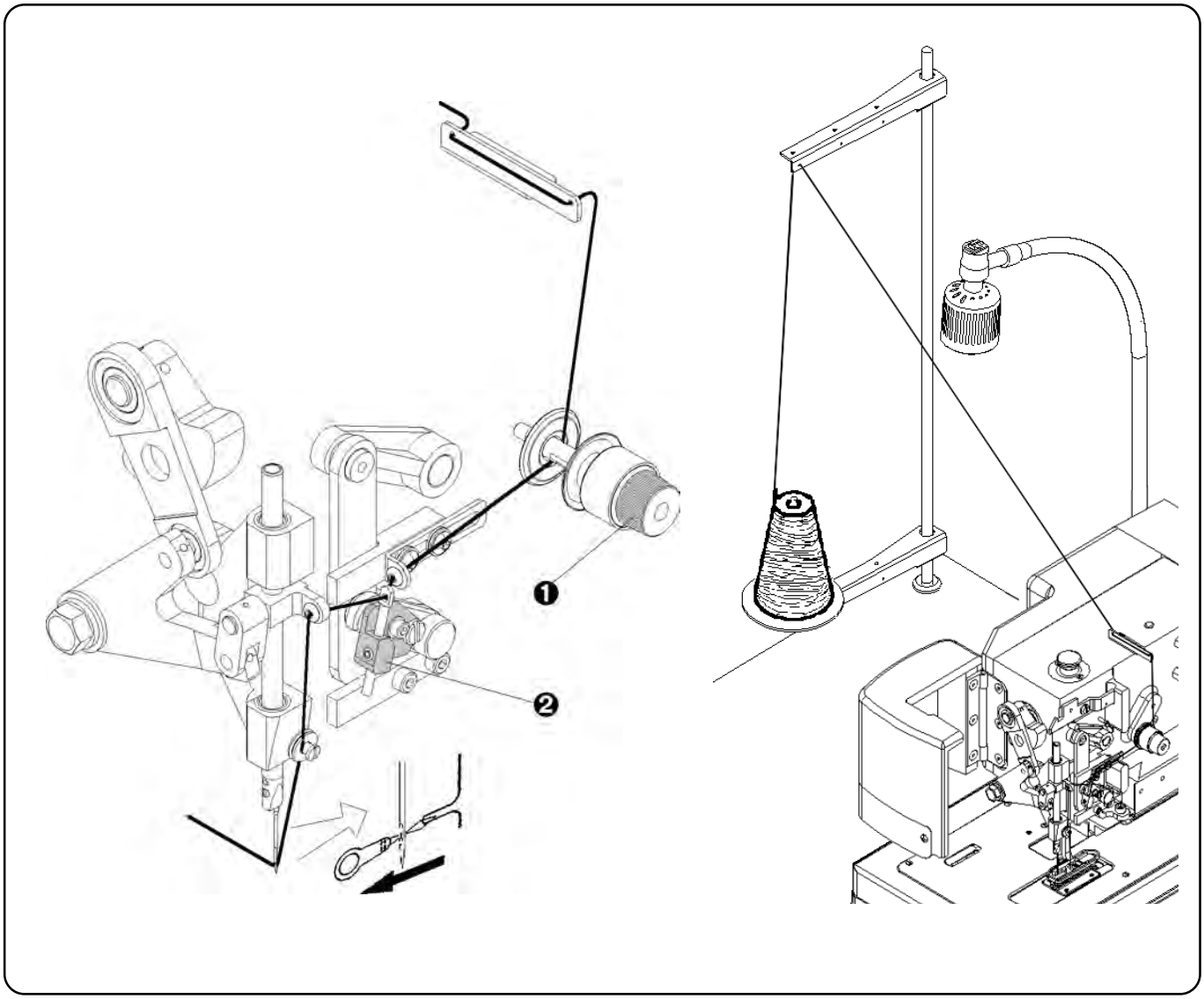
C - PROPER APPLICATION

3. THREADING

WARNING! Switch the main machine power off to prevent accidental starting of the machine. Disconnect the air supply and dissipate any stored energy.

When threading, see the pictures below. Change the thread tension by nut ❶ according to the sewing conditions. To increase the thread draw off (for example sewing on the thin fabrics) there is an arm ❷ installed on the thread draw off lever.



The appearance and quality of the sewing may be affected by one or more of the following:
- clamping of the material
- thread tension
- type of thread (size etc.)
- sewn material (thickness, density)

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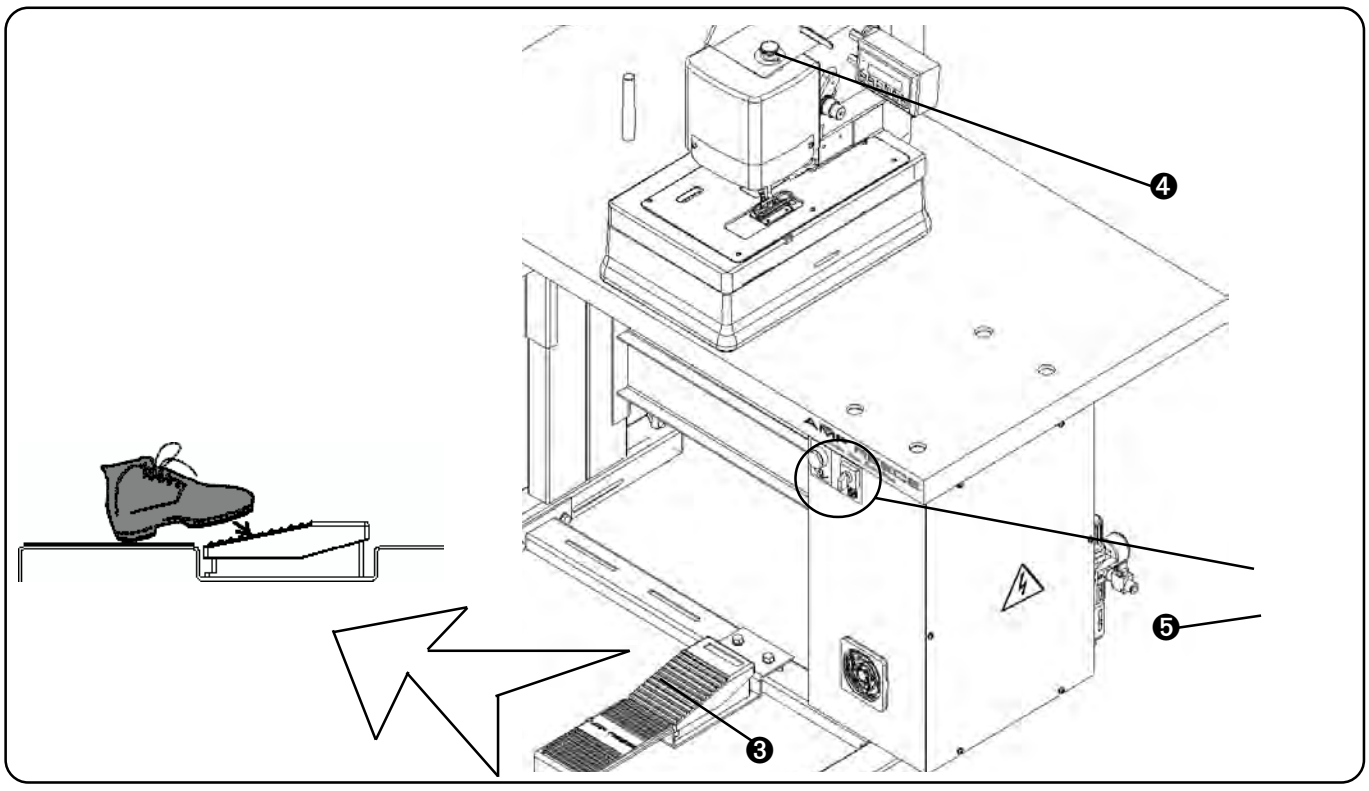
D - MACHINE CONTROLS

1. PROGRESS OF SEWING

1. Bring the machine to the home position according to the section **C1**.
2. Be certain that the machine is threaded correctly according to the section **C3** and insert the work under the clamp feet.
3. When the foot pedal ❸ is pressed to the first position, the work is clamped by the clamp feet. (Releasing the foot pedal will rise the clamp feet).

   Note: It is possible to set the control so that both the clamping and the sew start are simultaneous, consult the programming section for this information.
4. When the foot pedal is pressed to its second position, the sewing is started. After finishing the sewing and trimming the thread, the machine returns to the home position and the clamp feet rise.
5. When the clamp feet are up, it is possible to move the sewn work for next sewing.
6. Machine can be stopped in any place of the cycle by pressing the Emergency Stop button ❹ which is placed on the machine head. After releasing the Emergency Stop button, pressing the F1 NEXT button and pressing the foot pedal, the machine finishes the sewing.
7. If the foot pedal ❸ is pressed before finishing the sewing, the clamp feet will not rise and the machine will sew two cycles instead of one - this is possible to set in program.
8. When the work is done, switch the machine off by the ❺ button.



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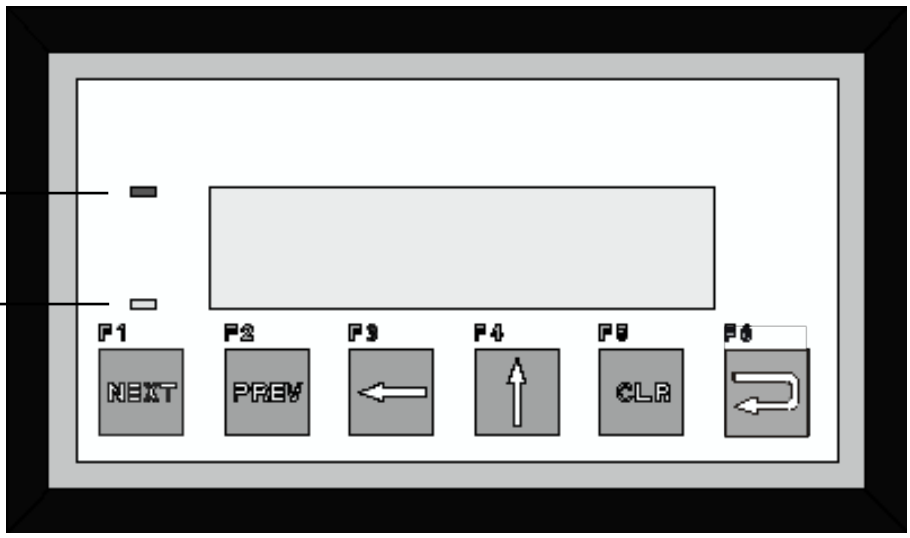
D - MACHINE CONTROLS

2. OPERATOR CONTROL PANEL PUSH BUTTONS AND SWITCHES

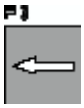
Red LED - activated when the Emergency Stop button is activated

Green LED - activated when the machine is Ready for sewing

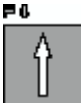


Next - scrolling down key

Previous - scrolling up key



Key for setting the parameter value



Key for setting the parameter value

Clear Key - return to the main screen, return to the last changed screen or last viewed screen

Enter key

Emergency Stop Button

Clamps Button

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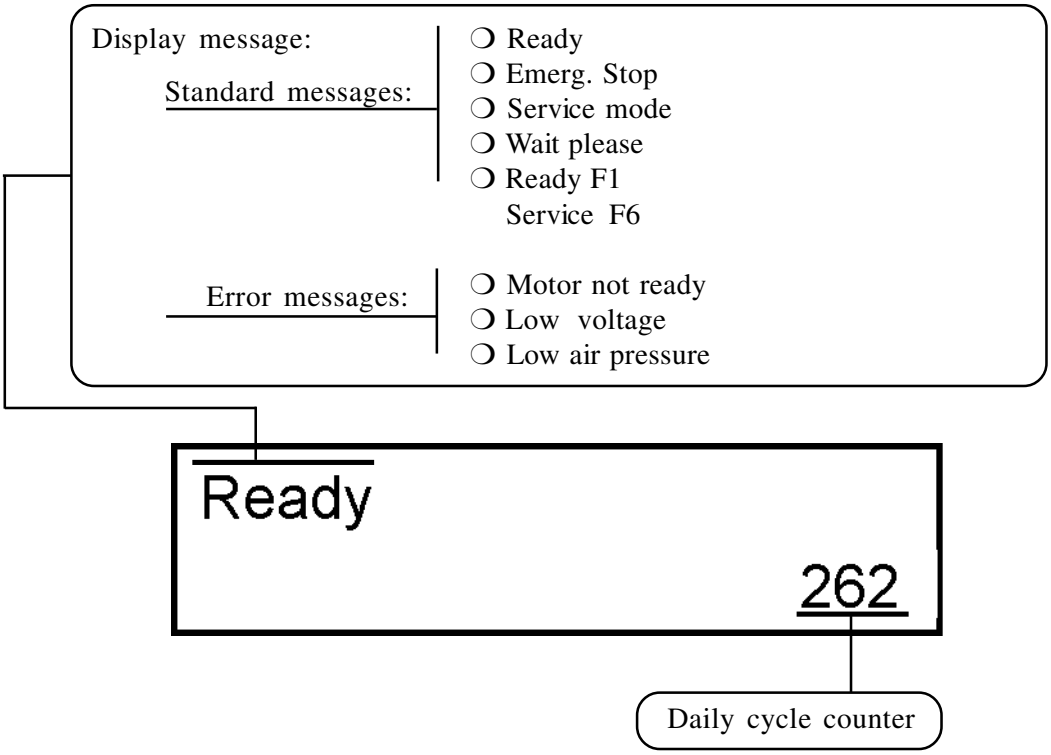
3. CONTROL PANEL INFORMATION



WARNING! Keep your hands away from the needle area during any adjustment. Machine start is controlled by the foot pedal. Keep your foot off of the foot pedal.
Error messages on the display are mentioned in ***Troubleshooting*** section.

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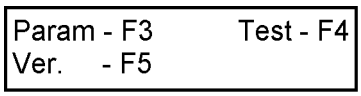
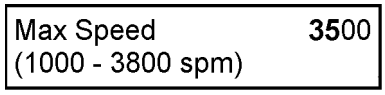
D - MACHINE CONTROLS

4. THE PROGRAMMING MENU

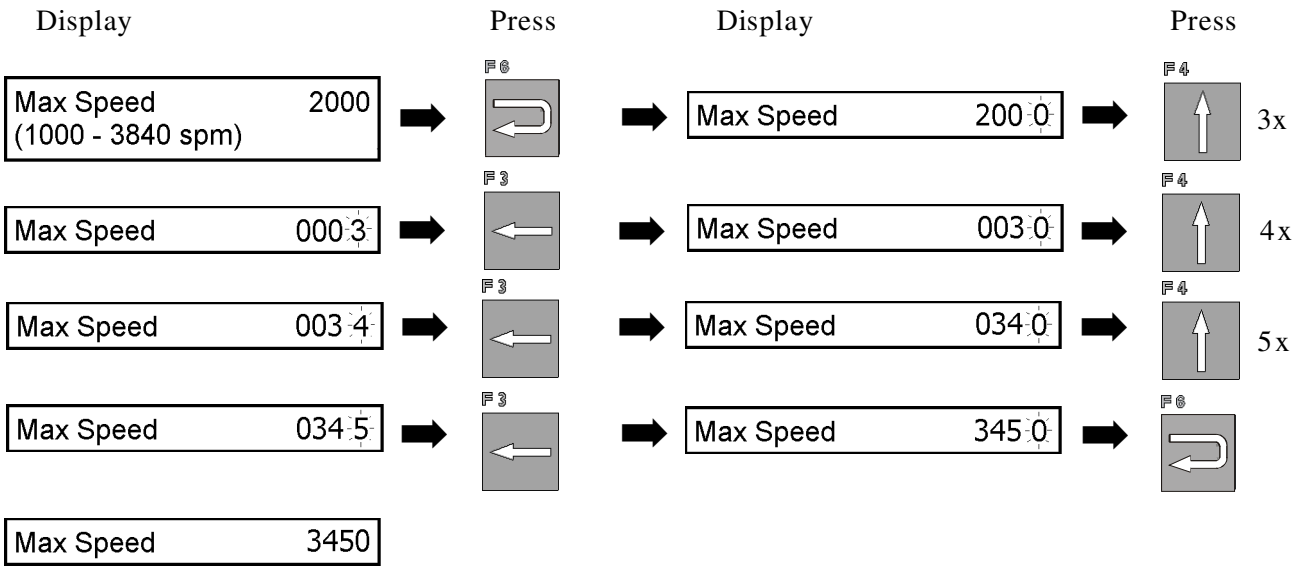
Main screen 

- press F1 NEXT, 

appears on the display. To enter the programming menu, press F3  . 

appears on the display. The first line of the display shows the parameter, which is set, and the second line indicates the range of setting. To scroll the lines down,press F1 NEXT key, to scroll the lines up, press F2 PREV key. To change the value of any parameter, press F6  key. Press F4  key to set the first digit. Press F3  key. The second digit starts flashing on the display, to set the value, press F4  key. Press F3  key. The third digit starts flashing on the display. Repeat this setting until all ditigs of the parameter are set. To confirm the set value of a parameter, press F6  key.

Example: To change the sewing speed from **2000** to **3450**



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D - MACHINE CONTROLS

1. **Max speed** - maximal speed. Range ***1000-3800*** spm.
2. **Slow stitch** - selecting the number of stitches in slow start. Range ***0-3***.
3. **Slow speed** - setting the slow start speed at the beginning of the sewing cycle. Range ***500-1000*** spm.
4. **Ndl Up pos** - correction of the needle bar upper position. Range ***0 - 600*** imp.
5. **D off delay** - draw-off delay. It is possible to set it in range ***60-150*** ms.
6. **D off tm** - timing of the knife/draw-off activation. It is possible to set it in range ***30-200*** ms.
7. **Trim delay** - setting the trim delay. Ti is possible to set it in range ***0 - 200*** ms.
8. **Trim time** - setting the trim timing activation. It is possible to set in range ***30 - 60*** ms.
9. **Clamp delay** - setting the clamp delay. It is possible to set in range ***0-100*** ms.
10. **Cycle delay** - setting the delay between the sewing cycles. Cycling parameter must be activated. It is possible to set it in range ***500-2500*** ms.
11. **Cycling** - setting the machine cycling. It is possible to set ***Yes / No***.
12. **Pedal** - setting the foot pedal position. Possible setting ***1 step / 2 steps***.
13. **Double Sew** - setting the number of buttonhole repeat. It is possible to set ***1, 2 = 1 or 2, 3 = 2***.
14. **L Count** - life counter
15. **Count Rst** - counter restart

To return to the main screen, press 

key.

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D - MACHINE CONTROLS

5. TESTS

WARNING! ONLY PROFESSIONAL SERVICE TECHNICIANS SHOULD PERFORM THESE TESTS!

The main screen appears on the display. Press F1 NEXT, 

appears on the display. To enter the tests menu, press F4  key. The follwing screen appears on the display .

To scroll this menu down, press F1 NEXT key, to scroll this menu up, press F2 PREV key.

NOTE: Before performing the tests, press and release the Emergency Stop button to disconnect the motor.

INPUTS TESTS

1. **Low air pressure**- ***Low air pressure off*** appears on the display. If the air pressure is lower than 0,5 MPa, the message ***Low air pressure on*** appears on the display. The switch BQ 2 is tested by this parameter.

2. **Home senzor** - the end position sensor. ***Home sensor off*** appears on the display. Activate the sensor using a metal tool. ***Home sensor on*** appears on the display. Switch BQ1 is tested by this parameter.

3. **Voltage rly** - ***Voltage rly off*** appears on the display. If the power supply drops below 185 V, the ***Voltage rly on*** appears on the display. Only in case the relay VC 1 in installed.

4. **Pedal 1 step** - ***Pedal 1 step off*** appears on the display. When the foot pedal is pressed to its first position, the ***Pedal 1 step on*** appears on the display. Switch SB4 is tested by this parameter.

5. **Pedal 2 step** - ***Pedal 2 step off*** appears on the display. When the foot pedal is pressed to its second position, the ***Pedal 2 step on*** appears on the display. Switch SB5 is tested by this parameter.

6. **Em Stop** - after the Emergency Stop button is pressed, the ***Em Stop off*** appears on the display. After the Emergency Stop button is released, the ***Em Stop on*** appears on the display. Switch SA1 is tested by this parameter.

7. **Clamp Button** - ***Clamps button off*** appears on the display. When the clamp Up/Down button is pressed the ***Clamp button on*** appears on the display. Switch SB3 is tested by this parameter.

8. **Motor ready** - ***Motor ready off*** appears on the display (motor is off).
Motor ready on appears on the display (motor is on) servodrive U2 is tested B4 this parameter.

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D - MACHINE CONTROLS

OUTPUTS

The following parameters can be tested only in case the air supply is connected to the machine. After pressing F1 NEXT key, Out put Clamps Off appears on tehe display. To selected the line press F6 key used for change.

1. **Clamps** - ***Clamps off*** appears on the display. When the F4 key is pressed, the clamp feets are activated and ***clamps on*** apeears on display**,** to confirm the value press the F6 key and clamp feets are closed.

   Lifting up the clamp feets:

   press the F6 key, to change the valve press the F4 key and ***clamp off*** appears on the display. To confirm the set values press the F6 key and the clamp feets are lifted up.

   The valve YV2 is tested by this parameter.

2. **D off** - ***D off Off*** appears on the display. After pressing F6 the key ***Off*** is blinking and by pressing the F4 key tension is activated and ***D off on*** appears on the display. To confirm the set valve press this key. The valve YV1 is tested by this parameter.

3. **Trim** - ***Trim off*** appears on the display. After pressing the F4 key the thread trim is activated and ***trim on*** appears on the display, by pressing the F6 button the set value is confirmed. The valve YV3 is tested by this parameter.

To return in tests press the F2 PREV key, to finish the tests press the F5 CLR key.

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D - MACHINE CONTROL

6. PROGRAM VERSION

Home screen appears on the display. Press F1 NEXT, Back - F2 Param - F3 Test - F4 Ver. - F5 appears on the display. To find out loaded program version into the machine. press the F5 CLR key.

PLC:
NT2S:
appears on the display. Press again F5 CLR key to return back to main screen.

7. PARAMETER CHECKLIST

PARAMETER	RANGE	SETTING
MAX SPEED	*1000-3800 szm*	3500
SLOW STITCH	*0-3*	0
SLOW SPEED	*500-1000 szm*	1000
NDL UP POS	*0-600 imp*	300 - 400
D OFF DELAY	*60-150ms*	120
D OFF TIME	*30-200 ms*	100
TRIM DELAY	*0-200 ms*	150
TRIM TIME	*30-60 ms*	50
CLAMP DELAY	*0-100 ms*	50
CYCLE DELAY	*500-2500 ms*	500
CYCLING	*yes/no*	No
PEDAL	*1 step / 2 steps*	2 step
DOUBLE SEW	*1, 2=1 or 2, 3 = 2*	1

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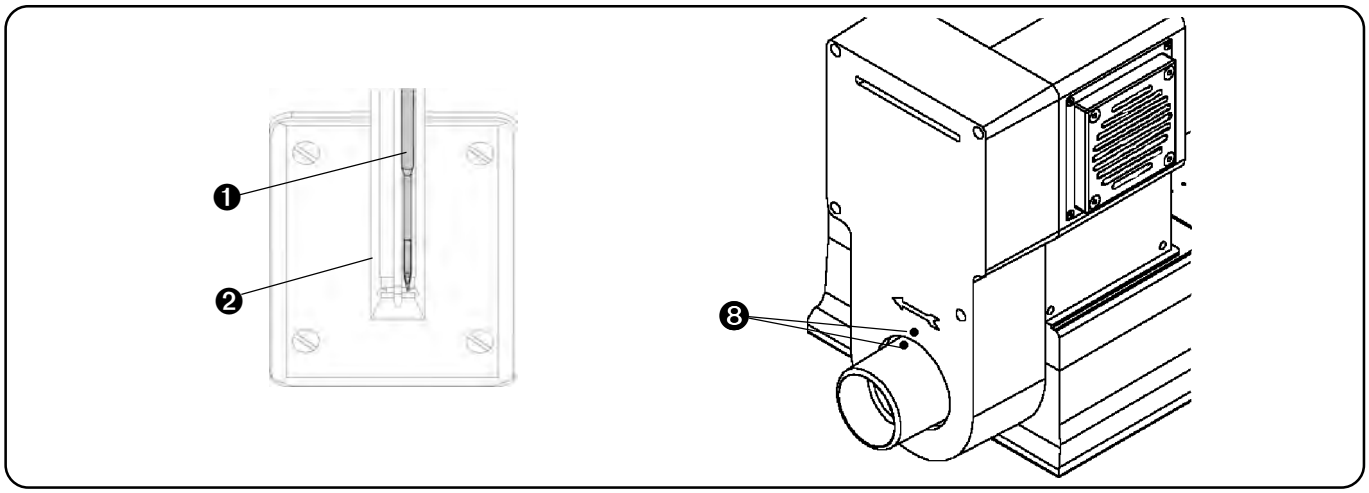
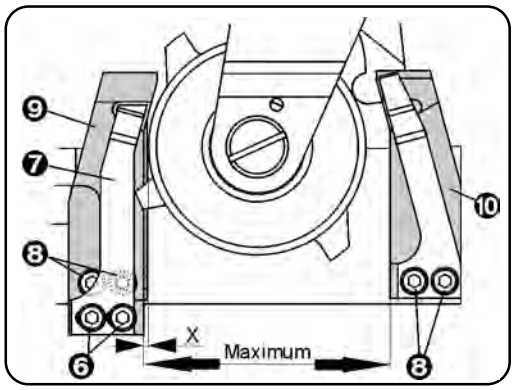
E - MACHINE ADJUSTMENTS

1. MACHINE HOME POSITION

The needle bar is in the upper position. The needle ❶ descends to the right side of the throat plate slot ❷ during the first stitch. The marks ❽ on the handwheel and cover casing are aligned.

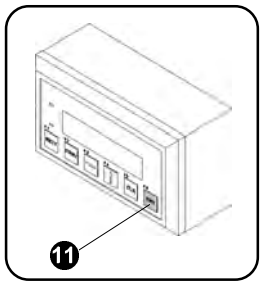


2. THE MAIN CAM ADJUSTMENT



1. Bring the machine to the home position.¨
2. Tilt the machine onto the rest pin and view the main cam assembly. The clereance *„x“* has to be minimal between the main cam shifting mechanism if the mechnisms hit into each other, loose the screws ❻ and take out the spring ❼, loose the screws ❽ and arms ❾ ❿ push aside to maximum in the direction away from the main cam after adjusting, check the minimal clereance *„x“*.

3. THE PRINCIPLES FOR THE MACHINE ADJUSTMENT



1. Before making mechanical adjustments, the machine should be switched to the Service mode. Press the Emergency Stop button on the machine head, then release it. Then press the F6 ❿❶ key. The Service Mode message appears on the display.

CAUTION! It is not possible to start sewing by pressing the foot pedal when working in Service Mode!

2. Press F1 NEXT key to return to the main screen.

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E - MACHINE ADJUSTMENTS

4. NEEDLE BAR

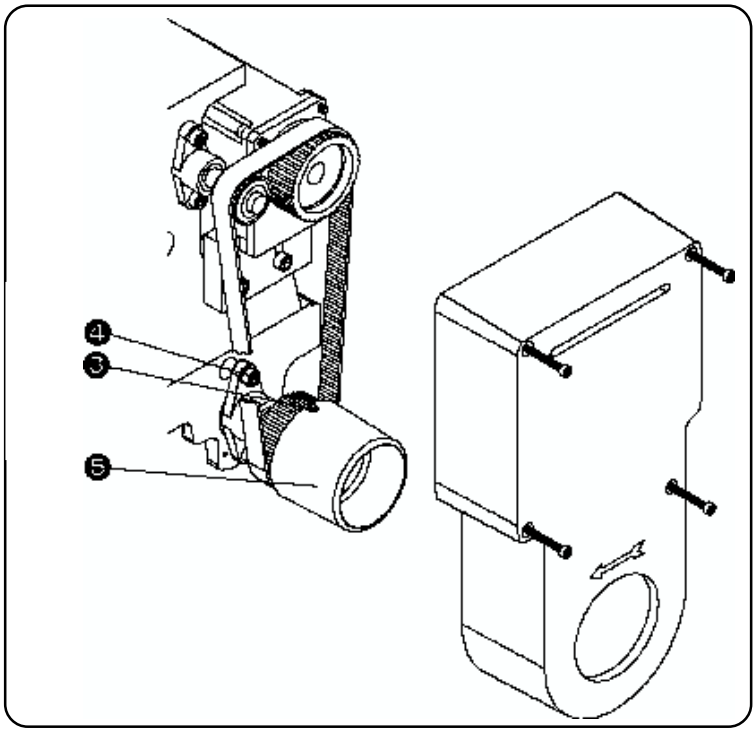
1. ***Needle bar crank position***

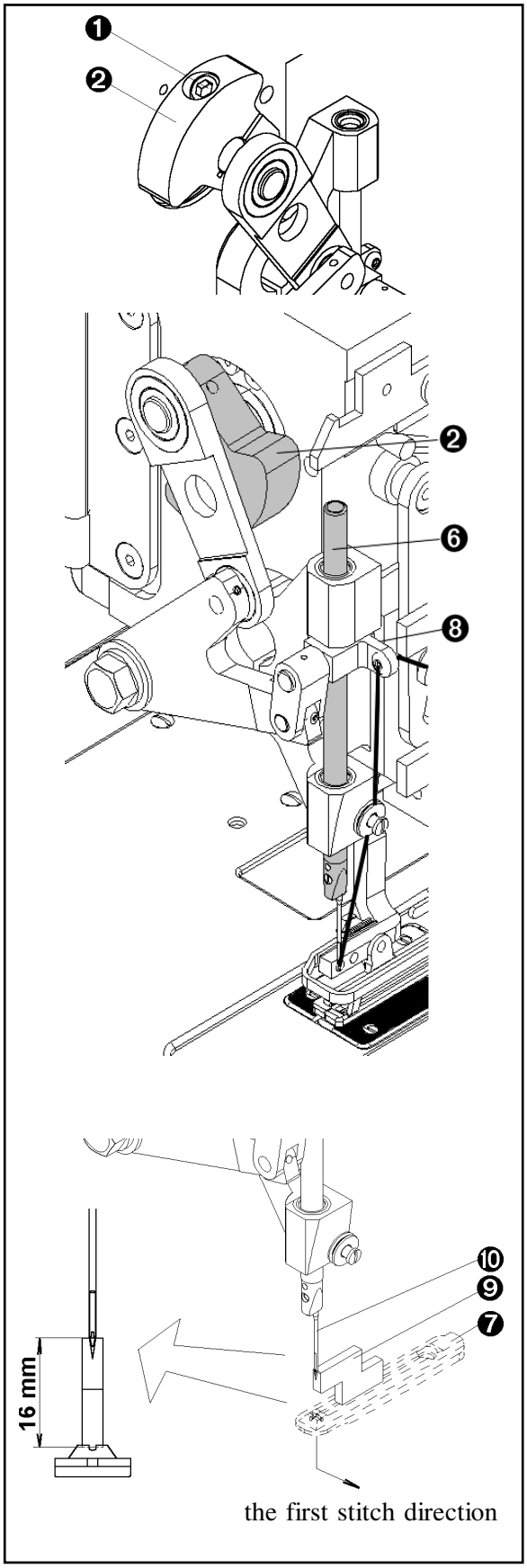
Turn the handwheel ❺ and loosen the screw ❶ in the needle bar crank ❷. Turn the handwheel until the needle bar reaches the upper position. Pulley screw ❸ on the main shaft should be in the same line with screw ❹. Tighten the screw ❶.

NOTE: The needle bar should be in the top dead center position when the screw ❸ is at 12 o'clock. To check, turn the handwheel clockwise and counter clockwise. The needle bar must move downward in either direction. The needle ❿ makes its first stroke into the right side of the throat plate.

2. ***The needle bar height adjustment***

Adjust the needle bar ❻ height to 16 mm (5/8") from the surface of the throat plate ❼ to the lower edge of the needle eye. Use height gauge ❾.
Loosen the set screw ❽ and move the needle bar up





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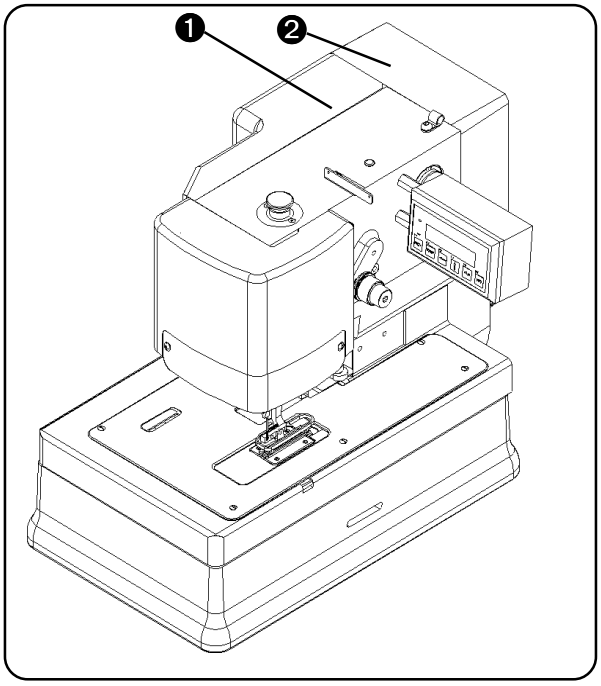
5. BITE



Before the bite adjustment, remove the pulley cover ❷ and the head cover ❶.

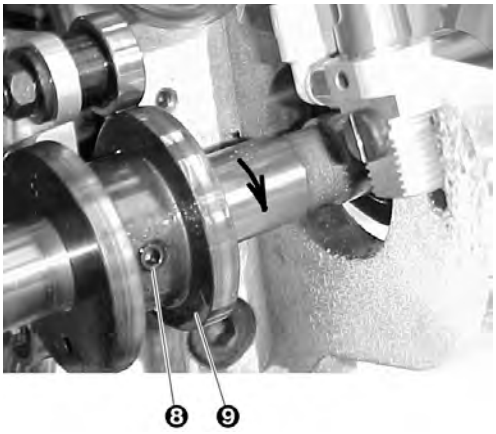
1. ***Bite cam***

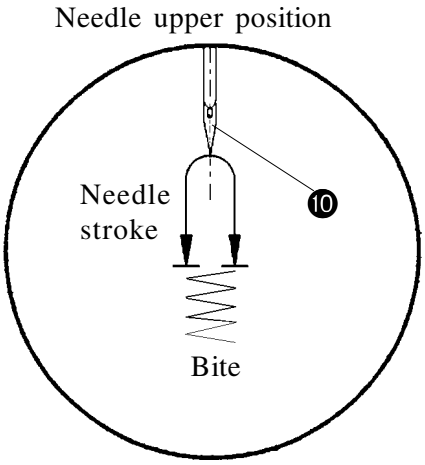
   a) Check if the machine is in the home position.

   b) Tilt the machine onto the rest pin ❼ . If the adjustment is correct, the second cam locking screw ❽ (counter clockwise of the bite cam ❾) must be roughly perpendicular to the bedplate casting.

   c) Adjust the position of the bite cam so that all of the needle bite motion occurs equally with the needle out of the work piece on the up and down stroke.

   Note: There must be no bite movement before the needle ❿ comes out of the work nor after it has descended into the work - see illustration. Tighten both locking screws ❽ securely.





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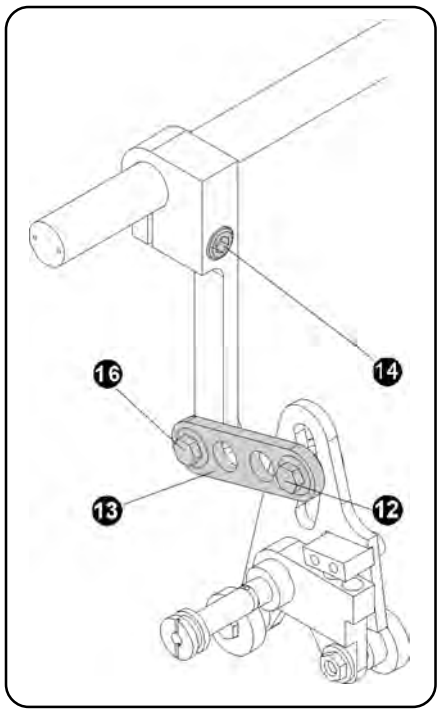
E - MACHINE ADJUSTMENTS

2. ***Bite width adjustment***

To adjust the bite width, first remove the head cover for access to adjustments.

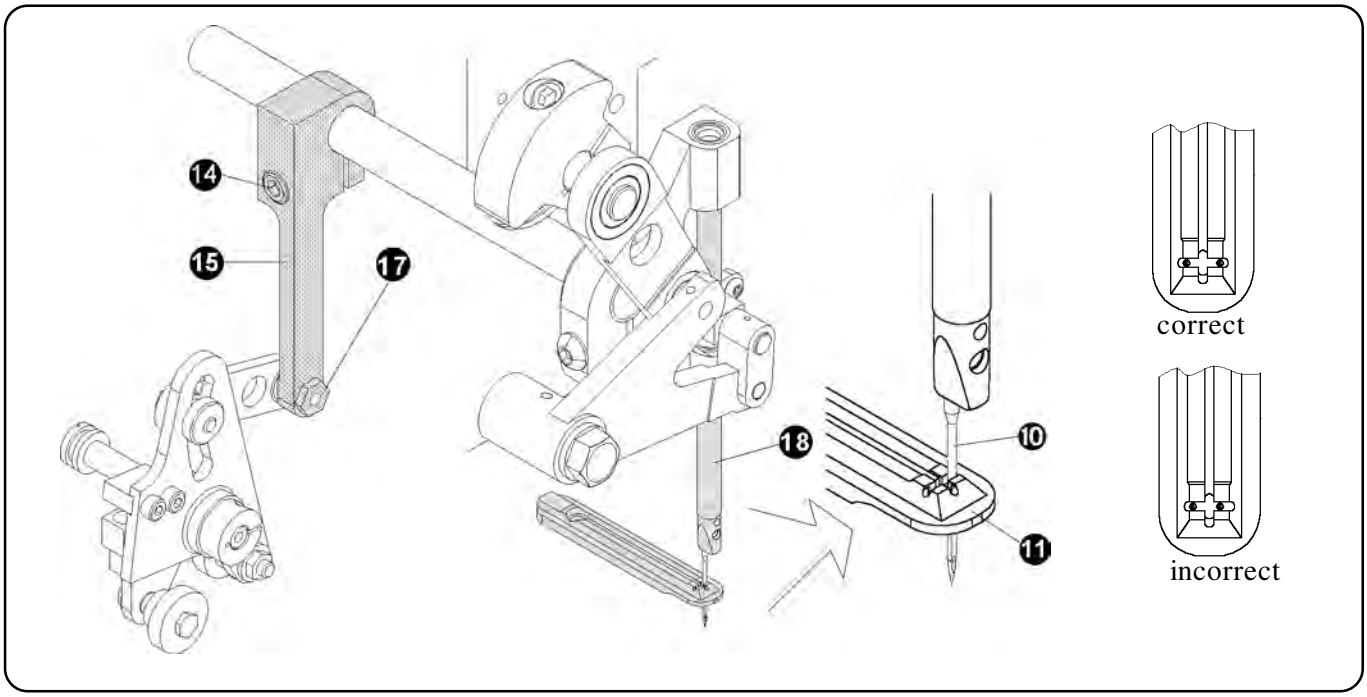
The S-4000 is fitted with a regular bite throat plate ⓫, that allows a bite range of 1.5 mm (1/16“) to 2.3 mm (3/31“).



a) loosen the adjusting screw ⓬
b) to increase the bite width, raise the bite lever ⓭
c) to decrease the bite width, lower the bite lever ⓭
d) tighten the adjusting screw ⓬

3. ***Centering the bite over the throat plate***

a) with the machine in the home position - loosen the clamping screw ⓮ on the bite lever ⓯
b) for rough adjustment, using the handwheel, rotate the needle bar to its full down position and move the needle to the right side of the throat plate slot ⓫. Turn the hand wheel to the second needle ⓾ down stroke and compare the needle position in the left side of the throat plate. Continue adjusting until the needle is roughly of equal distance from the right and left sides.
c) tighten the clamping screw ⓮
d) For finite adjustment loosen the screw ⓰ and rotate the eccentric nut ⓱. Tighten the locking screw ⓰.



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6. FEEDING

1. Tilt the sewing head onto the rest pin.
2. Bevel Gear Adjustments
   Manually turn the handwheel counter clockwise until the drive spring in the main cam engages with a indent . The feeding lever is on the highest point of the feeding cam. Remove the bevel gear cover and loosen the screws ❶, ❷ on the horizontal bevel gears and screw ❸ on the stop.
3. Loosen two adjusting screws ❹ in the right collar ❺. Adjust the dimension 11mm from the end of the feed shaft ❻ to the collar ❼ by pressing the feed shaft ❻ against the right collar ❺. Tighten the adjusting screws ❹ in the right collar ❺. The tension of the left collar on the shaft is set.
4. Engage the right bevel gear ❽ with the vertical bevel gear ❾ and lock its position by the set screws ❶.
5. Manually turn the handwheel counterclockwise until the drive spring engages with right shifter block pocket . The feeding lever is on the lowest point of the feeding cam. Slide the right gear ❿ into engagement with the vertical gear ❾. Tighten the set screws ❷ securely. Move the crank drive to the left bevel gear ❿ and lock it by screw ❸.

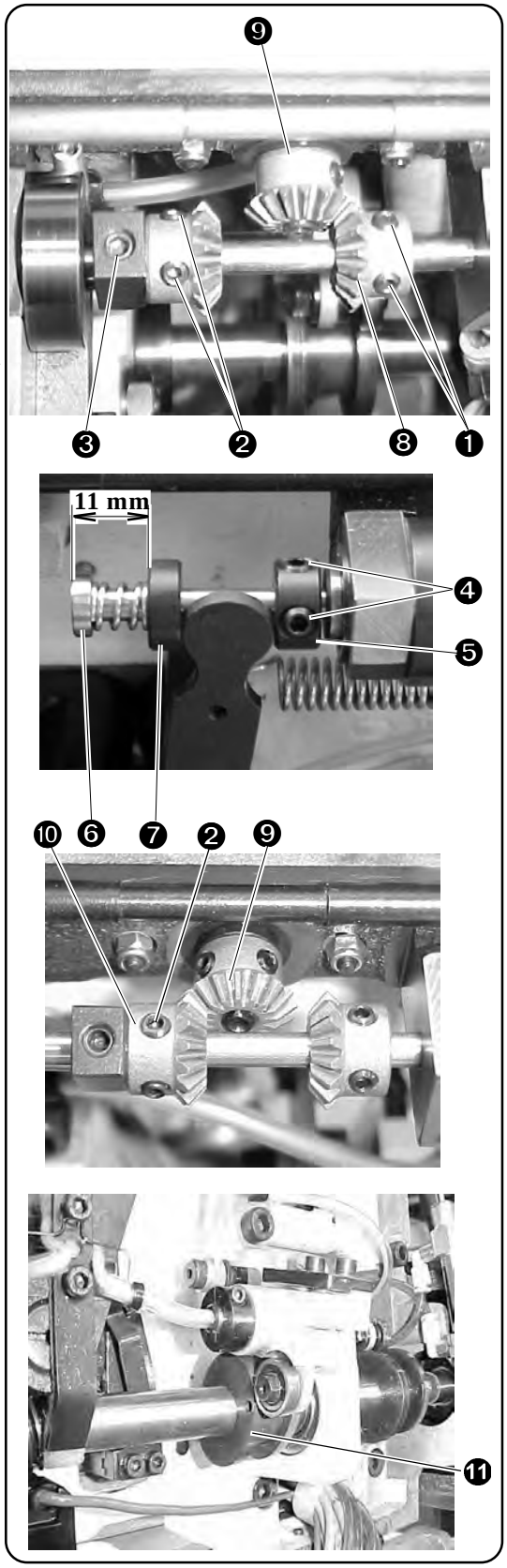
The bevel gear adjustment is done, by manually turning the handwheel finish the sewing cycle and bring the machine to the home position. Reinstall the bevel gear cover.

6. Clamp plate movement occurs only when the needle point has risen above the work piece and must be completed before the needle descends into the work.

7. For adjustment use a piece of paper to see the needle punctures.

   If feeding occurs while the needle is in the work, engage the drive spring into a indent.

   Loosen the screws ⓫ on the feed cam and adjust its position as needed so that all feed motion occurs with the needle out of the work. Retighten the feed cam set screws.



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E - MACHINE ADJUSTMENTS

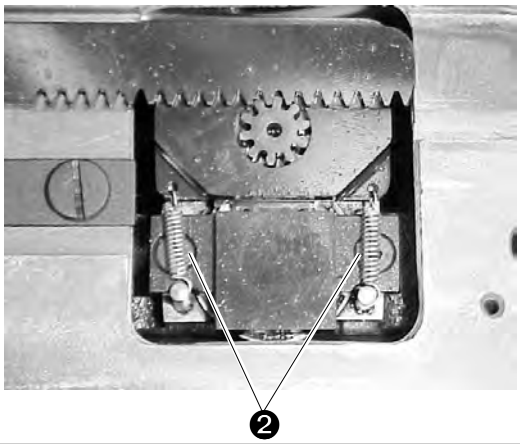
7. SLIP CLUTCH

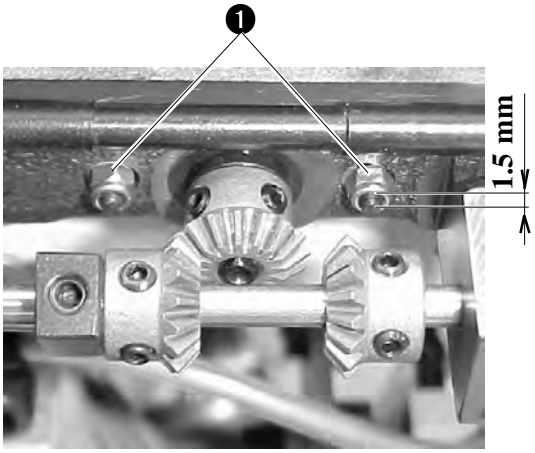
The slip clutch pressure is factory set and under normal conditions will not need adjusting. The correct clutch torque setting is 0.43 Nm (60 to 65 inch ounces).

Hold the nut ❶ and tighten the adjusting screws ❷ with a torque screwdriver. Apply an equal amount of pressure to both sides of the clutch.

NOTE: If a torque screwdriver is not available, tighten the lock nuts so that the screws ❷ extend through the nuts ❶ 1.5 mm.

CAUTION: Too little torque will produce an improper material feed.
Too much torque may damage parts (bevel gears).





8. STITCH DENSITY

Adjust the feed connecting link position ❶ in the cam follower slot ❷ to obtain the correct stitch density.

To increase the density 1:

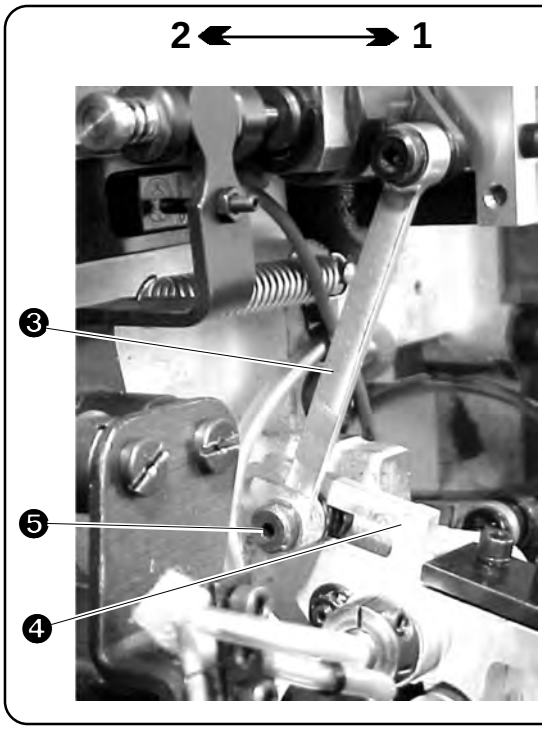
a) Loosen the hex socket screw ❸ and lower the link ❶ away from the bedplate to increase density.

b) Tighten the hex socket screw ❸.
Maximum density is 14 stitches per 10 mm.

To decrease the density 2:

a) Loosen the hex socket screw ❸ and raise the link ❶ toward the bedplate to decrease density.

b) Tighten the hex socket screw ❸.
Minimum density is 3 stitches per 10 mm.



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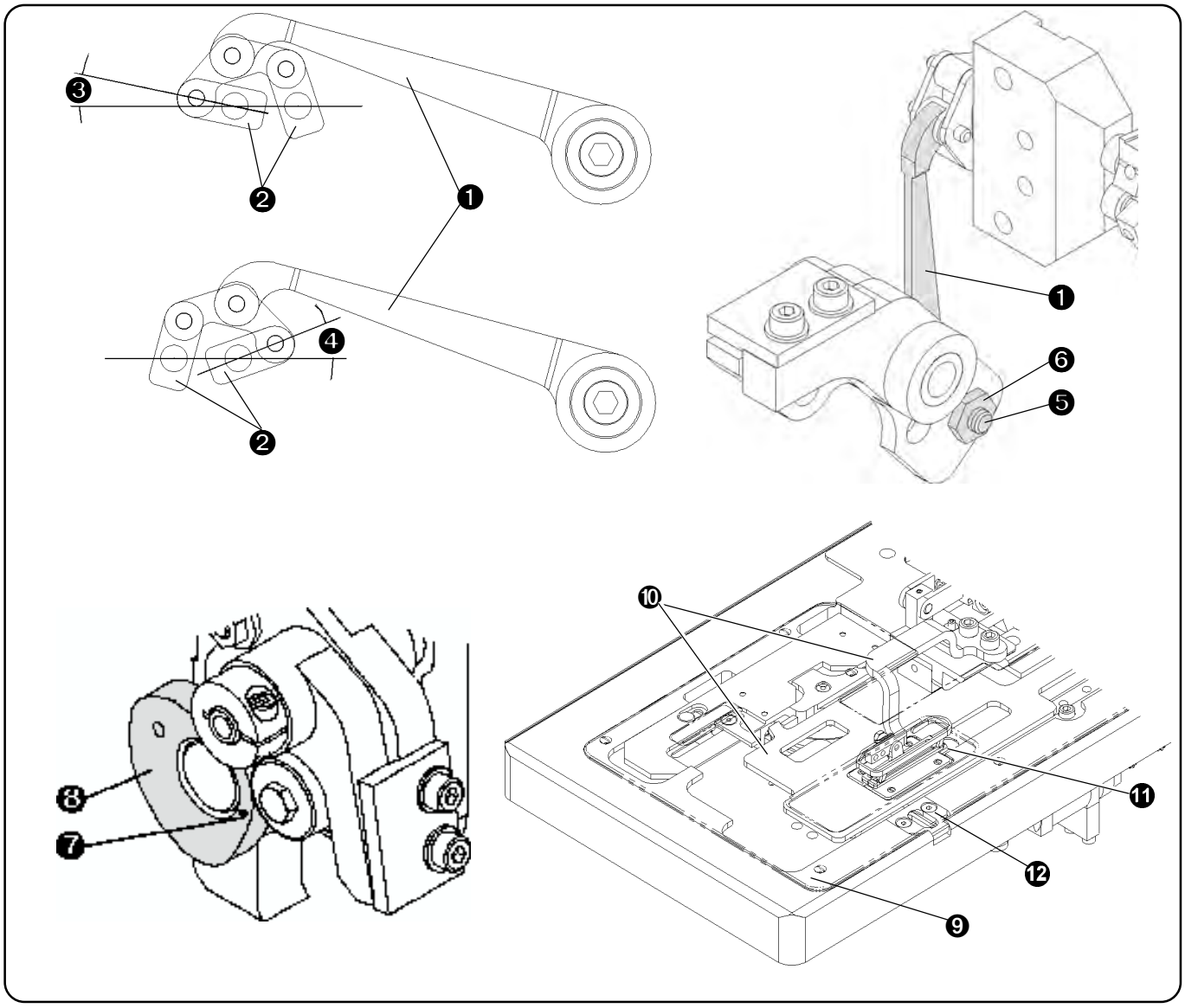
9. LOOPER ADJUSTMENTS

Before making this adjustment, follow the points described below:

- Turn the handwheel and observe the position of the connecting link ❶ at both ends of the looper link arm travel ❷. Angle A ❸ must equal angle B ❹.
- If incorrect - loosen the hex mounting screw ❺ and rotate the eccentric adjusting nut ❻ as needed. Tighten the hex mounting screw ❺.
- Turn the handwheel and bring the needle bar to the upper position.
- Check if the needle is straight.
- Tilt the machine head onto the rest pin and check if the mark ❼ on the looper cam ❽ is on the left side. If the mark is on the right side, remove it and install it correctly. Return the sewing head back.
- Remove the cover plate ❾, disconnect the air tubes from the clamp feet cylinder and remove the clamping assemby ❿ from the machine, remove the throat plate ⓫, trimming hook cover ⓬ and trimming hook. Dismantle the loopers with holders.



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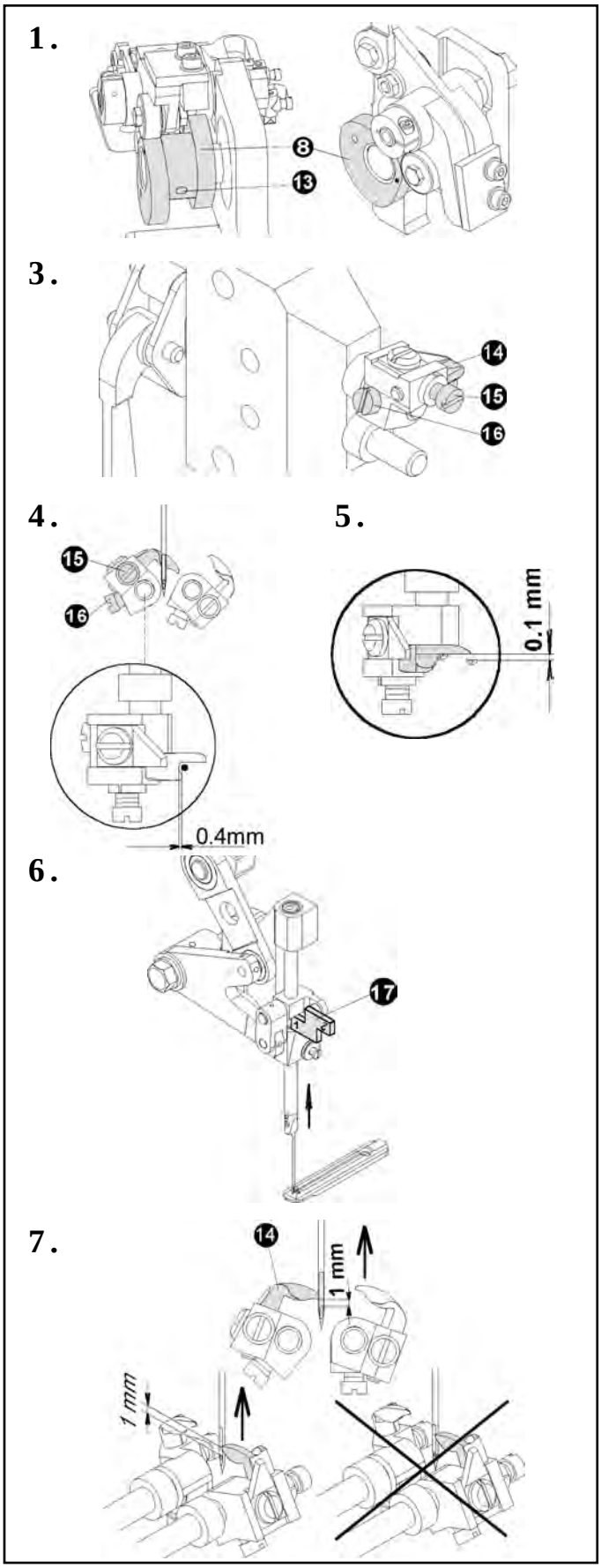
E - MACHINE ADJUSTMENTS

The first looper adjustment

1. Bring the machine to the home position and loosen the screws ⓭ of the looper cam ❽ and adjust the looper cam to the lowest position.
2. Loosen the looper set screw ⓯ and turn the looper to be perpendicular to the hole in the looper holder.
3. Install the holder with the first looper ⓮ on the shaft.
4. Loosen the looper holder screw ⓰ and move the holder so that the needle passes the looper in the center of the looper recess. There must be clearance 0,4 mm between the needle and the looper recess. Tighten the looper holder screw ⓰.
5. Loosen the looper screw ⓯ and turn the looper ⓮ to the needle to obtain the distance 0,1 mm between the needle and the looper tip.
6. Turn the hand wheel counter clockwise and insert the gauge ⓱ with 1 mark (wider side of the gauge) between the needle bar holder and the needle bar clamp when the needle returns to the home position from the lower position.
7. Check to determine if the tip of the looper is at the centerline of the needle 1 mm above the needles eye.
8. If incorrect - loosen the looper cam screw ⓭ by the wrench and hold it . Turn the hand wheel (counter clockwise - if the looper tip is higher than1 mm; clockwise - if less than 1 mm). Tighten both looper cam screws ⓭ securely.
9. If it is necessary to adjust the looper cam again, check the clearance 0,4 mm between the needle and the looper recess.



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The second looper adjustment

10. Insert the second looper ⓲ on the looper shaft.

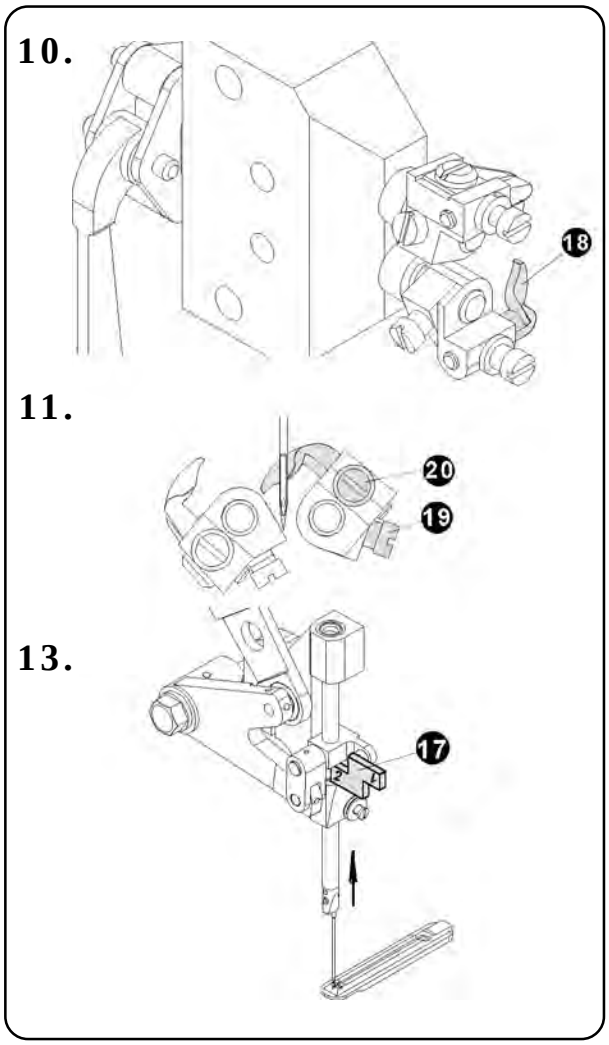
11. Loosen the looper holder screw ⓳ and move the holder so that the needle passes the center of the looper recess. There must be clearance 0,4 mm between the needle and the looper recess. Tighten the looper holder screw.

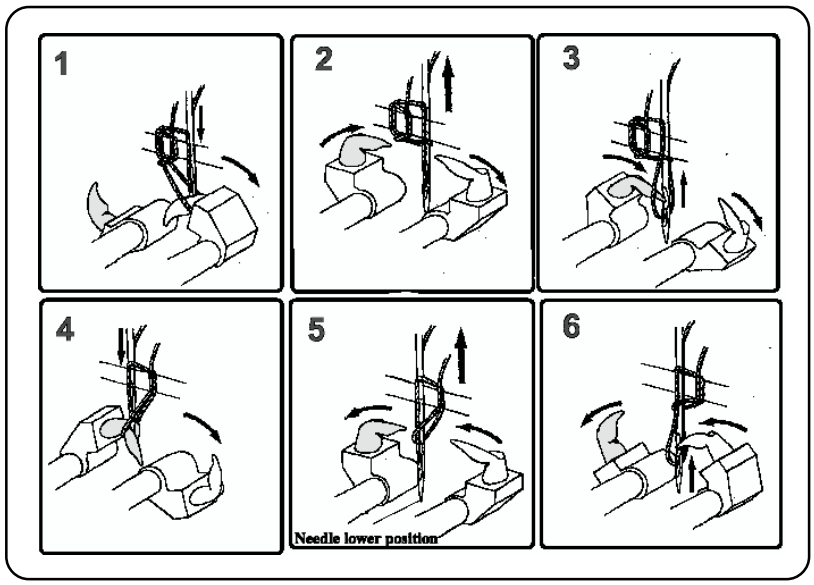
12. Loosen the looper screw ⓴ and turn the looper ⓲ to the needle to obtain the distance 0,1 mm between the needle and the looper tip.

13. Turn the handwheel counter clockwise, insert gage ⓱ with mark 2 (narrower side of the gage) between the needle bar holder and needle bar clamp.

14. Check if the looper tip crosses the axis of the needle 1 mm above the needle eye.

15. If it is necessary to adjust the looper cam again, check the first looper adjustment.





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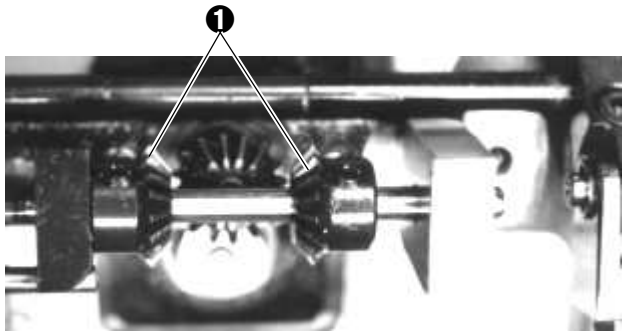
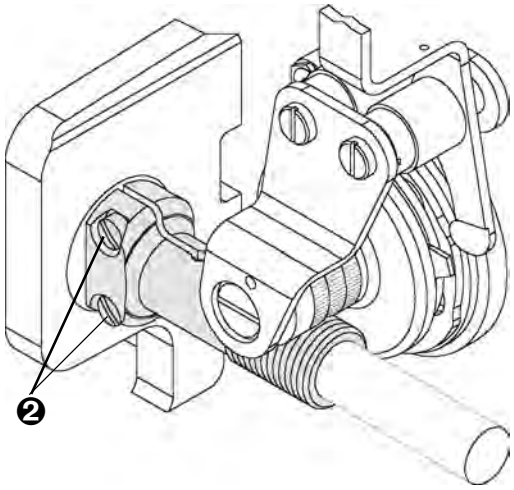
E - MACHINE ADJUSTMENTS

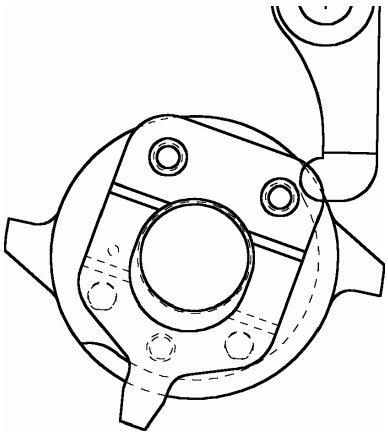
10. THE CLAMP PLATE HOME POSITION

1. The home position of the clamp plate before sewing is:
   a) the bevel gears ❶ on the feed shaft ***are not engaged*** with the vertical bevel gear
   b) the clamp plate is positioned all the way to the right (to the head casting)

2. If the bevel gears are engaged:
   a) loosen the main shaft worm gear screws ❷, hold the worm gear and turn the hand wheel clockwise or counterclockwise as needed
   Note: If this adjustment is correct, the first needle puncture goes to the right slot of the throat plate







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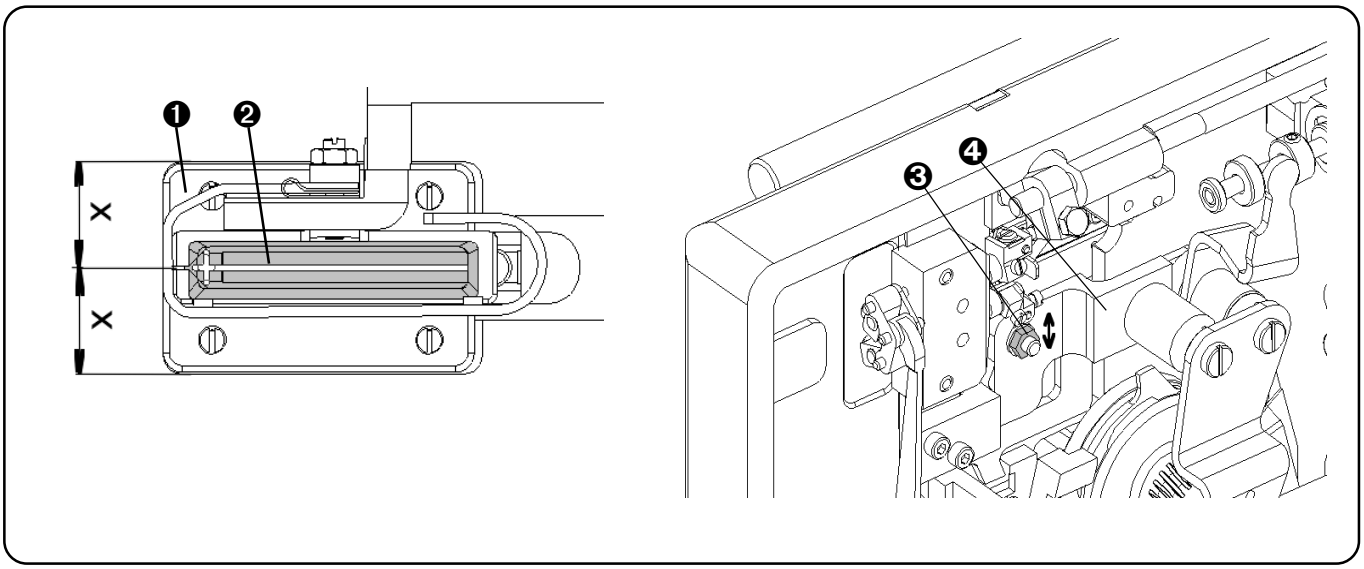
11. CLAMP PLATE TO THE CENTER OF THE THROAT PLATE ADJUSTMENT

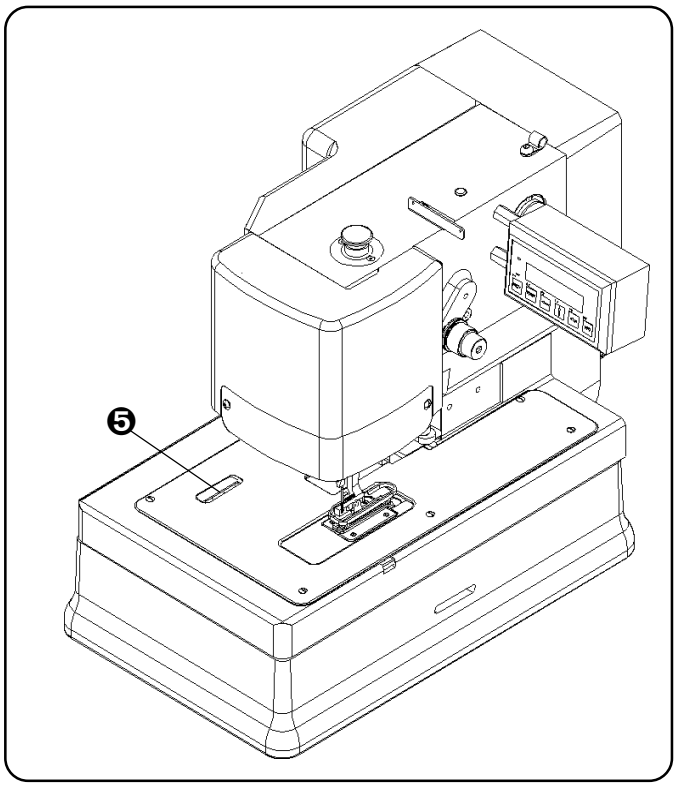
1. If the clamp plate ❶ is not adjusted to the center of the throat plate ❷, tilt the sewing head against the rest pin.

2. Loosen the nut ❸ in the slot of the lever ❹ and move the clamp plate as needed. Tighten the nut.



12. THE SEWING LENGTH CHANGE

To change the sewing length, loosen the screw ❺ and move the stop as needed.



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E - MACHINE ADJUSTMENTS

13. HEAD CLAMP FOOT ADJUSTMENT

1. ***Adjustment for clamp height***

Be sure that air supply is switch on and the clamp foot is opened. If clamp foot is not opened, push the clamp Up / Down button.

a) loosen the nut ❶

b) turning the screw ❷ clockwise lowers the clamp foot mechanism ❸ to clamp mat ❹

c) tighten the nut ❶

NOTE: Correct height is when the underside of the clamp foot is slightly lower than the point of the needle in the home position.

2. ***Clamp foot to the center of the needle***

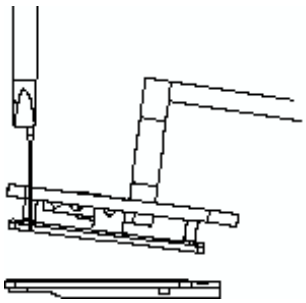
Be sure that the clamp foot is closed. If clamp foot is not closed, push the clamp Up / Down button.

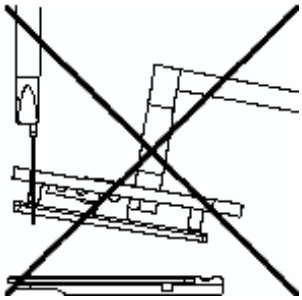
a) turn the handwheel to be sure that needle does not hit the clamp foot ❸. If it hits:

b) push the clamp Up / Down button to open the clamp foot

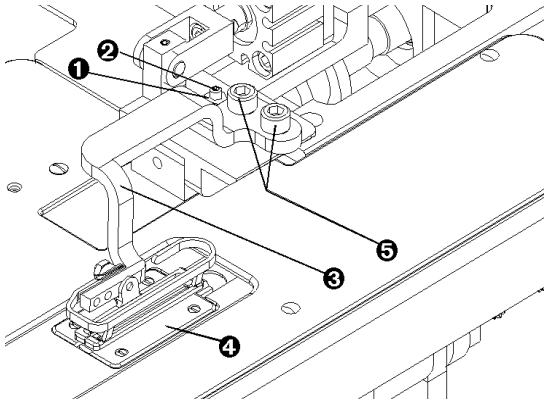
c) loosen the screw ❺ and get the clamp foot arm further from the needle and tighten the screw ❺

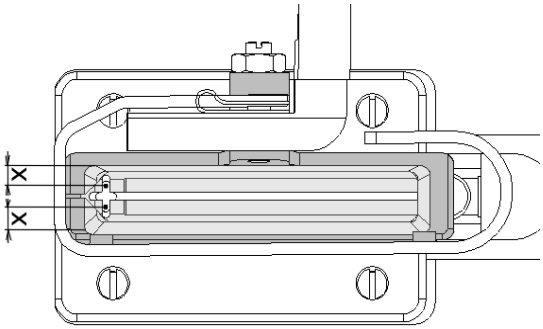
d) to check this adjustment, turn the handwheel when the clamp foot is closed. The needle must not hit the clamp foot



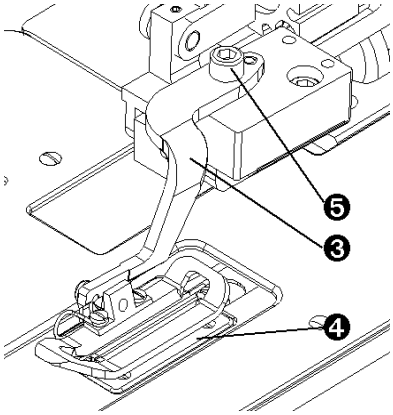


S4000 TKF





S4000 LS



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14. THREAD DRAW-OFF

1. ***Adjustment of the Draw-Off Lever Position***

The correct adjustment ensures a long enough thread tail for starting the next sewing. Remove the covers because this mechanism adjustment is performed in the rear of the head. Air supply is necessary for this adjustment.

a) loosen the screw ❻

b) the piston ❼ of the cylinder ❽ is in the home position (retracted). Move the lever ❾ to the pin ❿ with minimum clearance 0.1 mm. Tighten the screw ❻

c) check the correct clearance adjustment by switching the valve ⓫ of the draw-off cylinder (YV1).

2. ***The thread end adjustment***

If the first stitches are missing or the sewing is not sewn, follow the below mentioned steps:

a) loosen the screw ❶.

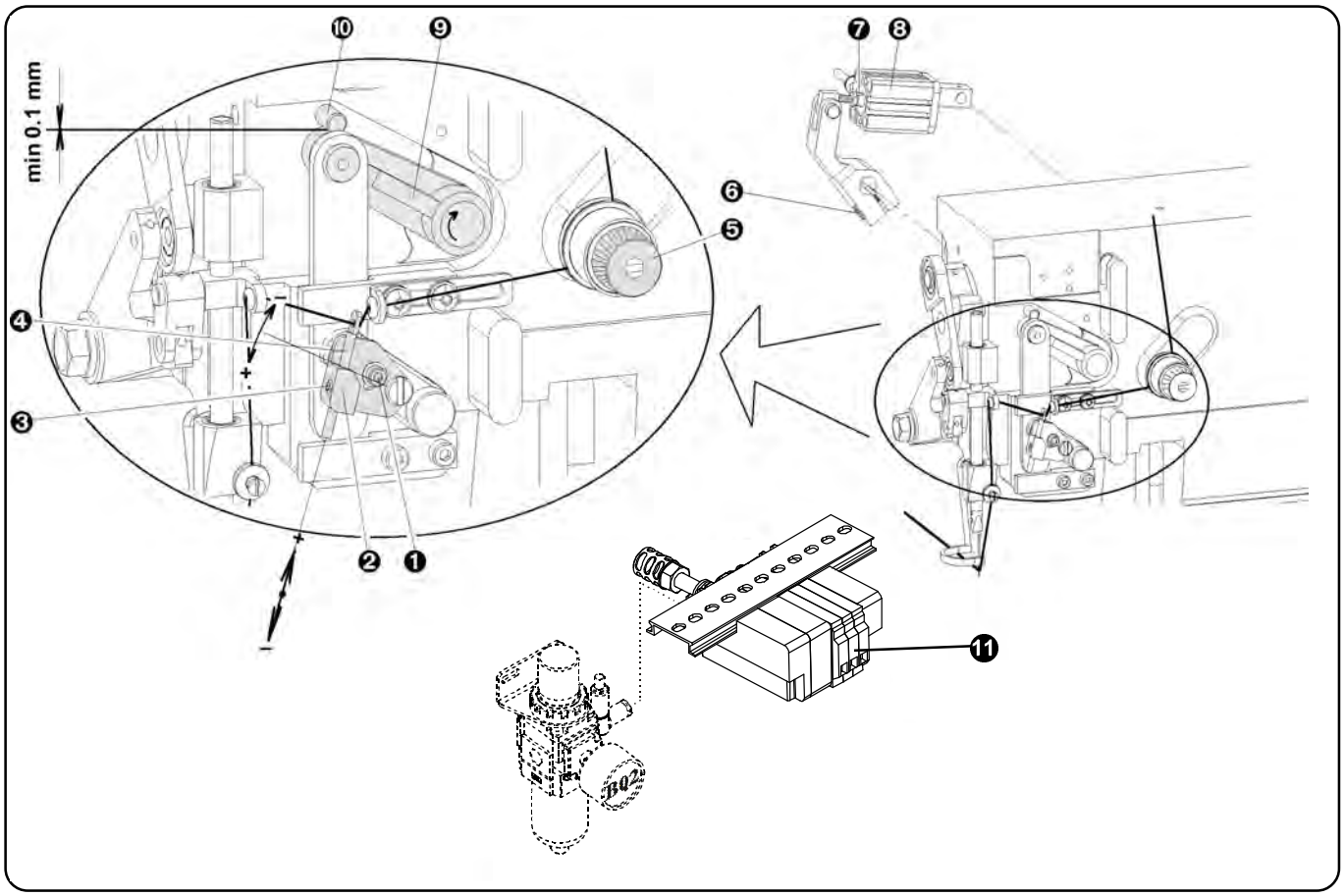
b) turn the draw-off lever ❷ counter clockwise to increase the thread tail length; turn the draw-off lever clockwise to decrease the thread tail length

3. ***Locking the stitches***

If the skipped stitches problem appears during the sewing, follow the below mentioned steps:

a) loosen the screw ❸

b) move the thread take-up ❹ to increase the size of the needle loop



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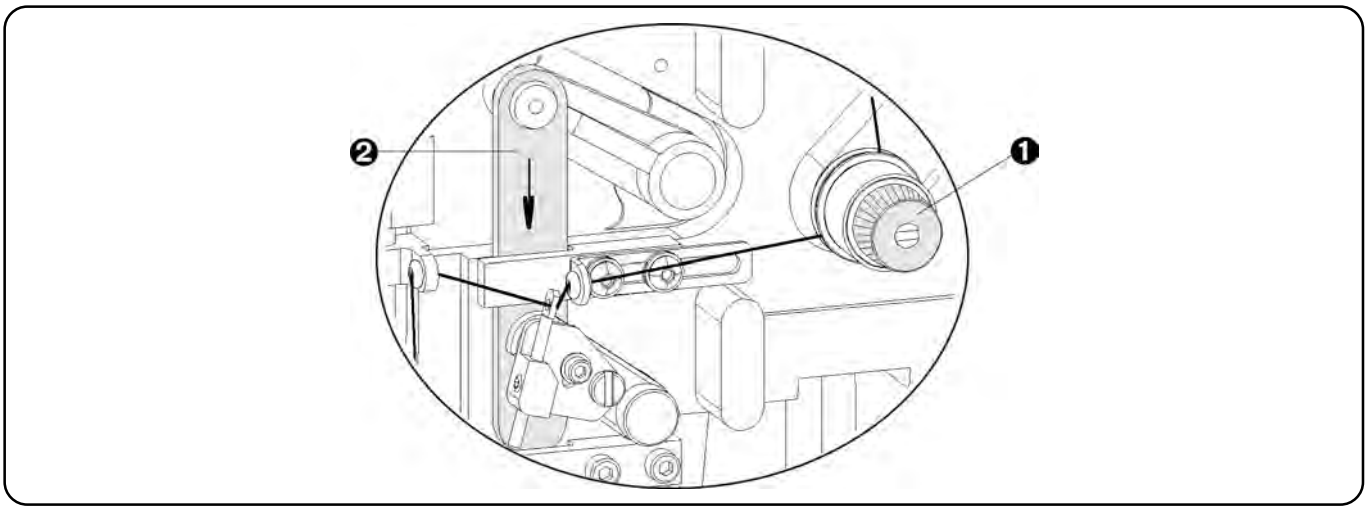
15. THREAD TENSION

The thread tension influences the appearance of the sewing. A thread tension change may be needed if the thread and fabric change. Check to be certain all parts, which contact the thread, are smooth and polished with no burrs or sharp edges.

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

NOTE: Too big thread tension can cause the unsightly appearance of the sewing when sewing on a thin and elastic material.

1. ***Adjustment of the tension discs opening***
   The opening of the tension discs is performed in the last phase of the sewing. When the tension discs are opened, it is possible:
   a) to pull the thread from the spool when the draw-off lever ❷ receives the impulse for operation
   b) by decreasing or increasing of the air flow it is possible to regulate the tightening of the last loop in the sewing



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2. ***The correct position of the tension mechanism***

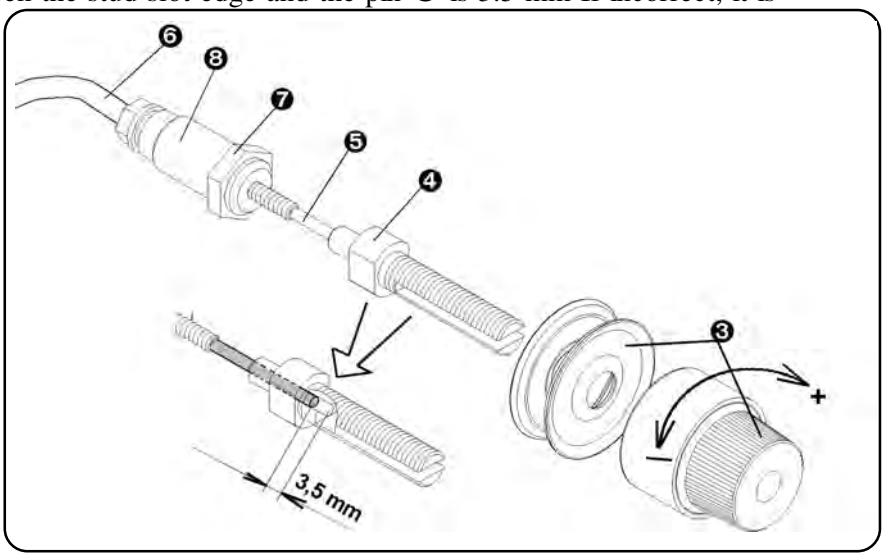
a) remove the tension assembly ❸ from the shaft ❹

b) check if the distance between the stud slot edge and the pin ❺ is 3.5 mm If incorrect, it is necessary to adjust the position on the pin.

c) remove the pulley cover and the head cover to obtain a good access for this adjustment. Switch off the air supply.

d) disconnect the air tube ❻ from the cylinder.

e) loosen the nut ❼ and turn the cylinder ❽ as necessary.
Turning clockwise the pin is extended.
Tighten the nut ❼ when the correct measurement is obtained.



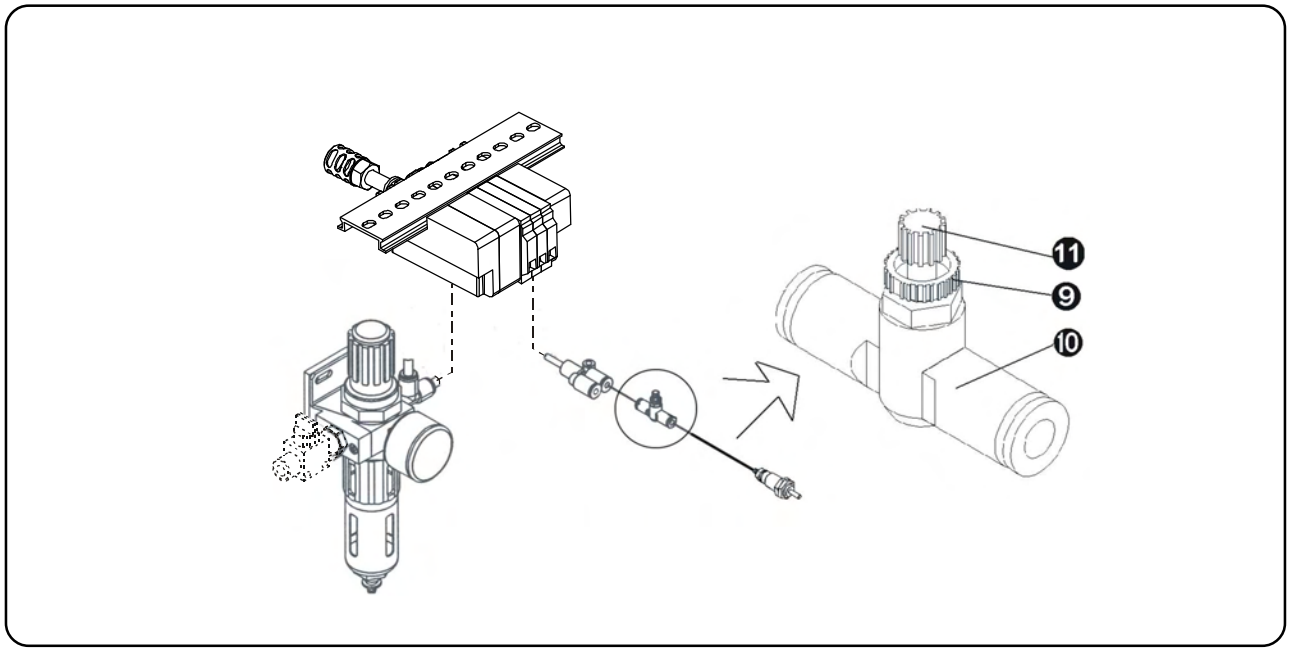
f) connect the air tube ❻ to the cylinder, open the air supply and install the covers.

3. ***Regulation of the tension discs opening***

If the last stitch is not tightened, follow the below mentioned steps:

a) loosen the locking nut ❾ on the speed controller ❿

b) To obtain better tightening of the last stitch, tighten screw ⓫ and lock the nut ❾ securely.



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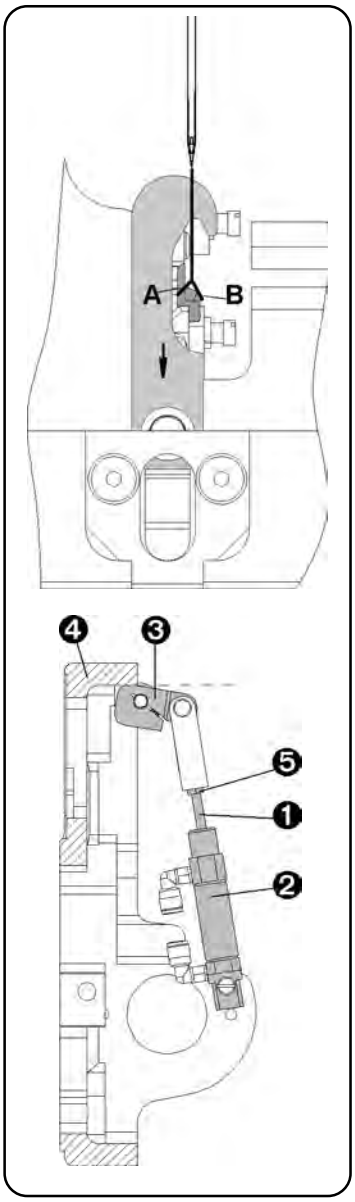
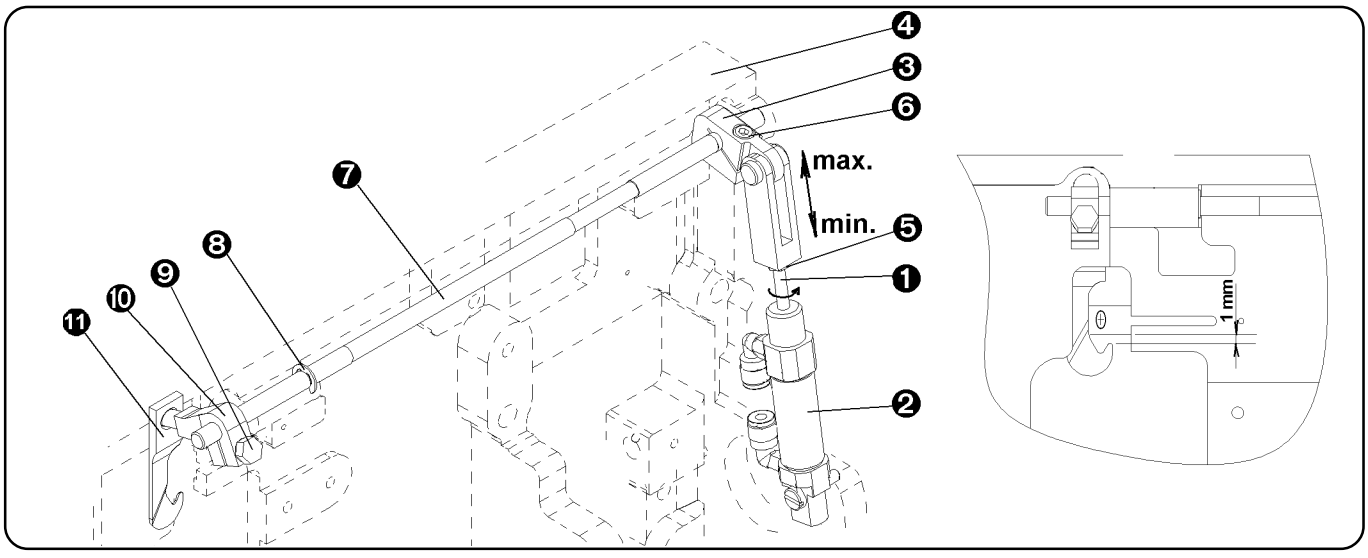
E - MACHINE ADJUSTMENTS

16. THREAD TRIMMING



The trimming mechanism ensures the correct thread trimming after sewing the last stitch. The trimming hook moves in the direction of the arrow, both thread loop legs A and B are pulled forward. When the thread hook approaches the end of the stroke, leg A contact the trimming knife, cutting the thread.

1. ***Trimming cylinder adjustment***
   - a) tilt the machine head onto the rest pin and close the air supply. Extend the piston ❶ of the cylinder ❷ to the maximum position.
   - b) check to be certain that the cylinder does not push the lever ❸ too high and into contact with the bedplate casting ❹. If no clearance exists, adjust as described in c, d, and e below:
   - c) loosen the screw ❻
   - d) to obtain the correct position of the lever ❸, loosen the nut ❺ and turn the cylinder piston ❶ in or out as needed
   - e) tighten the nut ❺ and the screw ❻. After this adjustment check if no axial clearance exists on the shaft ❼.
   - f) if the axial clearance exists on the shaft, loosen the screw ❻, move the shaft ❼ to the left so that the locking ring ❽ touches the recess in the plate ❸. Move the lever to the right and tighten the screw ❻.
2. ***The trimming hook ⓫ adjustment***
   - a) push the piston ❶ of the trimming cylinder ❷ to the maximum position and loosen the screw ❾ of the trimming actuator ❿.
   - b) turn the trimming actuator ❿ and set the clearance 1.0 mm between the throat plate and the point of the trimming hook.
   - c) tighten the screw ❾ of the trimming actuator ❿.
   - d) open the air supply and check by switching the valve of the trimming cylinder if the actuator ❿ does not hit the bedplate casting.



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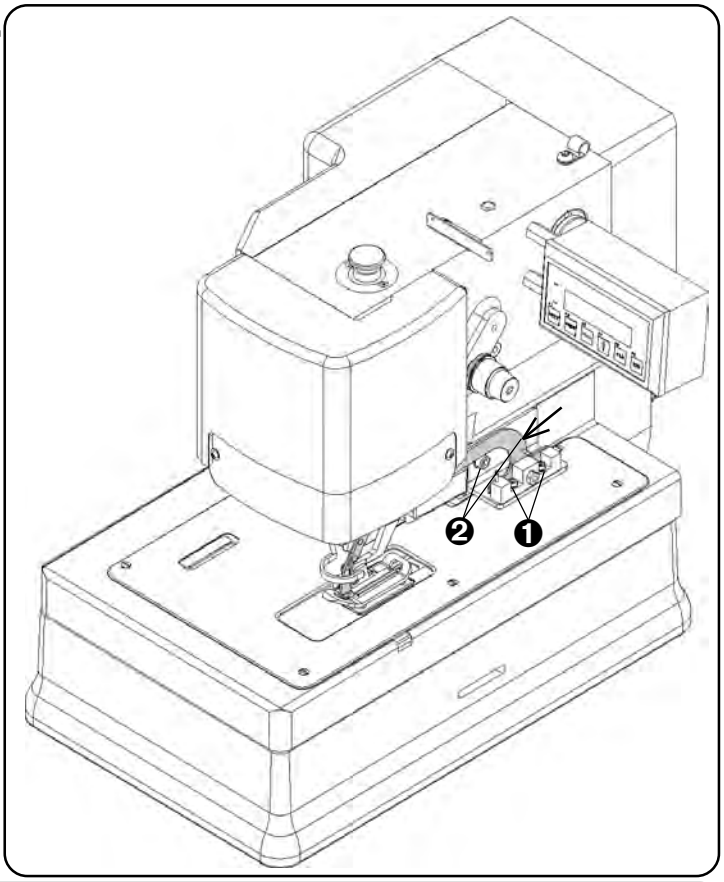
17. THE HOLD DOWN ADJUSTMENT

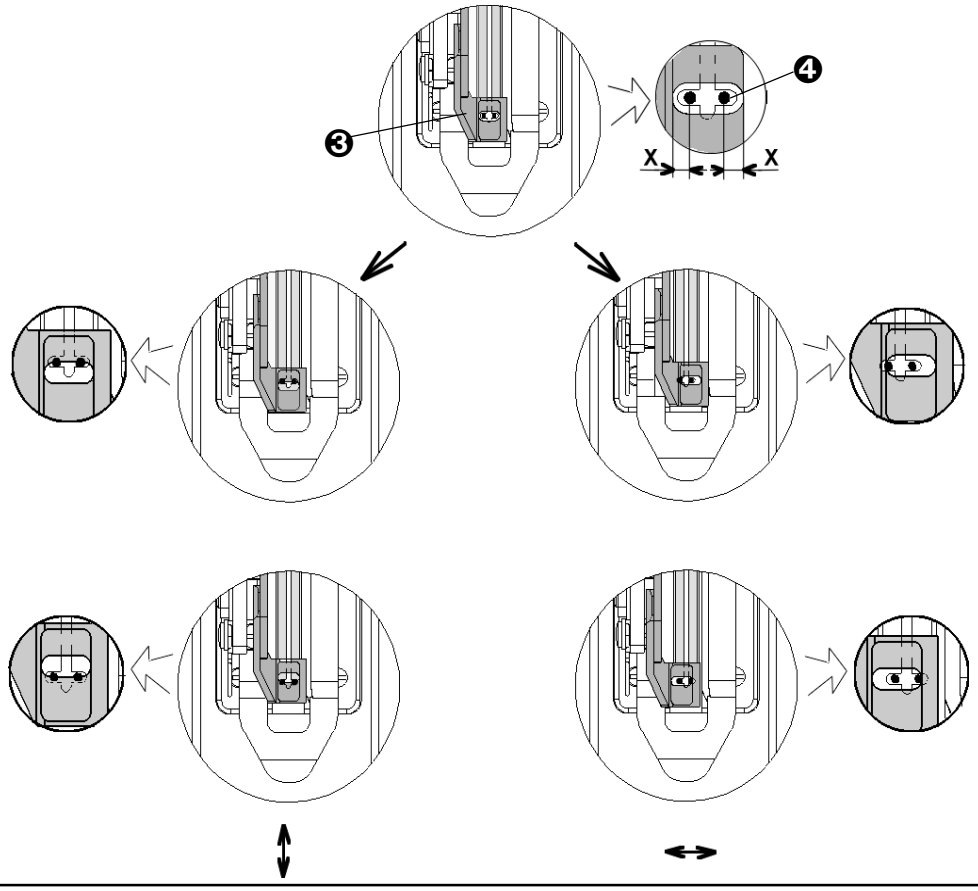
(S4000 LS modification only)



1. It is necessary to adjust the hold down ❸ by loosening the screw ❶, if:
   a) the hold down is not in the centre of the clamp foot groove
   b) the needle puncture ❹ is not in the hold down groove or if the distance **X** between the needle puncture and the hold down groove is not the same on both sides - see picture **A**

2. If a clearance exists between the hold down and clamp foot, loosen the screw ❷ and move the hold down downwards. There must not be any clearance between the hold down and clamp foot.
   Note: It is necessary to check the adjustment mentioned in point 1 after this adjustment.

Picture **A**



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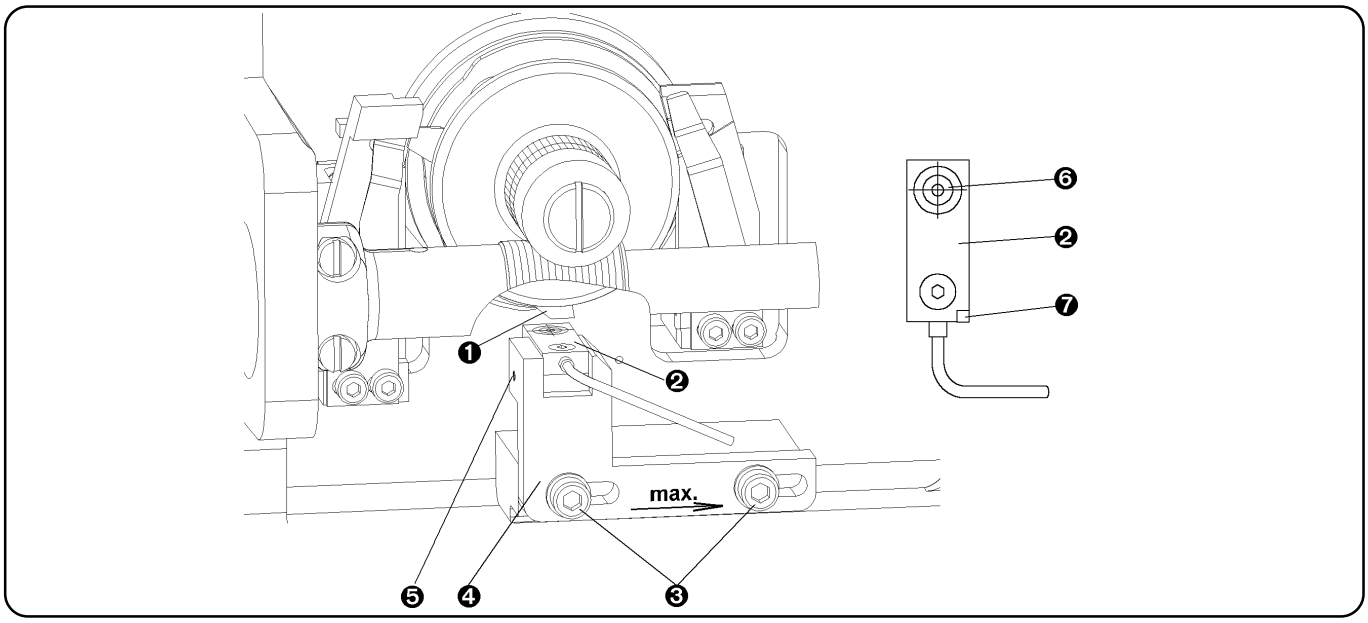
E - MACHINE ADJUSTMENTS

18. ADJUSTMENT OF THE STOPPING SENSOR POSITION

Follow the steps described below to set the position of the sensor.

1. Put machine in the service mode (see E2).
2. Turn the handwheel counter clockwise until the stop disk finger ❶ is perpendicular to the sensor ❷.
3. Loosen the screws ❸ and move the sensor bracket ❹ to the right. Tighten the screws ❸.
4. Loosen M3 screw ❺ and adjust the sensor position so that the stop disk finger ❶ is in the center of the sensor mark ❻. The red LED ❼ illuminates on the sensor.
5. Tighten the M3 screw ❺.
6. Return the machine head back to the working position.
7. Push the F6 key on the control panel and switch the machine to the working mode.
8. Start the machine and check the correct stopping of the machine. The needle bar must stop in the home (upper) position.



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19. CHANGING THE DRIVE BELT

1. Remove the pulley cover ❶ after loosening the M4 screws ❷.
2. By turning the handwheel ❸ adjust the position of the shaft so that the screw ❹ on the pulley ❺ is aligned with screw ❻ on the bearing carrier lower shaft.
3. Lock the position by the holder 24.0030.0.000 ❼, which is included in the accessories. Using the screw ❻ fix the holder to the bearing holder upper screw.
4. Turn the pulley ❽ of the needle bar shaft, until the needle bar reaches the upper position.
5. Lock the position by the holder 24.0024.0.000 ❾, which is included in the accessories. Using the screw ❿ fix the holder to the bearing carrier lower mounting screw.
6. Rotate the motor pulley ⓫ until the marks ⓱ on the motor pulley and the motor bracket are aligned.
7. Loosen the screws ⓭ on the motor bracket ⓮ and move the motor with the machine bracket down to fit the belt.
8. Fit the belt ⓯ on the shaft pulleys ❺, ❽ and motor pulley ⓫. To tighten the belt ⓯ , move the motor bracket ⓮ with motor ⓰ up. Tighten the screws ⓭ to lock the motor bracket. Be sure the marks ⓱ are aligned.
9. Remove the pulley holders ❼, ❾.
10. Press the pedal to check the adjustment. The needle bar must be in the upper position.
11. Small changes of the needle bar adjustment are possible in the program parameters:
    a) ***needle bar did not reach the upper position***

• push F1 NEXT => „Ndl up pos 315“ appears on the display. After pressing the button F6 number is lightening. Requested value is adjusted with F4 and F3 . Press F6 to confirm.

• to obtain the correct position of the needle bar, increase the value

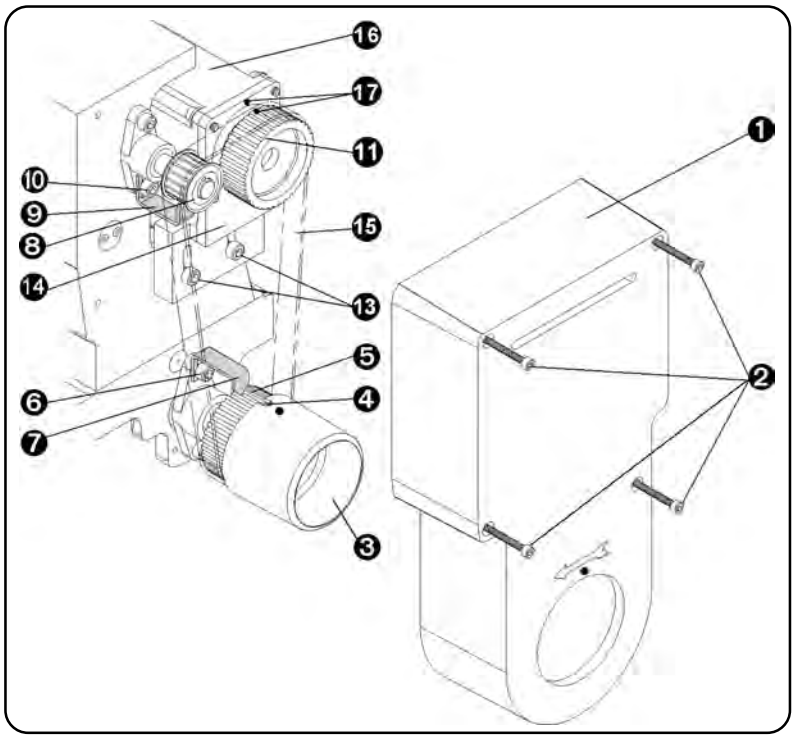
• press F5 CLR, to return to the main screen

b) ***needle bar went beyond the upper position***

• push F1 NEXT => F3 =>„Ndl up pos ....imp“

• to obtain the correct position of the needle bar, decrease the value

• push F5 CLR, to return to the main screen.



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E - MACHINE ADJUSTMENTS

20. VOLTAGE GUARD

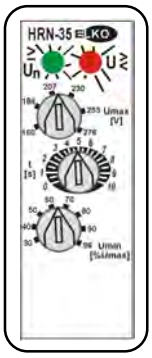
The voltage guard - relay HRN-35 (VC1) as an extra accessories is placed in the machine control box. It is adjusted and sealed from a manufacturer. If the supply voltage is in the ***required range***, the ***green*** LED **Un** indicates it on the voltage monitoring relay. If the upper limit (255V) of the supply voltage is exceeded, the ***red*** LED U≷ indicates it. If the supply voltage is lower than 185V, the ***green*** LED stops indicating and the ***red*** LED U≷ indicates it. If the supply voltage returns to the required range, the ***red*** LED stops indicating.

The upper limit (255V) is exceeded

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

b) If the supply voltage is higher than the upper limit during a sewing, the machine is automatically switched off to prevent control electronics damage. When the voltage level is restored to acceptable levels (185 - 255V), it is possible to start the machine in the standard way (see section **C1**).

The supply voltage is below the lower limit 185V



a) If the supply voltage is below the lower limit 165V, the message „LOW VOLTAGE“ appears on the display.

b) If the supply voltage drops below the lower limit during the sewing, the machine automatically stops and the „LOW VOLTAGE“ message appears on the display. **When the voltage level is restored to acceptable levels (185-255V), it is possible to start the machine in the standard way (see section C1).**

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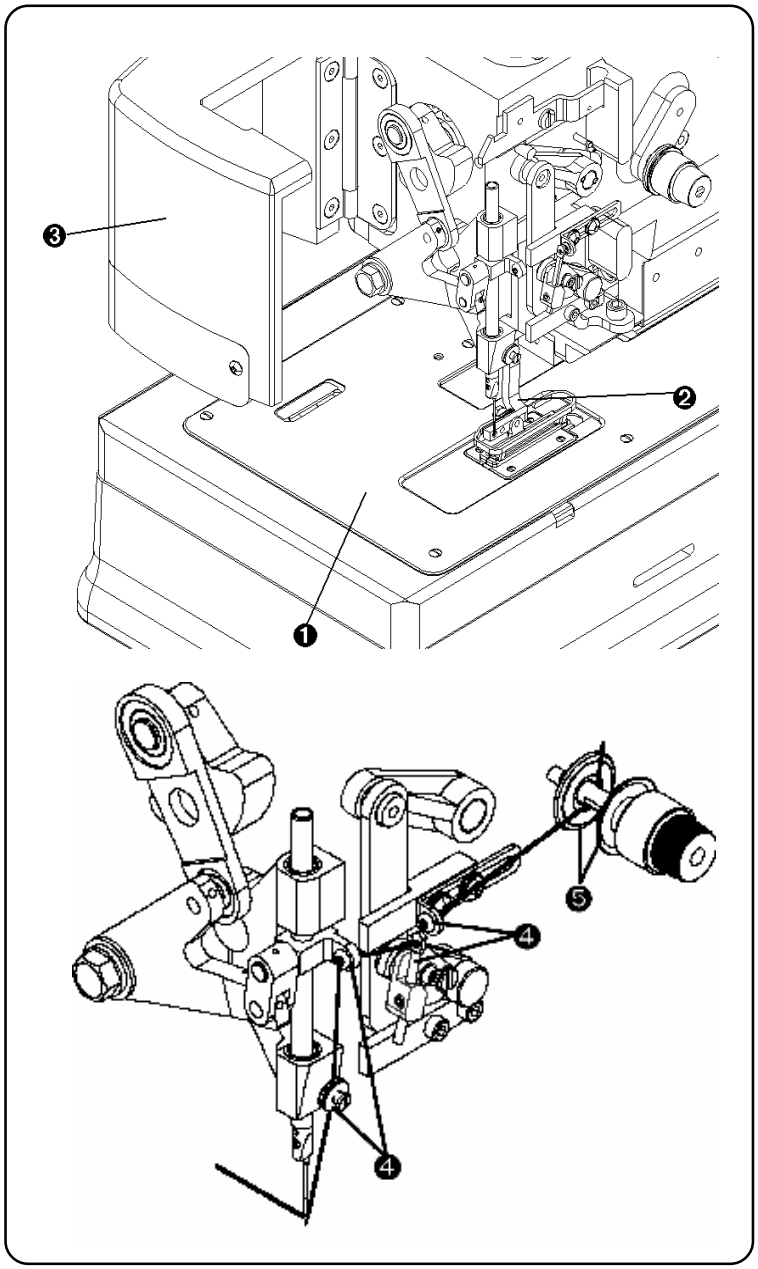
F - MACHINE MAINTENANCE

Warning:
- Check for damage to electrical cables
- Check safety covers for damage and replace immediately if needed
- Keep your hands out of the sewing area
- Do not modify the machine in any way, which could eliminate safety parts
- Do not attach external lights or other devices to the machine´ s electrical system

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 the drugs or alcohol.
- User has to ensure the lighting of the working area minimal 750 Luxes.

1. MACHINE CLEANING AND MAINTENANCE

1. Switch the power off and disconnect air supply.
2. For cleaning and oiling, remove the cover ❶ and take out the clamp foot mechanism ❷.
   Clean the clamping area of any fabric and thread lints.
3. Open the needle bar cover ❸ and clean any thread lints from the guides ❹ and thread tension ❺.
4. Clean any thread lints and fabric from the sewing area - throat plate, loopers.
5. Lubricate the machine according to the section F 4.



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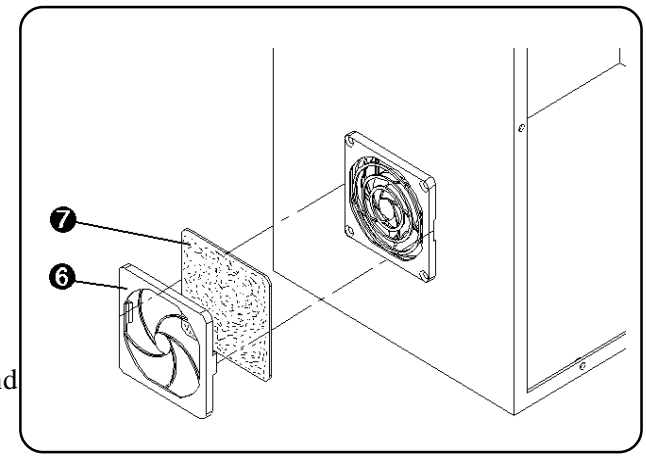
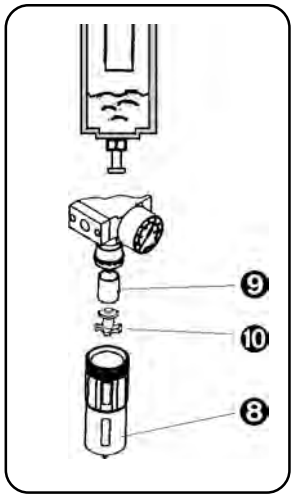
F - MACHINE MAINTENANCE



6. Remove the filter cover ❻ with cleaning pad ❼.
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 .

7. The filter and regulator maintenance
Bowl assembly ❽ - polycarbonate bowls may be damaged and possibly fail if exposed to synthetic oils, thinner solvents, trichlorethylene, kerosene and other aromatic hydrocarbons. Clean only with a neutral detergent .
Auto drain - Drain line length should be shorter than 5 m. Be sure not to have any upward turns in the drain line which would prevent drainage.

If the unit has no function it is necessary to:
a) check if the supplied pressure is higher than the set pressure of the regulator
b) check if the valve assembly is clean
c) check the membrane or spring for damage
d) check if the air flow direction is correct



Change of the filter element ❾
Conditions
- low flow rate
- high pressure drop
- when the pressure drops to 0.7 bar
- filter element change after one year (in case it has not been changed)

a) unscrew the polycarbonate bowl ❽
b) take the filter element out ❾ with baffle ❿
c) change old filter element with new one
d) fit the baffle ❿ into new filter element ❾ and place them both back
e) place the polycarbonate bowl back

8. Check the mechanisms especially in the sewing area by sight.

9. When the maintenance and checking are finished, insert the clamp foot mechanism into the machine.

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2. PERIODIC MAINTENANCE

once a day (8 hours of operation)
- cleaning of the sewing mechanism area and inner frame of the
- machine
- lubrication of mechanisms - see area F4.

once a week (40 hours of operation)
- visual check - external and internal mechanisms
- fill oil into reservoir with oil level indicator, or sooner if required

once a month (160 hours of operation)
- check of the clearance in sewing mechanism drive
- check of the screw connections tightening (obtain values below)
- check of condensate in regulator
- check of dirty of cleaning pads in control box

Recommended values for srews tihtening (Nm):

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

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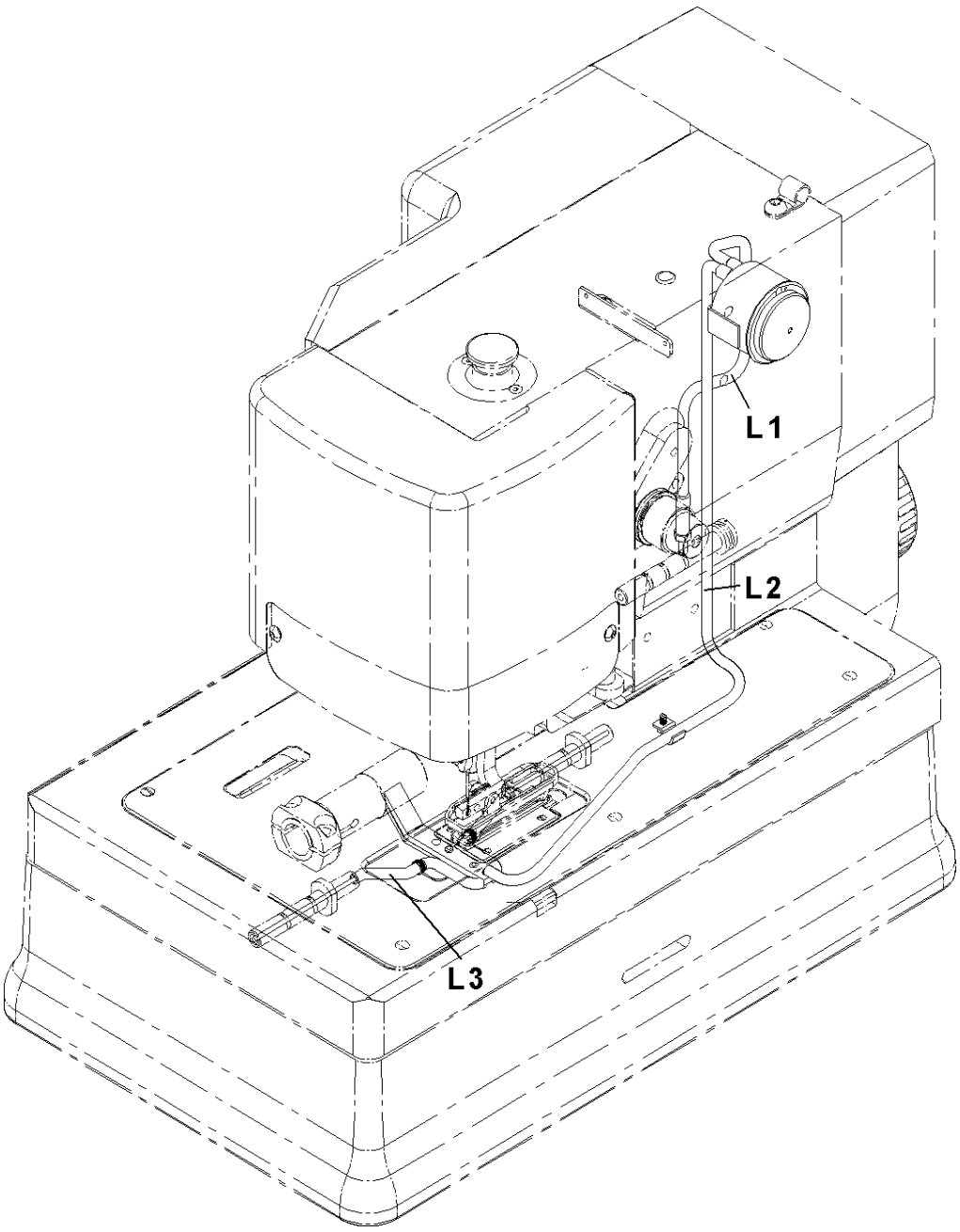
F - MACHINE MAINTENANCE

3. LUBRICATION DIAGRAM

The machine is mainly equipped with needle and ball bearings, which in combination with a single lubrication circuit decrease the requirements for maintenance.

Circuit I - with the oil supply in oil indicator for lubrication of the bite, feeding and looper levers and worm gears. In case of replacement of any part of distribution, it is possible to order the tube kits and wicks. To connect the tubes - see picture.

Circuit I



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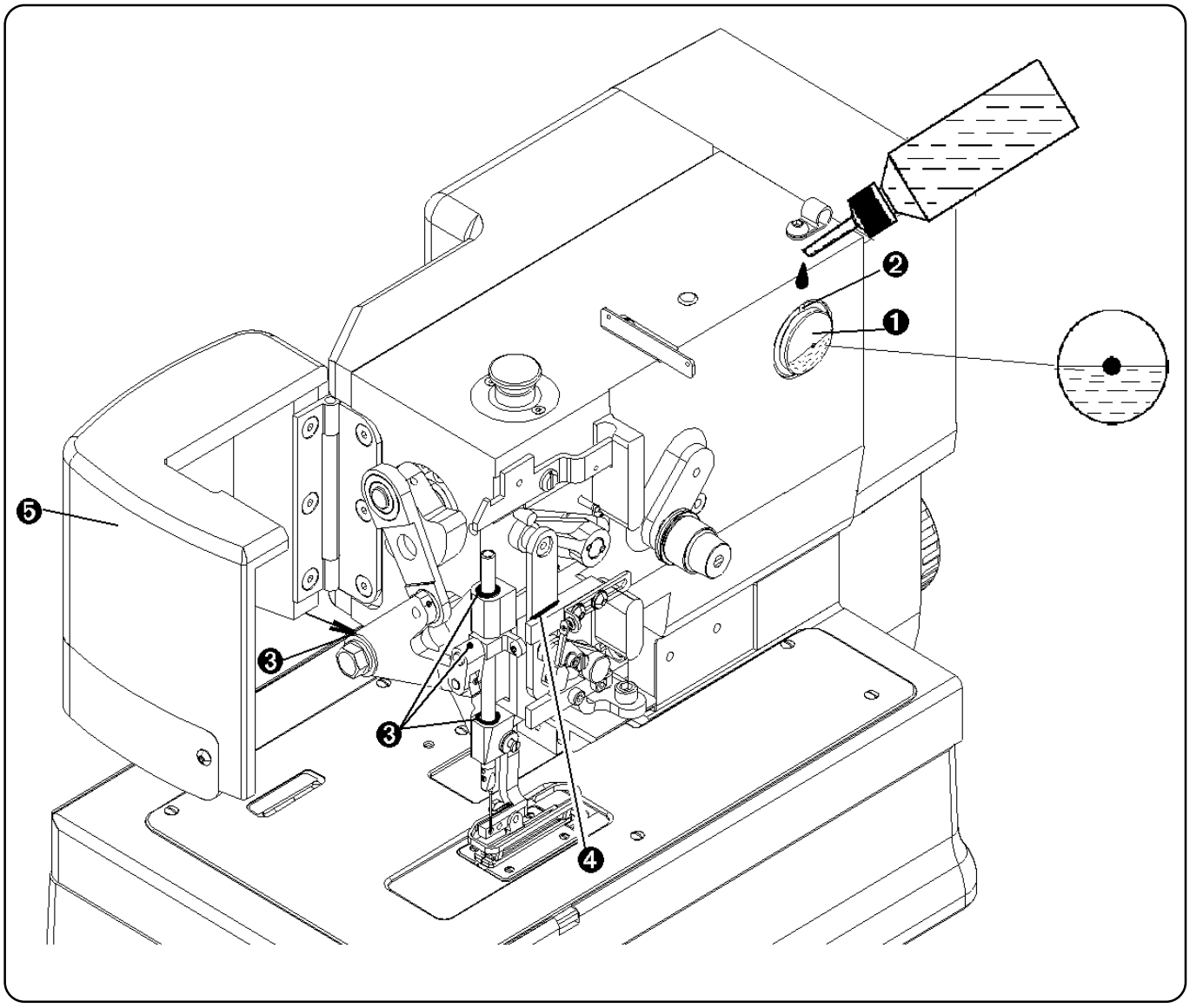
4. MACHINE LUBRICATION

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

2. The amount of oil in the reservoir ❶ is indicated by the red mark. Too much oil may cause it to overflow from the base area.

3. The reservoir is filled through the hole ❷ in front of the gauge.

4. The points for lubrication of the needle bar mechanism ❸ and draw-off mechanism ❹ are shown in the illustration below (after opening the needle bar cover ❺). Lubricate the main cam worm gear through the hole ❻. Lubricate all of these points every 8 hours.



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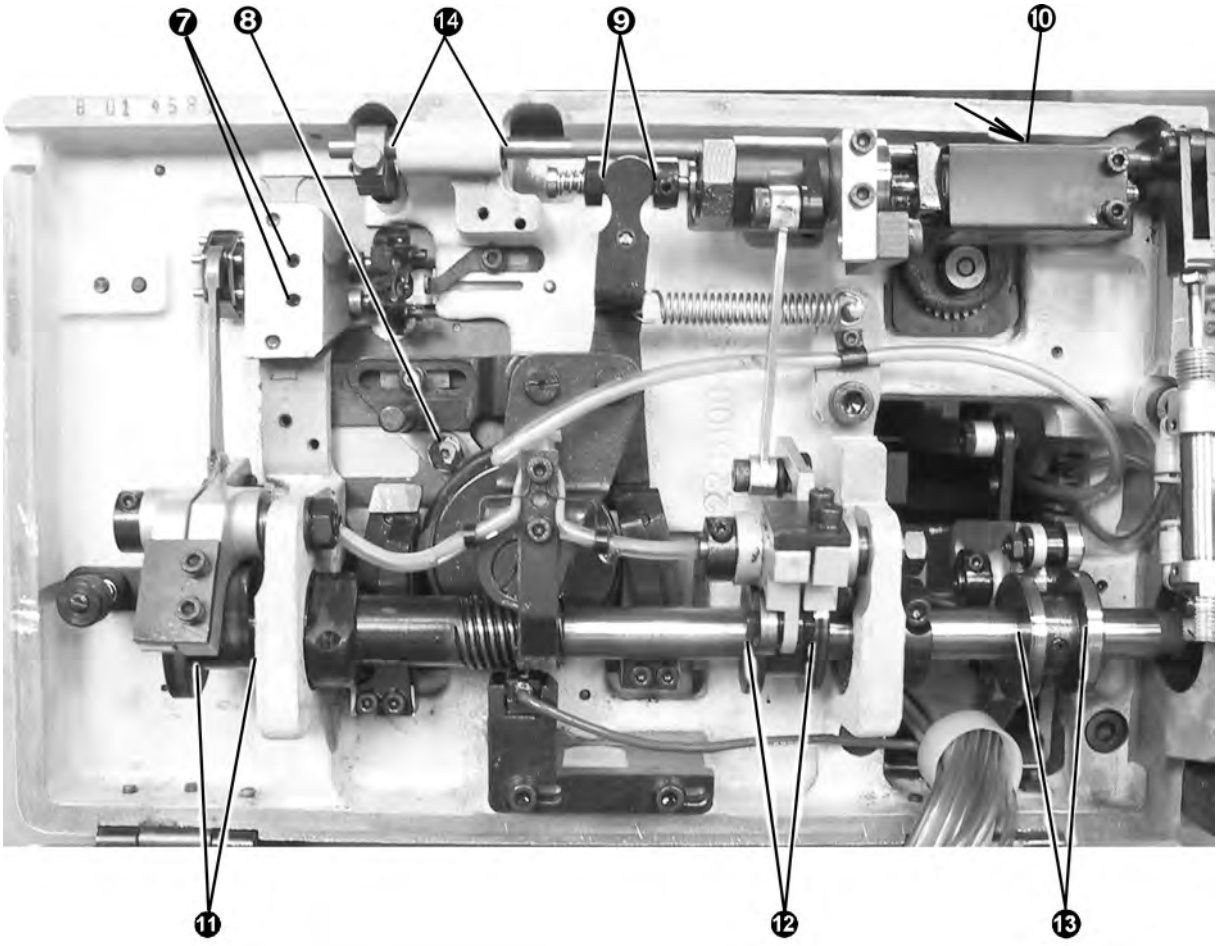
F - MACHINE MAINTENANCE

5. Tilt the machine head onto the rest pin and lubricate the places shown in the picture.

❼ looper shafts
❽ shifter
❾ bevel gears
❿ looper cam surfaces
⓫ feed cam surfaces
⓬ bite cam surfaces
⓭ trimmer shaft

Return the sewing head back into the sewing position

6. After lubrication it is important to sew a minimum of 10 sewing cycles on scrap fabric to dispel any excess oil. Wipe all visible excess oil from the mechanism in the work area.



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5. MACHINE DISPOSAL

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

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

3. The parts mentioned in the point 2 can be found in the spare parts manual with these marks :

●	aluminium parts
●●	non-ferrous metal parts
●●●	plastic and non-metalic parts

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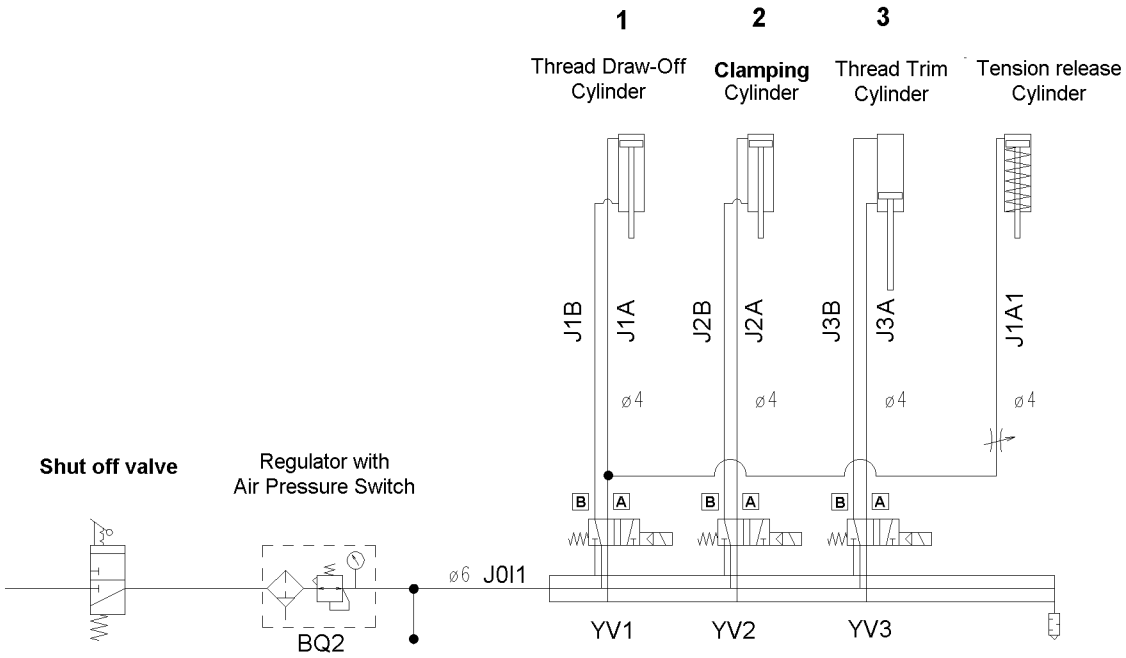
G - PNEUMATIC DIAGRAM

S4000 TKF, LS - Pneumatic diagram



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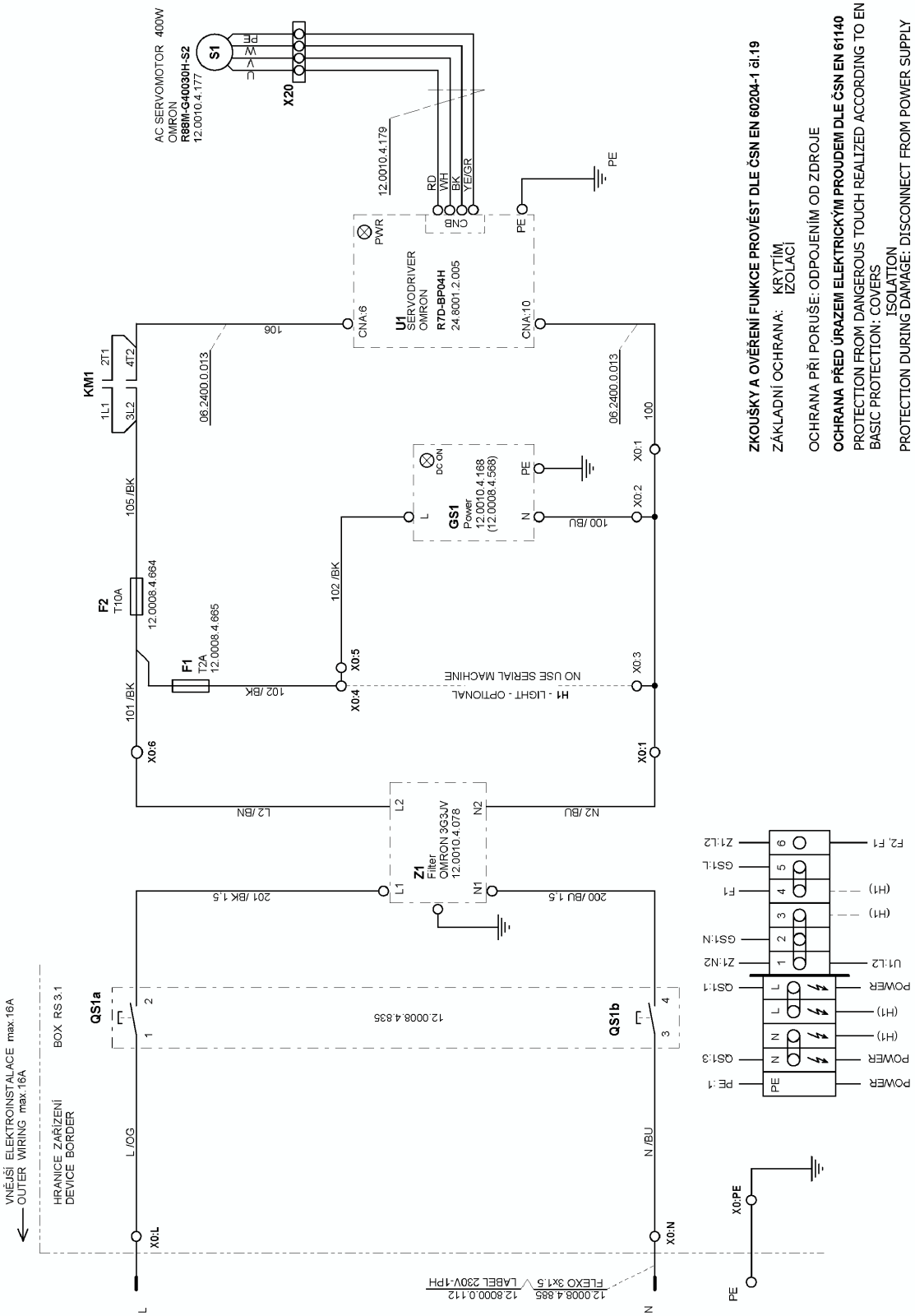
H - ELECTRICAL DIAGRAM



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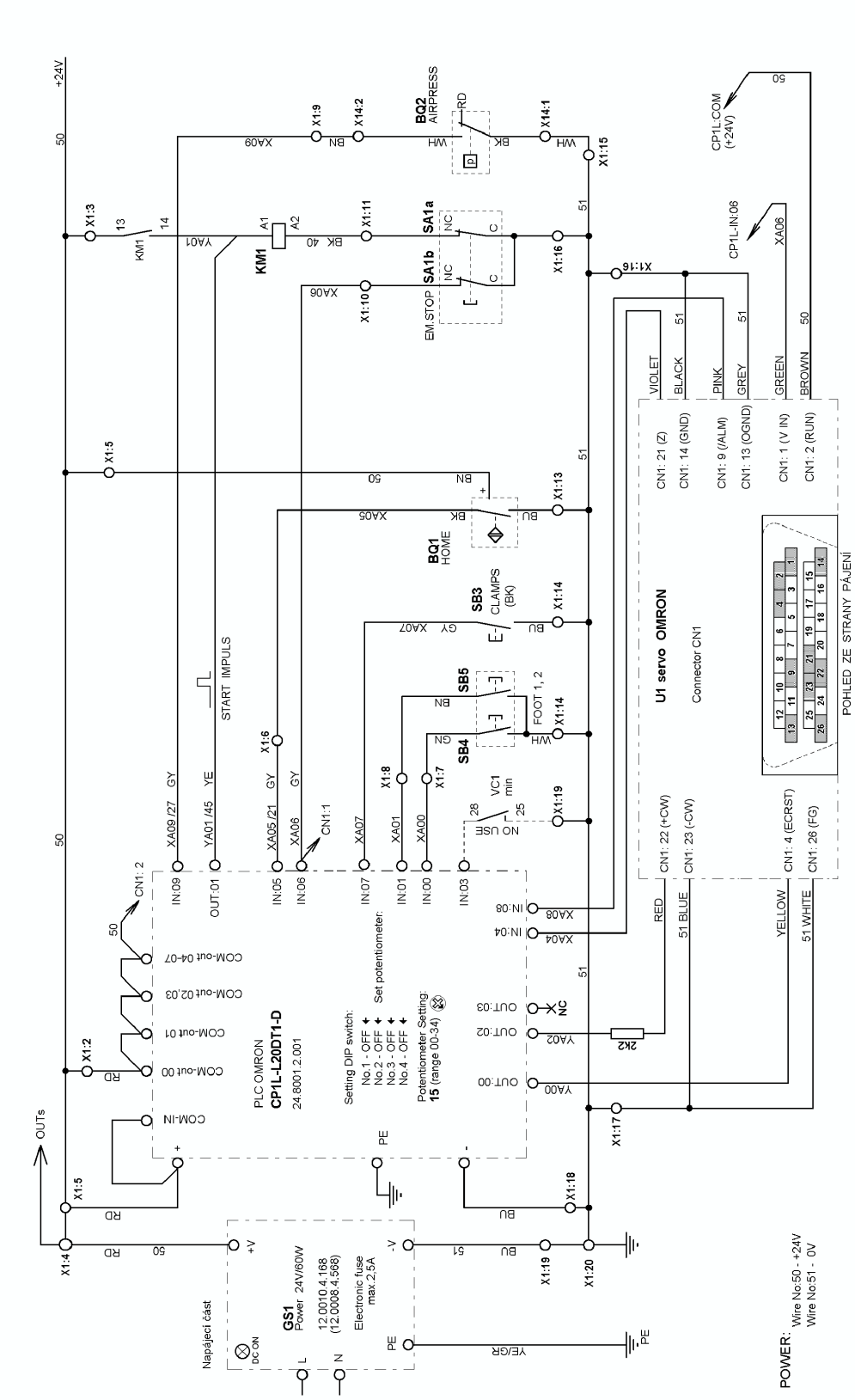

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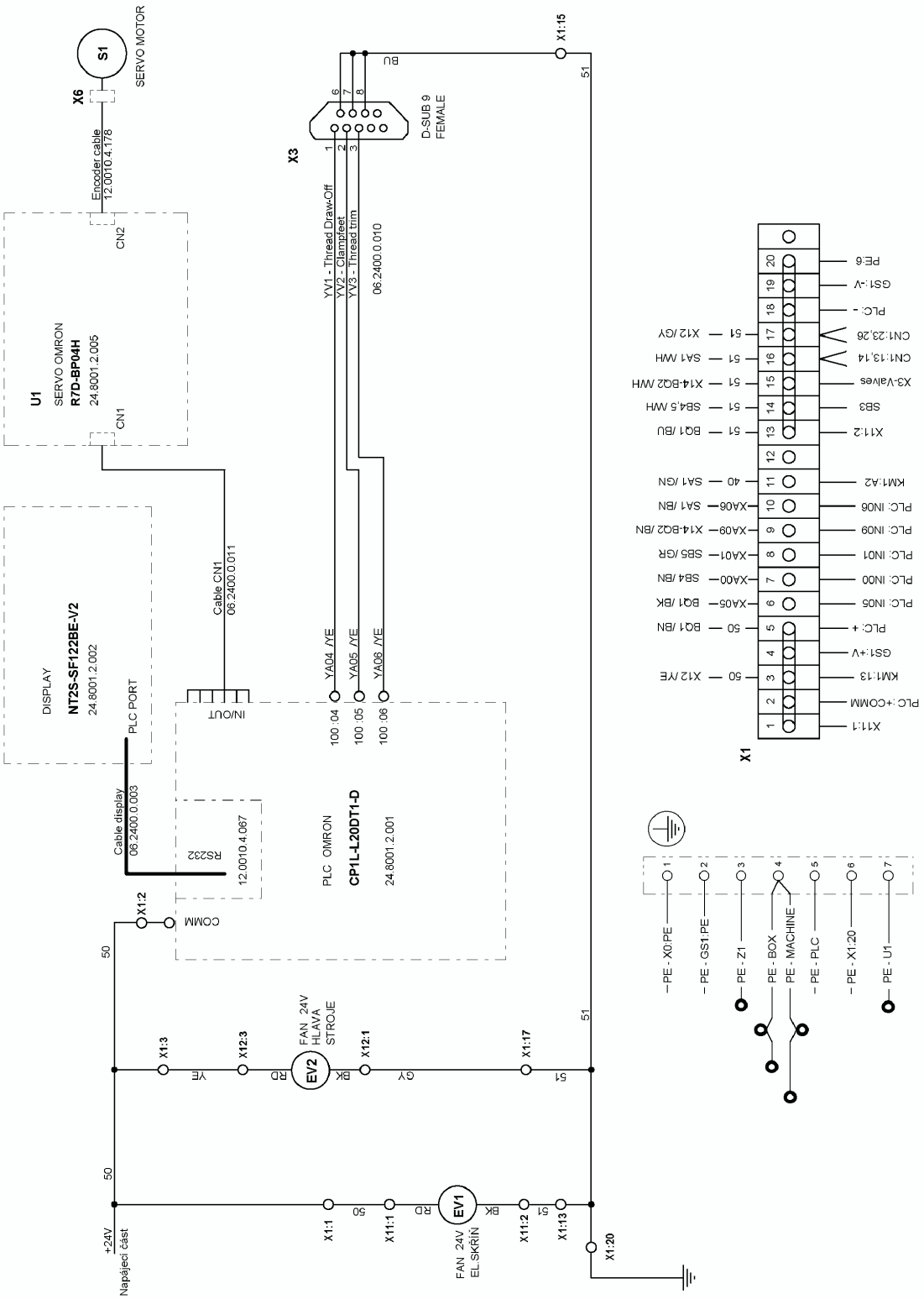

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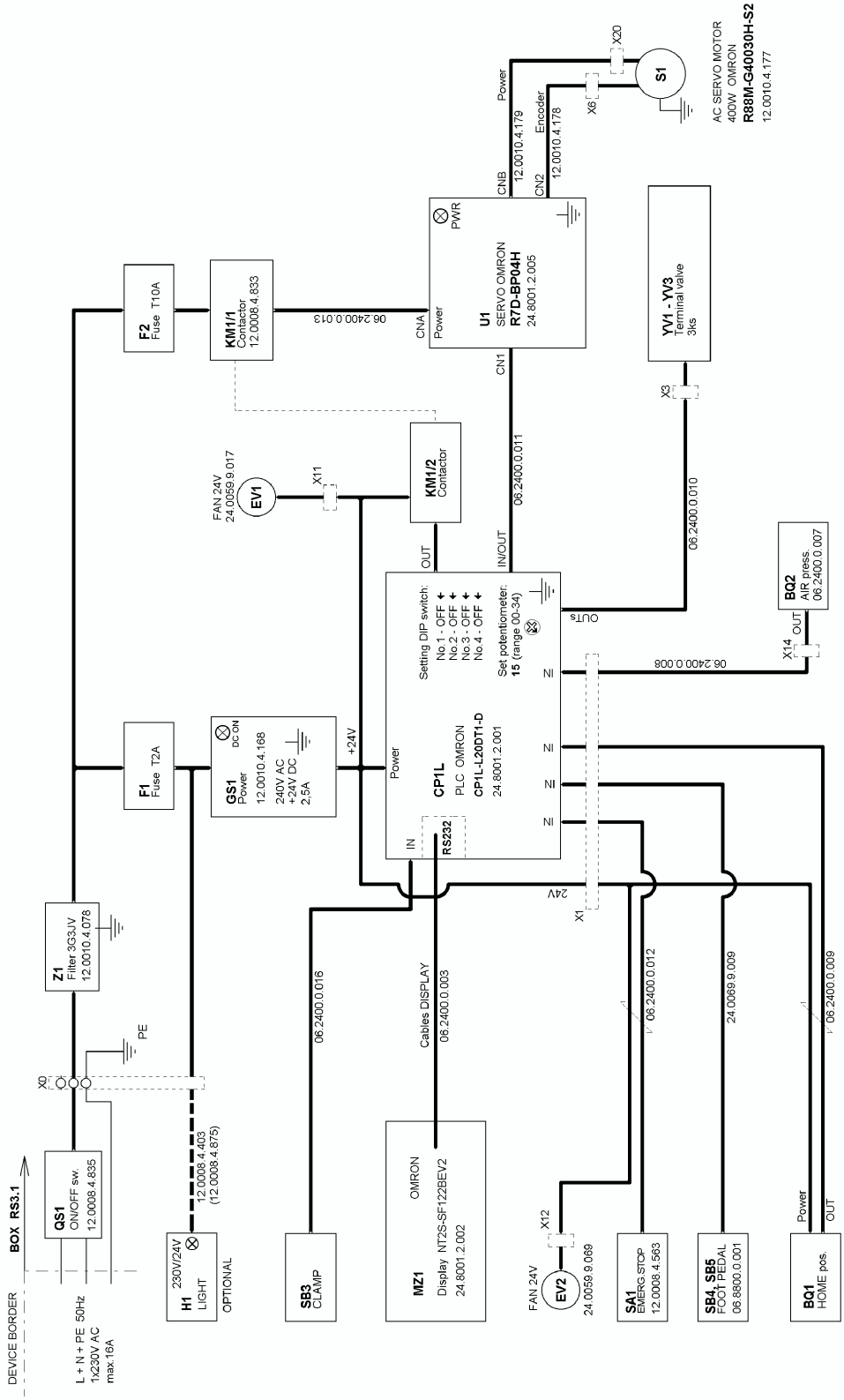

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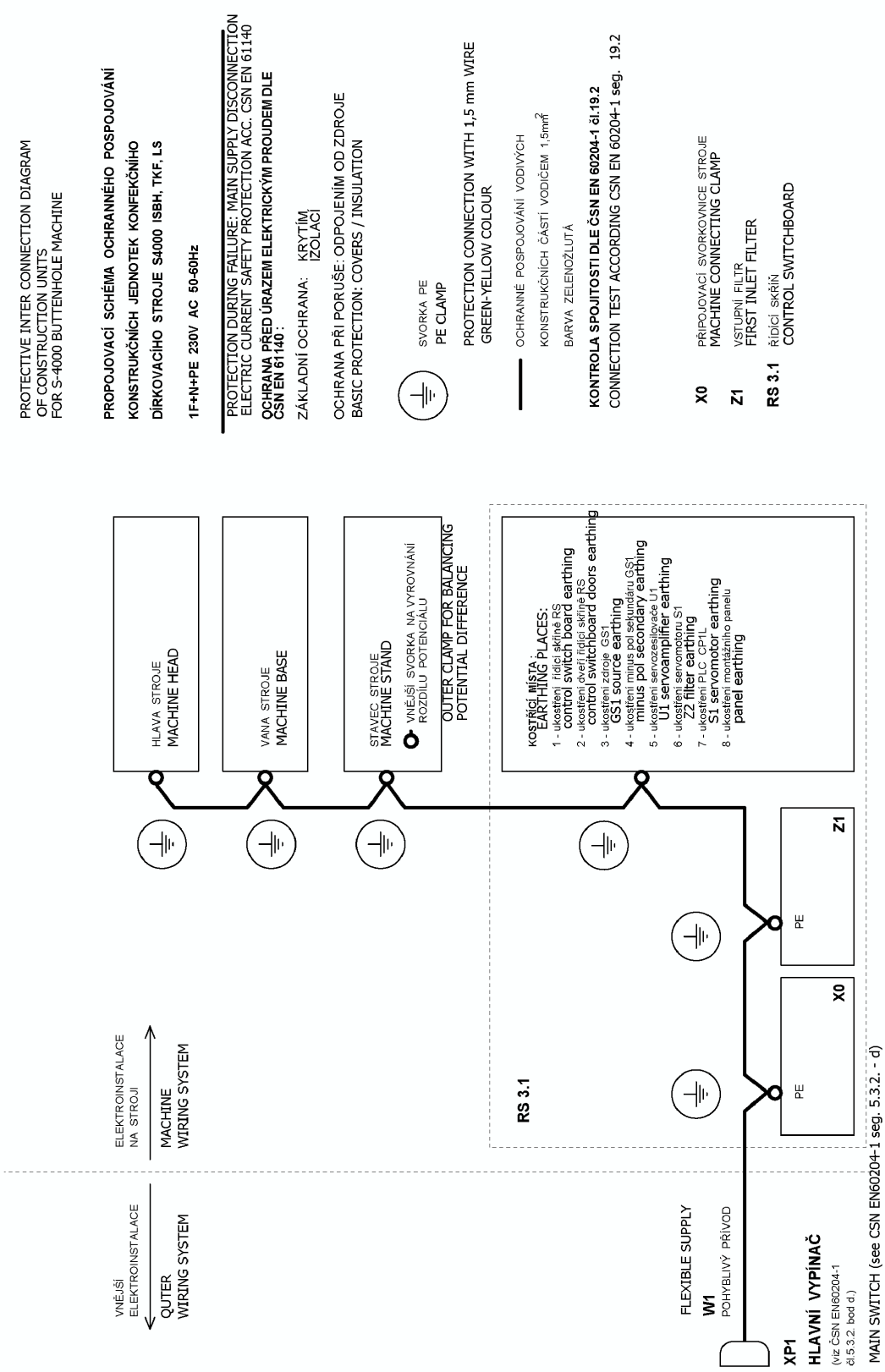

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TROUBLESHOOTING - TABLE OF CONTENTS

TROUBLESHOOTING

1. MECHANICAL FAULTS

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Thread breakage	Needle, looper, throat plate damaged	Change damaged parts
	Incorrect needle and sewing mechanism adjustment	Check the adjustment of the mechanisms
	Thread tension is too tight	Adjust correct tension
	Incorrect threading	See section C3 for checking.
	Thread guides polished incorrectly	Polish
	Poor thread quality	Replace thread
	Thread is too heavy for selected needle and throat plate	Use recommended thread sizes - see section A4
Machine fails to sew (missing stitches appear)	Needle, looper, throat plate damaged	Change damaged parts
	Incorrectly adjusted needle bar height	See section E4 for checking
	Incorrectly adjusted clearance between needle and throat plate	See section E5 for checking
	Incorrect loopers timing	See section E9 for checking
Machine sews in one spot	Incorrectly adjusted the home position of the clamp plate	Adjust the stop - see section E10

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TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Stitch skip at the beginning of sewing	Needle, looper, throat plate damaged	Change damaged parts
	Needle thread end is too short	See section E14, point 2
	Incorrectly adjusted needle bar height	See section E4
	Incorrectly adjusted clearance between needle and throat plate	See section E5
	Incorrect loopers timing	See section E9
	Incorrectly adjusted clamp feet pressure	See section E 14, point 3
	Incorrectly adjusted the home position of the clamp plate	See section E10
Stitch skip during sewing	Needle, looper, throat plate damaged	Change damaged parts
	Incorrectly adjusted needle bar height	See section E4
	Incorrectly adjusted clearance between needle and throat plate	See section E5
	Incorrect loopers timing	See section E9
	Incorrect thread tension adjustment	Adjust the tension correctly
	Incorrect threading	See section C3
	Thread loops are too small	See section E14 point 3
	Incorrectly adjusted clamp feet pressure	See section E14 point 3
	The clamp feet are adjusted too far from the sewing	See section E13 point 2

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TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Thread not trimmed at the end of the cycle	Trimming knife damaged	Replace the knife
	Low air pressure at trimming cylinder	Check supply pressure
	Flow control valve to tension cylinder closed	See section E15 point 3
	Incorrect loopers timing	See section E9
	Incorrect setting of trimming delay	Change Trim dly parameter - D4
	Trimming length incorrectly set	Change Trim tim parameter - D4
Sewing motor turns, machine does not sew	Belt broken or loose	See section E19 for changing
Machine sews continually, does not stop	Stopping sensor adjusted incorrectly	See section E18 for correct position adjustment
Zero pressure on regulator	Shut off valve closed	Open the shut off valve
Low air pressure	Filter element dirty	Clean the filter element
	Air fitting or tubing obstruction	Check supply guides
Noise heard from deflate screw	Deflate screw is loose	Tighten or replace

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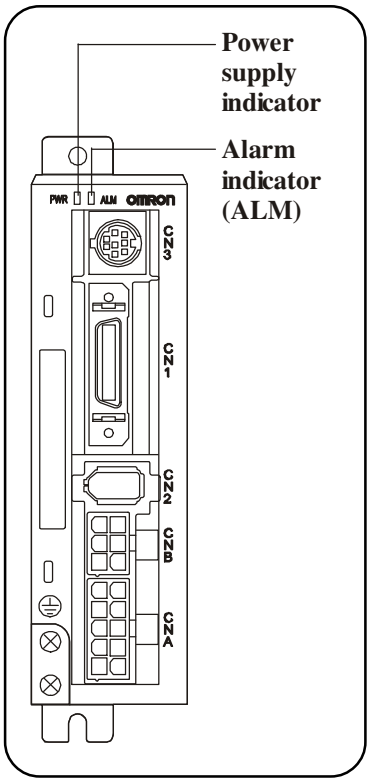
TROUBLESHOOTING

2. ERROR MESSAGES OF THE CONTROL PANEL DISPLAY

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Low air pressure	Hand valve of the regulator switched off	Open the hand valve
	The air pressure in the air supply piping below 0.5 MPa	Increase the air pressure
Emergency stop, red LED light is ON	Emergency Stop button is switched on	Release the Emergency Stop button and press F6 key on the control panel
Service mode	The machine is in the operation mode, motor is disconnected	Press F6 key on the control panel
Low voltage	The power supply is below 185V - relay HRN-35 is installed	Call electroengineer in a plant
Motor isn‘t ready	The power supply is below 185V - relay HRN-35 is not installed	Call electroengineer in a plant

3. ERROR MESSAGES OF THE SERVO

The following messages can be seen on the servo display, which is placed inside the control box. In order to eliminate these messages, switch off the machine for 5 minutes. Then switch the machine on again. The error message should not appear on the display. If the message appears - call AMF Reece service.



PWR - Power supply indication:

INDICATOR	STATUS
Lit green	Voltage is good
Lit orange - Flashes at a 1 sec. intervals	Varning - i.e.: - Exceeded power - Exceeded feed back - Default of inner fan
Lit red	Alarm - default

ALM - Default indication (Alarm indicator):

in case default appears, the indicator is switched on.

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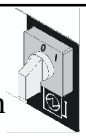
TROUBLESHOOTING

4. ELECTRICAL FAULTS

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
When switch  in position I, neither the work light, display or the cooling fan operate	No power supply	Check main power supply or voltage in the socket
	Fuse F1 failure	Replace fuse PN 12.0008.4.665
	Power switch QS1 damaged	Replace the switch 12.0008.4.835
	Power GS1 failure	Replace the power 12.0010.4.168
	The supply voltage is above 255 V - relay VC1 installed	Call electroengineer in the plant
	Relay VC1 failure	Replace the relay 12.0008.4.690
When switch  in position I, display does not operate	Cable from the display disconnected	Check the display connection
	Display or its control damaged	Replace display PN 24.8001.2.002
When sewing operation started, motor does not operate. Contactor KM1 switched on.	Fuse F2 damaged	Replace fuse 12.0008.4.664
	Contactor KM1 damaged	Replace contactor 12.0008.4.833
	Servo U1 error or filter Z2 error	Call AMF Reece service or replace servo U1
	Error in sewing motor circuit	Switch the machine off for 1 minute, or restart it, alternatively call AMF Reece service
When the machine is switched on, incorrect type of the machine appear on the display (example: S4000 BH instead of S4000 ISBH, TKF, LS)	The PLC incorrectly set	Set the potenciometer on the PLC according to the electrical diagram - see service section, section H)

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
When sewing operation started, motor fails to operate. Contactor KM1 switched off.	Make sure the machine is ready for operation	Press key F6 - see D1, point 6
	Contactor KM1 damaged	Replace contactor 12.0008.4.833
	Check the Emergency Stop button	Replace button 12.0008.4.563
	Control unit PLC error	Replace the control unit PLC 24.8001.2.001
The needle does not stop in the upper position	Position of the sensor BQ1 incorrectly adjusted	Adjust according to section E18
	Sensor BQ1 failure	Replace the sensor 06.2400.0.009
	Check the servo amplifier and servo	To set the servo amplifier - call AMF Reece service, alternatively replace 12.0010.4.177 and 24.8001.2.005
When sewing operation started, air valves do no operate. The air pressure correct.	Fork is not fitted properly into connector X3	Check the connector X3 connection
	Control unit PLC error	Replace the control unit 24.8001.2.001

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